Mitigated Negative Declaration

Woodle Prezone No. 2017-2

March 2019

Prepared by

EMC Planning Group

MITIGATED NEGATIVE DECLARATION

WOODLE PREZONE NO. 2017-2

PREPARED FOR

City of Hollister

375 Fifth Street

Hollister, CA 95023

Tel 831.636.4360

PREPARED BY

EMC Planning Group Inc.

301 Lighthouse Avenue, Suite C

Monterey, CA 93940

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March 2019

Mitigated Negative Declaration

A notice, pursuant to the California Environmental Quality Act of 1970, as amended (Public Resources Code 21000, et sec.) that the following project will not have a significant effect on the environment.

Lead Agency City of Hollister	**SCH #** TBD	
File Number	**APN(s)**	**Date**
Prezone No. 2017-2	019-120-005	March 2019
Project Name	**Project Type**	
Woodle Prezone No. 2017-2	Prezone	
Owner	**Proponent**	
Alan and Lorraine Woodle	Hugh Bikle	

Project Location

The 9.43-acre project site, consisting of 9.102 acres of the Woodle property and 0.323 acres of Westside Road, is located at 1070 Buena Vista Road in unincorporated San Benito County, within the City of Hollister's sphere of influence, and immediately north of the Hollister city limit.

Project Description

The applicant is requesting prezone of the project site to Medium Density Residential (R3) for annexation into the corporate limits of Hollister. The Medium Density Residential Performance Overlay Zone District (R3 M/PZ) is consistent with the project site's general plan designation of Medium Density Residential (MDR), which allows eight to twelve units per net acre, for a maximum 109 residential units. The proposed project does not include a development plan for the project site. Therefore, the initial study addresses environmental impacts of future development of 109 single-family homes on 9.102 acres of the project site.

Address Where Written Comments May Be Sent

Written comments concerning the Mitigated Negative Declaration should be received by 5:00 p.m. on April 22, 2019. Please address comments or questions to:

City of Hollister, Development Services Department
c/o: Eva Kelly, Assistant Planner
375 Fifth Street
Hollister, CA 95023
(831) 636-4360 ph, (831) 634-4913 fax

eva.kelly@hollister.ca.gov

Public Review Period	Begins: March 22, 2019	Ends: April 22, 2019

Proposed Findings

Based upon substantial evidence in the record that, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case since mitigation measures have been added to the project to reduce impacts to a less than significant level.

This finding is based on the following considerations

The attached initial study indicates that the proposed project has the potential to result in significant adverse environmental impacts. However, the mitigation measures identified in the attached initial study would reduce the impacts to a less than significant level, and have been agreed to by the applicant.

There is no substantial evidence, in light of the whole record before the lead agency (the City of

Hollister), that the project, with mitigation measures incorporated, may have a significant effect on the environment. See the following project-specific mitigation measures:

MITIGATION MEASURES

Air Quality

AQ-1. To reduce dust emissions from demolition, grading, and construction activities on the project site, the following language shall be included in all grading and construction plans for the project prior to issuance of demolition or grading permits:

Dust control measures shall be employed to reduce visible dust leaving the project site. The following measures or equally effective substitute measures shall be used:

a. Use recycled water to add moisture to the areas of disturbed soils twice a day, every day, to prevent visible dust from being blown by the wind;
b. Apply chemical soil stabilizers or dust suppressants on disturbed soils that will not be actively graded for a period of four or more consecutive days;
c. Apply non-toxic binders and/or hydro seed disturbed soils where grading is completed, but on which more than four days will pass prior to paving, foundation construction, or placement of other permanent cover;
d. Cover or otherwise stabilize stockpiles that will not be actively used for a period of four or more consecutive days, or water at least twice daily as necessary to prevent visible dust leaving the site, using raw or recycled water when feasible;
e. Maintain at least two feet of freeboard and cover all trucks hauling dirt, sand, or loose materials;
f. Install wheel washers at all construction site exit points, and sweep streets if visible soil material is carried onto paved surfaces;
g. Stop grading, and earth moving if winds exceed 15 miles per hour;
h. Pave roads, driveways, and parking areas at the earliest point feasible within the construction schedule;
i. Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours of receiving the complaint. The phone number of the Monterey Bay Air Resources District shall also be visible to ensure compliance with Rule 402 (Nuisance); and
j. Limit the area under construction at any one time.

AQ-2. The developer shall prepare a Construction Staging Management Plan to be reviewed and approved by the City, prior to issuance of grading or demolition permits. The plan shall include the following restrictions:

a. Heavy-duty diesel trucks (gross vehicle weight rating over 26,000 pounds), older than 2010 model year and not retrofit for reduced particulate emissions, shall not be staged within 500 feet of nearest sensitive receptors; and
b. Construction equipment and heavy duty diesel trucks shall not idle in excess of five minutes.

AQ-3. The following language shall be included in all construction documents, subject to review and approval by City staff, prior to issuance of grading or demolition permits: “All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications and shall be checked by a certified visible emissions evaluator. All non-road diesel construction equipment shall, at a minimum, meet Tier 3 emission standards listed in the Code of Federal Regulations Title 40, Part 89, Subpart B, §89.112.”

Biological Resources

BIO-1. A qualified consulting biologist will conduct preconstruction surveys following the guidance documented in the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (US Fish & Wildlife Service and California Department of Fish and Game, 10/2003) for California tiger salamander no more than two weeks (14 days) prior to the start of construction activities. The project site will be surveyed for potential upland activity.

If California tiger salamander is found, City staff will coordinate with the USFWS and/or CDFW to determine the appropriate course of action per the requirements of FESA and/or CESA (e.g., obtaining Incidental Take Permits) and implement the permit requirements prior to ground disturbance.

BIO-2. Before construction activities begin, the qualified biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of California tiger salamander habitat, general measures that are being implemented to conserve the species as they relate to the project, and the boundaries within which the project occurs. Informational handouts with photographs clearly illustrating the species' appearance will be used in the training session. All new construction personnel will undergo this mandatory environmental awareness training.

The qualified biologist will train biological monitors selected from the construction crew by the construction contractor (typically the project foreman). Before the start of work each day, the monitor will check for animals under any equipment such as vehicles and stored pipes within active construction zones. The monitor will also check all excavated steep-walled holes or trenches greater than one foot deep for trapped animals. If a California tiger salamander is observed within an active construction zone, the qualified biologist will be notified immediately and all work within 100 feet of the individual will be halted and all equipment turned off until the individual has left the construction area.

BIO-3. The qualified biologist will conduct construction monitoring during initial clearing and ground disturbance activities. The qualified biologist will have the authority to halt construction work at any time to prevent harm to California tiger salamander when any protection measures have failed. Work will commence only when authorized by the qualified biologist. If work is stopped due to potential harm to California tiger salamander, the qualified biologist will contact the USFWS and/or CDFW by telephone or email on the same day. City staff will coordinate with the USFWS and/or CDFW to determine the appropriate course of action per the requirements of FESA and/or CESA (e.g., obtaining Incidental Take Permits) and implement the permit requirements prior restarting ground disturbance activities.

BIO-4. To avoid/minimize impacts to burrowing owls potentially occurring on or adjacent to the project site, the project proponent shall retain a qualified City of Hollister-approved consulting biologist to conduct a two-visit (i.e. morning and evening) presence/absence survey at areas of suitable habitat on and adjacent to the project site no less than 14 days prior to the start of construction or ground disturbance activities. Surveys shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If these pre-construction "take avoidance" surveys performed during the breeding season (February through August) or the non-breeding season (September through January) locate occupied burrows in or near construction areas, consultation with the CDFW shall occur to interpret survey results and develop a project-specific avoidance and minimization approach.

The project proponent shall be responsible for the implementation of this mitigation measure. Implementation of this mitigation measure would reduce the potential impact by requiring pre-construction surveys for burrowing owl, and consultation with the CDFW to protect individual burrowing owls if they are present on or adjacent to the project site.

BIO-5. Prior to construction activities, the project proponent shall retain a qualified biologist to conduct a focused survey for bats and potential roosting sites in trees within 250 feet of the development footprint. These surveys shall be conducted no more than 15 days prior to the start of construction. The surveys can be conducted by visual identification and assumptions can be made on what species is present due to observed visual characteristics along with habitat use, or the bats can be identified to the species level with the use of a bat echolocation detector such as an "Anabat" unit.

If no roosting sites or bats are found, a letter report confirming absence shall be sent to the City of Hollister and no further mitigation is required.

If bats or roosting sites are found, a letter report and supplemental documents shall be provided to the City of Hollister prior to grading permit issuance and the following protection measure shall be implemented:

a. A 50-foot buffer will be established around roosting sites near the work area. Construction proposed adjacent to roosts will not occur within the buffer area until bats have left the area.

BIO-6. To avoid impacts to nesting birds, construction activities that include grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January through September) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction survey for nesting birds to ensure that no nests would be disturbed during project construction.

If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.

If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. If pre-construction nesting bird surveys are necessary, based upon the requirements of this mitigation measure, then a survey report shall be prepared prior to commencement of construction activities.

The developer of the project shall be responsible for implementation of this mitigation measure.

Cultural Resources

CR-1. If and when the existing structures on the project site are proposed for demolition, the applicant shall retain a qualified historian to evaluate the historical significance of the structures. If the structures are not considered historically significant according to the California Environmental Quality Act, no further evaluation would be necessary.

If the structures are considered historically significant accord to the California Environmental Quality Act, the structures shall be thoroughly documented, preserved and interpreted, as determined to be appropriate by a qualified historian. If it is not feasible to preserve the structures, and it is determined that the loss of the structures is significant and unavoidable, the city shall prepare an environmental impact report to include an evaluation of the structures and make the appropriate findings associated with demolition of the structures.

CR-2. Due to the possibility that significant buried cultural resources might be found during construction, the following language will be included on all construction documents and on any permits issued for the project site, including, but not limited to, grading and building permits associated with future development of the project site:

"If archaeological resources or paleontological resources are unexpectedly discovered during construction, work shall be halted immediately within 50 meters (160 feet) of the find, and the Planning Department notified, until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, an appropriate resource recovery shall be formulated, with the concurrence of the City of Hollister, and implemented, in compliance with municipal code section 17.16.0303."

CR-3. Due to the possibility that human remains may be discovered during future construction activities, the following language shall be included in all construction documents and on any permits issued for the project site, including, but not limited to, grading and building permits associated with future development of the project site:

"If human remains are found during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner is contacted to determine that no investigation of the cause of death is required.

If the coroner determines the remains to be Native American, then the coroner shall contact the Native

American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The MLD may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in Public Resources Code Section 5097.98.

The landowner or authorized representative will rebury the Native American human remains and associated grave goods with appropriate dignity on the project site in a location not subject to further disturbance if: a) the Native American Heritage Commission is unable to identify a MLD or the MLD failed to make a recommendation within 48 hours after being ~~notified by the commission~~ allowed access to the site; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner."

Geology and Soils

GEO-1 Prior to approval of subdivision of the site, the project applicant shall have a site-specific soils report prepared by a state registered civil engineer.

Should the soils report indicates the presence of critically expansive soils or other soils problems which, if not corrected, would lead to structural defects, the project applicant shall have a soils investigation of each lot in the subdivision prepared by a state registered civil engineer consistent with section 16.28.030 of the city's municipal code and in compliance with all applicable state and local code requirements, that includes:

a. Analysis of potential liquefaction hazards using accepted methodologies, confirmed by borings and excavations as required;
b. Site specific engineering requirements for mitigation of any liquefiable soils, using proven methods, generally accepted by registered engineers, such as subsurface soil improvement, deep foundations extending below the liquefiable layers, structural slabs designed to span across areas of non-support, soil cover sufficiently thick over liquefaction soil to bridge liquefaction zones, dynamic compaction, compaction grouting, jet grouting, and other mitigation for liquefaction hazards suggested in the Guidelines for Evaluating and Mitigating Seismic Hazards In California (California Geological Survey 2008);
c. Review of recommended measures to ensure compliance with California Geological Survey guidelines related to protection of public safety from liquefaction; and
d. Determination of the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.

All recommended corrective action which is likely to prevent structural damage to structures shall be incorporated into final construction plans of each structure.

GEO-2. Prior to any approval of subdivision on the project site, the project developer shall have a site-specific geologic report prepared by a state registered civil engineer, in compliance with all applicable state and local code requirements, that includes:

a. Analysis of the expected ground motions at the site from known active faults using accepted methodologies;
b. Analysis of potential fault rupture and landslide hazards using accepted methodologies, confirmed by borings and excavations as required;
c. Site specific engineering requirements for mitigation of any identified risks of fault rupture or landslides, using proven methods, generally accepted by registered engineers, such as mitigation for landslide hazards suggested in the Guidelines for Evaluating and Mitigating Seismic Hazards In California (California Geological Survey 2008) to reduce risks of fault rupture and landslides to an insignificant level;
d. Review of recommended measures to ensure compliance with California Geological Survey guidelines related to protection of public safety from landslide hazards and fault rupture;
e. Structural design requirements as prescribed by the most current version of the California Building Code, to ensure that structures can withstand ground accelerations expected from known active faults; and

f. Determination of the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.

Such report shall specify the remedial measures, if any are necessary, that will make the subdivision safe for development. Project construction plans shall incorporate all report mitigations, and the project structural engineer and geotechnical consultant shall certify that the construction plans for the site incorporate all applicable mitigations from the investigation and meet current California Uniform Building Code requirements. The City Building Official shall review all project plans for the relevant permits to ensure compliance with the applicable geotechnical investigation and other applicable Code requirements.

GEO-3. Prior to issuance of a grading permit, the developer shall prepare and implement an erosion control plan for development of the project site, in compliance with city's general plan policies NRC 2.4(3) and CSF 3.2 and city's municipal code sections 15.24.210 and 16.24.070(B), subject to review and approval by the city. The plan shall include, but not be limited to the following measures:

a. The construction sites shall be designed to prevent migration of soil fines. The contractor must plan the dewatering and excavation activities so that stable and dry excavations are maintained throughout construction.
b. All development should be sited and designed to conform to site topography and minimize grading and other site preparation activities, to the maximum extent possible.
c. All disturbed surfaces (including soils stockpiled temporarily) resulting from grading operations shall be prepared and maintained to control erosion. This control shall consist of measures to provide temporary cover to help control erosion during construction and permanent vegetative cover to stabilize the site after construction has been completed. The seeded areas shall be maintained and irrigated as needed to adequately establish vegetative cover.
d. The following provisions shall apply during the wet season between October 15 and April 15:
    1. All necessary erosion control equipment shall be installed or shall be available for immediate installation when needed due to rainy conditions (i.e. silt fences, hay bales, jute netting, etc.).
    2. Disturbed surfaces not involved in the immediate operations must be protected by mulching and/or other effective means of soil protection. Soils temporarily stockpiled shall be covered with tarp and secured adequately.
    3. Runoff from the site shall be detained or filtered by berms, vegetated filter strips, and/or catch basins to prevent the escape of sediment from the site. These drainage controls must be maintained by the owner and/or contractor as necessary to achieve their purpose through the duration of the construction period. No sediment shall be allowed to enter the San Benito River.
    4. Erosion control measures shall be in place at the end of each day's work.
    5. A mitigation monitor designated by the city shall stop operations during periods of inclement weather if it is determined that erosion problems are not being controlled adequately.
e. Final grades should be provided with positive gradient away from the building in order to provide removal of the surface water from the foundation to adequate discharge points. Sheet flow of building, parking, walkway, and deck runoff to surrounding heavily vegetated areas is preferred. Directly piped storm drainage to San Benito River shall be prohibited. Concentrations of surface water runoff should be handled by providing necessary structures, such as energy dissipation at outlets and catch basins, berms and vegetated filter strips as appropriate.

Greenhouse Gas Emissions

GHG-1. To ensure project GHG emissions are below the threshold of significance of 4.25 MT CO_2e per year, a minimum reduction of 0.48 MT CO_2e per year shall be achieved through implementing one or more of the following options: incorporating on-site GHG reduction measures into the project, participating in an off-site GHG reduction program, and/or purchasing GHG off-sets.

Potentially feasible on-site GHG reduction measures could include, but may not be limited to:

a. Design buildings to exceed Title 24 energy efficiency standards by at least five percent. The 2019

Building Energy Efficiency Standards are assumed to be the applicable standards;

b. Exceed higher than mandated parking lot and area energy efficient lighting standards;

c. Include the necessary infrastructure in the project design (e.g. physical design, energy, and fueling) to support the deployment of zero emission technologies now and into the future, including electric vehicle charging stations for passenger cars and for zero emission battery electric and hybrid electric passenger vehicles; and/or

d. Incorporate low flow irrigation that exceeds requirements of the state Water Efficient Landscape Ordinance.

If these or additional on-site measures are utilized, the project developer shall prepare a Greenhouse Gas Reduction Plan. The Greenhouse Gas Reduction Plan shall identify the proposed reduction measures, GHG emissions reductions volumes associated with each, and evidence to support the level of reduction calculated for each. The Greenhouse Gas Reduction Plan shall be subject to review and approval of city staff prior to approval of a grading permit.

If the project developer chooses to participate in an off-site GHG reduction project or program to reduce GHG emissions, evidence of such participation shall be provided to the City of Hollister by the agency/interest that is implementing the project or program. Evidence shall describe how the developer is participating, the expected GHG reduction volume that can be assigned to the developer as a result of the developer's participation, and verification that the developer has met participation requirements. The evidence shall be subject to review and approval of city staff prior to issuance of a grading permit.

If the project developer chooses to purchase carbon off-sets to reduce GHG emissions, the project developer shall provide evidence to the City of Hollister that a contract for such purchase has been executed through a credible carbon off-set registry such as the Climate Action Reserve, certified carbon off-set project developer, or a broker. The evidence shall be subject to review and approval of city staff prior to issuance of a grading permit.

Hazards and Hazardous Materials

HAZ-1. Prior to issuance of grading permits, the developer shall prepare a site specific Phase I Environmental Site Assessment. If hazardous site conditions are identified that require preparation of a Phase II Environmental Site Assessment, the project developer shall be responsible for conducting the assessment and for implementing all recommendations and requirements for remediation of residual soil conditions, if present, identified therein. Proof of completed remediation activities shall be provided to the city prior to approval of a grading permit.

Hydrology and Water Quality

HYD-1. The developer shall include a hydrodynamic vortex separator, which will capture trash prior to entering overflow or bio-retention facilities, on the tentative subdivision map, and final map and improvement plans.

HYD-2. Prior to approval of a tentative map, the applicant shall prepare a drainage plan that complies with the City of Hollister Best Management Practices and standards established for compliance with non-point discharge emissions for storm water. The drainage plan shall incorporate Low Impact Development strategies and Best Management Practices to reduce storm water runoff, encourage infiltration, and reduce pollutant transmission.

The drainage plan shall substantially detain storm water runoff on the project site with a combination of methods including onsite detention facilities, reduction of impervious surfaces, vegetated swales, permeable paving, landscaping and other strategies.

Noise

N-1. The developer shall prepare an acoustical analysis when layout of the development is determined. The acoustical analysis shall determine potential impacts to the proposed homes from the surrounding noise environment, potential impacts to neighboring uses due to proposed residential use, and recommendations for reducing potential noise impacts within acceptable levels. The acoustical analysis shall be completed and appropriate mitigation adopted prior to approval of a subdivision map.

N-2. The following measures shall be incorporated into construction documents to reduce construction-related noise:

a. Construction activities shall be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. Construction activities shall be prohibited on Sundays and federally recognized holidays;

b. Locate construction equipment and equipment staging areas at the furthest distance possible from nearby noise-sensitive land uses;

c. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds should be closed during equipment operation;

d. When not in use, all construction equipment shall be turned off and shall not be allowed to idle; and

e. A noise disturbance coordinator shall be designated to handle complaints and the site shall be posted with a phone number and email address so that the nearby residents have a contact person in case of a noise problem.

Transportation and Traffic

T-1. The developer shall pay the applicable San Benito County Regional Transportation Impact Mitigation Fee prior to scheduling a final inspection and issuance of an occupancy permit.

T-2. One of the following mitigation measures would mitigate the project's cumulative impact at the San Felipe Road/San Benito Street and North Street/Santa Ana Road intersection:

a. The City will include the required intersection improvements in the San Benito County Regional Transportation Impact Mitigation Fee (TIMF) program, and the developer shall pay the applicable TIMF fee as a fair-share contribution toward the above improvements prior to the issuance of building permits.

b. The developer will improve the intersection with installation of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal.

During the public review period, the California Department of Transportation indicated in their comment letter that their preferred mitigation measure is option a. The Monterey Bay Air Resources District requests the installation of real-time adaptive traffic signal controls systems if the intersection remains signalized. The air district also indicated where feasible, roundabouts should be considered as alternatives to signalized intersections.

Note: A reporting or monitoring program must be adopted for measures to mitigate significant impacts at the time the Negative Declaration is approved, in accord with the requirements of section 21081.6 of the Public Resources Code.

INITIAL STUDY

WOODLE PREZONE NO. 2017-2

PREPARED FOR

City of Hollister

375 Fifth Street

Hollister, CA 95023

Tel 831.636.4360

PREPARED BY

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March 2019

TABLE OF CONTENTS

Appendices (on CD inside back cover)

Figures

Tables

A. Background

Project Title	Woodle Prezone No. 2017-2
Lead Agency Contact Person and Phone Number	City of Hollister Eva Kelly, Assistant Planner (831) 636-4360
Date Prepared	March 15, 2019
Study Prepared by	EMC Planning Group Inc. 301 Lighthouse Avenue, Suite C Monterey, CA 93940 Teri Wissler Adam, Senior Principal Tanya Kalaskar, MS, Assistant Planner Gail Bellenger, MA, Archaeologist/Biologist Janet Walther, MS, Senior Biologist
Project Location	1070 Buena Vista Road Hollister, CA 95023
Project Sponsor Name and Address	Hugh Bikle 1540 Constitution Boulevard Salinas, CA 93905
General Plan Designation	City: Medium Density Residential (MDR) County: Residential Mixed (RM)
Zoning	City (Proposed): Medium Density Residential (R3 M/PZ) County: Agricultural Productive (AP)

Setting

The 9.43-acre project site, consisting of 9.102 acres of the Woodle property and 0.323 acres of Westside Road, is located at 1070 Buena Vista Road in unincorporated San Benito County, within the City of Hollister's sphere of influence, and immediately north of the Hollister city limit. The project site is comprised of one parcel: Assessor's parcel number 019-120-005. The project site consists of a house and a muscle car fabrication shop located on the southern portion of the parcel. The rest of the project site is occupied by livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. A private dirt road runs through the project site. The project site is located north of Buena Vista Road, Calaveras Elementary School, Calaveras Park, and a residential neighborhood, and south of Westside Road and agricultural land. Orchards are located west and east of the project site.

The project site is located in unincorporated San Benito County and the project site has a *San Benito County 2035 General Plan* land use designation of Residential Mixed (RM). The entire project site is within the City of Hollister's planning area and sphere of influence, as shown on Map 1, Hollister Planning Area of the general plan. The project site has a *City of Hollister General Plan* land use designation of Medium Density Residential (MDR). The general plan identifies the project site as "priority infill area" on Map 5, Infill Development Strategy.

Figure 1, Location Map, presents the regional and vicinity location of the project site. Figure 2, Aerial Photograph, presents an aerial view of the project site and immediate surroundings. Figure 3, Site Photographs, presents photographs taken at the project site in September 2018.

Project Background

In 2015, the City of Hollister received an application for initiation of prezone for the project site for future annexation into the corporate limits within the Medium Density Residential General Plan Designation. The city's municipal code requires city council authorization to initiate prezoning and annexations. The initiation of prezone was approved by the city council on August 17, 2015 per Resolution No. 2015-157.

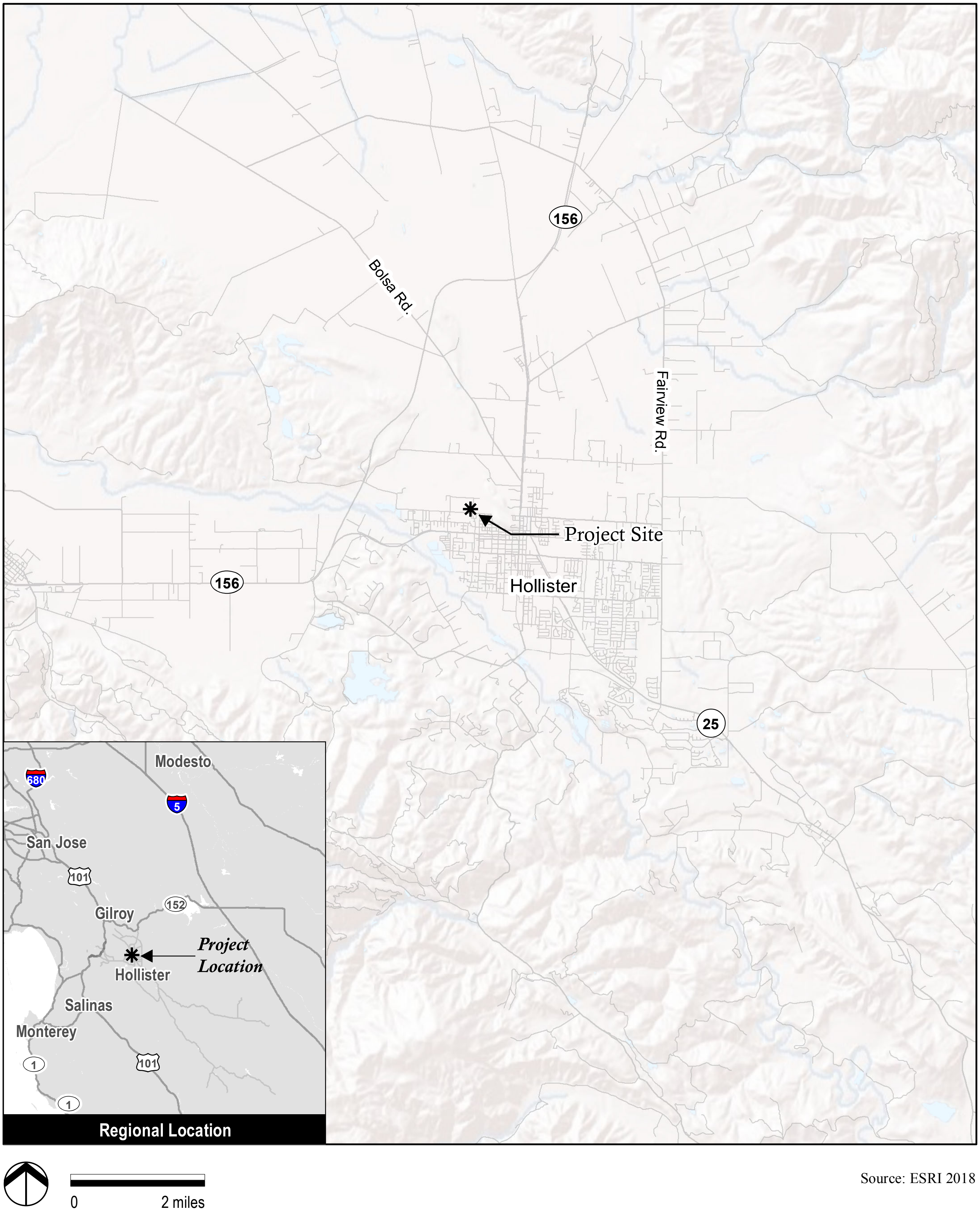
The Local Agency Formation Commission (LAFCO) of San Benito County has adopted policies for review of annexation requests to cities. LAFCO requires applicants to demonstrate that the city is capable of providing services to the territory that is proposed for prezoning and annexation. The applicant provided a plan for providing services to the project site.

Description of Project

The applicant is requesting prezone of the project site to Medium Density Residential (R3) for annexation into the corporate limits of Hollister. The Medium Density Residential Performance Overlay Zone District (R3 M/PZ) is consistent with the project site's general plan designation of Medium Density Residential (MDR), which allows eight to twelve units per net acre, for a maximum 109 residential units. The proposed project does not include a development plan for the project site. Therefore, this initial study will address environmental impacts of future development of 109 single-family homes on 9.102 acres of the project site. The applicant prepared an annexation map for the project as presented in Figure 4, Annexation Map.

The applicant's Plan for Services is included as Appendix A. The applicant also provided a Preliminary Engineer's Report, which is included as Appendix B.

The Preliminary Engineer's Report identifies possible points of location for water and wastewater infrastructure, all within the immediate vicinity of the site on Buena Vista Road.



Source: ESRI 2018

Figure 1

Location Map

E M C

Woodle Prezone No. 2017-2 Initial Study

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Source: ESRI 2018

Figure 2

Aerial Photograph

Woodle Prezone No. 2017-2 Initial Study

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1 View of the existing home on the site

2 View of the existing muscle car fabrication shop on the site

3 View of the Calaveras Park and Calaveras Elementary School

Project Site

Source: ESRI 2018

Photographs: EMC Planning Group, September 2018

4 View of the livestock on the site

5 View along the western boundary of the site

6 View south across the site from the dirt road

Figure 3

Site Photographs

E M C

Woodle Prezone No. 2017-2 Initial Study

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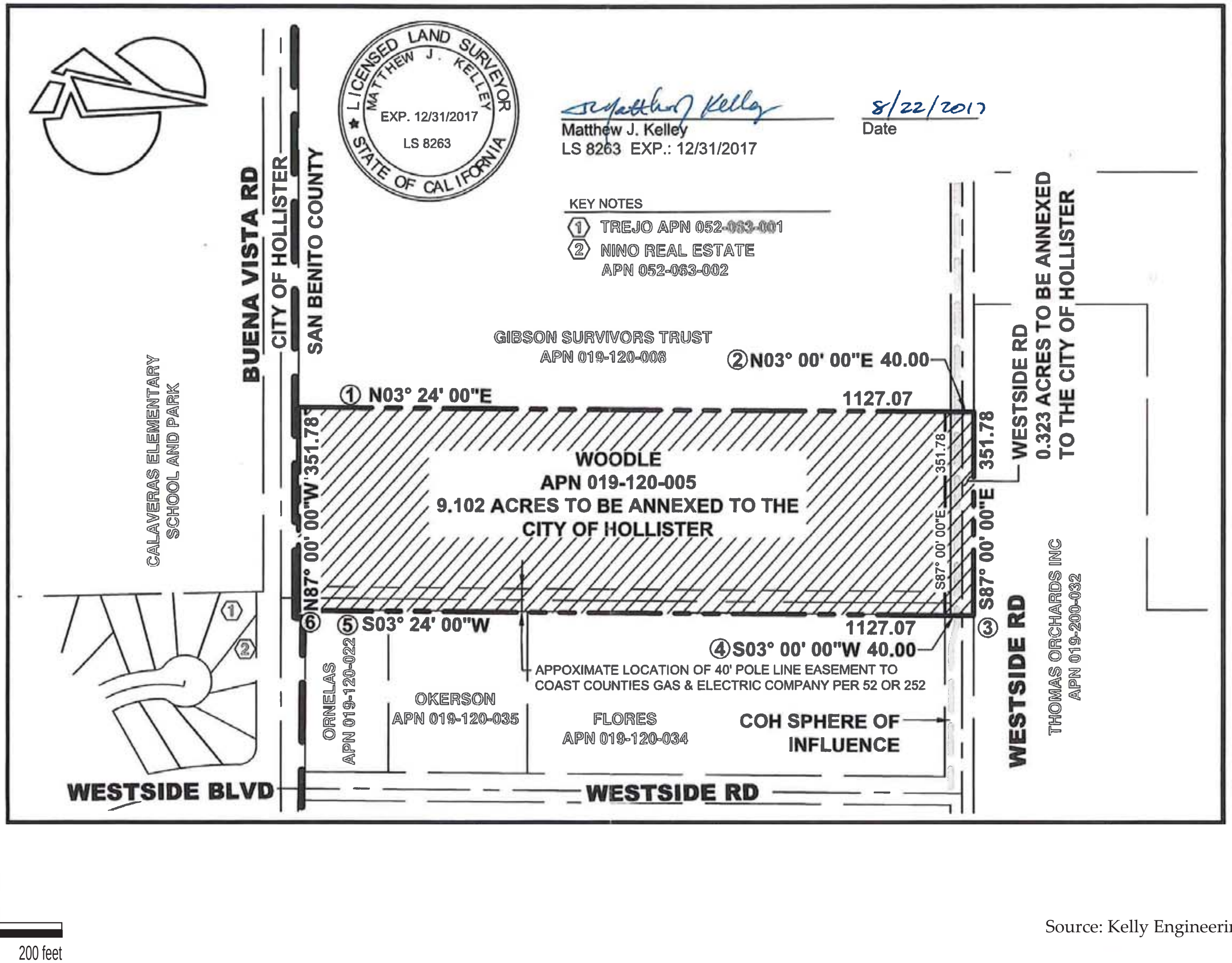

Source: Kelly Engineering and Surveying 2017

Figure 4
Annexation Map

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All improvements, both onsite and offsite are addressed in this initial study. Therefore, mitigation measures would apply to all improvements, whether onsite or offsite.

Other Public Agencies Whose Approval is Required

No other public agencies approval is required for the prezoning. Annexation of the project site requires approval by San Benito County LAFCO.

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 California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

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" as indicated by the checklist on the following pages.

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

C. 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 (1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (2) 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.

____ ___________________________

Eva Kelly, Assistant Planner Date

D. Evaluation of Environmental Impacts

Notes

1. A brief explanation is provided for all answers except "No Impact" answers that are adequately supported by the information sources cited 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 is 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 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 it has been determined that a particular physical impact may occur, then the checklist answers 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 Impact with Mitigation Measures Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The mitigation measures are described, along with a brief explanation of how they reduce the effect to a less-than-significant level (mitigation measures from section XVII, "Earlier Analyses," may be cross-referenced).
5. Earlier analyses are used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier document or negative declaration. [Section 15063(c)(3)(D)] In this case, a brief discussion would identify the following:
    a. "Earlier Analysis Used" identifies and states where such document is available for review.
    b. "Impact Adequately Addressed" identifies which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and states whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. "Mitigation Measures"—For effects that are "Less-Than-Significant Impact with Mitigation Measures Incorporated," mitigation measures are described which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances, etc.) are incorporated. Each reference to a previously prepared or outside document, where appropriate, includes a reference to the page or pages where the statement is substantiated.
7. "Supporting Information Sources"—A source list is attached, and other sources used or individuals contacted are cited in the discussion.
8. This is the format recommended in the CEQA Guidelines as amended 2016.
9. The explanation of each issue identifies:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any to reduce the impact to less than significant.

1. AESTHETICS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista? (1,2,3,4,6)	☐	☐	☒	☐
b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway? (3,4)	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings? (1,4,5,6)	☐	☐	☒	☐
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area? (1,6,7)	☐	☐	☒	☐

Comments:

a. A scenic vista is typically considered a location from which the public can experience unique and exemplary high quality views of an area. The project area and surrounding land do not contain any *City of Hollister General Plan* and *San Benito County General Plan* designated scenic vistas. The visual character of the city is defined by mountains in the background and agricultural fields in the foreground. These features are considered local scenic resources. The public views of agricultural fields and distant mountain ranges as viewed from Buena Vista Road are obscured by intervening homes and vegetation. Development of the project site with single-family homes could block views of the agricultural fields and distant mountain ranges to people driving along Buena Vista Road. The city's general plan includes the following land use and community design policies: LU1.3, 1.5, 1.9, 6.1, 7.1, 7.2, 8.3, 8.4, 9.1, 10.4, 11.1, and 11.2, and housing policies H2.1, 2.2, and 2.3 to reduce adverse impacts on scenic vistas and visual natural resources. Conformance with the development review and design review processes, as outlined in the city's general plan policies, would reduce the proposed project's impact on scenic vistas to less than significant.

b. The project site is not located in the vicinity of a state scenic highway. The project site is in the vicinity of State Route 25 and State Route 156, which are eligible state scenic highways but not officially designated (county general plan, page 8-13). Therefore, the proposed project would not damage scenic resources within a state scenic highway.

c. The project site consists of a house and a muscle car fabrication shop located on the southern portion of the parcel. The rest of the project site is occupied by livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. The defining visual feature of the project site is the house and surrounding landscape. Land uses adjacent to the project site include Calaveras Elementary School, Calaveras Park, and a residential neighborhood to the south, agricultural land to the north, and orchards to the west and east.

The project site is identified as "priority infill area" on Map 5, Infill Development Strategy of the *City of Hollister General Plan*. The project site has a *City of Hollister General Plan* land use designation of Medium Density Residential. The conversion of the project site and surrounding orchards and agricultural land to residential uses has been anticipated in the city's general plan (city general plan, map 2 land use plan). Development of the project site with single-family homes would change the existing visual character of the site but the proposed project would blend into the existing and planned residential and public uses. Additionally, the proposed project would be subject to the development review and design review processes, as outlined in the city's general plan policies. Therefore, this impact would be less than significant.

d. Development of the project site with single-family homes would increase light and glare by introducing new sources of light from the residential structures, individual lots, and neighborhood street lights. This lighting has the potential to result in light and glare impacts to the nearby existing residences, and could also detract from views of the night sky. Section 17.16.090 of the City of Hollister's municipal code regulates outdoor lighting facilities within the city and outlines types of lighting that are acceptable and/or unacceptable. The proposed project is subject to conformance with the city's municipal code. Further, the proposed project would comply with the development review and design review processes, as outlined in the city's general plan policies. Therefore, light and glare impacts associated with the proposed project would be less than significant.

2. Agriculture and Forest Resources

In determining whether impacts on agricultural resources are significant environmental effects and in assessing impacts on agriculture and farmland, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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 nonagricultural use? (8)	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract? (1,6,9,10)	☐	☐	☐	☒
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))? (9)	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use? (4,9)	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use? (1,4,5,6)	☐	☐	☐	☒

Comments:

a. The project site is identified as "Grazing Land" on the California Department of Conservation's Important Farmland Finder. Therefore, the proposed project would have no impact on important farmlands.

b. The project site is not under a Williamson Act contract. The project site has a county zoning of Agricultural Productive (AP). However, the project site is within the City of Hollister's sphere of influence and is designated as Medium Density Residential (MDR) in the city's general plan. The proposed project includes prezoning the project site Medium Density Residential (R3 M/PZ) for annexation into the corporate limits of the city. Pending prezone, development of the site with single-family homes would be consistent with applicable land use regulations. Therefore, the proposed project would not conflict with zoning for agricultural use or a Williamson Act contract.

c, d. The project site is not zoned for forestland or timberland uses. There are no forest resources on or adjacent to the project site. Therefore, there will be no impact on forestland.

e. Existing uses on the project site include a house, muscle car fabrication shop, livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. Land uses adjacent to the project site include Calaveras Elementary School, Calaveras Park, and a residential neighborhood to the south, agricultural land to the north, and orchards to the west and east. The conversion of the project site and surrounding orchards and agricultural land to residential uses has been anticipated in the city's general plan (city general plan, map 2 land use plan). The proposed project has no characteristics that would adversely affect existing agricultural production in the project site vicinity.

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan? (11,12,13,14,15)	☐	☐	☐	☒
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (6,11,16,33)	☐	☒	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)? (6,11,16,33)	☐	☒	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations? (4,6,11)	☐	☒	☐	☐
e. Create objectionable odors affecting a substantial number of people? (6)	☐	☐	☒	☐

Comments:

a. The City of Hollister, including the project site, is located in the North Central Coast Air Basin, which is under the jurisdiction of the Monterey Bay Air Resources District (hereinafter "air district"). Regional air districts must prepare air quality plans specifying how state air quality standards will be met. The air district's most recent adopted plan is *2012-2015 Air Quality Management Plan for the Monterey Bay Region* (hereinafter "air quality management plan"). The air district specifies air quality management plan consistency for population-related projects only. Population-related emissions have been estimated in the air quality management plan using population forecasts adopted by the Association of Monterey Bay Area Governments (AMBAG). Population-related projects that are consistent with these forecasts are consistent with the air quality management plan. AMBAG recently updated its regional population forecast in June 2018, but the air district has not yet updated the air quality management plan. The air district recommends using the 2018 AMBAG regional population forecast to determine a project's consistency with the air quality management plan.

The air district consistency determination spreadsheet was used to assess the proposed project's population in comparison to the AMBAG's 2018 population forecasts (using housing units as a proxy for population). The results of the evaluation are included as Appendix C. With the proposed project, the city's cumulative housing stock would be 1,207 units below AMBAG projections for the year 2025. Since the project is within the population projections, the proposed project would not conflict with or obstruct implementation of the air quality management plan.

b. An air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without significant harmful effects on people or the environment. The project site is located in the North Central Coast Air Basin (hereinafter "air basin"), which is currently in non-attainment status with state standards for ozone and suspended particulate matter particulate matter (PM_{10}). Under federal criteria, the air basin is at attainment (8-hour standard) for ozone and particulates. The air district is responsible for monitoring air quality in the air basin. The air district has developed criteria pollutant emissions thresholds, which are used to determine whether or not the proposed project would violate an air quality standard or contribute to an existing violation during operations and/or construction. Based on the air district's CEQA Air Quality Guidelines (hereinafter "air district CEQA Guidelines"), a project would have a significant air quality impact if it would:

- Emit 137 pounds per day or more of direct and indirect volatile organic compounds (VOC);
- Emit 137 pounds per day or more of direct and indirect nitrogen oxides (NO_X);
- Directly emit 550 pounds per day or more of carbon monoxide (CO);
- Emit 82 pounds per day or more of suspended particulate matter (PM_{10}) on-site and from vehicle travel on unpaved roads off-site; or
- Directly emit 150 pounds per day or more of sulfur oxides (SO_x).

Operational Impacts. The proposed project would result in new sources of mobile and area source emissions. Per air district CEQA Guidelines, Table 5-4 Indirect Sources with Potentially Significant Impacts on Ozone, the screening threshold for single-family homes is 810 dwelling units. Therefore, operation of the proposed 109 single-family homes would not likely result in significant impacts to local or regional air quality either individually or cumulatively. However, emissions modeling was undertaken to evaluate greenhouse gas emissions and the criteria air pollutant emission results from this modeling were reviewed against the air district thresholds. The model was adjusted to account for required compliance with the State thresholds for Model Water Efficient Landscape Ordinance (MWELO) and compliance with the air district's rule to limit the use of VOC-emitting solvents, paints and other coatings. The results are summarized in Table 1, Operational Criteria Pollutant Emissions (Pounds per Day). Detailed emissions modeling results are presented in Appendix D.

Table 1 Operational Criteria Pollutant Emissions (Pounds per Day)[1]

Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sulfur Oxides (SO_x)	Suspended Particulate Matter (PM_{10})	Carbon Monoxide (CO)
Summer (Unmitigated)	91.13	15.92	0.33	23.48	153.26
Winter (Unmitigated)	90.95	16.65	0.32	23.48	154.44
Summer (Regulatory Mitigations)[2]	90.81	15.92	0.33	23.48	153.26
Winter (Regulatory Mitigations)[2]	90.64	16.65	0.32	23.48	154.44
Air District Thresholds	*137*	*137*	*150*	*82*	*550*

SOURCE: EMC Planning Group 2018

NOTES:

1. Results may vary due to rounding.
2. Results assume compliance with the State thresholds for MWELO and compliance with the air district's rule to limit the use of VOC-emitting solvents, paints and other coatings.

As summarized in Table 1, the proposed project would not result in operational emissions that exceed the air district thresholds for VOC, NO_x, SO_x, PM_{10}, or CO.

Construction Impacts. Emissions produced during grading and construction activities are considered short-term as they occur only during the construction phase of the project. Construction emissions include mobile source exhaust emissions, emissions generated during the application of asphalt paving material and architectural coatings, as well as emissions of fugitive dust associated with earthmoving equipment. Worst case construction phase emissions typically occur during initial site preparation, including grading and excavation, due to the increased amount of surface disturbance that can generate dust and due to construction equipment emissions with the use of heavier equipment used at this phase.

Air district CEQA Guidelines Table 5-2, Construction Activity with Potentially Significant Impacts, identifies the level of construction activity that could result in significant temporary fugitive dust impacts if not mitigated. Construction activities with grading and excavation that disturb more than 2.2 acres per day and construction activities with minimal earthmoving that disturb more than 8.1 acres per day are assumed to be above the 82 pounds of particulate matter per day threshold of significance. Construction activities on the 9.102 acres of the project site are likely to result in soil disturbance that exceeds the air district's thresholds of 2.2 acres per day and 8.1 acres per day, resulting in a significant impact on air quality. Implementation of the following mitigation measure would reduce this impact to less than significant.

Mitigation Measure

AQ-1 To reduce dust emissions from demolition, grading, and construction activities on the project site, the following language shall be included in all grading and construction plans for the project prior to issuance of demolition or grading permits:

Dust control measures shall be employed to reduce visible dust leaving the project site. The following measures or equally effective substitute measures shall be used:

a. Use recycled water to add moisture to the areas of disturbed soils twice a day, every day, to prevent visible dust from being blown by the wind;

b. Apply chemical soil stabilizers or dust suppressants on disturbed soils that will not be actively graded for a period of four or more consecutive days;

c. Apply non-toxic binders and/or hydro seed disturbed soils where grading is completed, but on which more than four days will pass prior to paving, foundation construction, or placement of other permanent cover;

d. Cover or otherwise stabilize stockpiles that will not be actively used for a period of four or more consecutive days, or water at least twice daily as necessary to prevent visible dust leaving the site, using raw or recycled water when feasible;

e. Maintain at least two feet of freeboard and cover all trucks hauling dirt, sand, or loose materials;

f. Install wheel washers at all construction site exit points, and sweep streets if visible soil material is carried onto paved surfaces;

g. Stop grading, and earth moving if winds exceed 15 miles per hour;

h. Pave roads, driveways, and parking areas at the earliest point feasible within the construction schedule;

i. Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours of receiving the complaint. The phone number of the Monterey Bay Air Resources District shall also be visible to ensure compliance with Rule 402 (Nuisance); and

j. Limit the area under construction at any one time.

c. The air district is responsible for monitoring air quality in the North Central Coast Air Basin, which is designated, under state criteria, as a nonattainment area for ozone and inhalable particulate matter (PM_{10}). Under federal criteria, the air basin is at attainment (8-hour standard) for ozone and at attainment for particulates. New emissions would be generated by the proposed project during the operational and constructional phases.

Emissions generated during operation of the proposed 109 single-family homes would not exceed the air district's thresholds for operational criteria pollutants (see "b" above), and would not be cumulatively considerable.

Emissions generated during construction activities are short-term because they would be limited to the periods of site development and construction. Construction emissions could exceed thresholds for particulate matter, and therefore, could be cumulatively considerable. Implementation of Mitigation Measure AQ-1 (see "b" above) would reduce construction emissions to less than significant.

Therefore, the cumulatively considerable impact of the proposed project would be less-than-significant with mitigation.

d. According to the air district CEQA Guidelines, a sensitive receptor is generally defined as any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. The nearest sensitive receptors are homes, located approximately 105 feet southeast of the project site and the Calaveras Elementary School, located approximately 110 feet southwest of the project site.

Operation of the proposed project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels, because no significant operational sources of pollutants are proposed onsite. Construction activities would result in localized emissions of dust and diesel exhaust that could result in temporary impacts to adjacent land uses that include sensitive receptors. The short-term air quality effects related to dust emissions during project construction would be avoided with implementation of the Mitigation Measure AQ-1 under checklist item "b" above. However, the diesel construction equipment required for the proposed project could expose these sensitive receptors to toxic air contaminants from heavy equipment diesel exhaust. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measures

AQ-2 The developer shall prepare a Construction Staging Management Plan to be reviewed and approved by the City, prior to issuance of grading or demolition permits. The plan shall include the following restrictions:

a. Heavy-duty diesel trucks (gross vehicle weight rating over 26,000 pounds), older than 2010 model year and not retrofit for reduced particulate emissions, shall not be staged within 500 feet of nearest sensitive receptors; and

b. Construction equipment and heavy duty diesel trucks shall not idle in excess of five minutes.

AQ-3 The following language shall be included in all construction documents, subject to review and approval by City staff, prior to issuance of grading or demolition permits: "All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications and shall be checked by a certified visible emissions evaluator. All non-road diesel construction equipment shall, at a minimum, meet Tier 3 emission standards listed in the Code of Federal Regulations Title 40, Part 89, Subpart B, §89.112."

e. The proposed residential development is not anticipated to produce any objectionable odors during its operation. Construction activities associated with the proposed project, such as paving and painting, may temporarily generate objectionable odors. Since odor-generating construction activities would be localized, sporadic, and short-term in nature, this impact would be less than significant.

4. Biological Resources

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service? (1,3,18,19,20,21,23,24,25)	☐	☒	☐	☐
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 US Fish and Wildlife Service? (1,3,22)	☐	☐	☐	☒
c. Have a substantial adverse effect on federally protected wetlands, as defined by section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filing, hydrological interruption, or other means? (22)	☐	☐	☐	☒
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? (17,18,19,21,23,24)	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (1,3)	☐	☐	☒	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (1,3)	☐	☐	☐	☒

Comments:

A biological reconnaissance survey was conducted by EMC Planning Group biologist Gail Bellenger on September 10, 2018 to document existing habitats and evaluate the potential for special-status species to occur on the project site. Prior to conducting the survey, Ms. Bellenger reviewed site maps, aerial photographs, database accounts, and relevant scientific literature describing natural resources in the project vicinity.

Biological resources were documented in field notes, including species observed, dominant plant communities, and significant wildlife habitat characteristics. The project site is situated on the Hollister U.S. Geological Survey (USGS) quadrangle map, with an approximate elevation of 279 feet, and is adjacent to commercial, agricultural, and residential development, with the San Benito River approximately 0.87 miles to the southwest, and a retention pond approximately 0.94 miles to the northeast.

A review was conducted of the National Wetlands Inventory (USFWS 2018) and the Geographic Information System (GIS) data for wetlands and water features maintained by San Benito County (San Benito County 2018) to identify the closest jurisdictional aquatic features adjacent to the project site.

The project site is disturbed, and currently used for livestock and animals such as goats, chickens, llamas, and horses, and for storage of semi-tractor trailers, recreational vehicles, bricks, pallets, pick-up trucks, and other equipment. Non-native grassland is the dominant plant community present.

On-site plants include, cheeseweed (*Malva parviflora*), curly dock (*Rumex crispus*), field bindweed (*Convolvulus arvensis*), puncture vine (*Tribulus cistoides*), lambs quarters (*Chenopodium album*), bristly ox tongue (*Helminthotheca echioides*), and ripgut brome (*Bromus diandrus*).

Common wildlife species likely to occur on the project site include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), and California ground squirrel (*Otospermophilus beecheyi*). Species of small rodents including mice (*Mus musculus*, *Reithrodontomys megalotis*, and *Peromyscus maniculatus*) and California vole (*Microtus californicus*) are also likely to occur. Approximately 10 California ground squirrel or vole burrows were observed in the non-native grassland areas along the center and western fencelines. Several birds were observed flying near or over the site including American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), and pigeons (*Columba livia*).

a. **Special-Status Species**. A search of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) was conducted for the Chittendan, San Juan Bautista, San Felipe, Three Sisters, Hollister, Tres Pinos, Mt. Harlan, and Paicines USGS quadrangles to generate a list of potentially occurring special-status species in the project vicinity (CDFW 2018). Records of occurrence for special-status plants were reviewed for those eight USGS quadrangles in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2018). A U.S Fish and Wildlife Service (USFWS) Endangered Species Program threatened and endangered species list was also generated for San Benito County (USFWS 2018).

Special-status species in this report are those listed as Endangered, Threatened, or Rare, or as Candidates for listing by the USFWS and/or CDFW, Species of Special Concern or Fully Protected species by the CDFW, or as Rare Plant Rank 1B or 2B by the CNPS.

Given the existing level of disturbance on the project site, special-status plants are not expected to occur on the site due to lack of suitable habitat.

Special-Status Wildlife Species

Special-status wildlife species with low potential to occur on site include: California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), burrowing owl (*Athene cunicularia*), San Joaquin kit fox (*Vulpes macrotis mutica*), and western pond turtle (*Emys mamorata*). These species have been recorded within three miles from the project site. Figure 5, Special-Status Species in Project Vicinity, presents CNDDB results, as well as water features, in relation to the project site. Other special-status wildlife species recorded as occurring in the vicinity of the project site include: the state-listed threatened bank swallow (*Riparia riparia*), state-listed species of special concern American badger *Taxidea taxus*), state-listed species of special concern western red bat (*Lasiurus blossevillii*), state-listed species of special concern western mastiff bat (*Eumops perotis californicus*), and federally-listed endangered and state-listed threatened San Joaquin kit fox (*Volpes macrotis mutica*). These species are not likely to occur on the project site due to lack of suitable habitat.

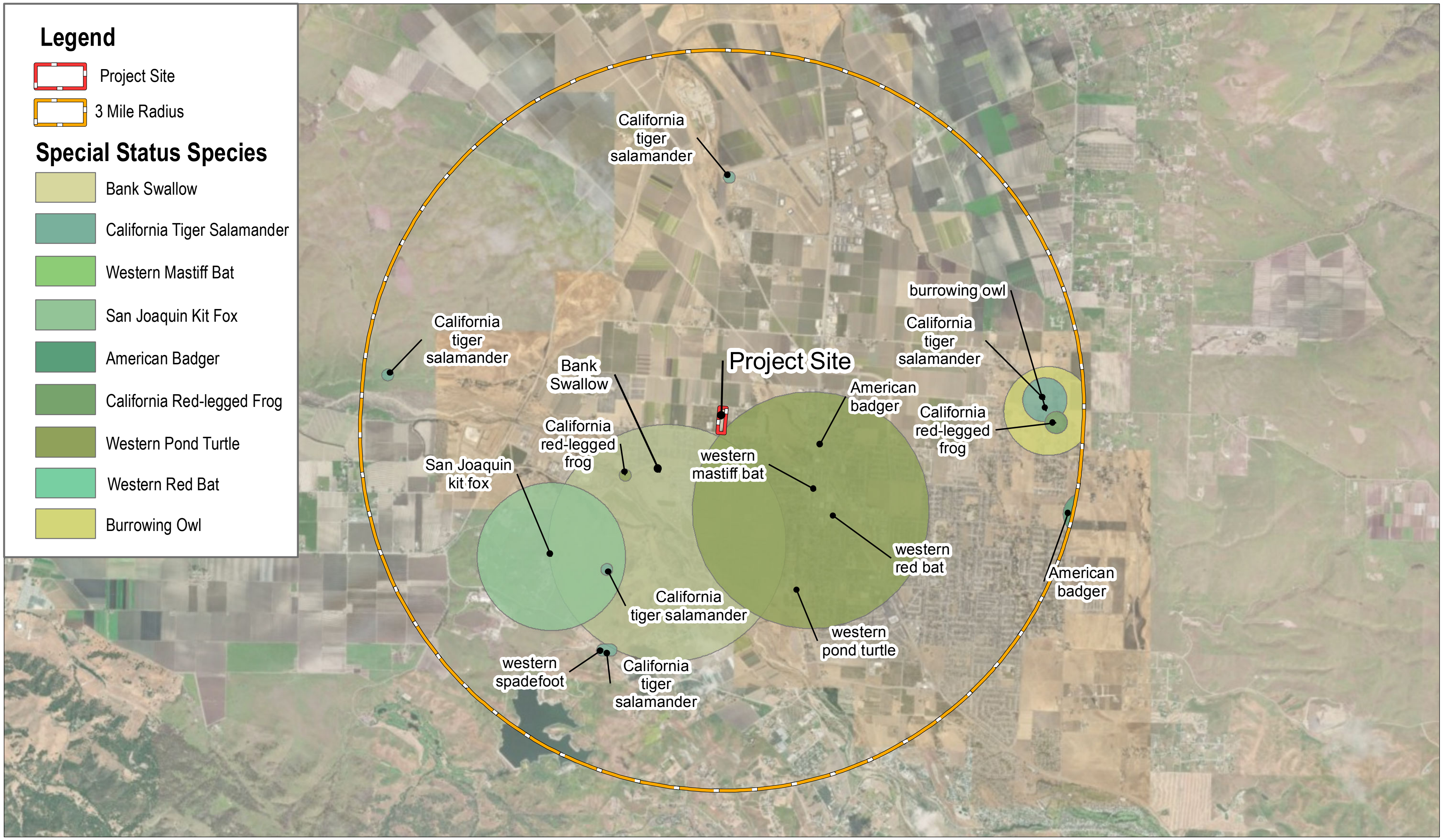
California Tiger Salamander. California tiger salamander (*Ambystoma californiense*) is a federally and state-listed Threatened species. The project site is not located within federally designated critical habitat for this species. The California tiger salamander is dependent on small shallow bodies of water for breeding. It can be found in grasslands, most frequently within 400 feet of breeding pools or ponds where California ground squirrels are prevalent and active. California tiger salamanders will occupy burrows of ground squirrels during summer and fall months, emerging to move toward breeding sites when the rainy season commences. They typically disperse to burrows and other hiding places in oak woodlands and grasslands within a quarter mile or less by early summer. CDFW records indicate that there are known occurrences of California tiger salamander within two miles of the site. The San Benito River is approximately 0.87 miles to the southwest and a retention pond is approximately 0.97 miles to the northeast of the project site. There were approximately 10 California ground squirrel or vole burrows observed in non-native grassland on the site, and many barriers between the river, retention pond and the property, but there is low potential for California tiger salamander to utilize the site for upland refuge habitat. If California tiger salamander is present on the project site, construction activities could result in the loss or disturbance of individual animals. This would be a significant adverse environmental impact. Implementation of mitigation measures BIO-1 through BIO-3 would reduce this potential impact to a less-than-significant level.

Mitigation Measures

BIO-1 A qualified consulting biologist will conduct preconstruction surveys following the guidance documented in the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (US Fish & Wildlife Service and California Department of Fish and Game, 10/2003) for California tiger salamander no more than two weeks (14 days) prior to the start of construction activities. The project site will be surveyed for potential upland activity.

If California tiger salamander is found, City staff will coordinate with the USFWS and/or CDFW to determine the appropriate course of action per the requirements of FESA and/or CESA (e.g., obtaining Incidental Take Permits) and implement the permit requirements prior to ground disturbance.

BIO-2 Before construction activities begin, the qualified biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of California tiger salamander habitat, general measures that are being implemented to conserve the species as they relate to the project, and the boundaries within which the project occurs. Informational handouts with photographs clearly illustrating the species’ appearance will be used in the training session. All new construction personnel will undergo this mandatory environmental awareness training.



0 1.2 miles

Source: ESRI 2018, CNDDB 2018

Figure 5

Special-Status Species in Project Vicinity

Woodle Prezone No. 2017-2 Initial Study

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The qualified biologist will train biological monitors selected from the construction crew by the construction contractor (typically the project foreman). Before the start of work each day, the monitor will check for animals under any equipment such as vehicles and stored pipes within active construction zones. The monitor will also check all excavated steep-walled holes or trenches greater than one foot deep for trapped animals. If a California tiger salamander is observed within an active construction zone, the qualified biologist will be notified immediately and all work within 100 feet of the individual will be halted and all equipment turned off until the individual has left the construction area.

BIO-3 The qualified biologist will conduct construction monitoring during initial clearing and ground disturbance activities. The qualified biologist will have the authority to halt construction work at any time to prevent harm to California tiger salamander when any protection measures have failed. Work will commence only when authorized by the qualified biologist. If work is stopped due to potential harm to California tiger salamander, the qualified biologist will contact the USFWS and/or CDFW by telephone or email on the same day. City staff will coordinate with the USFWS and/or CDFW to determine the appropriate course of action per the requirements of FESA and/or CESA (e.g., obtaining Incidental Take Permits) and implement the permit requirements prior restarting ground disturbance activities.

California Red-legged Frog. California red-legged frog (*Rana draytonii*) is a federally threatened species and state species of special concern. The project site is not located within federally designated critical habitat for this species. California red-legged frog may disperse from their aquatic breeding habitats to upland habitats during the dry season. They prefer upland habitats that include downed logs, woody vegetation, boulders, moist leaf litter, small mammal burrows, or other refugia during the dry season that provide moisture to prevent desiccation and protection from predators. However, if there is sufficient water at their breeding location, they may remain in aquatic habitats year-round instead of moving to adjacent uplands (FWS 2011).

Dispersal and migration of California red-legged frog can be highly variable depending on site conditions and individual frogs. During wet seasons, frogs can move long distances between habitats, traversing upland areas or ephemeral drainages. Dispersal distances are typically less than 0.5 km (0.3 mile), with a few individuals moving 2.0-3.6 kilometers (1.2-2.2 miles) (Bulger et al. 2003). CDFW records indicate that there are known occurrences of California red-legged frog less than a mile southwest of the site.

Even with the San Benito River approximately 0.87 miles to the southwest and a retention pond approximately 0.97 miles to the northeast, and areas of small mammal burrows evident on the project site, there is low potential for upland habitat for California red-legged frog due to a lack of water or moist soil conditions. California red-legged frog can travel up to a mile during rain events from creeks, ponds, or other waters, and aestivate in animal burrows during the dry summer months, providing moist conditions are present. It is unlikely that California red-legged frog would be found on the project site.

Burrowing Owl. Burrowing owl (*Athene cunicularia*) is a California Species of Special Concern. Burrowing owls live and breed in burrows in the ground, especially in abandoned California ground squirrel burrows. Optimal habitat conditions include large open, dry and nearly level grasslands or prairies with short to moderate vegetation height and cover, areas of bare ground, and populations of burrowing mammals. This species is known to occur within three miles east of the site. The project site's non-native grassland provides marginally suitable foraging habitat for burrowing owl, and a few scattered small mammal burrows on the site could be utilized for nesting habitat, but burrowing owl has low potential to occur on the site. If burrowing owl is present on or adjacent to the project site, construction activities could result in the loss or disturbance of individual animals. This would be a significant adverse environmental impact. Implementation of the following mitigation measure would reduce the potentially significant impacts to burrowing owl to less than significant.

Mitigation Measure

BIO-4 To avoid/minimize impacts to burrowing owls potentially occurring on or adjacent to the project site, the project proponent shall retain a qualified San Benito County-approved consulting biologist to conduct a two-visit (i.e. morning and evening) presence/absence survey at areas of suitable habitat on and adjacent to the project site no less than 14 days prior to the start of construction or ground disturbance activities. Surveys shall be conducted according to methods described in the Staff Report on Burrowing Owl Mitigation (CDFW 2012). If these pre-construction "take avoidance" surveys performed during the breeding season (February through August) or the non-breeding season (September through January) locate occupied burrows in or near construction areas, consultation with the CDFW shall occur to interpret survey results and develop a project-specific avoidance and minimization approach.

The project proponent shall be responsible for the implementation of this mitigation measure. Implementation of this mitigation measure would reduce the potential impact by requiring pre-construction surveys for burrowing owl, and consultation with the CDFW to protect individual burrowing owls if they are present on or adjacent to the project site.

San Joaquin Kit Fox. The San Joaquin kit fox is a federally-listed endangered species and a state-listed threatened species. The present range of the San Joaquin kit fox extends from the southern end of the San Joaquin Valley, north to Tulare County, and along the interior Coast Range valleys and foothills to central Contra Costa County. San Joaquin kit foxes typically inhabit annual grasslands or grassy open spaces with scattered shrubby vegetation, but can also be found in some agricultural habitats and urban areas. This species needs loose-textured sandy soils for burrowing, and they also need areas that provide a suitable prey base, including black-tailed hare, desert cottontails, and California ground squirrels, as well as birds, reptiles, and carrion.

The reconnaissance-level survey conducted at the project site did not observe San Joaquin kit fox and found no indication of the presence of this species on the project site. The nearest observation of this species was documented approximately 1.2 miles southwest of the project site in 1992. Although the project site supports a prey base, the site would likely not support habitat for the kit fox due to disking and mowing which diminish habitat suitability for the kit fox, fencing around the site, and human presence.

Western Pond Turtle. Western pond turtles vary in length from 3.5 to over eight inches in length. They will aestivate during summer droughts by burying themselves in soft mud, and will on occasion walk across land up to a hundred yards from the water in search of food or another water source. Due to the lack of nearby water at the property site, it is unlikely that western pond turtle would be found.

Bats. On-site and nearby trees could provide roosting habitat for western red bat (*Lasiurus blossevillii*) and western mastiff bat (*Eumops perotis californicus*), both state-listed species of special concern. Both species have been identified in proximity of the project site. Western red bats and western mastiff bats will roost in trees alone or in small colonies. Construction activities at the project site could result in the disturbance of adjacent roost and natal sites occupied by special-status bats, if present. Implementation of the following mitigation measure would reduce this potentially significant impact to a less-than-significant level.

Mitigation Measure

BIO-5 Prior to construction activities, the project proponent shall retain a qualified biologist to conduct a focused survey for bats and potential roosting sites in trees within 250 feet of the development footprint. These surveys shall be conducted no more than 15 days prior to the start of construction. The surveys can be conducted by visual identification and assumptions can be made on what species is present due to observed visual characteristics along with habitat use, or the bats can be identified to the species level with the use of a bat echolocation detector such as an "Anabat" unit.

If no roosting sites or bats are found, a letter report confirming absence shall be sent to the City of Hollister and no further mitigation is required.

If bats or roosting sites are found, a letter report and supplemental documents shall be provided to the City of Hollister prior to grading permit issuance and the following protection measure shall be implemented:

a. A 50-foot buffer will be established around roosting sites near the work area. Construction proposed adjacent to roosts will not occur within the buffer area until bats have left the area.

Nesting Birds. The project site and the surrounding properties contain a variety of trees and shrubs, resulting in the potential for impacts to protected nesting birds. Construction activities, including ground disturbance, can impact nesting birds protected under the federal Migratory Bird Treaty Act and California Fish and Game Code, should nesting birds be present during construction. If protected bird species are nesting adjacent to the project site during the bird nesting season (February1 through August 31), then noise-generating construction activities could result in the loss of fertile eggs, nestlings, or otherwise lead to the abandonment of nests. Implementation of the following mitigation measure would reduce potentially significant impacts to nesting birds to less than significant.

Mitigation Measure

BIO-6 To avoid impacts to nesting birds, construction activities that include grading, grubbing, or demolition shall be conducted outside of the bird nesting season (January through September) to the greatest extent feasible. If this type of construction occurs during the bird nesting season, then a qualified biologist shall conduct a pre-construction survey for nesting birds to ensure that no nests would be disturbed during project construction.

If project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys. Two surveys for active nests of such birds shall occur within 14 days prior to start of construction, with the second survey conducted with 48 hours prior to start of construction. Appropriate minimum survey radius surrounding each work area is typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys shall be conducted at the appropriate times of day to observe nesting activities.

If the qualified biologist documents active nests within the project site or in nearby surrounding areas, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g. defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. If pre-construction nesting bird surveys are necessary, based upon the requirements of this mitigation measure, then a survey report shall be prepared prior to commencement of construction activities.

The developer of the project shall be responsible for implementation of this mitigation measure.

Implementation of Mitigation Measure BIO-6 would ensure impacts to nesting birds are avoided by requiring a pre-construction survey for active bird nests (should construction be scheduled during the nesting season) and implementation of avoidance measures should any active nests be found.

b. **Riparian Habitat or Sensitive Natural Communities**. The project site does not contain riparian habitat or sensitive natural communities.

c. **Wetlands and Waterways**. There are no wetlands or waterways on the project site, therefore, no impacts are anticipated.

d. **Wildlife Movement**. Wildlife movement corridors provide connectivity between habitat areas, enhancing species richness and diversity, and usually also provide cover, water, food, and breeding sites. The project site is not likely to facilitate major wildlife movement due to current active disturbance and fencing. There are approximately 10 small animal burrows on-site that could potentially provide habitat or facilitate movement corridors for commonly occurring, urban-adapted mammals such as California ground squirrel and Botta's pocket gopher (*Thomomys bottae*). With the fencing and marginal habitat, the proposed project would have a less-than-significant impact on wildlife movement.

e. **Local Biological Resource Policies/Ordinances**. Measures to protect sensitive biological resources within the City are identified in the *City of Hollister General Plan* as follows:

The *City of Hollister General Plan* has goals in place for dealing with natural resources and conservation. Goal NRC1 is to "Assure enhanced habitat for native plants and animals, and special protection for threatened or endangered species."

The project site is composed of heavily disturbed soils, with non-native grasses, and ruderal (weedy) plants. There is no designated critical habitat, or habitat conservation plan on the project site. With these considerations, the proposed project would not conflict with local regulations related to biological resources.

f. **Conservation Plans**. There is no critical habitat, habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans applicable to the proposed project site.

5. Cultural Resources

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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? (1,2,5,7)	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5? (1,2,5,7)	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (1,2,5)	☐	☒	☐	☐
d. Disturb any human remains, including those interred outside of dedicated cemeteries? (26)	☐	☒	☐	☐

Comments:

The project site is disturbed and currently used for livestock and animals such as goats, chickens, llamas, and horses, and for storage of semi-tractor trailers, recreational vehicles, bricks, pallets, trucks, and other equipment. An archaeological survey was not conducted for this site as it is within low archaeological sensitivity zone.

a. The proposed project includes removing the existing home and muscle car fabrication shop. If the existing home and other structures are 45 years or older, they may be considered significant historic resources. Impacts to historic structures may be considered adverse and significant. Implementation of the following mitigation measure would ensure that development of the project site would not result in a significant effect on a historic structure.

Mitigation Measure

CR-1 If and when the existing structures on the project site are proposed for demolition, the applicant shall retain a qualified historian to evaluate the historical significance of the structures. If the structures are not considered historically significant according to the California Environmental Quality Act, no further evaluation would be necessary.

If the structures are considered historically significant accord to the California Environmental Quality Act, the structures shall be thoroughly documented, preserved and interpreted, as determined to be appropriate by a qualified historian. If it is not feasible to preserve the structures, and it is determined that the loss of the structures is significant and unavoidable, the city shall prepare an environmental impact report to include an evaluation of the structures and make the appropriate findings associated with demolition of the structures.

b. The project site is not located within the area of greater archaeological sensitivity identified on Figure 15 of the city's general plan EIR. However, during earth-moving activities, it is always possible to accidentally discover buried archaeological resources. Disturbance of archaeological resources would be considered a significant adverse environmental impact.

The City of Hollister municipal code Section 17.16.030 requires cessation of construction activity, notification of the Planning Department and examination by a qualified archaeologist or historian for historic resources, so that the extent and location of discovered materials may be recorded, subject to the approval of the Director, and disposition of artifacts may occur in compliance with applicable State and Federal laws.

Implementation of the following mitigation measure would reduce this potential significant impact to a less-than-significant level.

Mitigation Measure

CR-2 Due to the possibility that significant buried cultural resources might be found during construction, the following language will be included on all construction documents and on any permits issued for the project site, including, but not limited to, grading and building permits associated with future development of the project site:

"If archaeological resources or paleontological resources are unexpectedly discovered during construction, work shall be halted immediately within 50 meters (160 feet) of the find, and the Planning Department notified, until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, an appropriate resource recovery shall be formulated, with the concurrence of the City of Hollister, and implemented, in compliance with municipal code section 17.16.0303."

c. The project site is relatively flat and consists mostly of animal pens and paddocks, a house, and an automotive shop, with no unique geologic features present. The city general plan EIR evaluated impacts to cultural resources; however, there was no discussion of impacts associated with paleontological resources or unique geologic features. The county general plan EIR identified that "…paleontological specimens have been found in the County, and additional specimens may be unearthed during future agriculture and development excavations. It is likely that potentially significant sub-surface resources, including archaeological and unique paleontological resources, may be discovered due to excavation activities related to future development and construction."

Although there are no specific indications of paleontological resources associated with the project site, during earth-moving activities, it is always possible to accidentally discover buried paleontological resources. Disturbance of paleontological resources would be considered a significant adverse environmental impact. Implementation of Mitigation Measure CR-2 would reduce this potential significant impact to a less-than-significant level.

d. Although no evidence of potentially sensitive cultural resources are associated with the project site, there is the possibility of an accidental discovery of archaeological resources or human remains during construction activities. Disturbance of Native American human remains is considered a significant adverse environmental impact. Implementation of the following mitigation measure would reduce this impact to less than significant.

Mitigation Measure

CR-3 Due to the possibility that human remains may be discovered during future construction activities, the following language shall be included in all construction documents and on any permits issued for the project site, including, but not limited to, grading and building permits associated with future development of the project site:

"If human remains are found during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner is contacted to determine that no investigation of the cause of death is required.

If the coroner determines the remains to be Native American, then the coroner shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The MLD may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in Public Resources Code Section 5097.98.

The landowner or authorized representative will rebury the Native American human remains and associated grave goods with appropriate dignity on the project site in a location not subject to further disturbance if: a) the Native American Heritage Commission is unable to identify a MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner."

6. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(1) 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? (27)	☐	☐	☐	☒
(2) Strong seismic ground shaking? (2)	☐	☐	☒	☐
(3) Seismic-related ground failure, including liquefaction? (2,7)	☐	☒	☐	☐
(4) Landslides? (4,5)	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil? (1,7)	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? (2,7)	☐	☒	☐	☐
d. Be located on expansive soil, creating substantial risks to life or property? (2)	☐	☒	☐	☐
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? (33)	☐	☐	☐	☒

Comments:

a/c. Potential impacts from exposure to geologic risks are as follows:

(1) Surface Fault Ruptures. The project site is not located in an Alquist-Priolo Fault Zone. There are no known faults that cross the project site.

(2) Ground Shaking. As identified in the city's general plan EIR, the city is in a seismically active area. Four fault zones traverse the county in the vicinity of the planning area: the San Andreas Fault, the Quien Sabe Fault, the Tres Pinos and the Calaveras Faults. The San Andreas Fault system, probably the largest in the United States, crosses San Benito County in a southeasterly direction along the Gabilan Range two and a half miles west of the City. The Hayward/Calaveras Fault runs south and north and bisects the City through downtown. The Quien Sabe Fault is about three miles to the east of the planning area and runs in the southeast direction. The Tres Pinos Fault is a minor fault that is connected to the Calaveras Fault in Hollister's Downtown. It passes in a southeasterly direction through the planning area. All but the Tres Pinos Fault are considered active faults.

It is reasonable to expect that the project area would be subject to intense ground shaking during an earthquake, as would all areas of the city. The potential for damage during strong seismic shaking cannot be eliminated. Ground shaking and ground failure can result in structural failure and collapse, local damage to underground utilities, and the cracking of paved areas, presenting a hazard to occupants and damage to contents. *City of Hollister General Plan* policies to reduce earthquake and seismic shaking hazards include the following:

HS1.4 Seismic Hazards. Assure existing and new structures are designed to protect people and property from seismic hazards. Review all development proposals for compliance with the Alquist-Priolo Earthquake Fault Zoning Act and the Uniform Building Code as a way to reduce the risk of exposure to seismic hazards for those who will be living and working within the Hollister Planning Area.

HS1.5 Geotechnical and Geologic Review. Require all geologic hazards be adequately addressed and mitigated through project development. Development proposed within areas of potential geological hazards shall not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties.

The city's general plan EIR identified that the general plan policies would reduce potential impacts but, the impact would remain significant and unavoidable (city general plan EIR page 4.9-4). However, with adoption of the general plan, the city determined that the policies and standards in the Health and Safety Element, such as those cited above, would reduce the potential impacts associated with strong seismic ground shaking to what is defined as an "acceptable level of risk."

(3) Liquefaction. As identified in the city's general plan EIR, the structural damage caused by soil liquefaction during an earthquake was determined to be a significant unavoidable impact. However, with adoption of the general plan, the city determined that the policies and standards in the Health and Safety Element, such as HS1.4 and HS1.5 cited under the discussion of ground shaking above, would reduce the potential impacts associated ground failure to what is defined as an "acceptable level of risk".

Section 16.28.010 of the City of Hollister municipal code requires that a soils report be prepared. Should the soils report indicate soil problems, a soils investigation of each lot in the subdivision may be required by the city engineer (§16.28.030). Should seismic or geologic conditions warrant, section 16.28.030 requires preparation of a report prepared by a registered geologist.

Implementation of the following mitigation measures would reduce the potential impacts related to ground failure to a less-than-significant level.

Mitigation Measures

GEO-1 Prior to approval of subdivision of the site, the project applicant shall have a site-specific soils report prepared by a state registered civil engineer.

Should the soils report indicates the presence of critically expansive soils or other soils problems which, if not corrected, would lead to structural defects, the project applicant shall have a soils investigation of each lot in the subdivision prepared by a state registered civil engineer consistent with section 16.28.030 of the city's municipal code and in compliance with all applicable state and local code requirements, that includes:

a. Analysis of potential liquefaction hazards using accepted methodologies, confirmed by borings and excavations as required;

b. Site specific engineering requirements for mitigation of any liquefiable soils, using proven methods, generally accepted by registered engineers, such as subsurface soil improvement, deep foundations extending below the liquefiable layers, structural slabs designed to span across areas of non-support, soil cover sufficiently thick over liquefaction soil to bridge liquefaction zones, dynamic compaction, compaction grouting, jet grouting, and other mitigation for liquefaction hazards suggested in the Guidelines for Evaluating and Mitigating Seismic Hazards In California (California Geological Survey 2008);

c Review of recommended measures to ensure compliance with California Geological Survey guidelines related to protection of public safety from liquefaction; and

d. Determination of the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.

All recommended corrective action which is likely to prevent structural damage to structures shall be incorporated into final construction plans of each structure.

GEO-2 Prior to any approval of subdivision on the project site, the project developer shall have a site-specific geologic report prepared by a state registered civil engineer, in compliance with all applicable state and local code requirements, that includes:

a. Analysis of the expected ground motions at the site from known active faults using accepted methodologies;

b. Analysis of potential fault rupture and landslide hazards using accepted methodologies, confirmed by borings and excavations as required;

c. Site specific engineering requirements for mitigation of any identified risks of fault rupture or landslides, using proven methods, generally accepted by registered engineers, such as mitigation for landslide hazards suggested in the Guidelines for Evaluating and Mitigating Seismic Hazards In California (California Geological Survey 2008) to reduce risks of fault rupture and landslides to an insignificant level;

d. Review of recommended measures to ensure compliance with California Geological Survey guidelines related to protection of public safety from landslide hazards and fault rupture;

e. Structural design requirements as prescribed by the most current version of the California Building Code, to ensure that structures can withstand ground accelerations expected from known active faults; and

f. Determination of the final design parameters for walls, foundations, foundation slabs, utilities, roadways, parking lots, sidewalks, and other surrounding related improvements.

Such report shall specify the remedial measures, if any are necessary, that will make the subdivision safe for development. Project construction plans shall incorporate all report mitigations, and the project structural engineer and geotechnical consultant shall certify that the construction plans for the site incorporate all applicable mitigations from the investigation and meet current California Uniform Building Code requirements. The City Building Official shall review all project plans for the relevant permits to ensure compliance with the applicable geotechnical investigation and other applicable Code requirements.

(4) Landslides. The project site is flat, and is not located adjacent to any hillsides or other sloped area which could be subject to landslides.

b. Development of the project site would disrupt the surficial soil in areas where soils are susceptible to erosion by wind and/or water. Removal of soils can undermine buildings, roads, and other structures both during short-term construction activities and long-term where vegetative cover is not re-established, and could result in a potentially significant adverse impact. The city's general plan policy NRC 2.4(3) requires that appropriate measures to be taken to reduce wind erosion during construction, such as watering of soil, replanting and repaving and city's general plan policy CSF 3.2 requires project developers to implement suitable erosion control measures.

The City of Hollister's municipal code chapter 15.24, Grading and Best Management Practices control, requires a best management control plan to be submitted for land-disturbing activities, including grading. The plan is required to include all proposed Best Management Practices, including erosion, sediment, wind, dust, tracking, non-storm water management and waste management control. It also requires sediment retention measures, surface runoff and erosion control measures. In addition, any grading or earth disturbing activities during the rainy season requires permission by the city engineer per the requirements of municipal code section 15.24.210. Section 16.24.070(B) also requires landscaping for subdivisions in part for erosion control and bank protection.

Implementation of the following mitigation measure would ensure erosion impacts are less than significant.

Mitigation Measure

GEO-3 Prior to issuance of a grading permit, the developer shall prepare and implement an erosion control plan for development of the project site, in compliance with city's general plan policies NRC 2.4(3) and CSF 3.2 and city's municipal code sections 15.24.210 and 16.24.070(B), subject to review and approval by the city. The plan shall include, but not be limited to the following measures:

a. The construction sites shall be designed to prevent migration of soil fines. The contractor must plan the dewatering and excavation activities so that stable and dry excavations are maintained throughout construction.

b. All development should be sited and designed to conform to site topography and minimize grading and other site preparation activities, to the maximum extent possible.

c. All disturbed surfaces (including soils stockpiled temporarily) resulting from grading operations shall be prepared and maintained to control erosion. This control shall consist of measures to provide temporary cover to help control erosion during construction and permanent vegetative cover to stabilize the site after construction has been completed. The seeded areas shall be maintained and irrigated as needed to adequately establish vegetative cover.

d. The following provisions shall apply during the wet season between October 15 and April 15:

   1. All necessary erosion control equipment shall be installed or shall be available for immediate installation when needed due to rainy conditions (i.e. silt fences, hay bales, jute netting, etc.).

   2. Disturbed surfaces not involved in the immediate operations must be protected by mulching and/or other effective means of soil protection. Soils temporarily stockpiled shall be covered with tarp and secured adequately.

3. Runoff from the site shall be detained or filtered by berms, vegetated filter strips, and/or catch basins to prevent the escape of sediment from the site. These drainage controls must be maintained by the owner and/or contractor as necessary to achieve their purpose through the duration of the construction period. No sediment shall be allowed to enter the San Benito River.

4. Erosion control measures shall be in place at the end of each day's work.

5. A mitigation monitor designated by the city shall stop operations during periods of inclement weather if it is determined that erosion problems are not being controlled adequately.

e. Final grades should be provided with positive gradient away from the building in order to provide removal of the surface water from the foundation to adequate discharge points. Sheet flow of building, parking, walkway, and deck runoff to surrounding heavily vegetated areas is preferred. Directly piped storm drainage to San Benito River shall be prohibited. Concentrations of surface water runoff should be handled by providing necessary structures, such as energy dissipation at outlets and catch basins, berms and vegetated filter strips as appropriate.

d. According to the city's general plan EIR, soils in the northern portion of the planning area are clays that have high to very high shrink-swell potential. These soils can expand and contract in response to changes in soil moisture conditions, resulting cracked foundations and pavement areas. Impacts from expansive soils in parts of the planning area may be eliminated when specific development projects are proposed by conducting engineering tests to determine the proper design criteria. Implementation of Mitigation Measures GEO-1 and GEO-2 requiring technical studies to ensure potential impacts, including impacts from expansive soils, are identified and remedied prior to project approval, would reduce this impact to a less-than-significant level.

e. Future residential development would connect to the city's wastewater collection and treatment system. There would be no septic tanks or alternative wastewater disposal systems.

7. Greenhouse Gas Emissions

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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? (1,5,11,16,37,38,39,40)	☐	☒	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (1,5,11,16,37,38,39,40)	☐	☒	☐	☐

Comments:

a. The California Legislature has enacted a series of statutes in recent years addressing the need to reduce greenhouse (GHG) emissions across the State. In September 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 was amended by Senate Bill (SB) 32. Effective January 1, 2017, SB 32 requires that statewide GHG emissions be reduced to 40 percent below 1990 levels by 2030. AB 32 and SB 32 represent the current state legislative framework commonly used by local and regional agencies across the state as guidance for reducing GHG emissions from activities within their respective jurisdictions.

The project site is located within the boundary of the Monterey Bay Air Resources District (hereinafter "air district"). To date, the air district has not adopted CEQA guidance for analysis of GHG effects of land use projects (e.g. numerical thresholds of significance,) nor has it prepared a qualified GHG reduction plan for use/reference by local agencies located within the air district. Further, the City of Hollister has not adopted a GHG reduction emissions plan or climate action plan that is applicable to new development within the city limits. In light of these circumstances, a GHG threshold of significance for the project's assumed build-out year of 2022 has been developed for the proposed project based on the SB 32 statewide emissions reduction target described above. The threshold is a GHG efficiency metric that represents a rate of statewide emissions generation from land use projects. It is the ratio of projected total 2022 statewide GHG emissions from the land use sector needed to achieve consistency with the SB 32 reduction goal, to the 2022 projected statewide service population, where the service population is the sum of the projected number of jobs and the projected number of residents in 2022. If the proposed project rate of emissions at build-out is equal to or below the threshold, project emissions would remain within the trajectory needed for the state to meet the SB 32 GHG reduction target of 40 percent below 1990 levels by 2030, and the project would not conflict with SB 32, the applicable plan for reducing GHGs.

The California Air Resources Board (CARB) stated in the *First Update to the Climate Change Scoping Plan* that an average statewide GHG reduction of 5.2 percent per year from the projected statewide year 2020 GHG emissions inventory volume will be needed to stay on a trajectory to achieve state reduction targets for 2030. The first step in deriving an applicable statewide efficiency metric threshold is to determine the projected volume of statewide GHG emissions from land use driven sectors in 2022 (project build-out year) that must be achieved to stay on trajectory towards meeting the statewide 2030 reduction target of 40 percent below 1990 levels.

Table 2, 2020 California Greenhouse Gas Inventory for Land Use Driven Emissions, shows the 2020 state emissions inventory for land use driven GHG emissions. Total land use driven emissions are projected at 286.70 million metric tons (MMT) CO_2e.

Table 2 2020 California Greenhouse Gas Inventory for Land Use Driven Emissions

Land Use Type	Emissions (MMT CO_2e)
On-Road Transportation	
Passenger Cars	63.77
Light Duty Trucks	44.75
Motorcycles	0.43
Heavy Duty Trucks	29.03
Freight	0.02
Subtotal	138.00
Electricity Generation In-State	
Commercial Cogeneration	0.70
Merchant Owned	2.33
Transmission and Distribution	1.56
Utility Owned	29.92
Subtotal	34.51
Electricity Generation In-State	
Specified Imports	29.61
Transmission and Distribution	1.02
Unspecified Imports	30.96
Subtotal	61.59

Land Use Type	Emissions (MMT CO_2e)
Commercial	
CHP: Commercial	0.40
Communication	0.07
Domestic Utilities	0.34
Education	1.42
Food Services	1.89
Healthcare	1.32
Hotels	0.67
Not Specified Commercial	5.58
Offices	1.46
Retail & Wholesale	0.68
Transportation Services	0.03
Subtotal	13.86
Residential	
Household Use	29.66
Subtotal	29.66
Industrial	
Landfills	6.26
Domestic Wastewater Treatment	2.83
Subtotal	9.09
Total Emissions	286.70

SOURCE: California Air Resources Board. No date.

Applying CARB's 5.2 percent annual emissions reduction rate to the 2020 projected state inventory volume of 286.70 MMT CO_2e for two consecutive years yields a projected emissions volume of 257.66 MMT CO_2e in 2022. The projected 2022 statewide population is 41,321,565 (California Department of Finance 2018). The California Employment Development Department, California Occupational Employment Projections 2016-2026, show that the 2026 employment projection is 20,022,700 jobs (California Employment Development Department 2018). Projected 2022 employment is equivalent to 20,022,700 jobs minus the annual average rate of employment during the period 2016 to 2026, which equals 193,310 jobs per year or 773,240 for the four-year period 2022 to 2026. Therefore, 2022 employment is estimated at 19,249,460 jobs. The projected 2022 service population is 41,321,565 (population) plus 19,249,460 (jobs), for a total of 60,571,025. The 2022 GHG efficiency threshold is 257.66 MMT CO_2e per year/60,571,025 or 4.25 MT CO_2e per year per service population. This value represents the threshold of significance for the proposed project.

The existing home and muscle car fabrication shop on the project site are currently generating GHG emissions. The proposed project would result in greenhouse gas emissions during its construction and operational phases. Construction emissions would be generated by equipment used during the site preparation and building construction processes. Operational emissions would be generated primarily by vehicle trips of residents and visitors accessing the site, and indirectly by use of electricity and natural gas on site, by use of electricity to pump water supply and treat wastewater, and from decomposition of solid waste generated by project residents.

GHG emissions from the existing uses, project construction, and project operations have been estimated using California Emissions Estimator Model (CalEEMod) Version 2016.3.2. Refer to Appendix D for detailed results.

Baseline (Existing) GHG Emissions. Existing uses on the site generate approximately 58.12 MT of CO_2e of GHG emissions per year.

Construction GHG Emissions. Total unmitigated construction emissions are projected at 442.78 MT CO_2e. Averaged over a 30-year operational lifetime, the annual amortized emissions would be approximately 14.76 MT CO_2e. CalEEMod defaults have been used for the number and type of construction equipment to be utilized during the construction process and for other construction emissions because project specific data is currently not available.

Operational GHG Emissions. The proposed project would generate an estimated 1,924.81 MT CO_2e per year of unmitigated emissions during operations.

Regulatory Reductions. CalEEMod incorporates GHG emissions reductions that accrue from several state regulations and legislative acts such as the Pavley I standards and Low Carbon Fuel Standards. Additional GHG reductions resulting from other applicable regulations and actions are summarized below.

In-Model Regulatory Reductions. The model was adjusted to account for required compliance with the state Model Water Efficient Landscape Ordinance and compliance with the air district’s rule to limit the use of volatile organic compound (VOC)-emitting solvents, paints and other coatings. The use of low VOC paints and solvents does not affect GHGs, but does affect criteria air pollutants as seen in Section 4, Air Quality. The annual in-model reductions total 0.13 MT CO_2e.

Out-of-Model Reductions. GHG emissions reductions will also result statewide from implementation of 2019 Building Energy Efficiency Standards ("2019 BEES"), which become effective on January 1, 2020. With the 2019 BEES, all new residential buildings constructed after January 1, 2020 must be zero net energy. Given the required compliance of the proposed residential use with the zero net energy standards in the 2019 BEES, the electricity demand shown in Section 5.3, Energy by Land Use – Electricity, of the CalEEMod Proposed Project Annual results would be zero. Accordingly, the total of 117.01 MT CO_2e of emissions associated with the energy demand can be subtracted out of the project GHG emissions inventory.

Net GHG Emissions Attributable to the Proposed Project. Table 3, Project GHG Emissions Summary, shows net GHG emissions for the proposed project at build-out in consideration of all components of its GHG inventory presented above.

Table 3 Project GHG Emissions Summary

Emission Source	Annual GHG Emissions MT/Year CO_2e
Amortized Construction	14.76
Annual Unmitigated Operational	1,924.81
Total Annual Unmitigated	1,939.57
Annual Baseline[1]	(58.12)
In-Model Regulatory Reductions[1]	(0.13)
Out-of-Model Regulatory Reductions[1]	(117.01)
Net Annual GHG Emissions	1,764.31
Service Population	373
GHG Emissions/Service Population	4.73
Threshold of Significance	4.25
Project Emissions Exceed Threshold?	Yes

SOURCES: EMC Planning Group 2018
Notes:
1. <Brackets> indicate deductions.

Service Population. According to the Department of Finance Table E-5 City/County Population and Housing Estimates, as of January 1, 2018, the city had an average of 3.42 persons per household (California Department of Finance 2018). At project build-out (assumed 2022), the proposed project would provide housing for approximately 373 persons, based on a uniform application of an average 3.42 persons per household to 109 dwelling units regardless of housing type. Therefore, the service population for this project is 373, as shown in Table 3.

The proposed project would generate approximately 1,764.31 MT CO_2e per year. The service population is 373. As summarized in Table 3, at build-out, the proposed project would generate approximately 4.73 MT CO_2e per year per service population (1764.31/373). This exceeds the threshold of significance of 4.25 MT CO_2e per year per service population for the year 2022. Therefore, the proposed project would generate GHG emissions that have a significant impact on the environment.

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure

GHG-1 To ensure project GHG emissions are below the threshold of significance of 4.25 MT CO_2e per year per service population, a minimum reduction of 0.48 MT CO_2e per year shall be achieved through implementing one or more of the following options: incorporating on-site GHG reduction measures into the project, participating in an off-site GHG reduction program, and/or purchasing GHG off-sets.

Potentially feasible on-site GHG reduction measures could include, but may not be limited to:

a. Design buildings to exceed Title 24 energy efficiency standards by at least five percent. The 2019 Building Energy Efficiency Standards are assumed to be the applicable standards;

b. Exceed higher than mandated parking lot and area energy efficient lighting standards;

c. Include the necessary infrastructure in the project design (e.g. physical design, energy, and fueling) to support the deployment of zero emission technologies now and into the future, including electric vehicle charging stations for passenger cars and for zero emission battery electric and hybrid electric passenger vehicles; and/or

d. Incorporate low flow irrigation that exceeds requirements of the state Water Efficient Landscape Ordinance.

If these or additional on-site measures are utilized, the project developer shall prepare a Greenhouse Gas Reduction Plan. The Greenhouse Gas Reduction Plan shall identify the proposed reduction measures, GHG emissions reductions volumes associated with each, and evidence to support the level of reduction calculated for each. The Greenhouse Gas Reduction Plan shall be subject to review and approval of city staff prior to approval of a grading permit.

If the project developer chooses to participate in an off-site GHG reduction project or program to reduce GHG emissions, evidence of such participation shall be provided to the City of Hollister by the agency/interest that is implementing the project or program. Evidence shall describe how the developer is participating, the expected GHG reduction volume that can be assigned to the developer as a result of the developer's participation, and verification that the developer has met participation requirements. The evidence shall be subject to review and approval of city staff prior to issuance of a grading permit.

If the project developer chooses to purchase carbon off-sets to reduce GHG emissions, the project developer shall provide evidence to the City of Hollister that a contract for such purchase has been executed through a credible carbon off-set registry such as the Climate Action Reserve, certified carbon off-set project developer, or a broker. The evidence shall be subject to review and approval of city staff prior to issuance of a grading permit.

b. As discussed in "a" above, the air district has not adopted CEQA guidance for analysis of GHG effects of land use projects (e.g. numerical thresholds of significance,) nor has it prepared a qualified GHG reduction plan for use/reference by local agencies located within the air district. Further, the City of Hollister has not adopted a GHG reduction emissions plan or climate action plan that is applicable to new development within the city limits. In light of these circumstances, SB 32 is considered to be the applicable plan for reducing GHG emissions. A GHG threshold of significance for the project build-out year of 2022 has been developed. The threshold is based on the rate of project emissions below which the project would not impede attainment of the SB 32 statewide emissions reduction goal for 2030. The project GHG emissions exceed the threshold of significance for the build-out year of 2022 (see "a" above), thereby conflicting with SB 32. This is a significant impact. Implementation of Mitigation Measure GHG-1 would reduce this impact to less than significant.

8. Hazards and Hazardous Materials

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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? (6)	☐	☐	☒	☐
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? (5)	☐	☒	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (4,6)	☐	☒	☐	☐
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, create a significant hazard to the public or the environment? (29)	☐	☐	☐	☒
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 a public-use airport, result in a safety hazard for people residing or working in the project area? (1,30)	☐	☐	☒	☐
f. For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area? (4)	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (1,6,31)	☐	☐	☐	☒
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (32)	☐	☐	☐	☒

Comments:

a. The proposed project would not involve the routine transport, use, or disposal of hazardous waste. However, construction of the proposed project may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals typically used during construction. Transportation, storage, use and disposal of hazardous materials during construction activities would be required to comply with applicable federal, state, and local statutes and regulations.

Enforcement of hazardous material regulations and rapid response by local agencies would reduce the proposed project's impact on the transportation, use, and disposal of hazardous materials to less than significant.

b. The project site consists of a house and a muscle car fabrication shop located on the southern portion of the parcel. The rest of the project site is occupied by livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. It is possible for the project site to have impacted soil due to years of hazardous material storage and/or surface spills. Lead-based paint and asbestos construction materials may be present in the existing structures on the site, and if so, could affect the surrounding soil when separated from the walls of the structures.

Grading and excavation required for the proposed project would disturb these potentially contaminated soils. Therefore, the proposed project could 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 during construction or operation. Implementation of the following mitigation measure would reduce potential impacts to public and environmental health from exposure to asbestos and lead based paint to less than significant.

Mitigation Measure

HAZ-1 Prior to issuance of grading permits, the developer shall prepare a site specific Phase I Environmental Site Assessment. If hazardous site conditions are identified that require preparation of a Phase II Environmental Site Assessment, the project developer shall be responsible for conducting the assessment and for implementing all recommendations and requirements for remediation of residual soil conditions, if present, identified therein. Proof of completed remediation activities shall be provided to the city prior to approval of a grading permit.

c. Calaveras Elementary School is located south of the project site, across Buena Vista Road. As discussed in "a" above, the proposed residential development would not involve the routine transport, use or disposal of hazardous materials during operation. During project construction, grading and excavation could disturb the potentially contaminated soils of the project site, resulting in release of hazardous materials within close proximity to the school. Implementation of Mitigation Measure HAZ-1 would ensure the potential risk associated with exposure to hazardous materials is less than significant.

d. Government Code Section 65962.5 requires that the Department of Toxic Substances Control compile and regularly update a list of hazardous waste facilities and sites. A search of the Envirostor website (Department of Toxic Substances Control 2018) revealed that the project site is not on the list and there are no listed hazardous sites within one half mile. Therefore, proposed project would not create a significant hazard to the public or the environment.

e. As identified in the *City of Hollister General Plan*, Map 16, the project site is located within the "Influence Area" of the Hollister Municipal Airport. The general plan recommends that all development within the identified influence area be reviewed for compatibility with airport operations.

As illustrated on Map 1, Compatibility Policy Map: Airport Influence Area, in the *Hollister Municipal Airport Land Use Compatibility Plan*, the project site is located just within the boundary of the Airport Influence Area. The Airport Influence Area is divided into two areas for purposes of identifying the type and scope of review of new land use development projects that may be required by the Airport Land Use Commission to assess their compatibility with airport operations. The site is within Airport Land Use Commission Review Area 2. Within this area, noise and safety concerns from airport activities are generally not a concern, but airspace protection and/or overflight are compatibility concerns. Pursuant to Policy 1.5.5 in the *Hollister Municipal Airport Land Use Compatibility Plan*, the Airport Land Use Commission exercises airport compatibility review authority over "Major Land Use Actions" within Review Area 2.

While aircraft operations are not anticipated to result in a safety hazard for people residing or working in the project area, due to the project's location in Airport Land Use Commission Review Area 2, the proposed project may be subject to review by and implementation of any safety reduction measures that may be required by the Airport Land Use Commission. The requirement for Airport Land Use Commission review would be attached as a project condition of approval by the city.

f. The project site is not located in the vicinity of a private airstrip. Therefore, the proposed project would not result in a safety hazard for the people residing or working in the project area.

g. The city's emergency evacuation/response plans are coordinated with the *San Benito County Operational Area Emergency Operations Plan*. As identified in the city's general plan, the city's primary evacuation routes would be along State Route 25 and State Route 156. The proposed project would not impair or obstruct these evacuation routes. Additionally, all new development in the City of Hollister is required to comply with existing fire codes and ordinances regarding emergency access. Therefore, the proposed project would not impede or conflict with any adopted emergency response or evacuation plans.

h. The city's general plan does not identify wildlands within or around the city and wildfire is not identified as a concern. According to the California Department of Forestry and Fire Protection, the City of Hollister is not within a state responsibility area for a fire hazard severity zone. The project site is not adjacent to, or intermixed with, wildlands. Therefore, development on the project site would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

9. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements? (1,6,33,34,35)	☐	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., would the production rate of preexisting nearby wells drop to a level which would not support existing land uses or planned uses for which permits have been granted? (1,2,7,33,34)	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in *substantial erosion or siltation on- or off-site?* (1,5,7,33)	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface run-off in a manner which would result in *flooding on- or off-site?* (1,7,33,46)	☐	☒	☐	☐
e. Create or contribute run-off water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted run-off? (1,7,33,46)	☐	☒	☐	☐
f. Otherwise substantially degrade water quality? (1,6,33)	☐	☒	☐	☐
g. Place housing within a 100-year flood hazard area as mapped on Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (36)	☐	☐	☐	☒

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (36)	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? (4,5,36)	☐	☐	☐	☒
j. Be subject to inundation by seiche, tsunami, or mudflow? (4,5,36)	☐	☐	☐	☒

Comments:

a. **Water Quality Standards**. The State Water Resources Control Board has implemented a National Pollutant Discharge Elimination System (NPDES) Program to control and enforce storm water pollutant discharge reduction per the Clean Water Act. The Central Coast Regional Water Quality Control Board (RWQCB) issues and enforces the NPDES permits for discharges to water bodies in San Benito County, including the City of Hollister.

Development of the project site has the potential to increase discharge of storm water pollutants during construction due to ground disturbance. Projects disturbing more than one acre of land during construction, or disturb less than one acre but are part of a larger common development greater than one acre, are required to obtain coverage under the State of California NPDES General Construction Permit. The General Permit requires the project applicant to file a Notice of Intent with the State Water Resources Control Board and develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is designed to address the following objectives:

1. Identify and control all pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity;
2. Where not otherwise required to be under a Regional Water Board permit, identify and either eliminate, control, or treat all non-storm water discharges;
3. Select and identify site Best Management Practices (BMPs) that are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) standard;

4. Provide complete and correct calculations and design details and identify BMP controls for site run-on; and

5. Select and identify stabilization BMPs to reduce or eliminate pollutants after construction is complete.

Future development of the project site would be required to comply with city's general plan policies CSF3.3 (Local, State and Federal Standards for Water Quality), CSF3.4 (Water Quality Tests and Mitigation), and CSF3.6 (Education and Outreach on Water Quality Programs).

The developer would be required to obtain a State NPDES Construction General Permit for development on 9.102 acres of the project site. By complying with the Construction General Stormwater Permit requirements, the proposed project would not violate any water quality standards.

Development of the project site with a residential subdivision has the potential to affect water quality from the discharge of sediments, pathogens, nutrients, heavy metals, oil and other petroleum products, trash, and road salt. This would be considered a significant adverse environmental impact. Implementation of the following mitigation measure will reduce this potential significant impact to a less-than-significant level.

Mitigation Measure

HYD-1 The developer shall include a hydrodynamic vortex separator, which will capture trash prior to entering overflow or bio-retention facilities, on the tentative subdivision map, and final map and improvement plans.

Waste Discharge Requirements. Wastewater facilities and treatment would be provided by the City of Hollister. The city owns and operates two wastewater treatment plants: the domestic wastewater treatment plant/water reclamation facility and the industrial wastewater treatment plant. The domestic wastewater treatment plant came into operation in 1980 to treat the city's domestic wastewater and was upgraded in 2009 to include the water reclamation facility and improve treatment to tertiary levels. The domestic wastewater treatment plant/water reclamation facility receives wastewater flow from all municipal and most industrial customers within the city limits.

Wastewater generated onsite from future residential use will be collected and conveyed to the city's domestic wastewater treatment plant/water reclamation facility for treatment and disposal. Current requirements for recycled water use are administered by Title 22 of the California Code of Regulations. The wastewater treatment plant/water reclamation facility has the capacity to meet the requirements for disinfected tertiary recycled water as defined by Title 22. The project site has a *City of Hollister General Plan* designation of Medium Density Residential and is accounted for in the *Hollister Urban Area Water and Wastewater Master Plan*. Therefore, the proposed project would not violate any waste discharge requirements.

b. **Groundwater Supplies**. Water supply in the City of Hollister comes from several sources: local groundwater, local surface water, and surface water purchased from the U.S. Bureau of Reclamation Central Valley Project. The San Benito County Water District (hereinafter "water district") is responsible for the management of the groundwater basins in San Benito County.

As identified in the city's general plan EIR, groundwater is used in conjunction with surface water to meet water demands within the Gilroy-Hollister Groundwater Basin. "Conjunctive use" of groundwater and surface water can result in a combined yield that is greater than the sum of the separate yields of the surface water and groundwater components. This is achieved by using stored groundwater to supply most of the demand during droughts, when surface water deliveries are curtailed. During wet periods, surface water is used to meet most of the demand, and groundwater storage is allowed to recover.

The proposed project would incrementally increase groundwater draw; however, because Hollister uses surface water in conjunction with groundwater this ensures adequate water supply. Policy CSF2.6 in the city's general plan requires developers to apply to the city, Sunnyslope County Water District, and San Benito County Water District for water service. Only if the proposed development is denied service by all three agencies can it then be allowed to use groundwater as a source of water.

According to the Preliminary Engineer's Report, which is included as Appendix B, the project's water demand is estimated as 137,340 gallons per day or approximately 68.4 acre-feet per year (hereinafter "AFY").

The *2015 Hollister Urban Area Urban Water Management Plan* (hereinafter "urban water management plan") was prepared to help guide the Hollister urban area's future water management efforts. It builds on and updates the previous 2010 urban water management plan, accounting for changes in the California Water Code and local planning and water management efforts. Water demand of the Hollister urban area, including development of the project site, was evaluated in the urban water management plan. According to the urban water management plan, water demand for the city's entire urban area is expected to increase to 10,286 AFY by 2035 (urban water management plan, page 4-3). The underlying groundwater sub-basins have a sustainable yield of roughly16,000 AFY (urban water management plan, page 6-17). Therefore, the city would have sufficient water to meet projected water demands for the proposed project in addition to meeting the Hollister urban area's existing and planned demands.

Groundwater Recharge. The water district owns and operates two reservoirs along the San Benito River. Hernandez Reservoir (capacity 17,200 acre-feet) is located on the upper San Benito River in southern San Benito County. Paicines Reservoir (capacity 2,870 acre-feet) is an off-stream reservoir between the San Benito River and Tres Pinos Creek. Water stored in the two reservoirs is released for percolation in Tres Pinos Creek and the San Benito River to augment groundwater recharge during the dry season.

In the past, the water district has purchased and percolated imported water for groundwater management. Imported water percolation peaked in 1997 at 11,087 AFY and reduced in the following years in response to the successful recovery of the groundwater basin from overdraft. In recent years, no significant release of imported water has occurred due to reduced allocations and local areas of high water levels. In addition, the City of Hollister and Sunnyslope County Water District percolate treated wastewater discharge to the groundwater basin. Wastewater percolation has been decreasing in recent years and is expected to continue to decrease as recycled water use increases.

The proposed project would create impervious surface areas such as roadways, driveways, and residential structures. Future development of the project site would be required to comply with Regional Water Quality Control Board's Post-Construction Stormwater Management Requirements, and City of Hollister municipal code section 17.16.140(A) which requires all development projects in the city to be designed to detain storm water runoff on-site.

Therefore, the proposed project would not contribute to a substantial depletion of groundwater supplies or interfere substantially with groundwater recharge.

c. There are no defined creeks or channels on or adjacent to the project site. The project site is within the watershed of the Pajaro River and ultimately drains to the Monterey Bay. The project site consists of a house and a muscle car fabrication shop located on the southern portion of the parcel. The rest of the project site is occupied by livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. The proposed project would subsequently increase the amount of impervious surfaces due to construction of the 109 single-family homes and driveways, as well as an internal road system. The proposed project would alter the existing drainage pattern of the site because of the increase in impervious surfaces.

Development activities associated with future development of the project site may lead to significant erosion and/or siltation. The city's municipal code chapter 15.24, Grading and Best Management Practices control, requires a best management control plan to be submitted for land-disturbing activities, including grading. The plan is required to include all proposed Best Management Practices, including erosion, sediment, wind, dust, tracking, non-storm water management and waste management control. It also requires sediment retention measures, surface runoff and erosion control measures.

The city's general plan policy CSF 3.2 requires project developers to implement suitable erosion control measures. Any grading or earth disturbing activities during the rainy season requires permission by the city engineer per the requirements of the City of Hollister municipal code section 15.24.210. Section 16.24.070(B) also requires landscaping for subdivisions in part for erosion control and bank protection.

Compliance with these requirements will ensure any potentially significant adverse impacts associated with erosion or siltation are less than significant.

d, e. The City of Hollister maintains a series of transmission lines that convey storm flows within the city and some adjoining areas of unincorporated San Benito County to either the San Benito River or Santa Ana Creek.

The city's general plan community services and facilities element includes policies CSF 3.1 and CSF 3.5 which require new development to include on-site infiltration areas (e.g. vegetated swales, constructed wetlands) to enhance water quality and provisions to accommodate peak flows and avoid impacts to downstream lands. Future development of the site will require the payment of storm water impact fees at the time of building permit issuance for use in future storm drain capital improvement projects. Future development will require adequate storm drainage facilities per the City of Hollister municipal code section 16.24.060, including retention ponds adequate to store excess water generated by the development, so that flows to lower terrain will not exceed that existing prior to development, unless waived or modified by the Planning Commission. Section 16.24.070(B) also requires landscaping for subdivisions in part for erosion control and bank protection.

In addition, municipal code chapter 15.20, flood damage prevention regulations, requires construction, utility and subdivision standards for flood damage prevention. Future plans for development of the project site would have to comply with these flood damage prevention regulations. Chapter 15.22, water efficient landscape, requires measures for the efficient use of water. Section 15.24.130, site map and grading plan, requires a site map and grading plan, which includes grades shown sufficient to show on-site and off-site drainage, all drainage facilities, and estimated runoff rates.

The project site is tributary to the Pajaro River, which ultimately outfalls to the Monterey Bay. According to the Preliminary Engineer's Report, included as Appendix B, runoff from the project site will be directed to a storm water basin at the northwest corner of the parcel. Development of the project site has the potential to increase the volume, rate, and pollutant loading of storm water runoff after construction due to increased imperviousness. The proposed project will be required to incorporate Low Impact Development strategies and Best Management Practices to reduce storm water runoff, encourage infiltration, and reduce pollutant transmission.

To ensure future residential development of the site does not result in flooding and/or impacts to the city's storm drainage system, the following mitigation measure shall be required.

Mitigation Measure

HYD-2 Prior to approval of a tentative map, the applicant shall prepare a drainage plan that complies with the City of Hollister Best Management Practices and standards established for compliance with non-point discharge emissions for storm water. The drainage plan shall incorporate Low Impact Development strategies and Best Management Practices to reduce storm water runoff, encourage infiltration, and reduce pollutant transmission.

The drainage plan shall substantially detain storm water runoff on the project site with a combination of methods including onsite detention facilities, reduction of impervious surfaces, vegetated swales, permeable paving, landscaping and other strategies.

f. The potential water quality impacts from construction phase activities associated with the proposed project would be less than significant. See "a" above.

g, h. Regional flood hazards are described in terms of the 100-year flood event, and are mapped for most of California by the Federal Emergency Management Agency (FEMA). According to FEMA, the project site is not located within the 100-year flood plain. Therefore, the proposed project would not result in the placement of housing or structures within the 100-year flood hazard area.

i, j. As indicated by FEMA, the project site is located in an area of minimal flood hazard. The project site is not located in a coastal area or in the vicinity of reservoirs, lakes or ponds and is therefore not subject to inundation by tsunami or seiche. The project site is relatively flat and would not be subject to inundation by mudflow.

10. Land Use and Planning

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community? (1,5,6)	☐	☐	☐	☒
b. Conflict with any applicable land-use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? (1,6)	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan? (1)	☐	☐	☐	☒

Comments:

a. The project site is bound by Buena Vista Road, Calaveras Elementary School, Calaveras Park, and a residential neighborhood to the south, Westside Road and agricultural land to the north, and orchards to the west and east. The project site is within the City of Hollister's sphere of influence, and immediately north of the Hollister city limit. Pending prezone and annexation, development of the project site with single-family homes would not physically divide an established community.

b. The *City of Hollister General Plan* policies addressing environmental resources were reviewed for applicability and project consistency. The proposed project does not conflict with any applicable policies adopted for the purpose of avoiding or mitigating an environmental impact.

c. There are no habitat conservation plans or natural community conservation plans adopted for the project area. Therefore, the proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan.

11. Mineral Resources

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (1,4)	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated in a local general plan, specific plan, or other land-use plan? (1,4)	☐	☐	☐	☒

Comments:

a, b. The State Mining and Geology Board has designated portions of the Hollister planning area as having construction aggregate deposits (sand, gravel and crushed rock) of regional significance, pursuant to the Surface Mining and Reclamation Act (city general plan, page 7.3). These resources remain potentially available near the San Benito River and are needed to meet future demands in the region. However, the city's general plan does not identify the location of these resources. The project site is located a minimum of 0.85 miles from the San Benito River. Therefore, the proposed project would not result in impacts to known mineral resources or result in the loss of availability of a locally important resource recovery site.

12. NOISE

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in applicable standards of other agencies? (2,6)	☐	☒	☐	☐
b. Result in exposure of persons to or generation of excessive ground-borne vibration or ground borne noise levels? (4,6)	☐	☐	☐	☒
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (42,43)	☐	☐	☒	☐
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (2,4,6,7)	☐	☒	☐	☐
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, expose people residing or working in the project area to excessive noise levels? (1,30)	☐	☐	☒	☐
f. For a project located within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels? (4)	☐	☐	☐	☒

Comments:

a. The health and safety element of the city's general plan establish limits on noise increases and overall noise exposure limits for various land uses based on the California Office of Noise Control Land Use Compatibility Guidelines. The Land Use Compatibility Guidelines (guidelines) utilize the Day-Night Level (Ldn) 24-hour descriptor to define acceptable noise exposures for various land uses. The guidelines define an outdoor level of 60 dB Ldn or less as being "normally acceptable" for residential uses. A 60 dBA Ldn is generally considered to be an appropriate exterior level near roadways where outdoor use is a major consideration, such as in backyards, recreation areas in residential projects. Although not specifically stated, the guidelines indicate that interior noise levels no greater than 45 dBA Ldn are generally accepted as the maximum acceptable noise level for most indoor residential activities.

Development of the project site with residential uses will introduce new sources of noise in the vicinity due construction (temporary noise impacts) and increased vehicle trips. Specific details of the proposed project (unavailable at this time) may introduce noise sources or levels greater than anticipated. Implementation of the following mitigation measure will ensure interior and exterior noise exposures will be within the limits of the City of Hollister noise standards.

Mitigation Measure

N-1 The developer shall prepare an acoustical analysis when layout of the development is determined. The acoustical analysis shall determine potential impacts to the proposed homes from the surrounding noise environment, potential impacts to neighboring uses due to proposed residential use, and recommendations for reducing potential noise impacts within acceptable levels. The acoustical analysis shall be completed and appropriate mitigation adopted prior to approval of a subdivision map.

b. Long-term operational activities associated with the proposed project would not involve the use of any equipment or processes that would result in potentially significant levels of ground vibration. Standard construction methods are anticipated, and these methods do not involve significant vibration-causing activities. Vibration levels generated during project construction activities may at times be perceptible at neighboring land uses, but vibration levels would not be excessive causing cosmetic or structural damage to buildings. Therefore, the proposed project would not result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

c. Long-term, permanent increases in ambient noise levels would be primarily associated with increases in vehicle traffic on nearby roadways. According to the U.S. Department of Transportation Federal Highway Administration, doubling of the noise source produces only a 3 dB increase in sound pressure level. A 3 dB change in sound level is barely detectable by the human ear. The greatest effect of project traffic would occur along Buena Vista Road, between Miller Road and Westside Boulevard. The existing Average Daily Traffic (ADT) along Buena Vista Road, between Miller Road and Westside Boulevard is 3,468 vehicles. The proposed project would add 564 trips to the roadway segment of Buena Vista Road, between Miller Road and

Westside Boulevard, for a total ADT of 4,032 vehicles, representing an increase of in traffic volume by 16 percent. Therefore, project-generated increase in traffic volumes would not substantially increase noise levels in the project vicinity.

d. The proposed project would generate noise during demolition and construction that would result in a short-term increase in ambient noise levels. Typical noise levels range up to 91 dBA at 50 feet during the noisiest construction phase (city general plan EIR, page 4.4-9). The homes to the southeast are approximately 105 feet from the project site and the Calaveras Elementary School to the southwest is approximately 110 feet from the project site. Significant, but temporary noise excesses will occur at the homes and the elementary school that are adjacent to the site to the southeast and southwest during much of the construction, due to the close proximity of these receptors to the site.

The city's municipal code chapter 17.16.100, requires construction activities on and contiguous to residential properties to be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday.

Implementation of the following mitigation measure would ensure that short-term noise impacts are less than significant.

Mitigation Measure

N-2 The following measures shall be incorporated into construction documents to reduce construction-related noise:

a. Construction activities shall be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. Construction activities shall be prohibited on Sundays and federally recognized holidays;

b. Locate construction equipment and equipment staging areas at the furthest distance possible from nearby noise-sensitive land uses;

c. Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds should be closed during equipment operation;

d. When not in use, all construction equipment shall be turned off and shall not be allowed to idle; and

e. A noise disturbance coordinator shall be designated to handle complaints and the site shall be posted with a phone number and email address so that the nearby residents have a contact person in case of a noise problem.

e. As identified in the *City of Hollister General Plan*, Map 16, the project site is located within the "Influence Area" of the airport land use plan for the Hollister Municipal Airport. The general plan recommends that all development within the identified influence area be reviewed for compatibility with airport operations.

As illustrated on Map 1, Compatibility Policy Map: Airport Influence Area, in the *Hollister Municipal Airport Land Use Compatibility Plan*, the project site is located just within the boundary of the Airport Influence Area. The Airport Influence Area is divided into two areas for purposes of identifying the type and scope of review of new land use development projects that may be required by the Airport Land Use Commission to assess their compatibility with airport operations. The site is within Airport Land Use Commission Review Area 2. Within this area, noise and safety concerns from airport activities are generally not a concern. The project site is outside of the airport noise impact zones (Map 2, Compatibility Policy Map: Noise Impact Zones). Therefore, the proposed project would not expose people residing or working in the project area to excessive air operation noise levels and the impact would be less than significant.

f. The project site is not located within the vicinity of a private airstrip. Therefore, the proposed project would not expose people working in the project area to excessive noise levels.

13. Population and Housing

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? (1,33,40)	☐	☐	☒	☐
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (5,33)	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (5,33)	☐	☐	☐	☒

Comments:

a. The project site is within the city's planning area and sphere of influence (city general plan, map 1 Hollister planning area). Based on an average of 3.42 persons per household in the City of Hollister, future development of the site with 109 dwelling units could generate an estimated 373 new residents. Development of the project site represents a logical expansion of the city, consistent with the general plan. The environmental effects of the population growth associated with the proposed project are evaluated throughout this initial study. All impacts can be mitigated to a less than significant level.

b, c. The project site contains one house, located on the southern portion of the parcel. Although the proposed project would result in the demolition of the existing house, it would allow for an increase in the amount of housing units on the project site from 1 to 109. Therefore, the proposed project would not necessitate the construction of replacement housing elsewhere.

14. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of or 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 following public services:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection? (28,40)	☐	☐	☒	☐
b. Police protection? (28)	☐	☐	☒	☐
c. Schools? (1,44,45)	☐	☐	☒	☐
d. Parks? (28,40)	☐	☐	☐	☒
e. Other public facilities? (28)	☐	☐	☐	☒

Comments:

a. The Hollister Fire Department will provide fire service to the project site upon annexation. The Hollister Fire Department provides fire protection service throughout the city and adjoining county areas, via a mutual aid agreement, based upon staffing levels set by the City Council. The project site is contiguous to the current city limits (current service area) and will not extend the range of fire service currently in effect. The project site is within the five minutes first engine response time. The Hollister Fire Department is located at 110 5th Street, approximately 1.2 miles from the project site.

Annexation and future residential development of the project site would increase the city’s population by 373 new residents based on the California Department of Finance’s population and housing estimates for Hollister. This increase in population will result in an incremental increase in staffing levels and capital equipment. According to the Plan for Services, included as Appendix A, the incremental increase in staffing and capital equipment will be financed by the imposition of a Mello-Roos Community Facilities public safety tax.

The proposed project has the potential to result in physical impacts associated with the provision of or need for new or physically altered fire facilities in order to maintain acceptable levels of fire service. The proposed project would be subject to fire impact fees as calculated by the city. The developer would be required to pay the applicable fire impact fees, which would ultimately be programmed by the city, in combination with fees collected from other projects, to improve or expand fire facilities. Payment of the applicable fire impact fees would reduce the proposed project's impact on fire facilities to less than significant. Any fire facilities proposed in the future would be required to undergo separate environmental analysis.

b. Police service to the project site upon annexation will be provided by the Hollister Police Department. The Hollister Police Department provides police service throughout the city based upon staffing levels set the City Council of the City of Hollister. The project site is contiguous to the current city limits (current service area). Annexation will not extend the boundary of police service currently in effect. The Hollister Police Department is headquartered at 395 Apollo Way, approximately 4 miles from the project site.

Upon annexation and future development, the proposed project will include roadways that would affect traffic enforcement/collision investigation responsibilities and an incremental increase in staffing levels and capital equipment, due to the increase in population. According to the Plan for Services, the incremental increase in staffing and capital equipment will be financed by the imposition of a Mello-Roos Community Facilities public safety tax. As of August 2018, the city collects $775.00 per single-family residential unit and the fee is incrementally increased each year.

The proposed project has the potential to result in physical impacts associated with the provision of or need for new or physically altered police facilities in order to maintain acceptable levels of police service. The proposed project would be subject to police impact fees as calculated by the city. The developer would be required to pay the applicable police impact fees, which would ultimately be programmed by the city, in combination with fees collected from other projects, to improve or expand police facilities. Payment of the applicable police impact fees would reduce the proposed project's impact on police facilities to less than significant. Any police facilities proposed in the future would be required to undergo separate environmental analysis.

c. The project site would be served by two school districts: the Hollister School District (grades K – 8) and the San Benito High School District (grades 9 – 12). John Teliha, Director of Facilities, Maintenance and Operations for the Hollister School District (email message, December 13, 2018) stated that the student generation rate for kindergarten through eighth grade is 0.563 per home. According to the *School Facility*

Needs Analysis and Justification Study for the San Benito High School District, the student generation rate for the San Benito High School District for single-family residential housing is 0.131.

Table 4, Student Generation, presents the approximate number of students associated with future development of the project site with 109 single-family homes.

Table 4 Student Generation

School District	Student Generation Rate	Number of Students[1]
Hollister School District	0.563	0.563x109 = 62
San Benito High School District	0.131	0.131x109 = 14
Total		76

SOURCE: Hollister School District 2018, San Benito High School District 2018
NOTE:
1. Numbers are rounded

Consistent with the city's general plan policy CSF4.2, the proposed project would be subject to the applicable school impact fees as calculated by the school districts. The developer would be required to pay the applicable school impact fees, which would ultimately be programmed by the school districts, in combination with fees collected from other projects, to improve or expand school facilities. Pursuant to California Government Code Section 65996, payment of these fees is deemed to fully mitigate CEQA impacts of new development on school facilities. Any school facilities proposed in the future would be required to undergo separate environmental analysis.

d. The City of Hollister maintains a number of park facilities within its jurisdictional limits to serve the needs of city residents and residents of the adjoining unincorporated Sand Benito County.

Annexation and future residential development of the project site would increase the city's population by 373 new residents based on the California Department of Finance's population and housing estimates for Hollister. This increase in population is expected to increase use of existing recreational facilities and generate demand for additional park space.

The City of Hollister requires that residential projects either dedicate land and/or pay park-in-lieu impact fees for the incremental need for expanded park facilities. At the time of review of the development application, the project's financial contribution for park lands or facilities will be determined. According to the Plan for Services, included as Appendix A, the city has entered into an annexation agreement with the owners of the project site to ensure that the development of the site is fiscally neutral. The incremental increase in demand for park facilities would not require construction of new facilities, and therefore there would be no environmental impact.

e. The proposed project would not have an adverse physical impact on any other government facilities.

15. Recreation

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (28)	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment? (28)	☐	☐	☐	☒

Comments:

a, b. As discussed in Section 14 Public Services, development of the project site with single-family homes would increase the use of existing recreational facilities as well as generate demand for additional park space. The City of Hollister requires that residential projects either dedicate land and/or pay park-in-lieu impact fees for the incremental need for expanded park facilities.

As identified in the Plan for Services prepared for the project, the city has entered into an annexation agreement with the owner of the project site to ensure that development of the site is fiscally neutral. The incremental increase in demand for park facilities would not require construction of new facilities, and therefore there would be no environmental impact.

16. TRANSPORTATION/TRAFFIC

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? (43)	☐	☒	☐	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? (43)	☐	☒	☐	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (6)	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (43)	☐	☐	☐	☒
e. Result in inadequate emergency access? (43)	☐	☐	☐	☒
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreased the performance or safety of such facilities? (43)	☐	☐	☐	☒

Comments:

This section is based on the *Woodle Pre-Zone and Annexation Traffic Impact Analysis* (hereinafter "traffic impact analysis") prepared for the proposed project by Hexagon Transportation Consultants. The traffic impact analysis is included as Appendix E.

a, b. The traffic impact analysis analyzed traffic conditions for the weekday AM and PM peak hours for existing conditions, existing plus project conditions, background conditions, background plus project conditions, and cumulative conditions at the following study intersections and roadway segments:

Study Intersections

1. SR 156 and Buena Vista Road [CT] (unsignalized)
2. Miller Road and Buena Vista Road [CH] (unsignalized)
3. Westside Boulevard and Buena Vista Road [CH] (unsignalized)
4. Locust Avenue and Buena Vista Road [CH] (unsignalized)
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road [CH]
6. Westside Boulevard and Central Avenue [CH] (unsignalized)
7. Westside Boulevard and San Juan Road [CH]
8. College Street and San Juan Road/Fourth Street [CH] (unsignalized)
9. San Benito Street and San Juan Road/Fourth Street [CH]

Intersections denoted with the superscript "CH" are under the jurisdiction of the City of Hollister and intersection denoted with superscript "CT" are under the jurisdiction of Caltrans.

Roadway Segments

1. Buena Vista Road, west of Miller Road
2. Buena Vista Road, between Miller Road and Westside Boulevard
3. Buena Vista Road, east of Westside Boulevard
4. Miller Road, south of Buena Vista Road
5. Westside Boulevard, south of Buena Vista Road
6. Locust Avenue/College Street, south of Buena Vista Road

Traffic conditions at the study intersections were evaluated using level of service (LOS). Level of Service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various levels of service are based on the average amount of delay incurred by drivers traveling through the intersection.

The level of service standard for City of Hollister intersections is LOS C. The Caltrans level of service standard for intersections is LOS C or better. However, Caltrans acknowledges that a LOS C standard may not always be feasible. If maintaining a LOS C is not feasible, Caltrans attempts to maintain the existing level of service of service when assessing the impact of a new project. For the purposed of this study, LOS C standard also was applied to all Caltrans intersections.

Project Trips

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers in *Trip Generation Manual, 10th Edition*. Table 5, Project Trip Generation Estimates, presents the magnitude of traffic generated by the proposed project.

Table 5 Project Trip Generation Estimates

Land Use	Project Size	Unit	Daily		AM Peak Hour				PM Peak Hour			
			Trip Rate	Trips	Trip Rate	Trips In	Trips Out	Total Trips	Trip Rate	Trips In	Trips Out	Total Trips
Single-Family Detached Homes	109	DU	10.326	1,126	0.754	21	61	82	1.012	69	41	110

SOURCE: Woodle Pre-Zone and Annexation Traffic Impact Analysis

Existing Plus Project Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that two of the study intersections are projected to operate at an unacceptable LOS D or worse during one of the peak hours under existing plus project conditions:

1. SR 156 and Buena Vista Road CT (Impact: PM peak hour)

8. College Street and San Juan Road/Fourth Street CH

Based on Caltrans level of service impact criteria, the intersection of SR 156 and Buena Vista Road would be significantly impacted by the project under existing plus project conditions. The remaining substandard intersection would not be impacted by the project, based on the applicable significance criteria.

All other study intersections are projected to operate at acceptable levels during both the AM and PM peak hours of traffic under existing plus project conditions when measured against the applicable level of service standards.

Intersection Signal Warrant Analysis (SR 156 and Buena Vista Road)

The peak-hour signal warrant analysis indicates that the SR 25 and Buena Vista Road intersection is identified to have peak-hour traffic volumes that meet the thresholds that warrant signalization under existing plus project conditions during the AM and PM peak hours. The intersection of SR 156 and Buena Vista Road also is projected to operate at unacceptable levels of service and to be significantly impacted by the proposed project under existing plus project conditions. Therefore, the installation of a traffic signal is warranted at this intersection. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional Transportation Impact Mitigation Fee (TIMF).

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under existing plus project conditions.

Implementation of the following mitigation measure would reduce the proposed project's contribution to the impacts at SR 25 and Buena Vista Road intersection impact to a less-than-significant level.

Mitigation Measure

T-1 The developer shall pay the applicable San Benito County Regional Transportation Impact Mitigation Fee prior to scheduling a final inspection and issuance of an occupancy permit. .

Cumulative Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following seven study intersections are projected to operate at an unacceptable LOS D or worse during at least one of the peak hours under cumulative plus project conditions. Based on the applicable significance criteria, two of the seven substandard intersections would be significantly impacted by the project under cumulative plus project conditions:

1. SR 156 and Buena Vista Road [CT] (Impact: AM and PM peak hours)

2. Miller Road and Buena Vista Road [CH]

3. Westside Boulevard and Buena Vista Road CH

5. San Felipe Road/San Benito Street and North Street/Santa Ana Road CH
   (Impact: PM peak hour)

7. Westside Boulevard and San Juan Road/Fourth Street CH

8. College Street and San Juan Road/Fourth Street CH

9. San Benito Street and San Juan Road/Fourth Street CH

All other study intersections are projected to operate at acceptable levels during both the AM and PM peak hours of traffic under cumulative plus project conditions when measured against the applicable level of service standards.

Intersection Signal Warrant Analysis (SR 156 and Buena Vista Road)

The peak hour signal warrant analysis indicates that the intersection of SR 156 and Buena Vista Road is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization during both peak hours under cumulative no project and cumulative plus project conditions. The intersection of SR 156 and Buena Vista Road also is projected to operate at unacceptable levels of service and to be significantly impacted by the proposed project under cumulative plus project conditions. Therefore, the installation of traffic signals at the intersection of SR 156 and Buena Vista Road is warranted under cumulative plus project conditions.

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under cumulative plus project conditions.

Implementation of the mitigation measure T-1 would reduce the proposed project's contribution to the impacts at SR 25 and Buena Vista Road intersection impact to a less-than-significant level.

San Felipe Road/San Benito Street and North Street/Santa Ana Road

The intersection of San Felipe Road/San Benito Street and North Street/Santa Ana Road is projected to operate at an unacceptable LOS E during the PM peak-hour under cumulative conditions and the addition of project traffic would cause the delay at the intersection to increase by more than five seconds. This constitutes a significant project impact by City of Hollister standards. The cumulative project impact to this intersection could be mitigated with the installation of protected left-turn movements on the eastbound and westbound approaches of the intersection. The required improvements would include the addition of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal. With implementation of the above improvements, the intersection level of service would improve to better than cumulative no project conditions during the PM peak-hour, reducing the impact to less than significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the above improvements, a separate southbound right-turn lane also must be added. The above improvements are not part of the improvements projects of the San Benito County TIMF. Implementation of one of the following two possible mitigation measures, at the discretion of City staff, would reduce this cumulative project impact to less than significant.

Mitigation Measure

T-2 One of the following mitigation measures would mitigate the project's cumulative impact at the San Felipe Road/San Benito Street and North Street/Santa Ana Road intersection:

a. The City will include the required intersection improvements in the San Benito County Regional Transportation Impact Mitigation Fee (TIMF) program, and the developer shall pay the applicable TIMF fee as a fair-share contribution toward the above improvements prior to the issuance of building permits.

b. The developer will improve the intersection with installation of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal.

c. The proposed project does not include uses that generate air traffic or that have potential to affect air traffic patterns. Therefore, the proposed project would not result in a safety risk associated with air traffic.

d, e. There are no specific development plans for the project site, and therefore, a site plan for the potential development of the project site is not available at this time. Access to the project site would be provided via Buena Vista Road (south project frontage) and Westside Road (north project frontage). It is likely that a single access point along each of the project site frontages would be provided. The project site access driveway/roadway must be designed adhering to City of Hollister design guidelines and standards, including minimum width, minimum distance to adjacent intersections/driveways, and adequate sight distance.

In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, in addition to maintaining adequate operating levels and functional characteristics of Buena Vista Road (a collector street), the City of Hollister will consider access to the entire area, rather than individual parcels. This may be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels. A single access point along Buena Vista Road would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project to depend on such access point. However, the design of the project site may include a future connection to the east and/or west parcels as an alternative access point. The City will continue to address this issue when the applicant submits a tentative subdivision map application.

Although a project site plan is not currently available, the traffic impact analysis recommends the following on-site circulation improvements to be implemented during the site design process:

- **Design of New Roadways**. All new internal roadways must be designed to provide adequate width and turn-radii in order to provide continuous unimpeded circulation through the site for all vehicles, including emergency vehicles and large trucks such as garbage trucks. The design of all internal roadways must adhere to City of Hollister design guidelines and standards and the final design will have to be approved by the City of Hollister.
- **Installation of Sidewalks**. It is recommended that sidewalks be installed on both sides of all new streets within the project site, providing a continuous sidewalk/pedestrian network within the project site. New sidewalks should be designed to conform to existing and planned adjacent pedestrian facilities in the vicinity of the project site.

Future residential development on the project site would adhere to City of Hollister design guidelines and standards and would be subject to approval by the City of Hollister Public Works and Hollister Fire Department, which would ensure that future development is adequately designed to minimize hazards associated with design. Therefore, the proposed project would not increase hazards due to a design feature or result in inadequate emergency access.

f. The project site is served directly by Class II bicycle lanes along Buena Vista Road. However, bike lanes along Buena Vista Road are currently present along the south side of the street only, between Locust Avenue and west of Beresini Lane. Other bicycle facilities in the vicinity of the project site include Class II bicycle lanes on Westside Boulevard, between Buena Vista Road and Nash Road, and on San Juan Road, between Westside Boulevard and west of Miller Road.

Sidewalks are found along most developed areas in the vicinity of the project site. However, some areas near the project site include undeveloped land with missing sidewalks. Sidewalks are missing along most of the north side of Buena Vista Road, including the areas adjacent to the project frontage. The south side of Buena Vista Road has continuous sidewalks from Aguirre Drive to Locust Avenue. The nearest marked crosswalks to the project site are located at the Westside Boulevard/Buena Vista Road intersection (south leg) and the Line Street/Buena Vista Road intersection (all legs).

Project's Effect on Bicycle and Pedestrian Facilities

The proposed project could increase the demand on bicycle facilities in the vicinity of the project site. With the existing limited and discontinuous bicycle network, the potential project-generated bike riders would have to share the roadway with vehicular traffic, which could discourage the use of the bicycle as an alternative mode of transportation.

It can be expected that new pedestrian traffic would be generated by the proposed project. However, some areas within the study area include undeveloped roadway frontages with missing sidewalks, mainly along the north side of Buena Vista Road. The missing sidewalks in the project area could make pedestrian travel between the project site and other pedestrian destinations (such as schools, parks, and transit stops) challenging, discouraging pedestrian activity or forcing pedestrians to walk along undeveloped roadway shoulders and/or cross Buena Vista Boulevard at midblock.

As undeveloped parcels develop, they will be required to install sidewalks along their project site frontage, closing existing sidewalk gaps. This, in conjunction with planned pedestrian improvements identified in the County's Master Plan, will enhance the existing pedestrian network. However, since these pedestrian improvements are not currently planned nor funded, it is uncertain when the missing sidewalks would be installed. Until the adjacent pedestrian network is complete, project-related pedestrian traffic would be forced to walk along undeveloped roadway shoulders along the north side of Buena Vista Road.

The traffic impact analysis recommends the following improvements to promote auto-auto modes of transportation and to accommodate bicycle and pedestrian travel within and near the project site:

- **Contribute to Planned Bicycle Facilities in the Project Area**. It is recommended that the proposed project contribute to the completion of planned bicycle facilities in the vicinity of the project site, if a funding mechanism has been established for these improvements. Providing a complete and continuous bicycle network that serves the project area could encourage biking as alternative mode of transportation. The contribution should be determined by the City of Hollister and it should be based on the project's contribution to the total projected growth in the study area.

- **Installation of Sidewalks**. It is recommended that with the development of the project area, sidewalks along both sides of all new streets within the project site be built. Neighborhoods should be designed with adequate and continuous pedestrian facilities to encourage the use of non-auto modes of travel. New sidewalks along both project site frontages (Buena Vista Road and Westside Road) should be designed to accommodate future improvements along these roadways and align with planned adjacent pedestrian facilities. Additionally, frontage improvements on Buena Vista Road should be designed to be consistent with City of Hollister roadway design standards and guidelines, as well as accommodate the future installation of bike lanes along Buena Vista Road.

- **Installation of a High Visibility Crosswalk at Westside Boulevard/Buena Vista Road**. With the development of the project site, in addition to the development of other vacant land along the north side of Buena Vista Road, and the location of various pedestrian destinations south of Buena Vista Road (including a school and park), it is desirable to have marked crosswalks across Buena Vista Road. According to the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014), whenever a marked crosswalk has been established in a roadway contiguous to a school building or school grounds, it shall be yellow. Additionally, for added visibility, the area of the crosswalk may be marked with diagonal lines (45-degree angle) or longitudinal lines parallel to traffic flow. Thus, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

Transit Service

There are currently three County Express bus lines (Blue Line, Green Line, and Red Line) which operate within the City of Hollister. The Blue and Green Lines serve the project site area with scheduled stops at the Felice Drive/Central Avenue bus stop, located approximately a half-a-mile walking distance south of the project site.

Project's Effect on Transit Service

Although no reduction to the project trip generation estimates was applied due to transit services, it can be assumed that some of the project trips could be done utilizing public transportation. Applying an estimated three percent transit mode share, which is probably the highest that could be expected for the project, equates to approximately three to four new transit riders generated by the proposed project during the peak hours. The estimated number of new transit riders for the proposed project could be served by the existing transit service. Therefore, the additional transit demand generated by the project would not justify additional transit services in the study area based on the project demand alone.

The traffic impact analysis recommends that with the development of the project area, the County Express Transit System should consider expanding its existing bus route service area into the immediate project site area along Buena Vista Road. With the expansion of the service area, new bus stops could be located near the intersection of Westside Boulevard and Buena Vista Road. Additionally, the project site should be designed accounting for the potential future extension of transit services onto the project area. Thus, it is recommended that project frontage improvements on Buena Vista Road be designed based on City of Hollister roadway design standards and to potentially accommodate transit vehicles.

Future residential development on the project site would adhere to adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, which would ensure future development, does not decrease the performance or safety of such facilities.

17. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. 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, or 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:				
(1) 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 (41)	☐	☐	☐	☒
(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. (41)	☐	☐	☐	☒

Comments:

a. The CEQA statute as amended by Assembly Bill 52 (Public Resources Code Sections 21073 and 21074) define “California Native American tribe” and “tribal cultural resources.” A California Native American tribe is defined as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission. “Public Resources Code Section 21080.3.1 outlines procedures for tribal consultation as part of the environmental review process. According to city staff, no California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1.

18. Utilities and Services Systems

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (1,33,34,35)	☐	☐	☐	☒
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (33,34)	☐	☐	☐	☒
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (33,46)	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (33,34)	☐	☐	☐	☒
e. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (33,34)	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid-waste disposal needs? (47,48,49,50)	☐	☐	☐	☒
g. Comply with federal, state, and local statutes and regulations related to solid waste? (50)	☐	☐	☐	☒

Comments:

a. Wastewater facilities and treatment would be provided by the City of Hollister. Wastewater generated onsite from future residential use will be collected and conveyed to the city's domestic wastewater treatment plant/water reclamation facility for treatment and disposal. Current requirements for recycled water use are administered by Title 22 of the California Code of Regulations. The wastewater treatment plant/water reclamation facility has the capacity to meet the requirements for disinfected tertiary recycled water as defined by Title 22. The project site has a *City of Hollister General Plan* designation of Medium Density Residential and is accounted for in the *Hollister Urban Area Water and Wastewater Master Plan*. Therefore, the proposed project would not cause the city to exceed wastewater requirements of the Regional Water Quality Control Board.

b/d/e. **Water Facilities**. The project site is located within the City of Hollister's service area. The City of Hollister obtains its water supply from both groundwater and surface water. The city's water system facilities include three distribution zones, three groundwater wells within the city limits, three potable water storage tanks, one booster station, five pressure reducing valves, and approximately 90-miles of pressurized pipes ranging from 4-inches through 18-inches in diameter. According to the Preliminary Engineer's Report (Figure 7.1), the project's water line would connect to the existing water line in Buena Vista Road.

As identified in the Preliminary Engineer's Report, included as Appendix B, the project's water demand is estimated as 137,340 gallons per day or approximately 68.4 acre-feet per year (hereinafter "AFY"). According to the *2015 Hollister Urban Area Urban Water Management Plan*, water demand for the city's entire urban area is expected to increase to 10,286 AFY by 2035 (urban water management plan, page 4-3). The underlying groundwater sub-basins have a sustainable yield of roughly16,000 AFY (urban water management plan, page 6-17). Therefore, the city would have sufficient water to meet projected water demands of the proposed project in addition to meeting the Hollister urban area's existing and planned demands, and no additional or expanded water treatment facilities are necessary.

Wastewater Treatment Facilities. Wastewater facilities and treatment would be provided by the City of Hollister. The City of Hollister owns and maintains the sewer collection system surrounding the project, which consists of approximately 100 miles of gravity sewer pipes ranging in diameter from 4-inch to 36-inch and four lift stations. According to the Preliminary Engineer's Report (Figure 6.1), the project's sanitary sewer line would connect to one of two potential connection points along Buena Vista Road.

As identified in the Preliminary Engineer's Report, the proposed project is expected to generate an average dry weather flow of approximately 31,610 gallons per day (gpd). According to *the 2015 Hollister Urban Area Urban Water Management Plan*, the domestic wastewater treatment plant/water reclamation facility is capable of treating up to 4 million gpd and the current dry weather average flow is approximately 3 million gpd (page 6-13). Therefore, the proposed project would not require or result in the construction of new wastewater treatment facilities or expansion of existing facilities.

c. The City of Hollister's storm drainage system is comprised of multiple networks of inlets, pipes, and basins that flow to the San Benito River, the Santa Ana Creek or to terminal (retention) basins.

As identified in the Preliminary Engineer's Report, included as Appendix B, the project site drains to the northwest corner of the parcel, and a possible location for a storm water basin would also be at the northwest corner of the parcel. However, the city has been moving away from bio-retention basins in favor of underground storm water management systems, which allow for a useable open space area rather than a detention pond or basin. The proposed project would increase the amount of impervious surfaces due to construction of the 109 single-family homes and driveways. The proposed project would alter the existing drainage pattern of the site because of the increase in impervious surfaces. As discussed in Section 9, Hydrology and Water Quality, the proposed project would require a Construction General Stormwater Permit that reduces the impact of excessive runoff water. In addition, the proposed project will be required to incorporate Low Impact Development strategies and Best Management Practices to reduce storm water runoff, encourage infiltration, and reduce pollutant transmission. Therefore, the proposed project would not create or contribute substantial amounts of runoff water that would exceed the capacity of existing or planned storm water drainage systems.

f. Recology San Benito County provides garbage and recycling collection service in Hollister, San Juan Bautista, and unincorporated San Benito County. Solid waste is disposed of at the John Smith Road Landfill, which is the only permitted landfill serving the Hollister area. The landfill is owned by the County of San Benito and is operated by Waste Connections Inc. According to the California Department of Resources Recycling and Recovery (hereinafter "CalRecycle"), the John Smith Road Landfill has a remaining capacity of approximately 3.5 million cubic yards as of March 31, 2018. The landfill has a cease operation date of January 1, 2032. The maximum permitted throughput is 1,000 tons per day.

According to the CalRecycle's Jurisdiction Diversion/Disposal Rate Detail report for the year 2017, San Benito County produced approximately 5.60 pounds of solid waste per person per day. Based on an average of 3.42 persons per household in the City of Hollister, future development of the site with 109 single-family homes could generate an estimated 373 new residents. Therefore, the proposed project would generate approximately 2,089 pounds (5.60 pounds per person x 373 residents) of solid waste per day or 1.04 tons of solid waste per day.

Chris Nottemkamper, Site Manager, John Smith Road Landfill (telephone communication, December 20, 2018) stated that the landfill currently receives a weekly average of approximately 353 tons of solid waste per day. Including the proposed project, the landfill would receive approximately 354.04 tons per day, which would not exceed the landfill's maximum permitted throughput of 1,000 tons per day. Therefore, the proposed project would not generate solid waste that would exceed the landfill capacity.

g. State mandates such as AB 939, AB 341, AB 1826 and SB 1383 require all California jurisdictions to implement organics recycling programs, business/residential recycling programs and meet mandatory diversion from landfill or face potential compliance schedules and or fines. Recology San Benito County introduced new recycling and organics collection programs starting November 1, 2018 to help the cities of Hollister and San Juan Bautista, and San Benito County meet state waste diversion mandates. Future development of the project site would be required to comply with the new recycling programs and, therefore would comply with federal, state, and local statutes and regulations related to solid waste.

19. Mandatory Findings of Significance

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory? (1,2,3,7,18,19,20,21,23,24,25,26)	☐	☒	☐	☐
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) (1,5,6,11,16,33,37,38,39,40,43)	☐	☒	☐	☐
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly? (2,4,5,6,7,11,16,33)	☐	☒	☐	☐

Comments:

a. As discussed in Section 4 Biological Resources, the proposed project has a low potential to have an adverse effect on the following special-status species: California Tiger Salamander, burrowing owl, bats, and nesting birds. Implementation of Mitigation Measures BIO-1 through BIO-6 would reduce these potential, significant impacts to a less-than-significant level.

As described in Section 5 Cultural Resources, the project site is not known to contain any paleontological resources, human remains, or archaeological resources. However, it is possible that these resources could be accidentally uncovered during grading and construction activities. In the event this should occur, Mitigation Measures CR-1, CR-2, and CR-3 would ensure that the potential impacts would not be significant.

b. The proposed project has the potential to result in cumulatively considerable impacts in the areas of air quality (construction-related impacts), greenhouse gas emissions, noise (construction-related impacts) and traffic (operation of intersections). However, with the implementation of identified mitigation measures, impacts of the proposed project would not be cumulatively considerable.

c. The proposed project has the potential to result in adverse environmental effects that could cause substantial adverse effects on human beings from the following: construction-related fugitive dust emissions, construction-related emissions of dust and diesel exhaust, soil liquefaction during an earthquake, release of hazardous materials into the environment during construction or operation, and construction noise at nearby sensitive receptors that exceed noise thresholds. Implementation of Mitigation Measures AQ-1, AQ-2, AQ-3, GEO-1, GEO-2, HAZ-1, N-1, and N-2 would reduce potential impacts to a less-than-significant level.

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All documents indicated in bold are available for review at the **City of Hollister, 375 Fifth Street, Hollister, CA 95023, (831) 636-4360** during normal business hours.

All documents listed above are available for review at EMC Planning Group Inc., 301 Lighthouse Avenue, Suite C, Monterey, California 93940, (831) 649-1799 during normal business hours.

APPENDIX A

Plan for Services

PLAN FOR SERVICES

JOB No. 17011
WOODLE - ANNEXATION
HOLLISTER, CA

July 2017

REGISTERED PROFESSIONAL ENGINEER
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PLAN FOR SERVICES

Property Owner Name:	Alan & Lorraine Woodle
Applicant Name:	Hugh Bikle
Assessor Parcel Number(s):	019-120-005

In accordance with the Cortese/Knox/ Hertzberg Local Government Reorganization Act of 2000(commencing with Government Section 56000), a request has been made to annex property to the City of Hollister. The area comprises 9.43 acres. The intent of the application is to allow for the construction of a medium density residential development. The project site is bounded on the North by Westside road, on the East by 3 county parcels used for Rural Residential & Agriculture, on the West by a single county parcel used for Agriculture, and on the South by Calaveras School and Park as well as a City Subdivision. The project requesting annexation has been prezoned consistent with the City General Plan and thus has zoning that will be in affect at the time of annexation. The City of Hollister has adopted a Resolution of Application that includes findings that the plan for services has been reviewed by the City Planning Commission and the City Council and are requesting the San Benito County Local Agency Formation Commission (LAFCO) commence proceedings to allow for the annexation of the property and to allow the City to provide municipal services to support development of the site.

Pursuant to Section 56653 of the Cortese/Knox Act, the City of Hollister must file a plan for providing services for the affected area of the annexation as part of the submission of the Resolution of Application. Section 56653 requires that the plan for providing services include the following information:

1. An enumeration and description of the services to be extended to the affected (annexed) property.
2. The level and range of those services.
3. An indication of when those services can feasibly be extended to the affected property.
4. An indication of any improvement or upgrading of structures, roads, sewer or water facilities, or other conditions the local agency would impose or require within the affected territory if the change of organization (annexation) is completed.
5. Information with respect to how those services will be financed.

In addition, San Benito County LAFCO policy also requires a clear quantifiable mechanism to provide adequate services.

Below is an analysis of the services that will be required for the annexation of the affective property pursuant to the requirements set forth by Section 56653 of the Act.

The following is a list of the services provided by the City of Hollister that would be extended to the annexation property.

- Police Service – Property and Life Protection
- Fire Service – Fire Suppression and Medical Aid
- General Government – City Council, City Administration, City Finance
- Sewer Service – Transmission and Treatment
- Storm Drainage
- Parks and Recreation
- Road Construction
- Street and Utility Maintenance
- Water supply will be provided by
    - ☑ City of Hollister
    - ☐ Sunnyslope County Water District.

The following provides the level and range of the above noted services, and an indication of when the services can feasibly be extended to the affected property, improvements required, and information as to how the services will be financed.

<u>Police Service</u>

The City of Hollister has 25 sworn police officers and 5 non-sworn personnel. This equates to approximately 1.44 police officers per 1,000 residents.[1] Police service to the affected area upon annexation will be provided by the Hollister Police Department. The Police Department provides this service throughout the City based upon staffing levels set by the City Council of the City of Hollister. The affected area is ☑ is not ☐ contiguous to the current City limits (current service area). The annexation will ☐ will not ☑ extend the boundary of police service currently in effect.

Upon annexation and upon development, the project will include roadways that would affect traffic enforcement/collision investigation responsibilities and an incremental increase in staffing levels and capital equipment, due to the increase in population. The incremental increase in police service will be financed by the imposition of a Mello-Roos Community Facilities public safety tax. The city currently collects $358.00 per unit for the first year of occupation and the fee in incrementally indexed on a yearly basis in accordance to the methodology used in the *Engineering News Record*. The incremental increase in capital equipment will be financed through the imposition of police impact fees collected at the time of building permit issuance or prior to occupancy of the site. The annexation of the affected area will not create the need for any police related structures or improvements.

[1] April 14, 2014 staffing levels

Fire Service

The City of Hollister has 33 full-time firefighters with 16 persons on shift per day. The staff is supplemented by 3-4 paid call firefighters that respond as needed. The Hollister Fire Department will provide fire service to the affected area upon annexation. The Fire Department provides this service throughout the City and adjoining County areas, via a mutual aide agreement, based upon staffing levels set by the City Council. The Fire Department currently houses its fire personnel and equipment at its stations located at the northwest corner of Fifth and Sally Streets and the north side of Union Road between Valleyview Road and Airline Highway. The affected area ☑ is ☐ is not contiguous to the current City limits (current service area), and will not extend the range of fire service currently in effect. The affected ☑ is ☐ is not within the five minute first engine response time, as set forth in City Fire Protection Master Plan (see attached map). The affected area in its current condition may require a minor increase in fire service, even assuming it is currently in the response area. Development of site will require will require an incremental increase in staffing levels and capital equipment, due to the increase in population and structures. The incremental increase in staffing will be financed by the imposition of a Mello-Roos public safety tax. The incremental increase in capital equipment will be financed through the imposition of fire impact fees.

General Government

General Government services include the City Council, City Administration (City Manager, City Attorney), City Finance (Payment of Utility Bills), Building, Planning, Engineering, and Animal Control. These services are currently being provided to the City at large. Annexation of the affected area in its current condition will not cause any increase in City General Government services. Development of the site if annexed will cause a minor incremental increase in General Government services for the City Council, City Administration, City Finance, and Animal Control. These will be financed through an incremental increase in General Fund revenues, such as property and sales taxes. The City is also requiring that all projects requesting annexation enter into an agreement to be fiscally neutral (project will provide all revenues necessary to provide public services). The affected area has entered into an annexation agreement for fiscal neutrality. The incremental increase in services for Building, Planning and Engineering will be financed through permit fees.

Sewer Service

One single family homes and a distribution center, currently occupy the current affected area site. Sewage currently generated from the site is disposed on site by means of an existing septic system.

Development of the site assuming annexation will require that the City transmit and treat sewage generated on site. The City of Hollister currently treats its domestic wastewater at the Hollister Domestic Wastewater Treatment Plant (DWTP), which serves the current City limits and portions of unincorporated San Benito County. Domestic wastewater is the waste flows from the City's residential, industrial, commercial, and institutional land uses.

The project proposed for the affected area, or area requested for annexation, will comprise a maximum of 9.102 acres of residential land use. The project engineer has estimated the following waste water flows:

- 72 Single Family (160 gpd/DU)= = 11,520 gpd

Sewage or wastewater flows are transported to the treatment plant via a series of transmission lines. The closest manhole to connect to the sewer main is located at the intersection of Westside Blvd/Westside Road and Buena Vista Road. A main will need to be extended along Buena Vista Road from the project to that point of connection. These lines currently transport wastewater flows to the DWTP and are designed to serve the affected area. The project proponent will be required to fund the installment of sewer lines from the main transmission line to all the proposed facilities within the development to City standards.

Development of the affected area will not directly require the building of any structures or improvements related to the need for sanitary sewer treatment or transmission with the exception of the on-site transmission lines and laterals discussed above.

The City currently treats domestic and industrial wastewater at its new regional immersed membrane bioreactor (MBR) wastewater treatment plant located on the west side of the City, on the north side of San Juan Hollister Road. The plant has a design capacity of 5.0 million gallons per day (MGD) and produces effluent that meets Title 22 requirements for disinfected tertiary recycled water.

In accordance with the implementation of the Long Term Wastewater Management Plan (LTWMP) filed with the Water Quality Control Board, the City is currently implementing a long-term program of phased improvements for the disposal and reuse of reclaimed wastewater including spray fields, non-potable irrigation for landscaping, and certain agricultural uses. The new facility expands the City's ability to provide wastewater treatment service for the next 10 years, with an additional five years of expansion possible with the expansion of the membrane biological reactor. The City will continue to implement efforts to improve water quality and also to implement the water conservation measures.

The development will incrementally utilize capacity at both the treatment plant and within the City sewer transmission line. To offset the use of the capacity for the transmission facilities, the development will be assessed an impact fee at the time of building permit issuance. A sewer treatment impact fee will also be assessed to provide funding for additional capacity at the treatment plant.

Water Service

The subject site is within the City of Hollister's adopted service area. All plans for water service will need to be approved the City.

The project proposed for the affected area, or area requested for annexation, will comprise of 9.102 acres of zoned single family residential. The project engineer has estimated that the project will generate a demand for approximately 25,200 gallons of water per day.

Existing water mains are located in the City and County streets adjacent to the project site. Water will be supplied to the affected area from the 12" ∅ water line located within Buena Vista Road, The project proponent will be required to fund the installment of water lines to all the residential within the development to City of Hollister standards.

Storm Drainage

The City of Hollister maintains a series of transmission lines that convey storm flows within the city and some adjoining areas of unincorporated San Benito County to either the San Benito River or Santa Ana Creek. The affected area is within ☑ the San Benito River drainage area or ☐ Santa Ana Creek drainage area.

According to the project engineer, the full 9.102 acre site will generate 8.32 cubic feet per second of storm runoff discharge based upon a 10-year occurrence period and the minimum 10 min time of concentration (storm runoff calculated from City of Hollister Engineering Design Standards Section 4.03). Pending geotechnical investigations in the project area, the following low impact development standards are recommended to be incorporated into the project design:

- vegetated swales
- porous pavement
- permeable paving stones
- reduced driveway areas
- trees
- underground detention and retention
- concave lawns
- rain gardens
- water quality inlets

There is a 24" storm drain in Westside Boulevard. Whether that size is used between the existing catch basin at Westside Road and the existing manhole in Westside

Boulevard is to be determined. A main will need to be extended along Buena Vista Road from the project to that point of connection at the intersection of Westside Boulevard/Westside Road and Buena Vista Road.

Post developed runoff rates will not exceed pre-developed levels. Permanent storm water best management practices will be implemented that retain and infiltrate or treat the 95th percentile 24-hour event, based on local rainfall data.

The development will incrementally utilize capacity of the City storm transmission lines and area wide storm water treatment and recharge facilities. To offset the use of this capacity, the development will be assessed a storm drainage impact fee at the time of building permit issuance.

Parks and Recreation

No park or recreation units currently occupy the affected area. Annexation of the site in its current state will not require any additional park facilities or recreational programs.

The City of Hollister maintains a number of park facilities with its jurisdictional limits to serve the needs of City residents and residents of the adjoining unincorporated San Benito County. The City or private developers, or a combination of both has historically constructed these facilities. The amounts of parkland required are set forth by the City General Plan and the City Subdivision Ordinance.

Development of residential projects generally requires an increase in park facilities to serve the new residents based on a standard of five acres per 1000 persons. The degree to which an increase in park facilities will be required will be determined at the time of review of the development application. The City of Hollister requires that residential projects either dedicate land and/or pay park-in-lieu impact fees for the incremental need for expanded park facilities. At the time of review of the development application, the project's financial contribution for park lands or facilities will be determined.

The City of Hollister funds a number of recreation programs to serve the needs of City residents and residents of adjoining unincorporated San Benito County. These programs are funded at a level of 75 percent by user fees. The remaining costs are funded by the City of Hollister General Fund. The City has entered into an annexation agreement with the owners of the affected area to ensure that the development of the site is fiscally neutral, which would include the City portion of the funding required for recreational programs.

Road Construction

The City of Hollister requires that there be adequate roadways to serve the transportation needs of City residents. The City or private developers, or a combination of both fund roadways. The project site is adjacent to and fronts Hillcrest Road, El Cerro Drive, and is perpendicular to Sawtooth Drive.

Sometime following annexation, the development of the affected area will require the widening improvement of Buena Vista Road and Westside Road as well as the full development of the yet to be determined interior streets. The development proponent will be required to fund these improvements. The development will also require on an incremental basis the need for expanded roadway facilities in the City and County, including the widening of other arterial streets. To offset these incremental costs, the development project will be assessed a traffic impact fee at the time of final occupancy for a building permit. The development may also be assessed a pro-rata fee for other necessary related traffic improvements.

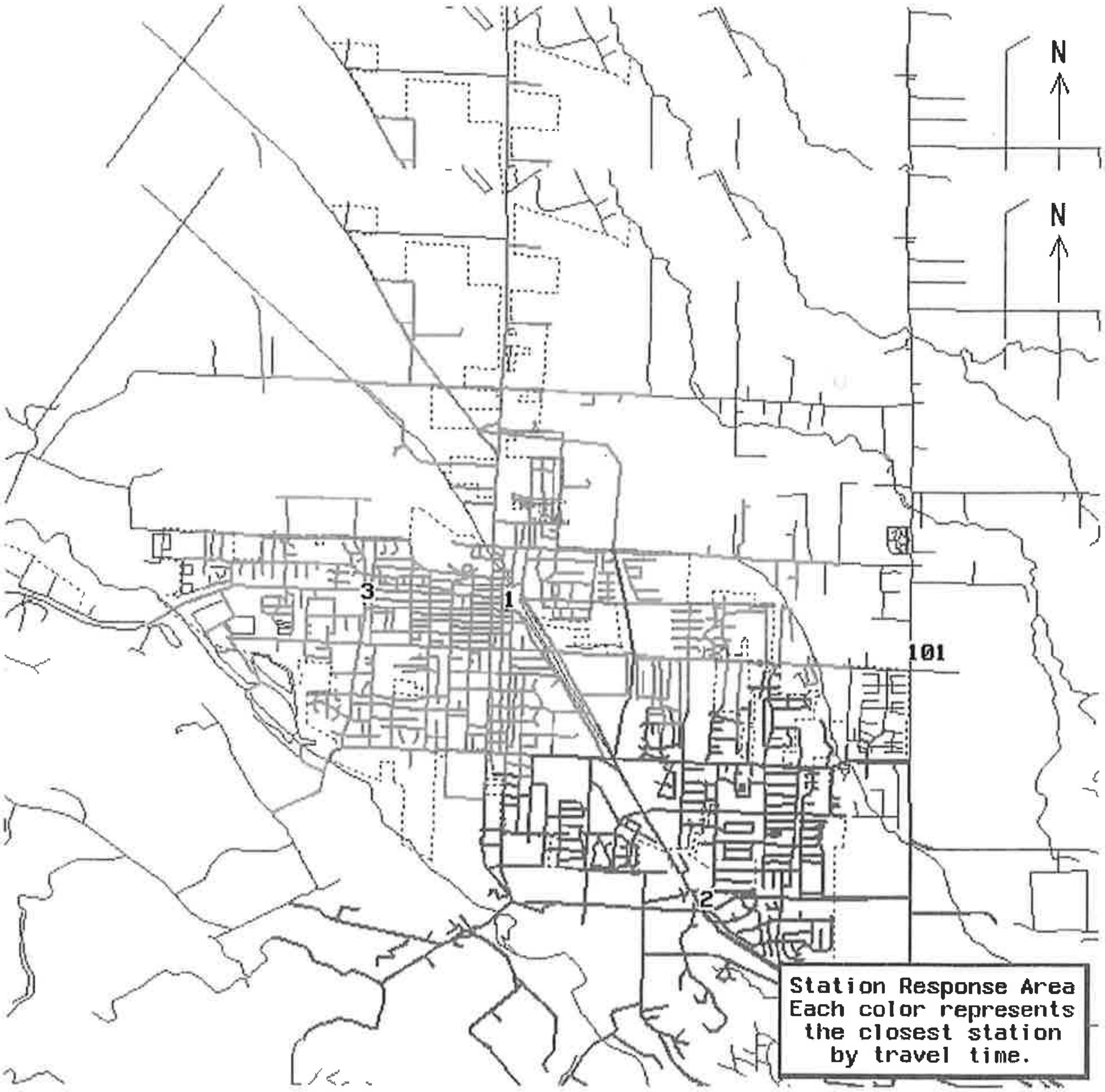
Street and Utility Maintenance

Many existing city streets and utilities currently surround the affected area and annexation of the site in its current state ☑ will ☐ will not require an increase in the need for the funding for street or utility maintenance.

Upon annexation, development of the project site will require the maintenance of area City streets, landscaping and utility facilities that will serve the affected area, as well as streets and utility systems within the development. The area street maintenance is funded by the City of Hollister state taxes. The city currently collects $158.00 per unit for the first year of occupation and the fee is incrementally indexed on a yearly basis in accordance to the methodology used in the *Engineering News Record* for maintenance of landscaping and lighting. City utility systems are currently funded by City user fees.

Report reviewed by:

For the City of Hollister Community Development Department – Planning Division



Station 1 & 2 5 minute response times.

APPENDIX B

PRELIMINARY ENGINEER'S REPORT

Preliminary Engineer's Report

For

Woodle Property

Hollister, California

December 14, 2018

Prepared for:

Stone Bridge Homes, Inc.
1540 Constitution Blvd.
Salinas, CA 93905

Engineer:

RUGGERI-JENSEN-AZAR
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(408) 848-0300
Contact: Chris Patton, P.E.

Table of Contents

List of Figures

List of Tables

References

1. City of Hollister, *City of Hollister General Plan.* December 2005
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1 Introduction

1.1 Purpose of the Report

This report is prompted by the intent of the Project Applicant, Stone Bridge Homes, to develop land owned by Alan & Lorraine Woodle. The land is currently located within the County of San Benito and the Applicant intends to annex it into the City of Hollister. The Applicant has retained Ruggeri-Jensen-Azar (RJA) to conduct preliminary land planning and engineering design for the proposed development. This report summarizes the findings of these efforts and is intended to be used as a technical reference for the Woodle Property entitlement applications and associated environmental review.

1.2 Study Limitations

This report is limited to identification of the backbone infrastructure and general site grading needed to support development of the property. At the time of this report, a site plan has not been prepared, but for purposes of this report it is anticipated to consist of up to 109 single family units, which is consistent with the Medium Density Land Use shown in the City of Hollister General Plan Map for this property. All calculations are based on this number of units and are consistent with the current City of Hollister development guidelines and design criteria. This report, and calculations herein, are for preliminary purposes only and shall not be used for final design or construction.

1.3 Scope of Work

The scope of this report includes and is limited to the following:

- Discuss the interface of the project with the surrounding circulation system.
- Preliminarily, study the site grading.
- Preliminarily, study the existing stormwater drainage conditions, identify conceptual drainage areas, and identify potential onsite storm drainage system including detention/retention strategies.
- Identify preliminary LID strategies for onsite stormwater management.
- Determine the potential points of connection, method of conveyance, and generation rates for sanitary sewer generated by the Project.
- Study the existing domestic water system and identify potential points of connection, demands, and a conceptual onsite distribution system.
- Identify the existing dry utility infrastructure.

2 Study Area

2.1 Location

The property comprises approximately 8.9 acres located within the County of San Benito. The property is bounded by the following features: Westside Road to the north; Buena Vista Road to the south; an existing orchard and single family homes to the east; an existing orchard and commercial buildings to the west. Figure 2.1 shows the Local Area Map.

2.2 Existing Conditions and Topography

The property is currently used for an automotive shop and a single family residence. The majority of the property is currently unused. A private dirt road runs south to north through the property, connecting Buena Vista Road to Westside Road.

The Natural Resources Conservation Service (NRCS) identifies the existing site soils generally consist of clay and silt. Most of the site is silty clay loam, with about a quarter being silty clay. The California Geologic Survey (CGS) does not identify an earthquake fault zone or landslide hazard zone within the project; however, the site is located in a seismically active region, with the Calaveras fault, located approximately one-half mile east of the property. The property is not mapped in regards to liquefaction potential by the CGS.

In general, the property is characterized by gradual slopes running south to north (0.1%-0.5%). The site drains away from the current City limits and its storm drain infrastructure. It is unclear whether the storm runoff is tributary to the Santa Anna Creek or the San Benito River. Nevertheless, the site is within the watershed of the Pajaro River and ultimately drains to the Monterey Bay.

The site is in Flood Zone X according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Map No. 06069C0185D, dated April 16, 2009. Zone X is described as "Areas determined to be outside the 0.2% annual chance floodplain."

Figure 2.2 shows the existing site topography.

FIGURE 2.1
LOCAL AREA MAP
WOODLE PROPERTY
HOLLISTER, CALIFORNIA

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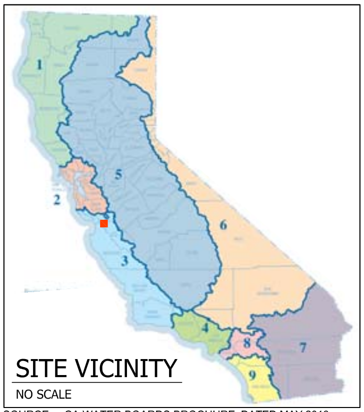
JOB NUMBER: 182041



SOURCE: CA WATER BOARDS BROCHURE, DATED MAY 2013.

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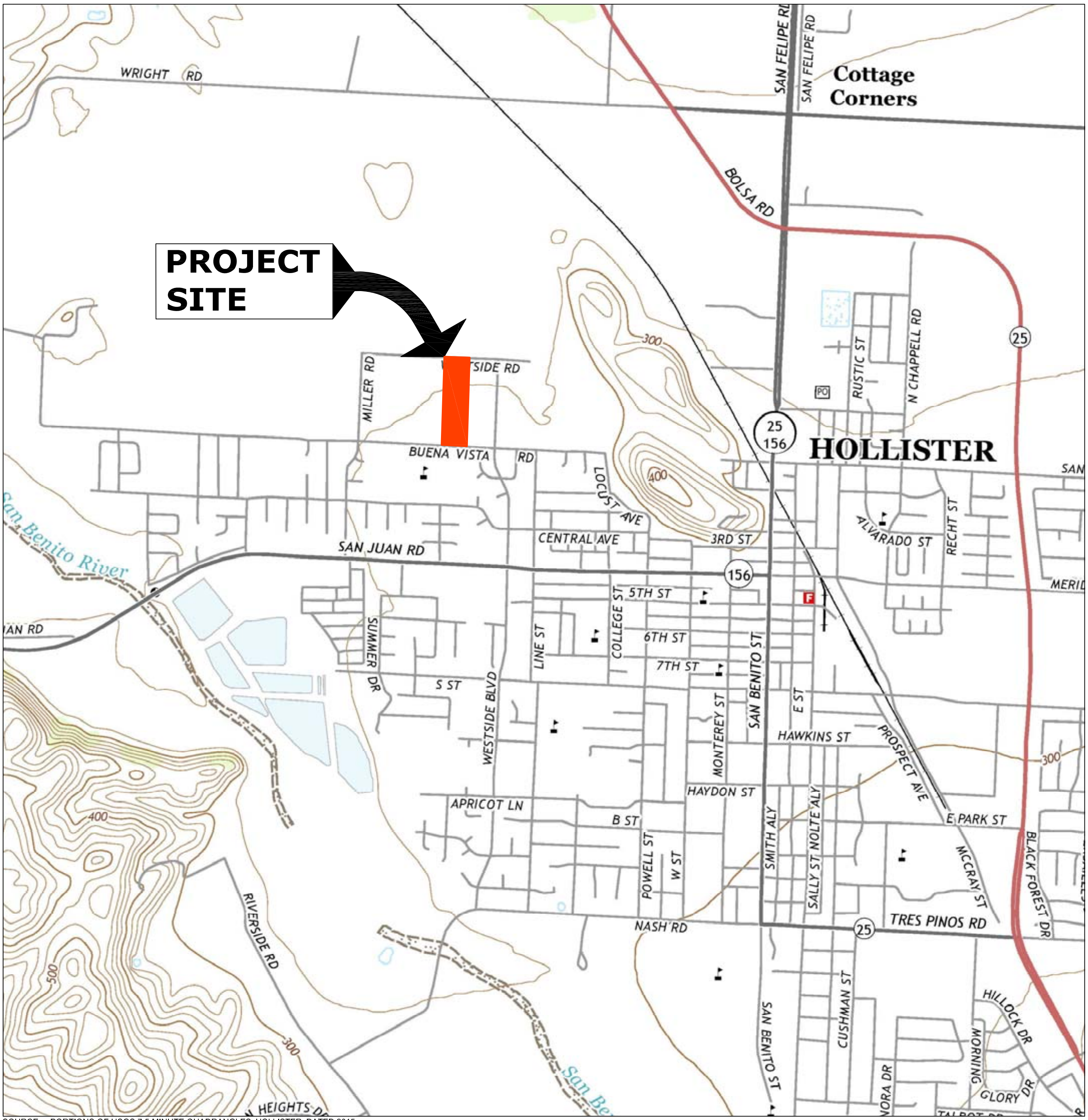
SCALE: 1"=2000'



SOURCE: PORTIONS OF USGS 7.5 MINUTE QUADRANGLES: HOLLISTER, DATED 2015.

PLOT DATE: 12/4/2018 5:28 PM
FILE PATH: W:\Jobs 18\182041 Woodle\Drawings\Prelim\Studies & Calculations\Engineer's Report\Fig 2.1 - Local Area Map.dwg

LEGEND

PROJECT BOUNDARY

N

NOT TO SCALE

FIGURE 2.2
EXISTING SITE TOPOGRAPHY
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

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2.3 Existing Easements and Utilities

There are two easements within the property.

1. An easement for an 8 foot wide water ditch. The easement was recorded in 1899 in San Benito County, book 20, page 576. Based on current conditions, the water ditch does not exist and therefore it is not anticipated to be a constraint to development of the property.
2. An easement for electric pole line and appurtenances was recorded by Coast Counties Gas and Electric Company, now PG&E, in August 1931, in San Benito County book 52, page 252. Electric poles run north/south along the eastern boundary of the property. The exact location of the easement is not known, but an approximate location based on the pole locations is shown in Figure 2.3. It is anticipated that these lines will be either relocated or placed underground along a future street in order to facilitate the efficient development of the property.

Utilities that surround the site include:

- City of Hollister 12-inch water main Buena Vista Road across the project frontage.
- City of Hollister 8-inch sanitary sewer main in Buena Vista Road approximately 500 feet west of the project and an 8-inch sanitary sewer main in the intersection of Buena Vista Road and Westside Boulevard, approximately 300 feet east of the project.
- City of Hollister 24-inch storm drain at intersection of Buena Vista Road and Westside Boulevard, approximately 300 feet east of the project.
- PG&E gas line in Buena Vista Road across the project frontage.
- Overhead utility lines exist along Buena Vista Road, Westside Road, and along eastern property boundary.

Figure 2.3 shows the plottable existing easements and utilities within and surrounding the property.

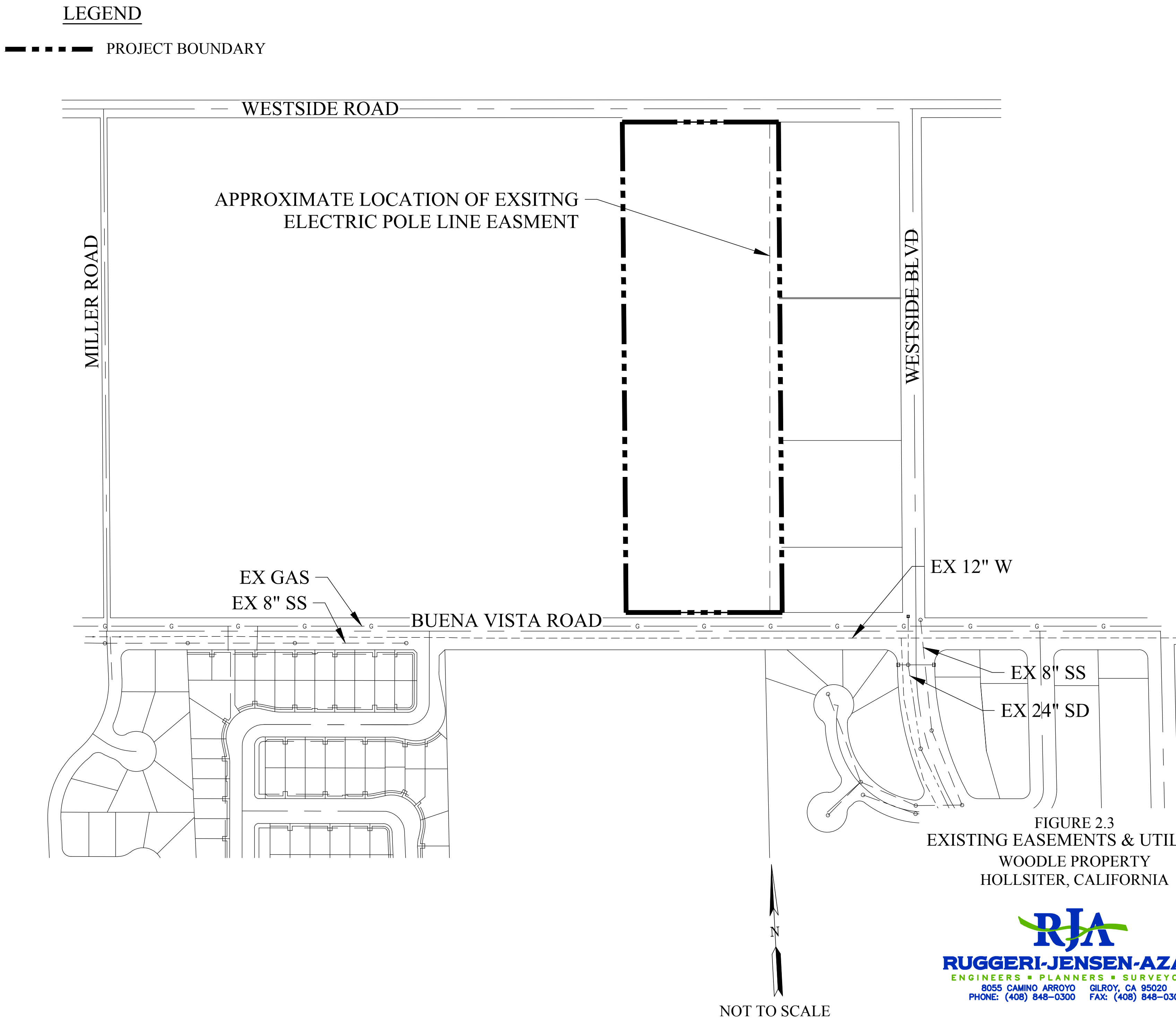

FIGURE 2.3
EXISTING EASEMENTS & UTILITIES
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

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2.4 Land Use

The property is currently zoned as a rural, single-family residence (RS01) in the County of San Benito. The applicant is proposing to annex the property into the City of Hollister in accordance to the City of Hollister 2005 General Plan. The General Plan rezones the property as medium density residential. The applicant plans to develop the property with up to 109 lot single-family residential units. The property is expected to have a density of approximately 12 units/net acre, which is consistent with the medium density zoning.

3 Circulation

Access to the development is provided by Buena Vista Road and Westside Road. Per the City of Hollister General Plan, Buena Vista Road is a major collector, and Westside Road is a minor collector. The project intends to be consistent with the General Plan Circulation Element by incorporating the ultimate width of these roadways into the project design.

The onsite circulation plan will be designed to current City of Hollister standards, and will provide a safe and efficient travel network in conjunction with the future capital improvements.

4 Proposed Site Grading

The grading plan will be designed to optimize the quality of the development while meeting the following goals to the maximum extent practicable:

- Minimize the quantity of earth moved,
- Achieve a balanced earthwork condition, and
- Maintain existing drainage patterns and overland release.

The proposed site grading will generally slope from south to north to maintain the existing drainage patterns. The grading conforms are expected to be 2:1 maximum (horizontal to vertical) slopes or small retaining walls. The grading plan will be designed to balance cuts and fills to minimize the amount of export or import.

5 Storm Water

5.1 Existing Hydrology and Drainage

Under existing conditions, rainfall appears to percolate into the soils, with larger rain events saturating the soil and producing runoff that sheet flows across the northwestern corner of the property. There are no defined creeks or channels on or adjacent to the property. The only storm drain infrastructure that exists near the property is an inlet at the intersection of Westside Road and Buena Vista Road, which is upstream from the property and would not be a point of connection for the project.

The Woodle property is tributary to the Pajaro River, which ultimately outfalls to the Monterey Bay. The Mean Annual Precipitation for the project site is approximately 15-inches. Figure 5.1 shows the exiting drainage area and surrounding storm drain system.

The City of Hollister Storm Drain Master Plan and the rational method were used to estimate peak runoff rates for the existing property. Table 5.1 summarizes the existing hydrologic results.

Table 5.1 – Existing Storm Water Runoff Peak Flows (24-hr Storm Event)

Drainage Area	Area (Ac)	2-year	10-year	25-year	100-year
		Q (cfs)	Q (cfs)	Q (cfs)	Q (cfs)
E	8.9	2.9	4.2	4.9	7.4

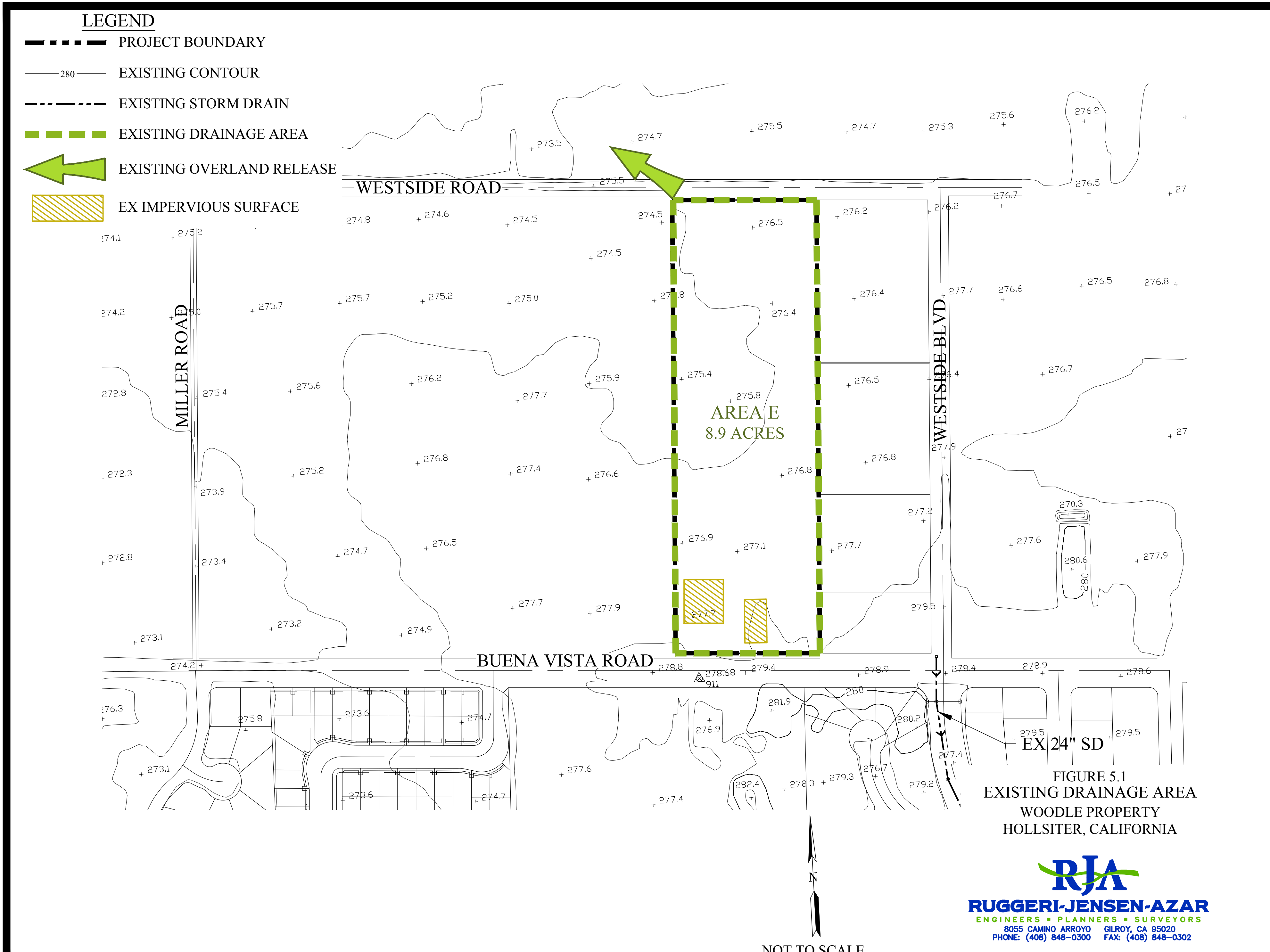

FIGURE 5.1
EXISTING DRAINAGE AREA
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

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5.2 Proposed Drainage

The 2001 City of Hollister Storm Drain Master Plan identifies deficiencies in the existing conveyance system and recommends capital improvements to meet future growth needs. However, the report does not discuss the runoff generated from the future development areas along Buena Vista Road. The future growth areas north of Buena Vista Road flow to the north away from Buena Vista Road, and thus away from the existing Hollister storm drain infrastructure. The Storm Drain Master Plan is silent on how the Buena Vista future development areas are intended to be served from a storm drain perspective.

The grading and drainage plan for the project will seek to maintain and/or enhance the hydrologic properties of the existing drainage conditions. In general, runoff volumes and peak flows will increase after development due to increases in impervious surfaces. This will be mitigated by the use of stormwater management strategies described in Section 5.3. The streets will be graded to direct runoff to a stormwater retention/detention basin. The basin will be designed to allow infiltration of stormwater with overflow relief matching the existing condition. The grading will maintain the existing watershed boundary. Table 5.2 summarizes the post-development hydrologic results.

Table 5.2 – Post-Development Storm Water Peak Flows (24-hr Storm Event)

Drainage Area	Area (Ac)	2-year	10-year	25-year	100-year
		Q (cfs)	Q (cfs)	Q (cfs)	Q (cfs)
A	8.9	5.5	8.1	9.4	11.4

The property runoff will be directed to a stormwater basin at the northwest corner of the site. The stormwater basin will provide retention of the 95% storm and the necessary detention to mitigate peak flows to predevelopment levels. In accordance to the City's standards, the basin will be designed so that peak discharge from the basin will not exceed 90% of the undeveloped peak flow from the 24-hour 100-year event. For the 100-year event, the basin will have to retain 4.7-cfs and 10,500-ft^3 when comparing the difference between the developed peak flow and the 90% of the undeveloped peak flow. Figure 5.2 shows the potential basin location and overflow point.

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NOT TO SCALE

FIGURE 5.2
CONCEPTUAL STORM DRAINAGE
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

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5.3 Storm Water Management

5.3.1 Local Agency Permits & Requirements

The State Water Resources Control Board has implemented a National Pollution Discharge Elimination System (NPDES) Program to control and enforce storm water pollutant discharge reduction per the Clean Water Act. The Central Coast Regional Water Quality Control Board (RWQCB) issues and enforces the NPDES permits for discharges to water bodies in San Benito County, including the City of Hollister. As part of their current NPDES Phase II Storm Water Permit, the RWQCB required the City to reduce the volume, rate, and pollutant loading of urban runoff. The RWQCB stipulated that the City establish development standards to be used in new development and redevelopment to help achieve the goals of the NPDES permit.

The Central Coast (RWQCB) adopted Resolution R3-2013-0032 for approving Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region. This resolution went into effect on March 6, 2013. All new and redevelopment projects within the City shall be designed in accordance with the City's Stormwater Management ordinance (Municipal Code, Section 17.16.140) and the Grading and Best Management Practice Control Ordinance for Low Impact Development (LID) (Municipal Code, Section 15.24).

LID is defined as principles and techniques used in designing sites (starting from site layout and grading and compaction phases of construction) that disturb only the smallest area necessary, minimize soil compaction and imperviousness, preserve natural drainages, vegetation, and buffer zones, and utilize on-site, lot sized stormwater treatment techniques. LID sites reduce and compensate for development impacts on hydrology and water quality in order to preserve and protect existing water bodies. Post-Construction stormwater BMPs are small-scale facilities integrated into the site layout, landscaping, and drainage design of urban development to provide long-term management and treatment of stormwater runoff. They typically treat runoff from relatively small drainage areas (less than 5-acres) and include elements such as vegetated swales, filter strips, bioretention and bioswale systems, and permeable pavement. If designed correctly, LID and Integrated Management Practices (IMP) elements can be key amenities for a property, providing both aesthetic qualities and functional stormwater management benefits.

5.3.2 Construction Storm Water Management

Development of the Woodle Property has the potential to increase discharge of storm water pollutants during construction due to ground disturbance. Projects disturbing more than 1-acre of land during construction, or disturb less than 1-acre but are part of a larger common development greater than 1-acre, are required to obtain coverage under the State of California NPDES General Construction Permit, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (General Permit). The General Permit requires the project applicant to file a

Notice of Intent (NOI) with the State Water Resources Control Board and develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP is designed to address the following five (5) objectives:

- Identify and control all pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity;
- Where not otherwise required to be under a Regional Water Board permit, identify and either eliminate, control, or treat all non-storm water discharges;
- Select and identify site Best Management Practices (BMPs) that are effective and result in the reduction or elimination of pollutants in storm water discharges and authorized non-storm water discharges from construction activity to the Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) standard;
- Provide complete and correct calculations and design details and identify BMP controls for site run-on; and
- Select and identify stabilization BMPs to reduce or eliminate pollutants after construction is complete.

A separate NOI and SWPPP will be prepared and filed with each significant project phase prior to the start of construction per the requirements of the General Permit and RWQCB. The project applicant is required to submit all permit documentation, including but not limited to the NOI, SWPPP, annual reports, pollutant exceedance reports, notice of termination, via the Stormwater Multiple Application and Report Tracking System (SMARTS) website (smarts.waterboards.ca.gov).

5.3.3 Post-Construction Storm Water Management

Development of the Woodle Property has the potential to increase the volume, rate, and pollutant loading of storm water runoff after construction due to increased imperviousness. A drainage system will be designed to reduce pollutant discharges and lower the post-development storm water runoff volume and rate to pre-development levels by implementing LID and BMP planning and design strategies. The project will select and design BMPs and develop a long-term maintenance plan per the requirements of the City.

The grading and drainage plan prepared for project will mimic the sites pre-development hydrologic features through the following practices:

- Incorporating significant landscaped areas into the layout design,
- Maintaining existing watershed drainage areas to the maximum extent practicable, and
- Locating storm water basins in areas with good soil percolation ability to promote infiltration of runoff.

Additional LID and BMP elements that may be incorporated into the design of the project where practicable include:

- Minimize soil compaction,
- Minimize disturbance to existing topography and vegetation,
- Plant new trees and shrubs to increase evaportranspiration,
- Disconnect rooftop and pavement surfaces by directing runoff to landscaped areas,
- Consider use of alternative paving surfaces, such as permeable interlocking concrete pavers at driveways and parking stalls, and coarse aggregate trail surfaces,
- Incorporate efficient irrigation methods including use of drought resistant plants, and
- Install storm drain labeling on drain inlets.

6 Sanitary Sewer

6.1 Sewer Generation

The proposed development is expected to generate an Average Dry Weather Flow (ADWF) of approximately 31,610 gallons per day (gpd) based on the preliminary land use assumptions and City of Hollister design criteria. Table 6.1 summarizes the projected sewer generation from the project.

Table 6.1 – Projected Sewer Generation

Land Use	Approximate Total Acreage	Residential Units	ADWF (gpd)
Single-Family Residential	8.9	109	31,610
Total	8.9	109	31,610

Notes:
1. Sewer generation rates were taken from the City of Hollister Design Standards. The sewer generation factor is 160 gpd/DU for Medium Density Residential. However, to be conservative, the single family factor of 290 gpd/DU was used because the City Standards assume that medium density is a multifamily development with less persons per unit, yet this project is proposed as a single family development.
2. Rainfall Derived infiltration and inflow (RDII) was not accounted for in this study since modern pipe and manhole construction methods greatly reduce the effects of RDII.

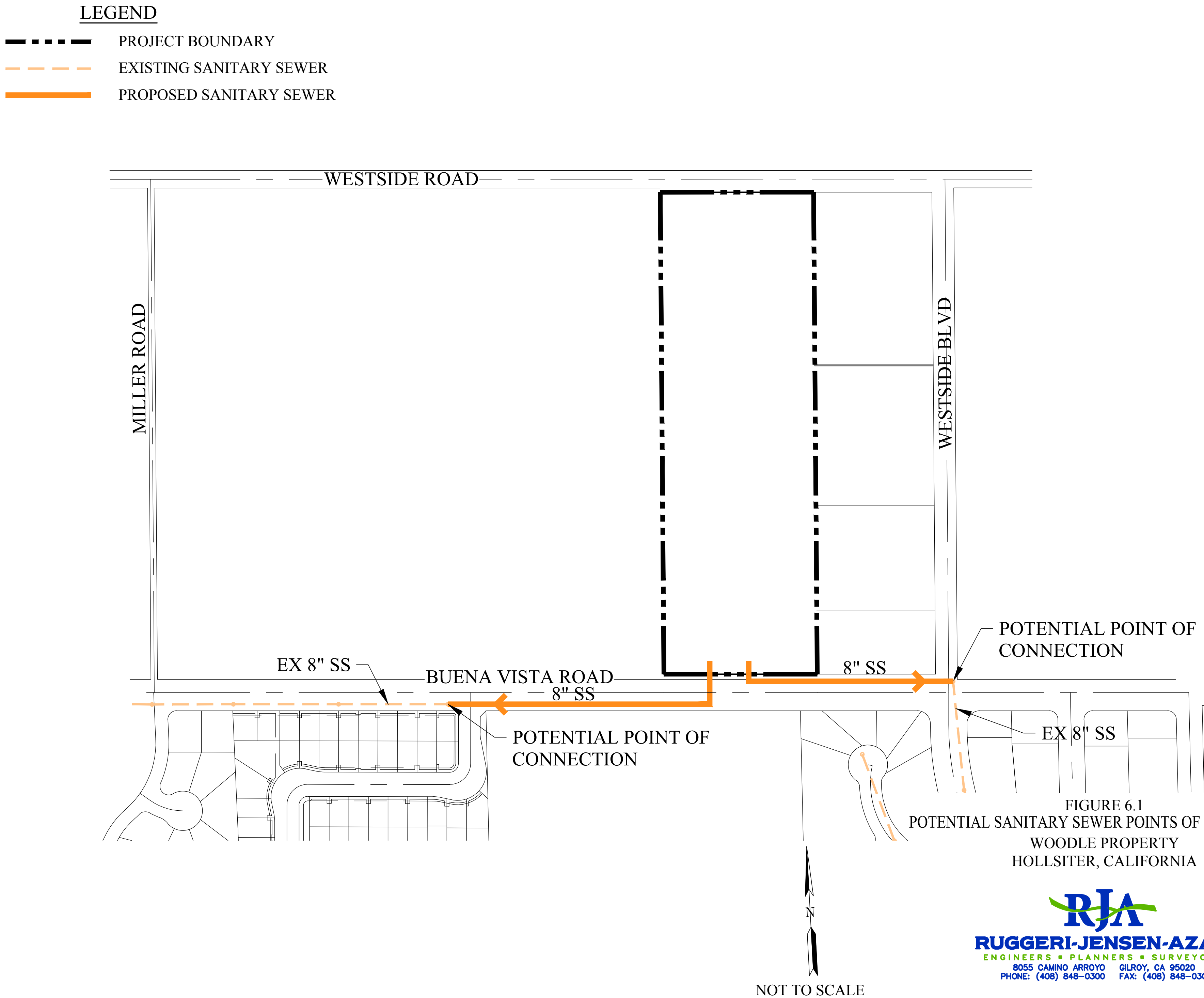

FIGURE 6.1
POTENTIAL SANITARY SEWER POINTS OF CONNECTION
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

RJA
RUGGERI-JENSEN-AZAR
ENGINEERS ▪ PLANNERS ▪ SURVEYORS
8055 CAMINO ARROYO GILROY, CA 95020
PHONE: (408) 848-0300 FAX: (408) 848-0302

6.2 Collection and Conveyance

The City of Hollister owns and maintains the sewer collection system surrounding the project, which consists of approximately 100-miles of gravity sewer pipes ranging in diameter from 4-inch to 36-inch and four lift stations. The 2018 Sanitary Sewer Collection System Master Plan identifies deficiencies in the existing conveyance system and recommend capital improvements to meet future growth needs. The Sanitary Sewer Collection System Master Plan identifies future development areas along Buena Vista Road which includes the project area. While the master plan appears to include these areas in the study area the master plan is silent on the proposed infrastructure needed to convey the flows from the new development areas to the existing system.

The project sewer collection system is proposed to connect to the existing 8-inch main west of the site in Buena Vista Road or the existing 8-inch main east of the site in Buena Vista Road, whichever has the optimum invert elevation. Due to the existing topography and future grading of the site, there is a potential need for a lift station to lift the sewer into the existing system. Figure 6.1 shows the potential sanitary sewer points of connection.

6.3 Treatment

The City operates the Regional Domestic Wastewater Treatment Plant (RDWWTP) that is located at the Highway 156 and San Juan Road interchange. The City completed a substantial upgrade to their wastewater treatment plant in 2008. In 2016, further upgrades were made which increased the capacity. The treatment plant currently operates at a permitted capacity of 4.0-mgd with the peak flow of 2.7-mgd. According to the master plan, the project is within the treatment plant's sphere of influence.

7 Domestic Water

7.1 Water Demand

The proposed development is expected to have an Average Daily Water Demand (ADD) of approximately 61,040 gallons per day (gpd), and a Maximum Daily Demand (MDD) of 137,340-gpd based on the preliminary land use assumptions and City of Hollister design criteria. Table 7.1 summarizes the projected water demand for the project.

Table 7.1 – Projected Water Demand

Land Use	Approximate Total Acreage	Residential Units	ADD (gpd)
Single-Family Residential	8.9	109	61,040
Total	8.9	109	61,040
		Maximum Daily Demand =	137,340 gpd
		Peak Hour Demand =	169.6 gpm
		Average Yearly Demand =	68.4 ac-ft/yr

Notes:
1. Water demand assumptions are taken from the 2015 Hollister Urban Area Urban Water Management Plan. The water demand assumes 160 gpcd and 3.5 people per dwelling unit.
2. The Maximum Daily Demand (MDD) and Peak Hour Demand (PHD) factors are taken from the City of Hollister 2018 Final Water Distribution System Master Plan. MDD = ADD x 2.25, PHD = ADD x 4
3. Fire flow requirements are found in the City of Hollister 2018 Final Water Distribution System Master Plan. Residential Fire flow is assumed to be 1,500 gpm for 2-hours with a minimum service pressure of 20 psi.

LEGEND

PROJECT BOUNDARY

EXISTING WATER MAIN

PROPOSED WATER MAIN

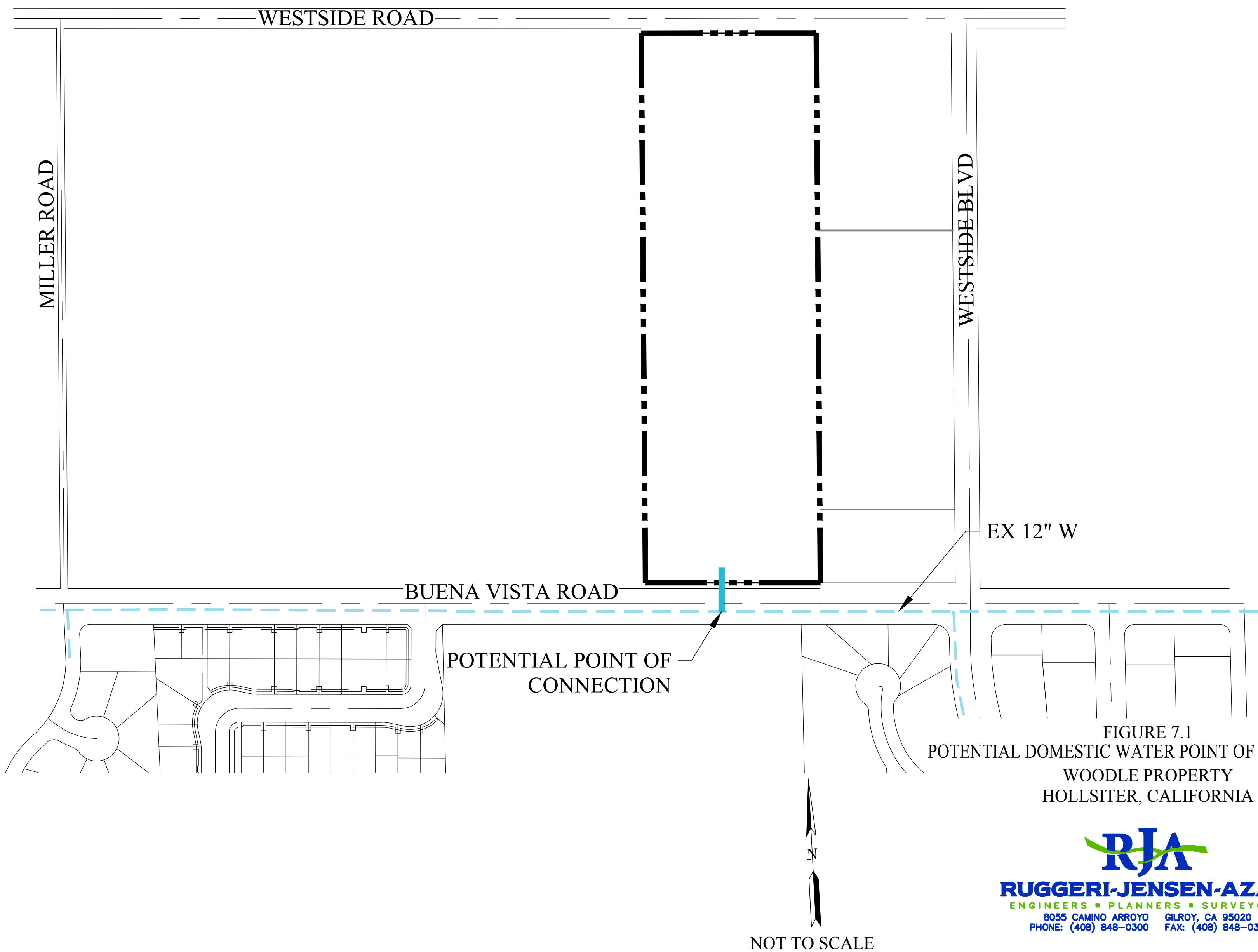

FIGURE 7.1
POTENTIAL DOMESTIC WATER POINT OF CONNECTION
WOODLE PROPERTY
HOLLSITER, CALIFORNIA

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7.2 Supply and Distribution

The City of Hollister obtains its water supply from both groundwater and surface water. Surface water is imported from the Central Valley Project via the Hollister Conduit and treated at either the Lessalt Water Treatment plant or West Hill Water Treatment Plant, both owned by the San Benito County Water District (SBCWD) and operated by the Sunnyslope County Water District (SSCWD). The City, along with San Benito County and Sunnyslope County Water District, prepared its most recent Urban Water Management Plan in July 2016 to help guide the area's future water management efforts.

The City's water system facilities include three distribution zones, three groundwater wells within the city limits, three potable water storage tanks, one booster station, five pressure reducing valves, and approximately 90-miles of pressurized pipes ranging from 4-inches through 18-inches in diameter. The 2018 Water Distribution System Master Plan identifies deficiencies in the existing supply and distribution system and recommends capital improvements to meet future growth needs. The study projects the total City MDD to be approximately 8.7-mgd in the year 2023. With the current storage system, there is a 2.9-mgd deficit. A full storage analysis has not been completed, but it is likely that more storage is needed to meet the future needs. The City has developed a capital improvement project schedule to implement the recommendations of the Master Plan. The Woodle Property will contribute its fair share toward these projects through payment of City established impact fees. The project area is accounted for in the City of Hollister General Plan and the Water Distribution System Master Plan study area with medium density land use.

The project water distribution system is proposed to connect to the existing 12-inch water main in Buena Vista Road. The onsite system will consist of minimum 8-inch pipes designed in accordance with City standards. Figure 7.1 shows the potential point of connection for the domestic water system.

8 Dry Utilities and Refuse

This section provides an overview of the dry utility service providers in the City of Hollister including electricity, natural gas, and telecommunications.

8.1. Electric

Pacific Gas and Electric Company (PG&E) provides electrical services to the City of Hollister. PG&E has primary power service lines in close proximity to the property, including service lines through property and along Westside road and Buena Vista Road. Further investigation will be required to determine if PG&E has the infrastructure in place to serve the project.

8.2. Natural Gas

PG&E provides natural gas service to the City of Hollister. PG&E has primary gas service adjacent to the property. Further investigation will be required to determine if PG&E has the infrastructure in place to serve the project.

8.3. Telecommunications

AT&T, Charter Communications, and others provide cable television, internet service, and telephone service to the City of Hollister. Extension of underground cable networks will be required to provide service to the proposed development. Further investigation will be required to determine if the service providers have the infrastructure in place to serve the project.

APPENDIX C

AIR QUALITY PLAN CONSISTENCY DETERMINATION

row MBUAPCD CONSISTENCY DETERMINATION PROCEDURE Ver. 4.0

Data entry		*Data entered by user.*
Consistency Finding	NO	YES

Row					Notes
6	Jurisdiction:	Hollister			*Lead Agency selects from pull down*
7	Project Name:	Woodle Prezone			*Lead Agency enters*
8	Base Year for this determination:	2015	Project Buildout/ Occupancy Year	2022	*Lead Agency enters*
9			Proposed Project Occupied DU	109	*Total buildout of Project. Sum of all years, row 26.*

JURISDICTION DATA FROM AQMP & DOF (no data entry)

Row		Base Year	Period ending January 1st of:					
		2015	**2020**	**2025**	**2030**	**2035**	**2040**	***Notes***
14	DOF Population	36,137	*From Calif. Dept of Finance. Est. for Jan 1 -- released in June of each year.*					
15	AMBAG DU Forecast for Jurisdiction	10,757	11,690	12,177	12,643	13,114	13,522	*DUs from AMBAG Travel Model, current version.*
16	AMBAG Pop Forecast for Jurisdiction	36,291	39,862	41,685	43,247	44,747	46,222	*Latest AMBAG Pop. & Employment forecasts.*
17	AMBAG Forecast Population/ DU	3.37	3.41	3.42	3.42	3.41	3.42	*Row 16/ row 15*
18	Estimated Built DUs	10,757	*Entry for 2010 is the DOF 1/2010 Housing Unit Estimate. Lead agency may overwrite if they have better data.*					

JURISDICTION DUs w/o PROJECT

Row			2015	2020	2025	2030	2035	
21	Housing Stock (Built DUs, Total)		10,422	11,252	11,327	11,327	11,327	*2010 Housing Stock is baseline across the project life*
22	Approved but not Built DUs			75				*Lead Agency estimates value at period end.*
23	Total Built & Approved DUs	0	10,422	11,327	11,327	11,327	11,327	*Sum of Row 21 + 22*

PROPOSED NEW PROJECT DUs

Row		2015	2020	2025	2030	2035	
26	Proposed New Project DUs			109			*Data entry by Lead Agency.*
27	TOTAL, New Project + Built & Approved DUs	**10,422**	**11,327**	**11,436**	**11,327**	**11,327**	*Sum of Row 23 + 26*

NEW PROJECT CONSISTENCY DETERMINATION

Row							
29	Over (Under) AQMP DUs	**(1,268)**	**(850)**	**(1,207)**	**(1,787)**	**(2,195)**	*Row 27 - Row 15*
30	Is the project consistent in this Period?	**YES**	**YES**	**YES**	**YES**	**YES**	*If Row 30 is (negative) = YES, if positive = NO.*

OPTIONS IF INCONSISTENT (Choose one):

Row	Year:	**2020**	**2025**	**2030**	**2035**	**2040**	
38	**A. Consult CEQA Statute and Guidelines for appropriate mitigation options**						
	B. Lead Agency preparation of consistency determination via an alternative method						
40	**C. Regional offset of significant cumulative air quality impact; For EIRs, declare Statement of Overriding Consideration**						

APPENDIX D

CALEEMOD RESULTS

EMC PLANNING GROUP INC.
A LAND USE PLANNING & DESIGN FIRM

301 Lighthouse Avenue Suite C Monterey California 93940
Tel 831·649·1799 Fax 831·649·8399 www.emcplanning.com

To:	**Teri Wissler Adam, Senior Principal**
From:	**Tanya Kalaskar, Assistant Planner**
Cc:	**File**
Date:	**December 13, 2018**

Re: **Woodle Prezone – Air Quality (AQ) and Greenhouse Gas (GHG) Emissions Assessment**

Project Description and Background

The 9.43-acre project site, consisting of 9.102 acres of the Woodle property and 0.323 acres of Westside Road, is located at 1070 Buena Vista Road in unincorporated San Benito County, within the City of Hollister's sphere of influence, and immediately north of the Hollister city limit. The project site is developed with one single-family home and a muscle car fabrication shop. The remainder of the project site is occupied by livestock and animals (i.e., goats, chickens, llamas, and horses), storage sheds, bricks, pallets, recreational vehicles, semi-tractor trailers, and other equipment. The proposed project is the prezone of the project site to Medium Density Residential (R3) for future annexation into the corporate limits of Hollister, and development of 109 single-family homes. An initial study is being prepared to identify potentially significant environmental impacts that may result from future development of 109 single-family homes on 9.102 acres of the project site.

The project site is located within the North Central Coast Air Basin, which is within the jurisdiction of the Monterey Bay Air Resources District (air district).

Scope of Assessment

This assessment provides an estimate of the proposed project's criteria air pollutant and greenhouse gas (GHG) emissions using the California Emissions Estimator Model (CalEEMod)

Version 2016.3.2 software, a modeling platform recommended by the California Air Resources Board (CARB) and accepted by the air district. Model results are attached to this memorandum. For modeling purposes, data inputs to the model take into account the type and size of proposed uses utilizing CalEEMod default land uses based on the Preliminary Engineer's Report provided by the applicant (Ruggeri Jensen Azar 2018) and trip generation information provided by the project traffic consultant (Hexagon Transportation Consultants 2018).

Emissions Model

The CalEEMod software utilizes emissions models USEPA AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies such as the California Energy Commission and CalRecycle. The CalEEMod platform allows calculations of both construction and operational criteria pollutant and GHG emissions from land use projects. The model also calculates indirect emissions from processes "downstream" of the proposed project such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. CalEEMod also calculates a one-time only change in the carbon sequestration potential of the site that would result from changes in land use such as converting vegetation to built or paved surfaces, and is also capable of calculating estimated changes to the carbon sequestration potential that would result from planting new trees.

The project site is already developed or occupied by ancillary uses and there are no natural plant communities present on the project site. Project-specific data related to proposed tree replacement plantings that would be part of the future development of the site is not available in detail sufficient to model estimates of changes in carbon sequestration potential from planting new trees. Therefore, this assessment does not include an analysis of the change in carbon sequestration potential of the project site.

Project Emissions Sources

The size and type of existing and proposed sources of criteria air pollutant and GHG emissions on the project site and their respective CalEEMod land use default categories are presented in Table 1, Project Characteristics.

Table 1 Project Characteristics

Project Components	CalEEMod Land Use[1]	Existing	Proposed
Muscle Car Fabrication Shop	Manufacturing	4,989 square feet	0
Single-family Homes[2]	Single Family Housing	1 unit	109 units

SOURCE: Trinity Consultants 2017, Google Earth 2018, Ruggeri Jensen Azar 2018.
NOTES:
1. CalEEMod default land use subtype. Descriptions of the model default land use categories and subtypes are found in the User's Guide for CalEEMod Version 2016.3.2 available online at: http://www.aqmd.gov/caleemod/user's-guide
2. No separate parking land use for a driveway or garage needs to be identified for residential land uses because parking is already included in the calculation (Trinity Consultants 2017, page 20).

Methodology

Unless otherwise noted, model inputs are based upon the information provided by the applicant regarding the proposed activities. Construction and operational GHG emissions estimates are derived for the proposed project based on the project characteristics information presented in Table 1. The model estimates unmitigated and mitigated emissions that would be generated by the proposed project. The standard mitigated emissions output reflects estimated reductions in emissions volumes that would occur through project compliance with State and air district requirements. Operational GHG emissions estimates are also derived for the existing sources on the site (baseline).

Assumptions

Unless otherwise noted, data inputs for the project model are based on the following primary assumptions:

1. The assumed operational date for the proposed project is 2022.
2. The floor area of the one-story muscle car fabrication shop is estimated using Google Earth aerial photography.
3. Operational GHG emissions volumes from existing emissions sources on the site were estimated using the following CalEEMod default land use subtypes:
    a. Emissions generated by the home on the site are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Single Family Housing", which is defined as a single-family detached home on an individual lot typical of a suburban development; and

b. Emissions generated by the muscle car fabrication shop are assumed to be generally similar to emissions that would be generated by the CalEEMod default land use subtype "Manufacturing", which is defined as a facility where the primary activity is the conversion of raw materials or parts into finished products.

4. Construction emissions and operational mobile- and area-source emissions generated by the proposed single-family units are assumed to be similar to emissions that would be generated by the CalEEMod default land use subtype "Single Family Housing". The model default trip generation rate for single-family homes has been modified based on information provided by the traffic consultant (Hexagon Transportation Consultants 2018).

5. The model's default CO_2 intensity factor of 641 pounds/megawatt hour is adjusted to 290 pounds/megawatt hour to reflect Pacific Gas & Electric energy intensity projections for 2020, which is the horizon year for the provider's energy intensity factor projections. The intensity factor has been falling, in significant part due to the increasing percentage of Pacific Gas & Electric's energy portfolio obtained from renewable energy. Emissions intensity data is from Pacific Gas & Electric's *Greenhouse Gas Factors: Guidance for PG&E Customers*, dated November 2015.

Modeling Scenarios

Baseline

The baseline for criteria air pollutant emissions that affect air quality are already quantified in air quality management plans. CalEEMod default values for baseline conditions assume new development on a vacant site. The baseline scenario consists of the emissions volumes that are generated by existing use of the project site (refer to Table 1).

Proposed Project

The proposed project modeling scenario assumes build-out in the year 2022. The modeling scenario includes adjustments for compliance with State and air district requirements, which are listed below in the discussion of operational emissions data inputs.

Operational Emissions Data Inputs

Unmitigated operational emissions estimates were modeled for baseline conditions (existing project site land use conditions) and for proposed project conditions. The proposed project conditions model run includes unmitigated operational emissions, as well as mitigated operational emissions that reflect adjustments made for compliance with the State thresholds for Model Water Efficient Landscape Ordinance (MWELO) and compliance with the air district's rule to limit the use of volatile organic compound (VOC)-emitting solvents, paints and other coatings.

Each air district (or county) assigns trip lengths for urban and rural settings, which are incorporated into the CalEEMod defaults. The air district default values for the North Central Coast Air Basin are the same regardless of a project's location within the tri-county area; therefore, the model's defaults were set to "urban" and the jurisdictional authority parameters are based on the model defaults for the air district. As noted previously, the model default trip generation rates for the proposed single-family homes are adjusted based on information provided by the traffic consultant (Hexagon Transportation Consultants 2018).

Construction Emissions Data Inputs

The CalEEMod program models construction GHG emissions associated with land use development projects and allows for the input of project-specific construction information including phasing and equipment information, if known. CalEEMod default construction parameters allow estimates of short term construction GHG emissions based upon statewide empirical data collected and analyzed by the California Air Resources Board.

Use of the model's default construction emissions data for a proposed project is recommended by the local air district if detailed construction information is not yet available. The air district also recommends amortizing the short term GHG construction emissions over a 30-year time period to yield an annual emissions volume. Information regarding type of construction equipment by phase for the proposed project was not yet available in detail sufficient to provide data inputs to the model; therefore, consistent with air district guidance, the model defaults were utilized for construction equipment, based on the project size and land use data presented in Table 1.

Results

Criteria air pollutant emissions results are reported in pounds per day. GHG construction and operational emissions model results are reported on an annual basis in metric tons of carbon dioxide equivalent (MT CO_2e). Detailed model results for criteria pollutant (summer and winter) and annual GHG emissions are included as attachments to this assessment.

Operational Criteria Pollutant Emissions

Criteria pollutant emissions generated by the proposed project for both summer and winter are reported in this assessment. Unmitigated and mitigated operational criteria pollutant emissions resulting from project operations in summer and winter are summarized in Table 2, Operational Criteria Pollutant Emissions (Pounds per Day).

Table 2 Operational Criteria Pollutant Emissions (Pounds per Day)[1]

Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Sulfur Oxides (SO_x)	Suspended Particulate Matter (PM_{10})	Carbon Monoxide (CO)
Summer (Unmitigated)	91.13	15.92	0.33	23.48	153.26
Summer (Mitigated)[2]	90.81	15.92	0.33	23.48	153.26
Winter (Unmitigated)	90.95	16.65	0.32	23.48	154.44
Winter (Mitigated)[2]	90.64	16.65	0.32	23.48	154.44

SOURCE: EMC Planning Group 2018
NOTES:
1. Results may vary due to rounding.
2. Results include compliance with the State thresholds for MWELO and compliance with the air district's rule to limit the use of VOC-emitting solvents, paints and other coatings.

GHG Emissions

Baseline GHG Emissions

Baseline (existing) uses on the site generate approximately 58.12 MT CO_2e of GHG emissions per year.

Construction GHG Emissions

Construction activity would generate an estimated 442.78 MT CO_2e of unmitigated GHG emissions. When averaged over a thirty-year operational lifetime, the annual amortized emissions equal 14.76 MT CO_2e per year.

Operational GHG Emissions

The model results indicate that proposed project would generate annual unmitigated operational GHG emissions of 1,924.81 MT CO_2e. As noted previously, model results identified as "mitigated" assume compliance with the State thresholds for the MWELO and compliance with air district recommendations to limit use of VOC-emitting paints and solvents. The mitigated emissions estimates are summarized in Table 3, Annual Mitigated Operational GHG Emissions. Mitigated GHG emissions are estimated as 1,924.68 MT CO_2e per year.

Table 3 Annual Mitigated Operational GHG Emissions[1,2]

Emissions Sources	Bio CO_2	NBio CO_2	CH_4	N_2O	CO_2e
Area[3]	67.13	49.06	0.11	<0.01	120.34
Energy	0.00	285.06	0.01	<0.01	287.07
Mobile	0.00	1,429.67	0.07	0.00	1,431.51
Waste	27.87	0.00	1.65	0.00	69.04
Water[3]	2.25	6.99	0.23	<0.01	16.72
Total	**97.25**	**1,7770.78**	**2.07**	**<0.01**	**1,924.68**

Source: EMC Planning Group 2018
Note:

1. Results may vary due to rounding.
2. MT CO_2e per year.
3. Results reflect minor co-benefit of emission reductions from compliance with air district's rule to limit the use of VOC paints, solvents, and coatings and include compliance with the State of California MWELO standard.

GHG Emissions Attributable to the Proposed Project

The estimated total GHG emissions that would be attributable to the proposed project consist of amortized construction emissions added to the mitigated operational emissions, less the estimated baseline emissions generated by existing uses on the site. The net mitigated GHG emissions attributable to the proposed project are presented in Table 4, Summary of Mitigated GHG Emissions Attributable to the Project (MT CO_2e per Year).

Table 4 **Summary of Mitigated GHG Emissions Attributable to the Project (MT CO_2e per Year)[1]**

Annual Operations[2]	Amortized Construction	Annual Project Emissions[3]	Existing Emissions[4]	Net Project Emissions
1,924.68	14.76	1,939.44	<58.12>	1,881.32

SOURCE: EMC Planning Group 2018
NOTES:
1. Results may vary due to rounding.
2. Mitigated Annual MT CO_2e (See Table 3).
3. Sum of amortized construction and mitigated operational emissions.
4. <Brackets> Indicate deductions.

Sources

1. Trinity Consultants. November 2017. *California Emissions Estimator (CalEEMod) Version 2016.3.2*. http://www.aqmd.gov/caleemod/home

2. Trinity Consultants. November 2017. *CalEEMod User's Guide (Version 2016.3.2)*. http://www.aqmd.gov/caleemod/user's-guide

3. Monterey Bay Air Resources District (MBARD), 2008. CEQA Air Quality Guidelines. Available online at: http://mbard.org/pdf/CEQA_full%20(1).pdf

4. Pacific Gas & Electric. November 2015. *Greenhouse Gas Factors: Guidance for PG&E Customers*; Accessed August 1, 2018. https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

5. Google, Inc. 2018. Google Earth Pro.

6. Hexagon Transportation Consultants. December 21, 2018. *Woodle Pre-Zone and Annexation Traffic Impact Analysis*. Gilroy, CA.

7. Ruggeri Jensen Azar. December 14, 2018. *Preliminary Engineer's Report for Woodle Property Hollister, California*. Gilroy, CA.

Woodle_Proposed Project
Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	109.00	Dwelling Unit	9.10	196,200.00	312

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - Actual acreage from annexation map

Vehicle Trips - trip rate from traffic consultant

Energy Use -

Area Mitigation - Standard air district requirements

Water Mitigation - Compliance with MWELO

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	35.39	9.10

tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	9.52	10.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1551	42.4798	22.3116	0.0401	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	3,877.0762	3,877.0762	1.1983	0.0000	3,903.6584
2021	123.0185	18.9084	18.2088	0.0337	0.4016	0.9653	1.3669	0.1084	0.9076	1.0159	0.0000	3,242.2568	3,242.2568	0.7186	0.0000	3,258.4181
Maximum	**123.0185**	**42.4798**	**22.3116**	**0.0401**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**3,877.0762**	**3,877.0762**	**1.1983**	**0.0000**	**3,903.6584**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1551	42.4798	22.3116	0.0401	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	3,877.0762	3,877.0762	1.1983	0.0000	3,903.6583
2021	123.0185	18.9084	18.2088	0.0337	0.4016	0.9653	1.3669	0.1084	0.9076	1.0159	0.0000	3,242.2568	3,242.2568	0.7186	0.0000	3,258.4181
Maximum	**123.0185**	**42.4798**	**22.3116**	**0.0401**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**3,877.0762**	**3,877.0762**	**1.1983**	**0.0000**	**3,903.6583**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Area	88.3909	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Energy	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Mobile	2.6405	12.6953	29.4637	0.0921	6.9102	0.0875	6.9978	1.8509	0.0821	1.9330		9,319.5566	9,319.5566	0.4608		9,331.0774
Total	**91.1250**	**15.9203**	**153.2632**	**0.3273**	**6.9102**	**16.5671**	**23.4774**	**1.8509**	**16.5617**	**18.4126**	**1,804.8433**	**11,626.4208**	**13,431.2640**	**3.3820**	**0.1472**	**13,559.6900**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	88.0770	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Energy	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Mobile	2.6405	12.6953	29.4637	0.0921	6.9102	0.0875	6.9978	1.8509	0.0821	1.9330		9,319.5566	9,319.5566	0.4608		9,331.0774
Total	**90.8111**	**15.9203**	**153.2632**	**0.3273**	**6.9102**	**16.5671**	**23.4774**	**1.8509**	**16.5617**	**18.4126**	**1,804.8433**	**11,626.4208**	**13,431.2640**	**3.3820**	**0.1472**	**13,559.6900**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.34**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6405	12.6953	29.4637	0.0921	6.9102	0.0875	6.9978	1.8509	0.0821	1.9330		9,319.5566	9,319.5566	0.4608		9,331.0774
Unmitigated	2.6405	12.6953	29.4637	0.0921	6.9102	0.0875	6.9978	1.8509	0.0821	1.9330		9,319.5566	9,319.5566	0.4608		9,331.0774

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,125.53	1,080.19	939.58	3,147,346	3,147,346
Total	1,125.53	1,080.19	939.58	3,147,346	3,147,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
NaturalGas Unmitigated	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	8679.71	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Total		**0.0936**	**0.7999**	**0.3404**	**5.1100e-003**		**0.0647**	**0.0647**		**0.0647**	**0.0647**		**1,021.1426**	**1,021.1426**	**0.0196**	**0.0187**	**1,027.2107**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	8.67971	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Total		**0.0936**	**0.7999**	**0.3404**	**5.1100e-003**		**0.0647**	**0.0647**		**0.0647**	**0.0647**		**1,021.1426**	**1,021.1426**	**0.0196**	**0.0187**	**1,027.2107**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	88.0770	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Unmitigated	88.3909	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6727					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	83.2476	2.3213	114.4568	0.2296		16.3652	16.3652		16.3652	16.3652	1,804.8433	1,269.5294	3,074.3727	2.8860	0.1285	3,184.8191
Landscaping	0.2719	0.1038	9.0023	4.7000e-004		0.0497	0.0497		0.0497	0.0497		16.1922	16.1922	0.0156		16.5828
Total	**88.3909**	**2.4251**	**123.4591**	**0.2301**		**16.4149**	**16.4149**		**16.4149**	**16.4149**	**1,804.8433**	**1,285.7216**	**3,090.5649**	**2.9016**	**0.1285**	**3,201.4018**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6727					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.8848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	83.2476	2.3213	114.4568	0.2296		16.3652	16.3652		16.3652	16.3652	1,804.8433	1,269.5294	3,074.3727	2.8860	0.1285	3,184.8191
Landscaping	0.2719	0.1038	9.0023	4.7000e-004		0.0497	0.0497		0.0497	0.0497		16.1922	16.1922	0.0156		16.5828
Total	**88.0770**	**2.4251**	**123.4591**	**0.2301**		**16.4149**	**16.4149**		**16.4149**	**16.4149**	**1,804.8433**	**1,285.7216**	**3,090.5649**	**2.9016**	**0.1285**	**3,201.4018**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Woodle_Proposed Project

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	109.00	Dwelling Unit	9.10	196,200.00	312

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - Actual acreage from annexation map

Vehicle Trips - trip rate from traffic consultant

Energy Use -

Area Mitigation - Standard air district requirements

Water Mitigation - Compliance with MWELO

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	35.39	9.10

tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	9.52	10.33

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1625	42.4958	22.3086	0.0400	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	3,869.2815	3,869.2815	1.1980	0.0000	3,895.8583
2021	123.0215	18.9471	18.2496	0.0334	0.4016	0.9655	1.3671	0.1084	0.9077	1.0161	0.0000	3,211.2142	3,211.2142	0.7184	0.0000	3,227.4129
Maximum	**123.0215**	**42.4958**	**22.3086**	**0.0400**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**3,869.2815**	**3,869.2815**	**1.1980**	**0.0000**	**3,895.8583**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1625	42.4958	22.3086	0.0400	18.2141	2.1986	20.4128	9.9699	2.0228	11.9927	0.0000	3,869.2815	3,869.2815	1.1980	0.0000	3,895.8583
2021	123.0215	18.9471	18.2496	0.0334	0.4016	0.9655	1.3671	0.1084	0.9077	1.0161	0.0000	3,211.2142	3,211.2142	0.7184	0.0000	3,227.4129
Maximum	**123.0215**	**42.4958**	**22.3086**	**0.0400**	**18.2141**	**2.1986**	**20.4128**	**9.9699**	**2.0228**	**11.9927**	**0.0000**	**3,869.2815**	**3,869.2815**	**1.1980**	**0.0000**	**3,895.8583**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Area	88.3909	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Energy	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Mobile	2.4682	13.4241	30.6406	0.0875	6.9102	0.0888	6.9990	1.8509	0.0834	1.9342		8,854.4578	8,854.4578	0.4745		8,866.3208
Total	**90.9527**	**16.6490**	**154.4401**	**0.3227**	**6.9102**	**16.5684**	**23.4786**	**1.8509**	**16.5630**	**18.4138**	**1,804.8433**	**11,161.3220**	**12,966.1653**	**3.3957**	**0.1472**	**13,094.9333**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	88.0770	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Energy	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Mobile	2.4682	13.4241	30.6406	0.0875	6.9102	0.0888	6.9990	1.8509	0.0834	1.9342		8,854.4578	8,854.4578	0.4745		8,866.3208
Total	**90.6388**	**16.6490**	**154.4401**	**0.3227**	**6.9102**	**16.5684**	**23.4786**	**1.8509**	**16.5630**	**18.4138**	**1,804.8433**	**11,161.3220**	**12,966.1653**	**3.3957**	**0.1472**	**13,094.9333**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.4682	13.4241	30.6406	0.0875	6.9102	0.0888	6.9990	1.8509	0.0834	1.9342		8,854.4578	8,854.4578	0.4745		8,866.3208
Unmitigated	2.4682	13.4241	30.6406	0.0875	6.9102	0.0888	6.9990	1.8509	0.0834	1.9342		8,854.4578	8,854.4578	0.4745		8,866.3208

4.2 Trip Summary Information

	Average Daily Trip Rate	Unmitigated	Mitigated

Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,125.53	1,080.19	939.58	3,147,346	3,147,346
Total	1,125.53	1,080.19	939.58	3,147,346	3,147,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
NaturalGas Unmitigated	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	8679.71	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Total		**0.0936**	**0.7999**	**0.3404**	**5.1100e-003**		**0.0647**	**0.0647**		**0.0647**	**0.0647**		**1,021.1426**	**1,021.1426**	**0.0196**	**0.0187**	**1,027.2107**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Single Family Housing	8.67971	0.0936	0.7999	0.3404	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.1426	1,021.1426	0.0196	0.0187	1,027.2107
Total		**0.0936**	**0.7999**	**0.3404**	**5.1100e-003**		**0.0647**	**0.0647**		**0.0647**	**0.0647**		**1,021.1426**	**1,021.1426**	**0.0196**	**0.0187**	**1,027.2107**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	88.0770	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018
Unmitigated	88.3909	2.4251	123.4591	0.2301		16.4149	16.4149		16.4149	16.4149	1,804.8433	1,285.7216	3,090.5649	2.9016	0.1285	3,201.4018

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6727					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.1987					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	83.2476	2.3213	114.4568	0.2296		16.3652	16.3652		16.3652	16.3652	1,804.8433	1,269.5294	3,074.3727	2.8860	0.1285	3,184.8191
Landscaping	0.2719	0.1038	9.0023	4.7000e-004		0.0497	0.0497		0.0497	0.0497		16.1922	16.1922	0.0156		16.5828
Total	**88.3909**	**2.4251**	**123.4591**	**0.2301**		**16.4149**	**16.4149**		**16.4149**	**16.4149**	**1,804.8433**	**1,285.7216**	**3,090.5649**	**2.9016**	**0.1285**	**3,201.4018**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.6727					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.8848					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	83.2476	2.3213	114.4568	0.2296		16.3652	16.3652		16.3652	16.3652	1,804.8433	1,269.5294	3,074.3727	2.8860	0.1285	3,184.8191
Landscaping	0.2719	0.1038	9.0023	4.7000e-004		0.0497	0.0497		0.0497	0.0497		16.1922	16.1922	0.0156		16.5828
Total	**88.0770**	**2.4251**	**123.4591**	**0.2301**		**16.4149**	**16.4149**		**16.4149**	**16.4149**	**1,804.8433**	**1,285.7216**	**3,090.5649**	**2.9016**	**0.1285**	**3,201.4018**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

Woodle_Existing

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	4.99	1000sqft	0.11	4,989.00	0
Single Family Housing	1.00	Dwelling Unit	0.32	1,800.00	3

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.8 **Precipitation Freq (Days)** 53

Climate Zone 4 **Operational Year** 2018

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 290 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use -

Construction Phase - Existing Conditions. No Construction.

Energy Use -

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Area	0.0628	9.9000e-004	0.0535	9.0000e-005		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.6159	0.4502	1.0661	1.0000e-003	4.0000e-005	1.1042
Energy	8.7000e-004	7.7900e-003	5.9900e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	15.0592	15.0592	8.1000e-004	2.9000e-004	15.1664
Mobile	0.0141	0.0697	0.1705	3.9000e-004	0.0269	6.2000e-004	0.0275	7.2200e-003	5.9000e-004	7.8100e-003	0.0000	35.4666	35.4666	2.2200e-003	0.0000	35.5222
Waste						0.0000	0.0000		0.0000	0.0000	1.5245	0.0000	1.5245	0.0901	0.0000	3.7768
Water						0.0000	0.0000		0.0000	0.0000	0.3868	0.8866	1.2734	0.0398	9.6000e-004	2.5537
Total	**0.0777**	**0.0785**	**0.2300**	**5.3000e-004**	**0.0269**	**7.4300e-003**	**0.0343**	**7.2200e-003**	**7.4000e-003**	**0.0146**	**2.5271**	**51.8626**	**54.3897**	**0.1339**	**1.2900e-003**	**58.1232**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0141	0.0697	0.1705	3.9000e-004	0.0269	6.2000e-004	0.0275	7.2200e-003	5.9000e-004	7.8100e-003	0.0000	35.4666	35.4666	2.2200e-003	0.0000	35.5222
Unmitigated	0.0141	0.0697	0.1705	3.9000e-004	0.0269	6.2000e-004	0.0275	7.2200e-003	5.9000e-004	7.8100e-003	0.0000	35.4666	35.4666	2.2200e-003	0.0000	35.5222

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	19.06	7.44	3.09	44,142	44,142
Single Family Housing	9.52	9.91	8.62	27,216	27,216
Total	28.58	17.35	11.71	71,358	71,358

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Single Family Housing	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Manufacturing	0.519082	0.034220	0.197247	0.144611	0.028729	0.006420	0.017935	0.035737	0.003069	0.003058	0.007579	0.001135	0.001179
Single Family Housing	0.519082	0.034220	0.197247	0.144611	0.028729	0.006420	0.017935	0.035737	0.003069	0.003058	0.007579	0.001135	0.001179

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.4850	6.4850	6.5000e-004	1.3000e-004	6.5412
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.4850	6.4850	6.5000e-004	1.3000e-004	6.5412
NaturalGas Mitigated	8.7000e-004	7.7900e-003	5.9900e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	8.5742	8.5742	1.6000e-004	1.6000e-004	8.6252
NaturalGas Unmitigated	8.7000e-004	7.7900e-003	5.9900e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	8.5742	8.5742	1.6000e-004	1.6000e-004	8.6252

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Manufacturing	131610	7.1000e-004	6.4500e-003	5.4200e-003	4.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	7.0232	7.0232	1.3000e-004	1.3000e-004	7.0649
Single Family Housing	29065.1	1.6000e-004	1.3400e-003	5.7000e-004	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5510	1.5510	3.0000e-005	3.0000e-005	1.5602
Total		**8.7000e-004**	**7.7900e-003**	**5.9900e-003**	**5.0000e-005**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**8.5742**	**8.5742**	**1.6000e-004**	**1.6000e-004**	**8.6252**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

Manufacturing	41209.1	5.4207	5.4000e-004	1.1000e-004	5.4677
Single Family Housing	8090.57	1.0643	1.1000e-004	2.0000e-005	1.0735
Total		**6.4850**	**6.5000e-004**	**1.3000e-004**	**6.5412**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0628	9.9000e-004	0.0535	9.0000e-005		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.6159	0.4502	1.0661	1.0000e-003	4.0000e-005	1.1042
Unmitigated	0.0628	9.9000e-004	0.0535	9.0000e-005		6.2100e-003	6.2100e-003		6.2100e-003	6.2100e-003	0.6159	0.4502	1.0661	1.0000e-003	4.0000e-005	1.1042

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0265					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0313	8.7000e-004	0.0431	9.0000e-005		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.6159	0.4332	1.0491	9.8000e-004	4.0000e-005	1.0868
Landscaping	3.3000e-004	1.2000e-004	0.0105	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0170	0.0170	2.0000e-005	0.0000	0.0174
Total	**0.0628**	**9.9000e-004**	**0.0535**	**9.0000e-005**		**6.2200e-003**	**6.2200e-003**		**6.2200e-003**	**6.2200e-003**	**0.6159**	**0.4502**	**1.0661**	**1.0000e-003**	**4.0000e-005**	**1.1042**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	1.2734	0.0398	9.6000e-004	2.5537
Unmitigated	1.2734	0.0398	9.6000e-004	2.5537

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Manufacturing	1.15394 / 0	1.1874	0.0377	9.0000e-004	2.3992
Single Family Housing	0.065154 / 0.0410754	0.0860	2.1300e-003	5.0000e-005	0.1545
Total		**1.2734**	**0.0398**	**9.5000e-004**	**2.5537**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.5245	0.0901	0.0000	3.7768
Unmitigated	1.5245	0.0901	0.0000	3.7768

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Manufacturing	6.19	1.2565	0.0743	0.0000	3.1130

Single Family Housing	1.32	0.2680	0.0158	0.0000	0.6638
Total		**1.5245**	**0.0901**	**0.0000**	**3.7768**

Woodle_Proposed Project
Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	109.00	Dwelling Unit	9.10	196,200.00	312

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - Actual acreage from annexation map

Vehicle Trips - trip rate from traffic consultant

Energy Use -

Area Mitigation - Standard air district requirements

Water Mitigation - Compliance with MWELO

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblLandUse	LotAcreage	35.39	9.10

tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	WD_TR	9.52	10.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2013	1.8933	1.4676	2.6500e-003	0.1792	0.0990	0.2782	0.0896	0.0924	0.1821	0.0000	232.1204	232.1204	0.0545	0.0000	233.4824
2021	1.3758	1.3384	1.3168	2.3800e-003	0.0264	0.0686	0.0949	7.1200e-003	0.0644	0.0715	0.0000	208.2122	208.2122	0.0437	0.0000	209.3042
Maximum	**1.3758**	**1.8933**	**1.4676**	**2.6500e-003**	**0.1792**	**0.0990**	**0.2782**	**0.0896**	**0.0924**	**0.1821**	**0.0000**	**232.1204**	**232.1204**	**0.0545**	**0.0000**	**233.4824**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2013	1.8933	1.4676	2.6500e-003	0.1792	0.0990	0.2782	0.0896	0.0924	0.1821	0.0000	232.1202	232.1202	0.0545	0.0000	233.4822
2021	1.3758	1.3384	1.3168	2.3800e-003	0.0264	0.0686	0.0949	7.1200e-003	0.0644	0.0715	0.0000	208.2120	208.2120	0.0437	0.0000	209.3040
Maximum	**1.3758**	**1.8933**	**1.4676**	**2.6500e-003**	**0.1792**	**0.0990**	**0.2782**	**0.0896**	**0.0924**	**0.1821**	**0.0000**	**232.1202**	**232.1202**	**0.0545**	**0.0000**	**233.4822**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**6-1-2020**	**8-31-2020**	1.0611	1.0611
2	**9-1-2020**	**11-30-2020**	0.7538	0.7538
3	**12-1-2020**	**2-28-2021**	0.7009	0.7009
4	**3-1-2021**	**5-31-2021**	0.6910	0.6910

5	**6-1-2021**	**8-31-2021**	1.5761	1.5761
		Highest	1.5761	1.5761

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.3362	0.1082	5.8180	9.4700e-003		0.6772	0.6772		0.6772	0.6772	67.1304	49.0558	116.1862	0.1091	4.7800e-003	120.3384
Energy	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	285.0646	285.0646	0.0148	5.5000e-003	287.0745
Mobile	0.4348	2.3248	5.1230	0.0156	1.1830	0.0155	1.1985	0.3177	0.0146	0.3323	0.0000	1,429.6692	1,429.6692	0.0738	0.0000	1,431.5146
Waste						0.0000	0.0000		0.0000	0.0000	27.8666	0.0000	27.8666	1.6469	0.0000	69.0383
Water						0.0000	0.0000		0.0000	0.0000	2.2531	7.1162	9.3692	0.2321	5.6100e-003	16.8445
Total	**4.7880**	**2.5789**	**11.0031**	**0.0260**	**1.1830**	**0.7045**	**1.8875**	**0.3177**	**0.7036**	**1.0213**	**97.2501**	**1,770.9058**	**1,868.1558**	**2.0768**	**0.0159**	**1,924.8104**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.2789	0.1082	5.8180	9.4700e-003		0.6772	0.6772		0.6772	0.6772	67.1304	49.0558	116.1862	0.1091	4.7800e-003	120.3384
Energy	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	285.0646	285.0646	0.0148	5.5000e-003	287.0745
Mobile	0.4348	2.3248	5.1230	0.0156	1.1830	0.0155	1.1985	0.3177	0.0146	0.3323	0.0000	1,429.6692	1,429.6692	0.0738	0.0000	1,431.5146
Waste						0.0000	0.0000		0.0000	0.0000	27.8666	0.0000	27.8666	1.6469	0.0000	69.0383
Water						0.0000	0.0000		0.0000	0.0000	2.2531	6.9904	9.2435	0.2321	5.6100e-003	16.7177
Total	**4.7308**	**2.5789**	**11.0031**	**0.0260**	**1.1830**	**0.7045**	**1.8875**	**0.3177**	**0.7036**	**1.0213**	**97.2501**	**1,770.7800**	**1,868.0301**	**2.0768**	**0.0159**	**1,924.6836**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**

Percent Reduction	**1.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.01**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4348	2.3248	5.1230	0.0156	1.1830	0.0155	1.1985	0.3177	0.0146	0.3323	0.0000	1,429.6692	1,429.6692	0.0738	0.0000	1,431.5146
Unmitigated	0.4348	2.3248	5.1230	0.0156	1.1830	0.0155	1.1985	0.3177	0.0146	0.3323	0.0000	1,429.6692	1,429.6692	0.0738	0.0000	1,431.5146

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,125.53	1,080.19	939.58	3,147,346	3,147,346
Total	1,125.53	1,080.19	939.58	3,147,346	3,147,346

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543525	0.028472	0.201539	0.126188	0.021864	0.005301	0.018669	0.039782	0.003072	0.002565	0.007028	0.001098	0.000897

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	116.0030	116.0030	0.0116	2.4000e-003	117.0083

Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	116.0030	116.0030	0.0116	2.4000e-003	117.0083
NaturalGas Mitigated	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0616	169.0616	3.2400e-003	3.1000e-003	170.0663
NaturalGas Unmitigated	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0616	169.0616	3.2400e-003	3.1000e-003	170.0663

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	3.16809e+006	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0616	169.0616	3.2400e-003	3.1000e-003	170.0663
Total		**0.0171**	**0.1460**	**0.0621**	**9.3000e-004**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**169.0616**	**169.0616**	**3.2400e-003**	**3.1000e-003**	**170.0663**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	3.16809e+006	0.0171	0.1460	0.0621	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0616	169.0616	3.2400e-003	3.1000e-003	170.0663
Total		**0.0171**	**0.1460**	**0.0621**	**9.3000e-004**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**169.0616**	**169.0616**	**3.2400e-003**	**3.1000e-003**	**170.0663**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	881872	116.0030	0.0116	2.4000e-003	117.0083
Total		**116.0030**	**0.0116**	**2.4000e-003**	**117.0083**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Single Family Housing	881872	116.0030	0.0116	2.4000e-003	117.0083
Total		**116.0030**	**0.0116**	**2.4000e-003**	**117.0083**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2789	0.1082	5.8180	9.4700e-003		0.6772	0.6772		0.6772	0.6772	67.1304	49.0558	116.1862	0.1091	4.7800e-003	120.3384
Unmitigated	4.3362	0.1082	5.8180	9.4700e-003		0.6772	0.6772		0.6772	0.6772	67.1304	49.0558	116.1862	0.1091	4.7800e-003	120.3384

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1228					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7663					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.4132	0.0952	4.6927	9.4100e-003		0.6710	0.6710		0.6710	0.6710	67.1304	47.2196	114.3500	0.1073	4.7800e-003	118.4580
Landscaping	0.0340	0.0130	1.1253	6.0000e-005		6.2200e-003	6.2200e-003		6.2200e-003	6.2200e-003	0.0000	1.8362	1.8362	1.7700e-003	0.0000	1.8805
Total	**4.3362**	**0.1082**	**5.8180**	**9.4700e-003**		**0.6772**	**0.6772**		**0.6772**	**0.6772**	**67.1304**	**49.0558**	**116.1862**	**0.1091**	**4.7800e-003**	**120.3384**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1228					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7090					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.4132	0.0952	4.6927	9.4100e-003		0.6710	0.6710		0.6710	0.6710	67.1304	47.2196	114.3500	0.1073	4.7800e-003	118.4580
Landscaping	0.0340	0.0130	1.1253	6.0000e-005		6.2200e-003	6.2200e-003		6.2200e-003	6.2200e-003	0.0000	1.8362	1.8362	1.7700e-003	0.0000	1.8805
Total	**4.2789**	**0.1082**	**5.8180**	**9.4700e-003**		**0.6772**	**0.6772**		**0.6772**	**0.6772**	**67.1304**	**49.0558**	**116.1862**	**0.1091**	**4.7800e-003**	**120.3384**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.2435	0.2321	5.6100e-003	16.7177
Unmitigated	9.3692	0.2321	5.6100e-003	16.8445

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	7.10179 / 4.47721	9.3692	0.2321	5.6100e-003	16.8445
Total		**9.3692**	**0.2321**	**5.6100e-003**	**16.8445**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	7.10179 / 4.2041	9.2435	0.2321	5.6100e-003	16.7177
Total		**9.2435**	**0.2321**	**5.6100e-003**	**16.7177**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	27.8666	1.6469	0.0000	69.0383
Unmitigated	27.8666	1.6469	0.0000	69.0383

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	137.28	27.8666	1.6469	0.0000	69.0383
Total		**27.8666**	**1.6469**	**0.0000**	**69.0383**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	137.28	27.8666	1.6469	0.0000	69.0383
Total		**27.8666**	**1.6469**	**0.0000**	**69.0383**

APPENDIX E

TRAFFIC IMPACT ANALYSIS

Hexagon Transportation Consultants, Inc.

Woodle Pre-Zone and Annexation

Traffic Impact Analysis

Prepared for:

EMC Planning Group, Inc.

February 13, 2019

Hexagon Transportation Consultants, Inc.
Hexagon Office: 8070 Santa Teresa Boulevard, Suite 230
Gilroy, CA 95020
Hexagon Job Number: 18GD07
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Client Name: EMC Planning Group, Inc.

Table of Contents

Appendices

List of Tables

List of Figures

Executive Summary

This report presents the results of the traffic impact analysis conducted for the proposed pre-zone of the parcel located at 1070 Buena Vista Road (here after referred to as the Woodle site/project) for future annexation into the corporate limits of the City of Hollister, California. The project site consists of one parcel totaling 9.102 acres bounded by Buena Vista Road to the south, Westside Road to the north, and agricultural parcels to the east and west. The Calaveras Elementary School and park are located on the south side of Buena Vista Road, directly across from the project site. Pending pre-zone and annexation, the parcel would be zoned as Medium Density Residential Performance Overlay Zone District (R3 M/PZ), which is consistent with the Medium Density Residential (MDR) land use category of the Hollister General Plan.

Currently, there are no specific development plans for the project site. However, for the purposes of this study, a maximum development scenario was established for the project parcel based upon the maximum development intensity allowed for the site, per City of Hollister General Plan land use designation. The General Plan MDR land use category allows eight to twelve units per net acre. Therefore, it is assumed that the project would include up to 109 dwelling units. Access to the project site would be provided via Buena Vista Road.

This traffic impact analysis documents the impacts to the surrounding transportation system associated with developing the proposed project. The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Hollister and Caltrans. The study included an analysis of three signalized intersections, six unsignalized intersections, and six roadway segments.

Traffic conditions were analyzed for the weekday AM and PM peak hours. The weekday AM peak-hour of traffic generally falls within the 7:00 to 9:00 AM period and the weekday PM peak-hour is typically in the 4:00 to 6:00 PM period. It is during these times that the most congested traffic conditions occur on an average day.

The following study intersections and roadway segments were evaluated:

Study Intersections

1. SR 156 and Buena Vista Road [CT] (unsignalized)
2. Miller Road and Buena Vista Road [CH] (unsignalized)
3. Westside Boulevard and Buena Vista Road [CH] (unsignalized)
4. Locust Avenue and Buena Vista Road [CH] (unsignalized)
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road [CH]
6. Westside Boulevard and Central Avenue [CH] (unsignalized)
7. Westside Boulevard and San Juan Road [CH]
8. College Street and San Juan Road/Fourth Street [CH] (unsignalized)
9. San Benito Street and San Juan Road/Fourth Street [CH]

Intersections denoted with the superscript "CH" are under the jurisdiction of the City of Hollister. Intersections denoted with the superscript "CT" are under the jurisdiction of Caltrans.

Roadway Segments

1. Buena Vista Road, west of Miller Road
2. Buena Vista Road, between Miller Road and Westside Boulevard
3. Buena Vista Road, east of Westside Boulevard
4. Miller Road, south of Buena Vista Road
5. Westside Boulevard, south of Buena Vista Road
6. Locust Avenue/College Street, south of Buena Vista Road

Study Scenarios

Scenario 1: *Existing Conditions.* Existing conditions represent existing peak-hour traffic volumes on the existing roadway network.

Scenario 2: *Existing plus Project Conditions.* Existing plus project conditions represent existing peak-hour traffic volumes on the existing roadway network with the addition of traffic generated by the proposed project if the project was open and operating today.

Scenario 3: *Background Conditions.* Background conditions represent near-term future traffic volumes on the near-term future transportation network. Background traffic volumes were estimated by adding trips from approved but not yet constructed development projects to existing peak-hour traffic volumes.

Scenario 4: *Background plus Project Conditions.* Background plus project conditions (also referred to as *Project Conditions*) represent background traffic volumes, with the project, on the near-term future roadway network. Background plus project conditions were estimated by adding to background traffic volumes the trips associated with the proposed project (or *project traffic volumes*). Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Scenario 5: *Cumulative Conditions.* Cumulative conditions represent future traffic volumes on the future transportation network that would result from traffic growth projected to occur due to proposed but not yet approved (pending) development projects, in addition to trips from approved project trips and the proposed project.

Evaluation of Project Conditions

The impacts and proposed improvements to mitigate project impacts under existing plus project and background plus project conditions are described below. The results of the intersection level of service analysis are summarized in Table ES1.

Project Trips

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 10th Edition*. The trip generation estimates are based on ITE's trip generation rates (based on the regression equation) for single-family detached housing (ITE land use code #210).

Based on the ITE rates, it is estimated that the project would generate 1,126 new daily trips, with 82 trips (21 inbound and 61 outbound) occurring during the AM peak-hour and 110 trips (69 inbound and 41 outbound) occurring during the PM peak-hour.

Existing Plus Project Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following study intersection would be significantly impacted by the project under existing plus project conditions, based on Caltrans level of service impact criteria:

1. SR 156 and Buena Vista Road [CT] (**Impact:** PM peak hour)

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the following study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization under existing plus project conditions during the AM and PM peak hours:

1. SR 156 and Buena Vista Road [CT] (AM and PM peak hours)

Background Plus Project Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following study intersection would be significantly impacted by the project under background plus project conditions, based on Caltrans level of service impact criteria:

1. SR 156 and Buena Vista Road [CT] (**Impact:** PM peak hour)

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the following two study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization under background plus project conditions during the AM and PM peak hours:

1. SR 156 and Buena Vista Road [CT] (AM and PM peak hours)

Recommended Project Mitigation Measures

1. SR 156 and Buena Vista Road (Caltrans)

Mitigation Measures. The necessary improvement to improve the intersection level of service to acceptable levels consists of the installation of a traffic signal at the intersection. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional Transportation Impact Mitigation Fee (TIMF), January 2016. With implementation of this mitigation measure, the intersection is projected to operate at acceptable levels of service during the peak hours under background plus project conditions, reducing the impact to less-than-significant.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

Evaluation of Cumulative Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following study intersections would be significantly impacted by the project under cumulative plus project conditions, based on the applicable level of service impact criteria:

1. SR 156 and Buena Vista Road CT (**Impact:** AM and PM peak hours)
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road CH (**Impact**: PM peak hour)

Intersection Signal Warrant Analysis

The peak hour signal warrant analysis indicates that the following study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization during the AM and PM peak hours under cumulative plus project conditions:

1. SR 156 and Buena Vista Road CT (AM and PM peak hours)

Recommended Cumulative Mitigation Measures

The recommended mitigation measures necessary to maintain the level of service standards and intersection operations under cumulative plus project conditions are described below:

1. SR 156 and Buena Vista Road (Caltrans)

Mitigation Measures. One possible improvement to mitigate the cumulative project impact at this intersection consists of the installation of a traffic signal. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional TIMF. With implementation of this mitigation measure, the intersection is projected to operate better than cumulative no project conditions, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the installation of a traffic signal, SR 156 must be widened from two to four lanes. The widening of SR 156 to four lanes in the vicinity of the Buena Vista Road intersection is not part of the improvements projects of the San Benito County TIMF.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

5. San Felipe Road/San Benito Street and North Street/Santa Ana Road (City of Hollister)

Necessary Improvements. The cumulative project impact to this intersection could be mitigated with the installation of protected left-turn movements on the eastbound and westbound approaches of the intersection. The required improvements would include the addition of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal. With implementation of the above improvements, the intersection level of service would improve to better than cumulative no project conditions during the PM peak-hour, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the above improvements, a separate southbound right-turn lane also must be added. The above improvements are not part of the improvements projects of the San Benito County TIMF.

Project Mitigation Measure

One of the following mitigation measures would mitigate the project's cumulative impact at this intersection:

a. The City will include the required intersection improvements in the San Benito County Regional Transportation Impact Mitigation Fee (TIMF) program, and the developer shall pay the applicable TIMF fee as a fair-share contribution toward the above improvements prior to the issuance of building permits.

b. The developer will improve the intersection with installation of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal.

Implementation of one of the above two possible mitigation measures would reduce this cumulative project impact to less-than-significant.

Other Transportation Issues

Bicycle and Pedestrian Circulation

The project site is served directly by Class II bicycle lanes along Buena Vista Road. However, bike lanes along Buena Vista Road are currently present along the south side of the street only, between Locust Avenue and west of Beresini Lane. Other bicycle facilities in the vicinity of the project site include Class II bike lanes on:

- Westside Boulevard, between Buena Vista Road and Nash Road
- San Juan Road, between Westside Boulevard and west of Miller Road

Sidewalks are found along most developed areas in the vicinity of the project site. However, some areas near the project site include undeveloped land with missing sidewalks. Sidewalks are missing along most of the north side of Buena Vista Road, including the areas adjacent to the project frontage. The south side of Buena Vista Road has continuous sidewalks from Aguirre Drive to Locust Avenue. The nearest marked crosswalks to the project site are located at the Westside Boulevard/Buena Vista Road intersection (south leg) and the Line Street/Buena Vista Road intersection (all legs).

Project's Effect on Bicycle and Pedestrian Facilities

The proposed project could increase the demand on bicycle facilities in the vicinity of the project site. With the existing limited and discontinuous bicycle network, the potential project-generated bike riders would have to share the roadway with vehicular traffic, which could discourage the use of the bicycle as an alternative mode of transportation.

It can be expected that new pedestrian traffic would be generated by the proposed project. However, some areas within the study area include undeveloped roadway frontages with missing sidewalks, mainly along the north side of Buena Vista Road. The missing sidewalks in the project area could make pedestrian travel between the project site and other pedestrian destinations (such as schools, parks, and transit stops) challenging, discouraging pedestrian activity or forcing pedestrians to walk along undeveloped roadway shoulders and/or cross Buena Vista Boulevard at midblock.

As undeveloped parcels develop, they will be required to install sidewalks along their project site frontage, closing existing sidewalk gaps. This, in conjunction with planned pedestrian improvements identified in the County's Master Plan, will enhance the existing pedestrian network. However, since these pedestrian improvements are not currently planned nor funded, it is uncertain when the missing sidewalks would be installed. Until the adjacent pedestrian network is complete, project-related pedestrian traffic would be forced to walk along undeveloped roadway shoulders along the north side of Buena Vista Road.

Recommended Bicycle and Pedestrian Improvements

The following recommendations are made to promote non-auto modes of transportation and to accommodate bicycle and pedestrian travel within and near the project site:

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities in the vicinity of the project site, if a funding mechanism has been established for these improvements. Providing a complete and continuous bicycle network that serves the project area could encourage biking as alternative mode of transportation. The contribution should be determined by the City of Hollister and it should be based on the project's contribution to the total projected growth in the study area.

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets within the project site be built. Neighborhoods should be designed with adequate and continuous pedestrian facilities to encourage the use of non-auto modes of travel. New sidewalks along both project site frontages (Buena Vista Road and Westside Road) should be designed to accommodate future improvements along these roadways and align with planned adjacent pedestrian facilities. Additionally, frontage improvements on Buena Vista Road should be designed to be consistent with City of Hollister roadway design standards and guidelines, as well as accommodate the future installation of bike lanes along Buena Vista Road.

Installation of a High Visibility Crosswalk at Westside Boulevard/Buena Vista Road. With the development of the project site, in addition to the development of other vacant land along the north side of Buena Vista Road, and the location of various pedestrian destinations south of Buena Vista Road (including a school and park), it is desirable to have marked crosswalks across Buena Vista Road. According to the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014), whenever a marked crosswalk has been established in a roadway contiguous to a school building or school grounds, it shall be yellow. Additionally, for added visibility, the area of the crosswalk may be marked with diagonal lines (45-degree angle) or longitudinal lines parallel to traffic flow. Thus, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

Transit Service

There are currently three County Express bus lines (Blue Line, Green Line, and Red Line) which operate within the City of Hollister. The Blue and Green Lines serve the project site area with scheduled stops at the Felice Drive/Central Avenue bus stop, located approximately a half-a-mile walking distance south of the project site.

Project's Effect on Transit Services

Although no reduction to the project trip generation estimates was applied due to transit services, it can be assumed that some of the project trips could be done utilizing public transportation. Applying an estimated three percent transit mode share, which is probably the highest that could be expected for the project, equates to approximately three to four new transit riders generated by the proposed project during the peak hours. The estimated number of new transit riders for the proposed project could be served by the existing transit service. Therefore, the additional transit demand generated by the project would not justify additional transit services in the study area based on the project demand alone.

Recommended Transit Service Improvements

The following recommendations are made to promote the use of transit services:

Expansion of Service. With the development of the project area, County Express Transit System should consider expanding its existing bus route service area into the immediate project site area along Buena Vista Road. With the expansion of the service area, new bus stops could be located near the intersection of Westside Boulevard and Buena Vista Road.

Additionally, the project site should be designed accounting for the potential future extension of transit services onto the project area. Thus, it is recommended that project frontage improvements on Buena Vista Road be designed based on City of Hollister roadway design standards and to potentially accommodate transit vehicles.

Site Access and On-Site Circulation

Currently, there are no specific development plans for the project site and therefore, a site plan for the potential development on the project site is not available.

Site Access

Access to the project site would be provided via Buena Vista Road (south project frontage) and Westside Road (north project frontage).

It is likely that a single access point along each of the project site frontages would be provided. The project site access driveway/roadway must be designed adhering to City of Hollister design guidelines and standards.

Area-Wide Connectivity and Circulation

In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, in addition to maintaining adequate operating levels and functional characteristics of Buena Vista Road (a collector street), the City of Hollister should consider access to the entire area, rather than individual parcels. This could be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels.

A single access point along Buena Vista Road would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project to depend on such access point. However, the design of the project site may include a future connection to the east and/or west parcels as an alternative access point.

Site Access Recommendations

Design of Site Access. Project site access driveways/roadways must be designed adhering to City of Hollister design guidelines and standards, including minimum width, minimum distance to adjacent intersections/driveways, and adequate sight distance.

Area-Wide Connectivity. In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, the City of Hollister should consider access to the entire area, rather than individual parcels. This could be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels. This, however, would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project.

Vehicular On-Site Circulation

Although a project site plan is not currently available, a few recommendations to be implemented during the site design process are included below.

Recommended On-Site Circulation Improvements

Design of New Roadways. All new internal roadways must be designed to provide adequate width and turn-radii in order to provide continuous unimpeded circulation through the site for all vehicles, including emergency vehicles and large trucks such as garbage trucks. The design of all internal roadways must adhere to City of Hollister design guidelines and standards and the final design will have to be approved by the City of Hollister.

Installation of Sidewalks. It is recommended that sidewalks be installed on both sides of all new streets within the project site, providing a continuous sidewalk/pedestrian network within the project site. New sidewalks should be designed to conform to existing and planned adjacent pedestrian facilities in the vicinity of the project site.

Neighborhood Traffic Assessment

Various schools are located within less than one mile walking distance from the project site, including Calaveras Elementary School, located across from the project site. Access to these schools from the project site is described below. An evaluation of pedestrian access and traffic conditions in the immediate vicinity of Calaveras School also is provided.

Additionally, access to the project site from areas south and east of the project site is provided through the adjacent neighborhoods, via Miller Road, Westside Boulevard, and Locust Avenue/College Street. Thus, an evaluation of the project's effect on traffic circulation within the adjacent neighborhoods was conducted to identify any potential traffic issues that must be addressed and provide recommendations to improve traffic conditions.

Identified Improvements in the Vicinity of Calaveras Elementary School

Various physical improvements to the roadway network and intersections providing access to Calaveras Elementary School are identified in the adopted Safe Routes to School Program. Some improvements include:

- Construct curb extensions and stripe high visibility yellow crosswalks at Miller Road/Buena Vista Road and Westside Boulevard/Buena Vista Road (high visibility crosswalks have been installed along the south leg of these intersections).
- Construct sidewalks along frontage of undeveloped properties along Buena Vista Road.
- Stripe bike lanes all along Buena Vista Road.

Other recommended improvements include enforcement by the City of Hollister Police Department to reduce observed driver violations, such as driving over 25 mph within a school zone, use of cell phones while driving, not coming to a complete stop at stop-controlled intersections, and not using turn signals, among others.

Project's School Access Demand

All pedestrian traffic to and from the project site would utilize Buena Vista Road. However, Buena Vista Road has missing portions of sidewalk along the north side of the street in the vicinity of the project site, including the portion between the south project frontage and Westside Boulevard. The intermittent sidewalks along Buena Vista Road would force pedestrian from the project site to walk along the undeveloped roadway shoulder. Additionally, the nearest marked crosswalk to the project site along Buena Vista Road is located at the intersection of Line Street and Buena Vista Road, approximately a quarter of a mile east of the project site frontage. No crosswalks across Buena Vista Road are currently marked at Westside Boulevard. The lack of marked crosswalks along Buena Vista Road could result in pedestrian crossing of Buena Vista Road at unmarked locations and/or midblock, in particular pedestrians accessing Calaveras school and park.

With the development of the proposed project, there could be an increase in non-vehicular travel between the project site and Calaveras Elementary School. This would increase the need for a complete pedestrian network. As recommended in the adopted SRTSP, pedestrians accessing Calaveras School from the project site would have to travel eastbound along the north side of Buena Vista Road to Westside Boulevard, cross Buena Vista Road, and travel back westbound along the south side of Buena Vista Road to the school. This includes walking for approximately 500 feet within the undeveloped shoulder on the north side of Buena Vista Road, crossing Buena Vista Road without the benefit of a marked crosswalk, and walking back another 500 feet to the school campus. The additional walking distance may discourage pedestrians from taking this route and instead decide to cross Buena Vista Road in front of the project site frontage to the school campus.

In order to eliminate the potential mid-block crossing of Buena Vista Road directly from the project site without the benefit of a marked crosswalk, a controlled intersection or a mid-block crosswalk could be provided.

Recommended Safe Route to School and Other Possible Pedestrian Improvements

The following recommendations are made to improve connectivity for pedestrians between the project site and the adjacent school and to encourage walking as a mode of travel:

Possible Physical Roadway Improvements. The proposed project should work with the City of Hollister to contribute to the implementation of any improvements that would help enhance pedestrian circulation in the study area, including the improvements identified above and within the adopted Safe to School Routes document. In particular, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

It is also recommended that sidewalks be installed along the north side of Buena Vista Road, between the project site and Westside Boulevard, in order to provide a continuous sidewalk connection between the project site and Calaveras School. These improvements would be consistent with the improvements identified in the adopted Safe Routes To School Program for Calaveras Elementary School.

Design of Project Site Access. In order to eliminate the potential mid-block crossing of Buena Vista Road directly from the project site without the benefit of a marked crosswalk, the project driveway along Buena Vista Road could be designed to align to the existing school/park driveway, providing a controlled intersection. A crosswalk could be provided along the west side of this new access intersection, providing a direct pedestrian connection between the project site and the school/park.

Consideration of a Marked Mid-Block Crosswalk. Although the proposed project satisfies most of the factors to consider for the installation of a marked mid-block, the decision to install a mid-block crosswalk should be carefully evaluated in particular since the traffic speed data shows that vehicles along Buena Vista Road currently travel at speeds that are higher than the speed limit. Additionally, Buena Vista Road, classified as a collector street in the City of Hollister General Plan, provides direct access between Hollister and a State Route (SR 156), potentially serving moderate amounts of traffic.

Other Possible Non-Physical Improvements. In addition to the above physical improvements, it is recommended that other measures be taken in an effort to facilitate access for pedestrians between the project site and Calaveras School. These measures could include police presence and enforcement, crossing guards, in-road removable signage, as well as parent/student education.

Roadway Segment Evaluation

Residential areas are especially sensitive to traffic increases because traffic can impact the livability of the street. Thus, an evaluation of the effects of project traffic on the surrounding neighborhoods was completed. The evaluation consists of a roadway segment analysis to quantify the potential change in traffic volumes along the study roadway segments as a result of the proposed project. In addition, the existing and future average daily traffic (ADT) volumes also are compared to acceptable volume thresholds for the study roadway segments to determine if any of the study roadway segments currently have or are projected to have traffic volume levels that exceed acceptable volume thresholds.

Existing Roadway Segment Volumes

The traffic counts show the number of daily vehicles along the study roadway segments to be well within their acceptable roadway capacity ranges.

The speed surveys revealed that the 85th percentile speeds along the study roadway segments of Miller Road, Westside Boulevard, and Locust Avenue were measured to be within 5 mph of the posted speed limits. The 85th percentile speed is the speed that 85% of traffic does not exceed (85% of the traffic travels at or below this speed) and is commonly used to set a roadway's speed limit. Speeds within 5 mph of the posted speed limits are considered reasonable. Travel speeds along the study roadway segments on Buena Vista Road, however, were measured to exceed the posted speed limit by up to 19 mph (roadway segment adjacent to the project site and Calaveras School). The 85th percentile speeds along Buena Vista Road were measured to be over 40 mph.

Roadway Segment Traffic Volume Projections

It is estimated that the proposed project would add daily project trips to the study roadway segments representing a 3% to 22% increase in traffic volumes, compared to the existing daily traffic volumes along each segment. The most daily project trips (506 trips) would be added to the segment of Buena Vista Road, west of Miller Road, representing an increase of 13% from the existing ADT volumes (8% when compared to the estimated background ADT volumes).

Even with the addition of project traffic, traffic volumes along each of the study roadway segments would continue to be well within the acceptable daily traffic thresholds identified in the City of Hollister General Plan.

Neighborhood Traffic Assessment Results

Based on the characteristics of the streets, the traffic count data, and the estimated project traffic, the following conclusions can be drawn:

- Traffic volumes on each of the surrounding roadways are and would continue to be well within the acceptable daily traffic thresholds identified in the City of Hollister General Plan.
- Speeds along Buena Vista Road currently exceed the posted speed limits.

Though the evaluation of the effects of project traffic on surrounding neighborhood streets identified no specific capacity issues, it is evident that existing travel speeds along Buena Vista Road exceed the posted speed limits. As such, the project would add traffic to locations with existing speeds that exceed the posted speed limits.

Possible Traffic Calming Measures

Measures can be implemented to address the observed excessive travel speeds along Buena Vista Road. The identified measures listed below are possible improvements that could be implemented as part of a traffic calming plan for the area. It should be noted that there are no established procedures for the application of traffic calming devices and criteria for device installation vary widely by jurisdiction.

- **Traffic Circles/Roundabouts.** Traffic circles and roundabouts force vehicles to slow down in advance of intersections. Installation of roundabouts has the potential to reduce the number of collisions and would maintain low travel speeds through and past the intersections. However, traffic circles/roundabouts, if poorly designed, could limit access for large vehicles, including fire trucks. The Fire Department would need to review and approve the installation of traffic circles/roundabouts at intersections along Buena Vista Road since these measures could result in an increase in emergency response times.

- **Bulb-Outs.** An alternative measure would be to narrow the roadways at the intersections by extending the curb radius into the street. Curb extensions are commonly referred to as bulb-outs. Bulb-outs typically shorten the pedestrian crossing lengths, keep the vehicle speeds low and allow better pedestrian visibility around parked cars. However, bulb-outs may result in a loss of on-street parking, and may also impede emergency response vehicles and other trucks.

Evaluation of Westside Boulevard/Buena Vista Road Roundabout

Operating conditions at the intersection of Westside Boulevard and Buena Vista Road were checked assuming the implementation of a roundabout at this intersection.

The level of service analysis shows that the intersection of Westside Boulevard/Buena Vista Road would operate at acceptable LOS A during the peak hour under background plus project conditions. The roundabout is projected to serve traffic volume projections more efficiently than the existing stop controls on Westside Boulevard and could be design to function as a traffic calming measure to reduce speeds along Buena Vista Road.

Table ES 1
Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Count Date	Int. Control[1]	Existing Warrant Met?[2]	Existing Delay[3]	Existing LOS	Existing Plus Project Warrant Met?[2]	Existing Plus Project Delay[3]	Existing Plus Project LOS	Existing Plus Project Change in Delay[4]
1	SR 156 and Buena Vista Road	Caltrans	C	AM	02/28/17	TWSC	**Yes**	17.9	C	**Yes**	18.3	C	0.4
				PM	02/28/17		**Yes**	**40.4**	**E**	**Yes**	**47.4**	**E**	**7.0**
2	Miller Road and Buena Vista Road	City	C	AM	09/12/18	TWSC	No	10.7	B	No	10.6	B	-0.1
				PM	09/12/18		No	10.0	B	No	10.3	B	0.3
3	Westside Boulevard and Buena Vista Road	City	C	AM	09/12/18	TWSC	No	12.8	B	No	13.4	B	0.6
				PM	09/12/18		No	10.4	B	No	11.0	B	0.6
4	Locust Avenue and Buena Vista Road	City	C	AM	09/12/18	AWSC	No	8.0	A	No	8.0	A	0.0
				PM	09/12/18		No	7.7	A	No	7.7	A	0.0
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	City	C	AM	04/05/17	Signal	--	12.1	B	--	12.2	B	0.1
				PM	04/05/17		--	12.5	B	--	12.6	B	0.1
6	Westside Boulevard and Central Avenue	City	C	AM	09/12/18	TWSC	No	11.7	B	No	12.0	B	0.3
				PM	09/12/18		No	12.2	B	No	12.8	B	0.6
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM	09/12/18	Signal	--	18.6	B	--	19.5	B	0.9
				PM	09/12/18		--	18.4	B	--	18.3	B	-0.1
8	College Street and San Juan Road/Fourth Street	City	C	AM	09/12/18	TWSC	No	**32.9**	**D**	No	**34.3**	**D**	1.4
				PM	09/12/18		No	34.5	D	No	38.0	E	3.5
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM	04/05/17	Signal	--	29.5	C	--	29.9	C	0.4
				PM	04/05/17		--	29.2	C	--	30.1	C	0.9

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] Change in delay measured relative to existing conditions.
Bold indicates unacceptable LOS/signal warrant met.
Bold and boxed indicate significant impact.

Table ES 1 (Continued)
Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	LOS Standard	Peak Hour	Int. Control[1]	Background Warrant Met?[2]	Background Delay[3]	Background LOS	Background Plus Project Warrant Met?[2]	Background Plus Project Delay[3]	Background Plus Project LOS	Background Plus Project Change in Delay[4]	Cumulative No Project Warrant Met?[2]	Cumulative No Project Delay[3]	Cumulative No Project LOS	Cumulative Plus Project Warrant Met?[2]	Cumulative Plus Project Delay[3]	Cumulative Plus Project LOS	Cumulative Plus Project Change in Delay[5]
1	SR 156 and Buena Vista Road	C	AM	TWSC	**Yes**	21.0	C	**Yes**	21.6	C	0.6	**Yes**	**213.6** [6]	**F**	**Yes**	**221.1** [6]	**F**	**7.5**
			PM		**Yes**	**164.0** [6]	**F**	**Yes**	**198.1** [6]	**F**	**34.1**	**Yes**	**9039.4** [6]	**F**	**Yes**	**11699.6** [6]	**F**	**2660.2**
2	Miller Road and Buena Vista Road	C	AM	TWSC	No	14.5	B	No	14.6	B	0.1	No	17.6	C	No	17.8	C	0.2
			PM		No	14.5	B	No	15.5	C	1.0	No	**26.5**	**D**	No	**30.7**	**D**	**4.2**
3	Westside Boulevard and Buena Vista Road	C	AM	TWSC	No	18.3	C	No	19.6	C	1.3	No	**26.1**	**D**	No	**28.7**	**D**	**2.6**
			PM		No	14.1	B	No	15.2	C	1.1	No	23.8	C	No	**28.1**	**D**	**4.3**
4	Locust Avenue and Buena Vista Road	C	AM	AWSC	No	8.8	A	No	8.9	A	0.1	No	9.9	A	No	10.0	B	0.1
			PM		No	8.6	A	No	8.9	A	0.3	No	11.3	B	No	11.8	B	0.5
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	C	AM	Signal	--	12.7	B	--	12.8	B	0.1	--	16.6	B	--	17.3	B	0.7
			PM		--	14.6	B	--	14.9	B	0.3	--	**76.9**	**E**	--	**83.8**	**F**	**6.9**
6	Westside Boulevard and Central Avenue	C	AM	TWSC	No	12.1	B	No	12.2	B	0.1	No	12.2	B	No	12.4	B	0.2
			PM		No	13.5	B	No	13.9	B	0.4	No	13.9	B	No	14.3	B	0.4
7	Westside Boulevard and San Juan Road/Fourth Street	C	AM	Signal	--	19.9	B	--	20.2	C	0.3	--	23.4	C	--	23.8	C	0.4
			PM		--	23.5	C	--	23.6	C	0.1	--	**42.8**	**D**	--	**43.0**	**D**	0.2
8	College Street and San Juan Road/Fourth Street	C	AM	TWSC	No	**39.6**	**E**	No	**40.2**	**E**	0.6	No	**75.4**	**F**	No	**77.9**	**F**	2.5
			PM		No	**54.7**	**F**	No	**58.2**	**F**	3.5	No	**119.6** [6]	**F**	No	**142.9** [6]	**F**	23.3
9	San Benito Street and San Juan Road/Fourth Street	C	AM	Signal	--	**47.5**	**D**	--	**48.3**	**D**	0.8	--	**147.9** [6]	**F**	--	**148.8** [6]	**F**	0.9
			PM		--	**57.5**	**E**	--	**59.2**	**E**	1.7	--	**400.3** [6]	**F**	--	**402.6** [6]	**F**	2.3

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] Change in delay measured relative to background conditions.
[5] Change in delay measured relative to cumulative no project conditions.
[6] The HCM methodology for intersection analysis does not accurately calculate actual intersection operation conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.
Bold indicates unacceptable LOS/signal warrant met.
Bold and boxed indicate significant impact.

1. Introduction

This report presents the results of the traffic impact analysis conducted for the proposed pre-zone of the parcel located at 1070 Buena Vista Road (here after referred to as the Woodle site/project) for future annexation into the corporate limits of the City of Hollister, California. The project site consists of one parcel totaling 9.102 acres bounded by Buena Vista Road to the south, Westside Road to the north, and agricultural parcels to the east and west. The Calaveras Elementary School and park are located on the south side of Buena Vista Road, directly across from the project site. Pending pre-zone and annexation, the parcel would be zoned as Medium Density Residential Performance Overlay Zone District (R3 M/PZ), which is consistent with the Medium Density Residential (MDR) land use category of the Hollister General Plan.

Currently, there are no specific development plans for the project site. However, for the purposes of this study, a maximum development scenario was established for the project parcel based upon the maximum development intensity allowed for the site, per City of Hollister General Plan land use designation. The General Plan MDR land use category allows eight to twelve units per net acre. Therefore, it is assumed that the project would include up to 109 dwelling units.

Access to the project site would be provided via Buena Vista Road (south project frontage) and Westside Road (north project frontage). The project site location and the surrounding study area are shown on Figure 1. The project site plat map is shown on Figure 2.

Scope of Study

This traffic impact analysis documents the impacts to the surrounding transportation system associated with developing the proposed project. The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Hollister and Caltrans. The study includes an analysis of traffic conditions at nine intersections and six roadway segments. The study also includes an evaluation of site access and circulation and an assessment of neighborhood traffic issues. The study intersections are listed below and shown on Figure 1.

Study Intersections

The study includes the evaluation of traffic conditions at three signalized intersections and six unsignalized intersections. Eight of the study intersections are under the jurisdiction of the City of Hollister and one under the jurisdiction of Caltrans. The following key intersections were evaluated:

1. SR 156 and Buena Vista Road [CT] (unsignalized)
2. Miller Road and Buena Vista Road [CH] (unsignalized)
3. Westside Boulevard and Buena Vista Road [CH] (unsignalized)

Figure 1
Site Location and Study Intersections

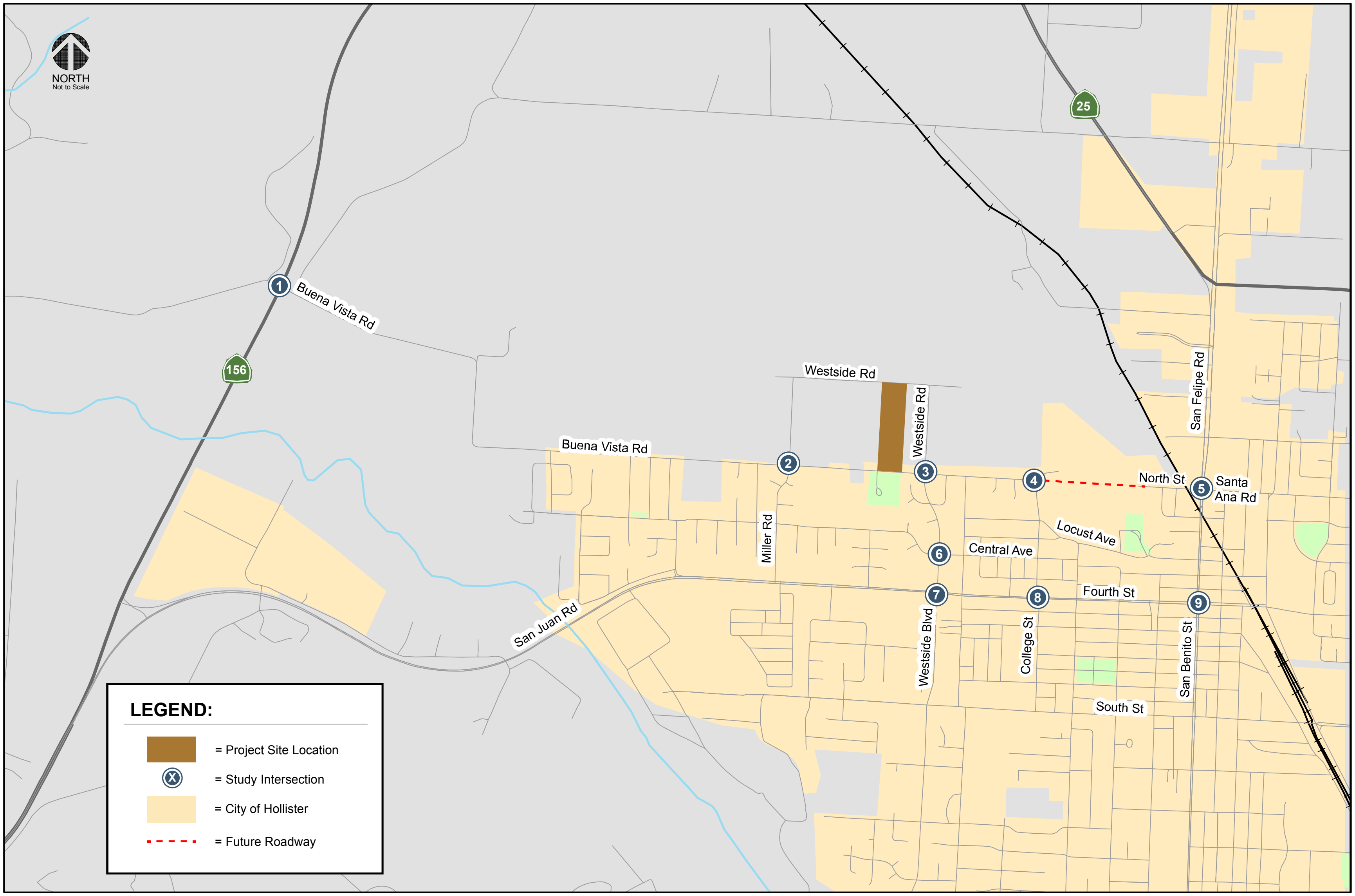
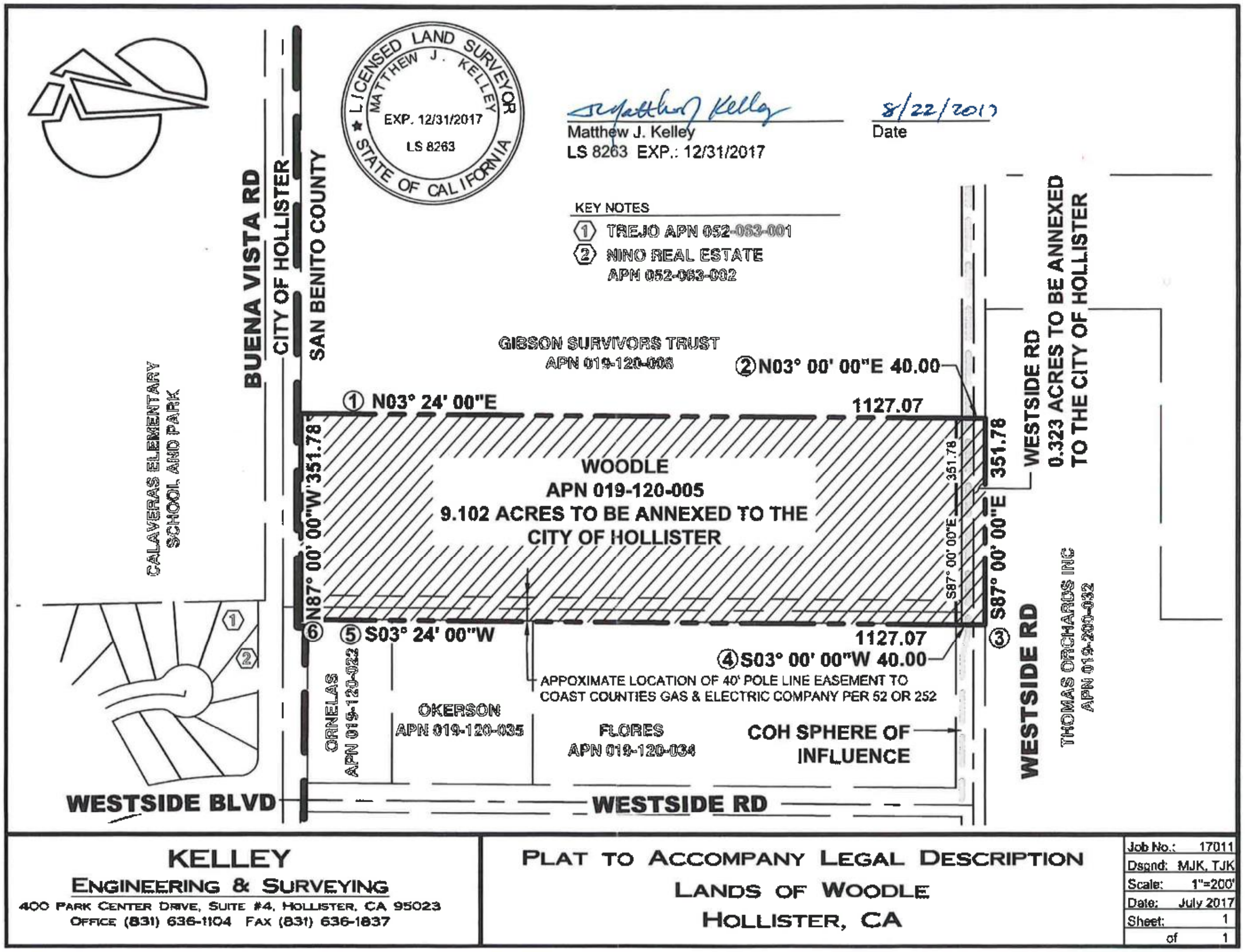


Figure 2
Project Site Plat Map



4. Locust Avenue and Buena Vista Road [CH] (unsignalized)
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road [CH]
6. Westside Boulevard and Central Avenue [CH] (unsignalized)
7. Westside Boulevard and San Juan Road [CH]
8. College Street and San Juan Road/Fourth Street [CH] (unsignalized)
9. San Benito Street and San Juan Road/Fourth Street [CH]

Intersections denoted with the superscript "CH" are under the jurisdiction of the City of Hollister. Intersections denoted with the superscript "CT" are under the jurisdiction of Caltrans.

Study Roadway Segments

Traffic conditions on the following roadway segments were evaluated:

1. Buena Vista Road, west of Miller Road
2. Vista Road, between Miller Road and Westside Boulevard
3. Buena Vista Road, east of Westside Boulevard
4. Miller Road, south of Buena Vista Road
5. Westside Boulevard, south of Buena Vista Road
6. Locust Avenue/College Street, south of Buena Vista Road

Study Time Periods

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. The weekday AM peak-hour of traffic generally falls within the 7:00 to 9:00 AM period and the weekday PM peak-hour typically occurs in the 4:00 to 6:00 PM period. It is during these times that the most congested traffic conditions occur on an average day.

Study Scenarios

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing conditions represent existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from recently completed traffic studies in the area and supplemented with new turn-movement counts at locations where counts were either outdated (more than 2 years old) or not available.

Scenario 2: *Existing plus Project Conditions.* Existing plus project conditions represent existing peak-hour traffic volumes on the existing roadway network with the addition of traffic generated by the proposed project if the project was complete and occupied today. Existing plus project conditions were evaluated relative to existing conditions in order to determine potential project impacts on the existing transportation network attributable to the project only.

Scenario 3: *Background Conditions.* Background conditions represent near-term future traffic volumes on the near-term future transportation network. Background traffic volumes were estimated by adding trips from approved but not yet constructed development projects to existing peak-hour traffic volumes. Approved project information was provided by the City of Hollister and San Benito County Planning Departments. Background conditions represent the baseline conditions to which project conditions are compared for the purpose of determining project impacts.

Scenario 4: *Background plus Project Conditions.* Background plus project conditions (also referred to as *Project Conditions*) represent background traffic volumes, with the project, on the near-term future roadway network. Background plus project conditions were estimated by adding to background traffic volumes the trips associated with the proposed project (or *project traffic volumes*). Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Scenario 5: *Cumulative Conditions.* Cumulative conditions represent future traffic volumes on the future transportation network that would result from traffic growth projected to occur due to proposed but not yet approved (pending) development projects, in addition to trips from approved project trips and the proposed project. Pending project information was provided by the City of Hollister and San Benito County Planning Departments. Cumulative conditions were evaluated for two scenarios: (1) without the proposed project and (2) with project-generated traffic. The change between these two scenarios illustrates the relative impact the proposed project could have on cumulative conditions.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, previous traffic studies, the City of Hollister, San Benito County, and field observations. The following data were collected from these sources:

- existing traffic volumes
- lane configurations and traffic control
- signal timing and phasing (for signalized intersections)
- approved and pending developments (size, use, and location)

Intersection Level of Service Standards and Analysis Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various levels of service are based on the average amount of delay incurred by drivers traveling through the intersection.

The intersection analysis methods and level of service standards are described below.

Level of Service Standards

The level of service standard for City of Hollister intersections is LOS C.

The Caltrans level of service standard for intersections is LOS C or better. However, Caltrans acknowledges that a LOS C standard may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If maintaining a LOS C is not feasible, Caltrans attempts to maintain the existing level of service of service when assessing the impact of a new project. For the purposes of this study, LOS C standard also was applied to all Caltrans intersections.

Analysis Methodologies

All study intersections were evaluated with the use of the Synchro software and applying the *2010 Highway Capacity Manual* (2010 HCM) methodology.

Signalized Intersections

The level of service methodology chosen for the analysis of signalized study intersections is Synchro and the 2010 HCM methodology. Synchro evaluates signalized intersection operations based on average control delay time for all vehicles at the intersection. *Control delay* is the amount of delay that is attributed to the particular traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The correlation between average delay and level of service for signalized intersections is shown in Table 1.

Unsignalized Intersections

Synchro is also the methodology used to determine the level of service for unsignalized intersections, which is based on the *2010 Highway Capacity Manual* methodology for unsignalized intersection analysis. This method is applicable for both two-way and all-way stop-controlled intersections. For the analysis of stop-controlled intersections, the *2010 HCM* methodology evaluates intersection operations on the basis of average control delay time for all vehicles on the stop-controlled approaches. For the purpose of reporting level of service for one- and two-way stop-controlled intersections, the delay and corresponding level of service for the stop-controlled minor street approach with the highest delay is reported. For all-way stop-controlled intersections, the reported average delay and corresponding level of service is the average for all approaches at the intersection. The correlation between average control delay and level of service for unsignalized intersections is shown in Table 2.

Signal Warrants

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant, Warrant #3, described in the *California Manual on Uniform Traffic Control Devices for Streets and Highways* (CAMUTCD), Part 4, Highway Traffic Signals, 2014. This method provides an indication of whether traffic conditions and peak-hour traffic levels are, or would be, sufficient to justify installation of a traffic signal. Other traffic signal warrants are available, however, they cannot be checked under future conditions (background, project, and cumulative) because they rely on data for which forecasts are not available (such as accidents, pedestrian volume, and four- or eight-hour vehicle volumes).

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants are met. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection as well as at adjacent intersections.

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0
Sources: Transportation Research Board, 2010 Highway Capacity Manual.		

Table 2
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)
A	Operations with very low delays occurring with favorable progression.	up to 10.0
B	Operations with low delays occurring with good progression.	10.1 to 15.0
C	Operations with average delays resulting from fair progression.	15.1 to 25.0
D	Operation with longer delays due to a combination of unfavorable progression of high V/C ratios.	25.1 to 35.0
E	Operation with high delay values indicating poor progression and high V/C ratios. This is considered to be the limited of acceptable delay.	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation and poor progression.	Greater than 50.0
Source: Transportation Research Board, 2010 Highway Capacity Manual		

Report Organization

The remainder of this report is divided into seven chapters. Chapter 2 describes existing conditions in terms of the existing roadway network, transit service, and existing bicycle and pedestrian facilities. Chapter 3 presents the project impact on the transportation system and describes the recommended mitigation measures under existing plus project conditions. Chapter 4 presents the intersection levels of service under background conditions with the addition of traffic from approved development projects. Chapter 5 describes the method used to estimate project traffic, presents the intersection level of service analysis under background plus project conditions and its impact on the existing transportation system, and describes the recommended mitigation measures. Chapter 6 presents the traffic conditions in the study area under cumulative conditions with traffic from the proposed project. Chapter 7 contains an evaluation of other transportation-related issues than may not be considered environmental issues, and may not be evaluated in the environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction. Chapter 8 presents the conclusions of the traffic impact analysis.

2.
Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, transit service, and bicycle and pedestrian facilities. Also included are the existing levels of service of the key intersections in the study area.

Existing Roadway Network

Regional access to the project area is provided by State Routes 25 and 156 while local access to the project area is provided by Buena Vista Road, North Street, Miller Road, Westside Boulevard, Fourth Street/San Juan Road, and San Benito Street/San Felipe Road. These facilities are described below and shown on Figure 1.

State Route 25 is a two-lane highway that carries regional traffic between Gilroy and Hollister. It begins at its junction with Highway 101 in Gilroy and extends southward through Hollister towards Paicines. SR 25 is also designated as Hollister Road, Bolsa Road, Pinnacles National Park Highway, and Airline Highway. SR 25 provides access to the project site via SR 156 and Buena Vista Road.

State Route 156 is generally a two-lane highway that carries regional traffic between Highway 101 and Highway 152 while passing through San Juan Bautista and the outskirts of the City of Hollister. Between Hollister and San Juan Bautista, SR 156 is a two-lane highway. Between San Juan Bautista and US 101, SR 156 is a four-lane divided highway. SR 156 provides access to the project site via Buena Vista Road.

Buena Vista Road is a two-lane east-west collector street that begins at SR 156 and extends eastward to Locust Avenue, where it changes designation to North Street. With the planned North Street Extension, a continuous connection between Buena Vista Road and San Benito Street will be provided. In the vicinity of the project site, the posted speed limit along Buena Vista Road is 25 mph.

North Street currently consists of a short undeveloped roadway segment between Monterey Street and San Benito Street. Construction of the two-lane extension of North Street, between Locust Avenue and Monterey Street, is a funded improvement that will be completed in conjunction with the development of adjacent north parcel (currently under construction). North Street changes designation west of Locust Avenue to Buena Vista Road and east of San Benito Street to Santa Ana Road. With the planned extension, a continuous roadway would be provided connecting Buena Vista Road and Santa Ana Road.

Miller Road a two-lane north-south street that begins at Fourth Street and extends northward past Buena Vista Road to Westside Road, where it terminates.

Westside Boulevard is a two-lane north-south collector street that runs between Buena Vista Road and Nash Road. North of Buena Vista Road, it becomes Westside Road extending northward then east/west along the northern project site boundary. Westside Boulevard has class II bike facilities throughout most of its entire length. Westside Boulevard provides access to the project site via Buena Vista Road and Westside Road.

Fourth Street/San Juan Road is an east/west two-lane major collector street that begins to the west at its intersection with SR 156 and extends eastward to east of San Benito Street where it changes designation to Meridian Street at its intersection with McCray Street. Fourth Street/San Juan Road provides access to the project site via Miller Road and Westside Boulevard.

San Benito Street/San Felipe Road is a two- to four-lane, north-south roadway that extends from Union Road in the southern part of Hollister through downtown as San Benito Street, then transitions into San Felipe Road north of North Street/Santa Ana Road. San Felipe Road extends into the north part of Hollister and connects to SR 152 in Santa Clara County. The City of Hollister General Plan designates San Benito Street as collector and San Felipe Road as a major thoroughfare. San Benito Street would provide access to the project site via Fourth Street and North Street.

Existing Bicycle and Pedestrian Facilities

Bicycle facilities are divided into three classes of relative significance. Class I bikeways are bike paths that are physically separated from motor vehicles and offer two-way bicycle travel on a separate path. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings. Class III bikeways are bike routes and only have signs to help guide bicyclists on recommended routes to certain locations. The locations of existing bicycle facilities are show on Figure 3.

In the vicinity of the project site, the following Class II bike lanes are found:

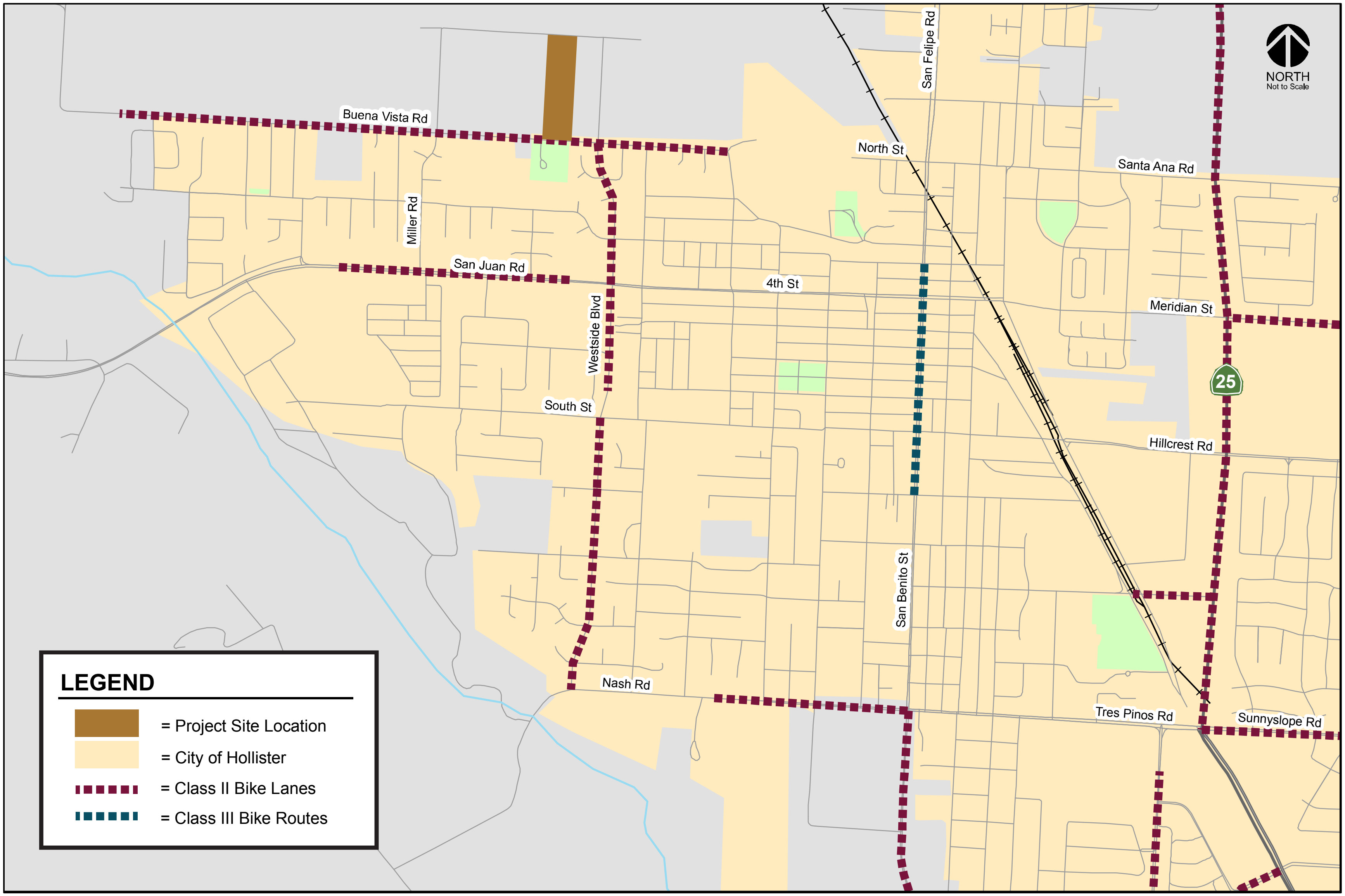
- Buena Vista Road (south side of the street only), between Locust Avenue and west of Beresini Lane
- Westside Boulevard, along both sides of the street between Buena Vista Road and Fourth Street and between South Street and Nash Road, and along the east side of the street between Fourth Street and south of Jan Avenue
- San Juan Road (both sides of the street), between Westside Boulevard and west of Miller Road

The City of Hollister 2005 General Plan acknowledges that most bicycling within the city is done on roadway shoulders. However, as traffic increases along many of the streets in Hollister, it is desirable to increase emphasis on accommodating bicycle travel when designing City streets.

Pedestrian facilities in the project area consist primarily of sidewalks found along most developed areas in the vicinity of the project site. However, some areas near the project site include undeveloped land with missing sidewalks. Sidewalks are missing along most of the north side of Buena Vista Road, including the areas adjacent to the project frontage. The south side of Buena Vista Road has continuous sidewalks from Aguirre Drive to Locust Avenue. The nearest marked crosswalks to the project site are located at the Westside Boulevard/Buena Vista Road intersection (south leg) and the Line Street/Buena Vista Road intersection (all legs).

The missing sidewalks in the project area could make pedestrian travel between the project site and other pedestrian destinations (such as schools, parks, and transit stops) challenging, discouraging

Figure 3
Existing Bicycle Facilities



pedestrian activity or forcing pedestrians to walk along undeveloped roadway shoulders and/or cross Buena Vista Boulevard at midblock.

Existing Transit Service

Transit service to the project area is provided by County Express Transit System. The transit services provided in the City are described below and shown on Figure 4.

Local Bus Service

County Express operates several fixed-route buses in Hollister and San Benito County. There are currently three County Express bus lines (Blue Line, Green Line, and Red Line) which operate within the City. The Blue and Green lines provide service throughout Hollister via Fourth Street, Rajkovich Way, Summer Drive, South Street, Line Street, Nash Road, Memorial Drive, and Meridian Street. The Red Line runs from Hazel Hawkins Memorial Hospital located in the central part of town to the County Facilities located in the north part of town, via Ladd Lane, Tres Pinos Road, and San Benito Street/San Felipe Road.

The nearest bus stops for the Blue and Green Lines are located at the Felice Drive/Central Avenue intersection, approximately a half-a-mile walking distance south of the project site. The nearest bus stops for the Red Line is located at the San Benito Street/Fourth Street intersection, approximately a one mile walking distance southeast of the project site. The Blue and Green Lines provides service from approximately 6:30 AM to 5:50 PM (with no service between 9:00 AM and 2:10 PM) with approximately 30- to 60- minute headways during the peak hours. The Red Line provides service from approximately 6:15 AM to 5:50 PM (with no service between 11:15 AM and 2:10 PM) with approximately 60-minute headways during the peak hours.

Dial-A-Ride Service

Areas not served by the fixed-route bus service are eligible for Dial-a-Ride service. County Express provides the Dial-a-Ride service to Northern San Benito County, including Hollister, San Juan Bautista, and Tres Pinos, on weekdays between 6 AM and 6 PM and on weekends between 9 AM and 3 PM. County Express Transit System provides two types of Dial-a-Ride service – general public and paratransit. General public Dial-a-Ride serves those persons whose trips begin or end in a location more than three-quarters of a mile from the fixed route. Paratransit service provides rides to persons who have been determined to be Americans with Disabilities Act (ADA) eligible through the Local Transit Authority application process. Appointments for Dial-a-Ride service can be made up to 14 days in advance or on the day of the ride. However, same day scheduling is subject to a $1.00 convenience fee and availability.

Inter-County Service

County Express Transit System's inter-county service includes service to the Gilroy Transit Center and Gavilan Community College. Shuttle service to the Gilroy Transit Center and Gavilan Community College (school year only) operates Monday through Friday from 6:55 AM to 6:15 PM and connects to six trains per day operating between Gilroy and San Jose. The nearest bus stop serving the inter-county lines is located at the intersection of Miller Road and Fourth Street, an approximately 0.6-miles walking distance southwest of the project site.

Existing Intersection Lane Configurations and Traffic Controls

The existing lane configurations and traffic controls at the study intersections were determined by observations in the field, and are shown on Figure 5.

Figure 4
Existing Transit Services

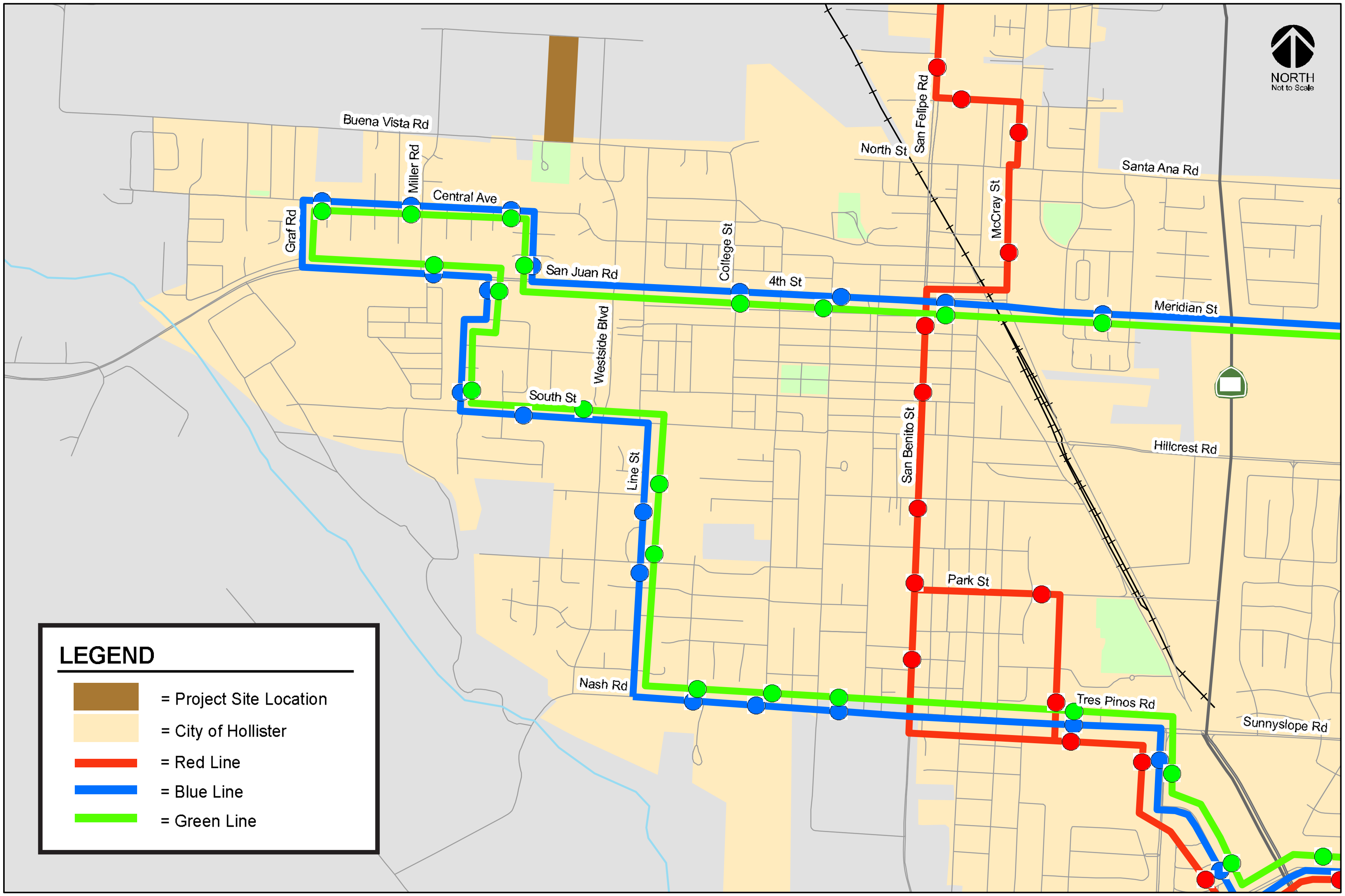
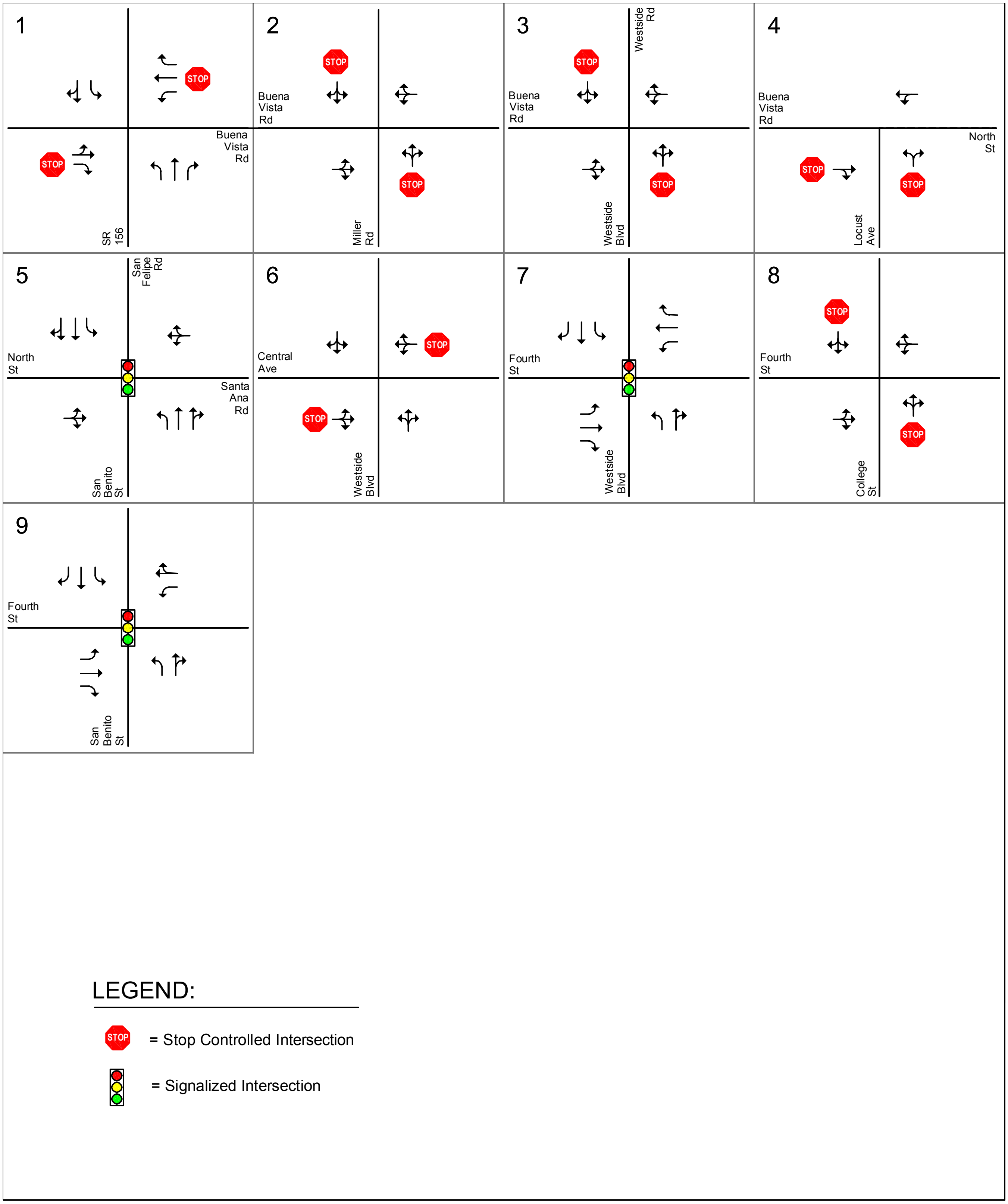


Figure 5
Existing Lane Configurations



Existing Traffic Volumes

Existing weekday AM and PM peak-hour traffic volumes were obtained from recently conducted traffic studies in the area and supplemented with new intersection turning movement counts conducted in September 2018. The existing peak-hour intersection volumes are shown on Figure 6.

Caltrans requires its intersections to be analyzed using peak 15-minute flow rates. Therefore, the peak one-hour traffic volumes used in this analysis for the study Caltrans intersection were calculated by multiplying the peak 15-minute volumes within each peak-hour by four.

The traffic count data are included in Appendix A. Peak-hour intersection turning movement volumes for all intersections and study scenarios are tabulated in Appendix B.

Existing Intersection Analyses

The results of the intersection level of service and signal warrant analyses under existing conditions are summarized in Table 3.

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following two study intersections currently operate at unacceptable levels of service during one of the peak hours:

1. SR 156 and Buena Vista Road [CT] (LOS E – PM peak-hour)
8. College Street and San Juan Road/Fourth Street [CH] (LOS D – AM peak-hour)

The remaining study intersections currently operate at acceptable LOS C or better conditions during both the AM and PM peak hours. The intersection level of service calculation sheets are included in Appendix C.

Intersection Signal Warrant Analysis

The peak hour signal warrant analysis indicates that the study intersection of SR 156 and Buena Vista Road currently has peak hour traffic volumes that meet the thresholds that warrant signalization during the AM and PM peak hours.

The intersection of SR 156/Buena Vista Road also was found to operate at unacceptable levels of service, as discussed in the previous section. Therefore, the installation of a traffic signal is warranted at the intersection of SR 156 and Buena Vista Road.

The remaining unsignalized study intersections currently have traffic conditions that fall below the thresholds that warrant signalization. The peak-hour signal warrant sheets are contained in Appendix D.

Figure 6
Existing Traffic Volumes

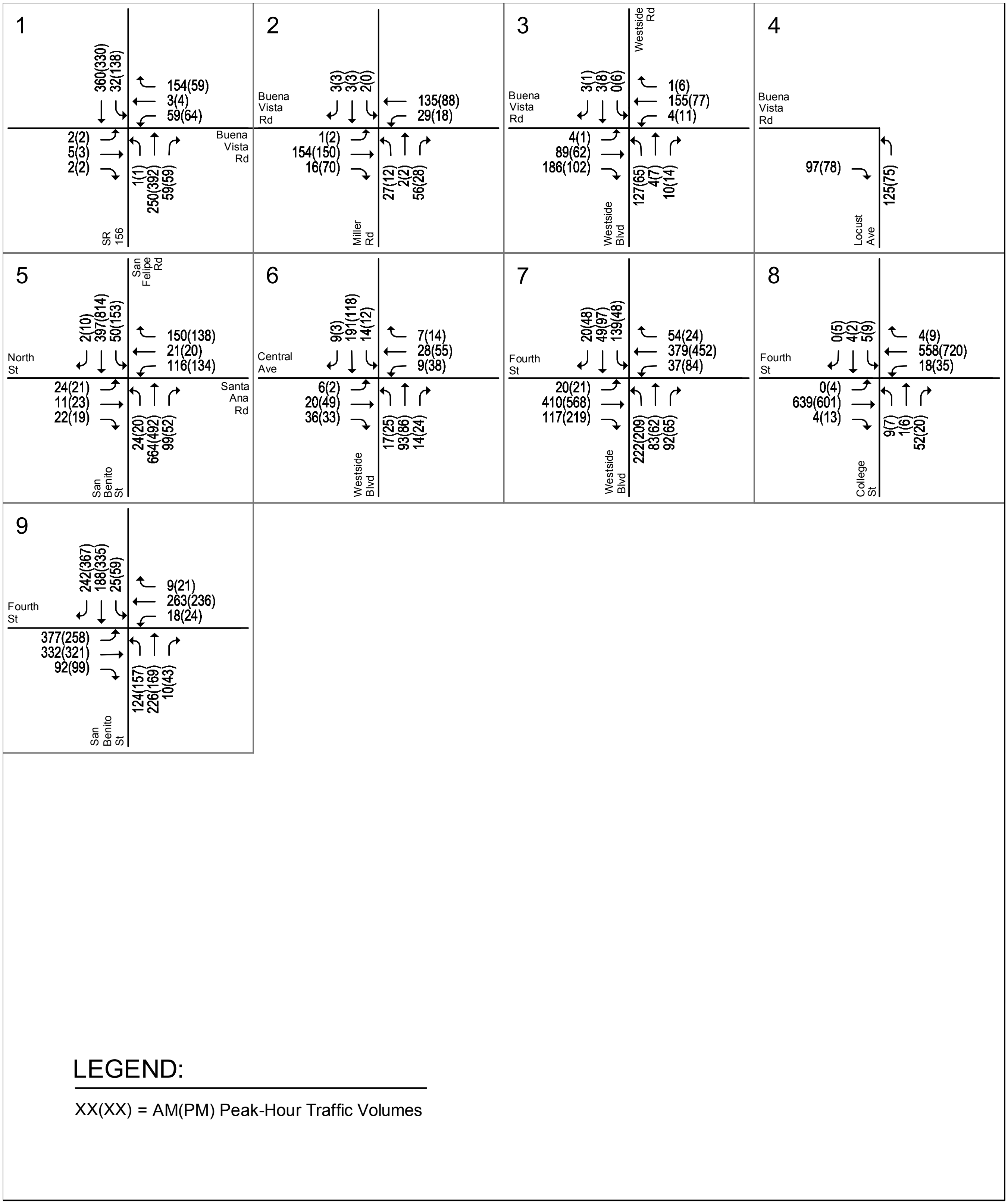


Table 3
Existing Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Count Date	Int. Control[1]	Warrant Met?[2]	Delay[3]	LOS
1	SR 156 and Buena Vista Road	Caltrans	C	AM PM	02/28/17 02/28/17	TWSC	**Yes** **Yes**	17.9 **40.4**	C **E**
2	Miller Road and Buena Vista Road	City	C	AM PM	09/12/18 09/12/18	TWSC	No No	10.7 10.0	B B
3	Westside Boulevard and Buena Vista Road	City	C	AM PM	09/12/18 09/12/18	TWSC	No No	12.8 10.4	B B
4	Locust Avenue and Buena Vista Road	City	C	AM PM	09/12/18 09/12/18	AWSC	No No	8.0 7.7	A A
5	San Felipe Road/San Benito Street and North Street/Santa Ana Roa	City	C	AM PM	04/05/17 04/05/17	Signal	-- --	12.1 12.5	B B
6	Westside Boulevard and Central Avenue	City	C	AM PM	09/12/18 09/12/18	TWSC	No No	11.7 12.2	B B
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM PM	09/12/18 09/12/18	Signal	-- --	18.6 18.4	B B
8	College Street and San Juan Road/Fourth Street	City	C	AM PM	09/12/18 09/12/18	TWSC	No No	**32.9** **34.5**	**D** **D**
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM PM	04/05/17 04/05/17	Signal	-- --	29.5 29.2	C C

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
Bold indicates unacceptable LOS/signal warrant met.

3.
Existing Plus Project Conditions

This chapter describes existing traffic conditions with the addition of the traffic that would be generated by the proposed project. Existing plus project traffic conditions could potentially exist if the project was constructed and occupied prior to the other approved projects in the area. It is unlikely that this traffic condition would occur, since other approved projects expected to add traffic to the study area would likely be built and occupied during the time the project is going through the development review and construction process. Thus, this scenario describes a less congested traffic condition. Existing plus project conditions also does not include any planned and funded roadway improvements that have not been constructed.

Project impacts under existing plus project conditions are evaluated relative to existing conditions. Description of the significance criteria that define an impact as well as the method used to estimate project traffic are briefly discussed below and presented in Chapter 5 – Background plus Project Conditions.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis, the set of relevant criteria for impacts on the transportation network is based on Level of Service standards and significance thresholds for the City of Hollister and Caltrans. The criteria for identifying impacts on the study facilities are discussed in Chapter 5.

Transportation Network under Existing Plus Project Conditions

The roadway network under existing plus project conditions would be the same as described under existing conditions.

Project Description

A full project description is provided in Chapter 5.

Project Traffic Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. These procedures are described in detailed in Chapter 5 and summarized below.

Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 10th Edition*. The trip generation estimates are based on ITE's trip generation rates (based on the regression equation) for single-family detached housing (ITE land use code #210).

Based on the ITE rates, it is estimated that the project would generate 1,126 new daily trips, with 82 trips (21 inbound and 61 outbound) occurring during the AM peak-hour and 110 trips (69 inbound and 41 outbound) occurring during the PM peak-hour.

The trip generation estimates are presented in Table 7 in Chapter 5.

Trip Distribution and Assignment

The trip distribution pattern for project-generated traffic was estimated based on existing travel patterns in the study area and on the locations of complementary land uses. Trip distribution pattern is presented graphically in Chapter 5.

The peak-hour vehicle trips associated with the proposed project were added to the transportation network in accordance with the trip distribution pattern discussed above and based on the existing roadway network. The assignment of project trips under existing plus project conditions is shown on Figure 7 below.

A tabular summary of project traffic at each study intersection is contained in Appendix B.

Existing Plus Project Traffic Volumes

Project trips, as represented in the project trip assignment described above, were added to existing traffic volumes to obtain existing plus project traffic volumes. The traffic volumes under existing plus project conditions are shown on Figure 8.

Existing Plus Project Intersection Analyses

The results of the intersection level of service and signal warrant analyses under existing plus project conditions are summarized in Table 4.

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that two of the study intersections are projected to operate at an unacceptable LOS D or worse during one of the peak hours under existing plus project conditions:

1. SR 156 and Buena Vista Road [CT] (**Impact**: PM peak-hour)
8. College Street and San Juan Road/Fourth Street [CH]

Based on Caltrans level of service impact criteria, the intersection of SR 156 and Buena Vista Road would be significantly impacted by the project under existing plus project conditions. The remaining substandard intersection would not be impacted by the project, based on the applicable significance criteria. The impact and proposed improvements to mitigate the impact are described below.

All other study intersections are projected to operate at acceptable levels during both the AM and PM peak hours of traffic under existing plus project conditions when measured against the applicable level of service standards. The intersection level of service calculation sheets are included in Appendix C.

Figure 7
Project Trip Assignment – Existing Plus Project

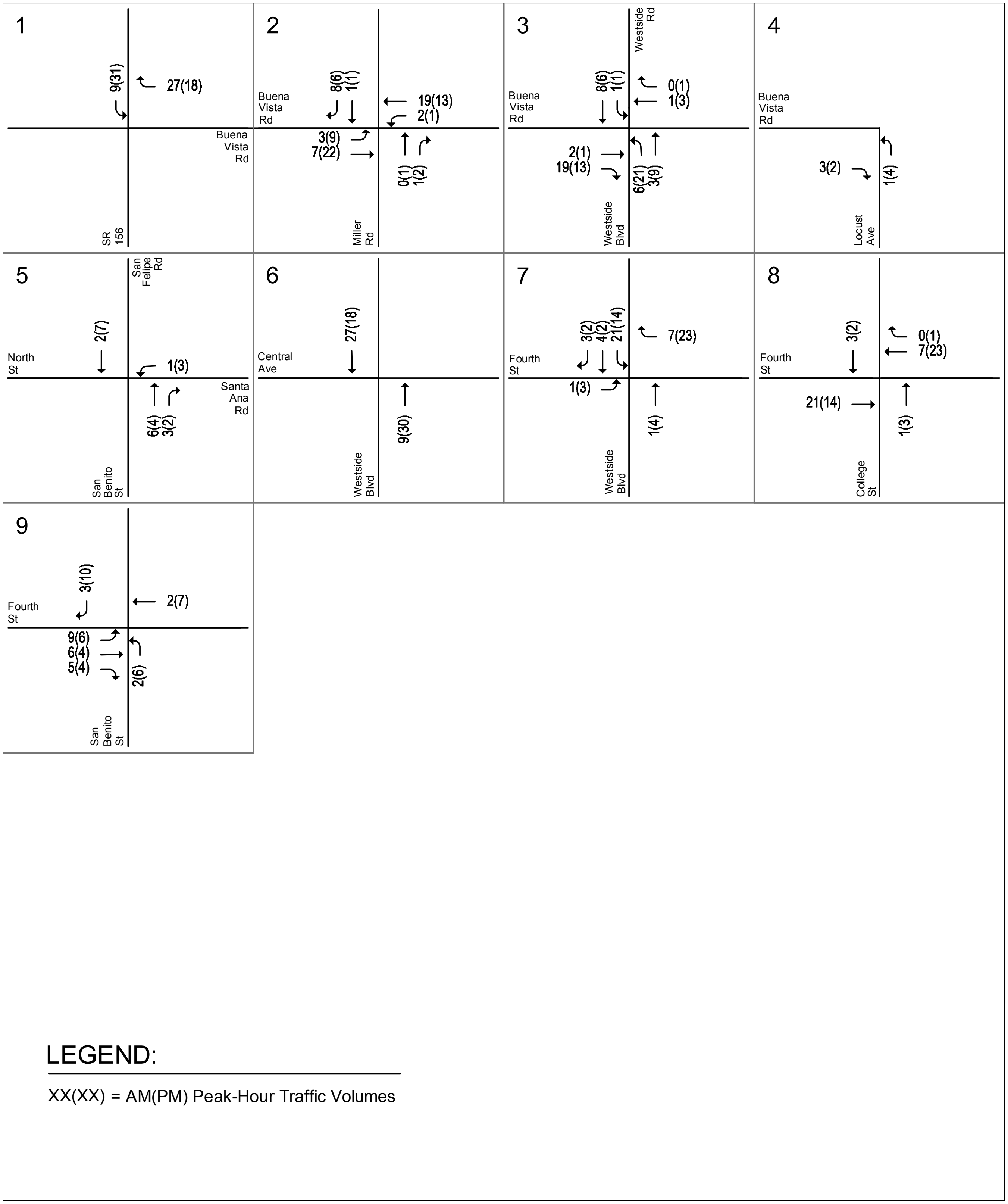
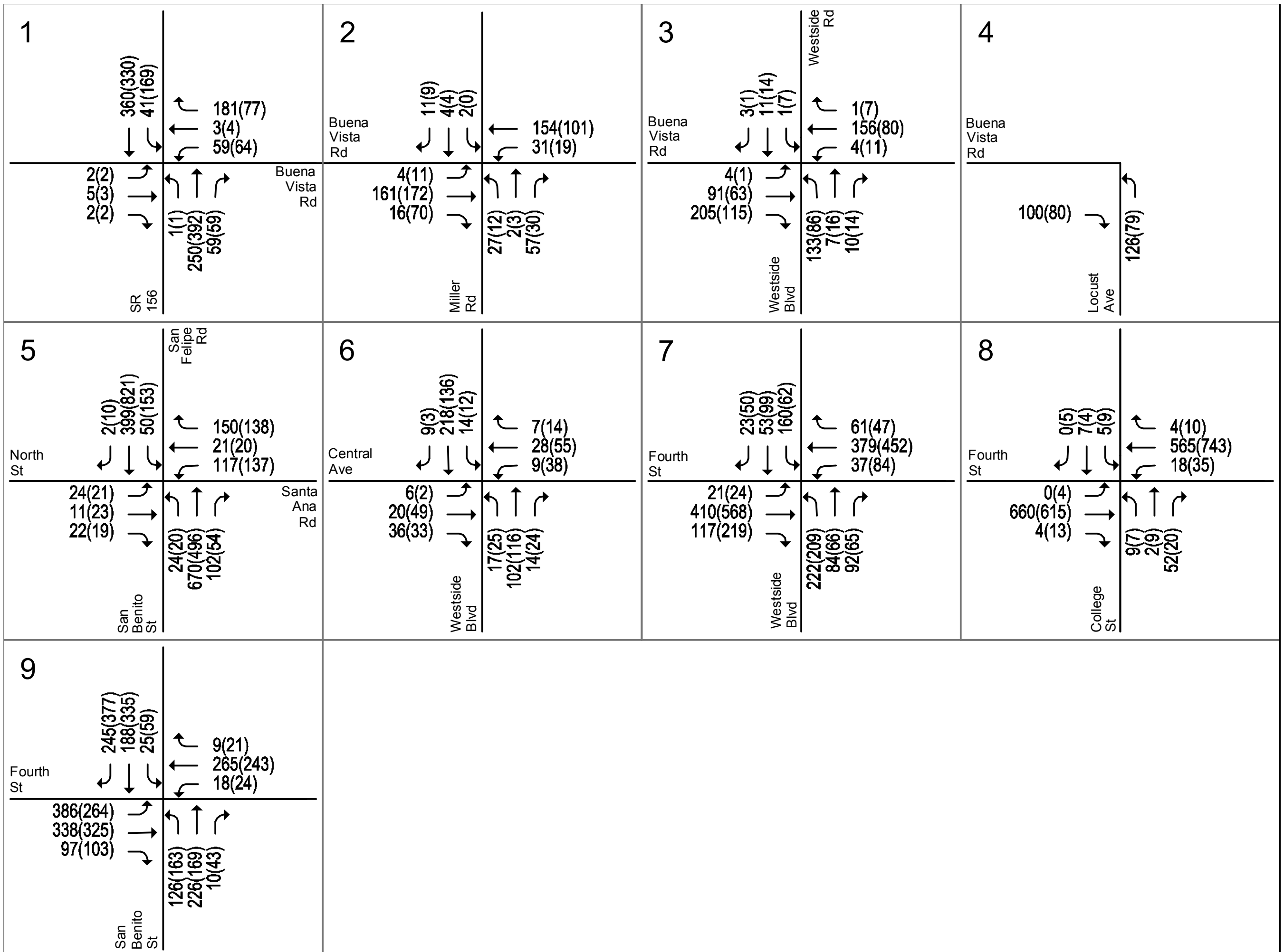


Figure 8
Existing Plus Project Traffic Volumes



LEGEND:

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Table 4
Existing Plus Project Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Int. Control[1]	Existing Warrant Met?[2]	Existing Delay[3]	Existing LOS	Existing Plus Project Warrant Met?[2]	Existing Plus Project Delay[3]	Existing Plus Project LOS	Change in Delay[4]
1	SR 156 and Buena Vista Road	Caltrans	C	AM	TWSC	**Yes**	17.9	C	**Yes**	18.3	C	0.4
				PM		**Yes**	**40.4**	**E**	**Yes**	**47.4**	**E**	**7.0**
2	Miller Road and Buena Vista Road	City	C	AM	TWSC	No	10.7	B	No	10.6	B	-0.1
				PM		No	10.0	B	No	10.3	B	0.3
3	Westside Boulevard and Buena Vista Road	City	C	AM	TWSC	No	12.8	B	No	13.4	B	0.6
				PM		No	10.4	B	No	11.0	B	0.6
4	Locust Avenue and Buena Vista Road	City	C	AM	AWSC	No	8.0	A	No	8.0	A	0.0
				PM		No	7.7	A	No	7.7	A	0.0
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	City	C	AM	Signal	--	12.1	B	--	12.2	B	0.1
				PM		--	12.5	B	--	12.6	B	0.1
6	Westside Boulevard and Central Avenue	City	C	AM	TWSC	No	11.7	B	No	12.0	B	0.3
				PM		No	12.2	B	No	12.8	B	0.6
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM	Signal	--	18.6	B	--	19.5	B	0.9
				PM		--	18.4	B	--	18.3	B	-0.1
8	College Street and San Juan Road/Fourth Street	City	C	AM	TWSC	No	**32.9**	**D**	No	**34.3**	**D**	1.4
				PM		No	**34.5**	**D**	No	**38.0**	**E**	3.5
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM	Signal	--	29.5	C	--	29.9	C	0.4
				PM		--	29.2	C	--	30.1	C	0.9

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] Change in delay measured relative to existing conditions.
Bold indicates unacceptable LOS/signal warrant met.
Bold and boxed indicate significant impact.

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the same study intersection (SR 156 and Buena Vista Road) that was identified under existing conditions to have peak-hour traffic volumes that meet the thresholds that warrant signalization would continue to meet signal warrant thresholds under existing plus project conditions during the AM and PM peak hours.

The intersection of SR 156 and Buena Vista Road also is projected to operate at unacceptable levels of service and to be significantly impacted by the proposed project under existing plus project conditions. Therefore, the installation of a traffic signal is warranted at this intersection.

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under existing plus project conditions. The peak-hour signal warrant sheets are contained in Appendix D.

Project Impacts and Recommended Mitigation Measures

Described below are the intersection impacts under existing plus project conditions and recommended mitigation measures necessary to maintain the level of service standards and intersection operations.

1. SR 156 and Buena Vista Road (Caltrans)

Impact: This unsignalized intersection's level of service is currently an unacceptable LOS E during the PM peak-hour under existing conditions and the addition of project traffic would cause the delay at the intersection to increase and the intersection would have traffic volumes that meet peak-hour signal warrants. This constitutes a significant project impact by Caltrans standards.

Mitigation Measures. The necessary improvement to improve the intersection level of service to acceptable levels consists of the installation of a traffic signal at the intersection. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional Transportation Impact Mitigation Fee (TIMF), January 2016. With implementation of this mitigation measure, the intersection is projected to operate at acceptable levels of service during the peak hours under existing plus project conditions, reducing the impact to less-than-significant.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

4.
Background Conditions

This chapter describes background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed project. Traffic volumes for background conditions comprise volumes from the existing traffic counts plus traffic generated by approved developments in the vicinity of the site, which would add traffic to the study intersections. Background conditions represent the baseline conditions to which background plus project conditions will be compared for the purpose of determining project impacts. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions.

Background Roadway Network

The transportation network under background conditions is assumed to be the same as the existing transportation network with the exception of the following planned improvement:

North Street (Buena Vista Road) Gap Closure. The construction of the two-lane extension of North Street, between Locust Avenue and Monterey Street, is planned to occur concurrently with the approved (and currently under construction) North Street Residential Development. With the planned extension, the existing roadway gap along Buena Vista Road/North Street will be eliminated, providing a direct connection between Buena Vista Road and San Felipe Road/Santa Ana Road. The planned North Street extension will become the east leg of the existing intersection of Locust Avenue and Buena Vista Road (study intersection #4).

Approved Developments

Lists of approved projects were received from the City of Hollister and San Benito County Planning Departments in October and November 2018, respectively. Table 5 lists the approved but not-yet-completed developments that would add traffic to the roadway network under background conditions. The traffic associated with these developments is discussed below. The traffic generated by projects that are either very small or remotely located from the study intersections was assumed to be insignificant for the purpose of this traffic analysis.

Background Traffic Volumes

Background peak-hour traffic volumes were calculated by adding to existing volumes the estimated traffic from approved but not yet constructed developments. The traffic added to the study intersections from approved but not yet constructed developments was estimated by distributing and assigning trips generated by these developments to the roadway network. The process of trip generation, distribution,

Table 5
Approved Development Projects

Applicant/Owner/Project Name	Address/Location	Proposed Project Description
Orchard Park	W/o Buena Vista Rd/Miller Rd	91 SFD
Vista de Oro/Saroyan & Howard	San Juan Rd, between Graf Rd and Miller Rd	80 Condominiums
Dike	SW corner of Westside Bl/South St	39 SFD
Sywak	SW corner of Westside Bl/South St	13 SFD
Ray Mariottini	S/o Haydon St between park st & Monterey St	13 SFD
Valles	E/o Cushman St, S/o Nash Rd	42 Apartments, 26 Townhomes and 15 SFD
Ladd Lane/Intravia/Bella Serra	W/o Ladd Ln, across from Hillock Dr	63 Apartments
Silver Oaks	W/o Valley View, s/o Hazel Hawkins Hospital, e/o Airline Hwy, n/o Valle Way	170 Senior Detached Housing
Award Homes	W/o Fairview, s/o St. Benedict's Church, e/o Calistoga Dr	507 SFD, 60 MF, and 100 Apartments
Brigantino South of Hillcrest	S/o Hillcrst Rd between Sawtooth Dr & El Dorado Dr	42 SFD
Del Curto Brothers South of Hillcrest	E/o El Cerro Dr	21 SFD
Cerrato Estates/Benchmark	Between Meridian St and Hillcrest Rd, W/o Memorial Dr	241 SFD
Hugh Bikle Maple Park	W/o N Chappell Rd between Maple St & Primavera Dr	49 SFD
Pivetti	Valley View Rd between Sunnyslope Rd and Sunset Dr	24 Apartments
Pacific West Communities	NE corner of Miller Rd/San Juan Rd	57 Apartments
Roberts Ranch	N/e of Enterprise/Airline	192 SFD and 35 Townhomes
DeNova Homes/North Street Allendale	North Street	227 SFD and 60 MF
Bob Kutz s/o of Hillcrest Road	S/o of Hillcrest, E/o of El Cerro	19 SFD
Thorning/Fahmy	1001 Fourth Street	39 MF and 40 SFD
CHISPA Age-Restricted Apartments	560 Line Street	49 MF
Borelli n/o of Buena Vista	N/o Buena Vista and W/o Miller Rd	148 SFD and 22 Duets
Kraig Klauer	811 Santa Ana Rd	11 SFD and 3 MF
George Ramstad	349 Apollo Way	18,116 s.f. Warehouse
Charlie Barton	1700 Shelton Dr	12,000 s.f. addition to an existing industrial building
Rong Chang USA	Northeast of Hollister Municipal Airport; W/o San Felipe Rd	151,200 s.f. shell building
Hawkins Companies	W/o SR 25 and S/o Park St	165,533 s.f. shopping center
Randy Griffith	777 Flynn Rd	15,900 s.f. building
Anthony Gaetani	1590 Lana Way	7,700 s.f. light industrial building
Lynn Lake	220 Fourth Street	5 MF; 2,183 s.f. commercial building
Robert Enz	1691 Airway Dr	15,000 s.f. shell building
American Casting	71 Fallon Road	21,200 s.f. industrial building
Del Curto Brothers	365 Fourth Street	8,846 commercial mixed-use building
Community Foundation for San Benito County	460, 434, 438 San Benito Street	10,858 s.f. community building
Santana Ranch	E/o Fairview Rd from Hillcrest to Sunnyslope	1,092 SFD, 800-student elementary school, and 65,000 s.f. of commercial space
Fairview Corners Residential	N/E Corner of Fairview Rd and Airline Hwy	220 SFD
Humboldt West	Southside/Airline	16 lots
Legacy Guerra	W/o Hwy 25 bypass between Meridian St and Hillcrest Rd	150 ksf home improvement store, 100.48 ksf general commercial and 120 Apartments
CSDC	Westside Blvd between 4th St and South St	15 Apartments

Notes:
SFD = Single-Family Detached Homes; MF = Multi-Family Residential Units
Source: City of Hollister and San Benito County Planning Department (October and November 2018)

and assignment is described in the next chapter. In addition, a reassignment of existing traffic was conducted to account for the anticipated change in travel patterns in the immediate project area associated with the planned North Street extension project. The North Street extension would provide a new direct connection between Buena Vista Road and San Felipe Road/Santa Ana Road. Therefore, in addition to the approved project trips, the reassignment of existing traffic was added to existing traffic volumes to obtain background traffic volumes. Background traffic volumes are shown on Figure 9.

Background Intersection Analyses

The results of the intersection level of service and signal warrant analyses under background conditions are summarized in Table 6.

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following three study intersections are projected to operate at an unacceptable LOS D or worse during at least one of the peak hours under background conditions:

1. SR 156 and Buena Vista Road [CT] (LOS F – PM peak-hour)
8. College Street and San Juan Road/Fourth Street [CH] (LOS E – AM, LOS F – PM peak-hour)
9. San Benito Street and San Juan Road/Fourth Street [CH] (LOS D – AM, LOS E – PM peak-hour)

The remaining study intersections are projected to operate at acceptable levels during both the AM and PM peak hours under background conditions when measured against applicable level of service standards. The intersection level of service calculation sheets are included in Appendix C.

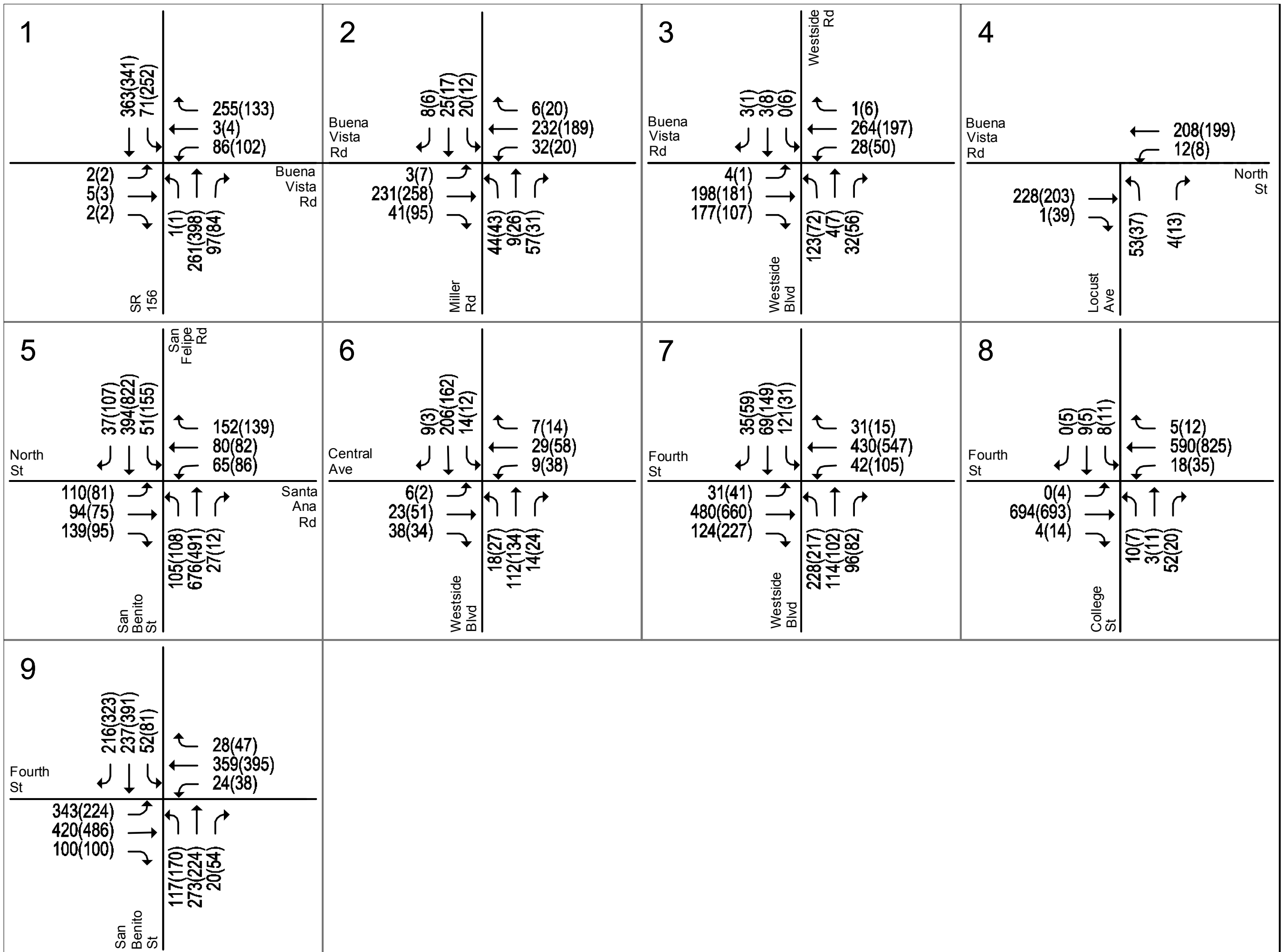
Intersection Signal Warrant Analysis

The peak hour signal warrant analysis indicates that the study intersection of SR 156 and Buena Vista Road is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization under background conditions during the AM and PM peak hours.

The intersection of SR 156/Buena Vista Road also was projected to operate at unacceptable levels of service, as discussed in the previous section. Therefore, the installation of a traffic signal is warranted at this intersection.

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under background conditions. The peak-hour signal warrant sheets are contained in Appendix D.

Figure 9
Background Traffic Volumes



LEGEND:

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Table 6
Background Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Int. Control[1]	Existing Warrant Met?[2]	Existing Delay[3]	Existing LOS	Background Warrant Met?[2]	Background Delay[3]	Background LOS
1	SR 156 and Buena Vista Road	Caltrans	C	AM	TWSC	**Yes**	17.9	C	**Yes**	21.0	C
				PM		**Yes**	**40.4**	**E**	**Yes**	**164.0** [4]	**F**
2	Miller Road and Buena Vista Road	City	C	AM	TWSC	No	10.7	B	No	14.5	B
				PM		No	10.0	B	No	14.5	B
3	Westside Boulevard and Buena Vista Road	City	C	AM	TWSC	No	12.8	B	No	18.3	C
				PM		No	10.4	B	No	14.1	B
4	Locust Avenue and Buena Vista Road	City	C	AM	AWSC	No	8.0	A	No	8.8	A
				PM		No	7.7	A	No	8.6	A
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	City	C	AM	Signal	--	12.1	B	--	12.7	B
				PM		--	12.5	B	--	14.6	B
6	Westside Boulevard and Central Avenue	City	C	AM	TWSC	No	11.7	B	No	12.1	B
				PM		No	12.2	B	No	13.5	B
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM	Signal	--	18.6	B	--	19.9	B
				PM		--	18.4	B	--	23.5	C
8	College Street and San Juan Road/Fourth Street	City	C	AM	TWSC	No	**32.9**	**D**	No	**39.6**	**E**
				PM		No	**34.5**	**D**	No	**54.7**	**F**
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM	Signal	--	29.5	C	--	**47.5**	**D**
				PM		--	29.2	C	--	**57.5**	**E**

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] The HCM methodology for intersection analysis does not accurately calculate actual intersection operation conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.
Bold indicates unacceptable LOS/signal warrant met.

5.
Background Plus Project Conditions

This chapter describes traffic conditions, significant project impacts, and measures that are recommended to mitigate project impacts under background plus project conditions (as referred to as project conditions). Included are descriptions of the significance criteria that define an impact, estimates of project-generated traffic, identification of any impacts, and descriptions of any mitigation measures that may be necessary. Background plus project conditions are represented by background traffic conditions with the addition of traffic generated by the project.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis, the set of relevant criteria for impacts on the transportation network is based on Level of Service standards and significance thresholds for the City of Hollister and Caltrans. The criteria for identifying impacts on the study facilities are described below. Project impacts on other transportation facilities, such as bicycle facilities and transit, were determined based on engineering judgment.

Definition of Significant Intersection Level of Service Impacts

Signalized Intersection Thresholds of Significance

City of Hollister and Caltrans Intersections

Both the City of Hollister and Caltrans identify a level of service standard of LOS C for their respective facilities. Neither agency has specific criteria for determining project impacts. For the purpose of this traffic analysis, the project is said to create a significant adverse impact on traffic conditions at an intersection if for either peak hour:

- The level of service at a City of Hollister and Caltrans controlled intersection degrades from an acceptable LOS C or better under baseline conditions to an unacceptable LOS D or worse under project conditions, or
- The level of service at a City of Hollister intersection is an unacceptable LOS D or worse under baseline conditions and the addition of project trips causes the average intersection delay to increase by five (5) or more seconds.
- The level of service at a Caltrans controlled intersection is an unacceptable LOS D or worse under baseline conditions and the addition of project traffic causes the average intersection control delay to increase by one (1) or more seconds.

<u>Unsignalized Intersection Thresholds of Significance</u>

City of Hollister and Caltrans Intersections

For unsignalized intersections in the City of Hollister and Caltrans, the project is said to create a significant adverse impact on traffic conditions at the intersection if for any peak hour:

- *All-way stop*: The average overall level of service at the intersection degrades from an acceptable LOS C or better under conditions without the project (baseline conditions) to an unacceptable LOS D or worse under project conditions, or
- *All-way stop*: The average overall intersection level of service is already at an unacceptable LOS D or worse without the project and the addition of project traffic causes the average overall delay to increase five (5) or more seconds, or
- *One- or two-way stop*: The delay on the worst approach at a one- or two-way stop-controlled intersection degrades from an acceptable LOS C or better under conditions without the project to an unacceptable LOS D or worse under project conditions <u>and</u> the traffic volumes at the intersection under project conditions are high enough to satisfy the peak-hour volume traffic signal warrant adopted by Caltrans, or
- *One- or two-way stop*: The delay on the worst approach at a one- or two-way stop-controlled intersection is already at an unacceptable LOS D or worse without the project <u>and</u> the traffic volumes at the intersection under project conditions are high enough to satisfy the peak-hour volume traffic signal warrant adopted by Caltrans, <u>and</u> the addition of project traffic causes the delay on the worst stop-controlled approach to increase beyond what it was without the project.

Transportation Network under Background Plus Project Conditions

The roadway network under background plus project conditions would be the same as described under background conditions.

Project Description

The proposed project includes the pre-zone the parcel located at 1070 Buena Vista Road (Woodle) for future annexation into the corporate limits of the City of Hollister, California. The project site consists of one parcel totaling 9.102 acres bounded by Buena Vista Road to the south, Westside Road to the north, and agricultural parcels to the east and west. The Calaveras Elementary School and park are located on the south side of Buena Vista Road, directly across from the project site. Pending pre-zone and annexation, the parcel would be zoned as Medium Density Residential Performance Overlay Zone District (R3 M/PZ), which is consistent with the Medium Density Residential (MDR) land use category of the Hollister General Plan.

Currently, there are no specific development plans for the project site. However, for the purposes of this study, a maximum development scenario was established for the project parcel based upon the maximum development intensity allowed for the site, per City of Hollister General Plan land use designation. The General Plan MDR land use category allows eight to twelve units per net acre. Therefore, it is assumed that the project would include up to 109 dwelling units. Access to the project site would be provided via Buena Vista Road (south project frontage) and Westside Road (north project frontage).

Project Traffic Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the weekday AM and PM peak hours. As part of the project trip distribution step, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment step, the project trips are assigned to specific streets and intersections in the study area. These procedures are described further in the following sections.

Trip Generation

The magnitude of traffic generated by the proposed project was estimated by applying to the size of the project the appropriate trip generation rates, as published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 10th Edition*. The trip generation estimates for the project are based on ITE's trip generation rates (based on the regression equation) for single-family detached housing (ITE land use code #210).

Based on the ITE rates, it is estimated that the project would generate 1,126 new daily trips, with 82 trips (21 inbound and 61 outbound) occurring during the AM peak-hour and 110 trips (69 inbound and 41 outbound) occurring during the PM peak-hour.

The trip generation estimates are presented in Table 7.

Trip Distribution

The trip distribution pattern for project-generated traffic was estimated based on existing travel patterns in the study area, the future roadway network, and the locations of complementary land uses. The project trip distribution pattern is shown graphically on Figure 10.

Trip Assignment

The peak-hour vehicle trips associated with the proposed project were added to the transportation network in accordance with the project trip distribution pattern discussed above and based on the future roadway network, including the North Street. The assignment of project trips under background plus project conditions is presented graphically on Figure 11. A tabular summary of project traffic at each study intersection is contained in Appendix B.

Background plus Project Traffic Volumes

Project trips, as presented in the above project trip assignment, were added to background traffic volumes to obtain background plus project traffic volumes. The traffic volumes under background plus project conditions are shown on Figure 12.

Background plus Project Intersection Analyses

The results of the intersection level of service and signal warrant analyses under background plus project conditions are summarized in Table 8.

Table 7
Project Trip Generation Estimates

					AM Peak Hour						PM Peak Hour					
	ITE Land		Daily			Split		Trip				Split		Trip		
Land Use	Use Code	Size	Rate	Trip	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Single-Family Detached Housing	210	109 Dwelling Units	10.326	1,126	0.754	25%	75%	21	61	82	1.012	63%	37%	69	41	110
Total Project Trip				**1,126**				**21**	**61**	**82**				**69**	**41**	**110**

Source: ITE Trip Generation Manual, 10th Edition 2017, regression equation.

Figure 10
Project Trip Distribution Pattern

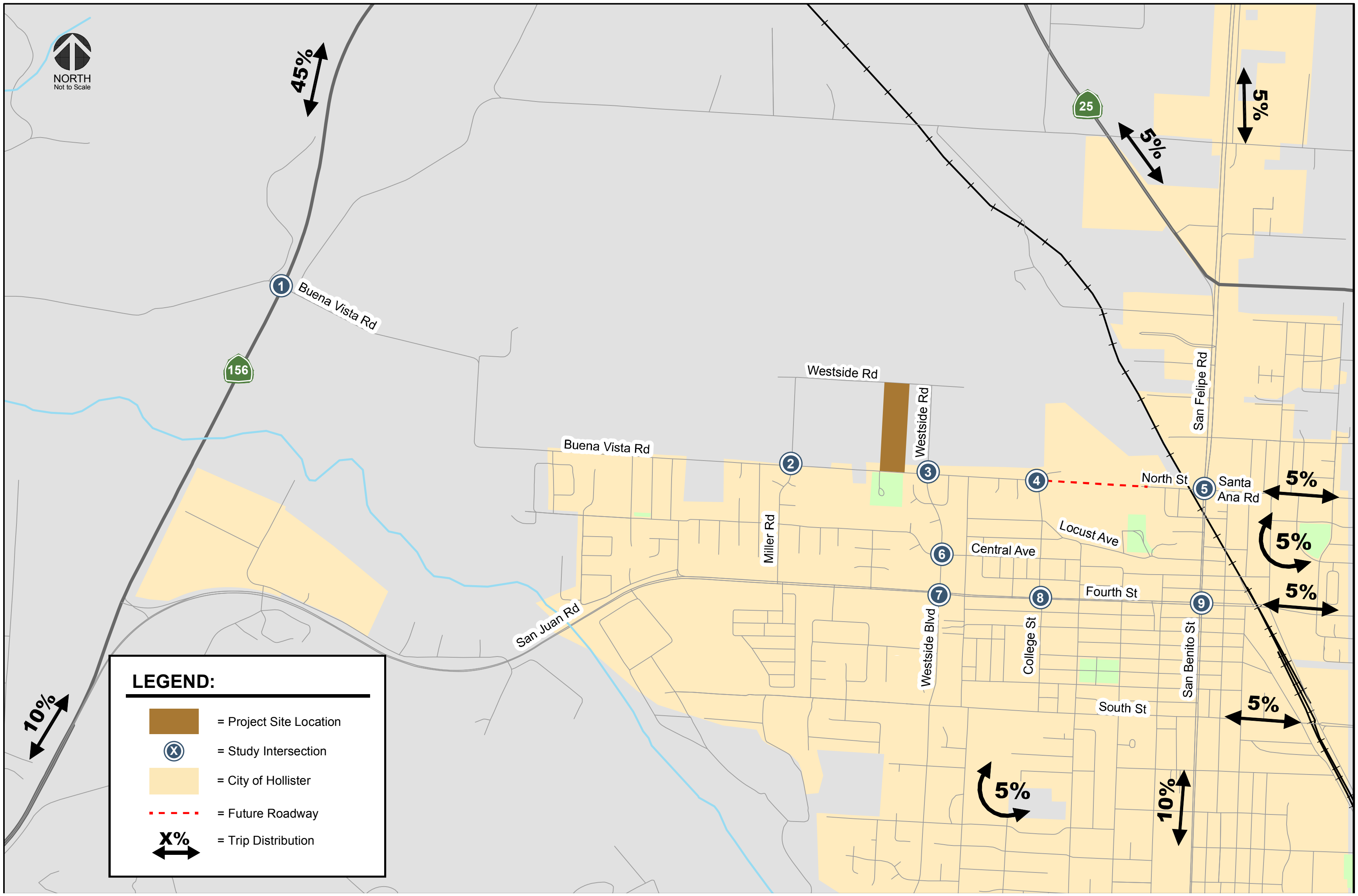
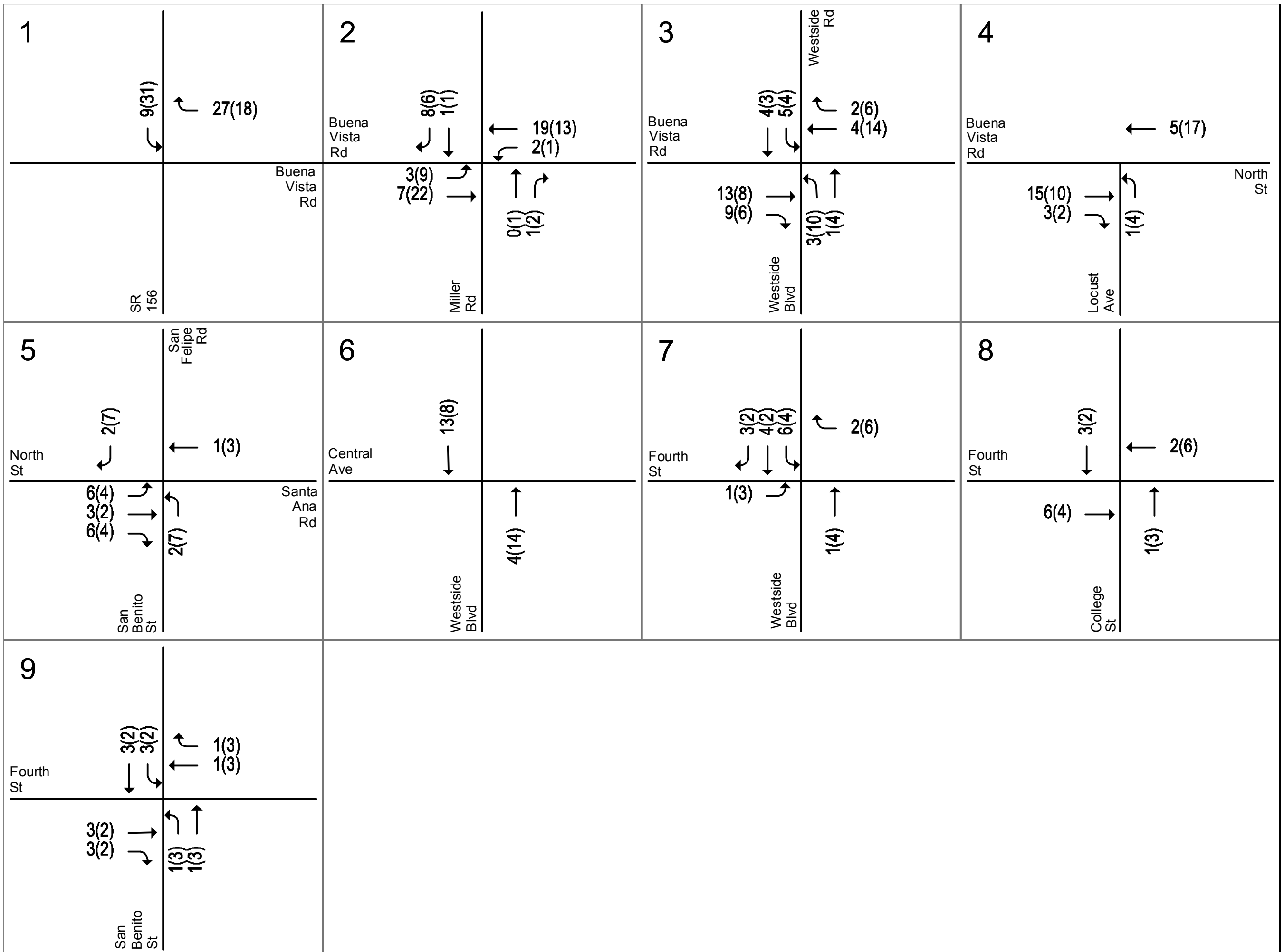


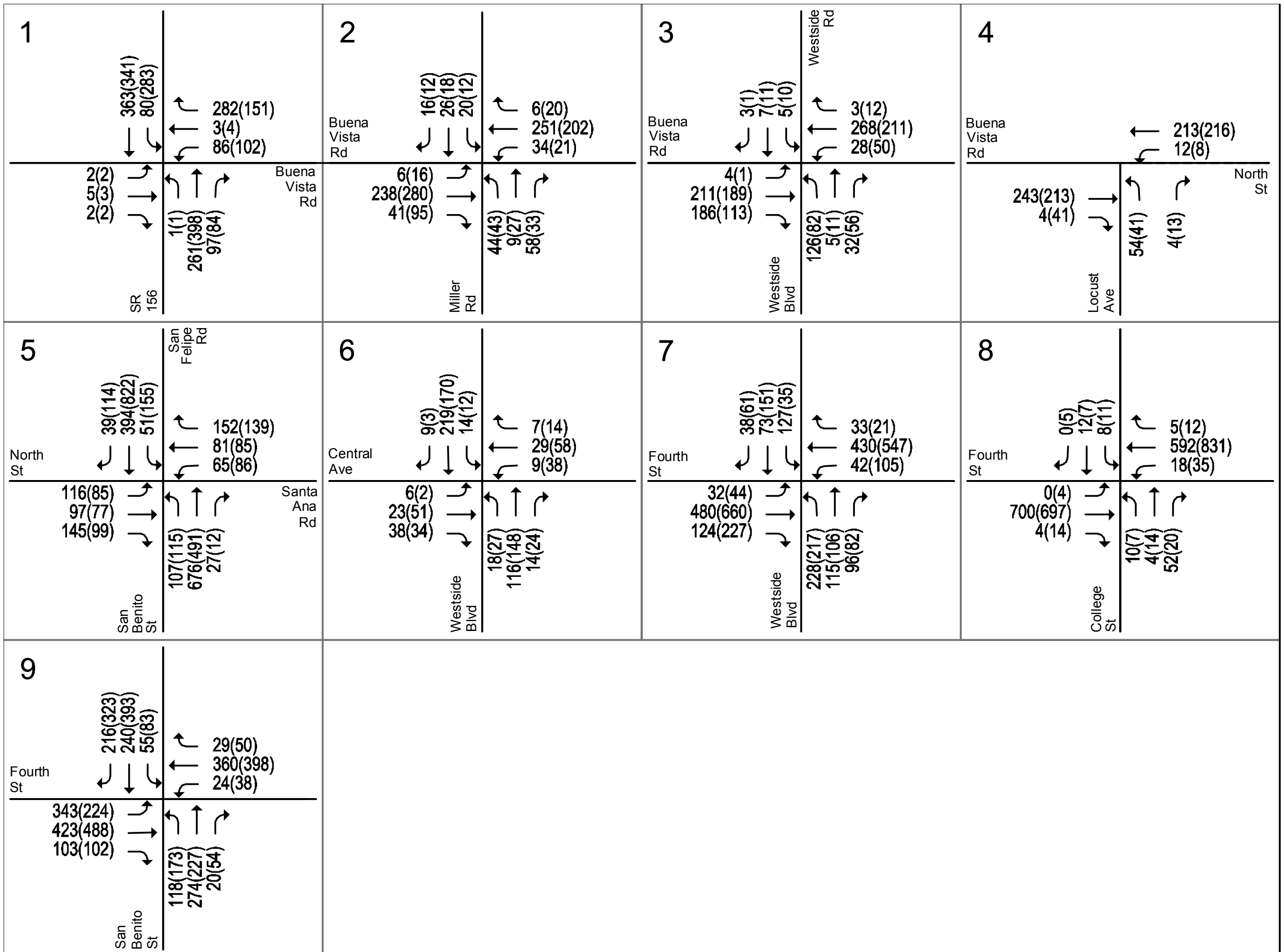
Figure 11
Project Trip Assignment – Background Plus Project



LEGEND:

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 12
Background Plus Project Traffic Volumes



LEGEND:

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Table 8
Background Plus Project Intersection Level of Service and Signal Warrant Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Int. Control[1]	Background Warrant Met?[2]	Background Delay[3]	Background LOS	Background Plus Project Warrant Met?[2]	Background Plus Project Delay[3]	Background Plus Project LOS	Change in Delay[4]
1	SR 156 and Buena Vista Road	Caltrans	C	AM	TWSC	**Yes**	21.0	C	**Yes**	21.6	C	0.6
				PM		**Yes**	**164.0** [5]	**F**	**Yes**	**198.1** [5]	**F**	**34.1**
2	Miller Road and Buena Vista Road	City	C	AM	TWSC	No	14.5	B	No	14.6	B	0.1
				PM		No	14.5	B	No	15.5	C	1.0
3	Westside Boulevard and Buena Vista Road	City	C	AM	TWSC	No	18.3	C	No	19.6	C	1.3
				PM		No	14.1	B	No	15.2	C	1.1
4	Locust Avenue and Buena Vista Road	City	C	AM	AWSC	No	8.8	A	No	8.9	A	0.1
				PM		No	8.6	A	No	8.9	A	0.3
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	City	C	AM	Signal	--	12.7	B	--	12.8	B	0.1
				PM		--	14.6	B	--	14.9	B	0.3
6	Westside Boulevard and Central Avenue	City	C	AM	TWSC	No	12.1	B	No	12.2	B	0.1
				PM		No	13.5	B	No	13.9	B	0.4
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM	Signal	--	19.9	B	--	20.2	C	0.3
				PM		--	23.5	C	--	23.6	C	0.1
8	College Street and San Juan Road/Fourth Street	City	C	AM	TWSC	No	**39.6**	**E**	No	**40.2**	**E**	0.6
				PM		No	**54.7**	**F**	No	**58.2**	**F**	3.5
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM	Signal	--	**47.5**	**D**	--	**48.3**	**D**	0.8
				PM		--	**57.5**	**E**	--	**59.2**	**E**	1.7

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] Change in delay measured relative to background conditions.
[5] The HCM methodology for intersection analysis does not accurately calculate actual intersection operation conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.
Bold indicates unacceptable LOS/signal warrant met.
Bold and boxed indicate significant impact.

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that three of the study intersections are projected to operate at an unacceptable LOS D or worse during at least one of the peak hours under background plus project conditions:

1. SR 156 and Buena Vista Road CT (**Impact**: PM peak-hour)
8. College Street and San Juan Road/Fourth Street CH
9. San Benito Street and San Juan Road/Fourth Street CH

Based on Caltrans level of service impact criteria, the intersection of SR 156 and Buena Vista Road would be significantly impacted by the project under background plus project conditions. The remaining two substandard intersections would not be impacted by the project, based on the applicable significance criteria. The impact and proposed improvements to mitigate the project impact are described below.

All other study intersections are projected to operate at acceptable levels during both the AM and PM peak hours of traffic under background plus project conditions when measured against the applicable level of service standards. The intersection level of service calculation sheets are included in Appendix C.

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the same study intersection (SR 156 and Buena Vista Road) that was identified under background conditions to have peak-hour traffic volumes that meet the thresholds that warrant signalization would continue to meet signal warrant thresholds under background plus project conditions during both peak hours.

The intersection of SR 156 and Buena Vista Road also is projected to operate at unacceptable levels of service and to be significantly impacted by the proposed project under background plus project conditions. Therefore, the installation of a traffic signal is warranted at this intersection.

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under background plus project conditions. The peak-hour signal warrant sheets are contained in Appendix D.

Project Impacts and Recommended Mitigation Measures

Described below are the intersection impacts under background plus project conditions and recommended mitigation measures necessary to maintain the level of service standards and intersection operations.

1. SR 156 and Buena Vista Road (Caltrans)

Impact: This unsignalized intersection's level of service is projected to be an unacceptable LOS F during the PM peak-hour under background conditions and the addition of project traffic would cause the delay at the intersection to increase and the intersection would have traffic volumes that meet peak-hour signal warrants. This constitutes a significant project impact by Caltrans standards.

Mitigation Measures. The necessary improvements to improve the intersection level of service to acceptable levels consist of the installation of a traffic signal. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional TIMF. With implementation of this mitigation measure, the intersection is projected to operate at acceptable levels of service during the peak hours under background plus project conditions, reducing the impact to less-than-significant.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

6. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. This chapter describes the intersection and roadway improvements expected to be in place under cumulative conditions, the procedure used to determine cumulative traffic volumes, and the resulting traffic conditions.

Transportation Network under Cumulative Conditions

The roadway network under cumulative conditions is assumed to be the same as described under background conditions.

Pending Developments

Lists of pending projects were received from the City of Hollister and San Benito County Planning Departments in October and November 2018, respectively. Table 9 lists the proposed but not yet approved (pending) development projects that would add traffic to the roadway network under cumulative conditions. The traffic associated with these developments is discussed below. The traffic generated by projects that are either very small or remotely located from the study intersections was assumed to be insignificant for the purpose of this traffic analysis.

Cumulative Traffic Volumes

Cumulative peak-hour traffic volumes were calculated by adding to background volumes the estimated traffic from the proposed but not yet approved (pending) development projects. The traffic added to the study intersections from pending developments was estimated by distributing and assigning trips generated by these developments to the roadway network. Additionally, traffic associated with the proposed project also were added to the cumulative traffic volumes to obtain traffic volumes under cumulative plus project conditions. The process of trip generation, distribution, and assignment is described in Chapter 5. Figures 13 and 14 show the cumulative no project and cumulative plus project traffic volumes, respectively.

Table 9
Pending Development Projects

Applicant/Owner/Project Name	Address/Location	Proposed Project Description
King	Memorial Dr, South of Sunset Dr	8 SFD
Natmar	South of Eastview Dr and East of San Benito St	11 SFD
1040 South Street (Fahmy)	N/o of South St, S/o Jan Ave	12 MF and 26 SFD
Chappell	S/o and E/o of North Chappell Rd; W/o SR 25; N/o Santa Ana Rd	Pre-zone 118 acres Low Density (802 max units)
Gonzalez Property	N/o Buena Vista Rd; E/o Carmoble Dr	Pre-zone 11.11 acres Medium Density (133 max units)
Rosati/Doug Ledeboer	S/o Santa Ana Rd, N/o Meridian St; W/o El Toro Dr	Pre-zone 23.45 acres Medium Density (281 max units)
Geary Coats/Coats Consulting	773 San Felipe Road	2,400 s.f. cannabis dispensary
Scenic Southside	Southside Road	184 SFD
Floriani Ranch - Rancho San Benito	Bolsa Road	5,300 SFD and 2.7 m.s.f. commercial space
Javid Assisted Living	3586 Airline Highway	136,367 s.f. 180-room assisted care facility
Williams - Spring Meadows Estate	1735 Santa Ana Road	20 lot subdivision
San Juan Oaks	SW corner of Union Street/San Juan Oaks Drive	1100 homes, 200-room hotel, 65,000 s.f. commercial, assisted living/skilled nursing center
Sunnyside Estates	Southside Rd/Hospital Rd	200 homes
Bluffs at Ridgemark	Between Southside Rd and Ridgemark Dr	93 SFD
Churchill	NW corner of Fairview Road/Hillcrest Road	Pre-Zone 24 acres Low Density Residential and High Density Residential; up to 95 SFD and 42 MF
San Benito County Behavioral Health Center	E/o San Felipe Road frontage road, between McCloskey Road and Park Center Drive	17,212-square-foot new behavioral health facility

Notes:
SFD = Single-Family Detached
MF = Multi-Family Residential Units
Source: City of Hollister and San Benito County Planning Department (October 2018)

Figure 13
Cumulative No Project Traffic Volumes

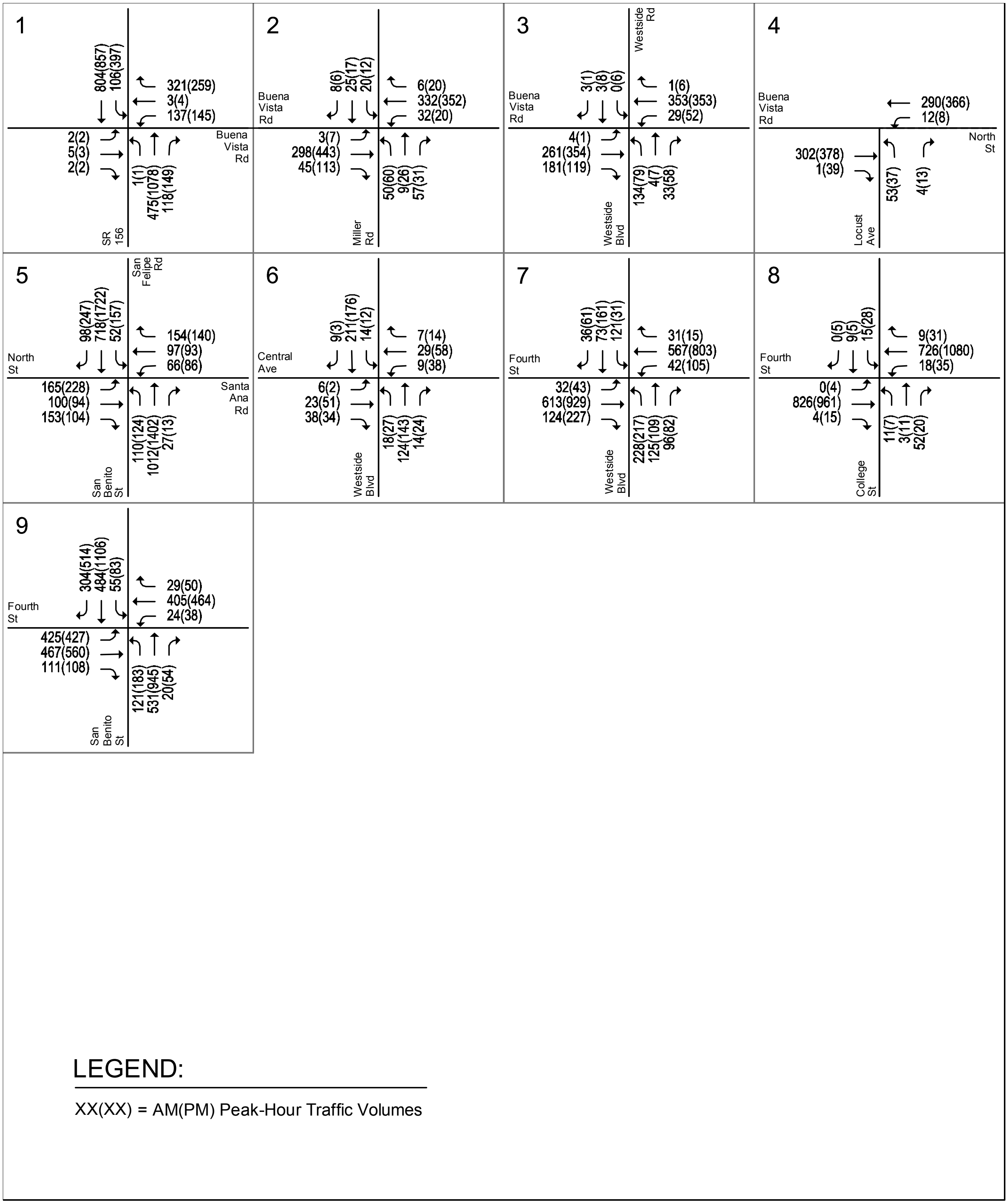
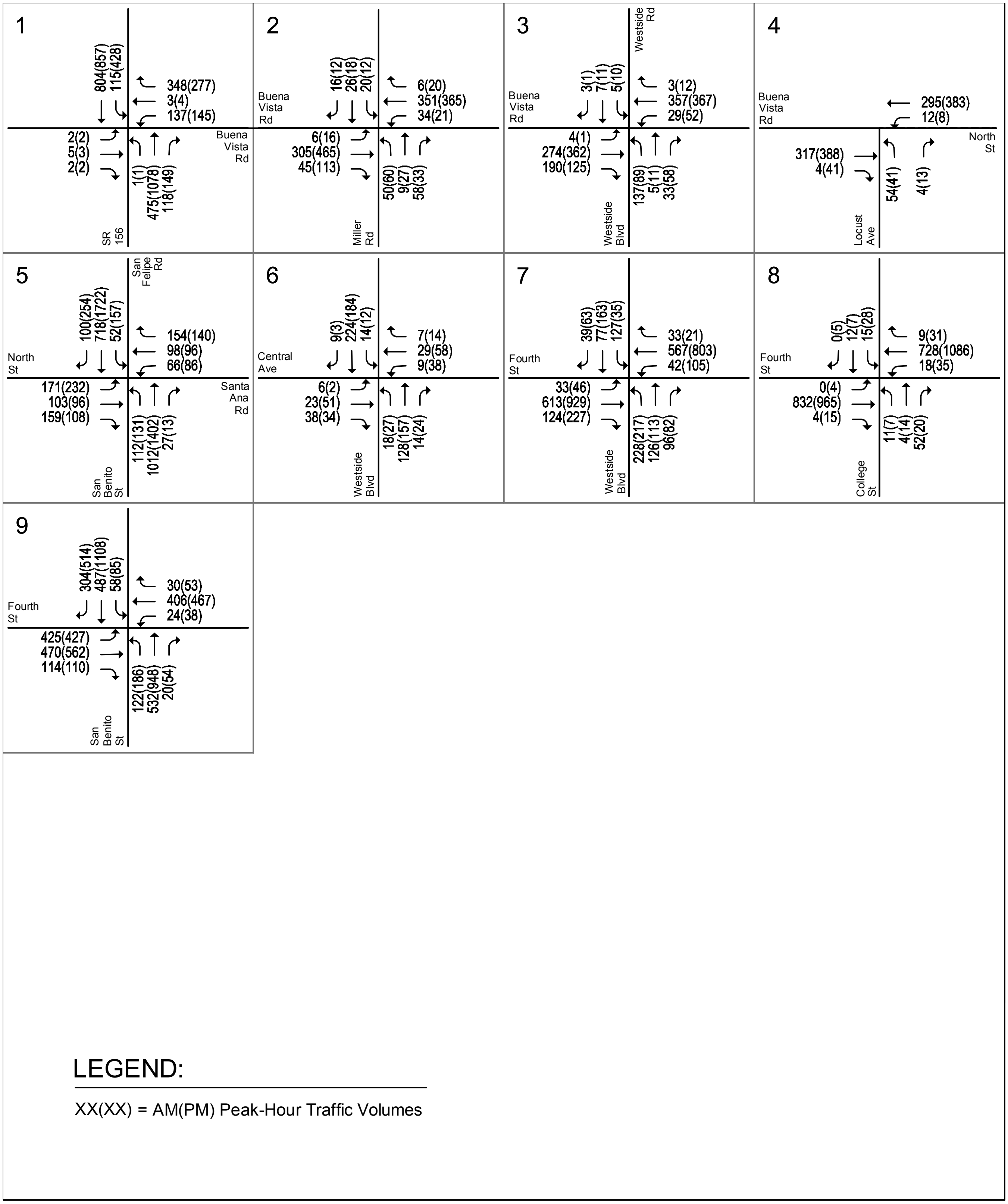


Figure 14
Cumulative With Project Traffic Volumes



Cumulative Intersection Analyses

A significant cumulative traffic impact at an intersection is identified by comparing cumulative with project traffic conditions against cumulative no project traffic conditions and applying the same impact criteria used to evaluate background plus project conditions described in Chapter 5. The results of the intersection level of service and signal warrant analyses under cumulative conditions are summarized in Table 10.

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following seven study intersections are projected to operate at unacceptable levels of service during at least one of the peak hours under cumulative plus project conditions. Based on the applicable significance criteria, two of the seven substandard intersections would be significantly impacted by the project under cumulative plus project conditions:

1. SR 156 and Buena Vista Road [CT] (**Impact:** AM and PM peak hours)
2. Miller Road and Buena Vista Road [CH]
3. Westside Boulevard and Buena Vista Road [CH]
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road [CH] (**Impact**: PM peak-hour)
7. Westside Boulevard and San Juan Road/Fourth Street [CH]
8. College Street and San Juan Road/Fourth Street [CH]
9. San Benito Street and San Juan Road/Fourth Street [CH]

The impact and proposed improvements to mitigate the cumulative impacts are described below.

All other study intersections are projected to operate at acceptable levels during both the AM and PM peak hours of traffic under cumulative plus project conditions when measured against the applicable level of service standards. The intersection level of service calculation sheets are included in Appendix C.

Intersection Signal Warrant Analysis

The peak hour signal warrant analysis indicates that the study intersection of SR 156 and Buena Vista Road is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization during both peak hours under cumulative no project and cumulative plus project conditions.

The intersection of SR 156 and Buena Vista Road also is projected to operate at unacceptable levels of service and to be significantly impacted by the proposed project under cumulative plus project conditions. Therefore, the installation of traffic signals at the intersection of SR 156 and Buena Vista Road is warranted under cumulative plus project conditions.

The remaining unsignalized study intersections are projected to have traffic conditions that fall below the thresholds that warrant signalization under cumulative plus project conditions. The peak-hour signal warrant sheets are contained in Appendix D.

Cumulative Impacts and Recommended Mitigation Measures

Described below are the intersection impacts under cumulative plus project conditions and recommended mitigation measures necessary to maintain the level of service standards and intersection operations.

Table 10
Cumulative Intersection Level of Service and Signal Warrants Analyses Summary

#	Intersection	Jurisdiction	LOS Standard	Peak Hour	Int. Control[1]	Cumulative No Project: Warrant Met?[2]	Cumulative No Project: Delay[3]	Cumulative No Project: LOS	Cumulative Plus Project: Warrant Met?[2]	Cumulative Plus Project: Delay[3]	Cumulative Plus Project: LOS	Change in Delay[4]
1	SR 156 and Buena Vista Road	Caltrans	C	AM	TWSC	**Yes**	**213.6** [5]	**F**	**Yes**	**221.1** [5]	**F**	**7.5**
				PM		**Yes**	**9039.4** [5]	**F**	**Yes**	**11699.6** [5]	**F**	**2660.2**
2	Miller Road and Buena Vista Road	City	C	AM	TWSC	No	17.6	C	No	17.8	C	0.2
				PM		No	**26.5**	**D**	No	**30.7**	**D**	**4.2**
3	Westside Boulevard and Buena Vista Road	City	C	AM	TWSC	No	**26.1**	**D**	No	**28.7**	**D**	**2.6**
				PM		No	23.8	C	No	**28.1**	**D**	**4.3**
4	Locust Avenue and Buena Vista Road	City	C	AM	AWSC	No	9.9	A	No	10.0	B	0.1
				PM		No	11.3	B	No	11.8	B	0.5
5	San Felipe Road/San Benito Street and North Street/Santa Ana Road	City	C	AM	Signal	--	16.6	B	--	17.3	B	0.7
				PM		--	**76.9**	**E**	--	**83.8**	**F**	**6.9**
6	Westside Boulevard and Central Avenue	City	C	AM	TWSC	No	12.2	B	No	12.4	B	0.2
				PM		No	13.9	B	No	14.3	B	0.4
7	Westside Boulevard and San Juan Road/Fourth Street	City	C	AM	Signal	--	23.4	C	--	23.8	C	0.4
				PM		--	**42.8**	**D**	--	**43.0**	**D**	0.2
8	College Street and San Juan Road/Fourth Street	City	C	AM	TWSC	No	**75.4**	**F**	No	**77.9**	**F**	2.5
				PM		No	**119.6** [5]	**F**	No	**142.9** [5]	**F**	23.3
9	San Benito Street and San Juan Road/Fourth Street	City	C	AM	Signal	--	**147.9** [5]	**F**	--	**148.8** [5]	**F**	0.9
				PM		--	**400.3** [5]	**F**	--	**402.6** [5]	**F**	2.3

Notes:
[1] Intersection control type: AWSC = all-way stop-controlled; TWSC = two-way stop-controlled; signal = traffic signal
[2] Signal warrant analysis is not applicable to signalized intersections.
[3] The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection. The reported delay and corresponding level of service for two-way stop-controlled intersections are based on the stop-controlled approach with the highest delay.
[4] Change in delay measured relative to cumulative no project conditions.
[5] The HCM methodology for intersection analysis does not accurately calculate actual intersection operation conditions once the calculated intersection delay exceeds 100+ seconds. Once an intersection is calculated to operate with delays exceeding 100 seconds, any additional traffic to the intersection will increase the intersection delay exponentially, resulting in unrealistic excessive delays that most likely would never be experienced at an actual intersection. However, for the purpose of quantifying the projected increase in delay due to the proposed project, all calculated delays are reported, including those exceeding 100 seconds.
Bold indicates unacceptable LOS/signal warrant met.
Bold and boxed indicate significant impact.

1. SR 156 and Buena Vista Road (Caltrans)

Impact: This unsignalized intersection's level of service is projected to be an unacceptable LOS F during the AM and PM peak hours under cumulative conditions and the addition of project traffic would cause the delay at the intersection to increase and the intersection would have traffic volumes that meet peak-hour signal warrants. This constitutes a significant project impact by Caltrans standards.

Mitigation Measures. One possible improvement to mitigate the cumulative project impact at this intersection consists of the installation of a traffic signal. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional TIMF. With implementation of this mitigation measure, the intersection is projected to operate better than cumulative no project conditions, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the installation of a traffic signal, SR 156 must be widened from two to four lanes. The widening of SR 156 to four lanes in the vicinity of the Buena Vista Road intersection is not part of the improvements projects of the San Benito County TIMF.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

5. San Felipe Road/San Benito Street and North Street/Santa Ana Road (City of Hollister)

Impact: This signalized intersection's level of service is projected to be an unacceptable LOS E during the PM peak-hour under cumulative conditions and the addition of project traffic would cause the delay at the intersection to increase by more than five seconds. This constitutes a significant project impact by City of Hollister standards.

Necessary Improvements. The cumulative project impact to this intersection could be mitigated with the installation of protected left-turn movements on the eastbound and westbound approaches of the intersection. The required improvements would include the addition of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal. With implementation of the above improvements, the intersection level of service would improve to better than cumulative no project conditions during the PM peak-hour, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the above improvements, a separate southbound right-turn lane also must be added. The above improvements are not part of the improvements projects of the San Benito County TIMF.

Project Mitigation Measure

One of the following mitigation measures would mitigate the project's cumulative impact at this intersection:

a. The City will include the required intersection improvements in the San Benito County Regional Transportation Impact Mitigation Fee (TIMF) program, and the developer shall pay the applicable TIMF fee as a fair-share contribution toward the above improvements prior to the issuance of building permits.

b. The developer will improve the intersection with installation of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal.

Implementation of one of the above two possible mitigation measures would reduce this cumulative project impact to less-than-significant.

7. Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project site, including:

- Potential impacts to transit, bicycle, and pedestrian facilities
- Site access and circulation
- Roadway segment analysis
- Neighborhood/school traffic issues
- Safe Routes to School program

These other transportation issues were evaluated to determine if any deficiencies would exist under project conditions that may not be specifically linked to environmental impact reporting. These may not be considered environmental issues, and may not be evaluated in an environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction. Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Bicycle and Pedestrian Circulation

The project site is served directly by Class II bicycle lanes along Buena Vista Road. However, bike lanes along Buena Vista Road are currently present along the south side of the street only, between Locust Avenue and west of Beresini Lane. Other bicycle facilities in the vicinity of the project site include Class II bike lanes on:

- Westside Boulevard, between Buena Vista Road and Nash Road
- San Juan Road, between Westside Boulevard and west of Miller Road

Sidewalks are found along most developed areas in the vicinity of the project site. However, some areas near the project site include undeveloped land with missing sidewalks. Sidewalks are missing along most of the north side of Buena Vista Road, including the areas adjacent to the project frontage. The south side of Buena Vista Road has continuous sidewalks from Aguirre Drive to Locust Avenue. The nearest marked crosswalks to the project site are located at the Westside Boulevard/Buena Vista Road intersection (south leg) and the Line Street/Buena Vista Road intersection (all legs).

Bicycle and Pedestrian Policies

Various State, County, and City policies exist that are aimed at developing a complete pedestrian and bicycle network to provide residents with an alternative accessible and desirable mode of transportation. These policies require and/or make recommendations for local jurisdictions to work with residents, developers, lead agencies, and County officials to coordinate, design, implement and maintain bicycle and pedestrian facilities and services. Some of these policies are described below.

The California Complete Streets Acts of 2008

The California Complete Streets Act of 2008 requires cities and counties to include complete streets policies as part of their general plans so that roadways are designed to safely accommodate all users, including bicyclists, pedestrians, transit riders, children, the elderly, and persons with disabilities, as well as motorists. It complements an existing policy which directs Caltrans to “fully consider the needs of non-motorized travelers (including pedestrians, bicyclists, and persons with disabilities) in all programming, planning, maintenance, construction, operations, and project development activities and products.” Beginning January 2011, any substantive revision of the circulation element in the general plan of a California local government will include complete streets provisions.

To promote a road and street network that accommodates cars without requiring car-dependence, local agencies are encouraged to plan for use of roadways by all vehicle types and users, including automobiles, trucks, alternative energy vehicles, transit, bicyclists, and pedestrians, when planning and constructing or modifying roadways.

This focus on non-auto modes of transportation includes the following:

- Creating multi-modal street connections in order to establish a comprehensive, integrated, and connected transportation network;
- Incorporating pedestrian and bicycle facilities, where appropriate and feasible, that promote safety and maximize access;
- Planting street trees adjacent to curbs and between the street and sidewalk to provide a buffer between the pedestrian and the automobile to create a more inviting pedestrian environment;
- Incorporating traffic calming devices such as roundabouts, bulb-outs at intersections, and raised intersections; and
- Coordinating with other agencies and cities to ensure connections are made between jurisdictions.

City of Hollister 2005 General Plan

The City of Hollister 2005 General Plan acknowledges that most bicycling within the city is done on roadway shoulders, which in many cases can be accommodated on well-designed streets without the need for separate striped bike lanes. However, as traffic increases along many of the streets in Hollister, it is desirable to increase emphasis on accommodating bicycle travel when designing City streets.

One of the City of Hollister General Plan Goals is to “provide a variety of pedestrian and bicycle facilities to promote safe and efficient non-motorized vehicle circulation in Downtown and throughout Hollister.” (Goal C2). The General Plan policies further emphasize pedestrian connectivity by working with local businesses, private developers, and public agencies to ensure provision of safe pedestrian pathways to major public facilities, schools, and employment centers.

San Benito County 2035 General Plan

The *2035 San Benito County General Plan*, dated February 2013, lists various policies seeking to provide a safe, continuous, and accessible system of facilities for bicycle and pedestrian travel in appropriate areas of the county (Goal C-2). With these policies the County encourages to work with and/or requires leading agencies and project applicants to implement improvements/programs that will enhance and promote the use of the bicycle and pedestrian networks. The policies include the following:

C-2.1 Bicycle, Pedestrian, and Equestrian System – encourage complete, safe, and interconnected bicycle, pedestrian, and equestrian systems, providing access to major destinations.

C-2.2 Pedestrian and Bike Path Construction – plan, design, and construct pedestrian routes and bikeways consistent with the County Bikeway and Pedestrian Master Plan.

C-2.3 Bicycle Parking Facilities – encourage provision of secure bicycle parking.

C-2.4 Bicycle Wayfinding Signs – support installation of signs that identified designated bicycle routes.

C-2.5 Bicycle Detection at Intersections – support the installation of bicycle-sensitive loop detectors at signalized intersections.

C-2.6 Development Along Planned Bikeways – require project applicants of new development adjacent to designated bikeways to provide the portion of the bikeway within the development, including right-of-way dedication and construction.

C-2.7 Funding for Bike System – pursue additional State and Federal funding.

C-2.8 Sidewalks in Subdivisions – require project applicants to provide sidewalks or other safe and convenient accommodations for pedestrians (according to County roadway design standards).

C-2.9 Safe Routes to School – support Safe Routes to School programs.

C-2.10 Paths Through Cul-de-Sacs – require developments to include paths for bicycle and pedestrian traffic through the ends of cul-de-sacs and loop streets.

C-2.11 Curb Ramps – require development to include curb ramps at new intersections (consistent with ADA requirements)

C-2.12 Pedestrian Improvements – support the installation of roadway improvements to better accommodate pedestrians (such as count-down signals, audible signals, and pedestrian friendly signal timing).

2009 San Benito County Bikeway and Pedestrian Master Plan

The 2009 *San Benito County Bikeway and Pedestrian Master Plan* provides a guide for the future development of bicycle and pedestrian facilities within the County, including the City of Hollister. The purpose of the plan is to expand the existing bicycle and pedestrian networks, connect existing gaps, address constrained areas, provide greater connectivity, educate and encourage the use of non-motorized travel alternatives, and to maximize funding sources. The goals of the plan include:

- Increase bicycle and pedestrian access
- Improve bicycle and pedestrian safety
- Ensure all residents are knowledgeable about bicycle and pedestrian safety
- Increase bicycle and pedestrian trips

Master Plan Recommended Bikeway Improvements

The Bikeway and Pedestrian Master Plan identifies various bikeway improvements for the San Benito County regional bikeway network. The recommend improvements for incorporated areas, such as the City of Hollister, were developed focusing on connecting community destinations such as parks, libraries, transit, schools, recreational opportunities, as well as through public input.

The Bikeway and Pedestrian Master Plan identifies a total of 46 bikeway projects in the City of Hollister, including 2 Class I, 29 Class II, and 15 Class III bicycle facilities. Implementation of the recommended bicycle network improvements would provide an extensive bicycle network within the City of Hollister, providing a continuous bicycle network with access to virtually every part of town as well as planned regional facilities.

The recommended bicycle improvements were ranked based on criteria such as connections to parks, major employment centers, schools, closure of gaps in existing network, and public input and safety. From the ranking process, a prioritized list of bicycle projects for construction was developed, which includes Tier 1 (highest potential projects intended for near-term implementation within 1-5 years), Tier 2 (intended for implementation within 6-10 years), and Tier 3 projects (long-term potential bicycle-specific projects that could be implemented over the next 11-20 years). The following bike projects are located in the immediate vicinity of the project site:

Tier 1 Projects

- Rank #6 – Class II bike lanes on Central Avenue, between Bridgevale Road and East Street
- Rank #9 – Class III bike route on Fourth Street, between McCray Street and Westside Boulevard
- Rank #15 – Class II bike lanes on Santa Ana Road/Buena Vista Road/North Street, between Fairview Road and the proposed Class III bike route on Buena Vista Road
- Rank #16 – Class II bike lanes on Westside Boulevard along the missing segments between Apricot Lane and Jan Avenue

Tier 2 Projects

- Rank #21 – Class II bike lanes on San Juan Road, between San Juan Road bridge and Westside Boulevard
- Rank #24 – Class II bike lane on SR 156, between San Juan Bautista and Buena Vista Road

Tier 3 Projects

- Rank #45 – Buena Vista Road – Class III bike route on Buena Vista Road, between the proposed Class II bike lane on Buena Vista Road and SR 156

Master Plan Recommended Pedestrian Improvements

The Bikeway and Pedestrian Master Plan also identifies various pedestrian improvements that aim at providing increased opportunities for residents in San Benito County to walk for transportation or recreation. These improvements are not funded but can be capital projects or installed with roadway improvement projects or development/redevelopment of the adjacent properties. The Master Plan lists various pedestrian improvements throughout the County, including the City of Hollister, which include:

Infill of sidewalk gaps – The Master Plan recommends to fill sidewalk gaps located in urban areas and near schools and transit stops. It also recommends that sidewalks be required for commercial, business, and industrial parks where there is new development, and as part of roadway improvement projects, new development, and redevelopment. Priority locations identified in the plan in the vicinity of the project site include:

- SI-1: South side of Buena Vista Road – Carnoble Drive to Brandy Court (complete)
- SI-2: South side of Buena Vista Road – Beresini Lane to Ranchito Drive
- SI-3: South side of Buena Vista Road – between Miller Road and Calaveras School (complete)

Other pedestrian improvements listed in the Master Plan include:

- Improvements at signalized intersections, including installation of transverse crosswalks, countdown traffic signals, and audible signals, as well as adjusting signal timing to provide additional pedestrian time at locations near elementary schools.
- Improvements at unsignalized intersections, including installation of high-visibility crosswalk markings at local streets adjacent to schools, installation of curb extensions, and improving railroad crossings.
- Curb ramp improvements to be in compliance with the Americans with Disabilities Act (ADA).
- Safe routes to school programs
- Multi-use path projects

The Master Plan recommends various locations where the above pedestrian improvements should be implemented. However, none of the locations listed are near the project site.

San Benito County Regional Transportation Plan

The latest San Benito County *Regional Transportation Plan* (RTP), as described in its latest document (On the Move: 2035 – San Benito Regional Transportation Plan, adopted in June 2014), presents a blueprint for solving region wide transportation issues, now and into the future. The document identifies the existing transportation conditions and plans future needs based on projected growth, previously approved plans, public input, and prior Council of Government Board action. The plan identifies various multimodal transportation projects (including roadway network, public transit, and active transportation improvements) and provides a timeline and cost estimate for each project.

The construction of the Tier I Projects identified in the San Benito County Bikeway and Pedestrian Master Plan is identified in the RTP list of projects with a completion date of 2035.

Project's Effect on Bicycle and Pedestrian Facilities

The proposed project could increase the demand on bicycle facilities in the vicinity of the project site. With the existing limited and discontinuous bicycle network, the potential project-generated bike riders would have to share the roadway with vehicular traffic, which could discourage the use of the bicycle as an alternative mode of transportation.

With implementation of the planned bicycle facilities identified in the County's Bikeway and Pedestrian Master Plan, a connection would be provided between the project site via Buena Vista Road and other bicycle facilities to the south, providing a continuous bicycle network with access to most areas within Hollister and major facilities outside of town. However, since the above planned bicycle facilities are not fully funded, it is uncertain when these facilities would be available. Until these facilities are built out, project-related bicycle traffic would need to share the roadway with auto traffic.

It can be expected that new pedestrian traffic would be generated by the proposed project. However, some areas within the study area include undeveloped roadway frontages with missing sidewalks, mainly along the north side of Buena Vista Road. The missing sidewalks in the project area could make pedestrian travel between the project site and other pedestrian destinations (such as schools, parks, and transit stops) challenging, discouraging pedestrian activity or forcing pedestrians to walk along undeveloped roadway shoulders and/or cross Buena Vista Boulevard at midblock.

Pedestrian destinations near the project site include schools (Calaveras Elementary School is located immediately across the street from the project site), Calaveras Park (also across the street from the project site), bus stops along Central Avenue and 4th Street/San Juan Road, and other various services and commercial land uses along San Juan Road and San Benito Street, approximately 1 to 1.5 miles southeast of the project site. Pedestrian traffic accessing these services from the project site would utilize Buena Vista Road to Westside Boulevard, Line Street, or College Street. All of the above streets, with the exception of Buena Vista Road, currently have sidewalks along both sides of the street. Buena

Vista Road has segments with missing sidewalks along the north side of the street, including the segment between the project site frontage and Westside Road/Westside Boulevard. The intermittent sidewalks along Buena Vista Road would force pedestrian from the project site to walk along the undeveloped roadway shoulder. Additionally, the nearest marked crosswalk to the project site along Buena Vista Road is located at the intersection of Line Street and Buena Vista Road, approximately a quarter of a mile east of the Buena Vista Road project site frontage. The lack of marked crosswalks along Buena Vista Road could result in pedestrian crossing of Buena Vista Road at unmarked locations and/or midblock, in particular pedestrians heading westbound on Buena Vista Road and those accessing Calaveras school and park (discuss further in the next section).

As undeveloped parcels develop, they will be required to install sidewalks along their project site frontage, closing existing sidewalk gaps. This, in conjunction with planned pedestrian improvements identified in the County's Master Plan, will enhance the existing pedestrian network. However, since these pedestrian improvements are not currently planned nor funded, it is uncertain when the missing sidewalks would be installed. Until the adjacent pedestrian network is complete, project-related pedestrian traffic would be forced to walk along undeveloped roadway shoulders along the north side of Buena Vista Road.

Recommended Bicycle and Pedestrian Improvements

The following recommendations are made to promote non-auto modes of transportation and to accommodate bicycle and pedestrian travel within and near the project site:

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities in the vicinity of the project site, if a funding mechanism has been established for these improvements. Providing a complete and continuous bicycle network that serves the project area could encourage biking as alternative mode of transportation. The contribution should be determined by the City of Hollister and it should be based on the project's contribution to the total projected growth in the study area.

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets within the project site be built. Neighborhoods should be designed with adequate and continuous pedestrian facilities to encourage the use of non-auto modes of travel. New sidewalks along both project site frontages (Buena Vista Road and Westside Road) should be designed to accommodate future improvements along these roadways and align with planned adjacent pedestrian facilities. Additionally, frontage improvements on Buena Vista Road should be designed to be consistent with City of Hollister roadway design standards and guidelines, as well as accommodate the future installation of bike lanes along Buena Vista Road.

Installation of a High Visibility Crosswalk at Westside Boulevard/Buena Vista Road. With the development of the project site, in addition to the development of other vacant land along the north side of Buena Vista Road, and the location of various pedestrian destinations south of Buena Vista Road (including a school and park), it is desirable to have marked crosswalks across Buena Vista Road. According to the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014), whenever a marked crosswalk has been established in a roadway contiguous to a school building or school grounds, it shall be yellow. Additionally, for added visibility, the area of the crosswalk may be marked with diagonal lines (45-degree angle) or longitudinal lines parallel to traffic flow. Thus, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

Transit Service

There are currently three County Express bus lines (Blue Line, Green Line, and Red Line) which operate within the City of Hollister. The Blue and Green Lines serve the project site area with scheduled stops at the Felice Drive/Central Avenue bus stop, located approximately a half-a-mile walking distance south of the project site.

Transit Service Policies

As with the bicycle and pedestrian facilities, various policies exist within City and County adopted documents that strive at enhancing and expanding the existing transit services to adequately serve both the existing and future demands, providing an efficient, extensive and easily accessible alternative mode of travel for residents. Some of these policies are described below.

City of Hollister 2005 General Plan

Policies C4.2 and C4.3 of the City of Hollister General Plan encourage intergovernmental coordination among the leading agencies (City of Hollister, San Benito County, COG, and Caltrans) to develop, implement, and maintain public transit services and park and ride facilities. Providing an extensive transit service network could encourage the use of public transportation as an alternative mode of travel.

San Benito County 2035 General Plan

Various policies to improve bus service and support increased access to commuter rail service are included in the *2035 San Benito County General Plan*, dated February 2013. Goal C-3 of the General Plan seeks to promote a safe and efficient public transit system that provides a viable travel alternative to automobiles, maximizes mobility, and reduces roadway congestion and greenhouse gas emissions.

San Benito County Regional Transportation Plan

On the Move: 2035, the latest San Benito County RTP, identifies various public transit improvements within the County, most of which would directly benefit the City of Hollister. The RTP public transit improvements and their completion dates are listed in Table 11 below.

Project's Effect on Transit Services

Although no reduction to the project trip generation estimates was applied due to transit services, it can be assumed that some of the project trips could be done utilizing public transportation. Applying an estimated three percent transit mode share, which is probably the highest that could be expected for the project, equates to approximately three to four new transit riders generated by the proposed project during the peak hours. The estimated number of new transit riders for the proposed project could be served by the existing transit service. Therefore, the additional transit demand generated by the project would not justify additional transit services in the study area based on the project demand alone.

Recommended Transit Service Improvements

The following recommendations are made to promote the use of transit services:

Expansion of Service. With the development of the project area, County Express Transit System should consider expanding its existing bus route service area into the immediate project site area along Buena Vista Road. With the expansion of the service area, new bus stops could be located near the intersection of Westside Boulevard and Buena Vista Road.

Additionally, the project site should be designed accounting for the potential future extension of transit services onto the project area. Thus, it is recommended that project frontage improvements on Buena

Table 11
San Benito County Regional Transportation Plan Project List

Project Title	Description	Responsible Agency	Year of Expenditure [1]
Transit Vehicle Replacement	Replace fleet as needed	San Benito County Local Transportation Authority	2035
Transit Technology Infrastructure Improvements	Improve transit infrastructure to accommodate operations	San Benito County Local Transportation Authority	2025
Transit Service Operations	Ongoing operation of fixed route and other transit services	San Benito County Local Transportation Authority	2035
Regional Transit - Salinas	Regional transit connection to Salinas	San Benito County Local Transportation Authority	2035
Regional Transit - Gilroy Caltrain	Regional transit connection to Gilroy Caltrain Station	San Benito County Local Transportation Authority	2035
Regional Transit - Gavilan College	Regional transit connection to Gavilan College Campus	San Benito County Local Transportation Authority	2035
Regional Transit - Watsonville	Regional transit connection to City of Watsonville	San Benito County Local Transportation Authority	2035
Regional Transit Planning	Planning for ongoing regional transit activities	San Benito County Local Transportation Authority	[2]
Transit Infrastructure - Bust Stop Facility Improvements	Improvements to transit bus stop facilities	San Benito County Local Transportation Authority	2020
Rideshare Program (TDM)	Promote the use of alternative modes of transportation	Council of Governments	2035
Vanpool Program	Provide commuter vanpool services - lease program	Council of Governments	2035
Commuter Rail Extension to Santa Clara County	Extend commuter rail (currently Caltrain) from Hollister to Gilroy	San Benito County Local Transportation Authority	[2]

Source: On the Move: 2035 - San Benito Regional Transportation Plan, June 2014, Appendix C - Project List.
[1] Year of Expenditure is broken down in five-year increments based on the anticipated date of project completion. Multi-year projects are identified in year of completion.
[2] Expenditure year not listed.

Vista Road be designed based on City of Hollister roadway design standards and to potentially accommodate transit vehicles.

Site Access and On-Site Circulation

Currently, there are no specific development plans for the project site and therefore, a site plan for the potential development on the project site is not available. For this reason, the site access and on-site circulation analysis was conducted based on location of the project parcel and estimated development size (see Figure 2).

Site Access

Access to the project site would be provided via Buena Vista Road (south project frontage) and Westside Road (north project frontage).

It is likely that a single access point along each of the project site frontages would be provided. The project site access driveway/roadway must be designed adhering to City of Hollister design guidelines and standards.

Area-Wide Connectivity and Circulation

The project site is located within a mostly undeveloped area. Undeveloped parcels are located along both the east and west sides of the project site. As the project site and adjacent parcels develop, access to these parcels will most likely be provided via Buena Vista Road. In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, in addition to maintaining adequate operating levels and functional characteristics of Buena Vista Road (a collector street), the City of Hollister should consider access to the entire area, rather than individual parcels. This could be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels. As shown on Figure 15, a north/south connection could be centrally located between Miller Road and Westside Boulevard or align with Marille Lane and extend northward to provide a connection to all parcels. In addition to condensing access to a single point, this intersection also would provide a new controlled crossing point along Buena Vista Road near the Calaveras School for pedestrians.

A single access point along Buena Vista Road would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project to depend on such access point. However, the design of the project site may include a future connection to the east and/or west parcels as an alternative access point.

Site Access Recommendations

Design of Site Access. Project site access driveways/roadways must be designed adhering to City of Hollister design guidelines and standards, including minimum width, minimum distance to adjacent intersections/driveways, and adequate sight distance.

Area-Wide Connectivity. In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, the City of Hollister should consider access to the entire area, rather than individual parcels. This could be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels. This, however, would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project.

Vehicular On-Site Circulation

Although a project site plan is not currently available, a few recommendations to be implemented during the site design process are included below.

Recommended On-Site Circulation Improvements

Design of New Roadways. All new internal roadways must be designed to provide adequate width and turn-radii in order to provide continuous unimpeded circulation through the site for all vehicles, including emergency vehicles and large trucks such as garbage trucks. The design of all internal roadways must adhere to City of Hollister design guidelines and standards and the final design will have to be approved by the City of Hollister.

Installation of Sidewalks. It is recommended that sidewalks be installed on both sides of all new streets within the project site, providing a continuous sidewalk/pedestrian network within the project site. New sidewalks should be designed to conform to existing and planned adjacent pedestrian facilities in the vicinity of the project site.

Figure 15
Area-Wide Connectivity

Neighborhood Traffic Assessment

Various schools are located within less than one mile walking distance from the project site, including Calaveras Elementary School, located across from the project site. Access to these schools from the project site is described below. An evaluation of pedestrian access and traffic conditions in the immediate vicinity of Calaveras School also is provided.

Additionally, access to the project site from areas south and east of the project site is provided through the adjacent neighborhoods, via Miller Road, Westside Boulevard, and Locust Avenue/College Street. Thus, an evaluation of the project's effect on traffic circulation within the adjacent neighborhoods was conducted to identify any potential traffic issues that must be addressed and provide recommendations to improve traffic conditions.

School Access and Circulation

The proposed project potentially could result in pedestrian traffic accessing the existing schools in the project area. Three schools are located within less than one mile walking distance from the project site:

- Calaveras Elementary School – located on Buena Vista Road, across from the project site.
- R.O. Hardin Elementary School – located on Line Street, approximately a 0.9-mile walking distance from (southeast of) the project site.
- Sacred Heart Elementary School – located along College Street, approximately a 0.8-mile walking distance from (southeast of) the project site.

Access to Calaveras Elementary School is provided via two driveways along the south side of Buena Vista Road. The first driveway, located approximately 350 feet west of the project site, provides access to the school parking lot while the second driveway, located across from the western project site boundary, provides access to Calaveras Park and the school.

Access to R.O. Hardin and Sacred Heart Elementary Schools is provided via Line Street and College Street, respectively.

Calaveras Elementary School Site Observations

On-site observations were conducted near the vicinity of Calaveras Elementary School shortly before the beginning and after the end of a regular school day. The field observations indicate that pick-up/drop-off activities occur along the south side of Buena Vista Road, adjacent to the school site, and at the Calaveras Park access roadway, located between the school and Calaveras Park. Vehicles were observed to be parked along the south side of Buena Vista Road, between Marille Lane (just west of the school driveway) and approximately 100 feet east of Calaveras Park, location where red curbing begins. No pick-up activities or parked vehicles were observed along the north side of Buena Vista Road.

Inbound vehicular queues along Buena Vista Road were observed at the Calaveras Park driveway, primarily in the eastbound direction, extending between the Calaveras Park driveway and the school driveway (approximately 350 feet). Because of parked vehicles along the south side of Buena Vista Road, the eastbound queue formed within the bike lane, allowing eastbound through traffic to bypass the queue. No more than one to two vehicles were observed queuing up along westbound Buena Vista Road waiting to complete a left-turn into the Calaveras Park driveway. Westbound through traffic was observed to bypass the westbound left-turn queue by driving on the unpaved shoulder of Buena Vista Road. The double-parked lanes forming along the school site and the westbound queue along Buena Vista Road limit the sight distance to drivers making a left-turn out of the Calaveras Park driveway.

Existing Safe Routes To School Program

Two of the three existing schools have adopted Safe Routes to School Programs (SRTSP). The City of Hollister City Council, at a regular meeting held on April 21, 2014, adopted the Safe Routes to R.O. Hardin and Calaveras Elementary Schools Implementation Plan. The SRTSP is described in the report entitled *Calaveras Elementary and R.O. Hardin Elementary Safe Routes to School Needs Assessment and Preliminary Recommendations*, dated February 2014 by Alta Planning and Design. The SRTSP is designed to create safe and convenient opportunities to access schools, other than by automobile, such as walking, biking, carpooling, and taking public transportation. The adopted SRTSP to Calaveras and R.O. Hardin Elementary schools includes a list of recommended engineering improvements specific to each school area.

The adopted SRTSPs identify the recommended pedestrian access routes from the surrounding neighborhoods to the schools. These access routes are intended to provide a safer route to/from the school that include one or a combination of various pedestrian facilities such as sidewalks, crosswalks/high visibility crosswalks, bike lanes, traffic signals, bus routes, among others. The suggested routes for Calaveras Elementary include Buena Vista Road. The suggested routes for R.O. Hardin Elementary include Westside Boulevard and Line Street. The R.O. Hardin Elementary School SRTSP also suggests College Street, south of Fourth Street, as a safe route, which also could be utilized to access Sacred Heart Elementary School.

Identified Improvements in the Vicinity of Calaveras Elementary School

Various physical improvements to the roadway network and intersections providing access to Calaveras Elementary School are identified in the adopted Safe Routes to School Program. Some improvements include:

- Construct curb extensions and stripe high visibility yellow crosswalks at Miller Road/Buena Vista Road and Westside Boulevard/Buena Vista Road (high visibility crosswalks have been installed along the south leg of these intersections).
- Construct sidewalks along frontage of undeveloped properties along Buena Vista Road.
- Stripe bike lanes all along Buena Vista Road.

Other recommended improvements include enforcement by the City of Hollister Police Department to reduce observed driver violations, such as driving over 25 mph within a school zone, use of cell phones while driving, not coming to a complete stop at stop-controlled intersections, and not using turn signals, among others.

Project's School Access Demand

All pedestrian traffic to and from the project site would utilize Buena Vista Road. However, Buena Vista Road has missing portions of sidewalk along the north side of the street in the vicinity of the project site, including the portion between the south project frontage and Westside Boulevard. The intermittent sidewalks along Buena Vista Road would force pedestrian from the project site to walk along the undeveloped roadway shoulder. Additionally, the nearest marked crosswalk to the project site along Buena Vista Road is located at the intersection of Line Street and Buena Vista Road, approximately a quarter of a mile east of the project site frontage. No crosswalks across Buena Vista Road are currently marked at Westside Boulevard. The lack of marked crosswalks along Buena Vista Road could result in pedestrian crossing of Buena Vista Road at unmarked locations and/or midblock, in particular pedestrians accessing Calaveras school and park.

With the development of the proposed project, there could be an increase in non-vehicular travel between the project site and Calaveras Elementary School. This would increase the need for a complete pedestrian network. As recommended in the adopted SRTSP, pedestrians accessing Calaveras School from the project site would have to travel eastbound along the north side of Buena

Vista Road to Westside Boulevard, cross Buena Vista Road, and travel back westbound along the south side of Buena Vista Road to the school. This includes walking for approximately 500 feet within the undeveloped shoulder on the north side of Buena Vista Road, crossing Buena Vista Road without the benefit of a marked crosswalk, and walking back another 500 feet to the school campus. The additional walking distance may discourage pedestrians from taking this route and instead decide to cross Buena Vista Road in front of the project site frontage to the school campus.

In order to eliminate the potential mid-block crossing of Buena Vista Road directly from the project site without the benefit of a marked crosswalk, a controlled intersection or a mid-block crosswalk could be provided.

New Controlled Access Intersection Assessment

The project driveway along Buena Vista Road could be designed to align to the existing school/park driveway, providing a controlled intersection. This may require the relocation of the school/park driveway 30 to 40 feet to the east, and the addition of left-turn lanes along Buena Vista Road. Aligning both driveways would provide a single controlled intersection serving both school and project traffic. A crosswalk could be provided along the west side of this new access intersection, providing a direct pedestrian connection between the project site and the school/park.

Mid-Block Crosswalk Assessment

The assessment of a potential mid-block crosswalk was performed based on information contained in the California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014; the California Vehicle Code (CVC); the Federal Highway Administration's (FHWA) publication entitled *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*, 2005; and the Institute of Transportation Engineers (ITE) publication entitled *Design and Safety of Pedestrian Facilities*, 1998.

The CA MUTCD emphasizes that a traffic engineering study is required to determine if the criteria and warrants are satisfied for the installation of a marked crosswalk at locations away from traffic control signals or STOP signs. Some of the requirements for the installation of a marked crosswalk at uncontrolled locations include:

Sufficient Pedestrian Demand. The criteria typically used to identify the need for a marked mid-block crosswalk is based on an identified minimum number of pedestrian crossing per hour (as established by the local jurisdiction) or at locations where the crossing is on a direct route to or from a pedestrian traffic generator, such a school. The minimum pedestrian crossing criterion can vary between agencies and localities, ranging from 10 to 50 pedestrian crossings during the peak hour. Mid-block crosswalks are most appropriate at locations where a high pedestrian traffic generator is located directly across the street from a significant source of pedestrians (school and residential development, such in the case of the proposed project).

Adequate Sight Distance. Adequate sight distance between the driver and the mid-block crosswalk should be provided in both directions. A common "rule of thumb" used by various jurisdictions is that the sight distance, in feet, should be greater than 10 times the speed limit. With a speed limit of 25 miles per hour (mph) on Buena Vista Road (along the project site frontage), the minimum sight distance required is 250 feet. Since Buena Vista Road consists of a straight two-lane roadway, the minimum required sight distance of 250 feet is available.

Distance to the Nearest Crossing Location. The minimum distance from the nearest crossing location for installation of a marked crosswalk should be determined based on pedestrian crossing demand, type of roadway, traffic volume, and other factors. Some guidelines use 300 feet as the minimum distance to the nearest marked crosswalk from mid-block crosswalks. Other guidelines recommend that the spacing between signals/intersections should be equal to or greater than 600 feet from mid-block crosswalks. The nearest intersection to the project site along Buena Vista Road is the intersection of

Westside Road and Buena Vista Road, located approximately 500 feet east of the project site (see Figure 15).

Other factors/recommendations that should be taken into consideration when evaluating the installation of a marked mid-block crosswalk include:

- Speed limit on the subject street should be less than 30 mph – although the posted speed limit along the project site frontage on Buena Vista Road is 25 mph, speed surveys collected in September 2018 (discussed in the following section) show that the 85th percentile speed along the project site frontage is 42 and 44 mph in the eastbound and westbound directions, respectively. The existing speeds along Buena Vista Road exceed the recommended 40 mph recommend speed limit.

- Sidewalk or adequate shoulder for use by pedestrians should exist on both sides of the street – currently, no sidewalks are available along the project site frontage. However, with the development of the project site, the missing sidewalks would be provided along the project site frontage on Buena Vista Road.

- Average Daily Traffic (ADT) volumes on the subject street should be less than 12,000 vehicles for a two-lane roadway – ADT volumes collected along Buena Vista Road (and summarized in Table 12 in the following section) show that Buena Vista Road, between Miller Road and Westside Boulevard, currently serves approximately 3,500 daily vehicles, and is projected to serve approximately 6,500 daily vehicle under cumulative plus project conditions.

- Providing adequate nighttime lighting for pedestrians, in particular at marked crosswalks in areas around schools, churches, and community centers with nighttime pedestrian activity – this could be a project improvement.

- Consider reducing the effective street crossing distance for pedestrians (minimizing exposure) by narrowing the roads or by providing curb extensions – this could be a project improvement.

Although the proposed project satisfies most of the factors to consider for the installation of a marked mid-block, the decision to install a mid-block crosswalk should be carefully evaluated in particular since the traffic speed data shows that vehicles along Buena Vista Road currently travel at speeds that are higher than the speed limit. Additionally, Buena Vista Road, classified as a collector street in the City of Hollister General Plan, provides direct access between Hollister and a State Route (SR 156), potentially serving moderate amounts of traffic.

Recommended Safe Route to School and Other Possible Pedestrian Improvements

The following recommendations are made to improve connectivity for pedestrians between the project site and the adjacent school and to encourage walking as a mode of travel:

Possible Physical Roadway Improvements. The proposed project should work with the City of Hollister to contribute to the implementation of any improvements that would help enhance pedestrian circulation in the study area, including the improvements identified above and within the adopted Safe to School Routes document. In particular, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

It is also recommended that sidewalks be installed along the north side of Buena Vista Road, between the project site and Westside Boulevard, in order to provide a continuous sidewalk connection between the project site and Calaveras School. These improvements would be consistent with the improvements identified in the adopted Safe Routes To School Program for Calaveras Elementary School.

Design of Project Site Access. In order to eliminate the potential mid-block crossing of Buena Vista Road directly from the project site without the benefit of a marked crosswalk, the project driveway along Buena Vista Road could be designed to align to the existing school/park driveway, providing a controlled intersection. A crosswalk could be provided along the west side of this new access intersection, providing a direct pedestrian connection between the project site and the school/park.

Consideration of a Marked Mid-Block Crosswalk. Although the proposed project satisfies most of the factors to consider for the installation of a marked mid-block, the decision to install a mid-block crosswalk should be carefully evaluated in particular since the traffic speed data shows that vehicles along Buena Vista Road currently travel at speeds that are higher than the speed limit. Additionally, Buena Vista Road, classified as a collector street in the City of Hollister General Plan, provides direct access between Hollister and a State Route (SR 156), potentially serving moderate amounts of traffic.

Other Possible Non-Physical Improvements. In addition to the above physical improvements, it is recommended that other measures be taken in an effort to facilitate access for pedestrians between the project site and Calaveras School. These measures could include police presence and enforcement, crossing guards, in-road removable signage, as well as parent/student education.

Roadway Segment Evaluation

Residential areas are especially sensitive to traffic increases because traffic can impact the livability of the street. Thus, an evaluation of the effects of project traffic on the surrounding neighborhoods was completed. The evaluation consists of a roadway segment analysis to quantify the potential change in traffic volumes along the study roadway segments as a result of the proposed project. In addition, the existing and future average daily traffic (ADT) volumes also are compared to acceptable volume thresholds for the study roadway segments to determine if any of the study roadway segments currently have or are projected to have traffic volume levels that exceed acceptable volume thresholds.

Unlike the intersection level of service analysis methodology, which has established impact thresholds, there are no adopted analysis methodologies or impact thresholds for the evaluation of neighborhood traffic issues. Therefore, the roadway segment evaluation is provided for informational purposes only and provides a planning-level analysis that identifies locations were the acceptable traffic volume thresholds are or would be exceeded.

Study Roadway Segments

The roadway segment evaluation includes six roadway segments in the vicinity of the project site. The study roadway segments are listed below and shown graphically on Figure 16:

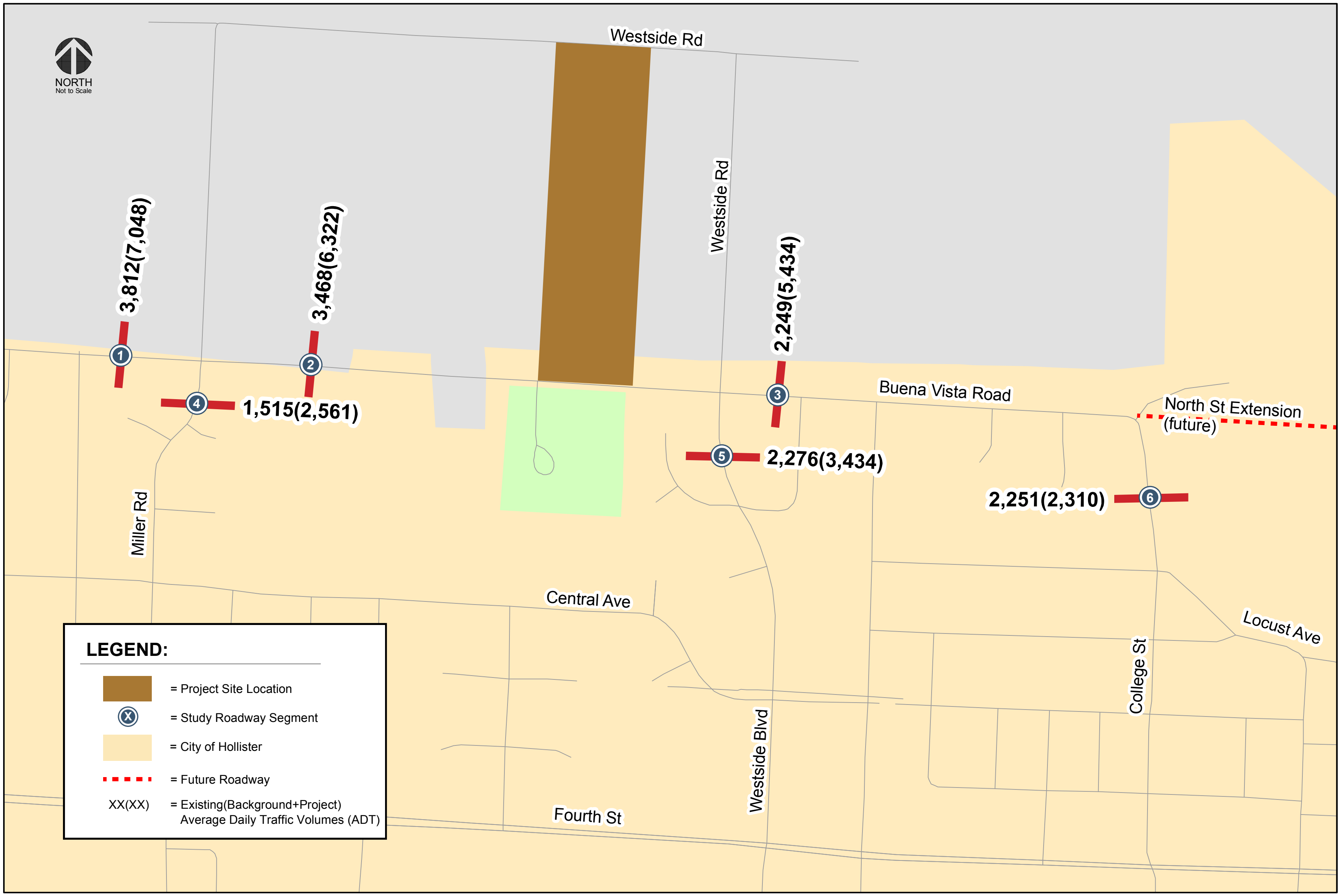
1. Buena Vista Road, west of Miller Road
2. Buena Vista Road, between Miller Road and Westside Boulevard
3. Buena Vista Road, east of Westside Boulevard
4. Miller Road, south of Buena Vista Road
5. Westside Boulevard, south of Buena Vista Road
6. Locust Avenue/College Street, south of Buena Vista Road

Study Roadway Segments Characteristics

Based on the street classification described in the City of Hollister General Plan (GP), Buena Vista Road, Miller Road, and Westside Boulevard are classified as collector streets. Locust Avenue is classified as a residential street in the City of Hollister GP.

According to the description of residential streets presented in the GP, the primary function of a residential street is to provide direct access from collector streets to residential properties. The GP further describes residential facilities as having posted speed limits generally ranging between 25 and

Figure 16
Study Roadway Segments and Corresponding ADT Volumes



30 miles per hour (mph) and traffic volumes generally less than 5,000 vehicles per day (ADT) but can vary depending on available right-of-way and the adjacent land uses. The definition of a collector street contained within the GP includes as its primary function to provide access between local and arterial streets with secondary function to provide access to land within residential, commercial, and industrial areas. Collector streets are two-lanes wide (major collectors are 2 to 4 lanes wide) and may accommodate up to 10,000 vehicles per day, with speed limits typically in the 25 to 35 mph range.

Existing Roadway Segment Volumes

The existing roadway segment volumes were obtained from new 24-hour machine (tube) counts conducted on September 12, 2018 (included in Appendix A). The daily traffic volumes were shown to range between approximately 1,500 daily vehicles along Miller Road, 2,300 daily vehicles along Westside Boulevard and Locust Avenue, and 3,500-3,800 daily vehicles along Buena Vista Road (see Figure 16). The traffic counts show the number of daily vehicles along the study roadway segments to be well within their acceptable roadway capacity ranges. Speed data also was collected along the study roadway segments. Buena Vista Road has a posted speed limit of 25 mph in the vicinity of Calaveras Elementary School and 30 mph outside if the school area. Westside Boulevard has a posted speed limit of 35 mph, while Miller Road and Locust Avenue do not have a posted speed limit. Both Miller Road and Locust Avenue were assumed to have a 25-mph speed limit.

The speed surveys revealed that the 85th percentile speeds along the study roadway segments of Miller Road, Westside Boulevard, and Locust Avenue were measured to be within 5 mph of the posted speed limits. The 85th percentile speed is the speed that 85% of traffic do not exceed (85% of the traffic travels at or below this speed) and is commonly used to set a roadway's speed limit. Speeds within 5 mph of the posted speed limits are considered reasonable. Travel speeds along the study roadway segments on Buena Vista Road, however, were measured to exceed the posted speed limit by up to 19 mph (roadway segment adjacent to the project site and Calaveras School). The 85th percentile speeds along Buena Vista Road were measured to be over 40 mph.

The speed surveys also revealed that between 8:00 and 9:00 AM and 2:00 and 3:00 PM, the measured speeds along Buena Vista Road in the vicinity of Calaveras school were reduced by at least 5 mph, however, they continued to exceed the posted speed limit of 25 mph.

Both the existing traffic and speed data are summarized in Table 12.

Roadway Segment Traffic Volume Projections

Estimated daily project traffic volumes were added to the adjacent roadway network based on the same trip distribution utilized for the assignment of peak-hour traffic (presented previously). Additionally, daily traffic volumes associated with approved projects were estimated by multiplying the PM peak-hour approved trips by 10 (PM peak-hour traffic volumes typically represent approximately 10 percent (%) of the daily traffic volumes). These volume estimates were added to the existing daily traffic volumes along the study roadway segments to estimate traffic volume projections with the proposed project.

It is estimated that the proposed project would add daily project trips to the study roadway segments representing a 3% to 22% increase in traffic volumes, compared to the existing daily traffic volumes along each segment (see Table 12). The most daily project trips (506 trips) would be added to the segment of Buena Vista Road, west of Miller Road, representing an increase of 13% from the existing ADT volumes (8% when compared to the estimated background ADT volumes).

Even with the addition of project traffic, traffic volumes along each of the study roadway segments would continue to be well within the acceptable daily traffic thresholds identified in the City of Hollister General Plan.

Table 12
Roadway Segment Volume and Speed

Roadway Segment	Classification[1]	Capacity[1] (Daily Vehicles)	Speed Limit (mph)	Direction	85th % Speed (mph)	Existing ADT[2]	Project Trips (Existing)	Project Trips (Background)	Approved Projects ADT[3]	Existing Plus Project ADT	Existing Plus Project % Volume Increase	Background Plus Project ADT	Background Plus Project % Volume Increase
1. Buena Vista Road, west of Miller Road	Collector	10,000	30	EB	47	1,965	253	253	1,380	2,218	13%	3,598	8%
				WB	43	1,847	253	253	1,350	2,100	14%	3,450	8%
				Both		3,812	506	506	2,730	4,318	13%	7,048	8%
2. Buena Vista Road, between Miller Road and Westside Boulevard	Collector	10,000	25	EB	42	1,849	197	197	1,230	2,046	11%	3,276	6%
				WB	44	1,619	197	197	1,230	1,816	12%	3,046	7%
				Both		3,468	394	394	2,460	3,862	11%	6,322	7%
3. Buena Vista Road, east of Westside Boulevard	Collector	10,000	30	EB	43	1,111	28	166	1,610	1,139	3%	2,887	6%
				WB	34	1,138	34	169	1,240	1,172	3%	2,547	7%
				Both		2,249	62	335	2,850	2,311	3%	5,434	7%
4. Miller Road, south of Buena Vista Road	Collector	10,000	25	NB	25	778	28	28	580	806	4%	1,386	2%
				SB	24	737	28	28	410	765	4%	1,175	2%
				Both		1,515	56	56	990	1,571	4%	2,561	2%
5. Westside Boulevard, south of Buena Vista Road	Collector	10,000	35	NB	27	1,132	248	113	490	1,380	22%	1,735	7%
				SB	24	1,144	253	115	440	1,397	22%	1,699	7%
				Both		2,276	501	228	930	2,777	22%	3,434	7%
6. Locust Avenue/College Street, south of Buena Vista Road	Residential	5,000	25	NB	28	1,077	34	31	0	1,111	3%	1,108	3%
				SB	26	1,174	28	28	0	1,202	2%	1,202	2%
				Both		2,251	62	59	0	2,313	3%	2,310	3%

Notes:
[1] Roadway segment classification and capacity information obtained from the City of Hollister *2005 General Plan, Chapter 4 (Circulation Element).*
[2] Existing average daily traffic (ADT) volumes obtained from tube counts conducted in September 2018.
[3] ADT volumes for approved projects were estimated by multiplying the PM peak hour volumes by 10.
☐ - Exceeds speed limit by 5 mph or more.
ADT = Average Daily Traffic Volumes
mph = miles per hour

Neighborhood Traffic Assessment Results

Based on the characteristics of the streets, the traffic count data, and the estimated project traffic, the following conclusions can be drawn:

- Traffic volumes on each of the surrounding roadways are and would continue to be well within the acceptable daily traffic thresholds identified in the City of Hollister General Plan.
- Speeds along Buena Vista Road currently exceed the posted speed limits.

Though the evaluation of the effects of project traffic on surrounding neighborhood streets identified no specific capacity issues, it is evident that existing travel speeds along Buena Vista Road exceed the posted speed limits. As such, the project would add traffic to locations with existing speeds that exceed the posted speed limits.

The City of Hollister has a Neighborhood Traffic Management Program (NTMP) that was adopted in 2003. The program provides a traffic calming policy for streets within residential neighborhoods. The primary purpose of the NTMP is to reduce vehicle speeds and traffic flow within neighborhood areas. The program provides a mechanism for City staff and residents to work cooperatively to identify and implement traffic calming measures. The program encourages the use of enforcement solutions for identified problems. If enforcement is deemed ineffective, the NTMP provides a process by which specific neighborhood traffic issues are reviewed to determine the need for further measures. The NTMP identifies several traffic calming measures that can be considered for implementation by the City. The project could make a fair-share contribution towards the future installation of traffic calming measures or the preparation of a neighborhood traffic calming study if deemed necessary by the City.

Possible Traffic Calming Measures

Typically, traffic calming measures are implemented along streets where (1) the volume of traffic on a street is incompatible with the surrounding land uses and/or roadway design or (2) the speed of traffic on a street is excessive or unsafe, and/or (3) high volumes of cut-through traffic are experienced along the street. The primary differences between a typical traffic engineering study and a traffic calming study is that a traffic calming study generally includes (1) more neighborhood involvement and (2) considers "quality of life" issues in addition to traffic capacity and safety issues.

Measures can be implemented to address the observed excessive travel speeds along Buena Vista Road. The identified measures listed below are possible improvements that could be implemented as part of a traffic calming plan for the area. It should be noted that there are no established procedures for the application of traffic calming devices and criteria for device installation vary widely by jurisdiction.

- **Traffic Circles/Roundabouts.** Traffic circles and roundabouts force vehicles to slow down in advance of intersections. Installation of roundabouts has the potential to reduce the number of collisions and would maintain low travel speeds through and past the intersections. However, traffic circles/roundabouts, if poorly designed, could limit access for large vehicles, including fire trucks. The Fire Department would need to review and approve the installation of traffic circles/roundabouts at intersections along Buena Vista Road since these measures could result in an increase in emergency response times.

- **Bulb-Outs.** An alternative measure would be to narrow the roadways at the intersections by extending the curb radius into the street. Curb extensions are commonly referred to as bulb-outs. Bulb-outs typically shorten the pedestrian crossing lengths, keep the vehicle speeds low and allow better pedestrian visibility around parked cars. However, bulb-outs may result in a loss of on-street parking, and may also impede emergency response vehicles and other trucks.

Evaluation of Westside Boulevard/Buena Vista Road Roundabout

Operating conditions at the intersection of Westside Boulevard and Buena Vista Road were checked assuming the implementation of a roundabout at this intersection.

The level of service analysis shows that the intersection of Westside Boulevard/Buena Vista Road would operate at acceptable LOS A during the peak hour under background plus project conditions. The roundabout is projected to serve traffic volume projections more efficiently than the existing stop controls on Westside Boulevard and could be design to function as a traffic calming measure to reduce speeds along Buena Vista Road.

Recommended Neighborhood Traffic Operations Improvements

The following recommendations are made to improve observed traffic operation issues along Buena Vista Road:

Contribution to Traffic Calming Measures/Studies. The project could make a fair-share contribution towards the future installation of traffic calming measures or the preparation of a neighborhood traffic calming study if deemed necessary by the City.

Implementation of Traffic Calming Measures. One possible traffic calming measure is the installation of a roundabout at the intersection of Westside Boulevard and Buena Vista Road. As a roundabout, this intersection is projected to operate at acceptable LOS A during the peak hours, efficiently serving traffic volume projection under background plus project conditions and reducing travel speeds along Buena Vista Road.

Other Possible Improvements. Other possible speed reduction measures could be implemented along Buena Vista Road, including increased police patrolling, enhanced/additional school signage (both permanent and removable), pavement markings, and flashing beacons.

8. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the city of Hollister and Caltrans. The study included an analysis of AM and PM peak-hour traffic conditions for three signalized intersections and six unsignalized intersections.

Evaluation of Project Conditions

The impacts and proposed improvements to mitigate project impacts under existing plus project and background plus project are described below.

Existing Plus Project Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following study intersection would be significantly impacted by the project under existing plus project conditions, based on Caltrans level of service impact criteria:

1. SR 156 and Buena Vista Road [CT] (**Impact:** PM peak hour)

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the following study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization under existing plus project conditions during the AM and PM peak hours:

1. SR 156 and Buena Vista Road [CT] (AM and PM peak hours)

Background Plus Project Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that the following study intersection would be significantly impacted by the project under background plus project conditions, based on Caltrans level of service impact criteria:

1. SR 156 and Buena Vista Road [CT] (**Impact:** PM peak hour)

Intersection Signal Warrant Analysis

The peak-hour signal warrant analysis indicates that the following two study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization under background plus project conditions during the AM and PM peak hours:

1. SR 156 and Buena Vista Road [CT] (AM and PM peak hours)

Recommended Project Mitigation Measures

1. SR 156 and Buena Vista Road (Caltrans)

Mitigation Measures. The necessary improvement to improve the intersection level of service to acceptable levels consists of the installation of a traffic signal at the intersection. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional Transportation Impact Mitigation Fee (TIMF), January 2016. With implementation of this mitigation measure, the intersection is projected to operate at acceptable levels of service during the peak hours under background plus project conditions, reducing the impact to less-than-significant.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

Evaluation of Cumulative Conditions

Intersection Level of Service Analysis

The results of the intersection level of service analysis indicate that two study intersections would be significantly impacted by the project under cumulative plus project conditions, based on the applicable significance criteria:

1. SR 156 and Buena Vista Road [CT] (**Impact:** AM and PM peak hours)
5. San Felipe Road/San Benito Street and North Street/Santa Ana Road [CH] (**Impact**: PM peak hour)

Intersection Signal Warrant Analysis

The peak hour signal warrant analysis indicates that the following study intersection is projected to have peak-hour traffic volumes that meet the thresholds that warrant signalization during the AM and PM peak hours under cumulative plus project conditions:

1. SR 156 and Buena Vista Road [CT] (AM and PM peak hours)

Recommended Cumulative Mitigation Measures

1. SR 156 and Buena Vista Road (Caltrans)

Mitigation Measures. One possible improvement to mitigate the cumulative project impact at this intersection consists of the installation of a traffic signal. The installation of a traffic signal at this intersection is included as part of the intersection improvement projects of the San Benito County Regional TIMF. With implementation of this mitigation measure, the intersection is projected to operate better than cumulative no project conditions, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the installation of a traffic signal, SR 156 must be widened from two to four lanes. The widening of SR 156 to four lanes in the vicinity of the Buena Vista Road intersection is not part of the improvements projects of the San Benito County TIMF.

To mitigate the project impact at this location, the developer will be required to pay the applicable TIMF fee as a fair-share contribution toward improvements at this intersection. With implementation of this mitigation measure, this impact would be less-than-significant.

5. San Felipe Road/San Benito Street and North Street/Santa Ana Road (City of Hollister)

Necessary Improvements. The cumulative project impact to this intersection could be mitigated with the installation of protected left-turn movements on the eastbound and westbound approaches of the intersection. The required improvements would include the addition of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal. With implementation of the above improvements, the intersection level of service would improve to better than cumulative no project conditions during the PM peak-hour, reducing the impact to less-than-significant. However, the intersection would continue to operate at unacceptable levels of service during the PM peak hour. In order to improve the intersection level of service to acceptable conditions, in addition to the above improvements, a separate southbound right-turn lane also must be added. The above improvements are not part of the improvements projects of the San Benito County TIMF.

Project Mitigation Measure

One of the following mitigation measures would mitigate the project's cumulative impact at this intersection:

a. The City will include the required intersection improvements in the San Benito County Regional Transportation Impact Mitigation Fee (TIMF) program, and the developer shall pay the applicable TIMF fee as a fair-share contribution toward the above improvements prior to the issuance of building permits.

b. The developer will improve the intersection with installation of a separate left-turn lane on both the eastbound and westbound approaches as well as modifications to the existing traffic signal.

Implementation of one of the above two possible mitigation measures would reduce this cumulative project impact to less-than-significant.

Other Transportation Issues

Recommended Bicycle and Pedestrian Improvements

The following recommendations are made to promote non-auto modes of transportation and to accommodate bicycle and pedestrian travel within and near the project site:

Contribute to Planned Bicycle Facilities in the Project Area. It is recommended that the proposed project contribute to the completion of planned bicycle facilities in the vicinity of the project site, if a funding mechanism has been established for these improvements. Providing a complete and continuous bicycle network that serves the project area could encourage biking as alternative mode of transportation. The contribution should be determined by the City of Hollister and it should be based on the project's contribution to the total projected growth in the study area.

Installation of Sidewalks. It is recommended that with the development of the project area, sidewalks along both sides of all new streets within the project site be built. Neighborhoods should be designed with adequate and continuous pedestrian facilities to encourage the use of non-auto modes of travel.

New sidewalks along both project site frontages (Buena Vista Road and Westside Road) should be designed to accommodate future improvements along these roadways and align with planned adjacent pedestrian facilities. Additionally, frontage improvements on Buena Vista Road should be designed to be consistent with City of Hollister roadway design standards and guidelines, as well as accommodate the future installation of bike lanes along Buena Vista Road.

Installation of a High Visibility Crosswalk at Westside Boulevard/Buena Vista Road. With the development of the project site, in addition to the development of other vacant land along the north side of Buena Vista Road, and the location of various pedestrian destinations south of Buena Vista Road (including a school and park), it is desirable to have marked crosswalks across Buena Vista Road. According to the California Manual on Uniform Traffic Control Devices (CA MUTCD, 2014), whenever a marked crosswalk has been established in a roadway contiguous to a school building or school grounds, it shall be yellow. Additionally, for added visibility, the area of the crosswalk may be marked with diagonal lines (45-degree angle) or longitudinal lines parallel to traffic flow. Thus, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

Transit Service

Recommended Transit Service Improvements

The following recommendations are made to promote the use of transit services:

Expansion of Service. With the development of the project area, County Express Transit System should consider expanding its existing bus route service area into the immediate project site area along Buena Vista Road. With the expansion of the service area, new bus stops could be located near the intersection of Westside Boulevard and Buena Vista Road.

Additionally, the project site should be designed accounting for the potential future extension of transit services onto the project area. Thus, it is recommended that project frontage improvements on Buena Vista Road be designed based on City of Hollister roadway design standards and to potentially accommodate transit vehicles.

Site Access and On-Site Circulation

Site Access Recommendations

Design of Site Access. Project site access driveways/roadways must be designed adhering to City of Hollister design guidelines and standards, including minimum width, minimum distance to adjacent intersections/driveways, and adequate sight distance.

Area-Wide Connectivity. In an effort to provide adequate connectivity and circulation to future development along the north side of Buena Vista Road, the City of Hollister should consider access to the entire area, rather than individual parcels. This could be accomplished by providing a single full-access controlled access point that would serve all parcels north of Buena Vista Road, between Miller Road and Westside Road/Boulevard. Alternatively, right-in and out access also could be provided directly to each of the parcels. This, however, would require the development of adjacent parcels that may not plan to develop in the near future, making it unfeasible for the project.

Recommended On-Site Circulation Improvements

Design of New Roadways. All new internal roadways must be designed to provide adequate width and turn-radii in order to provide continuous unimpeded circulation through the site for all vehicles, including emergency vehicles and large trucks such as garbage trucks. The design of all internal roadways must adhere to City of Hollister design guidelines and standards and the final design will have to be approved by the City of Hollister.

Installation of Sidewalks. It is recommended that sidewalks be installed on both sides of all new streets within the project site, providing a continuous sidewalk/pedestrian network within the project site. New sidewalks should be designed to conform to existing and planned adjacent pedestrian facilities in the vicinity of the project site.

Neighborhood Traffic Assessment

Recommended Safe Route to School and Other Possible Pedestrian Improvements

The following recommendations are made to improve connectivity for pedestrians between the project site and the adjacent school and to encourage walking as a mode of travel:

Possible Physical Roadway Improvements. The proposed project should work with the City of Hollister to contribute to the implementation of any improvements that would help enhance pedestrian circulation in the study area, including the improvements identified above and within the adopted Safe to School Routes document. In particular, it is recommended that high visibility crosswalks be installed along all legs of the Westside Boulevard/Buena Vista Road intersection. These crosswalks would provide a marked location to cross Buena Vista Road for pedestrian traffic generated by both the project and other adjacent existing and future land uses.

It is also recommended that sidewalks be installed along the north side of Buena Vista Road, between the project site and Westside Boulevard, in order to provide a continuous sidewalk connection between the project site and Calaveras School. These improvements would be consistent with the improvements identified in the adopted Safe Routes To School Program for Calaveras Elementary School.

Design of Project Site Access. In order to eliminate the potential mid-block crossing of Buena Vista Road directly from the project site without the benefit of a marked crosswalk, the project driveway along Buena Vista Road could be designed to align to the existing school/park driveway, providing a controlled intersection. A crosswalk could be provided along the west side of this new access intersection, providing a direct pedestrian connection between the project site and the school/park.

Consideration of a Marked Mid-Block Crosswalk. Although the proposed project satisfies most of the factors to consider for the installation of a marked mid-block, the decision to install a mid-block crosswalk should be carefully evaluated in particular since the traffic speed data shows that vehicles along Buena Vista Road currently travel at speeds that are higher than the speed limit. Additionally, Buena Vista Road, classified as a collector street in the City of Hollister General Plan, provides direct access between Hollister and a State Route (SR 156), potentially serving moderate amounts of traffic.

Other Possible Non-Physical Improvements. In addition to the above physical improvements, it is recommended that other measures be taken in an effort to facilitate access for pedestrians between the project site and Calaveras School. These measures could include police presence and enforcement, crossing guards, in-road removable signage, as well as parent/student education.

Neighborhood Traffic Assessment Results

Based on the characteristics of the streets, the traffic count data, and the estimated project traffic, the following conclusions can be drawn:

- Traffic volumes on each of the surrounding roadways are and would continue to be well within the acceptable daily traffic thresholds identified in the City of Hollister General Plan.
- Speeds along Buena Vista Road currently exceed the posted speed limits.

Though the evaluation of the effects of project traffic on surrounding neighborhood streets identified no specific capacity issues, it is evident that existing travel speeds along Buena Vista Road exceed the posted speed limits. As such, the project would add traffic to locations with existing speeds that exceed the posted speed limits.

Possible Traffic Calming Measures

Measures can be implemented to address the observed excessive travel speeds along Buena Vista Road. The identified measures listed below are possible improvements that could be implemented as part of a traffic calming plan for the area. It should be noted that there are no established procedures for the application of traffic calming devices and criteria for device installation vary widely by jurisdiction.

- **Traffic Circles/Roundabouts.** Traffic circles and roundabouts force vehicles to slow down in advance of intersections. Installation of roundabouts has the potential to reduce the number of collisions and would maintain low travel speeds through and past the intersections. However, traffic circles/roundabouts, if poorly designed, could limit access for large vehicles, including fire trucks. The Fire Department would need to review and approve the installation of traffic circles/roundabouts at intersections along Buena Vista Road since these measures could result in an increase in emergency response times.

- **Bulb-Outs.** An alternative measure would be to narrow the roadways at the intersections by extending the curb radius into the street. Curb extensions are commonly referred to as bulb-outs. Bulb-outs typically shorten the pedestrian crossing lengths, keep the vehicle speeds low and allow better pedestrian visibility around parked cars. However, bulb-outs may result in a loss of on-street parking, and may also impede emergency response vehicles and other trucks.

Evaluation of Westside Boulevard/Buena Vista Road Roundabout

Operating conditions at the intersection of Westside Boulevard and Buena Vista Road were checked assuming the implementation of a roundabout at this intersection.

The level of service analysis shows that the intersection of Westside Boulevard/Buena Vista Road would operate at acceptable LOS A during the peak hour under background plus project conditions. The roundabout is projected to serve traffic volume projections more efficiently than the existing stop controls on Westside Boulevard and could be design to function as a traffic calming measure to reduce speeds along Buena Vista Road.

Woodle Residential Development TIA

Technical Appendices

February 13, 2019

Appendix A

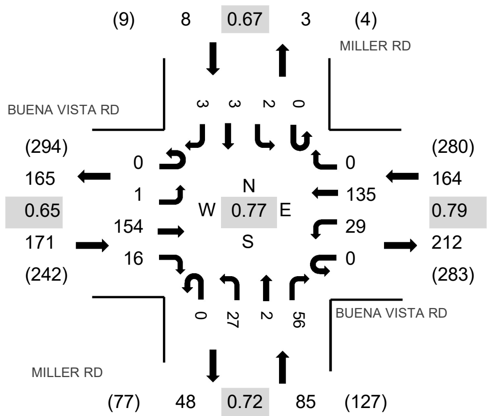
Traffic Counts

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

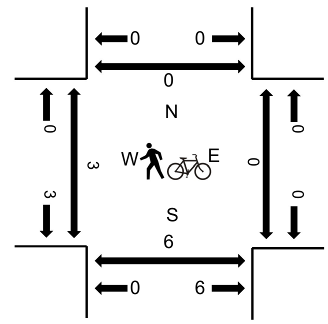
Location: 1 MILLER RD & BUENA VISTA RD AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	MILLER RD Northbound U-Turn	Left	Thru	Right	MILLER RD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	0	15	5	0	3	22	0	0	10	0	4	0	0	0	0	59	362	0	0	0	0
7:15 AM	0	0	22	8	0	4	26	0	0	8	0	2	0	0	1	1	72	428	0	0	1	0
7:30 AM	0	1	31	2	0	6	31	0	0	8	1	10	0	0	1	1	92	423	1	0	0	0
7:45 AM	0	0	62	4	0	6	38	0	0	5	0	21	0	1	1	1	139	379	0	0	5	0
8:00 AM	0	0	39	2	0	13	40	0	0	6	1	23	0	1	0	0	125	296	2	0	0	0
8:15 AM	0	0	22	1	0	7	26	0	0	8	0	3	0	0	0	0	67		0	0	0	0
8:30 AM	0	0	9	5	0	2	24	0	0	3	0	4	0	0	0	1	48		0	1	0	0
8:45 AM	0	0	12	2	0	4	28	0	0	7	1	2	0	0	0	0	56		0	0	0	0

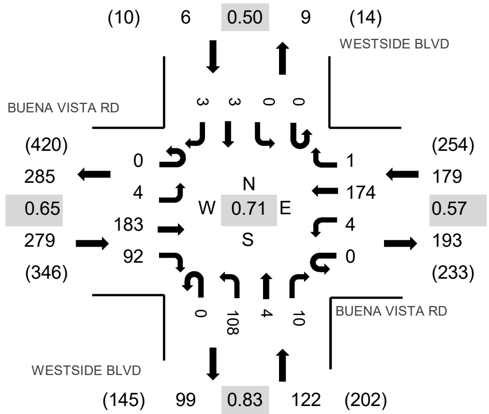
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Lights	0	1	151	16	0	29	135	0	0	27	2	56	0	2	3	3	425
Mediums	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	154	16	0	29	135	0	0	27	2	56	0	2	3	3	428

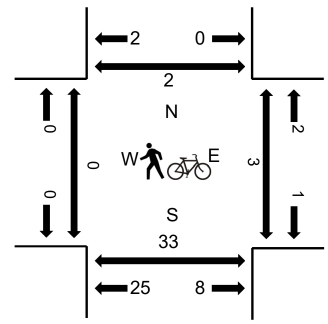
Location: 2 WESTSIDE BLVD & BUENA VISTA RD AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Northbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	0	9	9	0	1	11	0	0	22	1	0	0	1	2	0	56	449	0	0	2	0
7:15 AM	0	0	13	10	0	3	13	0	0	25	0	0	0	0	0	0	64	572	0	1	4	0
7:30 AM	0	0	31	15	0	1	39	0	0	36	1	1	0	0	0	0	124	586	0	1	3	0
7:45 AM	0	1	56	30	0	2	77	0	0	31	2	5	0	0	0	1	205	514	0	2	17	2
8:00 AM	0	2	67	38	0	0	45	0	0	23	0	2	0	0	0	2	179	363	0	0	8	0
8:15 AM	0	1	29	9	0	1	13	1	0	18	1	2	0	0	3	0	78		0	0	3	0
8:30 AM	0	0	4	11	0	5	14	0	0	14	3	1	0	0	0	0	52		0	0	0	0
8:45 AM	0	0	10	1	0	4	23	1	0	13	0	1	0	1	0	0	54		0	0	1	0

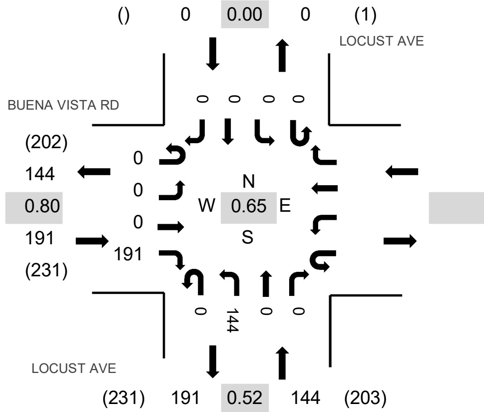
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2
Lights	0	4	181	91	0	3	174	1	0	106	4	9	0	0	3	3	579
Mediums	0	0	2	0	0	1	0	0	0	1	0	1	0	0	0	0	5
Total	0	4	183	92	0	4	174	1	0	108	4	10	0	0	3	3	586

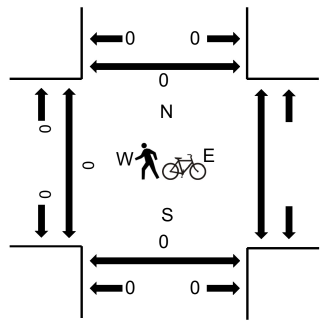
Location: 3 LOCUST AVE & BUENA VISTA RD AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	LOCUST AVE Northbound U-Turn	Left	Thru	Right	LOCUST AVE Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	0	0	13					0	6	0	0	0	0	0	0	19	239	0		0	0
7:15 AM	0	0	0	13					0	5	1	0	0	0	0	0	19	304	0		0	0
7:30 AM	0	0	0	36					0	36	0	0	0	0	0	0	72	335	0		0	0
7:45 AM	0	0	0	60					0	69	0	0	0	0	0	0	129	286	0		0	0
8:00 AM	0	0	0	60					0	24	0	0	0	0	0	0	84	195	0		0	0
8:15 AM	0	0	0	35					0	15	0	0	0	0	0	0	50		0		0	0
8:30 AM	0	0	0	4					0	19	0	0	0	0	0	0	23		0		0	0
8:45 AM	0	0	0	10					0	28	0	0	0	0	0	0	38		0		0	0

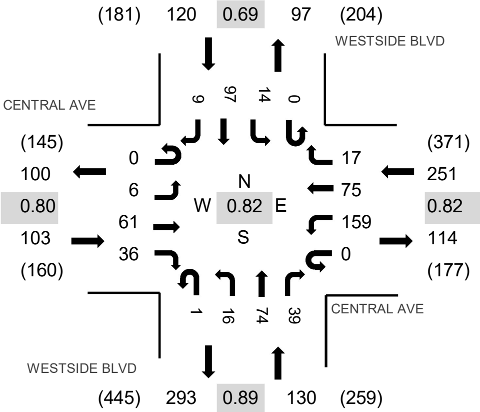
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0					0	0	0	0	0	0	0	0	0
Lights	0	0	0	189					0	144	0	0	0	0	0	0	333
Mediums	0	0	0	2					0	0	0	0	0	0	0	0	2
Total	0	0	0	191					0	144	0	0	0	0	0	0	335

(303) 216-2439
www.alltrafficdata.net

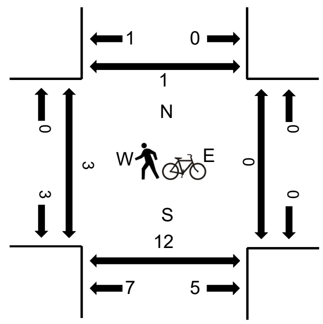
Location: 4 WESTSIDE BLVD & CENTRAL AVE AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CENTRAL AVE Eastbound U-Turn	Left	Thru	Right	CENTRAL AVE Westbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Northbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	0	3	5	0	5	3	0	0	2	23	4	0	1	14	0	60	428	0	0	1	0
7:15 AM	0	1	9	5	0	10	5	2	0	5	24	6	0	2	20	1	90	552	0	0	2	0
7:30 AM	0	0	12	5	0	30	5	8	0	8	31	3	0	3	13	2	120	583	2	0	1	1
7:45 AM	0	3	18	7	0	28	18	5	1	5	25	9	0	5	31	3	158	604	2	0	6	0
8:00 AM	0	2	19	11	0	43	24	7	0	3	17	13	0	3	39	3	184	543	0	0	3	0
8:15 AM	0	1	12	12	0	38	10	1	0	2	18	7	0	4	14	2	121		0	0	0	0
8:30 AM	0	0	12	6	0	50	23	4	0	6	14	10	0	2	13	1	141		0	0	3	0
8:45 AM	0	1	12	4	0	37	12	3	0	1	14	8	0	0	4	1	97		0	0	1	0

Peak Rolling Hour Flow Rates

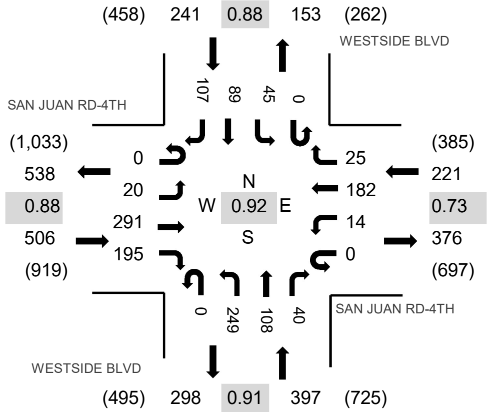
Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	4
Lights	0	6	59	35	0	151	74	17	1	16	70	37	0	14	97	8	585
Mediums	0	0	2	1	0	6	1	0	0	0	3	2	0	0	0	0	15
Total	0	6	61	36	0	159	75	17	1	16	74	39	0	14	97	9	604

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

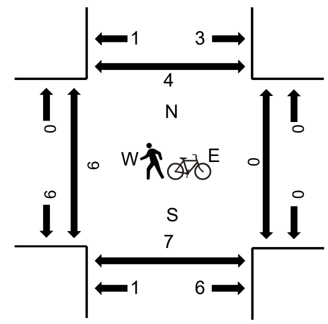
Location: 5 WESTSIDE BLVD & SAN JUAN RD-4TH AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	SAN JUAN RD-4TH Eastbound U-Turn	Left	Thru	Right	SAN JUAN RD-4TH Westbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Northbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	1	58	24	0	6	70	7	0	51	14	13	0	9	11	9	273	1,312	0	0	0	1
7:15 AM	0	5	57	52	0	9	77	7	0	48	27	12	0	5	20	12	331	1,365	0	0	0	0
7:30 AM	0	5	69	59	0	3	41	6	0	75	28	8	0	3	15	25	337	1,362	3	0	1	0
7:45 AM	0	5	89	55	0	1	34	10	0	60	29	13	0	17	28	30	371	1,314	3	0	1	1
8:00 AM	0	5	76	29	0	1	30	2	0	66	24	7	0	20	26	40	326	1,175	3	0	2	3
8:15 AM	0	6	85	43	0	1	28	2	0	62	20	10	0	10	21	40	328		1	0	1	2
8:30 AM	0	11	56	44	0	0	22	1	0	59	16	9	0	7	15	49	289		1	0	2	1
8:45 AM	0	7	51	27	0	1	20	6	0	49	18	7	0	6	4	36	232		0	0	0	1

Peak Rolling Hour Flow Rates

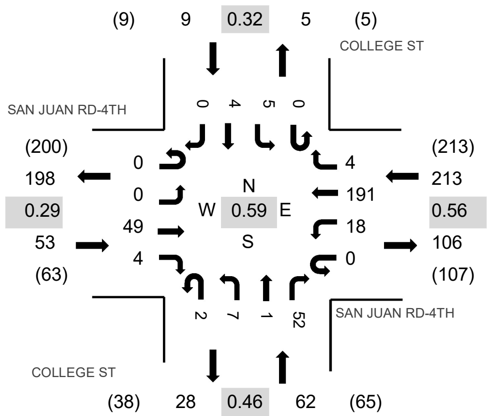
Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	5	1	0	0	2	0	0	0	1	0	0	1	1	3	14
Lights	0	19	277	193	0	13	176	22	0	247	103	38	0	38	87	100	1,313
Mediums	0	1	9	1	0	1	4	3	0	2	4	2	0	6	1	4	38
Total	0	20	291	195	0	14	182	25	0	249	108	40	0	45	89	107	1,365

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

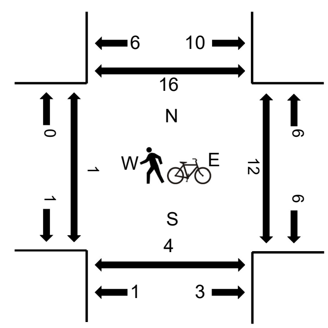
Location: 6 COLLEGE ST & SAN JUAN RD-4TH AM
Date: Wednesday, September 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	SAN JUAN RD-4TH Eastbound U-Turn	Left	Thru	Right	SAN JUAN RD-4TH Westbound U-Turn	Left	Thru	Right	COLLEGE ST Northbound U-Turn	Left	Thru	Right	COLLEGE ST Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	0	44	1	0	2	84	2	0	1	0	6	0	0	2	0	142	337	1	5	2	6
7:15 AM	0	0	2	0	0	11	83	1	0	2	1	31	0	5	2	0	138	198	0	0	0	1
7:30 AM	0	0	2	0	0	5	22	1	2	2	0	14	0	0	0	0	48	62	0	7	0	7
7:45 AM	0	0	1	3	0	0	2	0	0	2	0	1	0	0	0	0	9	17	0	0	1	2
8:00 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	13	1	0	2	2
8:15 AM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2		0	3	0	1
8:30 AM	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	3		0	0	4	0
8:45 AM	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	5		2	1	1	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0	6
Lights	0	0	45	4	0	18	185	4	2	7	1	48	0	5	3	0	322
Mediums	0	0	2	0	0	0	4	0	0	0	0	2	0	0	1	0	9
Total	0	0	49	4	0	18	191	4	2	7	1	52	0	5	4	0	337

![All Traffic Data Services Inc.]

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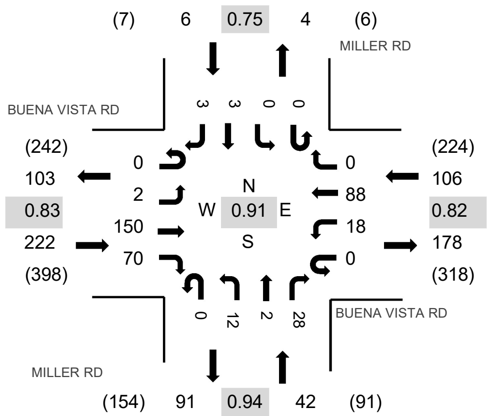
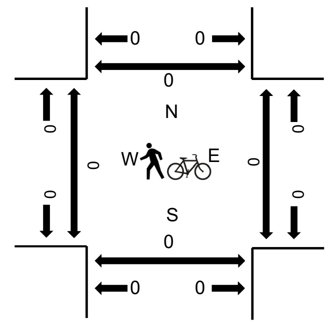
Location: 1 MILLER RD & BUENA VISTA RD PM
Date: Wednesday, September 12, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	MILLER RD Northbound U-Turn	Left	Thru	Right	MILLER RD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM	0	0	30	7	0	3	26	0	0	9	0	4	0	0	1	0	80	344	0	0	0	0
4:15 PM	0	1	41	14	0	3	29	0	0	7	1	3	0	0	0	0	99	353	0	0	1	0
4:30 PM	0	0	30	13	0	2	36	0	0	9	0	4	0	0	0	0	94	357	0	0	0	0
4:45 PM	0	0	24	16	0	4	15	0	0	8	0	4	0	0	0	0	71	360	0	0	0	0
5:00 PM	0	1	28	18	0	1	34	0	0	3	0	3	0	0	0	1	89	376	0	0	0	0
5:15 PM	0	0	47	20	0	3	20	0	0	3	1	7	0	0	1	1	103		0	0	0	0
5:30 PM	0	1	38	15	0	6	18	0	0	3	1	13	0	0	1	1	97		0	0	0	0
5:45 PM	0	0	37	17	0	8	16	0	0	3	0	5	0	0	1	0	87		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Lights	0	2	150	69	0	18	87	0	0	12	2	28	0	0	3	2	373
Mediums	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Total	0	2	150	70	0	18	88	0	0	12	2	28	0	0	3	3	376

All Traffic Data Services Inc.
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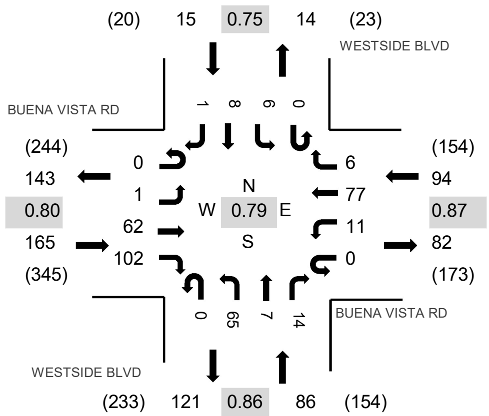
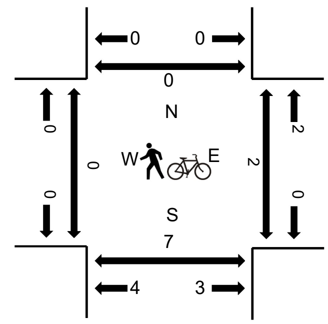
Location: 2 WESTSIDE BLVD & BUENA VISTA RD PM
Date: Wednesday, September 12, 2018
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Northbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM	0	0	15	20	0	0	9	1	0	16	1	3	0	0	0	0	65	336	0	0	0	0
4:15 PM	0	0	22	37	0	2	24	1	0	19	3	2	0	2	2	0	114	360	0	0	0	0
4:30 PM	0	1	17	19	0	4	20	2	0	19	3	3	0	1	1	0	90	338	0	0	3	0
4:45 PM	0	0	9	26	0	2	11	1	0	10	1	2	0	1	3	1	67	327	0	0	0	0
5:00 PM	0	0	14	20	0	3	22	2	0	17	0	7	0	2	2	0	89	337	0	2	3	0
5:15 PM	0	0	26	30	0	4	15	1	0	13	1	1	0	0	1	0	92		0	0	0	0
5:30 PM	0	0	19	24	0	0	13	0	0	13	3	5	0	1	0	1	79		0	0	5	0
5:45 PM	0	0	19	27	0	4	13	0	0	8	2	2	0	0	2	0	77		0	0	5	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	1	61	100	0	10	77	6	0	65	7	14	0	6	8	1	356
Mediums	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4
Total	0	1	62	102	0	11	77	6	0	65	7	14	0	6	8	1	360

All Traffic Data Services Inc.
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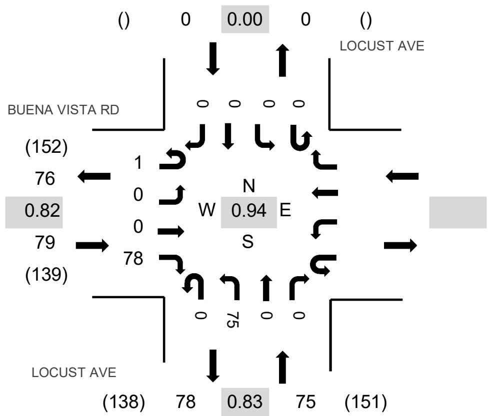
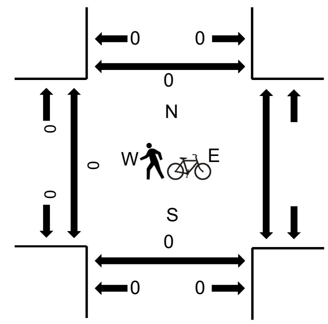
Location: 3 LOCUST AVE & BUENA VISTA RD PM
Date: Wednesday, September 12, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	LOCUST AVE Northbound U-Turn	Left	Thru	Right	LOCUST AVE Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM	0	0	0	12					0	17	0	0	0	0	0	0	29	136	0		0	0
4:15 PM	0	0	0	21					0	20	0	0	0	0	0	0	41	148	1		0	0
4:30 PM	0	0	0	16					0	25	0	0	0	0	0	0	41	142	0		0	0
4:45 PM	0	0	0	11					0	14	0	0	0	0	0	0	25	141	0		0	0
5:00 PM	1	0	0	16					0	24	0	0	0	0	0	0	41	154	0		0	0
5:15 PM	0	0	0	18					0	17	0	0	0	0	0	0	35		0		0	0
5:30 PM	0	0	0	24					0	16	0	0	0	0	0	0	40		0		0	0
5:45 PM	0	0	0	20					0	18	0	0	0	0	0	0	38		0		0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0					0	0	0	0	0	0	0	0	0
Lights	1	0	0	78					0	74	0	0	0	0	0	0	153
Mediums	0	0	0	0					0	1	0	0	0	0	0	0	1
Total	1	0	0	78					0	75	0	0	0	0	0	0	154

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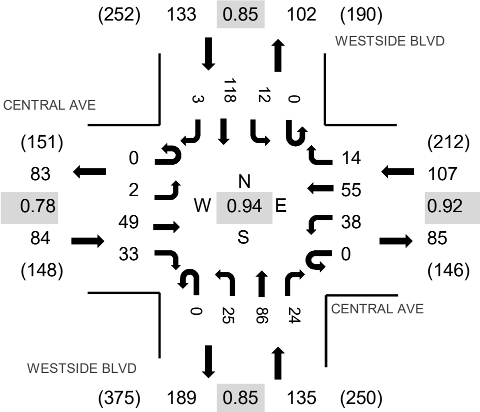
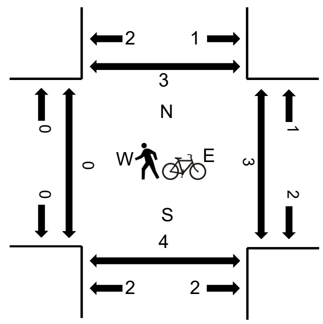
Location: 4 WESTSIDE BLVD & CENTRAL AVE PM
Date: Wednesday, September 12, 2018
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CENTRAL AVE Eastbound U-Turn	Left	Thru	Right	CENTRAL AVE Westbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Northbound U-Turn	Left	Thru	Right	WESTSIDE BLVD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
4:00 PM	0	1	5	5	0	11	12	4	0	3	24	14	0	1	22	1	103	449	0	0	0	0
4:15 PM	0	0	11	7	0	2	14	2	0	5	28	6	0	1	38	0	114	459	0	1	0	2
4:30 PM	0	0	15	12	0	14	12	3	0	7	23	7	0	2	26	1	122	454	0	2	2	1
4:45 PM	0	1	9	11	0	10	16	6	0	9	11	3	0	5	27	2	110	429	0	0	0	0
5:00 PM	0	1	14	3	0	12	13	3	0	4	24	8	0	4	27	0	113	413	0	0	2	0
5:15 PM	0	1	6	8	0	14	17	2	0	8	16	1	0	1	35	0	109		0	0	1	0
5:30 PM	0	2	16	4	0	11	9	4	0	4	16	6	0	2	23	0	97		0	0	2	0
5:45 PM	0	1	5	10	0	10	7	4	0	6	13	4	0	0	33	1	94		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	2	49	32	0	36	55	14	0	24	86	24	0	12	115	3	452
Mediums	0	0	0	1	0	2	0	0	0	1	0	0	0	0	3	0	7
Total	0	2	49	33	0	38	55	14	0	25	86	24	0	12	118	3	459

All Traffic Data Services Inc.

(303) 216-2439
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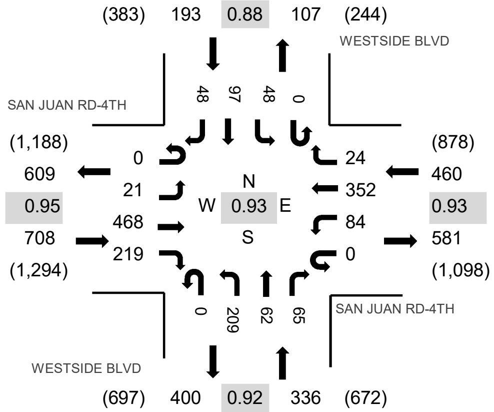
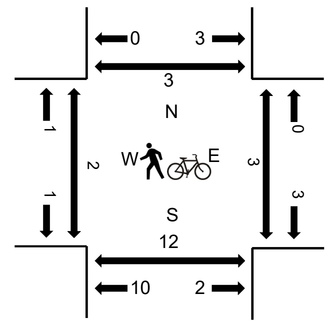
Location: 5 WESTSIDE BLVD & SAN JUAN RD-4TH PM
Date: Wednesday, September 12, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	SAN JUAN RD-4TH Eastbound				SAN JUAN RD-4TH Westbound				WESTSIDE BLVD Northbound				WESTSIDE BLVD Southbound						Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Rolling Hour	West	East	South	North
4:00 PM	0	11	98	37	0	14	71	7	0	45	20	18	0	13	23	12	369	1,530	2	4	0	0
4:15 PM	0	8	95	36	0	21	93	12	0	48	17	12	0	11	23	6	382	1,580	0	0	1	1
4:30 PM	0	6	96	39	0	13	67	6	0	48	26	14	0	15	21	21	372	1,653	1	3	2	1
4:45 PM	0	7	117	36	0	18	91	5	0	66	12	10	0	18	16	11	407	1,696	0	0	4	2
5:00 PM	0	11	103	53	0	23	97	6	0	48	19	14	0	15	18	12	419	1,697	1	0	3	0
5:15 PM	0	1	120	52	0	15	105	7	0	61	17	19	0	10	33	15	455		0	0	3	0
5:30 PM	0	6	120	56	0	22	80	4	0	59	16	16	0	7	18	11	415		0	0	3	0
5:45 PM	0	3	125	58	0	24	70	7	0	41	10	16	0	16	28	10	408		0	2	3	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4
Lights	0	21	459	219	0	84	346	24	0	208	61	63	0	48	97	47	1,677
Mediums	0	0	6	0	0	0	5	0	0	1	1	2	0	0	0	1	16
Total	0	21	468	219	0	84	352	24	0	209	62	65	0	48	97	48	1,697

All Traffic Data Services Inc.
(303) 216-2439
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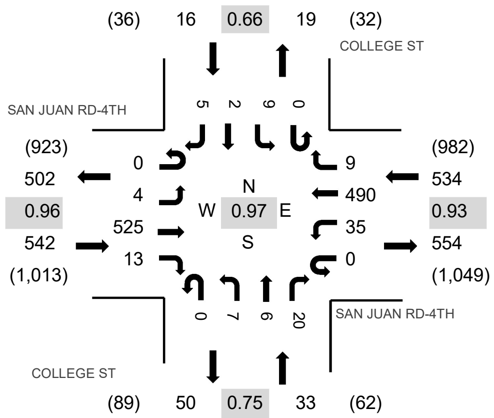
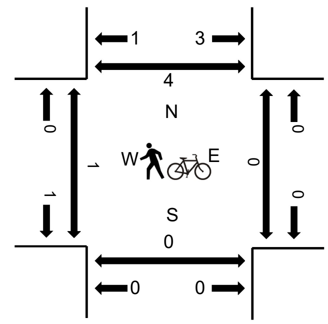
Location: 6 COLLEGE ST & SAN JUAN RD-4TH PM
Date: Wednesday, September 12, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	SAN JUAN RD-4TH Eastbound				SAN JUAN RD-4TH Westbound				COLLEGE ST Northbound				COLLEGE ST Southbound						Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	Rolling Hour	West	East	South	North
4:00 PM	0	1	114	1	0	7	94	0	0	1	1	3	0	3	0	0	225	996	2	1	0	2
4:15 PM	0	0	101	1	0	6	121	2	0	1	0	6	0	3	2	0	243	1,055	1	0	0	1
4:30 PM	0	2	116	0	0	10	96	2	0	0	0	7	0	5	3	0	241	1,101	3	0	2	2
4:45 PM	0	1	131	2	0	12	121	5	0	2	2	7	0	4	0	0	287	1,125	0	0	0	2
5:00 PM	0	1	128	0	0	9	134	1	0	0	1	6	0	1	1	2	284	1,097	1	0	0	0
5:15 PM	0	2	136	4	0	8	127	2	0	3	0	3	0	2	1	1	289		0	0	0	1
5:30 PM	0	0	130	7	0	6	108	1	0	2	3	4	0	2	0	2	265		0	0	0	1
5:45 PM	0	2	129	4	0	5	102	3	0	4	0	6	0	2	0	2	259		0	0	1	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
Lights	0	4	515	13	0	35	480	9	0	7	6	19	0	9	2	5	1,104
Mediums	0	0	8	0	0	0	9	0	0	0	0	1	0	0	0	0	18
Total	0	4	525	13	0	35	490	9	0	7	6	20	0	9	2	5	1,125

All Traffic Data Services Inc.

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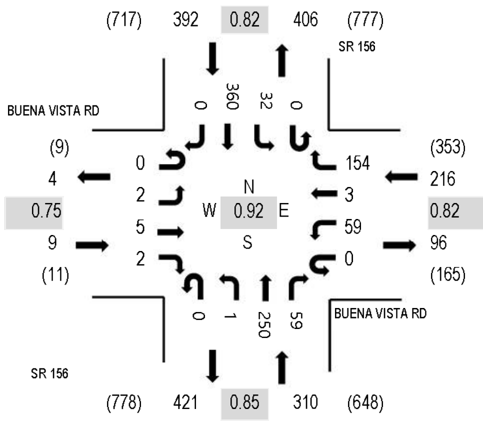
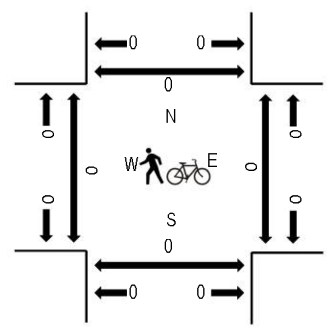
Location: 1 SR 156 & BUENA VISTA RD AM
Date and Start Time: Tuesday, February 28, 2017
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	SR 156 Northbound U-Turn	Left	Thru	Right	SR 156 Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
7:00 AM	0	0	1	0	0	16	0	34	0	0	52	6	0	8	89	0	206	927	0	0	0	0
7:15 AM	0	0	1	2	0	15	0	51	0	0	55	14	0	6	80	0	224	922	0	0	0	0
7:30 AM	0	2	1	0	0	11	2	40	0	0	85	15	0	8	82	0	246	905	0	0	0	0
7:45 AM	0	0	2	0	0	17	1	29	0	1	58	24	0	10	109	0	251	845	0	0	0	0
8:00 AM	0	0	0	0	0	11	2	26	0	0	67	10	0	6	79	0	201	802	0	0	0	0
8:15 AM	0	0	0	0	0	16	0	20	0	0	70	11	0	8	82	0	207		0	0	0	0
8:30 AM	0	0	0	0	0	8	1	16	0	2	75	15	0	2	67	0	186		0	0	0	0
8:45 AM	0	1	1	0	0	18	0	19	0	0	77	11	0	5	76	0	208		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	28	1	0	0	66	0	96
Lights	0	2	5	2	0	54	2	153	0	0	210	57	0	30	272	0	787
Mediums	0	0	0	0	0	5	1	0	0	1	12	1	0	2	22	0	44
Total	0	2	5	2	0	59	3	154	0	1	250	59	0	32	360	0	927

All Traffic Data Services Inc.
(303) 216-2439
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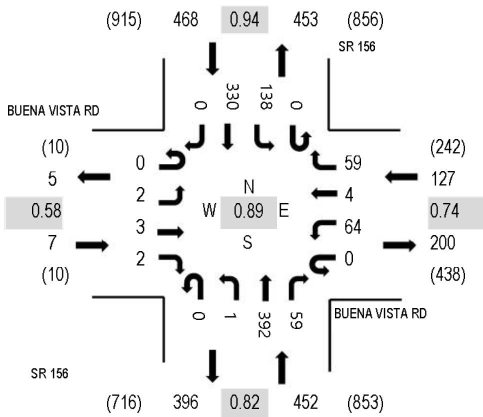
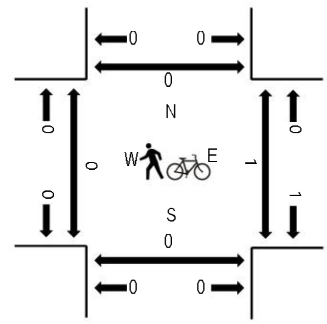
Location: 1 SR 156 & BUENA VISTA RD PM
Date and Start Time: Tuesday, February 28, 2017
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	BUENA VISTA RD Eastbound U-Turn	Left	Thru	Right	BUENA VISTA RD Westbound U-Turn	Left	Thru	Right	SR 156 Northbound U-Turn	Left	Thru	Right	SR 156 Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
4:00 PM	0	0	1	0	0	15	0	13	0	1	92	14	0	30	92	0	258	1,054	0	1	0	0
4:15 PM	0	0	1	2	0	17	1	17	0	0	83	18	0	29	86	0	254	1,038	0	0	0	0
4:30 PM	0	2	0	0	0	26	3	16	0	0	124	13	0	39	72	0	295	1,050	0	0	0	0
4:45 PM	0	0	1	0	0	6	0	13	0	0	93	14	0	40	80	0	247	987	0	0	0	0
5:00 PM	0	0	0	1	0	16	1	7	0	1	88	11	0	60	57	0	242	966	0	0	0	0
5:15 PM	0	0	0	1	0	19	0	26	0	0	82	12	0	43	83	0	266		0	0	0	0
5:30 PM	0	0	0	1	0	11	1	9	0	1	93	13	0	43	60	0	232		0	0	0	0
5:45 PM	0	0	0	0	0	12	0	13	0	1	85	14	0	42	59	0	226		0	0	0	0

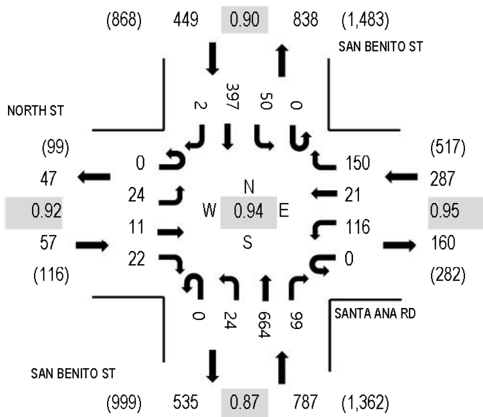
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	3	0	1	0	0	32	0	0	1	39	0	76
Lights	0	2	3	2	0	58	4	58	0	1	338	57	0	137	280	0	940
Mediums	0	0	0	0	0	3	0	0	0	0	22	2	0	0	11	0	38
Total	0	2	3	2	0	64	4	59	0	1	392	59	0	138	330	0	1,054

Location: 1 SAN BENITO ST & SANTA ANA RD AM
Date and Start Time: Wednesday, April 5, 2017
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

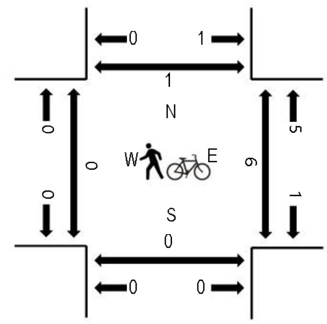
(303) 216-2439
www.alltrafficdata.net

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	NORTH ST Eastbound U-Turn	Left	Thru	Right	SANTA ANA RD Westbound U-Turn	Left	Thru	Right	SAN BENITO ST Northbound U-Turn	Left	Thru	Right	SAN BENITO ST Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
7:00 AM	0	5	5	4	0	11	1	20	0	6	104	8	0	15	81	3	263	1,424	1	1	0	0
7:15 AM	0	6	4	6	0	20	10	28	0	2	132	10	0	13	95	0	326	1,513	1	0	1	0
7:30 AM	0	7	2	7	0	28	5	38	0	5	202	19	0	7	94	1	415	1,580	0	0	0	0
7:45 AM	0	8	1	4	0	28	6	38	0	6	190	17	0	13	109	0	420	1,511	0	4	0	0
8:00 AM	0	5	4	4	0	19	6	44	0	8	134	28	0	16	84	0	352	1,439	0	1	0	1
8:15 AM	0	4	4	7	0	41	4	30	0	5	138	35	0	14	110	1	393		0	1	0	0
8:30 AM	0	3	7	1	0	38	7	32	0	4	135	18	0	13	87	1	346		0	0	0	0
8:45 AM	0	10	5	3	0	22	6	35	0	8	135	13	0	11	96	4	348		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	5	0	0	0	0	0	1	2	0	8
Lights	0	24	11	22	0	114	19	144	0	24	652	99	0	46	390	2	1,547
Mediums	0	0	0	0	0	2	2	1	0	0	12	0	0	3	5	0	25
Total	0	24	11	22	0	116	21	150	0	24	664	99	0	50	397	2	1,580

(303) 216-2439
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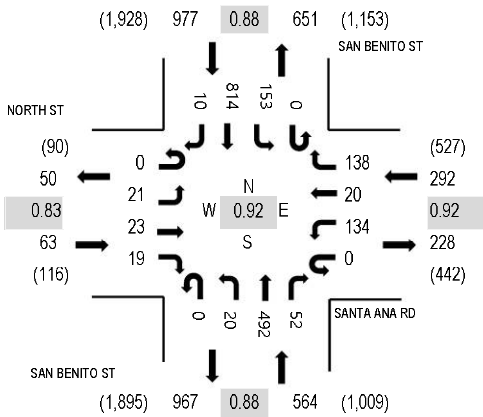
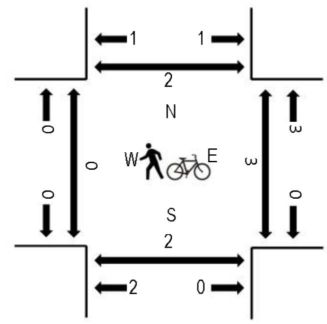
Location: 1 SAN BENITO ST & SANTA ANA RD PM
Date and Start Time: Wednesday, April 5, 2017
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	NORTH ST Eastbound U-Turn	Left	Thru	Right	SANTA ANA RD Westbound U-Turn	Left	Thru	Right	SAN BENITO ST Northbound U-Turn	Left	Thru	Right	SAN BENITO ST Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
4:00 PM	0	8	4	3	0	36	5	37	0	5	133	13	0	37	214	3	498	1,896	0	1	0	1
4:15 PM	0	2	5	4	0	35	2	42	0	7	113	13	0	30	184	3	440	1,891	0	0	2	1
4:30 PM	0	7	8	5	0	28	7	26	0	4	141	15	0	46	224	2	513	1,850	0	1	0	0
4:45 PM	0	4	6	7	0	35	6	33	0	4	105	11	0	40	192	2	445	1,781	0	0	0	0
5:00 PM	0	7	9	2	0	30	4	23	0	4	104	19	0	39	248	4	493	1,684	0	1	0	0
5:15 PM	0	2	4	2	0	31	6	27	0	2	87	10	0	39	188	1	399		1	1	3	0
5:30 PM	0	4	4	4	0	31	4	24	0	3	111	11	0	38	208	2	444		2	0	6	0
5:45 PM	0	4	5	6	0	21	4	30	0	6	79	9	0	27	157	0	348		1	0	0	0

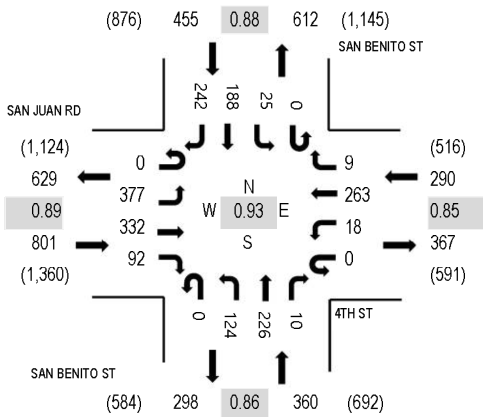
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
Lights	0	19	23	19	0	134	19	137	0	20	479	52	0	148	782	8	1,840
Mediums	0	2	0	0	0	0	1	1	0	0	11	0	0	5	32	2	54
Total	0	21	23	19	0	134	20	138	0	20	492	52	0	153	814	10	1,896

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

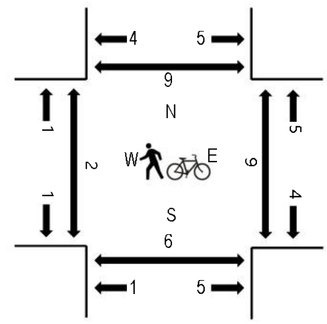
Location: 6 SAN BENITO ST & 4TH ST AM
Date and Start Time: Wednesday, April 5, 2017
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	SAN JUAN RD Eastbound U-Turn	Left	Thru	Right	4TH ST Westbound U-Turn	Left	Thru	Right	SAN BENITO ST Northbound U-Turn	Left	Thru	Right	SAN BENITO ST Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
7:00 AM	0	64	32	9	0	0	45	3	0	18	48	4	0	3	34	40	300	1,642	1	2	2	0
7:15 AM	0	75	41	15	0	1	43	1	0	20	48	2	0	5	50	53	354	1,774	2	0	3	0
7:30 AM	0	105	65	15	0	4	63	1	0	35	70	0	0	7	46	63	474	1,906	0	1	0	3
7:45 AM	0	104	94	26	0	2	70	3	0	38	58	1	0	7	44	67	514	1,869	2	4	0	2
8:00 AM	0	73	86	22	0	4	78	3	0	26	45	7	0	4	40	44	432	1,802	0	2	1	1
8:15 AM	0	95	87	29	0	8	52	2	0	25	53	2	0	7	58	68	486		0	2	2	1
8:30 AM	0	80	48	21	0	5	60	1	0	19	68	4	0	3	64	64	437		0	0	0	0
8:45 AM	0	77	65	32	0	5	54	8	0	30	60	11	0	6	50	49	447		0	1	0	1

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	1	1	0	0	0	4	0	0	1	0	0	0	0	0	0	7
Lights	0	370	321	88	0	16	246	8	0	119	222	9	0	24	186	238	1,847
Mediums	0	6	10	4	0	2	13	1	0	4	4	1	0	1	2	4	52
Total	0	377	332	92	0	18	263	9	0	124	226	10	0	25	188	242	1,906

All Traffic Data Services Inc.
(303) 216-2439
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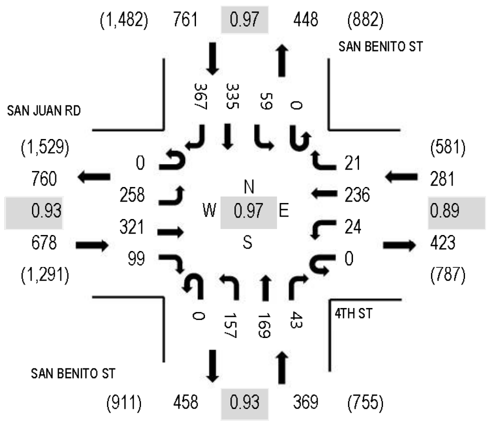
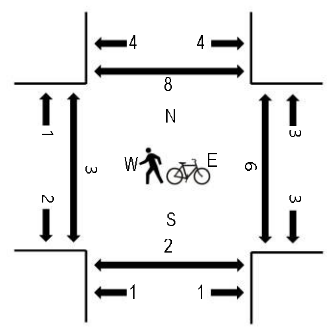
Location: 6 SAN BENITO ST & 4TH ST PM
Date and Start Time: Wednesday, April 5, 2017
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	SAN JUAN RD Eastbound U-Turn	Left	Thru	Right	4TH ST Westbound U-Turn	Left	Thru	Right	SAN BENITO ST Northbound U-Turn	Left	Thru	Right	SAN BENITO ST Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrain Crossings West	East	South	North
4:00 PM	0	61	73	24	0	5	69	5	0	25	54	9	0	16	92	92	525	2,059	2	1	0	1
4:15 PM	0	62	61	22	0	4	62	6	0	39	61	7	0	8	77	77	486	2,070	1	8	2	0
4:30 PM	0	81	84	17	0	2	57	9	0	33	53	10	0	23	75	95	539	2,089	0	4	0	2
4:45 PM	0	57	77	30	0	7	56	6	0	28	44	17	0	12	85	90	509	2,064	0	1	2	1
5:00 PM	0	68	73	26	0	4	63	4	0	49	48	11	0	11	87	92	536	2,050	1	0	0	0
5:15 PM	0	52	87	26	0	11	60	2	0	47	24	5	0	13	88	90	505		1	0	0	0
5:30 PM	0	47	69	35	0	3	61	3	0	44	45	9	0	13	88	97	514		0	1	0	1
5:45 PM	0	49	83	27	0	4	74	4	0	47	37	9	0	7	72	82	495		1	6	2	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	4
Lights	0	254	311	99	0	23	232	20	0	157	167	40	0	58	331	363	2,055
Mediums	0	3	8	0	0	1	3	1	0	0	2	3	0	1	4	4	30
Total	0	258	321	99	0	24	236	21	0	157	169	43	0	59	335	367	2,089

Appendix B
Volume Summary

1 1116
Intersection Name: SR 156 and Buena Vista Road
Peak Hour: AM
Jurisdiction: Caltrans

Date of Analysis: 02/11/19
Count Date: 02/28/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	0	360	32	392	154	3	59	216	59	250	1	310	2	5	2	9	927
Peak 15-Minute Volumes	0	109	10	119	29	1	17	47	24	58	1	83	0	2	0	2	251
Peak 15-Minute Volumes x 4	0	436	40	476	116	4	68	188	96	232	4	332	0	8	0	8	1,004
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**0**	**436**	**40**	**476**	**116**	**4**	**68**	**188**	**96**	**232**	**4**	**332**	**0**	**8**	**0**	**8**	**1,004**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	0	26	26	38	0	0	38	0	0	0	0	64
1001 Fourth Street Residential Development	0	2	2	4	8	0	0	8	0	8	0	8	0	0	0	0	20
Approved Project Trips	0	1	37	38	93	0	1	94	0	3	0	3	0	0	0	0	135
Total Approved Project Trips (b)	0	3	39	42	101	0	27	128	38	11	0	49	0	0	0	0	219
Woodle Project Trips - No North Street Ext (c)	0	0	9	9	27	0	0	27	0	0	0	0	0	0	0	0	36
Existing Plus Project Conditions (a+c)	**0**	**436**	**49**	**485**	**143**	**4**	**68**	**215**	**96**	**232**	**4**	**332**	**0**	**8**	**0**	**8**	**1,040**
Background Conditions (a+b)	**0**	**439**	**79**	**518**	**217**	**4**	**95**	**316**	**134**	**243**	**4**	**381**	**0**	**8**	**0**	**8**	**1,223**
Woodle Project Trips - With North Street Ext (d)	0	0	9	9	27	0	0	27	0	0	0	0	0	0	0	0	36
Background Plus Project Conditions (a+b+d)	**0**	**439**	**88**	**527**	**244**	**4**	**95**	**343**	**134**	**243**	**4**	**381**	**0**	**8**	**0**	**8**	**1,259**
San Juan Oaks	0	9	0	9	0	0	0	0	0	10	0	10	0	0	0	0	19
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	0	37	37	16	0	0	16	0	0	0	0	53
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	432	35	467	66	0	14	80	5	204	0	209	0	0	0	0	756
Total Pending Project Trips (e)	0	441	35	476	66	0	51	117	21	214	0	235	0	0	0	0	828
Cumulative No Project Conditions (a+b+e)	**0**	**880**	**114**	**994**	**283**	**4**	**146**	**433**	**155**	**457**	**4**	**616**	**0**	**8**	**0**	**8**	**2,051**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**880**	**123**	**1,003**	**310**	**4**	**146**	**460**	**155**	**457**	**4**	**616**	**0**	**8**	**0**	**8**	**2,087**

2 3344
Intersection Name: Miller Road and Buena Vista Road
Peak Hour: AM
Jurisdiction: City

Date of Analysis: 02/11/19
Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	3	3	2	8	0	135	29	164	56	2	27	85	16	154	1	171	428
Peak 15-Minute Volumes	1	1	1	3	0	38	6	44	21	0	5	26	4	62	0	66	139
Peak 15-Minute Volumes x 4	4	4	4	12	0	152	24	176	84	0	20	104	16	248	0	264	556
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**3**	**3**	**2**	**8**	**0**	**135**	**29**	**164**	**56**	**2**	**27**	**85**	**16**	**154**	**1**	**171**	**428**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	26	0	26	0	0	0	0	0	38	0	38	64
1001 Fourth Street Residential Development	0	0	0	0	0	0	0	0	0	0	8	8	2	0	0	2	10
Approved Project Trips	5	22	18	45	6	71	3	80	1	7	9	17	23	39	2	64	206
Total Approved Project Trips (b)	5	22	18	45	6	97	3	106	1	7	17	25	25	77	2	104	280
Woodle Project Trips - No North Street Ext (c)	8	1	0	9	0	19	2	21	1	0	0	1	0	7	3	10	41
Existing Plus Project Conditions (a+c)	**11**	**4**	**2**	**17**	**0**	**154**	**31**	**185**	**57**	**2**	**27**	**86**	**16**	**161**	**4**	**181**	**469**
Background Conditions (a+b)	**8**	**25**	**20**	**53**	**6**	**232**	**32**	**270**	**57**	**9**	**44**	**110**	**41**	**231**	**3**	**275**	**708**
Woodle Project Trips - With North Street Ext (d)	8	1	0	9	0	19	2	21	1	0	0	1	0	7	3	10	41
Background Plus Project Conditions (a+b+d)	**16**	**26**	**20**	**62**	**6**	**251**	**34**	**291**	**58**	**9**	**44**	**111**	**41**	**238**	**6**	**285**	**749**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	37	0	37	0	0	0	0	0	16	0	16	53
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	63	0	63	0	0	6	6	4	51	0	55	124
Total Pending Project Trips (e)	0	0	0	0	0	100	0	100	0	0	6	6	4	67	0	71	177
Cumulative No Project Conditions (a+b+e)	**8**	**25**	**20**	**53**	**6**	**332**	**32**	**370**	**57**	**9**	**50**	**116**	**45**	**298**	**3**	**346**	**885**
Cumulative Plus Project Conditions (a+b+d+e)	**16**	**26**	**20**	**62**	**6**	**351**	**34**	**391**	**58**	**9**	**50**	**117**	**45**	**305**	**6**	**356**	**926**

3 — 3234

Intersection Name: Westside Boulevard and Buena Vista Road
Peak Hour: AM
Jurisdiction: City

Date of Analysis: 02/11/19
Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	3	3	0	6	1	174	4	179	10	4	108	122	92	183	4	279	586
Peak 15-Minute Volumes	1	0	0	1	0	77	2	79	5	2	31	38	30	56	1	87	205
Peak 15-Minute Volumes x 4	4	0	0	4	0	308	8	316	20	8	124	152	120	224	4	348	820
Count Adjustment	0	0	0	0	0	-19	0	-19	0	0	19	19	94	-94	0	0	0
Existing Conditions (a)	**3**	**3**	**0**	**6**	**1**	**155**	**4**	**160**	**10**	**4**	**127**	**141**	**186**	**89**	**4**	**279**	**586**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	53	4	57	10	0	-27	-17	-23	61	0	38	78
1001 Fourth Street Residential Development	0	0	0	0	0	0	1	1	5	0	0	5	0	0	0	0	6
Approved Project Trips	0	0	0	0	0	56	19	75	7	0	23	30	14	48	0	62	167
Total Approved Project Trips (b)	0	0	0	0	0	109	24	133	22	0	-4	18	-9	109	0	100	251
Woodle Project Trips - No North Street Ext (c)	0	8	1	9	0	1	0	1	0	3	6	9	19	2	0	21	40
Existing Plus Project Conditions (a+c)	**3**	**11**	**1**	**15**	**1**	**156**	**4**	**161**	**10**	**7**	**133**	**150**	**205**	**91**	**4**	**300**	**626**
Background Conditions (a+b)	**3**	**3**	**0**	**6**	**1**	**264**	**28**	**293**	**32**	**4**	**123**	**159**	**177**	**198**	**4**	**379**	**837**
Woodle Project Trips - With North Street Ext (d)	0	4	5	9	2	4	0	6	0	1	3	4	9	13	0	22	41
Background Plus Project Conditions (a+b+d)	**3**	**7**	**5**	**15**	**3**	**268**	**28**	**299**	**32**	**5**	**126**	**163**	**186**	**211**	**4**	**401**	**878**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	37	1	38	1	0	0	1	0	16	0	16	55
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	52	0	52	0	0	11	11	4	47	0	51	114
Total Pending Project Trips (e)	0	0	0	0	0	89	1	90	1	0	11	12	4	63	0	67	169
Cumulative No Project Conditions (a+b+e)	**3**	**3**	**0**	**6**	**1**	**353**	**29**	**383**	**33**	**4**	**134**	**171**	**181**	**261**	**4**	**446**	**1,006**
Cumulative Plus Project Conditions (a+b+d+e)	**3**	**7**	**5**	**15**	**3**	**357**	**29**	**389**	**33**	**5**	**137**	**175**	**190**	**274**	**4**	**468**	**1,047**

4 — 3242

Intersection Name: Locust Avenue and Buena Vista Road
Peak Hour: AM
Jurisdiction: City

Date of Analysis: 02/11/19
Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	0	0	0	0	0	0	0	0	0	0	144	144	191	0	0	191	335
Peak 15-Minute Volumes	0	0	0	0	0	0	0	0	0	0	69	69	60	0	0	60	129
Peak 15-Minute Volumes x 4	0	0	0	0	0	0	0	0	0	0	276	276	240	0	0	240	516
Count Adjustment	0	0	0	0	0	0	0	0	0	0	-19	-19	-94	0	0	-94	-113
Existing Conditions (a)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**125**	**125**	**97**	**0**	**0**	**97**	**222**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	129	0	129	0	0	-72	-72	-96	167	0	71	128
1001 Fourth Street Residential Development	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5	6
Approved Project Trips	0	0	0	0	0	78	12	90	4	0	0	4	0	56	0	56	150
Total Approved Project Trips (b)	0	0	0	0	0	208	12	220	4	0	-72	-68	-96	228	0	132	284
Woodle Project Trips - No North Street Ext (c)	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0	3	4
Existing Plus Project Conditions (a+c)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**126**	**126**	**100**	**0**	**0**	**100**	**226**
Background Conditions (a+b)	**0**	**0**	**0**	**0**	**0**	**208**	**12**	**220**	**4**	**0**	**53**	**57**	**1**	**228**	**0**	**229**	**506**
Woodle Project Trips - With North Street Ext (d)	0	0	0	0	0	5	0	5	0	0	1	1	3	15	0	18	24
Background Plus Project Conditions (a+b+d)	**0**	**0**	**0**	**0**	**0**	**213**	**12**	**225**	**4**	**0**	**54**	**58**	**4**	**243**	**0**	**247**	**530**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	38	0	38	0	0	0	0	0	19	0	19	57
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	44	0	44	0	0	0	0	0	55	0	55	99
Total Pending Project Trips (e)	0	0	0	0	0	82	0	82	0	0	0	0	0	74	0	74	156
Cumulative No Project Conditions (a+b+e)	**0**	**0**	**0**	**0**	**0**	**290**	**12**	**302**	**4**	**0**	**53**	**57**	**1**	**302**	**0**	**303**	**662**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**0**	**0**	**0**	**0**	**295**	**12**	**307**	**4**	**0**	**54**	**58**	**4**	**317**	**0**	**321**	**686**

5	5456
Intersection Name:	San Felipe Road/San Benito Street and North Street/Santa Ana Road
Peak Hour:	AM — Date of Analysis: 02/11/19
Jurisdiction:	City — Count Date: 04/05/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	2	397	50	449	150	21	116	287	99	664	24	787	22	11	24	57	1,580
Peak 15-Minute Volumes	0	109	13	122	38	6	28	72	17	190	6	213	4	1	8	13	420
Peak 15-Minute Volumes x 4	0	436	52	488	152	24	112	288	68	760	24	852	16	4	32	52	1,680
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**2**	**397**	**50**	**449**	**150**	**21**	**116**	**287**	**99**	**664**	**24**	**787**	**22**	**11**	**24**	**57**	**1,580**
Existing Trips Reassigned (due to North St Extension)	15	-15	0	0	0	51	-51	0	-72	-24	63	-33	71	72	24	167	134
1001 Fourth Street Residential Development	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	5	6
Approved Project Trips	19	12	1	32	2	8	0	10	0	36	18	54	46	11	57	114	210
Total Approved Project Trips (b)	35	-3	1	33	2	59	-51	10	-72	12	81	21	117	83	86	286	350
Woodle Project Trips - No North Street Ext (c)	0	2	0	2	0	0	1	1	3	6	0	9	0	0	0	0	12
Existing Plus Project Conditions (a+c)	**2**	**399**	**50**	**451**	**150**	**21**	**117**	**288**	**102**	**670**	**24**	**796**	**22**	**11**	**24**	**57**	**1,592**
Background Conditions (a+b)	**37**	**394**	**51**	**482**	**152**	**80**	**65**	**297**	**27**	**676**	**105**	**808**	**139**	**94**	**110**	**343**	**1,930**
Woodle Project Trips - With North Street Ext (d)	2	0	0	2	0	1	0	1	0	0	2	2	6	3	6	15	20
Background Plus Project Conditions (a+b+d)	**39**	**394**	**51**	**484**	**152**	**81**	**65**	**298**	**27**	**676**	**107**	**810**	**145**	**97**	**116**	**358**	**1,950**
San Juan Oaks	0	24	0	24	0	0	0	0	0	26	0	26	0	0	0	0	50
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	38	94	0	132	0	0	0	0	0	66	0	66	0	0	19	19	217
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Pending Project Trips	23	206	1	230	2	17	1	20	0	243	5	248	14	6	36	56	554
Total Pending Project Trips (e)	61	324	1	386	2	17	1	20	0	336	5	341	14	6	55	75	822
Cumulative No Project Conditions (a+b+e)	**98**	**718**	**52**	**868**	**154**	**97**	**66**	**317**	**27**	**1,012**	**110**	**1,149**	**153**	**100**	**165**	**418**	**2,752**
Cumulative Plus Project Conditions (a+b+d+e)	**100**	**718**	**52**	**870**	**154**	**98**	**66**	**318**	**27**	**1,012**	**112**	**1,151**	**159**	**103**	**171**	**433**	**2,772**

6	124
Intersection Name:	Westside Boulevard and Central Avenue
Peak Hour:	AM — Date of Analysis: 02/11/19
Jurisdiction:	City — Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	9	97	14	120	17	75	159	251	39	74	17	130	36	61	6	103	604
Peak 15-Minute Volumes	3	39	3	45	7	24	43	74	13	17	3	33	11	19	2	32	184
Peak 15-Minute Volumes x 4	12	156	12	180	28	96	172	296	52	68	12	132	44	76	8	128	736
Count Adjustment	0	94	0	94	-10	-47	-150	-207	-25	19	0	-6	0	-41	0	-41	-160
Existing Conditions (a)	**9**	**191**	**14**	**214**	**7**	**28**	**9**	**44**	**14**	**93**	**17**	**124**	**36**	**20**	**6**	**62**	**444**
Existing Trips Reassigned (due to North St Extension)	0	-19	0	-19	0	0	0	0	0	-17	0	-17	0	0	0	0	-36
1001 Fourth Street Residential Development	0	1	0	1	0	0	0	0	0	5	0	5	0	0	0	0	6
Approved Project Trips	0	33	0	33	0	1	0	1	0	31	1	32	2	3	0	5	71
Total Approved Project Trips (b)	0	15	0	15	0	1	0	1	0	19	1	20	2	3	0	5	41
Woodle Project Trips - No North Street Ext (c)	0	27	0	27	0	0	0	0	0	9	0	9	0	0	0	0	36
Existing Plus Project Conditions (a+c)	**9**	**218**	**14**	**241**	**7**	**28**	**9**	**44**	**14**	**102**	**17**	**133**	**36**	**20**	**6**	**62**	**480**
Background Conditions (a+b)	**9**	**206**	**14**	**229**	**7**	**29**	**9**	**45**	**14**	**112**	**18**	**144**	**38**	**23**	**6**	**67**	**485**
Woodle Project Trips - With North Street Ext (d)	0	13	0	13	0	0	0	0	0	4	0	4	0	0	0	0	17
Background Plus Project Conditions (a+b+d)	**9**	**219**	**14**	**242**	**7**	**29**	**9**	**45**	**14**	**116**	**18**	**148**	**38**	**23**	**6**	**67**	**502**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	4	0	4	0	0	0	0	0	11	0	11	0	0	0	0	15
Total Pending Project Trips (e)	0	5	0	5	0	0	0	0	0	12	0	12	0	0	0	0	17
Cumulative No Project Conditions (a+b+e)	**9**	**211**	**14**	**234**	**7**	**29**	**9**	**45**	**14**	**124**	**18**	**156**	**38**	**23**	**6**	**67**	**502**
Cumulative Plus Project Conditions (a+b+d+e)	**9**	**224**	**14**	**247**	**7**	**29**	**9**	**45**	**14**	**128**	**18**	**160**	**38**	**23**	**6**	**67**	**519**

7 | 3250
Intersection Name: Westside Boulevard and San Juan Road/Fourth Street
Peak Hour: AM
Jurisdiction: City
Date of Analysis: 02/11/19
Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	107	89	45	241	25	182	14	221	40	108	249	397	195	291	20	506	1,365
Peak 15-Minute Volumes	30	28	17	75	10	34	1	45	13	29	60	102	55	89	5	149	371
Peak 15-Minute Volumes x 4	120	112	68	300	40	136	4	180	52	116	240	408	220	356	20	596	1,484
Count Adjustment	-87	-40	94	-33	29	197	23	249	52	-25	-27	0	-78	119	0	41	257
Existing Conditions (a)	**20**	**49**	**139**	**208**	**54**	**379**	**37**	**470**	**92**	**83**	**222**	**397**	**117**	**410**	**20**	**547**	**1,622**
Existing Trips Reassigned (due to North St Extension)	0	4	-23	-19	-27	-26	-4	-57	-10	10	0	0	0	-38	0	-38	-114
1001 Fourth Street Residential Development	0	1	0	1	0	1	1	2	0	0	0	0	0	5	5	10	13
Approved Project Trips	15	15	5	35	4	76	8	88	14	21	6	41	7	103	6	116	280
Total Approved Project Trips (b)	15	20	-18	17	-23	51	5	33	4	31	6	41	7	70	11	88	179
Woodle Project Trips - No North Street Ext (c)	3	4	21	28	7	0	0	7	0	1	0	1	0	0	1	1	37
Existing Plus Project Conditions (a+c)	**23**	**53**	**160**	**236**	**61**	**379**	**37**	**477**	**92**	**84**	**222**	**398**	**117**	**410**	**21**	**548**	**1,659**
Background Conditions (a+b)	**35**	**69**	**121**	**225**	**31**	**430**	**42**	**503**	**96**	**114**	**228**	**438**	**124**	**480**	**31**	**635**	**1,801**
Woodle Project Trips - With North Street Ext (d)	3	4	6	13	2	0	0	2	0	1	0	1	0	0	1	1	17
Background Plus Project Conditions (a+b+d)	**38**	**73**	**127**	**238**	**33**	**430**	**42**	**505**	**96**	**115**	**228**	**439**	**124**	**480**	**32**	**636**	**1,818**
San Juan Oaks	0	0	0	0	0	49	0	49	0	0	0	0	0	52	0	52	101
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	1	0	0	1	0	42	0	42	0	0	0	0	0	24	1	25	68
Bluffs at Ridgemark	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Churchill	0	0	0	0	0	11	0	11	0	0	0	0	0	3	0	3	14
Pending Project Trips	0	4	0	4	0	34	0	34	0	11	0	11	0	54	0	54	103
Total Pending Project Trips (e)	1	4	0	5	0	137	0	137	0	11	0	11	0	133	1	134	287
Cumulative No Project Conditions (a+b+e)	**36**	**73**	**121**	**230**	**31**	**567**	**42**	**640**	**96**	**125**	**228**	**449**	**124**	**613**	**32**	**769**	**2,088**
Cumulative Plus Project Conditions (a+b+d+e)	**39**	**77**	**127**	**243**	**33**	**567**	**42**	**642**	**96**	**126**	**228**	**450**	**124**	**613**	**33**	**770**	**2,105**

8 | 3107
Intersection Name: College Street and San Juan Road/Fourth Street
Peak Hour: AM
Jurisdiction: City
Date of Analysis: 02/11/19
Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	0	4	5	9	4	191	18	213	52	1	9	62	4	49	0	53	337
Peak 15-Minute Volumes	0	2	0	2	2	84	2	88	6	0	1	7	1	44	0	45	142
Peak 15-Minute Volumes x 4	0	8	0	8	8	336	8	352	24	0	4	28	4	176	0	180	568
Count Adjustment	0	0	0	0	0	367	0	367	0	0	0	0	0	590	0	590	957
Existing Conditions (a)	**0**	**4**	**5**	**9**	**4**	**558**	**18**	**580**	**52**	**1**	**9**	**62**	**4**	**639**	**0**	**643**	**1,294**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	-57	0	-57	0	0	0	0	0	-71	0	-71	-128
1001 Fourth Street Residential Development	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	7
Approved Project Trips	0	5	3	8	1	87	0	88	0	2	1	3	0	121	0	121	220
Total Approved Project Trips (b)	0	5	3	8	1	32	0	33	0	2	1	3	0	55	0	55	99
Woodle Project Trips - No North Street Ext (c)	0	3	0	3	0	7	0	7	0	1	0	1	0	21	0	21	32
Existing Plus Project Conditions (a+c)	**0**	**7**	**5**	**12**	**4**	**565**	**18**	**587**	**52**	**2**	**9**	**63**	**4**	**660**	**0**	**664**	**1,326**
Background Conditions (a+b)	**0**	**9**	**8**	**17**	**5**	**590**	**18**	**613**	**52**	**3**	**10**	**65**	**4**	**694**	**0**	**698**	**1,393**
Woodle Project Trips - With North Street Ext (d)	0	3	0	3	0	2	0	2	0	1	0	1	0	6	0	6	12
Background Plus Project Conditions (a+b+d)	**0**	**12**	**8**	**20**	**5**	**592**	**18**	**615**	**52**	**4**	**10**	**66**	**4**	**700**	**0**	**704**	**1,405**
San Juan Oaks	0	0	0	0	0	49	0	49	0	0	0	0	0	52	0	52	101
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	7	7	4	42	0	46	0	0	0	0	0	24	0	24	77
Bluffs at Ridgemark	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Churchill	0	0	0	0	0	11	0	11	0	0	0	0	0	3	0	3	14
Pending Project Trips	0	0	0	0	0	33	0	33	0	0	1	1	0	53	0	53	87
Total Pending Project Trips (e)	0	0	7	7	4	136	0	140	0	0	1	1	0	132	0	132	280
Cumulative No Project Conditions (a+b+e)	**0**	**9**	**15**	**24**	**9**	**726**	**18**	**753**	**52**	**3**	**11**	**66**	**4**	**826**	**0**	**830**	**1,673**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**12**	**15**	**27**	**9**	**728**	**18**	**755**	**52**	**4**	**11**	**67**	**4**	**832**	**0**	**836**	**1,685**

9	8904
Intersection Name:	San Benito Street and San Juan Road/Fourth Street
Peak Hour:	AM
Jurisdiction:	City

Date of Analysis: 02/11/19
Count Date: 04/05/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	242	188	25	455	9	263	18	290	10	226	124	360	92	332	377	801	1,906
Peak 15-Minute Volumes	67	44	7	118	3	70	2	75	1	58	38	97	26	94	104	224	514
Peak 15-Minute Volumes x 4	268	176	28	472	12	280	8	300	4	232	152	388	104	376	416	896	2,056
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**242**	**188**	**25**	**455**	**9**	**263**	**18**	**290**	**10**	**226**	**124**	**360**	**92**	**332**	**377**	**801**	**1,906**
Existing Trips Reassigned (due to North St Extension)	-30	12	12	-6	14	-14	0	0	0	14	-14	0	-12	-12	-48	-72	-78
1001 Fourth Street Residential Development	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	7
Approved Project Trips	4	37	15	56	5	108	6	119	10	33	7	50	20	95	14	129	354
Total Approved Project Trips (b)	-26	49	27	50	19	96	6	121	10	47	-7	50	8	88	-34	62	283
Woodle Project Trips - No North Street Ext (c)	3	0	0	3	0	2	0	2	0	0	2	2	5	6	9	20	27
Existing Plus Project Conditions (a+c)	**245**	**188**	**25**	**458**	**9**	**265**	**18**	**292**	**10**	**226**	**126**	**362**	**97**	**338**	**386**	**821**	**1,933**
Background Conditions (a+b)	**216**	**237**	**52**	**505**	**28**	**359**	**24**	**411**	**20**	**273**	**117**	**410**	**100**	**420**	**343**	**863**	**2,189**
Woodle Project Trips - With North Street Ext (d)	0	3	3	6	1	1	0	2	0	1	1	2	3	3	0	6	16
Background Plus Project Conditions (a+b+d)	**216**	**240**	**55**	**511**	**29**	**360**	**24**	**413**	**20**	**274**	**118**	**412**	**103**	**423**	**343**	**869**	**2,205**
San Juan Oaks	24	0	0	24	0	24	0	24	0	0	0	0	0	26	26	52	100
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	44	50	0	94	0	2	0	2	0	38	0	38	0	4	28	32	166
Bluffs at Ridgemark	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Churchill	0	0	0	0	0	11	0	11	0	1	0	1	0	3	0	3	15
Pending Project Trips	20	197	3	220	1	8	0	9	0	219	4	223	11	14	28	53	505
Total Pending Project Trips (e)	88	247	3	338	1	46	0	47	0	258	4	262	11	47	82	140	787
Cumulative No Project Conditions (a+b+e)	**304**	**484**	**55**	**843**	**29**	**405**	**24**	**458**	**20**	**531**	**121**	**672**	**111**	**467**	**425**	**1,003**	**2,976**
Cumulative Plus Project Conditions (a+b+d+e)	**304**	**487**	**58**	**849**	**30**	**406**	**24**	**460**	**20**	**532**	**122**	**674**	**114**	**470**	**425**	**1,009**	**2,992**

1 — 1116
Intersection Name: SR 156 and Buena Vista Road
Peak Hour: PM — Date of Analysis: 02/11/19
Jurisdiction: Caltrans — Count Date: 02/28/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	0	330	138	468	59	4	64	127	59	392	1	452	2	3	2	7	1,054
Peak 15-Minute Volumes	0	72	39	111	16	3	26	45	13	124	0	137	0	0	2	2	295
Peak 15-Minute Volumes x 4	0	288	156	444	64	12	104	180	52	496	0	548	0	0	8	8	1,180
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**0**	**288**	**156**	**444**	**64**	**12**	**104**	**180**	**52**	**496**	**0**	**548**	**0**	**0**	**8**	**8**	**1,180**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	0	37	37	24	0	0	24	0	0	0	0	61
1001 Fourth Street Residential Development	0	8	8	16	5	0	0	5	0	5	0	5	0	0	0	0	26
Approved Project Trips	0	3	106	109	69	0	1	70	1	1	0	2	0	0	0	0	181
Total Approved Project Trips (b)	0	11	114	125	74	0	38	112	25	6	0	31	0	0	0	0	268
Woodle Project Trips - No North Street Ext (c)	0	0	31	31	18	0	0	18	0	0	0	0	0	0	0	0	49
Existing Plus Project Conditions (a+c)	**0**	**288**	**187**	**475**	**82**	**12**	**104**	**198**	**52**	**496**	**0**	**548**	**0**	**0**	**8**	**8**	**1,229**
Background Conditions (a+b)	**0**	**299**	**270**	**569**	**138**	**12**	**142**	**292**	**77**	**502**	**0**	**579**	**0**	**0**	**8**	**8**	**1,448**
Woodle Project Trips - With North Street Ext (d)	0	0	31	31	18	0	0	18	0	0	0	0	0	0	0	0	49
Background Plus Project Conditions (a+b+d)	**0**	**299**	**301**	**600**	**156**	**12**	**142**	**310**	**77**	**502**	**0**	**579**	**0**	**0**	**8**	**8**	**1,497**
San Juan Oaks	0	14	0	14	0	0	0	0	0	15	0	15	0	0	0	0	29
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	0	34	34	49	0	0	49	0	0	0	0	83
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	502	145	647	126	0	9	135	16	665	0	681	0	0	0	0	1,463
Total Pending Project Trips (e)	0	516	145	661	126	0	43	169	65	680	0	745	0	0	0	0	1,575
Cumulative No Project Conditions (a+b+e)	**0**	**815**	**415**	**1,230**	**264**	**12**	**185**	**461**	**142**	**1,182**	**0**	**1,324**	**0**	**0**	**8**	**8**	**3,023**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**815**	**446**	**1,261**	**282**	**12**	**185**	**479**	**142**	**1,182**	**0**	**1,324**	**0**	**0**	**8**	**8**	**3,072**

2 — 3344
Intersection Name: Miller Road and Buena Vista Road
Peak Hour: PM — Date of Analysis: 02/11/19
Jurisdiction: City — Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	3	3	0	6	0	88	18	106	28	2	12	42	70	150	2	222	376
Peak 15-Minute Volumes	1	1	0	2	0	20	3	23	7	1	3	11	20	47	0	67	103
Peak 15-Minute Volumes x 4	4	4	0	8	0	80	12	92	28	4	12	44	80	188	0	268	412
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**3**	**3**	**0**	**6**	**0**	**88**	**18**	**106**	**28**	**2**	**12**	**42**	**70**	**150**	**2**	**222**	**376**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	37	0	37	0	0	0	0	0	24	0	24	61
1001 Fourth Street Residential Development	0	0	0	0	0	0	0	0	0	0	5	5	8	0	0	8	13
Approved Project Trips	3	14	12	29	20	64	2	86	3	24	26	53	17	84	5	106	274
Total Approved Project Trips (b)	3	14	12	29	20	101	2	123	3	24	31	58	25	108	5	138	348
Woodle Project Trips - No North Street Ext (c)	6	1	0	7	0	13	1	14	2	1	0	3	0	22	9	31	55
Existing Plus Project Conditions (a+c)	**9**	**4**	**0**	**13**	**0**	**101**	**19**	**120**	**30**	**3**	**12**	**45**	**70**	**172**	**11**	**253**	**431**
Background Conditions (a+b)	**6**	**17**	**12**	**35**	**20**	**189**	**20**	**229**	**31**	**26**	**43**	**100**	**95**	**258**	**7**	**360**	**724**
Woodle Project Trips - With North Street Ext (d)	6	1	0	7	0	13	1	14	2	1	0	3	0	22	9	31	55
Background Plus Project Conditions (a+b+d)	**12**	**18**	**12**	**42**	**20**	**202**	**21**	**243**	**33**	**27**	**43**	**103**	**95**	**280**	**16**	**391**	**779**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	34	0	34	0	0	0	0	0	49	0	49	83
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	129	0	129	0	0	17	17	18	136	0	154	300
Total Pending Project Trips (e)	0	0	0	0	0	163	0	163	0	0	17	17	18	185	0	203	383
Cumulative No Project Conditions (a+b+e)	**6**	**17**	**12**	**35**	**20**	**352**	**20**	**392**	**31**	**26**	**60**	**117**	**113**	**443**	**7**	**563**	**1,107**
Cumulative Plus Project Conditions (a+b+d+e)	**12**	**18**	**12**	**42**	**20**	**365**	**21**	**406**	**33**	**27**	**60**	**120**	**113**	**465**	**16**	**594**	**1,162**

3 | 3234
Intersection Name: Westside Boulevard and Buena Vista Road
Peak Hour: PM — Date of Analysis: 02/11/19
Jurisdiction: City — Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	1	8	6	15	6	77	11	94	14	7	65	86	102	62	1	165	360
Peak 15-Minute Volumes	0	2	2	4	1	24	2	27	2	3	19	24	37	22	0	59	114
Peak 15-Minute Volumes x 4	0	8	8	16	4	96	8	108	8	12	76	96	148	88	0	236	456
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**1**	**8**	**6**	**15**	**6**	**77**	**11**	**94**	**14**	**7**	**65**	**86**	**102**	**62**	**1**	**165**	**360**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	54	21	75	17	0	-17	0	-24	48	0	24	99
1001 Fourth Street Residential Development	0	0	0	0	0	0	5	5	3	0	0	3	0	0	0	0	8
Approved Project Trips	0	0	0	0	0	66	13	79	22	0	24	46	29	71	0	100	225
Total Approved Project Trips (b)	0	0	0	0	0	120	39	159	42	0	7	49	5	119	0	124	332
Woodle Project Trips - No North Street Ext (c)	0	6	1	7	1	3	0	4	0	9	21	30	13	1	0	14	55
Existing Plus Project Conditions (a+c)	**1**	**14**	**7**	**22**	**7**	**80**	**11**	**98**	**14**	**16**	**86**	**116**	**115**	**63**	**1**	**179**	**415**
Background Conditions (a+b)	**1**	**8**	**6**	**15**	**6**	**197**	**50**	**253**	**56**	**7**	**72**	**135**	**107**	**181**	**1**	**289**	**692**
Woodle Project Trips - With North Street Ext (d)	0	3	4	7	6	14	0	20	0	4	10	14	6	8	0	14	55
Background Plus Project Conditions (a+b+d)	**1**	**11**	**10**	**22**	**12**	**211**	**50**	**273**	**56**	**11**	**82**	**149**	**113**	**189**	**1**	**303**	**747**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	34	2	36	2	0	0	2	0	49	0	49	87
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	122	0	122	0	0	7	7	12	124	0	136	265
Total Pending Project Trips (e)	0	0	0	0	0	156	2	158	2	0	7	9	12	173	0	185	352
Cumulative No Project Conditions (a+b+e)	**1**	**8**	**6**	**15**	**6**	**353**	**52**	**411**	**58**	**7**	**79**	**144**	**119**	**354**	**1**	**474**	**1,044**
Cumulative Plus Project Conditions (a+b+d+e)	**1**	**11**	**10**	**22**	**12**	**367**	**52**	**431**	**58**	**11**	**89**	**158**	**125**	**362**	**1**	**488**	**1,099**

4 | 3242
Intersection Name: Locust Avenue and Buena Vista Road
Peak Hour: PM — Date of Analysis: 02/11/19
Jurisdiction: City — Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	0	0	0	0	0	0	0	0	0	0	75	75	78	0	0	78	153
Peak 15-Minute Volumes	0	0	0	0	0	0	0	0	0	0	24	24	16	0	0	16	40
Peak 15-Minute Volumes x 4	0	0	0	0	0	0	0	0	0	0	96	96	64	0	0	64	160
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**75**	**75**	**78**	**0**	**0**	**78**	**153**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	113	0	113	0	0	-38	-38	-39	104	0	65	140
1001 Fourth Street Residential Development	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Approved Project Trips	0	0	0	0	0	81	8	89	13	0	0	13	0	96	0	96	198
Total Approved Project Trips (b)	0	0	0	0	0	199	8	207	13	0	-38	-25	-39	203	0	164	346
Woodle Project Trips - No North Street Ext (c)	0	0	0	0	0	0	0	0	0	0	4	4	2	0	0	2	6
Existing Plus Project Conditions (a+c)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**79**	**79**	**80**	**0**	**0**	**80**	**159**
Background Conditions (a+b)	**0**	**0**	**0**	**0**	**0**	**199**	**8**	**207**	**13**	**0**	**37**	**50**	**39**	**203**	**0**	**242**	**499**
Woodle Project Trips - With North Street Ext (d)	0	0	0	0	0	17	0	17	0	0	4	4	2	10	0	12	33
Background Plus Project Conditions (a+b+d)	**0**	**0**	**0**	**0**	**0**	**216**	**8**	**224**	**13**	**0**	**41**	**54**	**41**	**213**	**0**	**254**	**532**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	0	0	0	41	0	41	0	0	0	0	0	55	0	55	96
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	0	0	0	0	126	0	126	0	0	0	0	0	120	0	120	246
Total Pending Project Trips (e)	0	0	0	0	0	167	0	167	0	0	0	0	0	175	0	175	342
Cumulative No Project Conditions (a+b+e)	**0**	**0**	**0**	**0**	**0**	**366**	**8**	**374**	**13**	**0**	**37**	**50**	**39**	**378**	**0**	**417**	**841**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**0**	**0**	**0**	**0**	**383**	**8**	**391**	**13**	**0**	**41**	**54**	**41**	**388**	**0**	**429**	**874**

5 | 5456
Intersection Name: San Felipe Road/San Benito Street and North Street/Santa Ana Road
Peak Hour: PM | Date of Analysis: 02/11/19
Jurisdiction: City | Count Date: 04/05/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	10	814	153	977	138	20	134	292	52	492	20	564	19	23	21	63	1,896
Peak 15-Minute Volumes	2	224	46	272	26	7	28	61	15	141	4	160	5	8	7	20	513
Peak 15-Minute Volumes x 4	8	896	184	1,088	104	28	112	244	60	564	16	640	20	32	28	80	2,052
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**10**	**814**	**153**	**977**	**138**	**20**	**134**	**292**	**52**	**492**	**20**	**564**	**19**	**23**	**21**	**63**	**1,896**
Existing Trips Reassigned (due to North St Extension)	29	-29	0	0	0	48	-48	0	-40	-21	36	-25	44	40	21	105	80
1001 Fourth Street Residential Development	5	0	0	5	0	0	0	0	0	0	0	0	0	0	3	3	8
Approved Project Trips	63	37	2	102	1	14	0	15	0	20	52	72	32	12	36	80	269
Total Approved Project Trips (b)	97	8	2	107	1	62	-48	15	-40	-1	88	47	76	52	60	188	357
Woodle Project Trips - No North Street Ext (c)	0	7	0	7	0	0	3	3	2	4	0	6	0	0	0	0	16
Existing Plus Project Conditions (a+c)	**10**	**821**	**153**	**984**	**138**	**20**	**137**	**295**	**54**	**496**	**20**	**570**	**19**	**23**	**21**	**63**	**1,912**
Background Conditions (a+b)	**107**	**822**	**155**	**1,084**	**139**	**82**	**86**	**307**	**12**	**491**	**108**	**611**	**95**	**75**	**81**	**251**	**2,253**
Woodle Project Trips - With North Street Ext (d)	7	0	0	7	0	3	0	3	0	0	7	7	4	2	4	10	27
Background Plus Project Conditions (a+b+d)	**114**	**822**	**155**	**1,091**	**139**	**85**	**86**	**310**	**12**	**491**	**115**	**618**	**99**	**77**	**85**	**261**	**2,280**
San Juan Oaks	0	36	0	36	0	0	0	0	0	39	0	39	0	0	0	0	75
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	41	156	0	197	0	0	0	0	0	179	0	179	0	0	55	55	431
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Pending Project Trips	99	707	2	808	1	11	0	12	1	693	16	710	9	19	92	120	1,650
Total Pending Project Trips (e)	140	900	2	1,042	1	11	0	12	1	911	16	928	9	19	147	175	2,157
Cumulative No Project Conditions (a+b+e)	**247**	**1,722**	**157**	**2,126**	**140**	**93**	**86**	**319**	**13**	**1,402**	**124**	**1,539**	**104**	**94**	**228**	**426**	**4,410**
Cumulative Plus Project Conditions (a+b+d+e)	**254**	**1,722**	**157**	**2,133**	**140**	**96**	**86**	**322**	**13**	**1,402**	**131**	**1,546**	**108**	**96**	**232**	**436**	**4,437**

6 | 124
Intersection Name: Westside Boulevard and Central Avenue
Peak Hour: PM | Date of Analysis: 02/11/19
Jurisdiction: City | Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	3	118	12	133	14	55	38	107	24	86	25	135	33	49	2	84	459
Peak 15-Minute Volumes	1	26	2	29	3	12	14	29	7	23	7	37	12	15	0	27	122
Peak 15-Minute Volumes x 4	4	104	8	116	12	48	56	116	28	92	28	148	48	60	0	108	488
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**3**	**118**	**12**	**133**	**14**	**55**	**38**	**107**	**24**	**86**	**25**	**135**	**33**	**49**	**2**	**84**	**459**
Existing Trips Reassigned (due to North St Extension)	0	-3	0	-3	0	0	0	0	0	0	0	0	0	0	0	0	-3
1001 Fourth Street Residential Development	0	5	0	5	0	0	0	0	0	3	0	3	0	0	0	0	8
Approved Project Trips	0	42	0	42	0	3	0	3	0	45	2	47	1	2	0	3	95
Total Approved Project Trips (b)	0	44	0	44	0	3	0	3	0	48	2	50	1	2	0	3	100
Woodle Project Trips - No North Street Ext (c)	0	18	0	18	0	0	0	0	0	30	0	30	0	0	0	0	48
Existing Plus Project Conditions (a+c)	**3**	**136**	**12**	**151**	**14**	**55**	**38**	**107**	**24**	**116**	**25**	**165**	**33**	**49**	**2**	**84**	**507**
Background Conditions (a+b)	**3**	**162**	**12**	**177**	**14**	**58**	**38**	**110**	**24**	**134**	**27**	**185**	**34**	**51**	**2**	**87**	**559**
Woodle Project Trips - With North Street Ext (d)	0	8	0	8	0	0	0	0	0	14	0	14	0	0	0	0	22
Background Plus Project Conditions (a+b+d)	**3**	**170**	**12**	**185**	**14**	**58**	**38**	**110**	**24**	**148**	**27**	**199**	**34**	**51**	**2**	**87**	**581**
San Juan Oaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Churchill	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pending Project Trips	0	12	0	12	0	0	0	0	0	7	0	7	0	0	0	0	19
Total Pending Project Trips (e)	0	14	0	14	0	0	0	0	0	9	0	9	0	0	0	0	23
Cumulative No Project Conditions (a+b+e)	**3**	**176**	**12**	**191**	**14**	**58**	**38**	**110**	**24**	**143**	**27**	**194**	**34**	**51**	**2**	**87**	**582**
Cumulative Plus Project Conditions (a+b+d+e)	**3**	**184**	**12**	**199**	**14**	**58**	**38**	**110**	**24**	**157**	**27**	**208**	**34**	**51**	**2**	**87**	**604**

7 3250
Intersection Name: Westside Boulevard and San Juan Road/Fourth Street
Peak Hour: PM Date of Analysis: 02/11/19
Jurisdiction: City Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	48	97	48	193	24	352	84	460	65	62	209	336	219	468	21	708	1,697
Peak 15-Minute Volumes	15	33	10	58	7	105	15	127	19	17	61	97	52	120	1	173	455
Peak 15-Minute Volumes x 4	60	132	40	232	28	420	60	508	76	68	244	388	208	480	4	692	1,820
Count Adjustment	0	0	0	0	0	100	0	100	0	0	0	0	0	100	0	100	200
Existing Conditions (a)	**48**	**97**	**48**	**193**	**24**	**452**	**84**	**560**	**65**	**62**	**209**	**336**	**219**	**568**	**21**	**808**	**1,897**
Existing Trips Reassigned (due to North St Extension)	0	21	-24	-3	-17	-37	-21	-75	-17	17	0	0	0	-24	0	-24	-102
1001 Fourth Street Residential Development	0	5	0	5	0	2	3	5	0	0	0	0	0	3	3	6	16
Approved Project Trips	11	26	7	44	8	130	39	177	34	23	8	65	8	113	17	138	424
Total Approved Project Trips (b)	11	52	-17	46	-9	95	21	107	17	40	8	65	8	92	20	120	338
Woodle Project Trips - No North Street Ext (c)	2	2	14	18	23	0	0	23	0	4	0	4	0	0	3	3	48
Existing Plus Project Conditions (a+c)	**50**	**99**	**62**	**211**	**47**	**452**	**84**	**583**	**65**	**66**	**209**	**340**	**219**	**568**	**24**	**811**	**1,945**
Background Conditions (a+b)	**59**	**149**	**31**	**239**	**15**	**547**	**105**	**667**	**82**	**102**	**217**	**401**	**227**	**660**	**41**	**928**	**2,235**
Woodle Project Trips - With North Street Ext (d)	2	2	4	8	6	0	0	6	0	4	0	4	0	0	3	3	21
Background Plus Project Conditions (a+b+d)	**61**	**151**	**35**	**247**	**21**	**547**	**105**	**673**	**82**	**106**	**217**	**405**	**227**	**660**	**44**	**931**	**2,256**
San Juan Oaks	0	0	0	0	0	73	0	73	0	0	0	0	0	79	0	79	152
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	2	0	0	2	0	55	0	55	0	0	0	0	0	68	2	70	127
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Churchill	0	0	0	0	0	7	0	7	0	0	0	0	0	12	0	12	19
Pending Project Trips	0	12	0	12	0	121	0	121	0	7	0	7	0	109	0	109	249
Total Pending Project Trips (e)	2	12	0	14	0	256	0	256	0	7	0	7	0	269	2	271	548
Cumulative No Project Conditions (a+b+e)	**61**	**161**	**31**	**253**	**15**	**803**	**105**	**923**	**82**	**109**	**217**	**408**	**227**	**929**	**43**	**1,199**	**2,783**
Cumulative Plus Project Conditions (a+b+d+e)	**63**	**163**	**35**	**261**	**21**	**803**	**105**	**929**	**82**	**113**	**217**	**412**	**227**	**929**	**46**	**1,202**	**2,804**

8 3107
Intersection Name: College Street and San Juan Road/Fourth Street
Peak Hour: PM Date of Analysis: 02/11/19
Jurisdiction: City Count Date: 09/12/18

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	5	2	9	16	9	490	35	534	20	6	7	33	13	525	4	542	1,125
Peak 15-Minute Volumes	1	1	2	4	2	127	8	137	3	0	3	6	4	136	2	142	289
Peak 15-Minute Volumes x 4	4	4	8	16	8	508	32	548	12	0	12	24	16	544	8	568	1,156
Count Adjustment	0	0	0	0	0	230	0	230	0	0	0	0	0	76	0	76	306
Existing Conditions (a)	**5**	**2**	**9**	**16**	**9**	**720**	**35**	**764**	**20**	**6**	**7**	**33**	**13**	**601**	**4**	**618**	**1,431**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0	0	-75	0	-75	0	0	0	0	0	-65	0	-65	-140
1001 Fourth Street Residential Development	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Approved Project Trips	0	3	2	5	3	175	0	178	0	5	0	5	1	154	0	155	343
Total Approved Project Trips (b)	0	3	2	5	3	105	0	108	0	5	0	5	1	92	0	93	211
Woodle Project Trips - No North Street Ext (c)	0	2	0	2	1	23	0	24	0	3	0	3	0	14	0	14	43
Existing Plus Project Conditions (a+c)	**5**	**4**	**9**	**18**	**10**	**743**	**35**	**788**	**20**	**9**	**7**	**36**	**13**	**615**	**4**	**632**	**1,474**
Background Conditions (a+b)	**5**	**5**	**11**	**21**	**12**	**825**	**35**	**872**	**20**	**11**	**7**	**38**	**14**	**693**	**4**	**711**	**1,642**
Woodle Project Trips - With North Street Ext (d)	0	2	0	2	0	6	0	6	0	3	0	3	0	4	0	4	15
Background Plus Project Conditions (a+b+d)	**5**	**7**	**11**	**23**	**12**	**831**	**35**	**878**	**20**	**14**	**7**	**41**	**14**	**697**	**4**	**715**	**1,657**
San Juan Oaks	0	0	0	0	0	73	0	73	0	0	0	0	0	79	0	79	152
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	0	0	17	17	19	55	0	74	0	0	0	0	0	68	0	68	159
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Churchill	0	0	0	0	0	7	0	7	0	0	0	0	0	12	0	12	19
Pending Project Trips	0	0	0	0	0	120	0	120	0	0	0	0	1	108	0	109	229
Total Pending Project Trips (e)	0	0	17	17	19	255	0	274	0	0	0	0	1	268	0	269	560
Cumulative No Project Conditions (a+b+e)	**5**	**5**	**28**	**38**	**31**	**1,080**	**35**	**1,146**	**20**	**11**	**7**	**38**	**15**	**961**	**4**	**980**	**2,202**
Cumulative Plus Project Conditions (a+b+d+e)	**5**	**7**	**28**	**40**	**31**	**1,086**	**35**	**1,152**	**20**	**14**	**7**	**41**	**15**	**965**	**4**	**984**	**2,217**

9 8904

Intersection Name: San Benito Street and San Juan Road/Fourth Street

Peak Hour: PM Date of Analysis: 02/11/19

Jurisdiction: City Count Date: 04/05/17

	Movements																
	North Approach				East Approach				South Approach				West Approach				Int.
Scenario:	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	RT	TH	LT	Total	Total
Peak Hour Volumes	367	335	59	761	21	236	24	281	43	169	157	369	99	321	258	678	2,089
Peak 15-Minute Volumes	95	75	23	193	9	57	2	68	10	53	33	96	17	84	81	182	539
Peak 15-Minute Volumes x 4	380	300	92	772	36	228	8	272	40	212	132	384	68	336	324	728	2,156
Count Adjustment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Conditions (a)	**367**	**335**	**59**	**761**	**21**	**236**	**24**	**281**	**43**	**169**	**157**	**369**	**99**	**321**	**258**	**678**	**2,089**
Existing Trips Reassigned (due to North St Extension)	-58	12	12	-34	9	-9	0	0	0	9	-9	0	-12	-12	-41	-65	-99
1001 Fourth Street Residential Development	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Approved Project Trips	14	44	10	68	17	163	14	194	11	46	22	79	13	174	7	194	535
Total Approved Project Trips (b)	-44	56	22	34	26	159	14	199	11	55	13	79	1	165	-34	132	444
Woodle Project Trips - No North Street Ext (c)	10	0	0	10	0	7	0	7	0	0	6	6	4	4	6	14	37
Existing Plus Project Conditions (a+c)	**377**	**335**	**59**	**771**	**21**	**243**	**24**	**288**	**43**	**169**	**163**	**375**	**103**	**325**	**264**	**692**	**2,126**
Background Conditions (a+b)	**323**	**391**	**81**	**795**	**47**	**395**	**38**	**480**	**54**	**224**	**170**	**448**	**100**	**486**	**224**	**810**	**2,533**
Woodle Project Trips - With North Street Ext (d)	0	2	2	4	3	3	0	6	0	3	3	6	2	2	0	4	20
Background Plus Project Conditions (a+b+d)	**323**	**393**	**83**	**799**	**50**	**398**	**38**	**486**	**54**	**227**	**173**	**454**	**102**	**488**	**224**	**814**	**2,553**
San Juan Oaks	36	0	0	36	0	36	0	36	0	0	0	0	0	39	39	78	150
Sunnyside Estates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chappell Road	64	91	0	155	0	9	0	9	0	102	0	102	0	9	77	86	352
Bluffs at Ridgemark	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Churchill	0	1	0	1	0	7	0	7	0	0	0	0	0	12	0	12	20
Pending Project Trips	91	623	2	716	3	17	0	20	0	619	13	632	8	13	87	108	1,476
Total Pending Project Trips (e)	191	715	2	908	3	69	0	72	0	721	13	734	8	74	203	285	1,999
Cumulative No Project Conditions (a+b+e)	**514**	**1,106**	**83**	**1,703**	**50**	**464**	**38**	**552**	**54**	**945**	**183**	**1,182**	**108**	**560**	**427**	**1,095**	**4,532**
Cumulative Plus Project Conditions (a+b+d+e)	**514**	**1,108**	**85**	**1,707**	**53**	**467**	**38**	**558**	**54**	**948**	**186**	**1,188**	**110**	**562**	**427**	**1,099**	**4,552**

1
Intersection Name: 1116 SR 156 and Buena Vista Road
Peak Hour: AM
Jurisdiction: Caltrans

Date of Analysis: 02/20/19
Count Date: 02/28/17

	Movements																			
	North Approach					East Approach					South Approach					West Approach				Int.
Scenario:	RT	TH	LT	Total		RT	TH	LT	Total		RT	TH	LT	Total		RT	TH	LT	Total	Total
Existing Count	0	360	32	392		154	3	59	216		59	250	1	310		2	5	2	9	**927**
Count Adjustment	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Existing Conditions (a)	0	360	32	392		154	3	59	216		59	250	1	310		2	5	2	9	**927**
Existing Trips Reassigned (due to North St Extension)	0	0	0	0		0	0	26	26		38	0	0	38		0	0	0	0	64
1001 Fourth Street Residential Development	0	2	2	4		8	0	0	8		0	8	0	8		0	0	0	0	20
Approved Project Trips	0	1	37	38		93	0	1	94		0	3	0	3		0	0	0	0	135
Total Approved Project Trips (b)	0	3	39	42		101	0	27	128		38	11	0	49		0	0	0	0	219
Woodle Project Trips - No North Street Ext (c)	0	0	9	9		27	0	0	27		0	0	0	0		0	0	0	0	36
Existing Plus Project Conditions (a+c)	**0**	**360**	**41**	**401**	**0**	**181**	**3**	**59**	**243**	**0**	**59**	**250**	**1**	**310**	**0**	**2**	**5**	**2**	**9**	**963**
Background Conditions (a+b)	**0**	**363**	**71**	**434**	**0**	**255**	**3**	**86**	**344**	**0**	**97**	**261**	**1**	**359**	**0**	**2**	**5**	**2**	**9**	**1,146**
Woodle Project Trips - With North Street Ext (d)	0	0	9	9		27	0	0	27		0	0	0	0		0	0	0	0	36
Background Plus Project Conditions (a+b+d)	**0**	**363**	**80**	**443**	**0**	**282**	**3**	**86**	**371**	**0**	**97**	**261**	**1**	**359**	**0**	**2**	**5**	**2**	**9**	**1,182**
San Juan Oaks	0	9	0	9		0	0	0	0		0	10	0	10		0	0	0	0	19
Sunnyside Estates	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Chappell Road	0	0	0	0		0	0	37	37		16	0	0	16		0	0	0	0	53
Bluffs at Ridgemark	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Churchill	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Pending Project Trips	0	432	35	467		66	0	14	80		5	204	0	209		0	0	0	0	756
Total Pending Project Trips (e)	0	441	35	476		66	0	51	117		21	214	0	235		0	0	0	0	828
Cumulative No Project Conditions (a+b+e)	**0**	**804**	**106**	**910**		**321**	**3**	**137**	**461**		**118**	**475**	**1**	**594**		**2**	**5**	**2**	**9**	**1,974**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**804**	**115**	**919**	**#**	**348**	**3**	**137**	**488**	**#**	**118**	**475**	**1**	**594**	**#**	**2**	**5**	**2**	**9**	**2,010**

1
Intersection NPMe: 1116
SR 156 and Buena Vista Road
Peak Hour: PM
Jurisdiction: Caltrans

Date of Analysis: 02/20/19
Count Date: 02/28/17

	Movements																					
	North Approach					East Approach					South Approach					West Approach				Int.
Scenario:	RT	TH	LT	Total		RT	TH	LT	Total		RT	TH	LT	Total		RT	TH	LT	Total	Total
Existing Count	0	330	138	468		59	4	64	127		59	392	1	452		2	3	2	7	**1,054**
Count Adjustment	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Existing Conditions (a)	0	330	138	468		59	4	64	127		59	392	1	452		2	3	2	7	1,054
Existing Trips Reassigned (due to North St Extension)	0	0	0	0		0	0	37	37		24	0	0	24		0	0	0	0	61
1001 Fourth Street Residential Development	0	8	8	16		5	0	0	5		0	5	0	5		0	0	0	0	26
Approved Project Trips	0	3	106	109		69	0	1	70		1	1	0	2		0	0	0	0	181
Total Approved Project Trips (b)	0	11	114	125		74	0	38	112		25	6	0	31		0	0	0	0	268
Woodle Project Trips - No North Street Ext (c)	0	0	31	31		18	0	0	18		0	0	0	0		0	0	0	0	49
Existing Plus Project Conditions (a+c)	**0**	**330**	**169**	**499**	**0**	**77**	**4**	**64**	**145**	**0**	**59**	**392**	**1**	**452**	**0**	**2**	**3**	**2**	**7**	**1,103**
Background Conditions (a+b)	**0**	**341**	**252**	**593**	**0**	**133**	**4**	**102**	**239**	**0**	**84**	**398**	**1**	**483**	**0**	**2**	**3**	**2**	**7**	**1,322**
Woodle Project Trips - With North Street Ext (d)	0	0	31	31		18	0	0	18		0	0	0	0		0	0	0	0	49
Background Plus Project Conditions (a+b+d)	**0**	**341**	**283**	**624**	**0**	**151**	**4**	**102**	**257**	**0**	**84**	**398**	**1**	**483**	**0**	**2**	**3**	**2**	**7**	**1,371**
San Juan Oaks	0	14	0	14		0	0	0	0		0	15	0	15		0	0	0	0	29
Sunnyside Estates	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Chappell Road	0	0	0	0		0	0	34	34		49	0	0	49		0	0	0	0	83
Bluffs at Ridgemark	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Churchill	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Pending Project Trips	0	502	145	647		126	0	9	135		16	665	0	681		0	0	0	0	1,463
Total Pending Project Trips (e)	0	516	145	661		126	0	43	169		65	680	0	745		0	0	0	0	1,575
Cumulative No Project Conditions (a+b+e)	**0**	**857**	**397**	**1,254**		**259**	**4**	**145**	**408**		**149**	**1,078**	**1**	**1,228**		**2**	**3**	**2**	**7**	**2,897**
Cumulative Plus Project Conditions (a+b+d+e)	**0**	**857**	**428**	**1,285**	**#**	**277**	**4**	**145**	**426**	**#**	**149**	**1,078**	**1**	**1,228**	**#**	**2**	**3**	**2**	**7**	**2,946**

Appendix C
Level of Service Calculations

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	97	0	0	125	0
Future Vol, veh/h	0	97	0	0	125	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	0	97	0	0	125	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7	0	8
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	0%	100%
Vol Right, %	0%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	125	97	0
LT Vol	125	0	0
Through Vol	0	0	0
RT Vol	0	97	0
Lane Flow Rate	125	97	0
Geometry Grp	1	1	1
Degree of Util (X)	0.148	0.095	0
Departure Headway (Hd)	4.269	3.517	4.195
Convergence, Y/N	Yes	Yes	Yes
Cap	841	1005	0
Service Time	2.287	1.589	2.277
HCM Lane V/C Ratio	0.149	0.097	0
HCM Control Delay	8	7	7.3
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.5	0.3	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	410	117	37	379	54	222	83	92	139	49	20
Future Volume (veh/h)	20	410	117	37	379	54	222	83	92	139	49	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	20	410	74	37	379	17	222	83	92	139	49	-1
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	21	560	760	41	593	621	297	133	148	170	210	189
Arrive On Green	0.01	0.31	0.31	0.02	0.32	0.32	0.17	0.17	0.17	0.11	0.11	0.00
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	785	871	1560	1863	1509
Grp Volume(v), veh/h	20	410	74	37	379	17	222	0	175	139	49	-1
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1656	1560	1863	1509
Q Serve(g_s), s	0.5	8.3	1.1	0.9	7.2	0.3	4.9	0.0	4.0	3.6	1.0	0.0
Cycle Q Clear(g_c), s	0.5	8.3	1.1	0.9	7.2	0.3	4.9	0.0	4.0	3.6	1.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	21	560	760	41	593	621	297	0	281	170	210	189
V/C Ratio(X)	0.94	0.73	0.10	0.90	0.64	0.03	0.75	0.00	0.62	0.82	0.23	-0.01
Avail Cap(c_a), veh/h	251	1096	1234	123	984	926	999	0	1164	265	587	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.4	12.7	6.0	20.1	12.0	6.8	16.4	0.0	15.9	18.0	16.7	0.0
Incr Delay (d2), s/veh	75.9	1.9	0.1	43.4	1.2	0.0	3.8	0.0	2.3	10.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.4	0.5	0.9	3.8	0.1	2.7	0.0	2.0	2.1	0.5	0.0
LnGrp Delay(d),s/veh	96.2	14.6	6.0	63.5	13.1	6.8	20.2	0.0	18.2	28.7	17.2	0.0
LnGrp LOS	F	B	A	E	B	A	C		B	C	B	
Approach Vol, veh/h		504			433			397			187	
Approach Delay, s/veh		16.6			17.2			19.3			25.9	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	11.0	5.0	16.8	10.8	8.7	4.5	17.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	29.0	3.0	25.0	23.0	13.0	6.0	22.0
Max Q Clear Time (g_c+I1), s	5.6	6.0	2.9	10.3	6.9	3.0	2.5	9.2
Green Ext Time (p_c), s	0.0	1.0	0.0	2.4	0.5	0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	11	22	116	21	150	24	664	99	50	397	2
Future Volume (veh/h)	24	11	22	116	21	150	24	664	99	50	397	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1833	1900	1900	1867	1900	1759	1863	1900
Adj Flow Rate, veh/h	24	11	22	116	21	150	24	664	99	50	397	2
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	279	140	172	272	61	208	27	1128	168	56	1384	7
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.01	0.36	0.36	0.03	0.38	0.38
Sat Flow, veh/h	511	532	655	492	232	793	1810	3099	461	1675	3611	18
Grp Volume(v), veh/h	57	0	0	287	0	0	24	380	383	50	194	205
Grp Sat Flow(s),veh/h/ln	1698	0	0	1517	0	0	1810	1774	1786	1675	1770	1860
Q Serve(g_s), s	0.0	0.0	0.0	4.3	0.0	0.0	0.5	6.1	6.1	1.1	2.7	2.7
Cycle Q Clear(g_c), s	0.9	0.0	0.0	6.0	0.0	0.0	0.5	6.1	6.1	1.1	2.7	2.7
Prop In Lane	0.42		0.39	0.40		0.52	1.00		0.26	1.00		0.01
Lane Grp Cap(c), veh/h	591	0	0	541	0	0	27	646	650	56	678	713
V/C Ratio(X)	0.10	0.00	0.00	0.53	0.00	0.00	0.90	0.59	0.59	0.89	0.29	0.29
Avail Cap(c_a), veh/h	1242	0	0	1200	0	0	154	1355	1364	284	1502	1578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	0.0	0.0	11.7	0.0	0.0	17.4	9.1	9.1	17.0	7.6	7.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	58.7	0.9	0.9	32.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.6	0.0	0.0	0.7	3.1	3.1	1.0	1.3	1.4
LnGrp Delay(d),s/veh	10.0	0.0	0.0	12.6	0.0	0.0	76.1	9.9	10.0	49.7	7.8	7.8
LnGrp LOS	A			B			E	A	A	D	A	A
Approach Vol, veh/h		57			287			787			449	
Approach Delay, s/veh		10.0			12.6			12.0			12.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	16.9		13.3	4.5	17.5		13.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	27.0		25.0	3.0	30.0		25.0
Max Q Clear Time (g_c+I1), s	3.1	8.1		2.9	2.5	4.7		8.0
Green Ext Time (p_c), s	0.0	4.7		0.2	0.0	2.4		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	377	332	92	18	263	9	124	226	10	25	188	242
Future Volume (veh/h)	377	332	92	18	263	9	124	226	10	25	188	242
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1611	1710	1644	1671	1710	1644	1693	1676
Adj Flow Rate, veh/h	377	332	92	18	263	9	124	226	10	25	188	242
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	423	758	887	18	315	11	279	283	13	250	270	605
Arrive On Green	0.27	0.46	0.46	0.01	0.20	0.20	0.18	0.18	0.18	0.16	0.16	0.16
Sat Flow, veh/h	1597	1660	1398	1467	1548	53	1566	1588	70	1566	1693	1425
Grp Volume(v), veh/h	377	332	92	18	0	272	124	0	236	25	188	242
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1601	1566	0	1659	1566	1693	1425
Q Serve(g_s), s	18.8	11.2	2.1	1.0	0.0	13.5	5.8	0.0	11.3	1.1	8.7	9.7
Cycle Q Clear(g_c), s	18.8	11.2	2.1	1.0	0.0	13.5	5.8	0.0	11.3	1.1	8.7	9.7
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	423	758	887	18	0	326	279	0	296	250	270	605
V/C Ratio(X)	0.89	0.44	0.10	0.99	0.00	0.83	0.44	0.00	0.80	0.10	0.70	0.40
Avail Cap(c_a), veh/h	830	1365	1398	106	0	600	530	0	561	416	450	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	15.3	5.9	40.8	0.0	31.6	30.3	0.0	32.6	29.7	32.9	16.5
Incr Delay (d2), s/veh	6.6	0.4	0.1	96.2	0.0	5.6	1.1	0.0	4.9	0.2	3.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	5.2	1.2	0.9	0.0	6.5	2.6	0.0	5.6	0.5	4.3	3.9
LnGrp Delay(d),s/veh	35.8	15.7	6.0	137.1	0.0	37.2	31.4	0.0	37.5	29.9	36.1	16.9
LnGrp LOS	D	B	A	F		D	C		D	C	D	B
Approach Vol, veh/h		801			290			360			455	
Approach Delay, s/veh		24.0			43.4			35.4			25.5	
Approach LOS		C			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		18.7	5.0	41.7		17.2	25.9	20.8				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		28.0	6.0	68.0		22.0	43.0	31.0				
Max Q Clear Time (g_c+I1), s		13.3	3.0	13.2		11.7	20.8	15.5				
Green Ext Time (p_c), s		1.5	0.0	2.5		1.5	1.1	1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			29.5									
HCM 2010 LOS			C									

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	20	36	9	28	7	17	93	14	14	191	9
Future Vol, veh/h	6	20	36	9	28	7	17	93	14	14	191	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	20	36	9	28	7	17	93	14	14	191	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	376	365	196	386	362	100	200	0	0	107	0	0
Stage 1	224	224	-	134	134	-	-	-	-	-	-	-
Stage 2	152	141	-	252	228	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	585	562	843	567	567	961	1384	-	-	1497	-	-
Stage 1	783	716	-	862	787	-	-	-	-	-	-	-
Stage 2	855	778	-	746	717	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	548	549	843	518	553	961	1384	-	-	1497	-	-
Mov Cap-2 Maneuver	548	549	-	518	553	-	-	-	-	-	-	-
Stage 1	773	708	-	851	777	-	-	-	-	-	-	-
Stage 2	808	768	-	686	709	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	11.7	1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1384	-	-	688	584	1497	-	-
HCM Lane V/C Ratio	0.012	-	-	0.09	0.075	0.009	-	-
HCM Control Delay (s)	7.6	0	-	10.8	11.7	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	68	4	116	4	232	96	40	436	0
Future Vol, veh/h	0	8	0	68	4	116	4	232	96	40	436	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	68	4	116	4	232	96	40	436	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	864	852	436	760	756	232	436	0	0	328	0	0
Stage 1	516	516	-	240	240	-	-	-	-	-	-	-
Stage 2	348	336	-	520	516	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	277	299	625	315	303	810	751	-	-	1209	-	-
Stage 1	546	538	-	750	653	-	-	-	-	-	-	-
Stage 2	672	645	-	528	487	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	228	288	625	299	291	810	751	-	-	1209	-	-
Mov Cap-2 Maneuver	228	288	-	299	291	-	-	-	-	-	-	-
Stage 1	543	520	-	746	650	-	-	-	-	-	-	-
Stage 2	569	642	-	503	471	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	17.9	14.1	0.1	0.7
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	751	-	-	288	-	299	291	810	1209	-	-
HCM Lane V/C Ratio	0.005	-	-	0.028	-	0.227	0.014	0.143	0.033	-	-
HCM Control Delay (s)	9.8	-	-	17.9	0	20.5	17.5	10.2	8.1	-	-
HCM Lane LOS	A	-	-	C	A	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.9	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	639	4	18	558	4	9	1	52	5	4	0
Future Vol, veh/h	0	639	4	18	558	4	9	1	52	5	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	639	4	18	558	4	9	1	52	5	4	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	562	0	0	643	0	0	1239	1239	641	1264	1239	560
Stage 1	-	-	-	-	-	-	641	641	-	596	596	-
Stage 2	-	-	-	-	-	-	598	598	-	668	643	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	1019	-	-	951	-	-	154	177	464	148	158	532
Stage 1	-	-	-	-	-	-	466	473	-	494	457	-
Stage 2	-	-	-	-	-	-	492	494	-	451	435	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1019	-	-	951	-	-	148	172	464	128	154	532
Mov Cap-2 Maneuver	-	-	-	-	-	-	148	172	-	128	154	-
Stage 1	-	-	-	-	-	-	466	473	-	494	444	-
Stage 2	-	-	-	-	-	-	474	480	-	400	435	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	17.6	32.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	1019	-	-	951	-	-	138
HCM Lane V/C Ratio	0.179	-	-	-	0.019	-	-	0.065
HCM Control Delay (s)	17.6	0	-	-	8.9	0	-	32.9
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	89	186	4	155	1	127	4	10	0	3	3
Future Vol, veh/h	4	89	186	4	155	1	127	4	10	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	89	186	4	155	1	127	4	10	0	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	156	0	0	275	0	0	357	354	182	361	447	156
Stage 1	-	-	-	-	-	-	190	190	-	164	164	-
Stage 2	-	-	-	-	-	-	167	164	-	197	283	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1436	-	-	1166	-	-	598	574	840	598	509	895
Stage 1	-	-	-	-	-	-	812	747	-	843	766	-
Stage 2	-	-	-	-	-	-	835	766	-	809	681	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1436	-	-	1166	-	-	590	570	840	585	505	895
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	570	-	585	505	-
Stage 1	-	-	-	-	-	-	810	745	-	840	763	-
Stage 2	-	-	-	-	-	-	826	763	-	793	679	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	12.8	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	602	1436	-	-	1166	-	-	646
HCM Lane V/C Ratio	0.234	0.003	-	-	0.003	-	-	0.009
HCM Control Delay (s)	12.8	7.5	0	-	8.1	0	-	10.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	154	16	29	135	0	27	2	56	2	3	3
Future Vol, veh/h	1	154	16	29	135	0	27	2	56	2	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	154	16	29	135	0	27	2	56	2	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	135	0	0	170	0	0	360	357	162	386	365	135
Stage 1	-	-	-	-	-	-	164	164	-	193	193	-
Stage 2	-	-	-	-	-	-	196	193	-	193	172	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1462	-	-	1420	-	-	599	572	888	576	566	919
Stage 1	-	-	-	-	-	-	843	766	-	813	745	-
Stage 2	-	-	-	-	-	-	810	745	-	813	760	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1462	-	-	1420	-	-	584	559	888	529	553	919
Mov Cap-2 Maneuver	-	-	-	-	-	-	584	559	-	529	553	-
Stage 1	-	-	-	-	-	-	842	765	-	812	729	-
Stage 2	-	-	-	-	-	-	786	729	-	759	759	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.3	10.4	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	753	1462	-	-	1420	-	-	642
HCM Lane V/C Ratio	0.113	0.001	-	-	0.02	-	-	0.012
HCM Control Delay (s)	10.4	7.5	0	-	7.6	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	78	0	0	75	0
Future Vol, veh/h	0	78	0	0	75	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	0	78	0	0	75	0
Number of Lanes	1	0	0	1	1	0

Approach	EB			WB	NB	
Opposing Approach	WB			EB		
Opposing Lanes	1			1	0	
Conflicting Approach Left				NB	EB	
Conflicting Lanes Left	0			1	1	
Conflicting Approach Right	NB				WB	
Conflicting Lanes Right	1			0	1	
HCM Control Delay	6.8			0	7.7	
HCM LOS	A			-	A	

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	0%	100%
Vol Right, %	0%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	75	78	0
LT Vol	75	0	0
Through Vol	0	0	0
RT Vol	0	78	0
Lane Flow Rate	75	78	0
Geometry Grp	1	1	1
Degree of Util (X)	0.089	0.074	0
Departure Headway (Hd)	4.253	3.431	4.092
Convergence, Y/N	Yes	Yes	Yes
Cap	845	1037	0
Service Time	2.263	1.474	2.14
HCM Lane V/C Ratio	0.089	0.075	0
HCM Control Delay	7.7	6.8	7.1
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.3	0.2	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	568	219	84	452	24	209	62	65	48	97	48
Future Volume (veh/h)	21	568	219	84	452	24	209	62	65	48	97	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1853	1900	1900	1900	1863
Adj Flow Rate, veh/h	21	568	176	84	452	-13	209	62	65	48	97	27
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	24	716	862	108	803	749	270	173	181	59	173	165
Arrive On Green	0.01	0.38	0.38	0.06	0.43	0.00	0.15	0.21	0.21	0.03	0.09	0.09
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	830	870	1810	1900	1583
Grp Volume(v), veh/h	21	568	176	84	452	-13	209	0	127	48	97	27
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1700	1810	1900	1583
Q Serve(g_s), s	0.6	13.7	2.9	2.3	9.2	0.0	5.6	0.0	3.2	1.3	2.5	0.8
Cycle Q Clear(g_c), s	0.6	13.7	2.9	2.3	9.2	0.0	5.6	0.0	3.2	1.3	2.5	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	24	716	862	108	803	749	270	0	353	59	173	165
V/C Ratio(X)	0.89	0.79	0.20	0.78	0.56	-0.02	0.77	0.00	0.36	0.82	0.56	0.16
Avail Cap(c_a), veh/h	107	1101	1196	285	1285	1166	571	0	670	214	374	333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	13.8	6.2	23.5	10.8	0.0	20.8	0.0	17.2	24.4	22.1	20.7
Incr Delay (d2), s/veh	59.7	2.3	0.1	11.2	0.6	0.0	4.7	0.0	0.6	23.0	2.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.4	1.3	1.5	4.8	0.0	3.1	0.0	1.6	1.0	1.4	0.4
LnGrp Delay(d),s/veh	84.7	16.1	6.3	34.8	11.5	0.0	25.5	0.0	17.8	47.4	24.9	21.2
LnGrp LOS	F	B	A	C	B		C		B	D	C	C
Approach Vol, veh/h		765			523			336			172	
Approach Delay, s/veh		15.7			15.5			22.6			30.6	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	14.6	7.0	23.5	11.6	8.6	4.7	25.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	20.0	8.0	30.0	16.0	10.0	3.0	35.0
Max Q Clear Time (g_c+I1), s	3.3	5.2	4.3	15.7	7.6	4.5	2.6	11.2
Green Ext Time (p_c), s	0.0	0.5	0.0	3.8	0.4	0.2	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	23	19	134	20	138	20	492	52	153	814	10
Future Volume (veh/h)	21	23	19	134	20	138	20	492	52	153	814	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1839	1900	1900	1885	1900	1900	1850	1900	1845	1824	1900
Adj Flow Rate, veh/h	21	23	19	134	20	138	20	492	52	153	814	10
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	224	218	135	298	60	195	22	944	99	206	1399	17
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.01	0.29	0.29	0.12	0.40	0.40
Sat Flow, veh/h	356	811	504	588	223	727	1810	3209	338	1757	3505	43
Grp Volume(v), veh/h	63	0	0	292	0	0	20	269	275	153	402	422
Grp Sat Flow(s),veh/h/ln	1671	0	0	1538	0	0	1810	1757	1790	1757	1732	1816
Q Serve(g_s), s	0.0	0.0	0.0	4.8	0.0	0.0	0.4	4.8	4.8	3.2	6.8	6.8
Cycle Q Clear(g_c), s	1.0	0.0	0.0	6.3	0.0	0.0	0.4	4.8	4.8	3.2	6.8	6.8
Prop In Lane	0.33		0.30	0.46		0.47	1.00		0.19	1.00		0.02
Lane Grp Cap(c), veh/h	577	0	0	554	0	0	22	517	526	206	691	725
V/C Ratio(X)	0.11	0.00	0.00	0.53	0.00	0.00	0.91	0.52	0.52	0.74	0.58	0.58
Avail Cap(c_a), veh/h	1852	0	0	1833	0	0	338	1546	1575	1077	2263	2372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	0.0	12.3	0.0	0.0	18.5	11.0	11.0	16.0	8.8	8.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	67.5	0.8	0.8	5.2	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	2.8	0.0	0.0	0.6	2.4	2.5	1.8	3.4	3.5
LnGrp Delay(d),s/veh	10.5	0.0	0.0	13.0	0.0	0.0	86.0	11.8	11.9	21.2	9.6	9.6
LnGrp LOS	B			B			F	B	B	C	A	A
Approach Vol, veh/h		63			292			564			977	
Approach Delay, s/veh		10.5			13.0			14.5			11.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	15.0		14.1	4.5	19.0		14.1
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	23.0	33.0		42.0	7.0	49.0		42.0
Max Q Clear Time (g_c+I1), s	5.2	6.8		3.0	2.4	8.8		8.3
Green Ext Time (p_c), s	0.4	3.5		0.3	0.0	6.2		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	321	99	24	236	21	157	169	43	59	335	367
Future Volume (veh/h)	258	321	99	24	236	21	157	169	43	59	335	367
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1672	1710	1710	1673	1710	1676	1693	1693
Adj Flow Rate, veh/h	258	321	99	24	236	21	157	169	43	59	335	367
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	301	599	770	26	286	25	274	217	55	410	435	641
Arrive On Green	0.19	0.36	0.36	0.02	0.19	0.19	0.17	0.17	0.17	0.26	0.26	0.26
Sat Flow, veh/h	1597	1660	1454	1566	1514	135	1629	1288	328	1597	1693	1439
Grp Volume(v), veh/h	258	321	99	24	0	257	157	0	212	59	335	367
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1649	1629	0	1615	1597	1693	1439
Q Serve(g_s), s	12.7	12.5	2.8	1.2	0.0	12.2	7.2	0.0	10.2	2.3	14.9	15.4
Cycle Q Clear(g_c), s	12.7	12.5	2.8	1.2	0.0	12.2	7.2	0.0	10.2	2.3	14.9	15.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	301	599	770	26	0	312	274	0	272	410	435	641
V/C Ratio(X)	0.86	0.54	0.13	0.92	0.00	0.82	0.57	0.00	0.78	0.14	0.77	0.57
Avail Cap(c_a), veh/h	609	1082	1192	116	0	568	561	0	556	726	770	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	20.6	9.7	39.9	0.0	31.7	31.1	0.0	32.4	23.3	28.0	16.8
Incr Delay (d2), s/veh	7.0	0.7	0.1	61.7	0.0	5.5	1.9	0.0	4.8	0.2	2.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	5.8	1.5	1.0	0.0	6.0	3.4	0.0	4.9	1.0	7.3	6.3
LnGrp Delay(d),s/veh	38.9	21.3	9.7	101.6	0.0	37.2	33.0	0.0	37.2	23.5	30.9	17.6
LnGrp LOS	D	C	A	F		D	C		D	C	C	B
Approach Vol, veh/h		678			281			369			761	
Approach Delay, s/veh		26.3			42.7			35.4			23.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		17.7	5.4	33.4		24.9	19.3	19.4
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	6.0	53.0		37.0	31.0	28.0
Max Q Clear Time (g_c+I1), s		12.2	3.2	14.5		17.4	14.7	14.2
Green Ext Time (p_c), s		1.5	0.0	2.4		3.5	0.7	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	49	33	38	55	14	25	86	24	12	118	3
Future Vol, veh/h	2	49	33	38	55	14	25	86	24	12	118	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	49	33	38	55	14	25	86	24	12	118	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	327	304	120	333	293	98	121	0	0	110	0	0
Stage 1	144	144	-	148	148	-	-	-	-	-	-	-
Stage 2	183	160	-	185	145	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	630	613	929	615	621	963	1454	-	-	1493	-	-
Stage 1	864	782	-	848	779	-	-	-	-	-	-	-
Stage 2	823	769	-	810	781	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	596	929	545	604	963	1454	-	-	1493	-	-
Mov Cap-2 Maneuver	566	596	-	545	604	-	-	-	-	-	-	-
Stage 1	848	775	-	833	765	-	-	-	-	-	-	-
Stage 2	739	755	-	725	774	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	12.2	1.4	0.7
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	693	610	1493	-	-
HCM Lane V/C Ratio	0.017	-	-	0.121	0.175	0.008	-	-
HCM Control Delay (s)	7.5	0	-	10.9	12.2	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.6	0	-	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	104	12	64	0	496	52	156	288	0
Future Vol, veh/h	8	0	0	104	12	64	0	496	52	156	288	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	104	12	64	0	496	52	156	288	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1160	1148	288	1096	1096	496	288	0	0	548	0	0
Stage 1	600	600	-	496	496	-	-	-	-	-	-	-
Stage 2	560	548	-	600	600	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	174	200	756	185	215	574	1286	-	-	1027	-	-
Stage 1	491	493	-	543	549	-	-	-	-	-	-	-
Stage 2	516	520	-	476	493	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	130	170	756	163	182	574	1286	-	-	1027	-	-
Mov Cap-2 Maneuver	130	170	-	163	182	-	-	-	-	-	-	-
Stage 1	491	418	-	543	549	-	-	-	-	-	-	-
Stage 2	448	520	-	404	418	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	34.5	40.4	0	3.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	1286	-	-	130	-	163	182	574	1027	-	-
HCM Lane V/C Ratio	-	-	-	0.062	-	0.638	0.066	0.111	0.152	-	-
HCM Control Delay (s)	0	-	-	34.5	0	59.5	26.2	12.1	9.1	-	-
HCM Lane LOS	A	-	-	D	A	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	-	3.6	0.2	0.4	0.5	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	601	13	35	720	9	7	6	20	9	2	5
Future Vol, veh/h	4	601	13	35	720	9	7	6	20	9	2	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	601	13	35	720	9	7	6	20	9	2	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	729	0	0	614	0	0	1414	1415	608	1424	1417	725
Stage 1	-	-	-	-	-	-	616	616	-	795	795	-
Stage 2	-	-	-	-	-	-	798	799	-	629	622	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	884	-	-	975	-	-	116	139	490	115	138	428
Stage 1	-	-	-	-	-	-	481	485	-	384	402	-
Stage 2	-	-	-	-	-	-	382	401	-	474	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	884	-	-	975	-	-	108	130	490	101	129	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	108	130	-	101	129	-
Stage 1	-	-	-	-	-	-	478	482	-	381	378	-
Stage 2	-	-	-	-	-	-	353	377	-	446	479	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	24.5	34.5
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	217	884	-	-	975	-	-	138
HCM Lane V/C Ratio	0.152	0.005	-	-	0.036	-	-	0.116
HCM Control Delay (s)	24.5	9.1	0	-	8.8	0	-	34.5
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.4

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	62	102	11	77	6	65	7	14	6	8	1
Future Vol, veh/h	1	62	102	11	77	6	65	7	14	6	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	62	102	11	77	6	65	7	14	6	8	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	83	0	0	164	0	0	222	220	113	228	268	80
Stage 1	-	-	-	-	-	-	115	115	-	102	102	-
Stage 2	-	-	-	-	-	-	107	105	-	126	166	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1527	-	-	1373	-	-	738	682	945	731	641	986
Stage 1	-	-	-	-	-	-	895	804	-	909	815	-
Stage 2	-	-	-	-	-	-	903	812	-	883	765	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1527	-	-	1373	-	-	725	676	945	710	635	986
Mov Cap-2 Maneuver	-	-	-	-	-	-	725	676	-	710	635	-
Stage 1	-	-	-	-	-	-	894	803	-	908	808	-
Stage 2	-	-	-	-	-	-	886	806	-	861	764	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	10.4	10.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	749	1527	-	-	1373	-	-	680
HCM Lane V/C Ratio	0.115	0.001	-	-	0.008	-	-	0.022
HCM Control Delay (s)	10.4	7.4	0	-	7.6	0	-	10.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	150	70	18	88	0	12	2	28	0	3	3
Future Vol, veh/h	2	150	70	18	88	0	12	2	28	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	2	150	70	18	88	0	12	2	28	0	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	220	0	0	316	313	185	328	348	88
Stage 1	-	-	-	-	-	-	189	189	-	124	124	-
Stage 2	-	-	-	-	-	-	127	124	-	204	224	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1520	-	-	1361	-	-	641	606	862	629	579	976
Stage 1	-	-	-	-	-	-	817	748	-	885	797	-
Stage 2	-	-	-	-	-	-	882	797	-	803	722	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1520	-	-	1361	-	-	629	596	862	599	570	976
Mov Cap-2 Maneuver	-	-	-	-	-	-	629	596	-	599	570	-
Stage 1	-	-	-	-	-	-	815	747	-	883	786	-
Stage 2	-	-	-	-	-	-	864	786	-	773	721	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.3	10	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	765	1520	-	-	1361	-	-	720
HCM Lane V/C Ratio	0.055	0.001	-	-	0.013	-	-	0.008
HCM Control Delay (s)	10	7.4	0	-	7.7	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	100	0	0	126	0
Future Vol, veh/h	0	100	0	0	126	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	0	100	0	0	126	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7	0	8
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	0%	100%
Vol Right, %	0%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	126	100	0
LT Vol	126	0	0
Through Vol	0	0	0
RT Vol	0	100	0
Lane Flow Rate	126	100	0
Geometry Grp	1	1	1
Degree of Util (X)	0.15	0.098	0
Departure Headway (Hd)	4.275	3.519	4.199
Convergence, Y/N	Yes	Yes	Yes
Cap	840	1003	0
Service Time	2.293	1.593	2.284
HCM Lane V/C Ratio	0.15	0.1	0
HCM Control Delay	8	7	7.3
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.5	0.3	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	410	117	37	379	61	222	84	92	160	53	23
Future Volume (veh/h)	21	410	117	37	379	61	222	84	92	160	53	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	21	410	74	37	379	24	222	84	92	160	53	2
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	22	555	754	41	586	639	296	133	146	196	240	214
Arrive On Green	0.01	0.31	0.31	0.02	0.32	0.32	0.17	0.17	0.17	0.13	0.13	0.13
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	791	866	1560	1863	1509
Grp Volume(v), veh/h	21	410	74	37	379	24	222	0	176	160	53	2
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1657	1560	1863	1509
Q Serve(g_s), s	0.5	8.7	1.1	0.9	7.5	0.4	5.0	0.0	4.2	4.3	1.1	0.0
Cycle Q Clear(g_c), s	0.5	8.7	1.1	0.9	7.5	0.4	5.0	0.0	4.2	4.3	1.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.52	1.00		1.00
Lane Grp Cap(c), veh/h	22	555	754	41	586	639	296	0	279	196	240	214
V/C Ratio(X)	0.93	0.74	0.10	0.90	0.65	0.04	0.75	0.00	0.63	0.82	0.22	0.01
Avail Cap(c_a), veh/h	243	1062	1202	119	952	925	967	0	1128	256	568	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	13.2	6.2	20.7	12.5	6.7	17.0	0.0	16.5	18.2	16.7	15.7
Incr Delay (d2), s/veh	72.0	2.0	0.1	42.8	1.2	0.0	3.8	0.0	2.4	14.4	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.5	0.5	0.9	4.0	0.2	2.8	0.0	2.1	2.6	0.6	0.0
LnGrp Delay(d),s/veh	93.0	15.2	6.3	63.5	13.7	6.7	20.8	0.0	18.9	32.6	17.1	15.7
LnGrp LOS	F	B	A	E	B	A	C		B	C	B	B
Approach Vol, veh/h		505			440			398			215	
Approach Delay, s/veh		17.1			17.5			19.9			28.6	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	11.2	5.0	17.1	11.0	9.5	4.6	17.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	7.0	29.0	3.0	25.0	23.0	13.0	6.0	22.0
Max Q Clear Time (g_c+I1), s	6.3	6.2	2.9	10.7	7.0	3.1	2.5	9.5
Green Ext Time (p_c), s	0.0	1.0	0.0	2.4	0.5	0.1	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	11	22	117	21	150	24	670	102	50	399	2
Future Volume (veh/h)	24	11	22	117	21	150	24	670	102	50	399	2
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1834	1900	1900	1868	1900	1759	1863	1900
Adj Flow Rate, veh/h	24	11	22	117	21	150	24	670	102	50	399	2
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	279	140	173	273	61	208	27	1132	172	56	1392	7
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.01	0.37	0.37	0.03	0.39	0.39
Sat Flow, veh/h	513	531	656	496	231	790	1810	3089	470	1675	3611	18
Grp Volume(v), veh/h	57	0	0	288	0	0	24	384	388	50	195	206
Grp Sat Flow(s),veh/h/ln	1699	0	0	1516	0	0	1810	1774	1785	1675	1770	1860
Q Serve(g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.5	6.2	6.3	1.1	2.7	2.7
Cycle Q Clear(g_c), s	0.9	0.0	0.0	6.1	0.0	0.0	0.5	6.2	6.3	1.1	2.7	2.7
Prop In Lane	0.42		0.39	0.41		0.52	1.00		0.26	1.00		0.01
Lane Grp Cap(c), veh/h	591	0	0	541	0	0	27	650	654	56	682	717
V/C Ratio(X)	0.10	0.00	0.00	0.53	0.00	0.00	0.90	0.59	0.59	0.89	0.29	0.29
Avail Cap(c_a), veh/h	1234	0	0	1190	0	0	254	1344	1352	282	1391	1461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	11.8	0.0	0.0	17.5	9.1	9.1	17.1	7.6	7.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	58.2	0.9	0.9	32.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.7	0.0	0.0	0.7	3.1	3.2	1.0	1.3	1.4
LnGrp Delay(d),s/veh	10.1	0.0	0.0	12.7	0.0	0.0	75.8	10.0	10.0	49.7	7.8	7.8
LnGrp LOS	B			B			E	A	A	D	A	A
Approach Vol, veh/h		57			288			796			451	
Approach Delay, s/veh		10.1			12.7			12.0			12.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	17.1		13.4	4.5	17.7		13.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	27.0		25.0	5.0	28.0		25.0
Max Q Clear Time (g_c+I1), s	3.1	8.3		2.9	2.5	4.7		8.1
Green Ext Time (p_c), s	0.0	4.8		0.2	0.0	2.3		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	386	338	97	18	265	9	126	226	10	25	188	245
Future Volume (veh/h)	386	338	97	18	265	9	126	226	10	25	188	245
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1611	1710	1644	1671	1710	1644	1693	1676
Adj Flow Rate, veh/h	386	338	97	18	265	9	126	226	10	25	188	245
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	431	767	893	18	316	11	278	282	12	249	270	612
Arrive On Green	0.27	0.46	0.46	0.01	0.20	0.20	0.18	0.18	0.18	0.16	0.16	0.16
Sat Flow, veh/h	1597	1660	1398	1467	1549	53	1566	1588	70	1566	1693	1425
Grp Volume(v), veh/h	386	338	97	18	0	274	126	0	236	25	188	245
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1601	1566	0	1659	1566	1693	1425
Q Serve(g_s), s	19.7	11.6	2.3	1.0	0.0	13.9	6.1	0.0	11.5	1.2	8.9	10.0
Cycle Q Clear(g_c), s	19.7	11.6	2.3	1.0	0.0	13.9	6.1	0.0	11.5	1.2	8.9	10.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	431	767	893	18	0	327	278	0	294	249	270	612
V/C Ratio(X)	0.89	0.44	0.11	0.99	0.00	0.84	0.45	0.00	0.80	0.10	0.70	0.40
Avail Cap(c_a), veh/h	812	1335	1371	104	0	587	518	0	549	407	440	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	15.4	5.9	41.8	0.0	32.3	31.1	0.0	33.4	30.4	33.6	16.6
Incr Delay (d2), s/veh	6.7	0.4	0.1	95.2	0.0	5.7	1.2	0.0	5.1	0.2	3.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	5.4	1.3	0.9	0.0	6.7	2.7	0.0	5.7	0.5	4.4	4.0
LnGrp Delay(d),s/veh	36.4	15.8	6.0	137.0	0.0	38.1	32.3	0.0	38.4	30.6	36.9	17.0
LnGrp LOS	D	B	A	F		D	C		D	C	D	B
Approach Vol, veh/h		821			292			362			458	
Approach Delay, s/veh		24.3			44.2			36.3			25.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		19.0	5.0	43.1		17.5	26.9	21.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	6.0	68.0		22.0	43.0	31.0
Max Q Clear Time (g_c+I1), s		13.5	3.0	13.6		12.0	21.7	15.9
Green Ext Time (p_c), s		1.5	0.0	2.6		1.5	1.2	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	8	0	68	4	143	4	232	96	49	436	0
Future Volume (veh/h)	0	8	0	68	4	143	4	232	96	49	436	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1759	1429	1881	950	1638	1845	1792	1532	1900
Adj Flow Rate, veh/h	0	8	0	68	4	143	4	232	96	49	436	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	8	33	1	100	16	3	6	24	24
Cap, veh/h	0	738	633	666	555	675	3	522	500	58	535	0
Arrive On Green	0.00	0.39	0.00	0.39	0.39	0.39	0.00	0.32	0.32	0.03	0.35	0.00
Sat Flow, veh/h	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Grp Volume(v), veh/h	0	8	0	68	4	143	4	232	96	49	436	0
Grp Sat Flow(s),veh/h/ln	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Q Serve(g_s), s	0.0	0.1	0.0	1.5	0.1	2.6	0.2	5.2	2.1	1.3	12.0	0.0
Cycle Q Clear(g_c), s	0.0	0.1	0.0	1.7	0.1	2.6	0.2	5.2	2.1	1.3	12.0	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	738	633	666	555	675	3	522	500	58	535	0
V/C Ratio(X)	0.00	0.01	0.00	0.10	0.01	0.21	1.36	0.44	0.19	0.85	0.81	0.00
Avail Cap(c_a), veh/h	0	738	633	666	555	675	78	848	812	221	860	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	8.7	0.0	9.2	8.7	8.5	23.1	12.5	11.5	22.3	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.7	377.1	0.6	0.2	27.5	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	47.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.6	0.0	1.3	0.3	2.4	0.9	1.1	5.4	0.0
LnGrp Delay(d),s/veh	0.0	8.7	0.0	9.5	8.7	9.2	447.5	13.1	11.6	49.8	16.9	0.0
LnGrp LOS		A		A	A	A	F	B	B	D	B	
Approach Vol, veh/h		8			215			332			485	
Approach Delay, s/veh		8.7			9.3			17.9			20.3	
Approach LOS		A			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.0	5.6	18.8		22.0	4.2	20.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0	6.0	24.0		18.0	4.0	26.0
Max Q Clear Time (g_c+I1), s		4.6	3.3	7.2		2.1	2.2	14.0
Green Ext Time (p_c), s		0.5	0.0	1.5		0.0	0.0	2.2

Intersection Summary			
HCM 2010 Ctrl Delay			17.2
HCM 2010 LOS			B

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	20	36	9	28	7	17	102	14	14	218	9
Future Vol, veh/h	6	20	36	9	28	7	17	102	14	14	218	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	20	36	9	28	7	17	102	14	14	218	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	412	401	223	422	398	109	227	0	0	116	0	0
Stage 1	251	251	-	143	143	-	-	-	-	-	-	-
Stage 2	161	150	-	279	255	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	554	536	814	537	541	950	1353	-	-	1485	-	-
Stage 1	758	697	-	853	780	-	-	-	-	-	-	-
Stage 2	846	771	-	721	698	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	518	523	814	489	528	950	1353	-	-	1485	-	-
Mov Cap-2 Maneuver	518	523	-	489	528	-	-	-	-	-	-	-
Stage 1	748	689	-	842	770	-	-	-	-	-	-	-
Stage 2	799	761	-	662	690	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	12	1	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1353	-	-	659	558	1485	-	-
HCM Lane V/C Ratio	0.013	-	-	0.094	0.079	0.009	-	-
HCM Control Delay (s)	7.7	0	-	11	12	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	68	4	143	4	232	96	49	436	0
Future Vol, veh/h	0	8	0	68	4	143	4	232	96	49	436	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	68	4	143	4	232	96	49	436	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	896	870	436	778	774	232	436	0	0	328	0	0
Stage 1	534	534	-	240	240	-	-	-	-	-	-	-
Stage 2	362	336	-	538	534	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	263	292	625	306	296	810	751	-	-	1209	-	-
Stage 1	534	528	-	750	653	-	-	-	-	-	-	-
Stage 2	661	645	-	516	477	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	207	279	625	289	282	810	751	-	-	1209	-	-
Mov Cap-2 Maneuver	207	279	-	289	282	-	-	-	-	-	-	-
Stage 1	531	506	-	746	650	-	-	-	-	-	-	-
Stage 2	538	642	-	487	457	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	18.3	14	0.1	0.8
HCM LOS	C	B		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	751	-	-	279	-	289	282	810	1209	-	-
HCM Lane V/C Ratio	0.005	-	-	0.029	-	0.235	0.014	0.177	0.041	-	-
HCM Control Delay (s)	9.8	-	-	18.3	0	21.2	18	10.4	8.1	-	-
HCM Lane LOS	A	-	-	C	A	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	0.9	0	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	660	4	18	565	4	9	2	52	5	7	0
Future Vol, veh/h	0	660	4	18	565	4	9	2	52	5	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	660	4	18	565	4	9	2	52	5	7	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	569	0	0	664	0	0	1269	1267	662	1292	1267	567
Stage 1	-	-	-	-	-	-	662	662	-	603	603	-
Stage 2	-	-	-	-	-	-	607	605	-	689	664	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	1013	-	-	935	-	-	147	170	451	141	152	527
Stage 1	-	-	-	-	-	-	454	462	-	489	454	-
Stage 2	-	-	-	-	-	-	487	491	-	439	425	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1013	-	-	935	-	-	139	165	451	121	148	527
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	165	-	121	148	-
Stage 1	-	-	-	-	-	-	454	462	-	489	441	-
Stage 2	-	-	-	-	-	-	466	477	-	387	425	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	18.6	34.3
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	328	1013	-	-	935	-	-	135
HCM Lane V/C Ratio	0.192	-	-	-	0.019	-	-	0.089
HCM Control Delay (s)	18.6	0	-	-	8.9	0	-	34.3
HCM Lane LOS	C	A	-	-	A	A	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	91	205	4	156	1	133	7	10	1	11	3
Future Vol, veh/h	4	91	205	4	156	1	133	7	10	1	11	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	91	205	4	156	1	133	7	10	1	11	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	157	0	0	296	0	0	374	367	194	375	469	157
Stage 1	-	-	-	-	-	-	202	202	-	165	165	-
Stage 2	-	-	-	-	-	-	172	165	-	210	304	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1435	-	-	1145	-	-	583	565	827	586	495	894
Stage 1	-	-	-	-	-	-	800	738	-	842	766	-
Stage 2	-	-	-	-	-	-	830	766	-	797	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1435	-	-	1145	-	-	568	561	827	570	492	894
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	561	-	570	492	-
Stage 1	-	-	-	-	-	-	798	736	-	839	763	-
Stage 2	-	-	-	-	-	-	812	763	-	778	665	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	13.4	11.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	580	1435	-	-	1145	-	-	546
HCM Lane V/C Ratio	0.259	0.003	-	-	0.003	-	-	0.027
HCM Control Delay (s)	13.4	7.5	0	-	8.2	0	-	11.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	161	16	31	154	0	27	2	57	2	4	11
Future Vol, veh/h	4	161	16	31	154	0	27	2	57	2	4	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	161	16	31	154	0	27	2	57	2	4	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	154	0	0	177	0	0	401	393	169	423	401	154
Stage 1	-	-	-	-	-	-	177	177	-	216	216	-
Stage 2	-	-	-	-	-	-	224	216	-	207	185	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1439	-	-	1411	-	-	563	546	880	545	541	897
Stage 1	-	-	-	-	-	-	829	756	-	791	728	-
Stage 2	-	-	-	-	-	-	783	728	-	800	751	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1439	-	-	1411	-	-	542	531	880	498	526	897
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	531	-	498	526	-
Stage 1	-	-	-	-	-	-	827	754	-	789	711	-
Stage 2	-	-	-	-	-	-	751	711	-	744	749	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.3	10.6	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	727	1439	-	-	1411	-	-	712
HCM Lane V/C Ratio	0.118	0.003	-	-	0.022	-	-	0.024
HCM Control Delay (s)	10.6	7.5	0	-	7.6	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	80	0	0	79	0
Future Vol, veh/h	0	80	0	0	79	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	0	80	0	0	79	0
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	6.8	0	7.7
HCM LOS	A	-	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	100%	0%	0%
Vol Thru, %	0%	0%	100%
Vol Right, %	0%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	79	80	0
LT Vol	79	0	0
Through Vol	0	0	0
RT Vol	0	80	0
Lane Flow Rate	79	80	0
Geometry Grp	1	1	1
Degree of Util (X)	0.093	0.076	0
Departure Headway (Hd)	4.257	3.437	4.099
Convergence, Y/N	Yes	Yes	Yes
Cap	845	1035	0
Service Time	2.267	1.482	2.15
HCM Lane V/C Ratio	0.093	0.077	0
HCM Control Delay	7.7	6.8	7.2
HCM Lane LOS	A	A	N
HCM 95th-tile Q	0.3	0.2	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	568	219	84	452	47	209	66	65	62	99	50
Future Volume (veh/h)	24	568	219	84	452	47	209	66	65	62	99	50
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1854	1900	1900	1900	1863
Adj Flow Rate, veh/h	24	568	176	84	452	10	209	66	65	62	99	29
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	27	716	861	108	799	762	270	171	168	78	176	170
Arrive On Green	0.02	0.38	0.38	0.06	0.43	0.43	0.15	0.20	0.20	0.04	0.09	0.09
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	859	846	1810	1900	1583
Grp Volume(v), veh/h	24	568	176	84	452	10	209	0	131	62	99	29
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1704	1810	1900	1583
Q Serve(g_s), s	0.7	13.8	2.9	2.3	9.3	0.2	5.7	0.0	3.4	1.7	2.5	0.8
Cycle Q Clear(g_c), s	0.7	13.8	2.9	2.3	9.3	0.2	5.7	0.0	3.4	1.7	2.5	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	27	716	861	108	799	762	270	0	339	78	176	170
V/C Ratio(X)	0.88	0.79	0.20	0.78	0.57	0.01	0.77	0.00	0.39	0.80	0.56	0.17
Avail Cap(c_a), veh/h	178	1098	1193	284	1208	1116	569	0	670	213	373	335
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	13.9	6.2	23.6	11.0	7.1	20.8	0.0	17.7	24.1	22.1	20.6
Incr Delay (d2), s/veh	52.0	2.3	0.1	11.2	0.6	0.0	4.7	0.0	0.7	16.6	2.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.4	1.3	1.5	4.9	0.1	3.1	0.0	1.7	1.2	1.5	0.4
LnGrp Delay(d),s/veh	77.0	16.2	6.3	34.8	11.6	7.2	25.5	0.0	18.4	40.8	24.9	21.1
LnGrp LOS	E	B	A	C	B	A	C		B	D	C	C
Approach Vol, veh/h		768			546			340			190	
Approach Delay, s/veh		15.8			15.1			22.8			29.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	14.1	7.0	23.6	11.6	8.7	4.8	25.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	20.0	8.0	30.0	16.0	10.0	5.0	33.0
Max Q Clear Time (g_c+I1), s	3.7	5.4	4.3	15.8	7.7	4.5	2.7	11.3
Green Ext Time (p_c), s	0.0	0.5	0.0	3.8	0.4	0.2	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	23	19	137	20	138	20	496	54	153	821	10
Future Volume (veh/h)	21	23	19	137	20	138	20	496	54	153	821	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1839	1900	1900	1885	1900	1900	1850	1900	1845	1824	1900
Adj Flow Rate, veh/h	21	23	19	137	20	138	20	496	54	153	821	10
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	224	219	137	301	60	195	22	945	103	206	1404	17
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.01	0.30	0.30	0.12	0.40	0.40
Sat Flow, veh/h	359	809	504	597	220	719	1810	3199	347	1757	3506	43
Grp Volume(v), veh/h	63	0	0	295	0	0	20	272	278	153	406	425
Grp Sat Flow(s),veh/h/ln	1672	0	0	1537	0	0	1810	1757	1789	1757	1732	1816
Q Serve(g_s), s	0.0	0.0	0.0	5.0	0.0	0.0	0.4	4.9	4.9	3.2	6.9	6.9
Cycle Q Clear(g_c), s	1.0	0.0	0.0	6.5	0.0	0.0	0.4	4.9	4.9	3.2	6.9	6.9
Prop In Lane	0.33		0.30	0.46		0.47	1.00		0.19	1.00		0.02
Lane Grp Cap(c), veh/h	579	0	0	555	0	0	22	519	529	206	694	727
V/C Ratio(X)	0.11	0.00	0.00	0.53	0.00	0.00	0.91	0.52	0.53	0.74	0.58	0.58
Avail Cap(c_a), veh/h	1835	0	0	1814	0	0	334	1577	1605	1020	2241	2349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.5	0.0	0.0	12.4	0.0	0.0	18.7	11.1	11.1	16.2	8.9	8.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.8	0.0	0.0	67.3	0.8	0.8	5.3	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	2.8	0.0	0.0	0.6	2.5	2.5	1.8	3.4	3.6
LnGrp Delay(d),s/veh	10.5	0.0	0.0	13.1	0.0	0.0	86.0	11.9	11.9	21.4	9.7	9.6
LnGrp LOS	B			B			F	B	B	C	A	A
Approach Vol, veh/h		63			295			570			984	
Approach Delay, s/veh		10.5			13.1			14.5			11.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	15.2		14.3	4.5	19.2		14.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	22.0	34.0		42.0	7.0	49.0		42.0
Max Q Clear Time (g_c+I1), s	5.2	6.9		3.0	2.4	8.9		8.5
Green Ext Time (p_c), s	0.4	3.5		0.3	0.0	6.2		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	264	325	103	24	243	21	163	169	43	59	335	377
Future Volume (veh/h)	264	325	103	24	243	21	163	169	43	59	335	377
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1673	1710	1710	1673	1710	1676	1693	1693
Adj Flow Rate, veh/h	264	325	103	24	243	21	163	169	43	59	335	377
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	306	609	776	26	292	25	272	215	55	415	440	649
Arrive On Green	0.19	0.37	0.37	0.02	0.19	0.19	0.17	0.17	0.17	0.26	0.26	0.26
Sat Flow, veh/h	1597	1660	1454	1566	1518	131	1629	1288	328	1597	1693	1439
Grp Volume(v), veh/h	264	325	103	24	0	264	163	0	212	59	335	377
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1649	1629	0	1615	1597	1693	1439
Q Serve(g_s), s	13.5	13.0	3.0	1.3	0.0	13.0	7.8	0.0	10.6	2.4	15.4	16.4
Cycle Q Clear(g_c), s	13.5	13.0	3.0	1.3	0.0	13.0	7.8	0.0	10.6	2.4	15.4	16.4
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.20	1.00		1.00
Lane Grp Cap(c), veh/h	306	609	776	26	0	317	272	0	269	415	440	649
V/C Ratio(X)	0.86	0.53	0.13	0.91	0.00	0.83	0.60	0.00	0.79	0.14	0.76	0.58
Avail Cap(c_a), veh/h	587	1063	1173	111	0	567	521	0	517	700	743	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	21.0	9.9	41.4	0.0	32.8	32.5	0.0	33.7	24.0	28.8	17.2
Incr Delay (d2), s/veh	7.2	0.7	0.1	60.5	0.0	5.6	2.1	0.0	5.1	0.2	2.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	6.1	1.6	1.0	0.0	6.4	3.7	0.0	5.1	1.1	7.5	6.7
LnGrp Delay(d),s/veh	40.2	21.7	9.9	101.9	0.0	38.4	34.7	0.0	38.8	24.2	31.6	18.0
LnGrp LOS	D	C	A	F		D	C		D	C	C	B
Approach Vol, veh/h		692			288			375			771	
Approach Delay, s/veh		27.0			43.7			37.0			24.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		18.1	5.4	35.0		25.9	20.2	20.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		27.0	6.0	54.0		37.0	31.0	29.0
Max Q Clear Time (g_c+I1), s		12.6	3.3	15.0		18.4	15.5	15.0
Green Ext Time (p_c), s		1.5	0.0	2.5		3.5	0.7	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	0	0	104	12	82	0	496	52	187	288	0
Future Volume (veh/h)	8	0	0	104	12	82	0	496	52	187	288	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1743	1900	1863	1900	1667	1845	1881	1652	1900
Adj Flow Rate, veh/h	8	0	0	104	12	82	0	496	52	187	288	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	9	0	2	0	14	3	1	15	15
Cap, veh/h	555	0	420	561	626	727	3	555	522	232	879	0
Arrive On Green	0.33	0.00	0.00	0.33	0.33	0.33	0.00	0.33	0.33	0.13	0.53	0.00
Sat Flow, veh/h	1305	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Grp Volume(v), veh/h	8	0	0	104	12	82	0	496	52	187	288	0
Grp Sat Flow(s),veh/h/ln	1306	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Q Serve(g_s), s	0.2	0.0	4.0	2.7	0.2	1.7	0.0	16.3	1.3	5.9	5.7	0.0
Cycle Q Clear(g_c), s	0.5	0.0	4.0	3.2	0.2	1.7	0.0	16.3	1.3	5.9	5.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	555	0	420	561	626	727	3	555	522	232	879	0
V/C Ratio(X)	0.01	0.00	0.00	0.19	0.02	0.11	0.00	0.89	0.10	0.81	0.33	0.00
Avail Cap(c_a), veh/h	555	0	420	561	626	727	126	607	571	249	879	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.2	0.0	0.0	14.0	13.0	8.9	0.0	18.3	13.3	24.4	7.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.1	0.3	0.0	14.9	0.1	16.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.8	1.3	0.1	0.8	0.0	9.7	0.6	3.9	2.6	0.0
LnGrp Delay(d),s/veh	13.3	0.0	0.0	14.7	13.1	9.2	0.0	33.1	13.4	41.0	7.9	0.0
LnGrp LOS	B			B	B	A		C	B	D	A	
Approach Vol, veh/h		8			198			548			475	
Approach Delay, s/veh		13.3			12.3			31.2			20.9	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	11.5	23.2		23.0	0.0	34.7
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		19.0	8.0	21.0		19.0	4.0	25.0
Max Q Clear Time (g_c+I1), s		5.2	7.9	18.3		6.0	0.0	7.7
Green Ext Time (p_c), s		0.5	0.0	0.9		0.0	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	24.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	49	33	38	55	14	25	116	24	12	136	3
Future Vol, veh/h	2	49	33	38	55	14	25	116	24	12	136	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	49	33	38	55	14	25	116	24	12	136	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	375	352	138	381	341	128	139	0	0	140	0	0
Stage 1	162	162	-	178	178	-	-	-	-	-	-	-
Stage 2	213	190	-	203	163	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	586	576	908	571	584	927	1432	-	-	1456	-	-
Stage 1	845	768	-	817	756	-	-	-	-	-	-	-
Stage 2	794	747	-	792	767	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	523	560	908	502	568	927	1432	-	-	1456	-	-
Mov Cap-2 Maneuver	523	560	-	502	568	-	-	-	-	-	-	-
Stage 1	829	761	-	801	742	-	-	-	-	-	-	-
Stage 2	710	733	-	708	760	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	12.8	1.1	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1432	-	-	658	570	1456	-	-
HCM Lane V/C Ratio	0.017	-	-	0.128	0.188	0.008	-	-
HCM Control Delay (s)	7.6	0	-	11.3	12.8	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.7	0	-	-

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	104	12	82	0	496	52	187	288	0
Future Vol, veh/h	8	0	0	104	12	82	0	496	52	187	288	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	104	12	82	0	496	52	187	288	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1231	1210	288	1158	1158	496	288	0	0	548	0	0
Stage 1	662	662	-	496	496	-	-	-	-	-	-	-
Stage 2	569	548	-	662	662	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	156	184	756	168	198	574	1286	-	-	1027	-	-
Stage 1	454	462	-	543	549	-	-	-	-	-	-	-
Stage 2	511	520	-	440	462	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	109	151	756	144	162	574	1286	-	-	1027	-	-
Mov Cap-2 Maneuver	109	151	-	144	162	-	-	-	-	-	-	-
Stage 1	454	378	-	543	549	-	-	-	-	-	-	-
Stage 2	428	520	-	360	378	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	40.6	47.4	0	3.7
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	1286	-	-	109	-	144	162	574	1027	-	-
HCM Lane V/C Ratio	-	-	-	0.073	-	0.722	0.074	0.143	0.182	-	-
HCM Control Delay (s)	0	-	-	40.6	0	77.2	29	12.3	9.3	-	-
HCM Lane LOS	A	-	-	E	A	F	D	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	-	4.2	0.2	0.5	0.7	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	615	13	35	743	10	7	9	20	9	4	5
Future Vol, veh/h	4	615	13	35	743	10	7	9	20	9	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	615	13	35	743	10	7	9	20	9	4	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	753	0	0	628	0	0	1453	1453	622	1462	1454	748
Stage 1	-	-	-	-	-	-	630	630	-	818	818	-
Stage 2	-	-	-	-	-	-	823	823	-	644	636	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	866	-	-	964	-	-	109	132	481	108	131	416
Stage 1	-	-	-	-	-	-	473	478	-	373	393	-
Stage 2	-	-	-	-	-	-	371	391	-	465	475	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	866	-	-	964	-	-	99	123	481	93	122	416
Mov Cap-2 Maneuver	-	-	-	-	-	-	99	123	-	93	122	-
Stage 1	-	-	-	-	-	-	470	475	-	370	368	-
Stage 2	-	-	-	-	-	-	340	366	-	434	472	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	27.7	38
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	194	866	-	-	964	-	-	127
HCM Lane V/C Ratio	0.186	0.005	-	-	0.036	-	-	0.142
HCM Control Delay (s)	27.7	9.2	0	-	8.9	0	-	38
HCM Lane LOS	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	63	115	11	80	7	86	16	14	7	14	1
Future Vol, veh/h	1	63	115	11	80	7	86	16	14	7	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	63	115	11	80	7	86	16	14	7	14	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	178	0	0	236	232	121	244	286	84
Stage 1	-	-	-	-	-	-	123	123	-	106	106	-
Stage 2	-	-	-	-	-	-	113	109	-	138	180	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1522	-	-	1357	-	-	723	672	936	714	627	981
Stage 1	-	-	-	-	-	-	886	798	-	905	811	-
Stage 2	-	-	-	-	-	-	897	809	-	870	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1522	-	-	1357	-	-	704	665	936	685	621	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	704	665	-	685	621	-
Stage 1	-	-	-	-	-	-	885	797	-	904	804	-
Stage 2	-	-	-	-	-	-	873	802	-	839	753	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	11	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	720	1522	-	-	1357	-	-	651
HCM Lane V/C Ratio	0.161	0.001	-	-	0.008	-	-	0.034
HCM Control Delay (s)	11	7.4	0	-	7.7	0	-	10.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	172	70	19	101	0	12	3	30	0	4	9
Future Vol, veh/h	11	172	70	19	101	0	12	3	30	0	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	11	172	70	19	101	0	12	3	30	0	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	242	0	0	375	368	207	385	403	101
Stage 1	-	-	-	-	-	-	229	229	-	139	139	-
Stage 2	-	-	-	-	-	-	146	139	-	246	264	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1504	-	-	1336	-	-	586	564	839	577	539	960
Stage 1	-	-	-	-	-	-	778	718	-	869	785	-
Stage 2	-	-	-	-	-	-	861	785	-	762	694	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1504	-	-	1336	-	-	567	550	839	544	526	960
Mov Cap-2 Maneuver	-	-	-	-	-	-	567	550	-	544	526	-
Stage 1	-	-	-	-	-	-	771	712	-	861	773	-
Stage 2	-	-	-	-	-	-	836	773	-	725	688	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1.2	10.3	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	721	1504	-	-	1336	-	-	766
HCM Lane V/C Ratio	0.062	0.007	-	-	0.014	-	-	0.017
HCM Control Delay (s)	10.3	7.4	0	-	7.7	0	-	9.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	228	1	12	208	53	4
Future Vol, veh/h	228	1	12	208	53	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	228	1	12	208	53	4
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.9	8.8	8.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	93%	0%	5%
Vol Thru, %	0%	100%	95%
Vol Right, %	7%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	57	229	220
LT Vol	53	0	12
Through Vol	0	228	208
RT Vol	4	1	0
Lane Flow Rate	57	229	220
Geometry Grp	1	1	1
Degree of Util (X)	0.079	0.272	0.262
Departure Headway (Hd)	5.016	4.269	4.29
Convergence, Y/N	Yes	Yes	Yes
Cap	715	845	840
Service Time	3.039	2.28	2.302
HCM Lane V/C Ratio	0.08	0.271	0.262
HCM Control Delay	8.5	8.9	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	1.1	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	480	124	42	430	31	228	114	96	121	69	35
Future Volume (veh/h)	31	480	124	42	430	31	228	114	96	121	69	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	31	480	81	42	430	-6	228	114	96	121	69	14
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	35	621	816	48	648	643	299	169	142	147	211	201
Arrive On Green	0.02	0.34	0.34	0.03	0.35	0.00	0.17	0.19	0.19	0.09	0.11	0.11
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	909	765	1560	1863	1509
Grp Volume(v), veh/h	31	480	81	42	430	-6	228	0	210	121	69	14
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1674	1560	1863	1509
Q Serve(g_s), s	0.8	10.9	1.2	1.1	9.1	0.0	5.6	0.0	5.4	3.5	1.6	0.4
Cycle Q Clear(g_c), s	0.8	10.9	1.2	1.1	9.1	0.0	5.6	0.0	5.4	3.5	1.6	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	35	621	816	48	648	643	299	0	311	147	211	201
V/C Ratio(X)	0.89	0.77	0.10	0.88	0.66	-0.01	0.76	0.00	0.68	0.82	0.33	0.07
Avail Cap(c_a), veh/h	225	1064	1207	110	964	890	819	0	1021	204	527	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	13.5	5.8	22.2	12.6	0.0	18.3	0.0	17.4	20.4	18.8	17.4
Incr Delay (d2), s/veh	47.2	2.1	0.1	35.3	1.2	0.0	4.0	0.0	2.6	16.9	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.7	0.5	1.0	4.8	0.0	3.1	0.0	2.7	2.2	0.9	0.2
LnGrp Delay(d),s/veh	69.6	15.6	5.9	57.5	13.8	0.0	22.3	0.0	20.0	37.3	19.6	17.6
LnGrp LOS	E	B	A	E	B		C		B	D	B	B
Approach Vol, veh/h		592			466			438			204	
Approach Delay, s/veh		17.1			17.9			21.2			30.0	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	12.5	5.3	19.8	11.7	9.2	4.9	20.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	28.0	3.0	27.0	21.0	13.0	6.0	24.0
Max Q Clear Time (g_c+I1), s	5.5	7.4	3.1	12.9	7.6	3.6	2.8	11.1
Green Ext Time (p_c), s	0.0	1.2	0.0	2.9	0.5	0.2	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
5456: San Benito St/San Felipe Rd & North St/Santa Ana Rd 02/08/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	94	139	65	80	152	105	676	27	51	394	37
Future Volume (veh/h)	110	94	139	65	80	152	105	676	27	51	394	37
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1806	1900	1900	1864	1900	1759	1866	1900
Adj Flow Rate, veh/h	110	94	139	65	80	152	105	676	27	51	394	37
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	256	166	194	193	159	237	135	1165	47	58	968	90
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.07	0.34	0.34	0.03	0.30	0.30
Sat Flow, veh/h	417	576	677	235	553	826	1810	3472	139	1675	3278	306
Grp Volume(v), veh/h	343	0	0	297	0	0	105	345	358	51	212	219
Grp Sat Flow(s),veh/h/ln	1670	0	0	1614	0	0	1810	1771	1840	1675	1773	1812
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.0	2.0	5.6	5.6	1.1	3.4	3.4
Cycle Q Clear(g_c), s	5.9	0.0	0.0	5.3	0.0	0.0	2.0	5.6	5.6	1.1	3.4	3.4
Prop In Lane	0.32		0.41	0.22		0.51	1.00		0.08	1.00		0.17
Lane Grp Cap(c), veh/h	616	0	0	589	0	0	135	594	617	58	523	535
V/C Ratio(X)	0.56	0.00	0.00	0.50	0.00	0.00	0.78	0.58	0.58	0.88	0.41	0.41
Avail Cap(c_a), veh/h	1338	0	0	1301	0	0	465	1265	1314	287	1114	1139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	10.8	0.0	0.0	15.9	9.6	9.6	16.8	9.9	9.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.7	0.0	0.0	9.2	0.9	0.9	32.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	2.6	0.0	0.0	1.3	2.8	2.9	1.0	1.7	1.7
LnGrp Delay(d),s/veh	11.8	0.0	0.0	11.5	0.0	0.0	25.1	10.5	10.5	48.9	10.4	10.4
LnGrp LOS	B			B			C	B	B	D	B	B
Approach Vol, veh/h		343			297			808			482	
Approach Delay, s/veh		11.8			11.5			12.4			14.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	15.7		14.1	6.6	14.3		14.1
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	25.0		27.0	9.0	22.0		27.0
Max Q Clear Time (g_c+I1), s	3.1	7.6		7.9	4.0	5.4		7.3
Green Ext Time (p_c), s	0.0	4.1		2.2	0.1	2.3		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	420	100	24	359	28	117	273	20	52	237	216
Future Volume (veh/h)	343	420	100	24	359	28	117	273	20	52	237	216
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1608	1710	1644	1668	1710	1644	1693	1676
Adj Flow Rate, veh/h	343	420	100	24	359	28	117	273	20	52	237	216
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	372	798	954	27	392	31	316	310	23	253	274	562
Arrive On Green	0.23	0.48	0.48	0.02	0.27	0.27	0.20	0.20	0.20	0.16	0.16	0.16
Sat Flow, veh/h	1597	1660	1398	1467	1473	115	1566	1535	112	1566	1693	1425
Grp Volume(v), veh/h	343	420	100	24	0	387	117	0	293	52	237	216
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1587	1566	0	1648	1566	1693	1425
Q Serve(g_s), s	24.4	20.4	2.8	1.9	0.0	27.5	7.5	0.0	20.1	3.3	15.9	12.6
Cycle Q Clear(g_c), s	24.4	20.4	2.8	1.9	0.0	27.5	7.5	0.0	20.1	3.3	15.9	12.6
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	372	798	954	27	0	422	316	0	333	253	274	562
V/C Ratio(X)	0.92	0.53	0.10	0.90	0.00	0.92	0.37	0.00	0.88	0.21	0.87	0.38
Avail Cap(c_a), veh/h	467	915	1052	88	0	506	418	0	440	297	321	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	21.0	6.3	56.9	0.0	41.4	40.0	0.0	45.0	42.2	47.5	25.1
Incr Delay (d2), s/veh	21.0	0.5	0.0	58.4	0.0	19.5	0.7	0.0	14.9	0.4	19.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	9.5	1.8	1.2	0.0	14.3	3.3	0.0	10.5	1.5	8.9	5.0
LnGrp Delay(d),s/veh	64.5	21.5	6.4	115.3	0.0	60.9	40.7	0.0	59.9	42.6	66.5	25.5
LnGrp LOS	E	C	A	F		E	D		E	D	E	C
Approach Vol, veh/h		863			411			410			505	
Approach Delay, s/veh		36.8			64.1			54.5			46.5	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.4	6.1	59.8		22.8	31.0	34.9
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0	7.0	64.0		22.0	34.0	37.0
Max Q Clear Time (g_c+I1), s		22.1	3.9	22.4		17.9	26.4	29.5
Green Ext Time (p_c), s		1.4	0.0	3.3		0.9	0.7	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	23	38	9	29	7	18	112	14	14	206	9
Future Vol, veh/h	6	23	38	9	29	7	18	112	14	14	206	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	23	38	9	29	7	18	112	14	14	206	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	412	401	211	424	398	119	215	0	0	126	0	0
Stage 1	239	239	-	155	155	-	-	-	-	-	-	-
Stage 2	173	162	-	269	243	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	554	536	827	535	541	938	1367	-	-	1473	-	-
Stage 1	769	706	-	840	771	-	-	-	-	-	-	-
Stage 2	834	762	-	730	707	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	517	523	827	484	527	938	1367	-	-	1473	-	-
Mov Cap-2 Maneuver	517	523	-	484	527	-	-	-	-	-	-	-
Stage 1	758	698	-	828	760	-	-	-	-	-	-	-
Stage 2	785	751	-	666	699	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	12.1	1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1367	-	-	660	555	1473	-	-
HCM Lane V/C Ratio	0.013	-	-	0.102	0.081	0.01	-	-
HCM Control Delay (s)	7.7	0	-	11.1	12.1	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	95	4	217	4	243	134	79	439	0
Future Vol, veh/h	0	8	0	95	4	217	4	243	134	79	439	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	95	4	217	4	243	134	79	439	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1026	982	439	852	848	243	439	0	0	377	0	0
Stage 1	597	597	-	251	251	-	-	-	-	-	-	-
Stage 2	429	385	-	601	597	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	215	251	622	273	267	798	749	-	-	1160	-	-
Stage 1	493	495	-	740	646	-	-	-	-	-	-	-
Stage 2	608	614	-	477	445	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	233	622	251	248	798	749	-	-	1160	-	-
Mov Cap-2 Maneuver	146	233	-	251	248	-	-	-	-	-	-	-
Stage 1	491	461	-	736	643	-	-	-	-	-	-	-
Stage 2	438	611	-	437	415	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	21	16.3	0.1	1.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	749	-	-	233	-	251	248	798	1160	-	-
HCM Lane V/C Ratio	0.005	-	-	0.034	-	0.378	0.016	0.272	0.068	-	-
HCM Control Delay (s)	9.8	-	-	21	0	27.8	19.8	11.2	8.3	-	-
HCM Lane LOS	A	-	-	C	A	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	1.7	0	1.1	0.2	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	694	4	18	590	5	10	3	52	8	9	0
Future Vol, veh/h	0	694	4	18	590	5	10	3	52	8	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	694	4	18	590	5	10	3	52	8	9	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	595	0	0	698	0	0	1329	1327	696	1353	1327	593
Stage 1	-	-	-	-	-	-	696	696	-	629	629	-
Stage 2	-	-	-	-	-	-	633	631	-	724	698	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	991	-	-	908	-	-	133	157	432	128	140	509
Stage 1	-	-	-	-	-	-	435	446	-	474	441	-
Stage 2	-	-	-	-	-	-	471	477	-	420	409	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	991	-	-	908	-	-	123	152	432	108	136	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	152	-	108	136	-
Stage 1	-	-	-	-	-	-	435	446	-	474	428	-
Stage 2	-	-	-	-	-	-	447	463	-	367	409	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	20.7	39.6
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	294	991	-	-	908	-	-	121
HCM Lane V/C Ratio	0.221	-	-	-	0.02	-	-	0.14
HCM Control Delay (s)	20.7	0	-	-	9	0	-	39.6
HCM Lane LOS	C	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.5

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	198	177	28	264	1	123	4	32	0	3	3
Future Vol, veh/h	4	198	177	28	264	1	123	4	32	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	198	177	28	264	1	123	4	32	0	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	265	0	0	375	0	0	619	616	287	634	704	265
Stage 1	-	-	-	-	-	-	295	295	-	321	321	-
Stage 2	-	-	-	-	-	-	324	321	-	313	383	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1311	-	-	1068	-	-	401	409	733	395	364	779
Stage 1	-	-	-	-	-	-	713	673	-	695	655	-
Stage 2	-	-	-	-	-	-	688	655	-	702	616	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1311	-	-	1068	-	-	386	395	733	365	351	779
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	395	-	365	351	-
Stage 1	-	-	-	-	-	-	710	670	-	692	635	-
Stage 2	-	-	-	-	-	-	661	635	-	665	614	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	18.3	12.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	427	1311	-	-	1068	-	-	484
HCM Lane V/C Ratio	0.372	0.003	-	-	0.026	-	-	0.012
HCM Control Delay (s)	18.3	7.8	0	-	8.5	0	-	12.5
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	231	41	32	232	6	44	9	57	20	25	8
Future Vol, veh/h	3	231	41	32	232	6	44	9	57	20	25	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	231	41	32	232	6	44	9	57	20	25	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	272	0	0	574	560	252	590	577	235
Stage 1	-	-	-	-	-	-	258	258	-	299	299	-
Stage 2	-	-	-	-	-	-	316	302	-	291	278	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1341	-	-	1303	-	-	433	440	792	422	430	809
Stage 1	-	-	-	-	-	-	751	698	-	714	670	-
Stage 2	-	-	-	-	-	-	699	668	-	721	684	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1341	-	-	1303	-	-	400	426	792	376	417	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	400	426	-	376	417	-
Stage 1	-	-	-	-	-	-	749	696	-	712	651	-
Stage 2	-	-	-	-	-	-	647	649	-	658	682	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.9	13.3	14.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	542	1341	-	-	1303	-	-	431
HCM Lane V/C Ratio	0.203	0.002	-	-	0.025	-	-	0.123
HCM Control Delay (s)	13.3	7.7	0	-	7.8	0	-	14.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.4

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	203	39	8	199	37	13
Future Vol, veh/h	203	39	8	199	37	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	203	39	8	199	37	13
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.7	8.6	8.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	74%	0%	4%
Vol Thru, %	0%	84%	96%
Vol Right, %	26%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	50	242	207
LT Vol	37	0	8
Through Vol	0	203	199
RT Vol	13	39	0
Lane Flow Rate	50	242	207
Geometry Grp	1	1	1
Degree of Util (X)	0.068	0.272	0.24
Departure Headway (Hd)	4.864	4.046	4.178
Convergence, Y/N	Yes	Yes	Yes
Cap	741	871	845
Service Time	2.864	2.144	2.276
HCM Lane V/C Ratio	0.067	0.278	0.245
HCM Control Delay	8.2	8.7	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	1.1	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	660	227	105	547	15	217	102	82	31	149	59
Future Volume (veh/h)	41	660	227	105	547	15	217	102	82	31	149	59
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1855	1900	1900	1900	1863
Adj Flow Rate, veh/h	41	660	184	105	547	-22	217	102	82	31	149	38
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	50	763	901	136	851	771	269	229	184	37	213	222
Arrive On Green	0.03	0.41	0.41	0.08	0.46	0.00	0.15	0.24	0.24	0.02	0.11	0.11
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	953	766	1810	1900	1583
Grp Volume(v), veh/h	41	660	184	105	547	-22	217	0	184	31	149	38
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1719	1810	1900	1583
Q Serve(g_s), s	1.4	20.4	3.6	3.6	14.2	0.0	7.3	0.0	5.7	1.1	4.7	1.3
Cycle Q Clear(g_c), s	1.4	20.4	3.6	3.6	14.2	0.0	7.3	0.0	5.7	1.1	4.7	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	50	763	901	136	851	771	269	0	413	37	213	222
V/C Ratio(X)	0.81	0.87	0.20	0.77	0.64	-0.03	0.81	0.00	0.45	0.84	0.70	0.17
Avail Cap(c_a), veh/h	173	919	1037	230	978	881	403	0	547	144	333	321
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	17.0	6.9	28.5	13.1	0.0	25.9	0.0	20.3	30.7	26.9	23.8
Incr Delay (d2), s/veh	25.7	7.5	0.1	8.9	1.2	0.0	7.2	0.0	0.8	36.1	4.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	12.0	1.6	2.1	7.6	0.0	4.2	0.0	2.8	0.9	2.7	0.6
LnGrp Delay(d),s/veh	56.0	24.5	7.0	37.4	14.3	0.0	33.1	0.0	21.1	66.8	31.0	24.2
LnGrp LOS	E	C	A	D	B		C		C	E	C	C
Approach Vol, veh/h		885			630			401			218	
Approach Delay, s/veh		22.3			18.6			27.6			34.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	19.1	8.7	29.7	13.3	11.0	5.8	32.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	20.0	8.0	31.0	14.0	11.0	6.0	33.0
Max Q Clear Time (g_c+I1), s	3.1	7.7	5.6	22.4	9.3	6.7	3.4	16.2
Green Ext Time (p_c), s	0.0	0.8	0.0	3.4	0.3	0.3	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	75	95	86	82	139	108	491	12	155	822	107
Future Volume (veh/h)	81	75	95	86	82	139	108	491	12	155	822	107
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1841	1900	1900	1867	1900	1900	1846	1900	1845	1795	1900
Adj Flow Rate, veh/h	81	75	95	86	82	139	108	491	12	155	822	107
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	199	154	153	187	138	187	143	1316	32	206	1258	164
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.08	0.38	0.38	0.12	0.41	0.41
Sat Flow, veh/h	389	618	613	355	553	751	1810	3499	85	1757	3036	395
Grp Volume(v), veh/h	251	0	0	307	0	0	108	246	257	155	462	467
Grp Sat Flow(s),veh/h/ln	1621	0	0	1658	0	0	1810	1754	1831	1757	1705	1725
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	2.7	4.7	4.8	4.0	10.1	10.1
Cycle Q Clear(g_c), s	6.0	0.0	0.0	7.5	0.0	0.0	2.7	4.7	4.8	4.0	10.1	10.1
Prop In Lane	0.32		0.38	0.28		0.45	1.00		0.05	1.00		0.23
Lane Grp Cap(c), veh/h	507	0	0	513	0	0	143	659	688	206	707	715
V/C Ratio(X)	0.50	0.00	0.00	0.60	0.00	0.00	0.76	0.37	0.37	0.75	0.65	0.65
Avail Cap(c_a), veh/h	1330	0	0	1370	0	0	543	1504	1571	754	1682	1702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	0.0	15.9	0.0	0.0	21.0	10.6	10.6	19.9	11.0	11.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.1	0.0	0.0	7.9	0.4	0.3	5.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	3.7	0.0	0.0	1.7	2.3	2.4	2.3	4.9	5.0
LnGrp Delay(d),s/veh	16.1	0.0	0.0	17.0	0.0	0.0	29.0	10.9	10.9	25.4	12.0	12.0
LnGrp LOS	B			B			C	B	B	C	B	B
Approach Vol, veh/h		251			307			611			1084	
Approach Delay, s/veh		16.1			17.0			14.1			13.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	21.5		15.6	7.7	23.3		15.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	20.0	40.0		38.0	14.0	46.0		38.0
Max Q Clear Time (g_c+I1), s	6.0	6.8		8.0	4.7	12.1		9.5
Green Ext Time (p_c), s	0.3	3.3		1.7	0.2	7.2		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	486	100	38	395	47	170	224	54	81	391	323
Future Volume (veh/h)	224	486	100	38	395	47	170	224	54	81	391	323
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1671	1710	1710	1674	1710	1676	1693	1693
Adj Flow Rate, veh/h	224	486	100	38	395	47	170	224	54	81	391	323
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	246	679	870	46	416	50	309	247	60	400	424	582
Arrive On Green	0.15	0.41	0.41	0.03	0.28	0.28	0.19	0.19	0.19	0.25	0.25	0.25
Sat Flow, veh/h	1597	1660	1454	1566	1466	174	1629	1304	314	1597	1693	1439
Grp Volume(v), veh/h	224	486	100	38	0	442	170	0	278	81	391	323
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1640	1629	0	1618	1597	1693	1439
Q Serve(g_s), s	18.1	32.2	3.9	3.2	0.0	34.7	12.4	0.0	22.1	5.3	29.6	22.6
Cycle Q Clear(g_c), s	18.1	32.2	3.9	3.2	0.0	34.7	12.4	0.0	22.1	5.3	29.6	22.6
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	246	679	870	46	0	466	309	0	307	400	424	582
V/C Ratio(X)	0.91	0.72	0.12	0.82	0.00	0.95	0.55	0.00	0.91	0.20	0.92	0.55
Avail Cap(c_a), veh/h	267	708	895	60	0	487	347	0	345	425	451	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	32.5	11.4	63.4	0.0	46.1	48.2	0.0	52.1	38.9	48.0	30.0
Incr Delay (d2), s/veh	31.2	3.3	0.1	48.4	0.0	27.7	1.5	0.0	24.9	0.2	23.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	15.3	2.3	2.0	0.0	19.3	5.7	0.0	12.0	2.3	16.6	9.2
LnGrp Delay(d),s/veh	85.9	35.8	11.4	111.8	0.0	73.8	49.7	0.0	77.0	39.1	71.7	31.1
LnGrp LOS	F	D	B	F		E	D		E	D	E	C
Approach Vol, veh/h		810			480			448			795	
Approach Delay, s/veh		46.6			76.8			66.6			51.9	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		28.9	7.9	57.7		36.9	24.3	41.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	5.0	56.0		35.0	22.0	39.0
Max Q Clear Time (g_c+I1), s		24.1	5.2	34.2		31.6	20.1	36.7
Green Ext Time (p_c), s		0.8	0.0	3.5		1.3	0.1	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	57.5
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	51	34	38	58	14	27	134	24	12	162	3
Future Vol, veh/h	2	51	34	38	58	14	27	134	24	12	162	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	51	34	38	58	14	27	134	24	12	162	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	424	400	164	430	389	146	165	0	0	158	0	0
Stage 1	188	188	-	200	200	-	-	-	-	-	-	-
Stage 2	236	212	-	230	189	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	544	541	878	530	549	906	1401	-	-	1434	-	-
Stage 1	818	748	-	795	739	-	-	-	-	-	-	-
Stage 2	772	731	-	766	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	480	525	878	461	533	906	1401	-	-	1434	-	-
Mov Cap-2 Maneuver	480	525	-	461	533	-	-	-	-	-	-	-
Stage 1	801	741	-	778	723	-	-	-	-	-	-	-
Stage 2	684	716	-	679	741	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.7	13.5	1.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1401	-	-	621	532	1434	-	-
HCM Lane V/C Ratio	0.019	-	-	0.14	0.207	0.008	-	-
HCM Control Delay (s)	7.6	0	-	11.7	13.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0	-	-

Intersection	
Int Delay, s/veh	35.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	142	12	138	0	502	77	270	299	0
Future Vol, veh/h	8	0	0	142	12	138	0	502	77	270	299	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	142	12	138	0	502	77	270	299	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1455	1418	299	1341	1341	502	299	0	0	579	0	0
Stage 1	839	839	-	502	502	-	-	-	-	-	-	-
Stage 2	616	579	-	839	839	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	109	138	745	~ 125	154	569	1274	-	-	1000	-	-
Stage 1	363	384	-	539	545	-	-	-	-	-	-	-
Stage 2	481	504	-	350	384	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	101	745	~ 99	112	569	1274	-	-	1000	-	-
Mov Cap-2 Maneuver	60	101	-	~ 99	112	-	-	-	-	-	-	-
Stage 1	363	280	-	539	545	-	-	-	-	-	-	-
Stage 2	356	504	-	256	280	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	74	164	0	4.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	1274	-	-	60	-	99	112	569	1000	-	-
HCM Lane V/C Ratio	-	-	-	0.133	-	1.434	0.107	0.243	0.27	-	-
HCM Control Delay (s)	0	-	-	74	0	$ 320.8	41	13.3	9.9	-	-
HCM Lane LOS	A	-	-	F	A	F	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	-	10.5	0.3	0.9	1.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	693	14	35	825	12	7	11	20	11	5	5
Future Vol, veh/h	4	693	14	35	825	12	7	11	20	11	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	693	14	35	825	12	7	11	20	11	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	837	0	0	707	0	0	1614	1615	700	1625	1616	831
Stage 1	-	-	-	-	-	-	708	708	-	901	901	-
Stage 2	-	-	-	-	-	-	906	907	-	724	715	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	806	-	-	901	-	-	85	105	434	83	105	373
Stage 1	-	-	-	-	-	-	429	441	-	335	360	-
Stage 2	-	-	-	-	-	-	333	357	-	420	438	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	806	-	-	901	-	-	76	97	434	68	97	373
Mov Cap-2 Maneuver	-	-	-	-	-	-	76	97	-	68	97	-
Stage 1	-	-	-	-	-	-	426	437	-	332	334	-
Stage 2	-	-	-	-	-	-	300	331	-	387	434	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	36.7	54.7
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	151	806	-	-	901	-	-	93
HCM Lane V/C Ratio	0.252	0.005	-	-	0.039	-	-	0.226
HCM Control Delay (s)	36.7	9.5	0	-	9.2	0	-	54.7
HCM Lane LOS	E	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.8

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	181	107	50	197	6	72	7	56	6	8	1
Future Vol, veh/h	1	181	107	50	197	6	72	7	56	6	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	181	107	50	197	6	72	7	56	6	8	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	203	0	0	288	0	0	542	540	235	568	590	200
Stage 1	-	-	-	-	-	-	237	237	-	300	300	-
Stage 2	-	-	-	-	-	-	305	303	-	268	290	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1381	-	-	1235	-	-	454	451	809	437	423	846
Stage 1	-	-	-	-	-	-	771	713	-	713	669	-
Stage 2	-	-	-	-	-	-	709	667	-	742	676	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1381	-	-	1235	-	-	431	430	809	387	403	846
Mov Cap-2 Maneuver	-	-	-	-	-	-	431	430	-	387	403	-
Stage 1	-	-	-	-	-	-	770	712	-	712	638	-
Stage 2	-	-	-	-	-	-	667	636	-	683	675	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	14	14.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	535	1381	-	-	1235	-	-	411
HCM Lane V/C Ratio	0.252	0.001	-	-	0.04	-	-	0.036
HCM Control Delay (s)	14	7.6	0	-	8	0	-	14.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	258	95	20	189	20	43	26	31	12	17	6
Future Vol, veh/h	7	258	95	20	189	20	43	26	31	12	17	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	7	258	95	20	189	20	43	26	31	12	17	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	209	0	0	353	0	0	571	569	306	587	606	199
Stage 1	-	-	-	-	-	-	320	320	-	239	239	-
Stage 2	-	-	-	-	-	-	251	249	-	348	367	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1374	-	-	1217	-	-	435	435	739	424	414	847
Stage 1	-	-	-	-	-	-	696	656	-	769	711	-
Stage 2	-	-	-	-	-	-	758	704	-	672	626	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1374	-	-	1217	-	-	410	424	739	380	404	847
Mov Cap-2 Maneuver	-	-	-	-	-	-	410	424	-	380	404	-
Stage 1	-	-	-	-	-	-	692	652	-	764	697	-
Stage 2	-	-	-	-	-	-	720	691	-	614	622	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	14.5	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	480	1374	-	-	1217	-	-	433
HCM Lane V/C Ratio	0.208	0.005	-	-	0.016	-	-	0.081
HCM Control Delay (s)	14.5	7.6	0	-	8	0	-	14
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	243	4	12	213	54	4
Future Vol, veh/h	243	4	12	213	54	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	243	4	12	213	54	4
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.1	8.9	8.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	93%	0%	5%
Vol Thru, %	0%	98%	95%
Vol Right, %	7%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	58	247	225
LT Vol	54	0	12
Through Vol	0	243	213
RT Vol	4	4	0
Lane Flow Rate	58	247	225
Geometry Grp	1	1	1
Degree of Util (X)	0.082	0.293	0.27
Departure Headway (Hd)	5.067	4.272	4.312
Convergence, Y/N	Yes	Yes	Yes
Cap	708	845	835
Service Time	3.092	2.286	2.327
HCM Lane V/C Ratio	0.082	0.292	0.269
HCM Control Delay	8.5	9.1	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	1.2	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	480	124	42	430	33	228	115	96	127	73	38
Future Volume (veh/h)	32	480	124	42	430	33	228	115	96	127	73	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	32	480	81	42	430	-4	228	115	96	127	73	17
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	36	619	813	48	645	647	298	169	141	155	221	210
Arrive On Green	0.02	0.34	0.34	0.03	0.35	0.00	0.17	0.19	0.19	0.10	0.12	0.12
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	913	762	1560	1863	1509
Grp Volume(v), veh/h	32	480	81	42	430	-4	228	0	211	127	73	17
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1675	1560	1863	1509
Q Serve(g_s), s	0.9	11.0	1.2	1.1	9.2	0.0	5.6	0.0	5.4	3.7	1.7	0.5
Cycle Q Clear(g_c), s	0.9	11.0	1.2	1.1	9.2	0.0	5.6	0.0	5.4	3.7	1.7	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	36	619	813	48	645	647	298	0	311	155	221	210
V/C Ratio(X)	0.89	0.78	0.10	0.88	0.67	-0.01	0.77	0.00	0.68	0.82	0.33	0.08
Avail Cap(c_a), veh/h	223	1053	1196	109	954	889	772	0	1010	202	562	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	13.7	5.9	22.5	12.8	0.0	18.5	0.0	17.6	20.5	18.8	17.4
Incr Delay (d2), s/veh	45.3	2.1	0.1	35.1	1.2	0.0	4.1	0.0	2.6	18.2	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.8	0.5	1.0	4.9	0.0	3.1	0.0	2.7	2.4	0.9	0.2
LnGrp Delay(d),s/veh	68.0	15.8	6.0	57.5	14.0	0.0	22.6	0.0	20.2	38.8	19.6	17.5
LnGrp LOS	E	B	A	E	B		C		C	D	B	B
Approach Vol, veh/h		593			468			439			217	
Approach Delay, s/veh		17.3			18.0			21.4			30.7	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	12.6	5.3	19.9	11.7	9.5	5.0	20.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	28.0	3.0	27.0	20.0	14.0	6.0	24.0
Max Q Clear Time (g_c+I1), s	5.7	7.4	3.1	13.0	7.6	3.7	2.9	11.2
Green Ext Time (p_c), s	0.0	1.2	0.0	2.9	0.5	0.2	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	97	145	65	81	152	107	676	27	51	394	39
Future Volume (veh/h)	116	97	145	65	81	152	107	676	27	51	394	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1806	1900	1900	1864	1900	1759	1866	1900
Adj Flow Rate, veh/h	116	97	145	65	81	152	107	676	27	51	394	39
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	259	169	201	192	167	246	138	1148	46	58	941	93
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.03	0.29	0.29
Sat Flow, veh/h	421	567	672	232	559	823	1810	3472	139	1675	3261	321
Grp Volume(v), veh/h	358	0	0	298	0	0	107	345	358	51	213	220
Grp Sat Flow(s),veh/h/ln	1660	0	0	1614	0	0	1810	1771	1840	1675	1773	1809
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	2.1	5.8	5.8	1.1	3.5	3.5
Cycle Q Clear(g_c), s	6.3	0.0	0.0	5.3	0.0	0.0	2.1	5.8	5.8	1.1	3.5	3.5
Prop In Lane	0.32		0.41	0.22		0.51	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	629	0	0	604	0	0	138	585	608	58	512	522
V/C Ratio(X)	0.57	0.00	0.00	0.49	0.00	0.00	0.78	0.59	0.59	0.88	0.42	0.42
Avail Cap(c_a), veh/h	1355	0	0	1320	0	0	457	1193	1239	282	1045	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	10.7	0.0	0.0	16.2	9.9	9.9	17.1	10.2	10.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	8.9	0.9	0.9	31.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	2.6	0.0	0.0	1.4	2.9	3.0	1.0	1.7	1.8
LnGrp Delay(d),s/veh	11.8	0.0	0.0	11.3	0.0	0.0	25.1	10.9	10.8	48.9	10.8	10.8
LnGrp LOS	B			B			C	B	B	D	B	B
Approach Vol, veh/h		358			298			810			484	
Approach Delay, s/veh		11.8			11.3			12.7			14.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	15.8		14.6	6.7	14.3		14.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	24.0		28.0	9.0	21.0		28.0
Max Q Clear Time (g_c+I1), s	3.1	7.8		8.3	4.1	5.5		7.3
Green Ext Time (p_c), s	0.0	4.0		2.3	0.1	2.3		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	343	423	103	24	360	29	118	274	20	55	240	216
Future Volume (veh/h)	343	423	103	24	360	29	118	274	20	55	240	216
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1608	1710	1644	1668	1710	1644	1693	1676
Adj Flow Rate, veh/h	343	423	103	24	360	29	118	274	20	55	240	216
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	371	799	955	27	391	32	316	310	23	255	275	563
Arrive On Green	0.23	0.48	0.48	0.02	0.27	0.27	0.20	0.20	0.20	0.16	0.16	0.16
Sat Flow, veh/h	1597	1660	1398	1467	1468	118	1566	1536	112	1566	1693	1425
Grp Volume(v), veh/h	343	423	103	24	0	389	118	0	294	55	240	216
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1587	1566	0	1648	1566	1693	1425
Q Serve(g_s), s	24.7	20.9	3.0	1.9	0.0	28.0	7.6	0.0	20.4	3.6	16.3	12.7
Cycle Q Clear(g_c), s	24.7	20.9	3.0	1.9	0.0	28.0	7.6	0.0	20.4	3.6	16.3	12.7
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	371	799	955	27	0	423	316	0	333	255	275	563
V/C Ratio(X)	0.92	0.53	0.11	0.90	0.00	0.92	0.37	0.00	0.88	0.22	0.87	0.38
Avail Cap(c_a), veh/h	462	904	1043	87	0	500	413	0	435	293	317	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	21.2	6.4	57.6	0.0	41.9	40.5	0.0	45.5	42.7	48.0	25.3
Incr Delay (d2), s/veh	21.5	0.5	0.0	58.0	0.0	20.3	0.7	0.0	15.6	0.4	20.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	9.6	1.9	1.2	0.0	14.6	3.4	0.0	10.7	1.6	9.2	5.1
LnGrp Delay(d),s/veh	65.6	21.8	6.4	115.6	0.0	62.2	41.2	0.0	61.1	43.1	68.3	25.8
LnGrp LOS	E	C	A	F		E	D		E	D	E	C
Approach Vol, veh/h		869			413			412			511	
Approach Delay, s/veh		37.3			65.3			55.4			47.6	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		27.7	6.1	60.5		23.1	31.3	35.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		31.0	7.0	64.0		22.0	34.0	37.0
Max Q Clear Time (g_c+I1), s		22.4	3.9	22.9		18.3	26.7	30.0
Green Ext Time (p_c), s		1.4	0.0	3.3		0.9	0.6	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	48.3
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	8	0	95	4	244	4	243	134	88	439	0
Future Volume (veh/h)	0	8	0	95	4	244	4	243	134	88	439	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1759	1429	1881	950	1638	1845	1792	1532	1900
Adj Flow Rate, veh/h	0	8	0	95	4	244	4	243	134	88	439	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	8	33	1	100	16	3	6	24	24
Cap, veh/h	0	736	631	664	554	722	3	475	455	110	538	0
Arrive On Green	0.00	0.39	0.00	0.39	0.39	0.39	0.00	0.29	0.29	0.06	0.35	0.00
Sat Flow, veh/h	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Grp Volume(v), veh/h	0	8	0	95	4	244	4	243	134	88	439	0
Grp Sat Flow(s),veh/h/ln	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Q Serve(g_s), s	0.0	0.1	0.0	2.2	0.1	4.6	0.2	5.7	3.1	2.4	12.1	0.0
Cycle Q Clear(g_c), s	0.0	0.1	0.0	2.3	0.1	4.6	0.2	5.7	3.1	2.4	12.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	736	631	664	554	722	3	475	455	110	538	0
V/C Ratio(X)	0.00	0.01	0.00	0.14	0.01	0.34	1.36	0.51	0.29	0.80	0.82	0.00
Avail Cap(c_a), veh/h	0	736	631	664	554	722	78	811	776	257	858	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	8.8	0.0	9.5	8.7	8.2	23.2	13.8	12.8	21.4	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.5	0.0	1.3	377.2	0.9	0.4	12.5	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	47.3	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.9	0.0	2.3	0.3	2.7	1.3	1.5	5.5	0.0
LnGrp Delay(d),s/veh	0.0	8.8	0.0	9.9	8.8	9.5	447.6	14.6	13.2	34.0	17.1	0.0
LnGrp LOS		A		A	A	A	F	B	B	C	B	
Approach Vol, veh/h		8			343			381			527	
Approach Delay, s/veh		8.8			9.6			18.6			19.9	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.0	7.0	17.5		22.0	4.2	20.3
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0	7.0	23.0		18.0	4.0	26.0
Max Q Clear Time (g_c+I1), s		6.6	4.4	7.7		2.1	2.2	14.1
Green Ext Time (p_c), s		0.9	0.0	1.6		0.0	0.0	2.2

Intersection Summary			
HCM 2010 Ctrl Delay			16.6
HCM 2010 LOS			B

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	23	38	9	29	7	18	116	14	14	219	9
Future Vol, veh/h	6	23	38	9	29	7	18	116	14	14	219	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	23	38	9	29	7	18	116	14	14	219	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	429	418	224	441	415	123	228	0	0	130	0	0
Stage 1	252	252	-	159	159	-	-	-	-	-	-	-
Stage 2	177	166	-	282	256	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	540	524	813	521	529	933	1352	-	-	1468	-	-
Stage 1	757	697	-	836	768	-	-	-	-	-	-	-
Stage 2	829	759	-	718	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	503	511	813	470	516	933	1352	-	-	1468	-	-
Mov Cap-2 Maneuver	503	511	-	470	516	-	-	-	-	-	-	-
Stage 1	746	689	-	824	757	-	-	-	-	-	-	-
Stage 2	780	748	-	654	689	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	12.2	0.9	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1352	-	-	646	543	1468	-	-
HCM Lane V/C Ratio	0.013	-	-	0.104	0.083	0.01	-	-
HCM Control Delay (s)	7.7	0	-	11.2	12.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	95	4	244	4	243	134	88	439	0
Future Vol, veh/h	0	8	0	95	4	244	4	243	134	88	439	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	95	4	244	4	243	134	88	439	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1057	1000	439	870	866	243	439	0	0	377	0	0
Stage 1	615	615	-	251	251	-	-	-	-	-	-	-
Stage 2	442	385	-	619	615	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	205	245	622	265	260	798	749	-	-	1160	-	-
Stage 1	482	485	-	740	646	-	-	-	-	-	-	-
Stage 2	598	614	-	466	437	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	132	225	622	242	239	798	749	-	-	1160	-	-
Mov Cap-2 Maneuver	132	225	-	242	239	-	-	-	-	-	-	-
Stage 1	480	448	-	736	643	-	-	-	-	-	-	-
Stage 2	410	611	-	423	404	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	21.6	16.5	0.1	1.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	749	-	-	225	-	242	239	798	1160	-	-
HCM Lane V/C Ratio	0.005	-	-	0.036	-	0.393	0.017	0.306	0.076	-	-
HCM Control Delay (s)	9.8	-	-	21.6	0	29.2	20.3	11.5	8.4	-	-
HCM Lane LOS	A	-	-	C	A	D	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	-	1.8	0.1	1.3	0.2	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	0	700	4	18	592	5	10	4	52	8	12	0
Future Vol, veh/h	0	700	4	18	592	5	10	4	52	8	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	700	4	18	592	5	10	4	52	8	12	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	597	0	0	704	0	0	1339	1335	702	1361	1335	595
Stage 1	-	-	-	-	-	-	702	702	-	631	631	-
Stage 2	-	-	-	-	-	-	637	633	-	730	704	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	989	-	-	903	-	-	131	155	428	127	138	508
Stage 1	-	-	-	-	-	-	432	443	-	472	440	-
Stage 2	-	-	-	-	-	-	469	476	-	417	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	989	-	-	903	-	-	119	150	428	107	134	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	150	-	107	134	-
Stage 1	-	-	-	-	-	-	432	443	-	472	427	-
Stage 2	-	-	-	-	-	-	442	462	-	363	407	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	21.5	40.2
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	284	989	-	-	903	-	-	122
HCM Lane V/C Ratio	0.232	-	-	-	0.02	-	-	0.164
HCM Control Delay (s)	21.5	0	-	-	9.1	0	-	40.2
HCM Lane LOS	C	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	211	186	28	268	3	126	5	32	5	7	3
Future Vol, veh/h	4	211	186	28	268	3	126	5	32	5	7	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	211	186	28	268	3	126	5	32	5	7	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	271	0	0	397	0	0	643	639	304	657	731	270
Stage 1	-	-	-	-	-	-	312	312	-	326	326	-
Stage 2	-	-	-	-	-	-	331	327	-	331	405	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1304	-	-	1047	-	-	386	397	717	381	351	774
Stage 1	-	-	-	-	-	-	699	661	-	691	652	-
Stage 2	-	-	-	-	-	-	682	651	-	687	602	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1304	-	-	1047	-	-	368	383	717	351	339	774
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	383	-	351	339	-
Stage 1	-	-	-	-	-	-	696	658	-	688	632	-
Stage 2	-	-	-	-	-	-	651	631	-	649	600	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	19.6	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	407	1304	-	-	1047	-	-	387
HCM Lane V/C Ratio	0.4	0.003	-	-	0.027	-	-	0.039
HCM Control Delay (s)	19.6	7.8	0	-	8.5	0	-	14.7
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.9	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	238	41	34	251	6	44	9	58	20	26	16
Future Vol, veh/h	6	238	41	34	251	6	44	9	58	20	26	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	238	41	34	251	6	44	9	58	20	26	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	279	0	0	614	596	259	626	613	254
Stage 1	-	-	-	-	-	-	271	271	-	322	322	-
Stage 2	-	-	-	-	-	-	343	325	-	304	291	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1320	-	-	1295	-	-	407	420	785	400	410	790
Stage 1	-	-	-	-	-	-	739	689	-	694	655	-
Stage 2	-	-	-	-	-	-	676	653	-	710	675	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1320	-	-	1295	-	-	368	405	785	354	395	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	405	-	354	395	-
Stage 1	-	-	-	-	-	-	735	686	-	691	635	-
Stage 2	-	-	-	-	-	-	615	633	-	646	672	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.9	13.9	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1320	-	-	1295	-	-	435
HCM Lane V/C Ratio	0.216	0.005	-	-	0.026	-	-	0.143
HCM Control Delay (s)	13.9	7.7	0	-	7.9	0	-	14.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.1	-	-	0.5

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	213	41	8	216	41	13
Future Vol, veh/h	213	41	8	216	41	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	213	41	8	216	41	13
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.9	8.9	8.4
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	76%	0%	4%
Vol Thru, %	0%	84%	96%
Vol Right, %	24%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	54	254	224
LT Vol	41	0	8
Through Vol	0	213	216
RT Vol	13	41	0
Lane Flow Rate	54	254	224
Geometry Grp	1	1	1
Degree of Util (X)	0.074	0.294	0.268
Departure Headway (Hd)	4.944	4.168	4.307
Convergence, Y/N	Yes	Yes	Yes
Cap	725	866	840
Service Time	2.968	2.18	2.307
HCM Lane V/C Ratio	0.074	0.293	0.267
HCM Control Delay	8.4	8.9	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	1.2	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	660	227	105	547	21	217	106	82	35	151	61
Future Volume (veh/h)	44	660	227	105	547	21	217	106	82	35	151	61
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1855	1900	1900	1900	1863
Adj Flow Rate, veh/h	44	660	184	105	547	-16	217	106	82	35	151	40
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	55	762	901	136	846	772	269	231	179	42	215	227
Arrive On Green	0.03	0.41	0.41	0.08	0.45	0.00	0.15	0.24	0.24	0.02	0.11	0.11
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	971	751	1810	1900	1583
Grp Volume(v), veh/h	44	660	184	105	547	-16	217	0	188	35	151	40
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1722	1810	1900	1583
Q Serve(g_s), s	1.5	20.4	3.6	3.6	14.3	0.0	7.3	0.0	5.9	1.2	4.8	1.4
Cycle Q Clear(g_c), s	1.5	20.4	3.6	3.6	14.3	0.0	7.3	0.0	5.9	1.2	4.8	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	55	762	901	136	846	772	269	0	410	42	215	227
V/C Ratio(X)	0.81	0.87	0.20	0.77	0.65	-0.02	0.81	0.00	0.46	0.83	0.70	0.18
Avail Cap(c_a), veh/h	172	917	1034	230	976	884	402	0	547	144	332	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	17.0	7.0	28.6	13.3	0.0	26.0	0.0	20.5	30.6	26.9	23.7
Incr Delay (d2), s/veh	23.5	7.6	0.1	8.9	1.2	0.0	7.2	0.0	0.8	31.2	4.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	12.1	1.6	2.1	7.6	0.0	4.2	0.0	2.9	1.0	2.8	0.6
LnGrp Delay(d),s/veh	53.9	24.6	7.1	37.5	14.5	0.0	33.2	0.0	21.3	61.9	31.0	24.1
LnGrp LOS	D	C	A	D	B		C		C	E	C	C
Approach Vol, veh/h		888			636			405			226	
Approach Delay, s/veh		22.4			18.6			27.7			34.6	
Approach LOS		C			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.5	19.0	8.7	29.8	13.3	11.1	5.9	32.6				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	5.0	20.0	8.0	31.0	14.0	11.0	6.0	33.0				
Max Q Clear Time (g_c+I1), s	3.2	7.9	5.6	22.4	9.3	6.8	3.5	16.3				
Green Ext Time (p_c), s	0.0	0.8	0.0	3.4	0.3	0.3	0.0	3.3				
Intersection Summary												
HCM 2010 Ctrl Delay			23.6									
HCM 2010 LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	77	99	86	85	139	115	491	12	155	822	114
Future Volume (veh/h)	85	77	99	86	85	139	115	491	12	155	822	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1840	1900	1900	1866	1900	1900	1846	1900	1845	1793	1900
Adj Flow Rate, veh/h	85	77	99	86	85	139	115	491	12	155	822	114
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	199	149	151	185	140	186	152	1338	33	206	1248	173
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.08	0.38	0.38	0.12	0.42	0.42
Sat Flow, veh/h	396	602	609	355	565	748	1810	3499	85	1757	3006	417
Grp Volume(v), veh/h	261	0	0	310	0	0	115	246	257	155	466	470
Grp Sat Flow(s),veh/h/ln	1606	0	0	1668	0	0	1810	1754	1831	1757	1704	1720
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	3.0	4.8	4.8	4.1	10.5	10.5
Cycle Q Clear(g_c), s	6.5	0.0	0.0	7.7	0.0	0.0	3.0	4.8	4.8	4.1	10.5	10.5
Prop In Lane	0.33		0.38	0.28		0.45	1.00		0.05	1.00		0.24
Lane Grp Cap(c), veh/h	499	0	0	511	0	0	152	670	700	206	707	714
V/C Ratio(X)	0.52	0.00	0.00	0.61	0.00	0.00	0.76	0.37	0.37	0.75	0.66	0.66
Avail Cap(c_a), veh/h	1267	0	0	1313	0	0	532	1511	1578	738	1683	1699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	0.0	0.0	16.3	0.0	0.0	21.3	10.6	10.6	20.3	11.2	11.2
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.2	0.0	0.0	7.4	0.3	0.3	5.5	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	3.9	0.0	0.0	1.8	2.4	2.5	2.3	5.1	5.2
LnGrp Delay(d),s/veh	16.7	0.0	0.0	17.5	0.0	0.0	28.7	10.9	10.9	25.9	12.2	12.2
LnGrp LOS	B			B			C	B	B	C	B	B
Approach Vol, veh/h		261			310			618			1091	
Approach Delay, s/veh		16.7			17.5			14.2			14.2	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.6	22.2		15.8	8.0	23.8		15.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	20.0	41.0		37.0	14.0	47.0		37.0
Max Q Clear Time (g_c+I1), s	6.1	6.8		8.5	5.0	12.5		9.7
Green Ext Time (p_c), s	0.3	3.3		1.8	0.2	7.3		2.1

Intersection Summary			
HCM 2010 Ctrl Delay			14.9
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	488	102	38	398	50	173	227	54	83	393	323
Future Volume (veh/h)	224	488	102	38	398	50	173	227	54	83	393	323
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1671	1710	1710	1674	1710	1676	1693	1693
Adj Flow Rate, veh/h	224	488	102	38	398	50	173	227	54	83	393	323
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	246	681	873	46	416	52	310	249	59	399	423	581
Arrive On Green	0.15	0.41	0.41	0.03	0.29	0.29	0.19	0.19	0.19	0.25	0.25	0.25
Sat Flow, veh/h	1597	1660	1454	1566	1456	183	1629	1308	311	1597	1693	1439
Grp Volume(v), veh/h	224	488	102	38	0	448	173	0	281	83	393	323
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1639	1629	0	1619	1597	1693	1439
Q Serve(g_s), s	18.4	32.8	4.0	3.2	0.0	35.9	12.9	0.0	22.7	5.5	30.3	23.0
Cycle Q Clear(g_c), s	18.4	32.8	4.0	3.2	0.0	35.9	12.9	0.0	22.7	5.5	30.3	23.0
Prop In Lane	1.00		1.00	1.00		0.11	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	246	681	873	46	0	469	310	0	308	399	423	581
V/C Ratio(X)	0.91	0.72	0.12	0.82	0.00	0.96	0.56	0.00	0.91	0.21	0.93	0.56
Avail Cap(c_a), veh/h	263	696	886	59	0	478	341	0	339	418	444	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	32.9	11.5	64.5	0.0	46.9	49.0	0.0	53.0	39.6	48.9	30.6
Incr Delay (d2), s/veh	32.2	3.5	0.1	49.5	0.0	29.9	1.6	0.0	26.4	0.3	25.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	15.7	2.4	2.0	0.0	20.1	5.9	0.0	12.4	2.4	17.2	9.3
LnGrp Delay(d),s/veh	87.8	36.3	11.5	114.0	0.0	76.7	50.6	0.0	79.4	39.9	74.3	31.7
LnGrp LOS	F	D	B	F		E	D		E	D	E	C
Approach Vol, veh/h		814			486			454			799	
Approach Delay, s/veh		47.4			79.6			68.4			53.5	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.4	7.9	58.8		37.4	24.5	42.2
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		28.0	5.0	56.0		35.0	22.0	39.0
Max Q Clear Time (g_c+I1), s		24.7	5.2	34.8		32.3	20.4	37.9
Green Ext Time (p_c), s		0.7	0.0	3.5		1.1	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	59.2
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	0	0	142	12	156	0	502	77	301	299	0
Future Volume (veh/h)	8	0	0	142	12	156	0	502	77	301	299	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1743	1900	1863	1900	1667	1845	1881	1652	1900
Adj Flow Rate, veh/h	8	0	0	142	12	156	0	502	77	301	299	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	9	0	2	0	14	3	1	15	15
Cap, veh/h	474	0	378	506	563	766	3	548	516	336	956	0
Arrive On Green	0.30	0.00	0.00	0.30	0.30	0.30	0.00	0.33	0.33	0.19	0.58	0.00
Sat Flow, veh/h	1218	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Grp Volume(v), veh/h	8	0	0	142	12	156	0	502	77	301	299	0
Grp Sat Flow(s),veh/h/ln	1218	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Q Serve(g_s), s	0.3	0.0	4.0	4.7	0.3	3.6	0.0	18.5	2.2	10.5	6.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	4.0	5.3	0.3	3.6	0.0	18.5	2.2	10.5	6.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	474	0	378	506	563	766	3	548	516	336	956	0
V/C Ratio(X)	0.02	0.00	0.00	0.28	0.02	0.20	0.00	0.92	0.15	0.90	0.31	0.00
Avail Cap(c_a), veh/h	474	0	378	506	563	766	113	572	538	336	956	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	17.7	16.0	9.5	0.0	20.6	15.2	25.4	6.9	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.4	0.1	0.6	0.0	19.1	0.1	25.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.8	2.2	0.2	1.7	0.0	11.4	1.0	7.5	2.7	0.0
LnGrp Delay(d),s/veh	16.2	0.0	0.0	19.0	16.0	10.1	0.0	39.8	15.3	50.8	7.1	0.0
LnGrp LOS	B			B	B	B		D	B	D	A	
Approach Vol, veh/h		8			310			579			600	
Approach Delay, s/veh		16.2			14.4			36.5			29.0	
Approach LOS		B			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	16.0	25.1		23.0	0.0	41.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		19.0	12.0	22.0		19.0	4.0	30.0
Max Q Clear Time (g_c+I1), s		7.3	12.5	20.5		6.0	0.0	8.0
Green Ext Time (p_c), s		0.8	0.0	0.5		0.0	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	51	34	38	58	14	27	148	24	12	170	3
Future Vol, veh/h	2	51	34	38	58	14	27	148	24	12	170	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	51	34	38	58	14	27	148	24	12	170	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	446	422	172	452	411	160	173	0	0	172	0	0
Stage 1	196	196	-	214	214	-	-	-	-	-	-	-
Stage 2	250	226	-	238	197	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	526	526	869	513	534	890	1392	-	-	1417	-	-
Stage 1	810	742	-	781	729	-	-	-	-	-	-	-
Stage 2	759	721	-	759	742	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	462	510	869	445	517	890	1392	-	-	1417	-	-
Mov Cap-2 Maneuver	462	510	-	445	517	-	-	-	-	-	-	-
Stage 1	792	735	-	764	713	-	-	-	-	-	-	-
Stage 2	671	705	-	673	735	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	13.9	1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1392	-	-	606	516	1417	-	-
HCM Lane V/C Ratio	0.019	-	-	0.144	0.213	0.008	-	-
HCM Control Delay (s)	7.6	0	-	11.9	13.9	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0	-	-

Intersection	
Int Delay, s/veh	43.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	142	12	156	0	502	77	301	299	0
Future Vol, veh/h	8	0	0	142	12	156	0	502	77	301	299	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	142	12	156	0	502	77	301	299	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1526	1480	299	1403	1403	502	299	0	0	579	0	0
Stage 1	901	901	-	502	502	-	-	-	-	-	-	-
Stage 2	625	579	-	901	901	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	97	127	745	~ 113	141	569	1274	-	-	1000	-	-
Stage 1	335	360	-	539	545	-	-	-	-	-	-	-
Stage 2	476	504	-	323	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	89	745	~ 87	99	569	1274	-	-	1000	-	-
Mov Cap-2 Maneuver	49	89	-	~ 87	99	-	-	-	-	-	-	-
Stage 1	335	252	-	539	545	-	-	-	-	-	-	-
Stage 2	338	504	-	226	252	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	92.3	198.1	0	5.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	1274	-	-	49	-	87	99	569	1000	-	-
HCM Lane V/C Ratio	-	-	-	0.163	-	1.632	0.121	0.274	0.301	-	-
HCM Control Delay (s)	0	-	-	92.3	0	$ 413.6	46.3	13.7	10.1	-	-
HCM Lane LOS	A	-	-	F	A	F	E	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	-	11.5	0.4	1.1	1.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	4	697	14	35	831	12	7	14	20	11	7	5
Future Vol, veh/h	4	697	14	35	831	12	7	14	20	11	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	697	14	35	831	12	7	14	20	11	7	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	843	0	0	711	0	0	1625	1625	704	1636	1626	837
Stage 1	-	-	-	-	-	-	712	712	-	907	907	-
Stage 2	-	-	-	-	-	-	913	913	-	729	719	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	802	-	-	898	-	-	83	103	432	82	103	370
Stage 1	-	-	-	-	-	-	427	439	-	333	357	-
Stage 2	-	-	-	-	-	-	330	355	-	417	436	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	802	-	-	898	-	-	73	95	432	65	95	370
Mov Cap-2 Maneuver	-	-	-	-	-	-	73	95	-	65	95	-
Stage 1	-	-	-	-	-	-	424	435	-	330	331	-
Stage 2	-	-	-	-	-	-	295	329	-	382	433	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	40.3	58.2
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	142	802	-	-	898	-	-	90
HCM Lane V/C Ratio	0.289	0.005	-	-	0.039	-	-	0.256
HCM Control Delay (s)	40.3	9.5	0	-	9.2	0	-	58.2
HCM Lane LOS	E	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	0.9

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	189	113	50	211	12	82	11	56	10	11	1
Future Vol, veh/h	1	189	113	50	211	12	82	11	56	10	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	189	113	50	211	12	82	11	56	10	11	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	223	0	0	302	0	0	571	571	246	598	621	217
Stage 1	-	-	-	-	-	-	248	248	-	317	317	-
Stage 2	-	-	-	-	-	-	323	323	-	281	304	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1358	-	-	1220	-	-	435	434	798	417	406	828
Stage 1	-	-	-	-	-	-	760	705	-	698	658	-
Stage 2	-	-	-	-	-	-	693	654	-	730	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1358	-	-	1220	-	-	409	413	798	366	387	828
Mov Cap-2 Maneuver	-	-	-	-	-	-	409	413	-	366	387	-
Stage 1	-	-	-	-	-	-	759	704	-	697	627	-
Stage 2	-	-	-	-	-	-	648	623	-	667	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	15.2	14.9
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	501	1358	-	-	1220	-	-	386
HCM Lane V/C Ratio	0.297	0.001	-	-	0.041	-	-	0.057
HCM Control Delay (s)	15.2	7.7	0	-	8.1	0	-	14.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	280	95	21	202	20	43	27	33	12	18	12
Future Vol, veh/h	16	280	95	21	202	20	43	27	33	12	18	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	16	280	95	21	202	20	43	27	33	12	18	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	222	0	0	375	0	0	629	624	328	644	661	212
Stage 1	-	-	-	-	-	-	360	360	-	254	254	-
Stage 2	-	-	-	-	-	-	269	264	-	390	407	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1359	-	-	1195	-	-	398	404	718	389	385	833
Stage 1	-	-	-	-	-	-	662	630	-	755	701	-
Stage 2	-	-	-	-	-	-	741	694	-	638	601	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1359	-	-	1195	-	-	368	390	718	342	372	833
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	390	-	342	372	-
Stage 1	-	-	-	-	-	-	652	621	-	744	687	-
Stage 2	-	-	-	-	-	-	697	680	-	573	592	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	15.5	14.3
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	444	1359	-	-	1195	-	-	429
HCM Lane V/C Ratio	0.232	0.012	-	-	0.018	-	-	0.098
HCM Control Delay (s)	15.5	7.7	0	-	8.1	0	-	14.3
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.3

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	302	1	12	290	53	4
Future Vol, veh/h	302	1	12	290	53	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	302	1	12	290	53	4
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.9	9.9	8.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	93%	0%	4%
Vol Thru, %	0%	100%	96%
Vol Right, %	7%	0%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	57	303	302
LT Vol	53	0	12
Through Vol	0	302	290
RT Vol	4	1	0
Lane Flow Rate	57	303	302
Geometry Grp	1	1	1
Degree of Util (X)	0.085	0.367	0.367
Departure Headway (Hd)	5.349	4.364	4.374
Convergence, Y/N	Yes	Yes	Yes
Cap	669	827	824
Service Time	3.387	2.384	2.394
HCM Lane V/C Ratio	0.085	0.366	0.367
HCM Control Delay	8.9	9.9	9.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.3	1.7	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	613	124	42	567	31	228	125	96	121	73	36
Future Volume (veh/h)	32	613	124	42	567	31	228	125	96	121	73	36
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	32	613	81	42	567	-6	228	125	96	121	73	15
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	37	736	909	49	765	734	290	171	131	148	210	203
Arrive On Green	0.02	0.41	0.41	0.03	0.41	0.00	0.16	0.18	0.18	0.09	0.11	0.11
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	951	730	1560	1863	1509
Grp Volume(v), veh/h	32	613	81	42	567	-6	228	0	221	121	73	15
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1681	1560	1863	1509
Q Serve(g_s), s	1.0	16.8	1.3	1.4	14.4	0.0	6.8	0.0	6.9	4.2	2.0	0.5
Cycle Q Clear(g_c), s	1.0	16.8	1.3	1.4	14.4	0.0	6.8	0.0	6.9	4.2	2.0	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	37	736	909	49	765	734	290	0	302	148	210	203
V/C Ratio(X)	0.87	0.83	0.09	0.86	0.74	-0.01	0.79	0.00	0.73	0.82	0.35	0.07
Avail Cap(c_a), veh/h	187	1048	1184	61	934	867	616	0	730	169	371	333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	14.7	5.4	26.7	13.7	0.0	22.3	0.0	21.4	24.5	22.6	20.9
Incr Delay (d2), s/veh	41.8	4.0	0.0	58.8	2.5	0.0	4.7	0.0	3.4	23.5	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.2	0.6	1.4	7.8	0.0	3.7	0.0	3.5	2.8	1.1	0.2
LnGrp Delay(d),s/veh	68.8	18.7	5.5	85.5	16.2	0.0	27.0	0.0	24.8	48.1	23.6	21.1
LnGrp LOS	E	B	A	F	B		C		C	D	C	C
Approach Vol, veh/h		726			603			449			209	
Approach Delay, s/veh		19.5			21.2			25.9			37.6	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	13.9	5.6	26.5	12.9	10.2	5.2	26.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	24.0	2.0	32.0	19.0	11.0	6.0	28.0
Max Q Clear Time (g_c+I1), s	6.2	8.9	3.4	18.8	8.8	4.0	3.0	16.4
Green Ext Time (p_c), s	0.0	1.1	0.0	3.7	0.5	0.2	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	100	153	66	97	154	110	1012	27	52	718	98
Future Volume (veh/h)	165	100	153	66	97	154	110	1012	27	52	718	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1802	1900	1900	1864	1900	1759	1867	1900
Adj Flow Rate, veh/h	165	100	153	66	97	154	110	1012	27	52	718	98
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	274	149	186	160	200	258	142	1374	37	61	1091	149
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.08	0.39	0.39	0.04	0.35	0.35
Sat Flow, veh/h	519	444	556	220	598	773	1810	3524	94	1675	3137	428
Grp Volume(v), veh/h	418	0	0	317	0	0	110	508	531	52	406	410
Grp Sat Flow(s),veh/h/ln	1519	0	0	1591	0	0	1810	1771	1847	1675	1774	1792
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	0.0	3.0	12.3	12.3	1.5	9.7	9.7
Cycle Q Clear(g_c), s	12.3	0.0	0.0	8.0	0.0	0.0	3.0	12.3	12.3	1.5	9.7	9.7
Prop In Lane	0.39		0.37	0.21		0.49	1.00		0.05	1.00		0.24
Lane Grp Cap(c), veh/h	608	0	0	619	0	0	142	691	720	61	617	623
V/C Ratio(X)	0.69	0.00	0.00	0.51	0.00	0.00	0.77	0.74	0.74	0.85	0.66	0.66
Avail Cap(c_a), veh/h	929	0	0	948	0	0	252	917	957	134	813	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	0.0	13.8	0.0	0.0	22.7	13.1	13.1	24.0	13.8	13.8
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.7	0.0	0.0	8.6	2.2	2.1	26.1	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	0.0	3.7	0.0	0.0	1.8	6.3	6.6	1.2	4.9	5.0
LnGrp Delay(d),s/veh	16.4	0.0	0.0	14.4	0.0	0.0	31.2	15.3	15.2	50.1	15.0	15.0
LnGrp LOS	B			B			C	B	B	D	B	B
Approach Vol, veh/h		418			317			1149			868	
Approach Delay, s/veh		16.4			14.4			16.7			17.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	23.6		20.8	7.9	21.5		20.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	26.0		28.0	7.0	23.0		28.0
Max Q Clear Time (g_c+I1), s	3.5	14.3		14.3	5.0	11.7		10.0
Green Ext Time (p_c), s	0.0	5.2		2.4	0.0	4.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	425	467	111	24	405	29	121	531	20	55	484	304
Future Volume (veh/h)	425	467	111	24	405	29	121	531	20	55	484	304
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1608	1710	1644	1672	1710	1644	1693	1676
Adj Flow Rate, veh/h	425	467	111	24	405	29	121	531	20	55	484	304
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	319	633	902	27	297	21	414	423	16	347	375	601
Arrive On Green	0.20	0.38	0.38	0.02	0.20	0.20	0.26	0.26	0.26	0.22	0.22	0.22
Sat Flow, veh/h	1597	1660	1398	1467	1483	106	1566	1601	60	1566	1693	1425
Grp Volume(v), veh/h	425	467	111	24	0	434	121	0	551	55	484	304
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1589	1566	0	1661	1566	1693	1425
Q Serve(g_s), s	28.0	33.9	4.3	2.3	0.0	28.0	8.6	0.0	37.0	4.0	31.0	22.0
Cycle Q Clear(g_c), s	28.0	33.9	4.3	2.3	0.0	28.0	8.6	0.0	37.0	4.0	31.0	22.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	319	633	902	27	0	318	414	0	439	347	375	601
V/C Ratio(X)	1.33	0.74	0.12	0.88	0.00	1.37	0.29	0.00	1.26	0.16	1.29	0.51
Avail Cap(c_a), veh/h	319	633	902	42	0	318	414	0	439	347	375	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	37.3	9.5	68.5	0.0	56.0	41.1	0.0	51.5	44.0	54.5	29.8
Incr Delay (d2), s/veh	168.9	4.5	0.1	69.9	0.0	183.4	0.4	0.0	132.3	0.2	149.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.3	16.4	2.9	1.5	0.0	28.5	3.8	0.0	33.1	1.7	30.1	8.7
LnGrp Delay(d),s/veh	224.9	41.8	9.6	138.4	0.0	239.4	41.4	0.0	183.8	44.2	204.1	30.5
LnGrp LOS	F	D	A	F		F	D		F	D	F	C
Approach Vol, veh/h		1003			458			672			843	
Approach Delay, s/veh		115.8			234.1			158.2			131.1	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		41.0	6.6	57.4		35.0	32.0	32.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		37.0	4.0	52.0		31.0	28.0	28.0
Max Q Clear Time (g_c+I1), s		39.0	4.3	35.9		33.0	30.0	30.0
Green Ext Time (p_c), s		0.0	0.0	3.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	147.9
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	23	38	9	29	7	18	124	14	14	211	9
Future Vol, veh/h	6	23	38	9	29	7	18	124	14	14	211	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	23	38	9	29	7	18	124	14	14	211	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	429	418	216	441	415	131	220	0	0	138	0	0
Stage 1	244	244	-	167	167	-	-	-	-	-	-	-
Stage 2	185	174	-	274	248	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	540	524	821	521	529	924	1361	-	-	1458	-	-
Stage 1	764	702	-	828	762	-	-	-	-	-	-	-
Stage 2	821	753	-	726	703	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	503	511	821	471	516	924	1361	-	-	1458	-	-
Mov Cap-2 Maneuver	503	511	-	471	516	-	-	-	-	-	-	-
Stage 1	753	694	-	816	751	-	-	-	-	-	-	-
Stage 2	772	742	-	662	695	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	12.2	0.9	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1361	-	-	649	543	1458	-	-
HCM Lane V/C Ratio	0.013	-	-	0.103	0.083	0.01	-	-
HCM Control Delay (s)	7.7	0	-	11.2	12.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3	0	-	-

Intersection	
Int Delay, s/veh	45.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	146	4	283	4	457	155	114	880	0
Future Vol, veh/h	0	8	0	146	4	283	4	457	155	114	880	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	146	4	283	4	457	155	114	880	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1794	1728	880	1577	1573	457	880	0	0	612	0	0
Stage 1	1108	1108	-	465	465	-	-	-	-	-	-	-
Stage 2	686	620	-	1112	1108	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	63	89	349	~ 86	94	606	476	-	-	948	-	-
Stage 1	257	288	-	566	514	-	-	-	-	-	-	-
Stage 2	441	483	-	247	251	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	29	78	349	~ 72	82	606	476	-	-	948	-	-
Mov Cap-2 Maneuver	29	78	-	~ 72	82	-	-	-	-	-	-	-
Stage 1	255	253	-	561	510	-	-	-	-	-	-	-
Stage 2	231	479	-	210	221	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	56.4	213.6	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	476	-	-	78	-	72	82	606	948	-	-
HCM Lane V/C Ratio	0.008	-	-	0.103	-	2.028	0.049	0.467	0.12	-	-
HCM Control Delay (s)	12.6	-	-	56.4	0	$ 601.1	51.1	16	9.3	-	-
HCM Lane LOS	B	-	-	F	A	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	-	13.4	0.2	2.5	0.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	826	4	18	726	9	11	3	52	15	9	0
Future Vol, veh/h	0	826	4	18	726	9	11	3	52	15	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	826	4	18	726	9	11	3	52	15	9	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	735	0	0	830	0	0	1599	1599	828	1623	1597	731
Stage 1	-	-	-	-	-	-	828	828	-	767	767	-
Stage 2	-	-	-	-	-	-	771	771	-	856	830	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	879	-	-	811	-	-	87	107	362	83	94	425
Stage 1	-	-	-	-	-	-	368	389	-	398	380	-
Stage 2	-	-	-	-	-	-	396	413	-	355	354	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	879	-	-	811	-	-	78	103	362	67	90	425
Mov Cap-2 Maneuver	-	-	-	-	-	-	78	103	-	67	90	-
Stage 1	-	-	-	-	-	-	368	389	-	398	366	-
Stage 2	-	-	-	-	-	-	372	397	-	302	354	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	29.8	75.4
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	210	879	-	-	811	-	-	74
HCM Lane V/C Ratio	0.314	-	-	-	0.022	-	-	0.324
HCM Control Delay (s)	29.8	0	-	-	9.5	0	-	75.4
HCM Lane LOS	D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	1.3	0	-	-	0.1	-	-	1.2

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	261	181	29	353	1	134	4	33	0	3	3
Future Vol, veh/h	4	261	181	29	353	1	134	4	33	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	261	181	29	353	1	134	4	33	0	3	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	354	0	0	442	0	0	775	772	352	790	862	354
Stage 1	-	-	-	-	-	-	360	360	-	412	412	-
Stage 2	-	-	-	-	-	-	415	412	-	378	450	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1216	-	-	1006	-	-	315	333	674	310	295	694
Stage 1	-	-	-	-	-	-	658	630	-	621	598	-
Stage 2	-	-	-	-	-	-	615	598	-	648	575	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1216	-	-	1006	-	-	302	320	674	283	283	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	302	320	-	283	283	-
Stage 1	-	-	-	-	-	-	655	627	-	619	576	-
Stage 2	-	-	-	-	-	-	587	576	-	610	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	26.1	14.1
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	338	1216	-	-	1006	-	-	402
HCM Lane V/C Ratio	0.506	0.003	-	-	0.029	-	-	0.015
HCM Control Delay (s)	26.1	8	0	-	8.7	0	-	14.1
HCM Lane LOS	D	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	2.7	0	-	-	0.1	-	-	0

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	298	45	32	332	6	50	9	57	20	25	8
Future Vol, veh/h	3	298	45	32	332	6	50	9	57	20	25	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	298	45	32	332	6	50	9	57	20	25	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	338	0	0	343	0	0	743	729	321	759	748	335
Stage 1	-	-	-	-	-	-	327	327	-	399	399	-
Stage 2	-	-	-	-	-	-	416	402	-	360	349	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1232	-	-	1227	-	-	334	352	724	326	343	712
Stage 1	-	-	-	-	-	-	690	651	-	631	606	-
Stage 2	-	-	-	-	-	-	618	604	-	662	637	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1232	-	-	1227	-	-	303	340	724	287	331	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	340	-	287	331	-
Stage 1	-	-	-	-	-	-	688	649	-	629	587	-
Stage 2	-	-	-	-	-	-	566	585	-	600	635	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	16.5	17.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	429	1232	-	-	1227	-	-	339
HCM Lane V/C Ratio	0.27	0.002	-	-	0.026	-	-	0.156
HCM Control Delay (s)	16.5	7.9	0	-	8	0	-	17.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.1	0	-	-	0.1	-	-	0.5

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	378	39	8	366	37	13
Future Vol, veh/h	378	39	8	366	37	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	378	39	8	366	37	13
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.8	11.3	9.1
HCM LOS	B	B	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	74%	0%	2%
Vol Thru, %	0%	91%	98%
Vol Right, %	26%	9%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	50	417	374
LT Vol	37	0	8
Through Vol	0	378	366
RT Vol	13	39	0
Lane Flow Rate	50	417	374
Geometry Grp	1	1	1
Degree of Util (X)	0.078	0.506	0.464
Departure Headway (Hd)	5.586	4.371	4.467
Convergence, Y/N	Yes	Yes	Yes
Cap	639	826	808
Service Time	3.643	2.399	2.496
HCM Lane V/C Ratio	0.078	0.505	0.463
HCM Control Delay	9.1	11.8	11.3
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0.3	2.9	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	929	227	105	803	15	217	109	82	31	161	61
Future Volume (veh/h)	43	929	227	105	803	15	217	109	82	31	161	61
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1855	1900	1900	1900	1863
Adj Flow Rate, veh/h	43	929	184	105	803	-22	217	109	82	31	161	40
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	54	900	1007	115	963	869	253	225	169	38	208	221
Arrive On Green	0.03	0.48	0.48	0.06	0.52	0.00	0.14	0.23	0.23	0.02	0.11	0.11
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	984	740	1810	1900	1583
Grp Volume(v), veh/h	43	929	184	105	803	-22	217	0	191	31	161	40
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1724	1810	1900	1583
Q Serve(g_s), s	1.9	38.0	3.8	4.5	28.8	0.0	9.2	0.0	7.6	1.3	6.5	1.8
Cycle Q Clear(g_c), s	1.9	38.0	3.8	4.5	28.8	0.0	9.2	0.0	7.6	1.3	6.5	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	54	900	1007	115	963	869	253	0	394	38	208	221
V/C Ratio(X)	0.80	1.03	0.18	0.91	0.83	-0.03	0.86	0.00	0.48	0.82	0.77	0.18
Avail Cap(c_a), veh/h	92	900	1007	115	963	869	253	0	394	115	242	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	20.3	6.3	36.6	16.1	0.0	33.0	0.0	26.3	38.3	34.0	29.9
Incr Delay (d2), s/veh	22.5	38.4	0.1	57.3	6.4	0.0	24.1	0.0	0.9	33.0	12.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	28.9	1.7	4.1	16.4	0.0	6.3	0.0	3.7	1.0	4.1	0.8
LnGrp Delay(d),s/veh	60.4	58.8	6.4	93.9	22.5	0.0	57.1	0.0	27.2	71.3	46.6	30.3
LnGrp LOS	E	F	A	F	C		E		C	E	D	C
Approach Vol, veh/h		1156			886			408			232	
Approach Delay, s/veh		50.5			31.5			43.1			47.1	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	22.0	9.0	42.0	15.0	12.6	6.3	44.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	16.0	5.0	38.0	11.0	10.0	4.0	39.0
Max Q Clear Time (g_c+I1), s	3.3	9.6	6.5	40.0	11.2	8.5	3.9	30.8
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	0.1	0.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	42.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	228	94	104	86	93	140	124	1402	13	157	1722	247
Future Volume (veh/h)	228	94	104	86	93	140	124	1402	13	157	1722	247
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1803	1900	1900	1865	1900	1900	1845	1900	1845	1792	1900
Adj Flow Rate, veh/h	228	94	104	86	93	140	124	1402	13	157	1722	247
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	239	78	86	155	170	222	82	1650	15	176	1555	218
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.46	0.46	0.10	0.52	0.52
Sat Flow, veh/h	578	238	264	346	520	678	1810	3559	33	1757	3001	420
Grp Volume(v), veh/h	426	0	0	319	0	0	124	690	725	157	959	1010
Grp Sat Flow(s),veh/h/ln	1080	0	0	1545	0	0	1810	1753	1839	1757	1703	1718
Q Serve(g_s), s	17.2	0.0	0.0	0.0	0.0	0.0	5.0	38.3	38.4	9.7	57.0	57.0
Cycle Q Clear(g_c), s	36.0	0.0	0.0	18.8	0.0	0.0	5.0	38.3	38.4	9.7	57.0	57.0
Prop In Lane	0.54		0.24	0.27		0.44	1.00		0.02	1.00		0.24
Lane Grp Cap(c), veh/h	404	0	0	547	0	0	82	813	853	176	882	890
V/C Ratio(X)	1.05	0.00	0.00	0.58	0.00	0.00	1.51	0.85	0.85	0.89	1.09	1.13
Avail Cap(c_a), veh/h	404	0	0	547	0	0	82	813	853	176	882	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	0.0	31.0	0.0	0.0	52.5	26.1	26.1	48.9	26.5	26.5
Incr Delay (d2), s/veh	60.0	0.0	0.0	1.6	0.0	0.0	281.2	8.5	8.2	39.4	56.8	74.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.0	0.0	0.0	8.4	0.0	0.0	8.9	20.3	21.3	6.6	40.4	45.1
LnGrp Delay(d),s/veh	100.8	0.0	0.0	32.6	0.0	0.0	333.7	34.6	34.3	88.3	83.3	100.8
LnGrp LOS	F			C			F	C	C	F	F	F
Approach Vol, veh/h		426			319			1539			2126	
Approach Delay, s/veh		100.8			32.6			58.5			92.0	
Approach LOS		F			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	55.0		40.0	9.0	61.0		40.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	11.0	51.0		36.0	5.0	57.0		36.0
Max Q Clear Time (g_c+I1), s	11.7	40.4		38.0	7.0	59.0		20.8
Green Ext Time (p_c), s	0.0	6.7		0.0	0.0	0.0		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	76.9
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	560	108	38	464	50	183	945	54	83	1106	514
Future Volume (veh/h)	427	560	108	38	464	50	183	945	54	83	1106	514
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1672	1710	1710	1688	1710	1676	1693	1693
Adj Flow Rate, veh/h	427	560	108	38	464	50	183	945	54	83	1106	514
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	205	439	820	22	223	24	489	474	27	490	520	627
Arrive On Green	0.13	0.26	0.26	0.01	0.15	0.15	0.30	0.30	0.30	0.31	0.31	0.31
Sat Flow, veh/h	1597	1660	1454	1566	1484	160	1629	1581	90	1597	1693	1439
Grp Volume(v), veh/h	427	560	108	38	0	514	183	0	999	83	1106	514
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1643	1629	0	1672	1597	1693	1439
Q Serve(g_s), s	18.0	37.0	4.9	2.0	0.0	21.0	12.4	0.0	42.0	5.3	43.0	43.0
Cycle Q Clear(g_c), s	18.0	37.0	4.9	2.0	0.0	21.0	12.4	0.0	42.0	5.3	43.0	43.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	205	439	820	22	0	247	489	0	502	490	520	627
V/C Ratio(X)	2.08	1.28	0.13	1.70	0.00	2.09	0.37	0.00	1.99	0.17	2.13	0.82
Avail Cap(c_a), veh/h	205	439	820	22	0	247	489	0	502	490	520	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.0	51.5	14.4	69.0	0.0	59.5	38.6	0.0	49.0	35.4	48.5	34.7
Incr Delay (d2), s/veh	502.4	141.0	0.1	450.8	0.0	501.9	0.5	0.0	453.5	0.2	513.5	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.6	34.1	3.3	3.7	0.0	43.9	5.7	0.0	82.5	2.4	94.3	18.9
LnGrp Delay(d),s/veh	563.4	192.5	14.4	519.8	0.0	561.4	39.1	0.0	502.5	35.6	562.0	43.2
LnGrp LOS	F	F	B	F		F	D		F	D	F	D
Approach Vol, veh/h		1095			552			1182			1703	
Approach Delay, s/veh		319.6			558.5			430.7			379.8	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		46.0	6.0	41.0		47.0	22.0	25.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		42.0	2.0	37.0		43.0	18.0	21.0
Max Q Clear Time (g_c+I1), s		44.0	4.0	39.0		45.0	20.0	23.0
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	400.3
HCM 2010 LOS	F

Intersection												
Int Delay, s/veh	4.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	51	34	38	58	14	27	143	24	12	176	3
Future Vol, veh/h	2	51	34	38	58	14	27	143	24	12	176	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	51	34	38	58	14	27	143	24	12	176	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	447	423	178	453	412	155	179	0	0	167	0	0
Stage 1	202	202	-	209	209	-	-	-	-	-	-	-
Stage 2	245	221	-	244	203	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	525	526	862	512	533	896	1385	-	-	1423	-	-
Stage 1	805	738	-	786	733	-	-	-	-	-	-	-
Stage 2	763	724	-	753	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	461	510	862	444	516	896	1385	-	-	1423	-	-
Mov Cap-2 Maneuver	461	510	-	444	516	-	-	-	-	-	-	-
Stage 1	787	731	-	769	717	-	-	-	-	-	-	-
Stage 2	675	708	-	667	730	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.9	13.9	1.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	605	515	1423	-	-
HCM Lane V/C Ratio	0.019	-	-	0.144	0.214	0.008	-	-
HCM Control Delay (s)	7.7	0	-	11.9	13.9	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0	-	-

Intersection	
Int Delay, s/veh	1383

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	185	12	264	0	1182	142	415	815	0
Future Vol, veh/h	8	0	0	185	12	264	0	1182	142	415	815	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	185	12	264	0	1182	142	415	815	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3036	2969	815	2827	2827	1182	815	0	0	1324	0	0
Stage 1	1645	1645	-	1182	1182	-	-	-	-	-	-	-
Stage 2	1391	1324	-	1645	1645	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	8	14	381	~ 11	18	~ 231	821	-	-	525	-	-
Stage 1	127	159	-	224	266	-	-	-	-	-	-	-
Stage 2	178	227	-	~ 121	159	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	3	381	~ 4	~ 4	~ 231	821	-	-	525	-	-
Mov Cap-2 Maneuver	-	3	-	~ 4	~ 4	-	-	-	-	-	-	-
Stage 1	127	33	-	224	266	-	-	-	-	-	-	-
Stage 2	-	227	-	~ 25	33	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s		$ 9039.4	0	11.1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	821	-	-	-	-	4	4	231	525	-	-
HCM Lane V/C Ratio	-	-	-	-	-	46.25	3	1.143	0.79	-	-
HCM Control Delay (s)	0	-	-	-	0	$ 22149.[illegible]	$ 2545.6	147.8	33	-	-
HCM Lane LOS	A	-	-	-	A	F	F	F	D	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	25.4	2.7	12.2	7.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	961	15	35	1080	31	7	11	20	28	5	5
Future Vol, veh/h	4	961	15	35	1080	31	7	11	20	28	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	961	15	35	1080	31	7	11	20	28	5	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1111	0	0	976	0	0	2148	2158	969	2158	2150	1096
Stage 1	-	-	-	-	-	-	977	977	-	1166	1166	-
Stage 2	-	-	-	-	-	-	1171	1181	-	992	984	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	636	-	-	715	-	-	35	48	304	35	49	262
Stage 1	-	-	-	-	-	-	304	332	-	238	270	-
Stage 2	-	-	-	-	-	-	237	266	-	299	329	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	636	-	-	715	-	-	28	41	304	~ 23	42	262
Mov Cap-2 Maneuver	-	-	-	-	-	-	28	41	-	~ 23	42	-
Stage 1	-	-	-	-	-	-	300	327	-	235	235	-
Stage 2	-	-	-	-	-	-	198	232	-	266	324	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	119.6	$ 505.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	65	636	-	-	715	-	-	28
HCM Lane V/C Ratio	0.585	0.006	-	-	0.049	-	-	1.357
HCM Control Delay (s)	119.6	10.7	0	-	10.3	0	-	$ 505.4
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.4	0	-	-	0.2	-	-	4.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	354	119	52	353	6	79	7	58	6	8	1
Future Vol, veh/h	1	354	119	52	353	6	79	7	58	6	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	354	119	52	353	6	79	7	58	6	8	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	473	0	0	881	879	414	908	935	356
Stage 1	-	-	-	-	-	-	416	416	-	460	460	-
Stage 2	-	-	-	-	-	-	465	463	-	448	475	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1211	-	-	1053	-	-	269	288	643	258	267	693
Stage 1	-	-	-	-	-	-	618	595	-	585	569	-
Stage 2	-	-	-	-	-	-	581	568	-	594	561	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1211	-	-	1053	-	-	250	270	643	219	250	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	270	-	219	250	-
Stage 1	-	-	-	-	-	-	617	594	-	584	534	-
Stage 2	-	-	-	-	-	-	536	533	-	534	560	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.1	23.8	20.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	1211	-	-	1053	-	-	247
HCM Lane V/C Ratio	0.432	0.001	-	-	0.049	-	-	0.061
HCM Control Delay (s)	23.8	8	0	-	8.6	0	-	20.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.1	0	-	-	0.2	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	443	113	20	352	20	60	26	31	12	17	6
Future Vol, veh/h	7	443	113	20	352	20	60	26	31	12	17	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	7	443	113	20	352	20	60	26	31	12	17	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	556	0	0	928	926	500	944	972	362
Stage 1	-	-	-	-	-	-	514	514	-	402	402	-
Stage 2	-	-	-	-	-	-	414	412	-	542	570	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1198	-	-	1025	-	-	250	271	575	244	254	687
Stage 1	-	-	-	-	-	-	547	539	-	629	604	-
Stage 2	-	-	-	-	-	-	620	598	-	528	509	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1198	-	-	1025	-	-	229	262	575	208	245	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	229	262	-	208	245	-
Stage 1	-	-	-	-	-	-	542	534	-	623	589	-
Stage 2	-	-	-	-	-	-	582	583	-	471	504	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	26.5	21.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	282	1198	-	-	1025	-	-	258
HCM Lane V/C Ratio	0.415	0.006	-	-	0.02	-	-	0.136
HCM Control Delay (s)	26.5	8	0	-	8.6	0	-	21.1
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.9	0	-	-	0.1	-	-	0.5

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	317	4	12	295	54	4
Future Vol, veh/h	317	4	12	295	54	4
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	317	4	12	295	54	4
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.2	10	9
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	93%	0%	4%
Vol Thru, %	0%	99%	96%
Vol Right, %	7%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	58	321	307
LT Vol	54	0	12
Through Vol	0	317	295
RT Vol	4	4	0
Lane Flow Rate	58	321	307
Geometry Grp	1	1	1
Degree of Util (X)	0.087	0.39	0.375
Departure Headway (Hd)	5.398	4.369	4.397
Convergence, Y/N	Yes	Yes	Yes
Cap	662	825	820
Service Time	3.441	2.39	2.419
HCM Lane V/C Ratio	0.088	0.389	0.374
HCM Control Delay	9	10.2	10
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.3	1.9	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	613	124	42	567	33	228	126	96	127	77	39
Future Volume (veh/h)	33	613	124	42	567	33	228	126	96	127	77	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1881	1776	1845	1696	1881	1810	1900	1638	1863	1776
Adj Flow Rate, veh/h	33	613	81	42	567	-4	228	126	96	127	77	18
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	1	7	3	12	1	5	5	16	2	7
Cap, veh/h	38	734	907	49	761	738	289	172	131	155	220	211
Arrive On Green	0.02	0.41	0.41	0.03	0.41	0.00	0.16	0.18	0.18	0.10	0.12	0.12
Sat Flow, veh/h	1723	1810	1599	1691	1845	1442	1792	954	727	1560	1863	1509
Grp Volume(v), veh/h	33	613	81	42	567	-4	228	0	222	127	77	18
Grp Sat Flow(s),veh/h/ln	1723	1810	1599	1691	1845	1442	1792	0	1681	1560	1863	1509
Q Serve(g_s), s	1.1	17.0	1.3	1.4	14.6	0.0	6.8	0.0	7.0	4.5	2.1	0.6
Cycle Q Clear(g_c), s	1.1	17.0	1.3	1.4	14.6	0.0	6.8	0.0	7.0	4.5	2.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h	38	734	907	49	761	738	289	0	302	155	220	211
V/C Ratio(X)	0.87	0.84	0.09	0.86	0.75	-0.01	0.79	0.00	0.73	0.82	0.35	0.09
Avail Cap(c_a), veh/h	185	1035	1173	60	923	865	608	0	721	167	366	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.3	14.9	5.5	27.0	13.9	0.0	22.5	0.0	21.7	24.7	22.7	20.9
Incr Delay (d2), s/veh	40.1	4.2	0.0	59.5	2.7	0.0	4.8	0.0	3.5	24.9	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	9.2	0.6	1.5	8.0	0.0	3.7	0.0	3.5	3.0	1.1	0.3
LnGrp Delay(d),s/veh	67.4	19.2	5.6	86.5	16.6	0.0	27.3	0.0	25.1	49.6	23.7	21.1
LnGrp LOS	E	B	A	F	B		C		C	D	C	C
Approach Vol, veh/h		727			605			450			222	
Approach Delay, s/veh		19.9			21.6			26.2			38.3	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	14.1	5.6	26.7	13.0	10.6	5.2	27.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	24.0	2.0	32.0	19.0	11.0	6.0	28.0
Max Q Clear Time (g_c+I1), s	6.5	9.0	3.4	19.0	8.8	4.1	3.1	16.6
Green Ext Time (p_c), s	0.0	1.1	0.0	3.7	0.5	0.2	0.0	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Future Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1802	1900	1900	1864	1900	1759	1867	1900
Adj Flow Rate, veh/h	171	103	159	66	98	154	112	1012	27	52	718	100
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	10	10	10	0	2	2	8	2	2
Cap, veh/h	278	151	192	160	207	265	145	1349	36	61	1061	148
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.08	0.38	0.38	0.04	0.34	0.34
Sat Flow, veh/h	520	437	556	217	600	767	1810	3524	94	1675	3129	435
Grp Volume(v), veh/h	433	0	0	318	0	0	112	508	531	52	407	411
Grp Sat Flow(s),veh/h/ln	1513	0	0	1584	0	0	1810	1771	1847	1675	1774	1790
Q Serve(g_s), s	5.0	0.0	0.0	0.0	0.0	0.0	3.1	12.7	12.7	1.6	10.0	10.1
Cycle Q Clear(g_c), s	13.1	0.0	0.0	8.0	0.0	0.0	3.1	12.7	12.7	1.6	10.0	10.1
Prop In Lane	0.39		0.37	0.21		0.48	1.00		0.05	1.00		0.24
Lane Grp Cap(c), veh/h	621	0	0	633	0	0	145	678	707	61	602	607
V/C Ratio(X)	0.70	0.00	0.00	0.50	0.00	0.00	0.77	0.75	0.75	0.85	0.68	0.68
Avail Cap(c_a), veh/h	941	0	0	960	0	0	248	867	905	131	765	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	0.0	0.0	13.5	0.0	0.0	23.0	13.6	13.6	24.4	14.5	14.5
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	0.0	8.4	2.7	2.6	25.8	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	0.0	3.7	0.0	0.0	1.9	6.6	6.9	1.2	5.1	5.2
LnGrp Delay(d),s/veh	16.4	0.0	0.0	14.1	0.0	0.0	31.4	16.4	16.3	50.3	16.1	16.1
LnGrp LOS	B			B			C	B	B	D	B	B
Approach Vol, veh/h		433			318			1151			870	
Approach Delay, s/veh		16.4			14.1			17.8			18.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	23.5		21.6	8.1	21.3		21.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	25.0		29.0	7.0	22.0		29.0
Max Q Clear Time (g_c+I1), s	3.6	14.7		15.1	5.1	12.1		10.0
Green Ext Time (p_c), s	0.0	4.8		2.6	0.0	3.7		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		17.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	425	470	114	24	406	30	122	532	20	58	487	304
Future Volume (veh/h)	425	470	114	24	406	30	122	532	20	58	487	304
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1644	1541	1608	1710	1644	1672	1710	1644	1693	1676
Adj Flow Rate, veh/h	425	470	114	24	406	30	122	532	20	58	487	304
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	4	11	6	6	4	2	2	4	1	2
Cap, veh/h	319	633	902	27	296	22	414	423	16	347	375	601
Arrive On Green	0.20	0.38	0.38	0.02	0.20	0.20	0.26	0.26	0.26	0.22	0.22	0.22
Sat Flow, veh/h	1597	1660	1398	1467	1479	109	1566	1601	60	1566	1693	1425
Grp Volume(v), veh/h	425	470	114	24	0	436	122	0	552	58	487	304
Grp Sat Flow(s),veh/h/ln	1597	1660	1398	1467	0	1589	1566	0	1661	1566	1693	1425
Q Serve(g_s), s	28.0	34.2	4.4	2.3	0.0	28.0	8.7	0.0	37.0	4.2	31.0	22.0
Cycle Q Clear(g_c), s	28.0	34.2	4.4	2.3	0.0	28.0	8.7	0.0	37.0	4.2	31.0	22.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	319	633	902	27	0	318	414	0	439	347	375	601
V/C Ratio(X)	1.33	0.74	0.13	0.88	0.00	1.37	0.29	0.00	1.26	0.17	1.30	0.51
Avail Cap(c_a), veh/h	319	633	902	42	0	318	414	0	439	347	375	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	37.4	9.6	68.5	0.0	56.0	41.1	0.0	51.5	44.1	54.5	29.8
Incr Delay (d2), s/veh	168.9	4.7	0.1	69.9	0.0	186.3	0.4	0.0	133.2	0.2	152.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.3	16.5	3.0	1.5	0.0	28.7	3.8	0.0	33.2	1.8	30.4	8.7
LnGrp Delay(d),s/veh	224.9	42.0	9.6	138.4	0.0	242.3	41.5	0.0	184.7	44.3	207.4	30.5
LnGrp LOS	F	D	A	F		F	D		F	D	F	C
Approach Vol, veh/h		1009			460			674			849	
Approach Delay, s/veh		115.4			236.8			158.8			132.9	
Approach LOS		F			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		41.0	6.6	57.4		35.0	32.0	32.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		37.0	4.0	52.0		31.0	28.0	28.0
Max Q Clear Time (g_c+I1), s		39.0	4.3	36.2		33.0	30.0	30.0
Green Ext Time (p_c), s		0.0	0.0	3.1		0.0	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			148.8
HCM 2010 LOS			F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Future Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1787	1900	1900	1864	1900	1759	1867	1900
Adj Flow Rate, veh/h	171	103	159	66	98	154	112	1012	27	52	718	100
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	2	10	10	0	2	2	8	2	2
Cap, veh/h	217	176	271	82	117	184	144	1261	34	62	985	137
Arrive On Green	0.12	0.26	0.26	0.05	0.19	0.19	0.08	0.36	0.36	0.04	0.31	0.31
Sat Flow, veh/h	1810	675	1042	1774	627	986	1810	3524	94	1675	3129	435
Grp Volume(v), veh/h	171	0	262	66	0	252	112	508	531	52	407	411
Grp Sat Flow(s),veh/h/ln	1810	0	1716	1774	0	1613	1810	1771	1847	1675	1774	1790
Q Serve(g_s), s	4.9	0.0	7.1	2.0	0.0	8.1	3.3	13.9	13.9	1.7	10.9	10.9
Cycle Q Clear(g_c), s	4.9	0.0	7.1	2.0	0.0	8.1	3.3	13.9	13.9	1.7	10.9	10.9
Prop In Lane	1.00		0.61	1.00		0.61	1.00		0.05	1.00		0.24
Lane Grp Cap(c), veh/h	217	0	446	82	0	301	144	634	661	62	559	564
V/C Ratio(X)	0.79	0.00	0.59	0.80	0.00	0.84	0.78	0.80	0.80	0.84	0.73	0.73
Avail Cap(c_a), veh/h	270	0	449	132	0	301	203	727	759	125	662	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	17.3	25.3	0.0	21.0	24.2	15.5	15.5	25.6	16.3	16.3
Incr Delay (d2), s/veh	11.7	0.0	2.0	16.2	0.0	18.3	11.5	5.7	5.5	25.2	3.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	3.6	1.3	0.0	5.1	2.1	7.6	7.9	1.2	5.8	5.9
LnGrp Delay(d),s/veh	34.6	0.0	19.3	41.5	0.0	39.3	35.7	21.2	21.0	50.8	19.6	19.6
LnGrp LOS	C		B	D		D	D	C	C	D	B	B
Approach Vol, veh/h		433			318			1151			870	
Approach Delay, s/veh		25.3			39.7			22.5			21.5	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	23.2	6.5	17.9	8.3	20.9	10.4	14.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	22.0	4.0	14.0	6.0	20.0	8.0	10.0
Max Q Clear Time (g_c+I1), s	3.7	15.9	4.0	9.1	5.3	12.9	6.9	10.1
Green Ext Time (p_c), s	0.0	3.3	0.0	0.6	0.0	2.9	0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		24.6
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	8	0	146	4	310	4	457	155	123	880	0
Future Volume (veh/h)	0	8	0	146	4	310	4	457	155	123	880	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1759	1429	1881	950	1638	1845	1792	1532	1900
Adj Flow Rate, veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	8	33	1	100	16	3	6	24	24
Cap, veh/h	0	434	369	390	327	511	3	865	828	155	943	0
Arrive On Green	0.00	0.23	0.00	0.23	0.23	0.23	0.00	0.53	0.53	0.09	0.62	0.00
Sat Flow, veh/h	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Grp Volume(v), veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Grp Sat Flow(s),veh/h/ln	0	1900	1615	1324	1429	1599	905	1638	1568	1707	1532	0
Q Serve(g_s), s	0.0	0.3	0.0	7.6	0.2	12.9	0.3	14.4	4.1	5.6	40.8	0.0
Cycle Q Clear(g_c), s	0.0	0.3	0.0	7.8	0.2	12.9	0.3	14.4	4.1	5.6	40.8	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	434	369	390	327	511	3	865	828	155	943	0
V/C Ratio(X)	0.00	0.02	0.00	0.37	0.01	0.61	1.39	0.53	0.19	0.79	0.93	0.00
Avail Cap(c_a), veh/h	0	434	369	390	327	511	46	978	936	282	1090	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	23.5	0.0	26.5	23.5	22.6	39.2	12.2	9.7	35.1	13.7	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	2.7	0.1	5.3	389.1	0.5	0.1	8.7	12.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	53.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	3.1	0.1	6.4	0.4	6.6	1.8	3.0	20.3	0.0
LnGrp Delay(d),s/veh	0.0	23.6	0.0	29.3	23.6	27.9	481.5	12.7	9.8	43.8	26.6	0.0
LnGrp LOS		C		C	C	C	F	B	A	D	C	
Approach Vol, veh/h		8			460			616			1003	
Approach Delay, s/veh		23.6			28.3			15.0			28.7	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.0	11.2	45.6		22.0	4.3	52.5
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0	13.0	47.0		18.0	4.0	56.0
Max Q Clear Time (g_c+I1), s		14.9	7.6	16.4		2.3	2.3	42.8
Green Ext Time (p_c), s		0.5	0.1	3.8		0.0	0.0	5.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	8	0	146	4	310	4	457	155	123	880	0
Future Volume (veh/h)	0	8	0	146	4	310	4	457	155	123	880	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1759	1429	1881	950	1638	1845	1792	1532	1900
Adj Flow Rate, veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Adj No. of Lanes	0	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	8	33	1	100	16	3	6	24	24
Cap, veh/h	0	709	603	640	533	597	3	892	449	156	1091	0
Arrive On Green	0.00	0.37	0.00	0.37	0.37	0.37	0.00	0.29	0.29	0.09	0.37	0.00
Sat Flow, veh/h	0	1900	1615	1324	1429	1599	905	3112	1568	1707	2988	0
Grp Volume(v), veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Grp Sat Flow(s),veh/h/ln	0	1900	1615	1324	1429	1599	905	1556	1568	1707	1456	0
Q Serve(g_s), s	0.0	0.1	0.0	3.8	0.1	7.3	0.2	5.9	3.8	3.4	13.1	0.0
Cycle Q Clear(g_c), s	0.0	0.1	0.0	3.9	0.1	7.3	0.2	5.9	3.8	3.4	13.1	0.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	0	709	603	640	533	597	3	892	449	156	1091	0
V/C Ratio(X)	0.00	0.01	0.00	0.23	0.01	0.52	1.36	0.51	0.34	0.79	0.81	0.00
Avail Cap(c_a), veh/h	0	709	603	640	533	597	75	1162	585	248	1268	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.5	0.0	10.7	9.5	11.7	24.0	14.4	13.6	21.5	13.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.0	3.2	377.8	0.5	0.5	8.6	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	47.6	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	1.5	0.0	3.7	0.3	2.6	1.7	2.0	5.7	0.0
LnGrp Delay(d),s/veh	0.0	9.5	0.0	11.6	9.5	15.0	449.4	14.8	14.1	30.1	17.0	0.0
LnGrp LOS		A		B	A	B	F	B	B	C	B	
Approach Vol, veh/h		8			460			616			1003	
Approach Delay, s/veh		9.5			13.8			17.5			18.6	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.0	8.4	17.8		22.0	4.2	22.1
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		18.0	7.0	18.0		18.0	4.0	21.0
Max Q Clear Time (g_c+I1), s		9.3	5.4	7.9		2.1	2.2	15.1
Green Ext Time (p_c), s		1.1	0.0	2.6		0.0	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Future Volume (veh/h)	171	103	159	66	98	154	112	1012	27	52	718	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1863	1727	1827	1900	1864	1900	1759	1863	1900
Adj Flow Rate, veh/h	171	103	159	66	98	154	112	1012	27	52	718	100
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	2	10	4	0	2	2	8	2	0
Cap, veh/h	220	351	427	81	188	225	144	1356	36	61	1207	747
Arrive On Green	0.12	0.18	0.18	0.05	0.11	0.11	0.08	0.38	0.38	0.04	0.34	0.34
Sat Flow, veh/h	1810	1900	1615	1774	1727	1553	1810	3524	94	1675	3539	1615
Grp Volume(v), veh/h	171	103	159	66	98	154	112	508	531	52	718	100
Grp Sat Flow(s),veh/h/ln	1810	1900	1615	1774	1727	1553	1810	1771	1847	1675	1770	1615
Q Serve(g_s), s	4.2	2.1	3.7	1.7	2.5	4.3	2.8	11.4	11.4	1.4	7.7	1.6
Cycle Q Clear(g_c), s	4.2	2.1	3.7	1.7	2.5	4.3	2.8	11.4	11.4	1.4	7.7	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	220	351	427	81	188	225	144	681	711	61	1207	747
V/C Ratio(X)	0.78	0.29	0.37	0.81	0.52	0.68	0.78	0.75	0.75	0.86	0.59	0.13
Avail Cap(c_a), veh/h	315	351	427	193	188	225	237	849	886	146	1543	900
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	16.1	13.8	21.7	19.3	18.6	20.7	12.2	12.2	22.0	12.5	7.1
Incr Delay (d2), s/veh	7.5	0.5	0.5	17.0	2.6	8.2	8.6	2.8	2.7	27.4	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.2	1.7	1.2	1.3	2.4	1.7	6.0	6.3	1.1	3.8	0.7
LnGrp Delay(d),s/veh	27.1	16.6	14.3	38.7	21.9	26.8	29.3	15.0	14.9	49.4	13.0	7.1
LnGrp LOS	C	B	B	D	C	C	C	B	B	D	B	A
Approach Vol, veh/h		433			318			1151			870	
Approach Delay, s/veh		19.9			27.8			16.3			14.5	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	21.7	6.1	12.5	7.7	19.7	9.6	9.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	22.0	5.0	8.0	6.0	20.0	8.0	5.0
Max Q Clear Time (g_c+I1), s	3.4	13.4	3.7	5.7	4.8	9.7	6.2	6.3
Green Ext Time (p_c), s	0.0	4.3	0.0	0.2	0.0	3.8	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	23	38	9	29	7	18	128	14	14	224	9
Future Vol, veh/h	6	23	38	9	29	7	18	128	14	14	224	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	5	1	0	0	5	5	0	0	11
Mvmt Flow	6	23	38	9	29	7	18	128	14	14	224	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	446	435	229	458	432	135	233	0	0	142	0	0
Stage 1	257	257	-	171	171	-	-	-	-	-	-	-
Stage 2	189	178	-	287	261	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.53	6.23	7.15	6.51	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.53	-	6.15	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.027	3.327	3.545	4.009	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	526	513	808	508	518	919	1346	-	-	1453	-	-
Stage 1	752	693	-	824	759	-	-	-	-	-	-	-
Stage 2	817	750	-	714	694	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	489	500	808	458	505	919	1346	-	-	1453	-	-
Mov Cap-2 Maneuver	489	500	-	458	505	-	-	-	-	-	-	-
Stage 1	741	685	-	812	748	-	-	-	-	-	-	-
Stage 2	768	739	-	650	686	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	12.4	0.9	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1346	-	-	636	531	1453	-	-
HCM Lane V/C Ratio	0.013	-	-	0.105	0.085	0.01	-	-
HCM Control Delay (s)	7.7	0	-	11.3	12.4	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0	-	-

Intersection	
Int Delay, s/veh	49.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Future Vol, veh/h	0	8	0	146	4	310	4	457	155	123	880	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	8	33	1	100	16	3	6	24	0
Mvmt Flow	0	8	0	146	4	310	4	457	155	123	880	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1826	1746	880	1595	1591	457	880	0	0	612	0	0
Stage 1	1126	1126	-	465	465	-	-	-	-	-	-	-
Stage 2	700	620	-	1130	1126	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.18	6.83	6.21	5.1	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.18	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.572	4.297	3.309	3.1	-	-	2.254	-	-
Pot Cap-1 Maneuver	60	87	349	~ 83	91	606	476	-	-	948	-	-
Stage 1	251	282	-	566	514	-	-	-	-	-	-	-
Stage 2	433	483	-	241	246	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	25	75	349	~ 68	79	606	476	-	-	948	-	-
Mov Cap-2 Maneuver	25	75	-	~ 68	79	-	-	-	-	-	-	-
Stage 1	249	245	-	561	510	-	-	-	-	-	-	-
Stage 2	208	479	-	203	214	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	58.7	221.1	0.1	1.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	476	-	-	75	-	68	79	606	948	-	-
HCM Lane V/C Ratio	0.008	-	-	0.107	-	2.147	0.051	0.512	0.13	-	-
HCM Control Delay (s)	12.6	-	-	58.7	0	$ 659.2	53	17	9.4	-	-
HCM Lane LOS	B	-	-	F	A	F	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	-	13.7	0.2	2.9	0.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	832	4	18	728	9	11	4	52	15	12	0
Future Vol, veh/h	0	832	4	18	728	9	11	4	52	15	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	8	0	0	3	0	0	0	8	0	25	0
Mvmt Flow	0	832	4	18	728	9	11	4	52	15	12	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	737	0	0	836	0	0	1609	1607	834	1631	1605	733
Stage 1	-	-	-	-	-	-	834	834	-	769	769	-
Stage 2	-	-	-	-	-	-	775	773	-	862	836	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.28	7.1	6.75	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.75	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.372	3.5	4.225	3.3
Pot Cap-1 Maneuver	878	-	-	807	-	-	85	106	359	82	93	424
Stage 1	-	-	-	-	-	-	365	386	-	397	379	-
Stage 2	-	-	-	-	-	-	394	412	-	353	352	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	878	-	-	807	-	-	74	102	359	66	89	424
Mov Cap-2 Maneuver	-	-	-	-	-	-	74	102	-	66	89	-
Stage 1	-	-	-	-	-	-	365	386	-	397	365	-
Stage 2	-	-	-	-	-	-	367	396	-	299	352	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	31.6	77.9
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	878	-	-	807	-	-	75
HCM Lane V/C Ratio	0.333	-	-	-	0.022	-	-	0.36
HCM Control Delay (s)	31.6	0	-	-	9.6	0	-	77.9
HCM Lane LOS	D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)	1.4	0	-	-	0.1	-	-	1.4

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	274	190	29	357	3	137	5	33	5	7	3
Future Vol, veh/h	4	274	190	29	357	3	137	5	33	5	7	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	1	1	25	0	0	2	0	10	0	0	0
Mvmt Flow	4	274	190	29	357	3	137	5	33	5	7	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	360	0	0	464	0	0	799	795	369	813	889	359
Stage 1	-	-	-	-	-	-	377	377	-	417	417	-
Stage 2	-	-	-	-	-	-	422	418	-	396	472	-
Critical Hdwy	4.1	-	-	4.35	-	-	7.12	6.5	6.3	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.425	-	-	3.518	4	3.39	3.5	4	3.3
Pot Cap-1 Maneuver	1210	-	-	987	-	-	304	323	659	299	285	690
Stage 1	-	-	-	-	-	-	644	619	-	617	595	-
Stage 2	-	-	-	-	-	-	609	594	-	633	562	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1210	-	-	987	-	-	287	309	659	271	273	690
Mov Cap-2 Maneuver	-	-	-	-	-	-	287	309	-	271	273	-
Stage 1	-	-	-	-	-	-	641	616	-	614	573	-
Stage 2	-	-	-	-	-	-	577	572	-	593	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	28.7	17.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	1210	-	-	987	-	-	310
HCM Lane V/C Ratio	0.543	0.003	-	-	0.029	-	-	0.048
HCM Control Delay (s)	28.7	8	0	-	8.8	0	-	17.2
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	3.1	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	6	305	45	34	351	6	50	9	58	20	26	16
Future Vol, veh/h	6	305	45	34	351	6	50	9	58	20	26	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	305	45	34	351	6	50	9	58	20	26	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	357	0	0	350	0	0	783	765	328	795	784	354
Stage 1	-	-	-	-	-	-	340	340	-	422	422	-
Stage 2	-	-	-	-	-	-	443	425	-	373	362	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1213	-	-	1220	-	-	314	336	718	308	327	694
Stage 1	-	-	-	-	-	-	679	643	-	613	592	-
Stage 2	-	-	-	-	-	-	598	590	-	652	629	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1213	-	-	1220	-	-	279	322	718	269	314	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	322	-	269	314	-
Stage 1	-	-	-	-	-	-	675	639	-	609	571	-
Stage 2	-	-	-	-	-	-	538	569	-	587	625	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	17.4	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	406	1213	-	-	1220	-	-	344
HCM Lane V/C Ratio	0.288	0.005	-	-	0.028	-	-	0.18
HCM Control Delay (s)	17.4	8	0	-	8	0	-	17.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	0.6

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	388	41	8	383	41	13
Future Vol, veh/h	388	41	8	383	41	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	388	41	8	383	41	13
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.2	11.8	9.3
HCM LOS	B	B	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	76%	0%	2%
Vol Thru, %	0%	90%	98%
Vol Right, %	24%	10%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	54	429	391
LT Vol	41	0	8
Through Vol	0	388	383
RT Vol	13	41	0
Lane Flow Rate	54	429	391
Geometry Grp	1	1	1
Degree of Util (X)	0.085	0.525	0.488
Departure Headway (Hd)	5.667	4.405	4.497
Convergence, Y/N	Yes	Yes	Yes
Cap	629	819	802
Service Time	3.728	2.434	2.528
HCM Lane V/C Ratio	0.086	0.524	0.488
HCM Control Delay	9.3	12.2	11.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	0.3	3.1	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	929	227	105	803	21	217	113	82	35	163	63
Future Volume (veh/h)	46	929	227	105	803	21	217	113	82	35	163	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1855	1900	1900	1900	1863
Adj Flow Rate, veh/h	46	929	184	105	803	-16	217	113	82	35	163	42
Adj No. of Lanes	1	1	1	1	1	1	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	0	2	0	0	2	2	0	0	2
Cap, veh/h	58	899	1006	115	958	869	253	227	164	43	210	226
Arrive On Green	0.03	0.48	0.48	0.06	0.51	0.00	0.14	0.23	0.23	0.02	0.11	0.11
Sat Flow, veh/h	1810	1863	1615	1810	1863	1615	1810	1001	726	1810	1900	1583
Grp Volume(v), veh/h	46	929	184	105	803	-16	217	0	195	35	163	42
Grp Sat Flow(s),veh/h/ln	1810	1863	1615	1810	1863	1615	1810	0	1727	1810	1900	1583
Q Serve(g_s), s	2.0	38.0	3.8	4.5	29.0	0.0	9.2	0.0	7.7	1.5	6.6	1.8
Cycle Q Clear(g_c), s	2.0	38.0	3.8	4.5	29.0	0.0	9.2	0.0	7.7	1.5	6.6	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	58	899	1006	115	958	869	253	0	391	43	210	226
V/C Ratio(X)	0.79	1.03	0.18	0.91	0.84	-0.02	0.86	0.00	0.50	0.81	0.78	0.19
Avail Cap(c_a), veh/h	92	899	1006	115	958	869	253	0	391	115	241	252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	20.3	6.3	36.6	16.3	0.0	33.1	0.0	26.5	38.2	34.1	29.7
Incr Delay (d2), s/veh	20.8	38.8	0.1	57.6	6.7	0.0	24.2	0.0	1.0	28.5	12.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	28.9	1.7	4.1	16.5	0.0	6.3	0.0	3.8	1.1	4.2	0.8
LnGrp Delay(d),s/veh	58.6	59.1	6.4	94.2	23.0	0.0	57.3	0.0	27.5	66.8	47.0	30.1
LnGrp LOS	E	F	A	F	C		E		C	E	D	C
Approach Vol, veh/h		1159			892			412			240	
Approach Delay, s/veh		50.7			31.8			43.2			46.9	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	21.8	9.0	42.0	15.0	12.7	6.5	44.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.0	16.0	5.0	38.0	11.0	10.0	4.0	39.0
Max Q Clear Time (g_c+I1), s	3.5	9.7	6.5	40.0	11.2	8.6	4.0	31.0
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0	0.0	0.1	0.0	3.5

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Future Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1804	1900	1900	1864	1900	1900	1845	1900	1845	1791	1900
Adj Flow Rate, veh/h	232	96	108	86	96	140	131	1402	13	157	1722	254
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	0	3	3	3	4	4
Cap, veh/h	245	80	91	157	178	226	99	1618	15	176	1494	215
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.05	0.45	0.45	0.10	0.50	0.50
Sat Flow, veh/h	578	239	269	344	528	671	1810	3559	33	1757	2987	430
Grp Volume(v), veh/h	436	0	0	322	0	0	131	690	725	157	963	1013
Grp Sat Flow(s),veh/h/ln	1087	0	0	1543	0	0	1810	1753	1839	1757	1702	1716
Q Serve(g_s), s	18.2	0.0	0.0	0.0	0.0	0.0	6.0	39.0	39.0	9.7	55.0	55.0
Cycle Q Clear(g_c), s	37.0	0.0	0.0	18.8	0.0	0.0	6.0	39.0	39.0	9.7	55.0	55.0
Prop In Lane	0.53		0.25	0.27		0.43	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	416	0	0	560	0	0	99	797	836	176	851	858
V/C Ratio(X)	1.05	0.00	0.00	0.57	0.00	0.00	1.33	0.87	0.87	0.89	1.13	1.18
Avail Cap(c_a), veh/h	416	0	0	560	0	0	99	797	836	176	851	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	0.0	0.0	30.2	0.0	0.0	52.0	27.0	27.0	48.9	27.5	27.5
Incr Delay (d2), s/veh	57.6	0.0	0.0	1.4	0.0	0.0	201.4	9.9	9.6	39.4	73.7	93.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.2	0.0	0.0	8.4	0.0	0.0	8.5	21.0	22.0	6.6	43.2	48.3
LnGrp Delay(d),s/veh	97.9	0.0	0.0	31.7	0.0	0.0	253.4	36.9	36.6	88.3	101.2	121.0
LnGrp LOS	F			C			F	D	D	F	F	F
Approach Vol, veh/h		436			322			1546			2133	
Approach Delay, s/veh		97.9			31.7			55.1			109.7	
Approach LOS		F			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	54.0		41.0	10.0	59.0		41.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	11.0	50.0		37.0	6.0	55.0		37.0
Max Q Clear Time (g_c+I1), s	11.7	41.0		39.0	8.0	57.0		20.8
Green Ext Time (p_c), s	0.0	5.9		0.0	0.0	0.0		1.9

Intersection Summary			
HCM 2010 Ctrl Delay			83.8
HCM 2010 LOS			F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	427	562	110	38	467	53	186	948	54	85	1108	514
Future Volume (veh/h)	427	562	110	38	467	53	186	948	54	85	1108	514
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1660	1710	1644	1671	1710	1710	1688	1710	1676	1693	1693
Adj Flow Rate, veh/h	427	562	110	38	467	53	186	948	54	85	1108	514
Adj No. of Lanes	1	1	1	1	1	0	1	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	3	0	4	2	2	0	1	1	2	1	1
Cap, veh/h	205	439	820	22	221	25	489	475	27	490	520	627
Arrive On Green	0.13	0.26	0.26	0.01	0.15	0.15	0.30	0.30	0.30	0.31	0.31	0.31
Sat Flow, veh/h	1597	1660	1454	1566	1475	167	1629	1582	90	1597	1693	1439
Grp Volume(v), veh/h	427	562	110	38	0	520	186	0	1002	85	1108	514
Grp Sat Flow(s),veh/h/ln	1597	1660	1454	1566	0	1642	1629	0	1672	1597	1693	1439
Q Serve(g_s), s	18.0	37.0	5.0	2.0	0.0	21.0	12.6	0.0	42.0	5.5	43.0	43.0
Cycle Q Clear(g_c), s	18.0	37.0	5.0	2.0	0.0	21.0	12.6	0.0	42.0	5.5	43.0	43.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	205	439	820	22	0	246	489	0	502	490	520	627
V/C Ratio(X)	2.08	1.28	0.13	1.70	0.00	2.11	0.38	0.00	2.00	0.17	2.13	0.82
Avail Cap(c_a), veh/h	205	439	820	22	0	246	489	0	502	490	520	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.0	51.5	14.4	69.0	0.0	59.5	38.7	0.0	49.0	35.5	48.5	34.7
Incr Delay (d2), s/veh	502.4	142.9	0.1	450.8	0.0	513.6	0.5	0.0	456.1	0.2	515.3	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.6	34.4	3.4	3.7	0.0	44.6	5.7	0.0	82.9	2.4	94.5	18.9
LnGrp Delay(d),s/veh	563.4	194.4	14.5	519.8	0.0	573.1	39.2	0.0	505.1	35.7	563.8	43.2
LnGrp LOS	F	F	B	F		F	D		F	D	F	D
Approach Vol, veh/h		1099			558			1188			1707	
Approach Delay, s/veh		319.8			569.5			432.2			380.7	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		46.0	6.0	41.0		47.0	22.0	25.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		42.0	2.0	37.0		43.0	18.0	21.0				
Max Q Clear Time (g_c+I1), s		44.0	4.0	39.0		45.0	20.0	23.0				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			402.6									
HCM 2010 LOS			F									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Future Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1900	1900	1900	1851	1900	1900	1845	1900	1845	1791	1900
Adj Flow Rate, veh/h	232	96	108	86	96	140	131	1402	13	157	1722	254
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	0	0	0	5	5	0	3	3	3	4	4
Cap, veh/h	219	149	167	109	74	108	121	1853	17	184	1668	240
Arrive On Green	0.13	0.18	0.18	0.06	0.11	0.11	0.07	0.52	0.52	0.10	0.56	0.56
Sat Flow, veh/h	1645	818	920	1810	682	994	1810	3559	33	1757	2987	430
Grp Volume(v), veh/h	232	0	204	86	0	236	131	690	725	157	963	1013
Grp Sat Flow(s),veh/h/ln	1645	0	1738	1810	0	1676	1810	1753	1839	1757	1702	1716
Q Serve(g_s), s	16.0	0.0	13.1	5.6	0.0	13.0	8.0	37.4	37.4	10.5	67.0	67.0
Cycle Q Clear(g_c), s	16.0	0.0	13.1	5.6	0.0	13.0	8.0	37.4	37.4	10.5	67.0	67.0
Prop In Lane	1.00		0.53	1.00		0.59	1.00		0.02	1.00		0.25
Lane Grp Cap(c), veh/h	219	0	316	109	0	182	121	912	957	184	950	958
V/C Ratio(X)	1.06	0.00	0.65	0.79	0.00	1.30	1.09	0.76	0.76	0.86	1.01	1.06
Avail Cap(c_a), veh/h	219	0	316	121	0	182	121	912	957	205	950	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	0.0	45.5	55.7	0.0	53.5	56.0	22.8	22.8	52.8	26.5	26.5
Incr Delay (d2), s/veh	76.8	0.0	4.5	27.0	0.0	169.2	106.9	3.7	3.5	26.2	32.5	45.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	0.0	6.7	3.6	0.0	14.5	7.6	19.0	19.9	6.4	39.7	43.5
LnGrp Delay(d),s/veh	128.8	0.0	50.0	82.6	0.0	222.7	162.9	26.4	26.3	79.0	59.0	72.1
LnGrp LOS	F		D	F		F	F	C	C	E	F	F
Approach Vol, veh/h		436			322			1546			2133	
Approach Delay, s/veh		92.0			185.3			37.9			66.7	
Approach LOS		F			F			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	66.5	11.2	25.8	12.0	71.0	20.0	17.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	14.0	61.0	8.0	21.0	8.0	67.0	16.0	13.0
Max Q Clear Time (g_c+I1), s	12.5	39.4	7.6	15.1	10.0	69.0	18.0	15.0
Green Ext Time (p_c), s	0.1	10.7	0.0	0.5	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.8
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	0	0	185	12	282	0	1182	142	446	815	0
Future Volume (veh/h)	8	0	0	185	12	282	0	1182	142	446	815	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1743	1900	1863	1900	1667	1845	1881	1652	1900
Adj Flow Rate, veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Adj No. of Lanes	0	1	1	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	9	0	2	0	14	3	1	15	15
Cap, veh/h	195	0	173	234	258	532	1	964	907	358	1334	0
Arrive On Green	0.14	0.00	0.00	0.14	0.14	0.14	0.00	0.58	0.58	0.20	0.81	0.00
Sat Flow, veh/h	1058	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Grp Volume(v), veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Grp Sat Flow(s),veh/h/ln	1058	0	1615	1316	1900	1583	1810	1667	1568	1792	1652	0
Q Serve(g_s), s	0.9	0.0	4.0	17.3	0.8	19.0	0.0	81.0	5.9	28.0	26.3	0.0
Cycle Q Clear(g_c), s	1.7	0.0	4.0	19.0	0.8	19.0	0.0	81.0	5.9	28.0	26.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	195	0	173	234	258	532	1	964	907	358	1334	0
V/C Ratio(X)	0.04	0.00	0.00	0.79	0.05	0.53	0.00	1.23	0.16	1.24	0.61	0.00
Avail Cap(c_a), veh/h	195	0	173	234	258	532	52	964	907	358	1334	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.3	0.0	0.0	60.4	52.6	37.6	0.0	29.5	13.7	56.0	5.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	23.3	0.3	3.8	0.0	110.9	0.1	131.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.8	8.7	0.4	9.3	0.0	66.7	2.5	26.9	12.1	0.0
LnGrp Delay(d),s/veh	53.7	0.0	0.0	83.7	53.0	41.3	0.0	140.4	13.7	187.5	6.0	0.0
LnGrp LOS	D			F	D	D		F	B	F	A	
Approach Vol, veh/h		8			479			1324			1261	
Approach Delay, s/veh		53.7			58.0			126.8			70.2	
Approach LOS		D			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	32.0	85.0		23.0	0.0	117.0
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		19.0	28.0	81.0		19.0	4.0	105.0
Max Q Clear Time (g_c+I1), s		21.0	30.0	83.0		6.0	0.0	28.3
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0	0.0	8.0

Intersection Summary	
HCM 2010 Ctrl Delay	92.6
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	8	0	0	185	12	282	0	1182	142	446	815	0
Future Volume (veh/h)	8	0	0	185	12	282	0	1182	142	446	815	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1743	1900	1863	1900	1667	1845	1881	1652	1900
Adj Flow Rate, veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Adj No. of Lanes	0	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	9	0	2	0	14	3	1	15	15
Cap, veh/h	308	0	270	362	402	756	2	1232	610	476	2195	0
Arrive On Green	0.21	0.00	0.00	0.21	0.21	0.21	0.00	0.39	0.39	0.27	0.70	0.00
Sat Flow, veh/h	1076	0	1615	1316	1900	1583	1810	3167	1568	1792	3222	0
Grp Volume(v), veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Grp Sat Flow(s),veh/h/ln	1076	0	1615	1316	1900	1583	1810	1583	1568	1792	1570	0
Q Serve(g_s), s	0.5	0.0	4.0	10.3	0.5	10.2	0.0	32.7	5.5	21.9	9.5	0.0
Cycle Q Clear(g_c), s	1.0	0.0	4.0	11.3	0.5	10.2	0.0	32.7	5.5	21.9	9.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	308	0	270	362	402	756	2	1232	610	476	2195	0
V/C Ratio(X)	0.03	0.00	0.00	0.51	0.03	0.37	0.00	0.96	0.23	0.94	0.37	0.00
Avail Cap(c_a), veh/h	308	0	270	362	402	756	81	1234	611	479	2195	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.5	0.0	0.0	32.3	28.1	14.9	0.0	26.8	18.4	32.2	5.5	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	5.1	0.1	1.4	0.0	16.8	0.2	26.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.8	4.7	0.3	4.7	0.0	17.2	2.4	14.2	4.1	0.0
LnGrp Delay(d),s/veh	28.6	0.0	0.0	37.3	28.2	16.3	0.0	43.6	18.6	58.2	5.6	0.0
LnGrp LOS	C			D	C	B		D	B	E	A	
Approach Vol, veh/h		8			479			1324			1261	
Approach Delay, s/veh		28.6			24.7			40.9			24.2	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		23.0	27.9	38.9		23.0	0.0	66.8
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s		19.0	24.0	35.0		19.0	4.0	55.0
Max Q Clear Time (g_c+I1), s		13.3	23.9	34.7		6.0	0.0	11.5
Green Ext Time (p_c), s		0.9	0.0	0.2		0.0	0.0	7.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Future Volume (veh/h)	232	96	108	86	96	140	131	1402	13	157	1722	254
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1900	1900	1900	1810	1881	1900	1845	1900	1845	1827	1583
Adj Flow Rate, veh/h	232	96	108	86	96	140	131	1402	13	157	1722	254
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	0	0	0	5	1	0	3	3	3	4	20
Cap, veh/h	258	287	370	111	101	262	142	1781	17	190	1840	924
Arrive On Green	0.16	0.15	0.15	0.06	0.06	0.06	0.08	0.50	0.50	0.11	0.53	0.53
Sat Flow, veh/h	1645	1900	1615	1810	1810	1599	1810	3559	33	1757	3471	1346
Grp Volume(v), veh/h	232	96	108	86	96	140	131	690	725	157	1722	254
Grp Sat Flow(s),veh/h/ln	1645	1900	1615	1810	1810	1599	1810	1753	1839	1757	1736	1346
Q Serve(g_s), s	12.4	4.0	4.9	4.2	4.7	5.0	6.4	29.0	29.0	7.8	41.3	6.5
Cycle Q Clear(g_c), s	12.4	4.0	4.9	4.2	4.7	5.0	6.4	29.0	29.0	7.8	41.3	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	258	287	370	111	101	262	142	877	920	190	1840	924
V/C Ratio(X)	0.90	0.33	0.29	0.77	0.95	0.53	0.92	0.79	0.79	0.83	0.94	0.27
Avail Cap(c_a), veh/h	258	287	370	182	101	262	142	877	920	216	1864	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	33.9	28.4	41.3	42.1	34.2	40.9	18.4	18.4	39.0	19.6	5.4
Incr Delay (d2), s/veh	31.4	0.7	0.4	10.8	72.8	2.1	53.4	4.8	4.6	20.4	9.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	2.2	2.2	2.4	4.4	3.3	5.3	15.2	15.9	4.9	22.0	2.4
LnGrp Delay(d),s/veh	68.4	34.6	28.9	52.2	114.9	36.3	94.3	23.2	23.0	59.4	29.0	5.6
LnGrp LOS	E	C	C	D	F	D	F	C	C	E	C	A
Approach Vol, veh/h		436			322			1546			2133	
Approach Delay, s/veh		51.2			64.0			29.2			28.5	
Approach LOS		D			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	48.7	9.5	17.5	11.0	51.4	18.0	9.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	11.0	44.0	9.0	10.0	7.0	48.0	14.0	5.0
Max Q Clear Time (g_c+I1), s	9.8	31.0	6.2	6.9	8.4	43.3	14.4	7.0
Green Ext Time (p_c), s	0.0	7.8	0.0	0.2	0.0	4.1	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	51	34	38	58	14	27	157	24	12	184	3
Future Vol, veh/h	2	51	34	38	58	14	27	157	24	12	184	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	3	5	0	0	4	0	0	0	3	0
Mvmt Flow	2	51	34	38	58	14	27	157	24	12	184	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	469	445	186	475	434	169	187	0	0	181	0	0
Stage 1	210	210	-	223	223	-	-	-	-	-	-	-
Stage 2	259	235	-	252	211	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.15	6.5	6.2	4.14	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.15	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.327	3.545	4	3.3	2.236	-	-	2.2	-	-
Pot Cap-1 Maneuver	508	511	854	495	518	880	1375	-	-	1407	-	-
Stage 1	797	732	-	773	723	-	-	-	-	-	-	-
Stage 2	750	714	-	746	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	445	495	854	427	501	880	1375	-	-	1407	-	-
Mov Cap-2 Maneuver	445	495	-	427	501	-	-	-	-	-	-	-
Stage 1	779	725	-	756	707	-	-	-	-	-	-	-
Stage 2	663	698	-	659	724	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.2	14.3	1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	590	498	1407	-	-
HCM Lane V/C Ratio	0.02	-	-	0.147	0.221	0.009	-	-
HCM Control Delay (s)	7.7	0	-	12.2	14.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0	-	-

Intersection	
Int Delay, s/veh	1830

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Future Vol, veh/h	8	0	0	185	12	282	0	1182	142	446	815	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	325	-	60	525	-	525	525	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	9	0	2	0	14	3	1	15	0
Mvmt Flow	8	0	0	185	12	282	0	1182	142	446	815	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3107	3031	815	2889	2889	1182	815	0	0	1324	0	0
Stage 1	1707	1707	-	1182	1182	-	-	-	-	-	-	-
Stage 2	1400	1324	-	1707	1707	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.19	6.5	6.22	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.19	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.581	4	3.318	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	~ 7	13	381	~ 10	16	~ 231	821	-	-	525	-	-
Stage 1	117	148	-	224	266	-	-	-	-	-	-	-
Stage 2	176	227	-	~ 111	148	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	2	381	~ 3	~ 2	~ 231	821	-	-	525	-	-
Mov Cap-2 Maneuver	-	2	-	~ 3	~ 2	-	-	-	-	-	-	-
Stage 1	117	22	-	224	266	-	-	-	-	-	-	-
Stage 2	-	227	-	~ 17	22	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s		$ 11699.6	0	13.9
HCM LOS	-	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SWL	SWT	SWR
Capacity (veh/h)	821	-	-	-	-	3	2	231	525	-	-
HCM Lane V/C Ratio	-	-	-	-	-	61.667	6	1.221	0.85	-	-
HCM Control Delay (s)	0	-	-	-	0	$ 29674.7	$ 5405	175.3	39.4	-	-
HCM Lane LOS	A	-	-	-	A	F	F	F	E	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	25.5	2.8	14	8.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	13.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	965	15	35	1086	31	7	14	20	28	7	5
Future Vol, veh/h	4	965	15	35	1086	31	7	14	20	28	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	0	0	2	0	0	0	5	0	0	0
Mvmt Flow	4	965	15	35	1086	31	7	14	20	28	7	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	980	0	0	2159	2168	973	2170	2160	1102
Stage 1	-	-	-	-	-	-	981	981	-	1172	1172	-
Stage 2	-	-	-	-	-	-	1178	1187	-	998	988	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.25	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.345	3.5	4	3.3
Pot Cap-1 Maneuver	633	-	-	712	-	-	35	48	302	34	48	260
Stage 1	-	-	-	-	-	-	303	330	-	237	269	-
Stage 2	-	-	-	-	-	-	235	264	-	296	328	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	633	-	-	712	-	-	27	41	302	~ 21	41	260
Mov Cap-2 Maneuver	-	-	-	-	-	-	27	41	-	~ 21	41	-
Stage 1	-	-	-	-	-	-	299	325	-	234	234	-
Stage 2	-	-	-	-	-	-	194	229	-	261	323	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	142.9	$ 597.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	61	633	-	-	712	-	-	26
HCM Lane V/C Ratio	0.672	0.006	-	-	0.049	-	-	1.538
HCM Control Delay (s)	142.9	10.7	0	-	10.3	0	-	$ 597.1
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	2.9	0	-	-	0.2	-	-	4.8

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	362	125	52	367	12	89	11	58	10	11	1
Future Vol, veh/h	1	362	125	52	367	12	89	11	58	10	11	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	2	2	9	0	0	0	0	0	0	0	0
Mvmt Flow	1	362	125	52	367	12	89	11	58	10	11	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	379	0	0	487	0	0	910	910	425	938	966	373
Stage 1	-	-	-	-	-	-	427	427	-	477	477	-
Stage 2	-	-	-	-	-	-	483	483	-	461	489	-
Critical Hdwy	4.1	-	-	4.19	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.281	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1191	-	-	1041	-	-	258	277	634	247	257	678
Stage 1	-	-	-	-	-	-	610	589	-	573	559	-
Stage 2	-	-	-	-	-	-	569	556	-	584	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1191	-	-	1041	-	-	237	259	634	206	241	678
Mov Cap-2 Maneuver	-	-	-	-	-	-	237	259	-	206	241	-
Stage 1	-	-	-	-	-	-	609	588	-	572	524	-
Stage 2	-	-	-	-	-	-	521	521	-	520	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	28.1	22.3
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	1191	-	-	1041	-	-	230
HCM Lane V/C Ratio	0.51	0.001	-	-	0.05	-	-	0.096
HCM Control Delay (s)	28.1	8	0	-	8.6	0	-	22.3
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.7	0	-	-	0.2	-	-	0.3

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	465	113	21	365	20	60	27	33	12	18	12
Future Vol, veh/h	16	465	113	21	365	20	60	27	33	12	18	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	1	0	1	0	0	0	0	0	0	0
Mvmt Flow	16	465	113	21	365	20	60	27	33	12	18	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	385	0	0	578	0	0	986	981	522	1001	1027	375
Stage 1	-	-	-	-	-	-	554	554	-	417	417	-
Stage 2	-	-	-	-	-	-	432	427	-	584	610	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1185	-	-	1006	-	-	229	251	559	223	236	676
Stage 1	-	-	-	-	-	-	520	517	-	617	595	-
Stage 2	-	-	-	-	-	-	606	589	-	501	488	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1185	-	-	1006	-	-	204	239	559	185	225	676
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	239	-	185	225	-
Stage 1	-	-	-	-	-	-	510	507	-	605	579	-
Stage 2	-	-	-	-	-	-	561	573	-	437	478	-

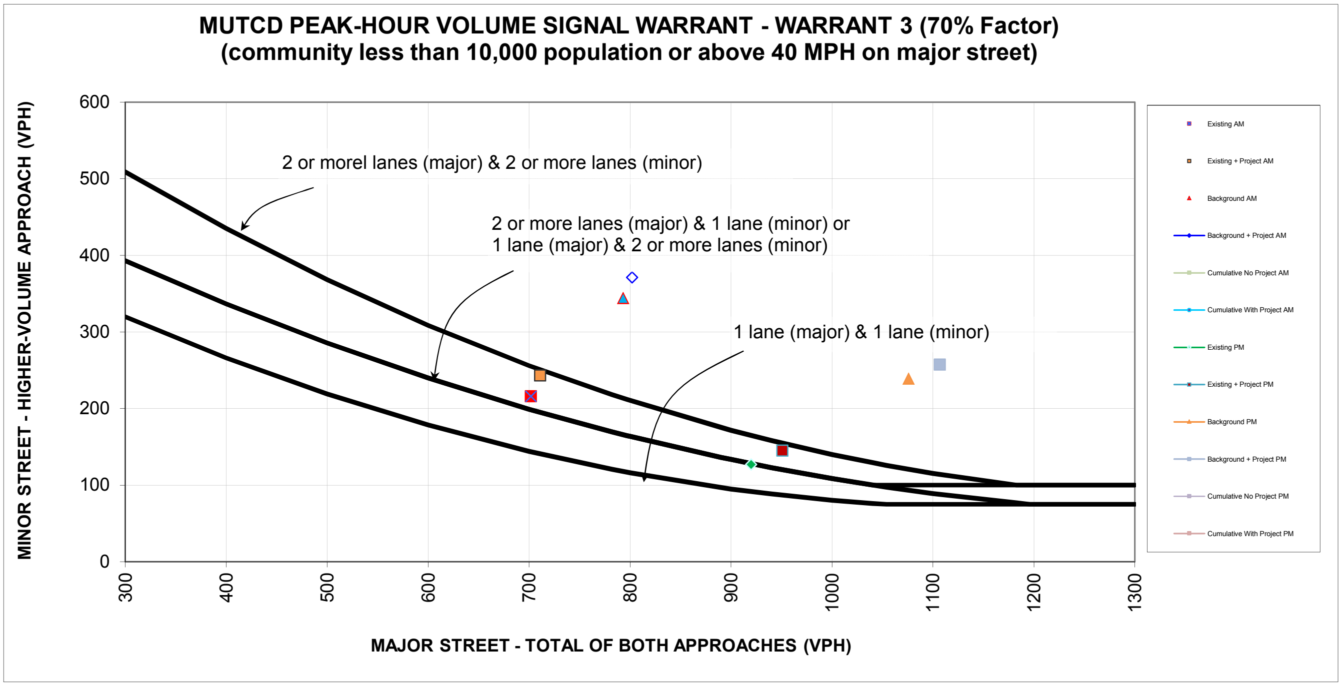
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	30.7	21.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	257	1185	-	-	1006	-	-	258
HCM Lane V/C Ratio	0.467	0.014	-	-	0.021	-	-	0.163
HCM Control Delay (s)	30.7	8.1	0	-	8.7	0	-	21.6
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	2.3	0	-	-	0.1	-	-	0.6

Appendix D
Signal Warrant Checks

Woodle Pre-Zone

1 . SR 156 & Buena Vista Road



Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

AM Peak Hour

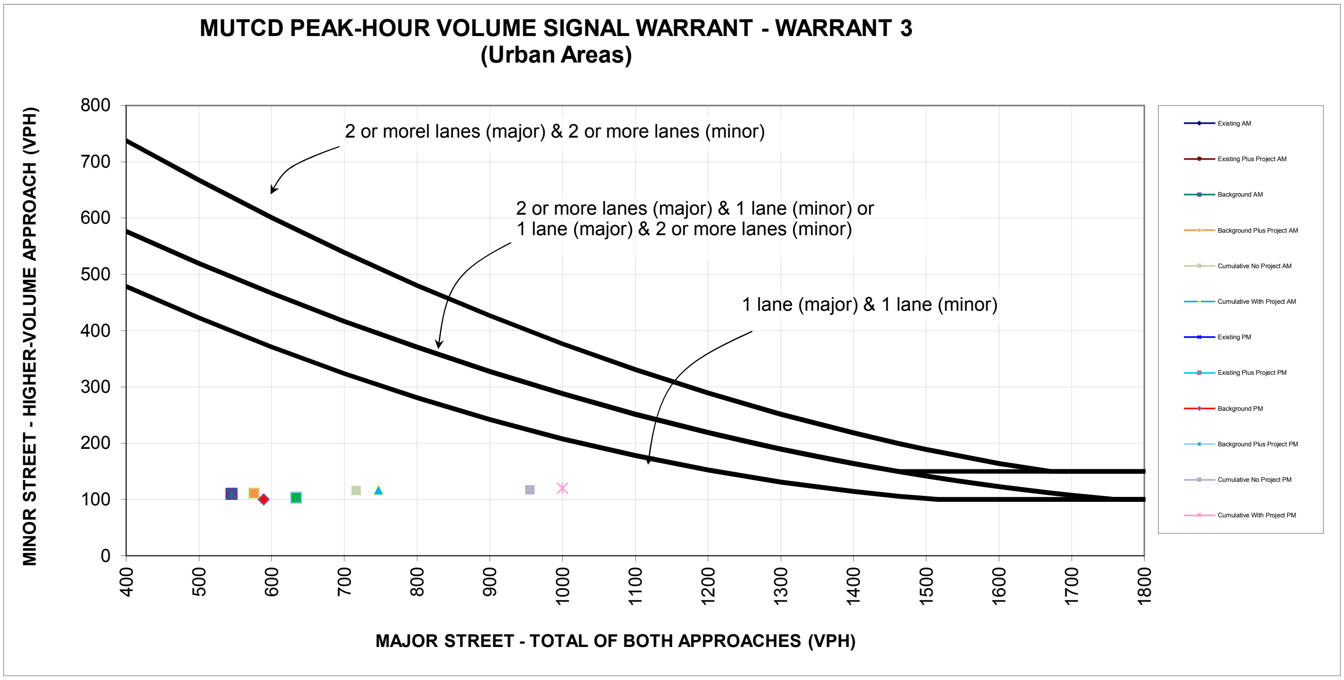
		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing + Project AM	Background AM	Background + Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	Buena Vista Road	X		702	711	793	802	1504	1513
Minor Street - Highest Approach	SR 156	X		216	243	344	371	461	488
Maximum warrant threshold for minor street volume				143	141	118	116	75	75
Difference between warrant threshold & minor street volume				73	102	226	255	386	413
		Warrant Met?		Yes	Yes	Yes	Yes	Yes	Yes

PM Peak Hour

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing + Project PM	Background PM	Background + Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	Buena Vista Road	X		920	951	1076	1107	2482	2513
Minor Street - Highest Approach	SR 156	X		127	145	239	257	408	426
Maximum warrant threshold for minor street volume				92	87	75	75	75	75
Difference between warrant threshold & minor street volume				35	58	164	182	333	351
		Warrant Met?		Yes	Yes	Yes	Yes	Yes	Yes

Woodle Pre-Zone

2 . Miller Road & Buena Vista Road



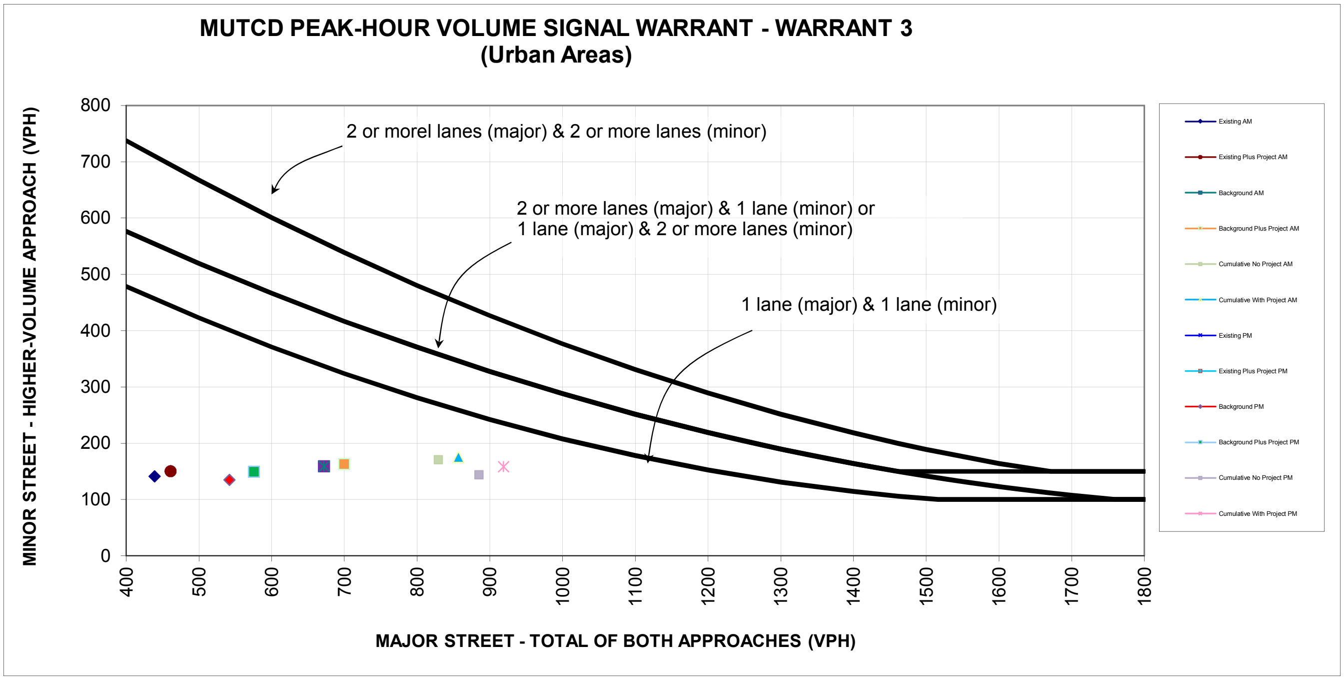
Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	AM Peak Hour: Existing AM	Existing Plus Project AM	Background AM	Background Plus Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	Buena Vista Road	X		335	366	545	576	716	747
Minor Street - Highest Approach	Miller Road	X		85	86	110	111	116	117
Maximum warrant threshold for minor street volume				517	498	399	383	316	303
Difference between warrant threshold & minor street volume				432	412	289	272	200	186
		Warrant Met?		No	No	No	No	No	No

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	PM Peak Hour: Existing PM	Existing Plus Project PM	Background PM	Background Plus Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	Buena Vista Road	X		328	373	589	634	955	1000
Minor Street - Highest Approach	Miller Road	X		42	45	100	103	117	120
Maximum warrant threshold for minor street volume				521	494	376	354	223	208
Difference between warrant threshold & minor street volume				479	449	276	251	106	88
		Warrant Met?		No	No	No	No	No	No

Woodle Pre-Zone

3 . Westside Boulevard & Buena Vista Road



Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 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.

10000 50000 60000 70000 90000 100000

AM Peak Hour

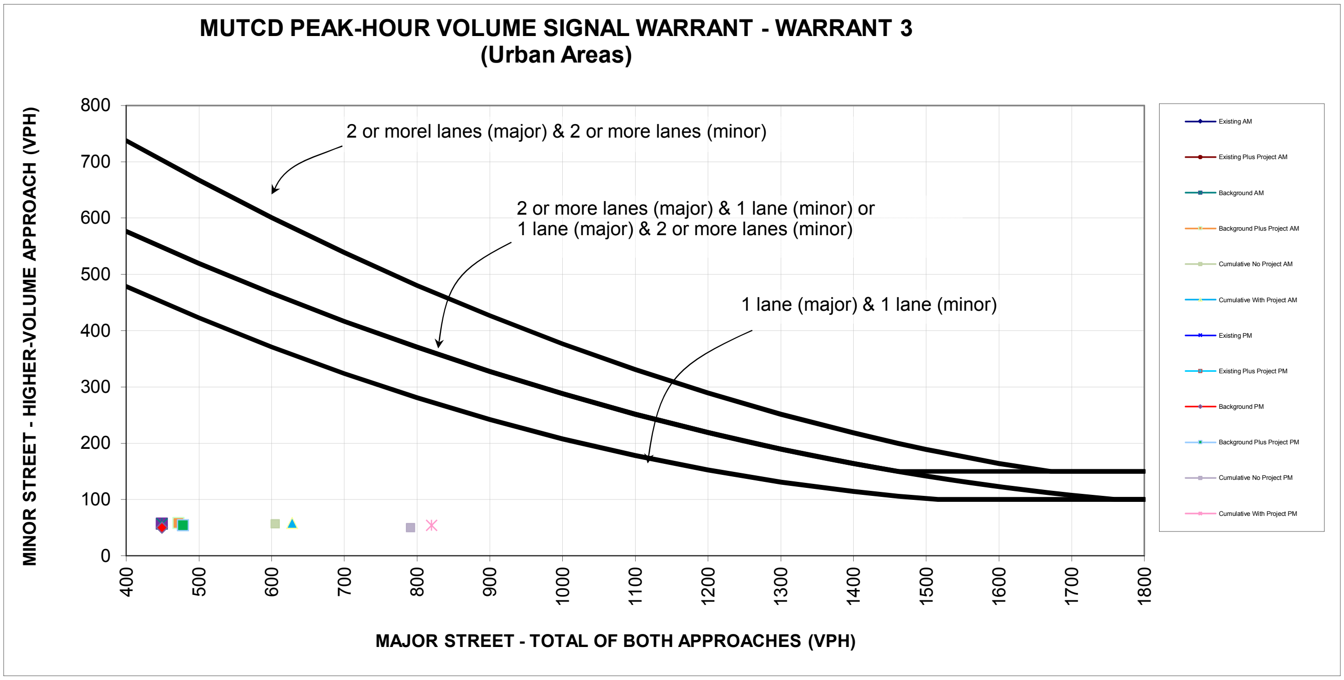
		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Background AM	Background Plus Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	Buena Vista Road	X		439	461	672	700	829	857
Minor Street - Highest Approach	Westside Boulevard	X		141	150	159	163	171	175
Maximum warrant threshold for minor street volume				456	444	336	324	269	258
Difference between warrant threshold & minor street volume				315	294	177	161	98	83
		Warrant Met?		No	No	No	No	No	No

PM Peak Hour

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Background PM	Background Plus Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	Buena Vista Road	X		259	277	542	576	885	919
Minor Street - Highest Approach	Westside Boulevard	X		86	116	135	149	144	158
Maximum warrant threshold for minor street volume				565	553	400	383	248	235
Difference between warrant threshold & minor street volume				479	437	265	234	104	77
		Warrant Met?		No	No	No	No	No	No

Woodle Pre-Zone

4 . Locust Avenue & Buena Vista Road



Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 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.

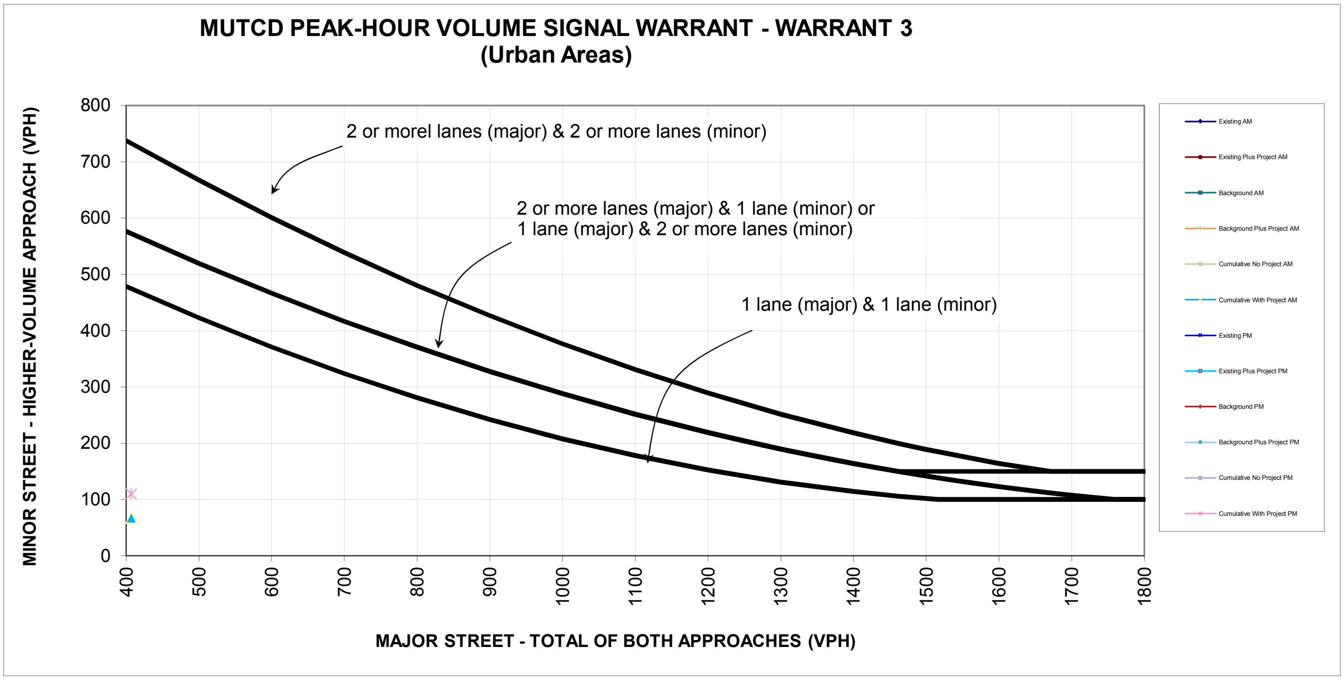
10000 50000 60000 70000 90000 100000

		Existing Approach Lanes: One	2 or More	AM Peak Hour: Existing AM	Existing Plus Project AM	Background AM	Background Plus Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	Buena Vista Road	X		125	126	449	472	605	628
Minor Street - Highest Approach	Locust Avenue	X		97	100	57	58	57	58
Maximum warrant threshold for minor street volume				655	654	450	438	368	357
Difference between warrant threshold & minor street volume				558	554	393	380	311	299
		Warrant Met?		No	No	No	No	No	No

		Existing Approach Lanes: One	2 or More	PM Peak Hour: Existing PM	Existing Plus Project PM	Background PM	Background Plus Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	Buena Vista Road	X		78	80	449	478	791	820
Minor Street - Highest Approach	Locust Avenue	X		75	79	50	54	50	54
Maximum warrant threshold for minor street volume				688	687	450	434	284	273
Difference between warrant threshold & minor street volume				613	608	400	380	234	219
		Warrant Met?		No	No	No	No	No	No

Woodle Pre-Zone

6 . Westside Boulevard & Central Avenue



Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 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.

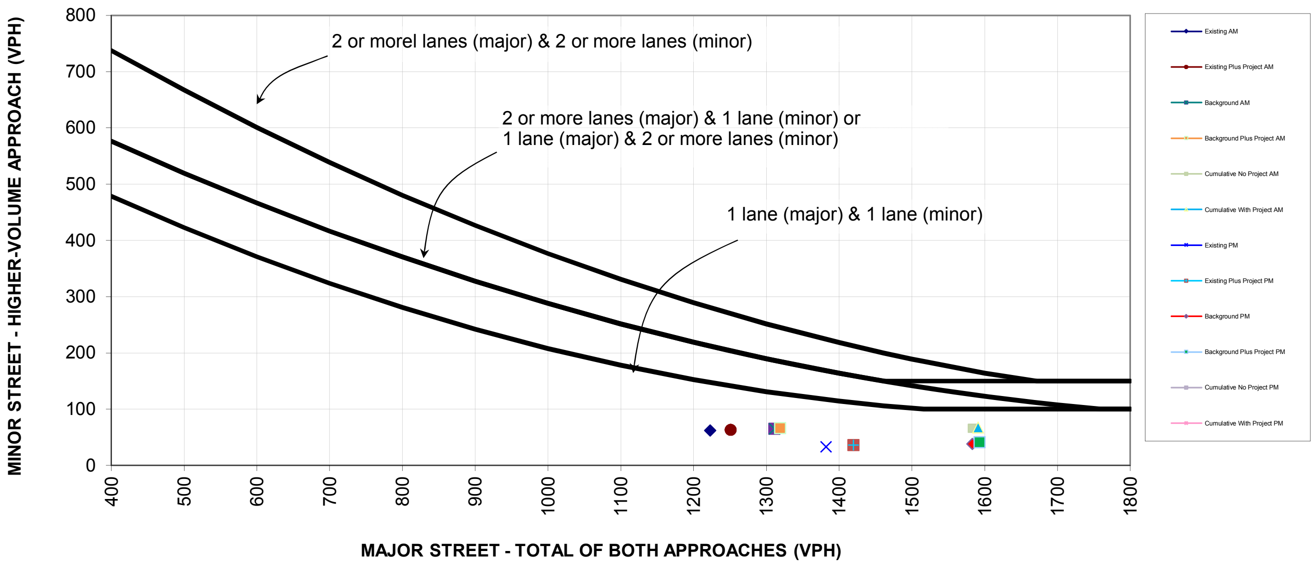
		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	AM Peak Hour: Existing AM	Existing Plus Project AM	Background AM	Background Plus Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	Central Avenue	X		338	374	373	390	390	407
Minor Street - Highest Approach	Westside Boulevard	X		62	62	67	67	67	67
Maximum warrant threshold for minor street volume				515	494	494	484	484	474
Difference between warrant threshold & minor street volume				453	432	427	417	417	407
		Warrant Met?		No	No	No	No	No	No

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	PM Peak Hour: Existing PM	Existing Plus Project PM	Background PM	Background Plus Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	Central Avenue	X		268	316	362	384	385	407
Minor Street - Highest Approach	Westside Boulevard	X		107	107	110	110	110	110
Maximum warrant threshold for minor street volume				559	529	501	488	487	474
Difference between warrant threshold & minor street volume				452	422	391	378	377	364
		Warrant Met?		No	No	No	No	No	No

Woodle Pre-Zone

8 . College Street & San Juan Road/Fourth Street

MUTCD PEAK-HOUR VOLUME SIGNAL WARRANT - WARRANT 3
(Urban Areas)



Source: Figure 4C-3 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 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.

AM Peak Hour

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Background AM	Background Plus Project AM	Cumulative No Project AM	Cumulative With Project AM
Major Street - Both Approaches	San Juan Road/Fourth Stre	X		1223	1251	1311	1319	1583	1591
Minor Street - Highest Approach	College Street	X		62	63	65	66	66	67
Maximum warrant threshold for minor street volume				147	141	129	128	100	100
Difference between warrant threshold & minor street volume				85	78	64	62	34	33
		Warrant Met?		No	No	No	No	No	No

PM Peak Hour

		Existing Approach Lanes: One	Existing Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Background PM	Background Plus Project PM	Cumulative No Project PM	Cumulative With Project PM
Major Street - Both Approaches	San Juan Road/Fourth Stre	X		1382	1420	1583	1593	2126	2136
Minor Street - Highest Approach	College Street	X		33	36	38	41	38	41
Maximum warrant threshold for minor street volume				117	111	100	100	100	100
Difference between warrant threshold & minor street volume				84	75	62	59	62	59
		Warrant Met?		No	No	No	No	No	No