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NWC #5 FACILITY
TRAFFIC IMPACT ANALYSIS

DRAFT REPORT

SANTA CLARA COUNTY, CALIFORNIA

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EXECUTIVE SUMMARY

The proposed NWC #5 project involves the establishment of a storage and maintenance area for portable toilets south the intersection of Monterey Road and California Avenue in San Martin, Santa Clara County, California. Although the study property does not have frontage on either street, it does have a driveway off Monterey Road.

This report is a revision of the previous report dated June 15, 2022. This updated report was prepared due to a revised site plan for the project.

Study Network

The AM and PM peak periods were analyzed at the following two intersections:

1. Monterey Road / California Avenue; and
2. Monterey Road / San Martin Avenue.

In addition, the project driveway was analyzed.

Traffic operations for the following analysis scenarios were analyzed, as requested by Santa Clara County Roads and Airports Department:

- Existing Conditions
- Existing Plus Project Conditions
- Cumulative Without Project Conditions
- Cumulative Plus Project Conditions

Existing Conditions

This traffic study uses a hybrid approach to traffic volumes for this study. Whereas volumes at Monterey Road / California Avenue was approximated from counts prior to the COVID-19 pandemic (2018), new traffic counts (2022) were performed at the Monterey Road / San Martin Avenue intersection. The Monterey / California intersection was adjusted up to Year 2022 volumes using growth rates (3% per year, or 12% total) derived from data published by published by the Santa Clara County Roads and Airports Department. The Monterey / San Martin intersection was subsequently adjusted upwards to be more reflective of the adjusted volumes at Monterey / California. By more reflective, it is meant that the adjustments are meant to approximate the adjusted volumes at Monterey / California, not match them, taking into account the other intersections and driveways between these intersections.

The two study intersections operate below their level of service standard under Existing Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM) LOS E (PM).
2. Monterey Road / San Martin Avenue – LOS E (AM).

Existing Plus Project Conditions

The unique use and operations of this project do not correspond well with any typical land uses. Therefore, the project trip generation will not be based on rates from *Trip Generation Manual,* 10th Edition, published by the Institute of Traffic Engineers in September 2017. Instead, a custom trip generation has been prepared for the project, based on information provided by the project applicant and other assumptions.

The project is estimated to generate 48 daily trips, with 5 trips (1 in, 4 out) during the AM peak hour and 4 trips (3 in, 1 out) during the PM peak hour.

The project driveway would be located approximately 490 feet south of the Monterey Road / California Avenue intersection.

The two study intersections operate below their level of service standard under Existing Plus Project Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM) LOS E (PM).
2. Monterey Road / San Martin Avenue – LOS E (AM).

Neither intersection meets the significant local adverse effect criteria; hence no improvements are required service standard under Existing Plus Project conditions. No improvements are required at these intersections.

The project driveway would operate at LOS A under Existing Plus Project conditions, which is better than its level of service standard.

Cumulative Without Project Conditions

The traffic volume growth under the Cumulative Without Project conditions were derived in two ways. First, traffic growth projected by Fehr & Peers and further expanded by Pinnacle Traffic Engineering, was derived from traffic volumes in the Pinnacle Traffic Engineering traffic study. This traffic growth is the equivalent of 1.2% per year for 18 years (21.6% total) for mainline traffic on Monterey Road, plus 0.6% per year for 18 years (10.8% total) on California Avenue and San Martin Avenue.

Second, traffic volumes from adjacent approved and proposed development was also added to the study intersections. This specifically includes both the Cordoba Center (to be located on Monterey Road north of California Avenue) and the Heart of the Valley RV Resort (proposed at the northwestern corner of the Monterey Road / California Avenue intersection).

The two study intersections operate below their level of service standard under Cumulative Without Project Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM, PM).
2. Monterey Road / San Martin Avenue – LOS F (AM).

There are no planned pedestrian or bicycle facility improvements in the study area.

Cumulative Plus Project Conditions

The two study intersections operate below their level of service standard under Cumulative Plus Project Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM) LOS E (PM).
2. Monterey Road / San Martin Avenue – LOS E (AM).

The Monterey / San Martin intersection does not meet the significant local adverse effect criteria; hence no improvements are required at that intersection. However, the Monterey / California intersection does meet the significant local adverse effect criteria service standard under Existing Plus Project conditions. Signalization is recommended at that intersection. With implementation of this improvement, operations at Monterey / California would improve to LOS C+ (AM) and LOS B (PM). The project would be responsible for 0.537% of this improvement. (For example, if the improvement cost $300,000.00, the project would be responsible for $1,611.00.) This percentage was calculated by averaging the AM and PM ratios of project trips to total trips under Cumulative Plus Project Conditions.

The project driveway would operate at LOS A (AM) and LOS C (PM) under Cumulative Plus Project conditions, which is better than its level of service standard.

Sight Distance at Public Street Intersection

Sight distance was evaluated at the Monterey Road / California Avenue intersection, more specifically for eastbound California Avenue looking to the north and south on Monterey Road. A speed of 55 mph was used for this evaluation, 5 more than the speed limit of 50 mph on Monterey Road. The available sight distance to the north and south are both below the Caltrans preferred sight distance standard but above the minimum sight distance standard. It is therefore concluded that the available sight distance at the Monterey Road / California Avenue intersection is adequate.

Vehicle Queuing at Public Street Intersection

Vehicle queues were evaluated at the Monterey Road / San Martin Avenue intersection for the southbound Monterey left turn lane and the westbound San Martin right turn lane. Both the 2000 Highway Capacity Manual methodology (stop-controlled intersection) and the Poisson method identified in the VTA guidelines (with signalization) were used to quantify the queue lengths. This will minimize the effect of removal of the northbound Monterey left turn to residents and businesses in the area.

The westbound San Martin right turn lane is approximately 170 feet long, excluding the railroad crossing. The PM peak hour queue does not exceed this amount. However, the AM queue length is more than two times this length, extending to nearly Lincoln Avenue. This is due to traffic diverting from US 101 to avoid morning congestion through Morgan Hill. It is conjectured that if the freeway congestion is removed, this traffic would no longer divert, thus reducing the vehicle queues to more reasonable ranges. Therefore, no improvements are deemed necessary at the Monterey Road / San Martin Avenue intersection to address the projected queues.

Site Circulation Analysis

Project site circulation will be more than adequate for vehicles. The paved area provides direct access from the project driveway to the employee and trailer parking spaces and the proposed toilet wash down area. The employee spaces are up against the northeastern edge of the paved parking area. The trailer parking spaces are in the western part of the parking area with access aisles on all four sides. The employee bathroom is located on the eastern edge of the pavement, away from the travel path. All this allows for good access within the parking area.

No members of the public will be allowed on the project site. Therefore, there is no need for commercial parking spaces in addition to those parking spaces provided.

Neither pedestrian or bicycle facilities are required to connect to the project site, as the project is not anticipated to generate either pedestrian or bicycle trips.

The driveway access is proposed to be gated. The gate will be closed outside of working hours.

The truck turning template shows that trucks can easily turn into the project site with the proposed driveway design. Outbound truck traffic has similar results. These truck turning templates indicate that the existing shoulder on Monterey Road is not sufficient as an acceleration or deceleration lane. The project should construct acceleration and deceleration lanes for the driveway on Monterey Road.

Onsite circulation would also be adequate. Trucks circulating around the paved area of the central project site would not encroach upon any of the parking spaces, nor any of the proposed or retained on-site buildings. Although the template assumes a counterclockwise circulation around the project site, the reverse (clockwise) circulation would also be adequate. No improvements would be required.

Site Access Analysis

Operations of the project driveway would all be better than the County standard of LOS D under all analyzed scenarios. No improvements are required due to level of service.

A sight distance evaluation was performed at the project driveway with Monterey Road. A speed of 55 mph was used for this evaluation, 5 more than the speed limit of 50 mph on Monterey Road. The available sight distance to the north is slightly below the applicable Caltrans minimum sight distance standard for this driveway, while the sight distance to the south exceeds this standard. Although the sight distance to the north is limited by the Monterey Road / California Avenue intersection, the fact that left turns are not allowed out of the project driveway will minimize the discrepancy such that improvements are not required.

The infrequent use of the project driveway by project traffic will result in minimal queuing. All queues will be stored in the long driveway off Monterey.

Project Vehicle Miles Traveled

Although the Santa Clara Valley Transportation Agency (VTA) has established a process to determine if properties could have a significant impact to VMT, it does not have a category similar to the study project. The State VMT guidelines are presented in *Technical Advisory on Evaluating Transportation Impacts in CEQA*, State of California Governor's Office of Planning and Research, December 2018. In the state publication, it is established that projects generating less than 110 daily trips are exempt from any further VMT analysis. As the project generates only 48 daily trips, it is determined that the study project qualifies for this exemption. There is no need for further VMT analysis.

Summary of Recommendations

See Chapter 11 for a list of recommendations made in this report.

References

See Chapter 12 for a list of references and contacts used when preparing this report.

1 INTRODUCTION

1.1 Project Description

The proposed NWC #5 project involves the establishment of a storage and maintenance area for portable toilets and fences south of the intersection of Monterey Road and California Avenue in San Martin, Santa Clara County, California. Although the study property does not have frontage on either street, it does have a driveway off Monterey Road.

This report is a revision of the previous report dated June 15, 2022. This updated report was prepared due to a revised site plan for the project.

Vehicular, pedestrian, bicycle and transit circulation issues were evaluated at the project site and the immediately surrounding street network. The locations of the project site and study area are indicated on **Exhibit 1**. The site plan is shown on **Exhibit 2**.

1.2 Scope of Work

This report addresses the following topics:

- Existing vehicular, pedestrian and bicycle circulation at the project access and the study street network.
- Assessment of potential adverse effects to vehicular, pedestrian, bicycle, and transit circulation due to the project, and recommendations to minimize or alleviate those adverse effects.
- Assessment of potential cumulative traffic adverse effects.
- Site circulation analysis, including truck turning templates.
- Site access analysis, including evaluation of driveway access alternatives.
- Vehicle queuing on Monterey Road, California Avenue and the two potential project driveway options.
- Vehicle Miles Traveled (VMT) evaluation.

The study scope of work, study network and analysis scenarios of this analysis were determined in consultation with Santa Clara County Roads and Airports Department and Santa Clara County Planning and Development Department staff.

1.3 Study Network

The AM and PM peak periods were analyzed at the following two intersections:

1. Monterey Road / California Avenue; and
2. Monterey Road / San Martin Avenue.

In addition, the project driveway was analyzed.

1.4 Analysis Scenarios

Traffic operations for the following analysis scenarios were analyzed, as requested by Santa Clara County Roads and Airports Department:

- Existing Conditions
- Existing Plus Project Conditions
- Cumulative Without Project Conditions
- Cumulative Plus Project Conditions

Improvements recommended to offset adverse effects created by the proposed project is recommended where warranted.

1.5 Traffic Operation Evaluation Methodologies

Intersection traffic operations were evaluated using level of service (LOS). LOS is a qualitative description of an intersection's operations, ranging from LOS A to LOS F. Level of Service "A" represents free flow uncongested traffic conditions. Level of Service "F" represents highly congested traffic conditions with unacceptable delay to vehicles at intersections. The intermediate levels of service represent incremental levels of congestion and delay between these two extremes. LOS descriptions for each type of existing traffic control at the study intersections (i.e., signal) are included as **Appendix A**.

Intersection traffic operations were evaluated using the Traffix traffic analysis software (Version 8) using the 2000 Highway Capacity Manual (HCM) methodologies and the VTA *Traffic Level of Service Guidelines*. The average delay is then correlated to a level of service. When using the HCM 2000 methods for the analysis of signalized intersections, the overall intersection delay is used to determine LOS.

1.6 Level of Service Standards

The Santa Clara County level of service objective is LOS D. This applies to overall conditions (signalized and all-way stop control intersections) and side-street conditions (one- and two-way stop control intersections).

1.7 Modeling of Right Turn on Red (RTOR)

All the signalized study intersections allow right turns on red (RTOR), which generally reduce the overall intersection delay, thus improving the overall intersection level of service. They therefore affect the intersection LOS calculations. There are several options to model right turns on red with different traffic analysis software packages, but the only method prescribed by the HCM for modeling RTOR is to reduce the input volumes to account for vehicles turning right on red. Where an exclusive right turn lane movement runs concurrent with a protected left turn phase from the cross street, the HCM allows for the right turn volume to be reduced by the number of simultaneous left turners. However, the length of the right turn lane affects the number of vehicles that can turn right on red. This is because a short right turn lane can result in right turning vehicles being trapped in the queue with vehicles in the through lane. For the purposes of this analysis, it is assumed that no vehicles would be able to turn right on red at any

of the study intersections.

1.8 Significance Criteria

Two different significance criteria are used to assess the impacts and adverse effects of this project – one for environmental impacts and one for local adverse effects. The environmental impacts refer to impacts assessed per the California Environmental Quality Act (CEQA) guidelines, while the local adverse effects are assessed relative to capacity and the Santa Clara County level of service standard. The following significance criteria are used in this study:

1.8.1 Environmental (CEQA)

Senate Bill (SB) 743 requires that, starting July 2020, transportation impacts for projects per the California Environmental Quality Act (CEQA) be based on a project's Vehicle Miles Traveled (VMT), rather than level of service. The publication *Technical Advisory on Evaluating Transportation Impacts in CEQA,* State of California Governor's Office of Planning and Research, December 2018, suggests that a significant environmental (CEQA) VMT threshold for commercial/retail project be a maintaining of the current retail VMT for the region, although agencies are allowed to adopt their own customized thresholds. As of this writing, Santa Clara County has not established either a VMT standard or significance threshold for VMT analysis. Rather, VTA has created a site evaluation tool, vmttool.vta.org, which allows quantification of VMT for specific land use types in Santa Clara County. The proposed project does not fit any of the specific land use types allowed by VTA's tool, therefore VMT is estimated based on project information. See Chapter 10 for more information.

1.8.2 Local

SB 743 also allows local jurisdictions to, separate from CEQA significance analysis, assess local adverse effects associated with their own adopted level of service standards.

For the purposes of this analysis, adverse effects on intersection operations are defined in the following situations:

Signalized Intersection:

- Traffic increases from a proposed project would cause the overall operations at a signalized intersection to fall below LOS D with the addition of project vehicle trips to baseline conditions; OR
- An intersection already operating at LOS E or F under baseline conditions would experience an increase of average critical delay by 4.0 seconds or more AND an increase in the critical V/C ratio of 0.010 or more; OR
- An intersection already operating at LOS E or F under baseline conditions would experience a decrease in average critical delay AND an increase in critical V/C ratio of 0.010 or more.

One-Way Stop Control Intersection:

- Traffic increases from a proposed project would cause the side-street operations at a side-street stop sign-controlled intersection to fall below LOS D with the addition of

project vehicle trips, compared to baseline conditions; OR

- An intersection already operating at LOS E or F under baseline conditions would experience an increase of average critical delay by 4.0 seconds or more.

2 EXISTING TRAFFIC CONDITIONS

This chapter evaluates Existing traffic conditions and includes a description of the project setting.

2.1 Existing Traffic Network

The project site is located just south of the corner of California Avenue and Monterey Road in the community of San Martin, between Morgan Hill and Gilroy in Santa Clara County. The site is bordered by rural residential and largely undeveloped properties.

The site is closest to California Avenue and Monterey Road. Other roadways serving the study area include San Martin Avenue. A brief description of each roadway can be found below.

California Avenue is a two-lane, east-west roadway in northern San Martin, connecting Monterey Road and Santa Teresa Boulevard. California Avenue primarily provides access to the adjacent rural residential properties. The roadway has little to no paved shoulders. The posted speed limit on California Avenue is 40 miles per hour (mph).

Monterey Road is a four-lane, north-south roadway in Santa Clara County, extending between Gilroy and San Jose through San Martin and Morgan Hill. It is the "main street" of all three cities, having once served as US 101 prior to the construction of the US 101 freeway through these communities. In the project vicinity, Monterey Road generally has wide, paved shoulders, especially near California Avenue. The posted speed limit on Monterey Road is 50 mph north of Roosevelt Avenue and 45 mph south of Roosevelt Avenue. (The intersection with Roosevelt Avenue is located approximately 1,770 feet south of California Avenue.)

San Martin Avenue is a two-lane, east-west roadway in central San Martin. It provides access to the commercial district of the community. It also provides regional access to the area via its interchange with US 101 and its connections to Monterey Road and Santa Teresa Boulevard. San Martin Avenue generally has little to no shoulder at its far eastern and western ends, but shoulders are wide enough to the central business district to allow for on-street parking. Trucks over 7 tons are prohibited on San Martin Avenue. The posted speed limit on San Martin Avenue is 35 mph west of Colony Avenue, 25 mph between Colony Avenue and Llagas Avenue, and 35 mph east of Llagas Avenue.

2.2 Existing Pedestrian Network

The study area is mostly rural in nature. Within the study area, neither California Avenue nor Monterey Road have sidewalks. San Martin Avenue only has sidewalks between Monterey Road and Llagas Avenue through the commercial district of San Martin. Marked crosswalks are only present at the Monterey Road / San Martin Avenue intersection.

2.3 Existing Bicycle Network

There are four types of bicycle facilities defined by Caltrans. Each type is described below:

1. Bike path (Class I) – A completely separate right-of-way designed for the exclusive use of bicycle and pedestrian traffic with crossflow minimized.
2. Bike lane (Class II) – A striped lane for one-way bike travel on a street or highway, typically including signs placed along the street segment.
3. Bike route (Class III) – Provides a shared use with pedestrian or motor vehicle traffic. Typically, these facilities are city streets with signage designating the segment for Bike Route without additional striping or facilities.
4. Separated Bikeways (Class IV) – A bikeway for the exclusive use of bicycles and includes a separation between the bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

There are no formal bicycle lanes in the study area, although the shoulders on Monterey Road are of sufficient width to allow bicycle travel separated from vehicle traffic. Bicycles on both California Avenue and San Martin Avenue must travel in the through lanes with vehicle traffic.

2.4 Existing Transit Service

The Santa Clara Valley Transportation Authority (VTA) provides transit service to the study area. The following routes service the area:

- Route 68 – San Jose Diridon Station – Gilroy Transit Center . Service every 15-30 minutes on weekdays and every 20-30 minutes on Saturdays and Sundays.
- Route 287 – Live Oak High School – Monterey and San Martin. This route provides service once a day when school is in session. It only operates only southbound, leaving Live Oak High School at 3:42 PM.
- Route 568 – Gilroy Transit Center to San Jose Diridon. Service every 30-60 minutes on weekdays only. This route runs largely along Route 68, but skips some bus stops, thus serving like an express route.

Bus stops near the project site are at the following locations:

- Monterey Road / California Avenue (Route 68; both directions)
- Monterey Road / Roosevelt Avenue (Route 68; both directions)
- Monterey Road / San Martin Avenue (Routes 68, 287 (southbound only), 568; both directions)

Caltrain provides limited commuter rail service to San Martin via a rail station located on Monterey Road just north of San Martin Avenue. This station is only service by six trips per weekday – three during the AM (northbound only) and three during the PM (southbound only). No weekend service is provided to the San Martin station.

2.5 Existing Conditions Traffic Circulation

2.5.1 Vehicle Circulation

In March 2020, the Santa Clara County Public Health Department instituted a shelter-in-place order for all of Santa Clara County, restricting operations and travel to/from offices, commercial businesses, and recreational activities. This order was in response to the COVID-19 pandemic occurring within the County during the Year 2020. As a result, traffic activity throughout the county was significantly reduced from typical conditions, precluding the usual collection of peak period traffic volumes at the four study intersections.

As the pandemic and its restrictions eased in 2022, traffic in the County began to return to near-normal conditions. Although most companies fully reopened for work, some tech companies chose to keep all or some of their staff working from home. Therefore, traffic volumes returned to just almost normal levels across the county.

This traffic study uses a hybrid approach to traffic volumes for this study. Whereas volumes at Monterey Road / California Avenue was approximated from counts prior to the COVID-19 pandemic, new traffic counts were performed at the Monterey Road / San Martin Avenue intersection. The methodology used for collecting each intersection is described below.

Existing peak hour traffic volumes at the Monterey Road / California Avenue intersection was approximated in the following manner:

1. Existing traffic volumes from recent pre-COVID traffic studies in the area – including the Cordoba Center and other available area traffic studies – were reviewed to obtain pre-COVID-19 existing volumes (Year 2018) at this study intersection. These volumes are depicted in **Exhibit 3A**.
2. A growth factor was derived to convert the recent volumes from Step 1 to the equivalent of Year 2022 volumes (without the effects of the COVID-19 shelter-in-place order by Santa Clara County). This growth factor was derived using available Santa Clara County volumes near the project vicinity, as published by the Santa Clara County Roads and Airports Department.
3. The growth factor from Step 2 – 3% per year for 4 years, or 12% total – was applied to the volumes from Step 1 to approximate Year 2022 volumes.

The approximated existing volumes at this intersection were also used to project through volumes at the project driveway on Monterey Road as analyzed under Existing Plus Project and Cumulative Plus Project conditions.

New counts (March 2022) were also performed at the intersection of Monterey Road / San Martin Avenue during the peak AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) periods. From these, the peak one hour AM and PM periods were identified. **Exhibit 3A** contains the peak volumes. The counts at this intersection can be found in **Appendix B**.

A comparison of the Monterey Road / San Martin Avenue volumes to the adjusted Monterey Road / California Avenue found the Monterey / San Martin volumes are lower. This indicates that Year 2022 volumes are closer but not fully representative of what volumes would be in a post-COVID-19 world. Therefore, the collected volumes were adjusted upwards to be more reflective of the adjusted volumes at Monterey / California. By more reflective, it is meant that the adjustments are meant to approximate the adjusted volumes at Monterey / California, not match them, taking into account the other intersections and driveways between these intersections.

Exhibit 3B depicts the approximated Year 2022 peak turning movement volumes for the study intersections under Existing Conditions.

Existing intersection levels of service are summarized on **Exhibit 4A**. Recommended intersection improvements are summarized on **Exhibit 4B**. The LOS calculation sheets for Existing conditions can be found in **Appendix C**.

Both primary study intersections would operate below its level of service standards under Existing Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM), E (PM); and
2. Monterey Road / San Martin Avenue – LOS E (AM).

Note: The poor level of service at Intersection #2 – Monterey Road / San Martin Avenue – is primarily due to the high westbound right turn movement. This movement is well over 300 vehicles in the AM, considerably higher than the reverse movement (i.e., southbound Monterey left turn) in either the AM or PM peak hours. The higher than expected San Martin westbound right movement may be because of vehicles diverting off northbound US 101 and onto northbound Monterey Road instead. Northbound US 101 is typically congested through Morgan Hill during the AM – see **Appendix G**

2.5.2 Pedestrian Circulation

There is very little pedestrian activity near the study project. Observations in October 2020 found no pedestrian activity at the Monterey Road / California Avenue intersection. This is primary due to the rural nature of the area immediately surrounding the project site.

2.5.3 Bicycle Circulation

There is very little bicycle activity near the study project. Observations in October 2020 found no pedestrian activity at the Monterey Road / California Avenue intersection. This is primary due to the rural nature of the area immediately surrounding the project site.

3 EXISTING PLUS PROJECT CONDITIONS

3.1 Project Description

The project involves the establishment of a storage and maintenance area for portable toilets. These toilets would be deployed to constriction sites and area festivals as needed. A total of 10 employees would work at the facility. In addition, 12 trucks would be based at the facility, which would both tow the toilets to and from their destinations and resupply the deployed toilets as necessary (e.g., toilet paper, etc.). When not deployed, the toilets would be stored on site. Maintenance and cleaning supplies would also be stored on site, for serving of the toilets after return to the project site. However, pumping out of the toilets would occur elsewhere, not on site.

Operations of the project site would be roughly 5:00 AM – 7:00 PM on weekdays. Daily site activity would be the following, as proposed by the project applicant:

1. Employees would arrive between 5:40 – 6:00 AM. All employees would be deployed on the company trucks
2. Truck activity would be split into two delivery trucks – which would deliver and return the portable toilets – and ten route trucks – which would service deployed portable toilets.
    a. The delivery trucks would leave the site between 6:15 – 8:00 AM, deploying and picking up portable toilets as necessary, and returning to the project site between 1:00- 2:00 PM. The delivery trucks would again leave the project site for more deliveries and picking up between 3:00 – 4:00 PM, returning to the project site again between 7:00 – 8:00 PM.
    b. The route trucks would leave the project site between 6:15 – 10:00 AM. Trucks would remain in the field throughout the remainder of the morning and afternoon, serving deployed toilets as necessary, eventually returning to the site between 4:00 – 8:00 PM.
3. Employees would then leave the site to return home between 8:00 – 8:20 PM.

The service area for the project site will be all of Santa Clara County and the northern Monterey Bay Area. This will augment an existing facility located in Pittsburg, in northeastern Contra Costa County.

The project site is largely vacant but does include multiple existing buildings that are currently unused. The project site was once part of a seasonal Christmas tree farm that is now closed.

3.2 Project Trip Generation

The unique use and operations of this project do not correspond well with any typical land uses. Therefore, the project trip generation will not be based on rates from *Trip Generation Manual,* 10th Edition, published by the Institute of Traffic Engineers in September 2017. Instead, a custom trip generation has been prepared for the project; this trip generation is shown on **Exhibit 5**.

The customized trip generation estimate was derived based on the following information and assumptions:

1. The trip generation estimate represents project traffic on a typical weekday at full employment and full deployment of trucks, i.e., all 10 employees work and all 10 trucks are deployed.

2. To be conservative, it is assumed that all employees drive themselves to and from the project site. No employees are assumed to carpool together or be dropped off/picked up by other drivers.

3. The project operations described in Section 3.1.1 indicate that the employees of the project would arrive at and depart from the project site outside of the street peak hours. (According to the Pinnacle Traffic Engineering traffic study for the Cordoba Center, the peak hours of the Monterey Road / California Avenue intersection are approximately 7:00 – 8:00 AM and 4:30 – 5:30 PM.) Therefore, the employees would generate no trips during either peak hour.

4. Only some of the truck trips would occur during the AM and PM peak hours. Based on the proposed departure and arrival times of the two truck types (delivery and route), it is anticipated that 50% of the delivery trucks would travel during the AM peak hour near the project site and no delivery trucks would travel during the PM peak hour. It is also anticipated that 25% of the total outbound route trucks (i.e., to the field) and 25% of the inbound route trucks (i.e., back to the project site) occur during the AM and PM peak hours, respectively.

5. It is assumed that two deliveries occur to the project site on an average day. This may include US mail, cleaning materials and other supplies. To be conservative, it is assumed that these deliveries occur during the peak hours – one during the AM peak hour and one during the PM peak hour.

6. It is assumed that there are no visitors to the project site, i.e., only the employees, trucks and delivery vehicles visit and depart from the project site.

Exhibit 5 summarizes the project trip activity. The project is estimated to generate 48 daily trips, with 5 trips (1 in, 4 out) during the AM peak hour and 4 trips (3 in, 1 out) during the PM peak hour.

3.3 Project Access

As shown on the site plan in **Exhibit 2,** the project is proposing a driveway directly on Monterey Road. This driveway would be located approximately 490 feet south of the Monterey Road / California Avenue intersection. This analysis summary on **Exhibit 4A** identifies the operations of the two existing study intersections and the proposed project driveway.

The proposed driveway would be a right-in, right out (RIRO) driveway. This means that there would only be right turns in and right turns out. No left turns in or out of the driveway would be allowed. This dynamic means that all inbound traffic would come from southbound Monterey Road and all outbound traffic would travel from southbound Monterey Road to eastbound San Martin Avenue.

3.4 Project Trip Distribution and Assignment

Exhibit 6 depicts the trip distribution for the project. This distribution was derived based on the anticipated market area of the project, as virtually all of the trips to and from the project site during the AM and PM peak hours would be the project trucks. According to the project applicant, the project site would service an approximately 30-mile radius from San Martin. This would include all of Santa Clara County, all of Santa Cruz County, northern San Benito County, and northern Monterey County. For this reason, all outbound truck traffic would use eastbound San Martin Avenue to reach US 101, while all inbound traffic would use southbound Monterey Road north of the project site. This project would augment the existing NWC facility located in Pittsburg, in northeastern Contra Costa County, hence expansion of the project service area is not anticipated. The trip distribution was combined with the trip generation to derive the project trip assignment depicted on **Exhibits 7**.

3.5 Existing Plus Project Condition Traffic Circulation

3.5.1 Vehicle Circulation

The trip assignments (**Exhibits 7**) were added to the adjusted existing traffic volumes (**Exhibit 3B**) to create the Existing Plus Project volumes depicted on **Exhibits 8**.

Existing Plus Project condition intersection levels of service are summarized on **Exhibit 4A**. Recommended intersection improvements are summarized on **Exhibit 4B**. The LOS calculation sheets for Existing Plus Project conditions can be found in **Appendix D**.

The project driveway would operate at LOS A under Existing Plus Project conditions, which is better than its level of service standard.

Both primary study intersections would operate below their level of service standards under Existing Plus Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM), E (PM); and
2. Monterey Road / San Martin Avenue – LOS E (AM).

Below is a detailed discussion of all intersections that operate below their relative level of service standards and potential improvements.

1. Monterey Road / California Avenue: Under Existing Plus Project conditions, the project would increase side-street delay at this intersection between 0.2 – 1.0 seconds. Based on the significance criteria in Section 1.8.2, the project would <u>not</u> represent a significant local adverse effect at this intersection. No improvements are required.

2. Monterey Road / San Martin Avenue: Under Existing Plus Project conditions, the project would increase side-street delay at this intersection by 0.8 seconds. Based on the significance criteria in Section 1.8.2, the project would not represent a significant local adverse effect at this intersection. No improvements are required.

3.5.2 Pedestrian Circulation

The project would not increase pedestrian traffic in the study area. Therefore, the project would not represent a significant local adverse effect to pedestrian circulation.

3.5.3 Bicycle Circulation

The project would not increase bicycle traffic in the study area. Therefore, the project would not represent a significant local adverse effect to bicycle circulation.

3.5.4 Transit Circulation

The project is not expected to increase transit demand. The closest bus stop to the site – southbound Monterey Road just north of California Avenue, would provide adequate access to the project site. However, the bus stop in the other direction – northbound Monterey Road, north of California Avenue – would require crossing Monterey Road, a free-flowing, uncontrolled, four-lane and high-speed roadway. These attributes would likely discourage potential use of transit by employees of the project. Therefore, the project would not represent a significant local adverse effect to transit service demand.

4 CUMULATIVE WITHOUT PROJECT CONDITIONS

This section describes the analysis results under Cumulative Without Project conditions. The Cumulative Without Project traffic condition is defined as traffic conditions at roughly the Year 2035.

4.1 Derivation of Cumulative Without Project Condition Traffic Volumes

The traffic volume growth under the Cumulative Without Project conditions was derived using growth rates confirmed from multiple sources. This includes traffic growth projected by Fehr & Peers in its Cordoba Center traffic study and as further expanded by Pinnacle Traffic Engineering in its supplemental Cordoba Center traffic study. This traffic growth is the equivalent of 1.2% per year for 18 years (21.6% total) for mainline traffic on Monterey Road, plus 0.6% per year for 18 years (10.8% total) on California Avenue and San Martin Avenue. The traffic growth, as noted by Fehr & Peers, is derived from the City of Morgan Hill General Plan buildout forecasts developed by Hexagon Transportation Consultants in 2015.

In addition to the growth rates, traffic volumes from adjacent approved and proposed development was also added to the study intersections. This specifically includes both the Cordoba Center (to be located on Monterey Road north of California Avenue) and the Heart of the Valley RV Resort (proposed at the northwestern corner of the Monterey Road / California Avenue intersection). The former is derived from the Existing Plus Project volume forecasts in the aforementioned Pinnacle Traffic Engineering traffic study, while the latter is cited from the Hatch Mott MacDonald traffic study for the Heart of the Valley RV Resort.

The total cumulative growth is composed of both the future growth projections and the trips from the adjacent development projects. This growth was added to the adjusted Existing volumes in **Exhibit 3B** to create the Cumulative Without Project volumes in **Exhibit 9**.

Note that the Pinnacle Traffic Engineering traffic study primarily evaluated the operations and queuing potential for a new southbound Monterey U-turn movement at the Monterey Road / California Avenue intersection. This U-turn lane is assumed to be in place for Cumulative Without and Cumulative Plus Project conditions. The study project would not be responsible for implementation of this U-turn lane.

4.2 Cumulative Without Traffic Conditions

4.2.1 Vehicle Circulation

Cumulative Without Project conditions AM and PM intersection levels of service are summarized on **Exhibit 4A**. The LOS calculation sheets for Cumulative Without Project traffic conditions can be found in **Appendix E**.

The following primary intersections would operate below their level of service standards under Cumulative Without Project Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM, PM).

2. Monterey Road / San Martin Avenue – LOS F (AM).

4.2.2 Pedestrian Circulation

There are no planned pedestrian facility improvements in the study area.

4.2.3 Bicycle Circulation

There are no planned bicycle facility improvements in the study area.

5 CUMULATIVE PLUS PROJECT CONDITIONS

This section describes the analysis results under Cumulative Plus Project traffic conditions, which combines both Cumulative Without Project conditions with traffic from the study project. .

5.1 Derivation of Cumulative Plus Project Condition Traffic Volumes

The project trip assignment (**Exhibits 7A-C**) was combined with the Cumulative Without Project condition volumes to create the Cumulative Plus Project volumes depicted on **Exhibits 13A-C**.

5.2 Cumulative Plus Project Traffic Conditions

5.2.1 Vehicle Circulation

Cumulative Plus Project AM and PM intersection levels of service are summarized on **Exhibit 4A**. Recommended intersection improvements are summarized on **Exhibit 4B**. The LOS calculation sheets for Cumulative Plus Project traffic conditions can be found in **Appendix F**.

The project driveway would operate at LOS A under Cumulative Plus Project conditions, which is better than its level of service standard.

Both primary study intersections would operate below their level of service standards under Cumulative Plus Conditions:

1. Monterey Road / California Avenue – Side-Street LOS F (AM, PM); and
2. Monterey Road / San Martin Avenue – LOS F (AM).

Below is a detailed discussion of all intersections that operate below their relative level of service standards and potential improvements.

1. Monterey Road / California Avenue: Under Cumulative Plus Project conditions, the project would increase side-street delay at this intersection between 1.6 – 17.5 seconds. Based on the significance criteria in Section 1.8.2, the project would represent a significant local adverse effect at this intersection. It is recommended that the Monterey Road / California Avenue intersection be signalized. (See **Appendix H** for the signal warrant at this intersection.) With implementation of this improvement, operations of this intersection would improve to LOS C+ (AM) and LOS B (PM). The project would be responsible for 0.537% of this improvement. (For example, if the improvement cost $300,000.00, the project would be responsible for $1,611.00.) This percentage was calculated by averaging the AM and PM ratios of project trips to total trips under Cumulative Plus Project Conditions.

2. Monterey Road / San Martin Avenue: Under Cumulative Plus Project conditions, the project would increase side-street delay at this intersection by 1.2 seconds. Based on the significance criteria in Section 1.8.2, the project would not represent a significant local adverse effect at this intersection. No improvements are required.

5.2.2 Pedestrian Circulation

Pedestrian activity is not anticipated to increase significantly under Cumulative Plus Project conditions. Therefore, the project would not represent a significant cumulative local adverse effect to pedestrian circulation.

5.2.3 Bicycle Circulation

Bicycle activity is not anticipated to increase significantly under Cumulative Plus Project conditions. Thus, the project would not represent a significant cumulative local adverse effect to bicycle circulation.

5.2.4 Transit Circulation

Similar to Existing Plus Project conditions, very few employees of the project site would use transit. Implementation of the operation improvement at Monterey Road / California Avenue – signalization – may slightly increase use of transit. However, even if all of the future employees of the project would switch to transit, this would only amount to 10 employees, spilt over the entire 12-hour workday of the project. As such, the project would not represent a significant cumulative local adverse effect to transit circulation.

6 SIGHT DISTANCE AT PUBLIC STREET INTERSECTION

Note: This chapter discusses only the sight distance available at the Monterey Road / California Avenue intersection. See Chapter 9 – Site Access Analysis – for the sight distance evaluation at the proposed project driveways.

Sight distance was evaluated at the Monterey Road / California Avenue intersection, more specifically for eastbound California Avenue looking to the north and south on Monterey Road. For this intersection, which is an intersection of public roads, both the Caltrans stopping sight and corner sight distance standards would apply. The available sight distance must meet at least the corner sight distance, if not both standards.

The available vehicle sight distance was evaluated, using Caltrans sight distance standards. Sight distance was measured from 15 feet back from the traveled way of the major street (i.e., edge of nearest through lane). This places the measurement location right at the stop bar.

The signed speed limit on Monterey Road is 50 mph. To be conservative, a speed of 55 mph was used for the sight distance evaluation. For 55 mph on a four-lane roadway, Caltrans sight distance standard standards require a minimum stopping sight distance of 500 feet and a preferred sight distance (also known the “corner sight distance”) of approximately 1,043 feet. **Appendix H** contains the calculation of the applicable sight distance standards.

To the north on Monterey Road (i.e., towards Morgan Hill), the available sight distance from eastbound California Drive approximately 850 feet. This is below the preferred sight distance standard but above the minimum sight distance standard. To the south (i.e., towards San Martin Avenue), the available sight distance is about 1,000 feet, which also is below the preferred but above the minimum Caltrans standards. Sight distance on California Avenue is limited to the north by the horizontal curvature of the roadway and is not limited to the south.

It is therefore concluded that the available sight distance at the Monterey Road / California Avenue intersection is adequate.

7 VEHICLE QUEUING AT PUBLIC STREET INTERSECTION

Note: This chapter discusses only the vehicle queuing at the Monterey Road / San Martin Avenue intersection. See Chapter 9 – Site Access Analysis – for the vehicle queuing evaluation at the proposed project driveways.

Exhibit 11 summarizes the vehicle queuing evaluation at the study intersections. The queues were evaluated on the exclusive turn lanes at the following study intersection:

1. Monterey Road / San Martin Avenue:
    a. Southbound Monterey left turn lane
    b. Westbound San Martin right turn lane

The queues were quantified using the 2000 Highway Capacity Manual methodology (stop-controlled intersection) and the Poisson method identified in the VTA guidelines (with signalization). **Appendix I** contains the detailed 95th percentile queue length calculations.

The southbound Monterey left turn lane is currently 115 feet long. The projected vehicle queue for this movement varies from 150 to 200 feet, regardless of time period or if the project is included. The queue capacity for this lane is limited by the northbound left turn at Burbank Avenue. It is thus recommended that the northbound Monterey left turn lane at Burbank Avenue be removed so that the southbound Monterey left turn at San Martin Avenue can be extended. The extension can thus be extended to 200 feet, the queue size under Cumulative Plus Project condition. It is also recommended that the southbound Monterey left turn transition into the existing two-way left turn. This will minimize the effect of removal of the northbound Monterey left turn to residents and businesses in the area.

The westbound San Martin right turn lane is approximately 170 feet long, excluding the railroad crossing. During the PM, the queue does not exceed that length. However, the AM queue length is more than two times this length, extending to nearly Lincoln Avenue. The long queue is due to the large AM volume of over 300 vehicles, nearly reaching 400 vehicles under Cumulative conditions. As discussed earlier, this high volume is likely due to diversions off US 101 to avoid morning congestion through Morgan Hill. It is conjectured that if the freeway congestion is removed, this traffic would no longer divert the freeway through San Martin in the AM, thus reducing the vehicle queues to more reasonable ranges. Therefore, no improvements are deemed necessary at the Monterey Road / San Martin Avenue intersection to address the projected queues.

8 SITE CIRCULATION ANALYSIS

This section summarizes the site internal circulation analysis.

8.1 Vehicle, Pedestrian and Bicycle Circulation

As shown on the project site plan in **Exhibit 2**, less than a quarter of the project site will be paved. This pavement will be used for parking of vehicles and trailers – 13 employee and 10 trailer parking spaces will be provided. One of the employee spaces is an ADA space. Also, a vacant on-site building will be removed and replaced with an employee bathroom.

Project site circulation will be more than adequate for vehicles. The paved area provides direct access from the project driveway to the employee and trailer parking spaces and the proposed toilet wash down area. The employee spaces are up against the northeastern edge of the paved parking area. The trailer parking spaces are in the western part of the parking area with access aisles on all four sides. The employee bathroom is located on the eastern edge of the pavement, away from the travel path. All this allows for good access within the parking area.

No members of the public will be allowed on the project site. Therefore, there is no need for commercial parking spaces in addition to those parking spaces provided.

Neither pedestrian or bicycle facilities are required to connect to the project site, as the project is not anticipated to generate either pedestrian or bicycle trips.

The driveway access is proposed to be gated. The gate will be closed outside of working hours.

8.2 Truck Turning Templates

Exhibit 12 depicts a truck turning template for project on-site circulation, as prepared by Hanna-Brunetti. Project vehicles will be a mixture of pick-up trucks and a trailer loaded with toilets. The WB-50 (WB-15 metric) semi-trailer was used to approximate the path swept by a project truck towing toilets into the project site, as well as circulating around on the paved area.

The truck turning template shows that trucks can easily turn into the project site with the proposed driveway design. Outbound truck traffic has similar results. These truck turning templates also indicate that the existing shoulder on Monterey Road is not sufficient as an acceleration or deceleration lane. The project should construct acceleration and deceleration lanes for the driveway on Monterey Road.

Onsite circulation would also be adequate. Trucks circulating around the paved area of the central project site would not encroach upon any of the parking spaces, nor any of the proposed or retained on-site buildings. Although the template assumes a counterclockwise circulation around the project site, the reverse (clockwise) circulation would also be adequate. No improvements would be required.

9 SITE ACCESS ANALYSIS

This section summarizes the site access, including operations of the project driveway operations.

9.1 Driveway Operations

As discussed previously and shown on **Exhibit 4A**, operations of the project driveway would all be better than the County standard of LOS D. No improvements are required due to level of service.

9.2 Driveway Sight Distance

Sight distance was evaluated for the project driveway on Monterey Road ("Monterey"). Only the Caltrans minimum stopping sight distance standard applies at private driveways. The available sight distance must meet this standard.

The sight distance was measured from 15 feet back from the traveled way of the major street (i.e., edge of nearest through lane).

The signed speed limit on Monterey Road is 50 mph. To be conservative, a speed of 55 mph was used for the sight distance evaluation. For 55 mph on a four-lane roadway, Caltrans sight distance standard standards require a minimum stopping sight distance of 500 feet. **Appendix H** contains the calculation of the applicable sight distance standards at the project driveway.

The available sight distance to the north from the eastbound Monterey driveway is 490 feet, while the available sight distance to the south is a larger 800 feet. The available sight distance to the north is slightly below the applicable Caltrans minimum sight distance standard for this driveway, while the sight distance to the south exceeds this standard. Although the sight distance to the north is limited by the Monterey Road / California Avenue intersection, the fact that left turns are not allowed out of the project driveway will minimize the discrepancy such that improvements are not required.

9.3 Driveway Queuing

Exhibit 11 summarizes the vehicle queuing evaluation at the study intersections. The queues for following exclusive turn lanes at the study intersections were evaluated:

The infrequent use of the project driveway by project traffic will result in minimal queuing. All queues will be stored in the long driveway off Monterey. No improvements are required.

10 PROJECT VEHICLE MILES TRAVELED

This section summarizes the calculation of the project Vehicle Miles Traveled (VMT).

As described in Section 1.5.1 of this report, Senate Bill (SB) 743 is changing the CEQA Guidelines statewide. SB 743 requires that, starting July 2020, transportation impacts for projects per the California Environmental Quality Act (CEQA) be based on a project's Vehicle Miles Traveled (VMT), rather than level of service. The changes to CEQA guidelines will replace congestion-based metrics, such as auto delay and level of service, with Vehicle Miles Traveled (VMT) as the basis for determining significant impacts under the California Environmental Quality Act (CEQA), unless the guidelines provide specific exceptions.

Santa Clara Valley Transportation Agency (VTA), on behalf of all of Santa Clara County, has established a process to determine if properties could have a significant impact to VMT. However, as the project is not easily categorized as either housing or employment, the project's VMT is not easily determined. The State VMT guidelines are presented in *Technical Advisory on Evaluating Transportation Impacts in CEQA*, State of California Governor's Office of Planning and Research, December 2018. In the state publication, it is established that projects generating less than 110 daily trips are exempt from any further VMT analysis. Per the trip generation table on **Exhibit 5**, the project generates only 48 daily trips. It is thus determined that the study project qualifies for this exemption. There is no need for further VMT analysis.

11 SUMMARY OF RECOMMENDATIONS

Below is a summary of the recommended improvements in this traffic impact analysis report.

1. The project will be responsible for a fair-share contribution of 0.537% of the cost of implementing a traffic signal at the Monterey Road / California Avenue intersection.
2. Extend the storage of the southbound Monterey left turn at San Martin Avenue to 200 feet by eliminating the northbound Monterey left turn at Burbank Avenue. At the end of the new southbound left turn, transition into the existing Monterey two-way left turn lane.
3. Add an acceleration lane and a deceleration lane on Monterey Road above and below the project driveway.

12 REFERENCES

12.1 List of References

1. *2000 Highway Capacity Manual, Transportation Research Board, 2000.*
2. *Traffic Level of Service Analysis Guidelines, Santa Clara County Transportation Authority Congestion Management Program, Updated June 2003.*
3. *Santa Clara County 2030 General Plan,* Santa Clara County, Adopted June 2012.
4. *Technical Advisory on Evaluating Transportation Impacts in CEQA,* State of California Governor's Office of Planning and Research, December 2018.
5. Santa Clara Valley Transportation Authority web site, http://www.vta.org. Accessed April 7, 2022.
6. Caltrain web site, http://www.caltrain.com. Accessed April 7, 2022.
7. *Cordoba Center Project; Santa Clara County (San Martin), California – Supplemental Traffic Analysis Material,* Pinnacle Traffic Engineering, November 26, 2018.
8. *Trip Generation Manual,* 10th Edition, Institute of Transportation Engineers, September 2017.
9. *Transportation Analysis for Cordoba Center in San Martin,* Fehr & Peers, April 28, 2017.
10. *Morgan Hill 2035 DEIR,* Placeworks, January 13, 2016.
11. *Heart of the Valley RV Resort Traffic Impact Study, Santa Clara, California,* Hatch Mott MacDonald, July 24, 2015.
12. *Technical Advisory on Evaluating Transportation Impacts in CEQA,* State of California Governor's Office of Planning and Research, December 2018.
13. Santa Clara County VMT calculation tool web site, https://vmttool.vta.org. Accessed May 19, 2022.

12.2 List of Contacts

1. Amanda Musy-Verdel, Hanna – Brunetti, Gilroy, California.
2. Mark Perry, Northwest Cascade, Inc., Puyallup, Washington.
3. Leo Camacho, Santa Clara County Roads and Airports Department, San Jose, California.
4. Joanna Wilk, Santa Clara County Planning and Development Department, San Jose, California.

Basemap Source: Google Maps, 2020.

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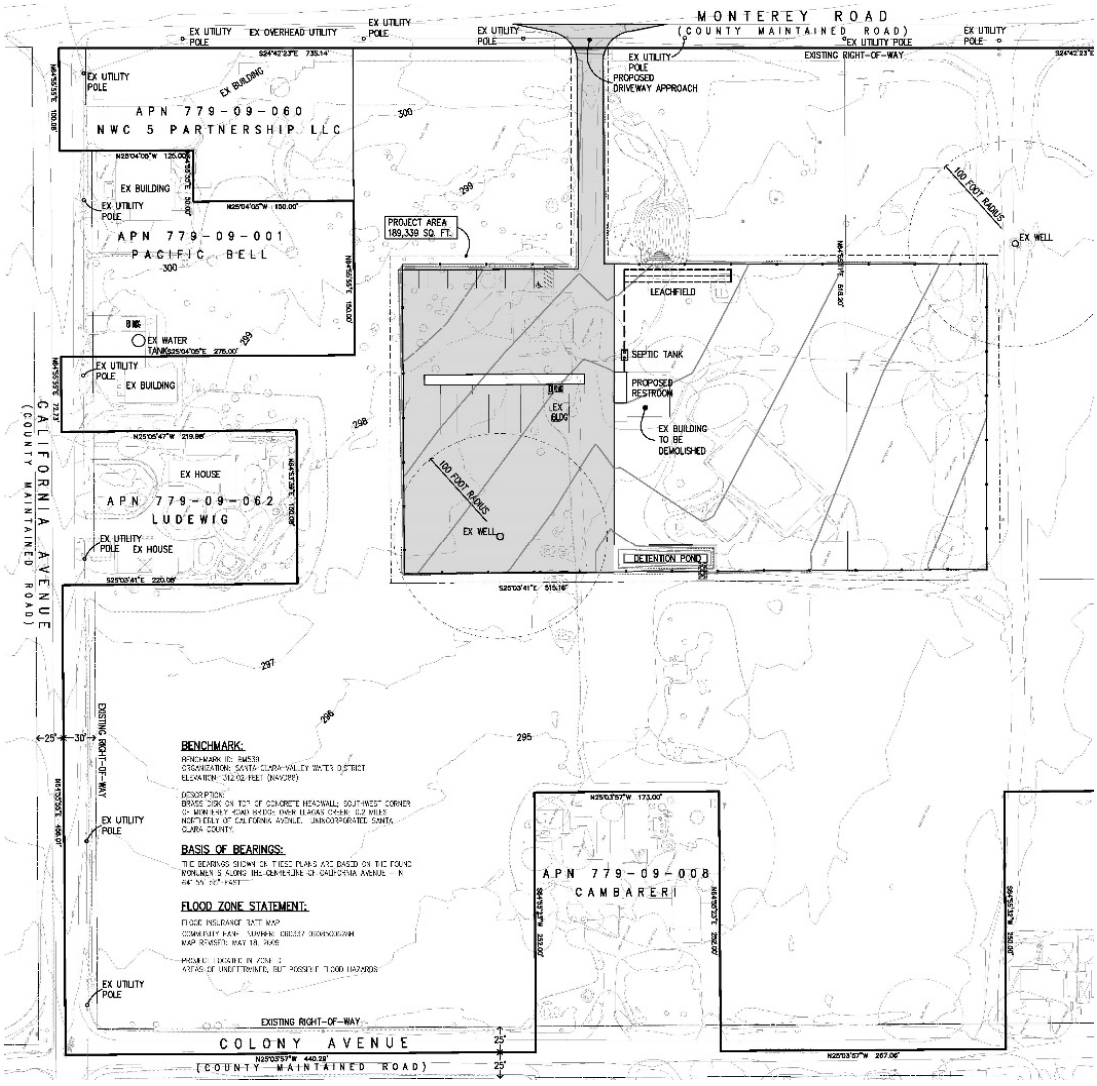
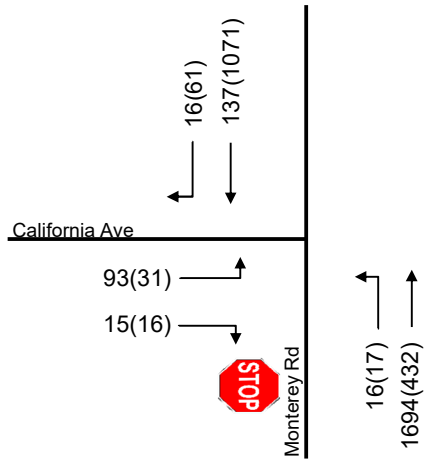
Exhibit 1
Project Location Map and Study Area

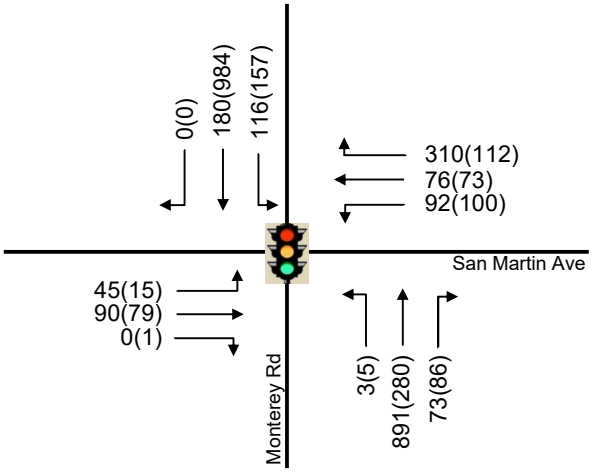


Source*:* Hanna - Brunetti, February 2022.

1. Monterey Road / California Avenue



2. Monterey Road / San Martin Avenue



3. Project Driveway / Monterey Road

N/A
(Intersection does not exist under this scenario)

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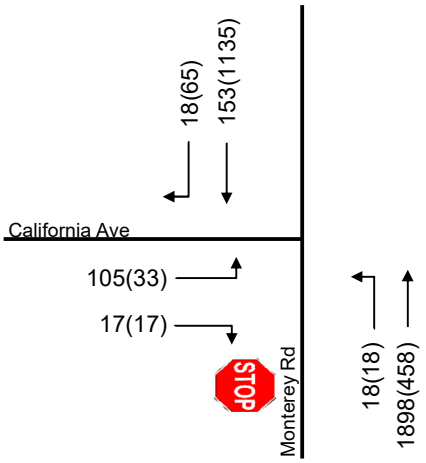
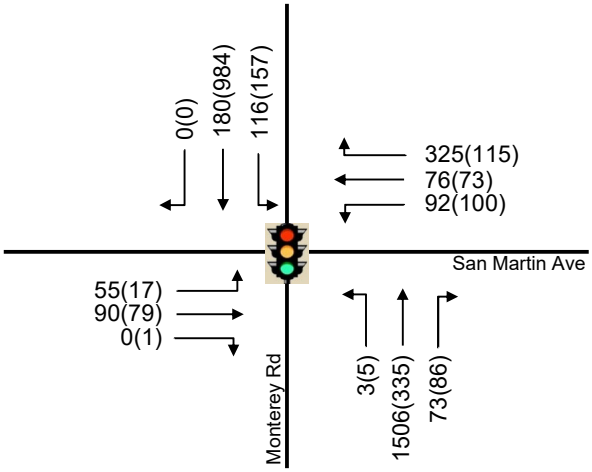
Exhibit 3A
Existing Conditions
(Raw Volumes)
AM & PM Peak Hour Volumes

1. Monterey Road / California Avenue



2. Monterey Road / San Martin Avenue



3. Project Driveway / Monterey Road

N/A
(Intersection does not exist under this scenario)

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Exhibit 3B
Existing Conditions
(Year 2022 Approximations)
AM & PM Peak Hour Volumes

	N-S Street	E-W Street	Existing Lane Configuration	Existing Intersection Control	LOS Standard	Peak Hour	Existing Conditions		Existing Plus Project Conditions		Cumulative Without Project Conditions		Cumulative Plus Project Conditions	
							Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Monterey Road	California Avenue	NB 1-L, 2-T SB 1-T, 1-T/R EB 1-L/R	One-Way Stop	D	AM	56.0	F	57.0	F	218.8	F	**236.3**	F
						PM	39.1	E	39.3	E	155.5	F	157.1	F
				With Improvement		*AM*							*22.3*	*C+*
						PM							*12.3*	*B*
2	Monterey Road	San Martin Avenue	NB 1-L, 2-T, 1-R SB 1-L, 1-T, 1-T/R EB 1-L/T/R WB 2-L, 1-T, 1-R	Signal	D	AM	62.3	E	63.1	E	120.1	F	121.3	F
				With Improvement		PM	22.1	C+	22.1	C+	25.8	C+	25.8	C
3	Monterey Road	Project Driveway	N/A	N/A	D	AM	N/A		9.7	A	N/A		10.0	A
						PM			9.9	A			23.3	C

Notes:

1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Left, Through, Right, Northbound, Southbound, Eastbound, Westbound.
3. * = Delay exceeds 3000 seconds
4. Overall and side-street level of service standards for Santa Clara County are LOS D.
5. N/A = Not Applicable. This intesection or control type does not exist under this scenario.
6. For signalized and all-way stop intersection analysis, delay is average overall delay in seconds per vehicle (sec/veh).
   For one- and two-way stop intersections, delays are side-street approach operations, also in seconds per vehicle (sec/veh).
7. Analysis performed using 2000 Highway Capacity Manual methodologies.
8. Level of service calculations can be found in **Appendices B-E.**
9. LOS highlighted in **red** indicates intersection operating below level of service standard.
10. Delays highlighted in **bold** indicate intersection impacts.
11. Levels of service with recommended improvements noted under "With Improvements".
12. A list of applied improvements can be found on **Exhibit 8B.**

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Exhibit 4A
Intersection Levels of Service

	N-S Street	E-W Street	Existing Plus Project Conditions	Cumulative Plus Project Conditions
1	Monterey Road	California Avenue	None Required	Signalize Intersection
2	Monterey Road	San Martin Avenue	None Required	None Required
3	Monterey Road	Project Driveway	None Required	None Required

Notes:

1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. N/A = Not Applicable. This intesection does not exist under this scenario.

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Exhibit 4B
Recommended Intersection Improvements

			WEEEKDAY							
			AM PEAK HOUR				PM PEAK HOUR			
PROPOSED USE	UNITS	DAILY TRIPS	PEAK HOUR TRIPS	% OF ADT	TRIPS IN	TRIPS OUT	PEAK HOUR TRIPS	% OF ADT	TRIPS IN	TRIPS OUT
A. Employees	10	20	0	0%	0	0	0	0%	0	0
B. Trucks										
1. Delivery Trucks	2	8	1	13%	0	1	0	0%	0	0
2. Route Trucks	8	16	2	13%	0	2	2	13%	2	0
C. Deliveries	2	4	2		1	1	2		1	1
D. Total		**48**	**5**		**1**	**4**	**4**		**3**	**1**

Notes:

General:

1. Hours of Operation: 5:00 AM - 7:00 PM (Weekdays)
2. A trip is defined here as a journey from Point A to Point B.

Employees:

3. Number of Employees: 10 people
4. Employee Vehicle Occupancy: 1 employee/vehicle (estimated)
5. Employee Daily Trip Rate: 2 trips/employee (estimated)
6. Percentage of Employees arriving/departing during peak hours (estimate):
   AM: 0% in, 0% out
   PM: 0% in, 0% out
7. Percentage of Employees being dropped off by non-employees (estimate):
   AM: 0%
   PM: 0%

Trucks:

8. Trucks transport portable toilets to and from the field, as well as service deployed portable toilets.
9. Once they have left the project site, trucks will travel to mutilple locations prior to returning back to the project site.
10. Two types of truck trips will occur daily:
    a. Delivery Trucks: Deliver and return individual portable toilets.
    b. Route Trucks: Service deployed portable toilets (fresh water, toilet paper, etc.)
11. Number of Total Trucks stored on site:
    a. Delivery Trucks: 2 trucks
    b. Route Trucks: 10 trucks
12. Number of Daily Deployed Trucks:
    a. Delivery Trucks: 2 trucks
    b. Route Trucks: 8 trucks
13. Number of Daily Trick Trips:
    a. Delivery Trucks: 4 trips (2 in, 2 out)
    b. Route Trucks: 2 trips (1 in, 1 out)
14. Truck Trips occurring in each peak hour (estimate):

	Delivery	Route
AM:	50%	25%
PM:	0%	25%

15. Truck Directional Split:

		Delivery	Route
AM:	In:	0%	0%
	Out:	100%	100%
PM:	In:	0%	100%
	Out:	100%	0%

Visitors:

16. Daily visitors: 0 visitors

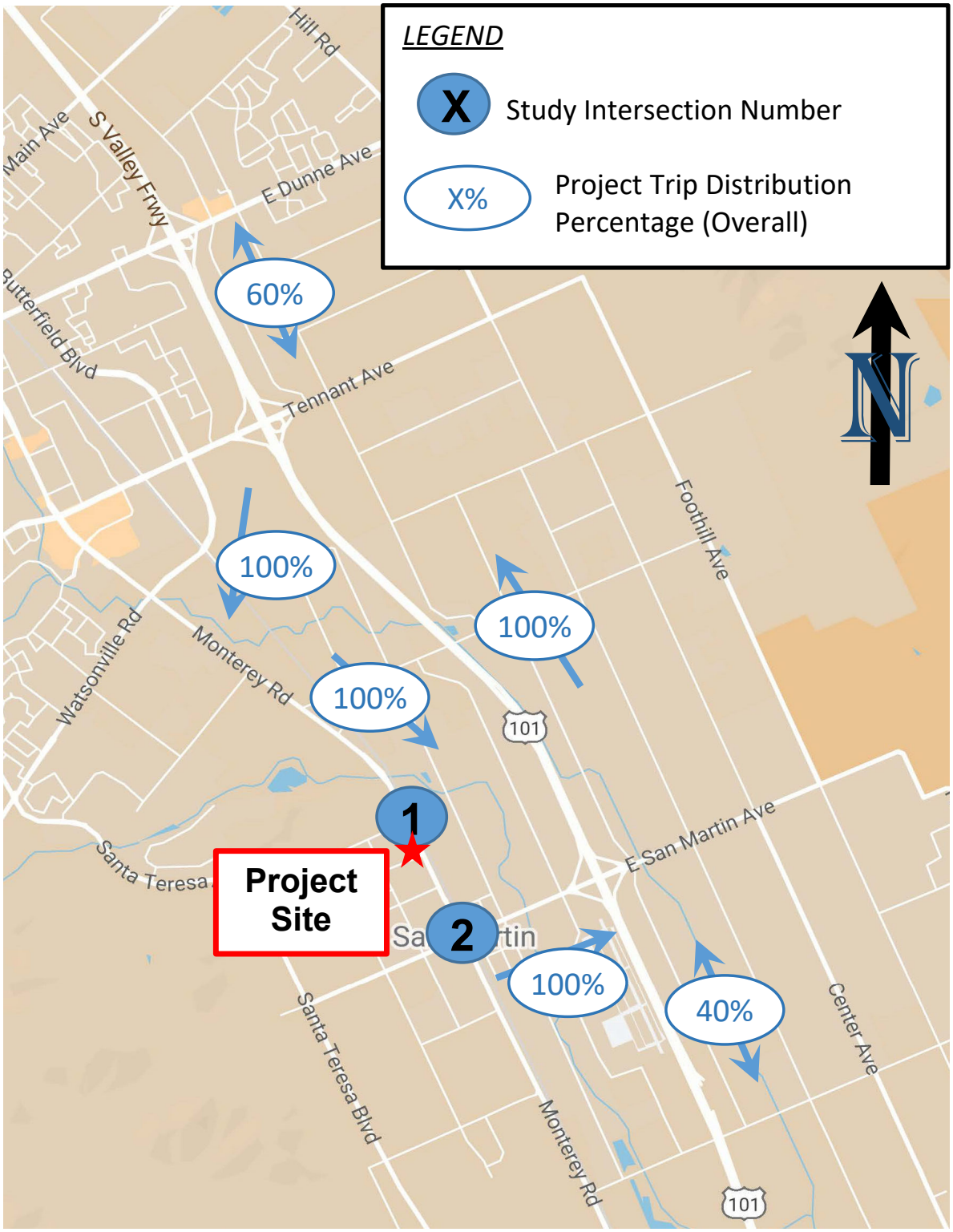
Deliveries:

17. Deliveries include US Mail, overnight deliveries, etc.
18. Number of Daily Deliveries to site (assumed): 2 delivery
19. One Delivery = 2 trips
20. Delivery Trips occurring in each peak hour (estimate):

AM:	100%
PM:	100%

21. Delivery Directional Split:

AM:	In:	50%
	Out:	50%
PM:	In:	50%
	Out:	50%



Basemap Source: Google Maps, 2022.

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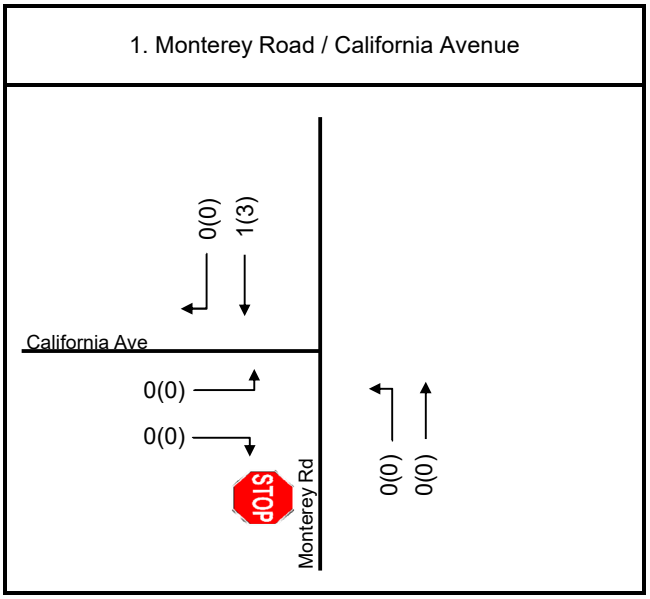
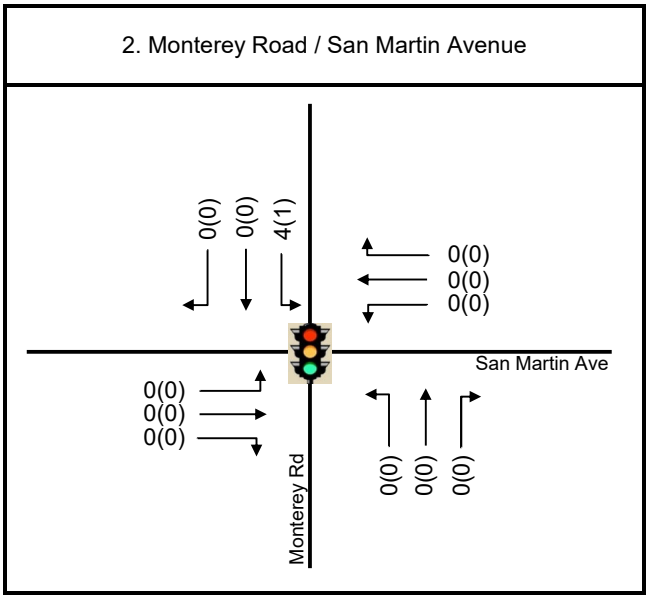
Exhibit 6
Project Trip Distribution





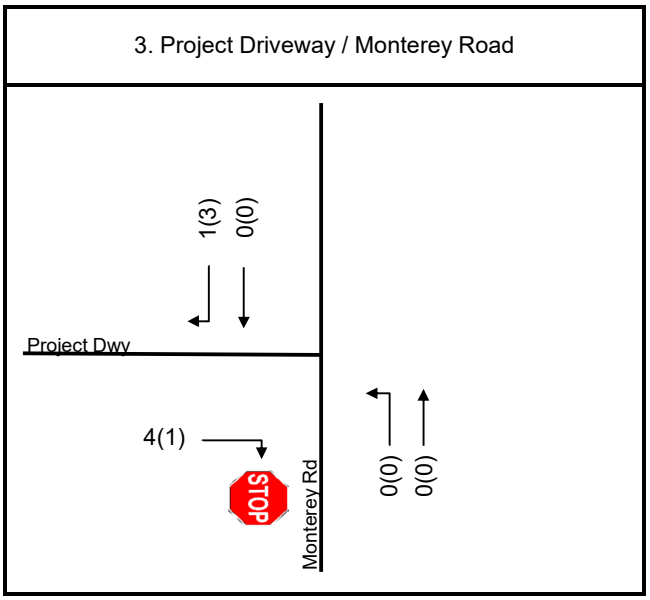


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Exhibit 7
Project Trip Assignment
AM & PM Peak Hour Volumes

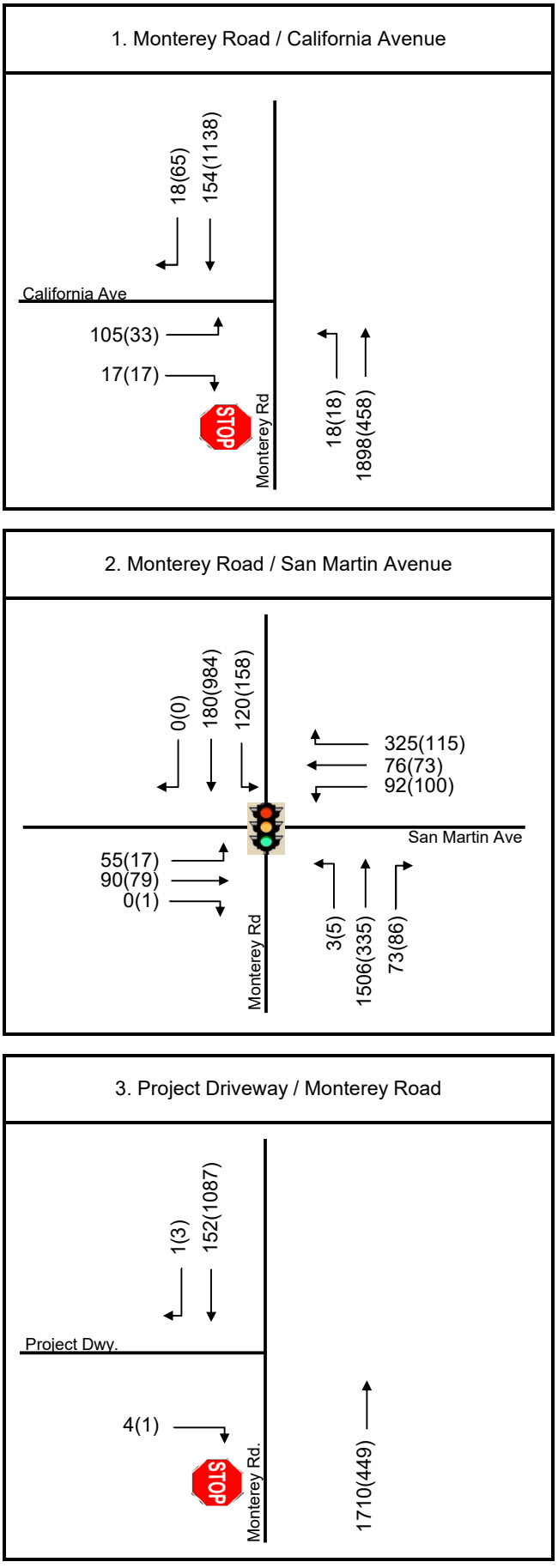

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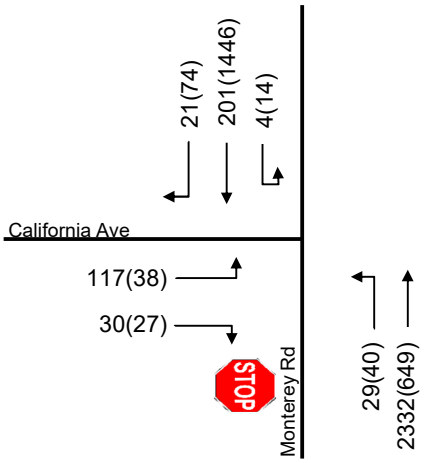
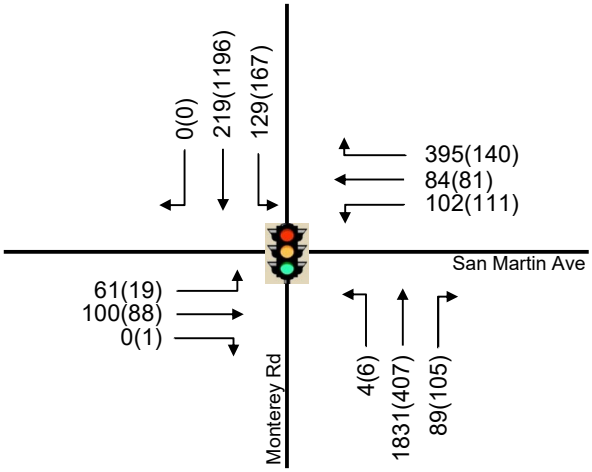
Exhibit 8
Existing Plus Project Conditions
AM & PM Peak Hour Volumes

1. Monterey Road / California Avenue



2. Monterey Road / San Martin Avenue



3. Project Driveway / Monterey Road

N/A
(Intersection does not exist under this scenario)

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Exhibit 9
Cumulative Without Project Conditions
AM & PM Peak Hour Volumes

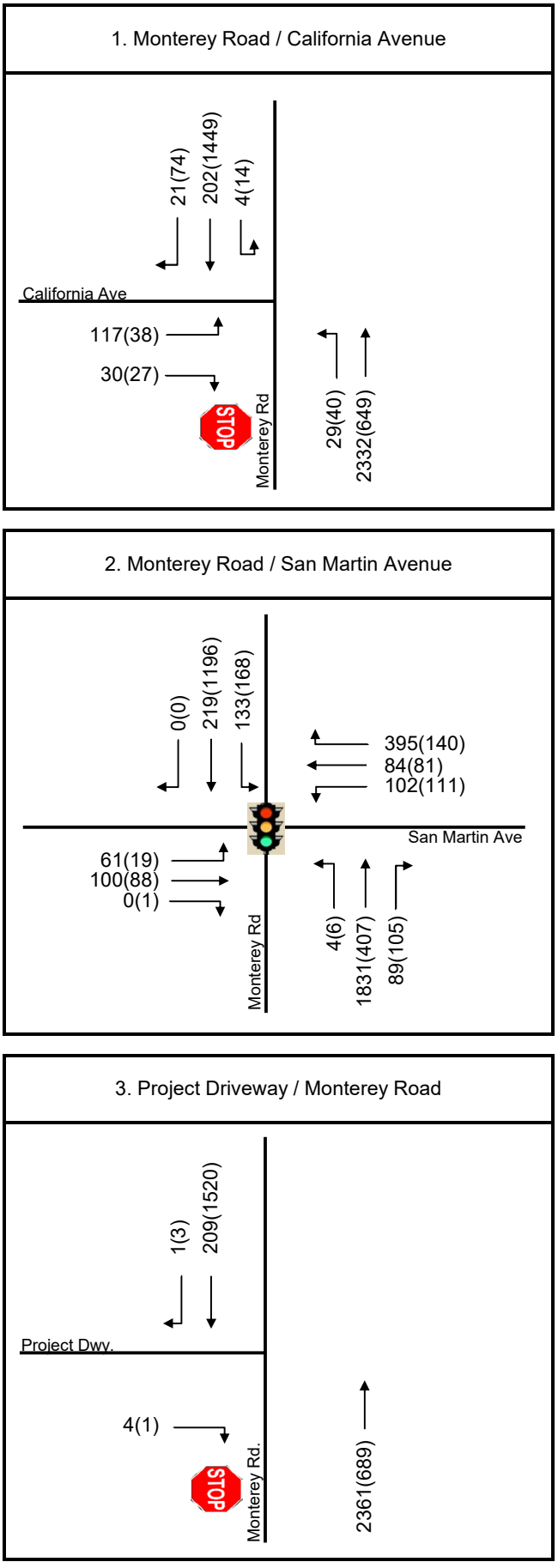

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Exhibit 10
Cumulative Plus Project Conditions
AM & PM Peak Hour Volumes

	N-S Street	E-W Street	Intersection Control	Peak Hour	Existing Conditions		Existing Plus Project Conditions		Cumulative Without Project Conditions		Cumulative With Project Conditions	
					95th Percentile (Design) Queue Lengths (per lane - feet)							
					SB L	WB R	SB L	WB R	SB L	WB R	SB L	WB R
2	Monterey Road	San Martin Avenue	Signal	AM	**175**	**400**	**200**	**400**	**200**	**475**	**200**	**475**
				PM	**150**	125	**150**	125	**150**	150	**150**	150
			Available Storage (feet)		115	170	115	170	115	170	115	170

Notes:

1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Left, Through, Right, Northbound, Southbound, Eastbound, Westbound.
3. The 95th Percentile (Design) vehicle queue lengths represent the maximum queue lengths in each peak hour for use in roadway design.
4. Queue lengths estimated using the Poisson approximation method, as documented by the Santa Clara Valley Transportation Authority (VTA).
5. Vehicle queue calculations can be found in **Appendix H**. These queue calculations assume a typical vehicle length of 25 feet.
6. * = Queue lengths are per lane for both turn lanes.
7. Available queue storage is measured from Google Earth.
8. Queues highlighted in **red** indicates queus longer than available storage lengths (including block lengths).

Appendix A

Level of Service

Descriptions

APPENDIX A1
LEVEL OF SERVICE (LOS) DESCRIPTION
SIGNALIZED INTERSECTIONS

The capacity of an urban street is related primarily to the signal timing and the geometric characteristics of the facility as well as to the composition of traffic on the facility. Geometrics are a fixed characteristic of a facility. Thus, while traffic composition may vary somewhat over time, the capacity of a facility is generally a stable value that can be significantly improved only by initiating geometric improvements. A traffic signal essentially allocates time among conflicting traffic movements that seek to use the same space. The way in which time is allocated significantly affects the operation and the capacity of the intersection and its approaches.

The methodology for signalized intersection is designed to consider individual intersection approaches and individual lane groups within approaches. A lane group consists of one or more lanes on an intersection approach. The outputs from application of the method described in the HCM 2000 are reported on the basis of each lane. For a given lane group at a signalized intersection, three indications are displayed: green, yellow and red. The red indication may include a short period during which all indications are red, referred to as an all-red interval and the yellow indication forms the change and clearance interval between two green phases.

The methodology for analyzing the capacity and level of service must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The methodology addresses the capacity, LOS, and other performance measures for lane groups and the intersection approaches and the LOS for the intersection as a whole.

Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). The methodology does not take into account the potential impact of downstream congestion on intersection operation, nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation.

LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS

(Reference: Traffic Level of Service Guidelines, Santa Clara County Transportation Authority - Congestion Management Program, Updated June 2003)

Level of Service	Average Control Delay (seconds / vehicle)
A	delay ≤ 10.0
B+	10.0 ≤ delay ≤ 12.0
B	12.0 ≤ delay ≤ 18.0
B-	18.0 ≤ delay ≤ 20.0
C+	20.0 ≤ delay ≤ 13.0
C	23.0 ≤ delay ≤ 32.0
C-	32.0 ≤ delay ≤ 35.0
D+	35.0 ≤ delay ≤ 39.0
D	39.0 ≤ delay ≤ 51.0
D-	51.0 ≤ delay ≤ 55.0
E+	55.0 ≤ delay ≤ 60.0
E	60.0 ≤ delay ≤ 75.0
E-	75.0 ≤ delay ≤ 80.0
F	delay > 80.0

APPENDIX A2

LEVEL OF SERVICE (LOS) DESCRIPTION
UNSIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgment. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream;
- driver judgment in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS

(Reference 2000 Highway Capacity Manual)

Level of Service	Control Delay (seconds / vehicle)
A	**0 - 10**
B	**>10 - 15**
C	**>15 - 25**
D	**>25 - 35**
E	**>35 - 50**
F	**>50**

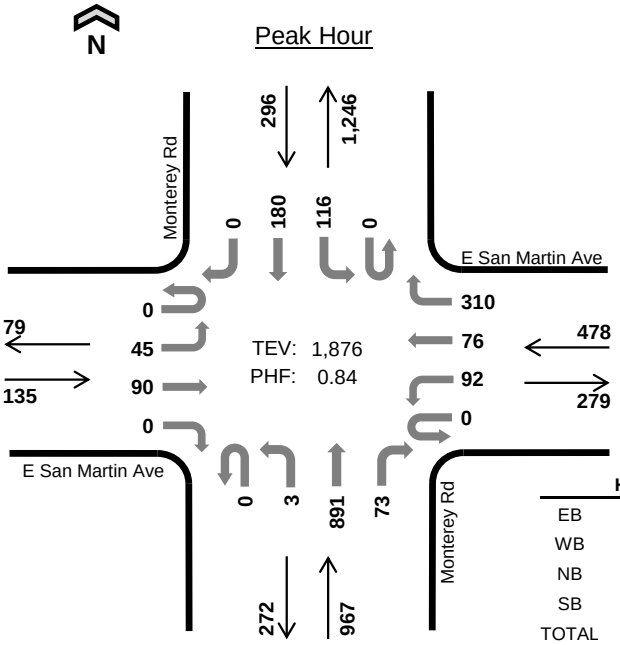
Appendix B

Traffic Volume

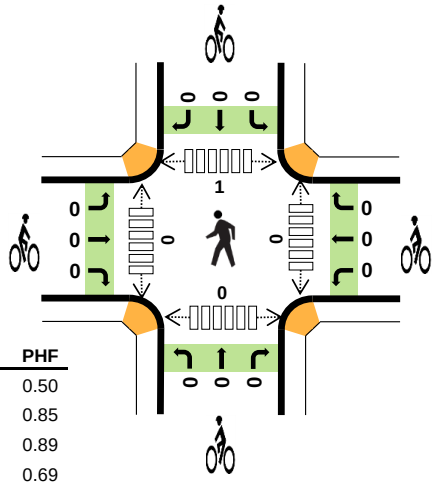
Data Collection

Monterey Rd
E San Martin Ave

Date: 03/30/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	0.7%	0.50
WB	3.1%	0.85
NB	4.2%	0.89
SB	5.7%	0.69
TOTAL	3.9%	0.84



Two-Hour Count Summaries

Interval Start	E San Martin Ave Eastbound				E San Martin Ave Westbound				Monterey Rd Northbound				Monterey Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**10**	**7**	**0**	**0**	**17**	**9**	**65**	**0**	**1**	**220**	**7**	**0**	**8**	**35**	**0**	**379**	0
7:15 AM	**0**	**10**	**18**	**0**	**0**	**14**	**10**	**87**	**0**	**0**	**252**	**21**	**0**	**22**	**30**	**0**	**464**	0
7:30 AM	**0**	**18**	**49**	**0**	**0**	**26**	**24**	**85**	**0**	**1**	**227**	**23**	**0**	**57**	**50**	**0**	**560**	0
7:45 AM	**0**	**7**	**16**	**0**	**0**	**35**	**33**	**73**	**0**	**1**	**192**	**22**	**0**	**29**	**65**	**0**	**473**	**1,876**
8:00 AM	0	2	16	0	0	20	12	30	0	3	138	17	0	19	59	0	316	1,813
8:15 AM	0	5	14	0	0	20	12	29	0	2	120	16	0	28	51	0	297	1,646
8:30 AM	0	6	17	0	0	20	12	37	0	2	97	23	1	18	47	0	280	1,366
8:45 AM	0	6	16	0	0	18	13	21	0	1	112	21	0	20	54	0	282	1,175
Count Total	0	64	153	0	0	170	125	427	0	11	1,358	150	1	201	391	0	3,051	0
Peak Hour All	**0**	**45**	**90**	**0**	**0**	**92**	**76**	**310**	**0**	**3**	**891**	**73**	**0**	**116**	**180**	**0**	**1,876**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**4**	**3**	**8**	**0**	**0**	**37**	**4**	**0**	**3**	**14**	**0**	**74**	**0**
Peak Hour HV%	**-**	**2%**	**0%**	**-**	**-**	**4%**	**4%**	**3%**	**-**	**0%**	**4%**	**5%**	**-**	**3%**	**8%**	**-**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	**1**	**2**	**10**	**2**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:15 AM	**0**	**6**	**12**	**6**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
7:30 AM	**0**	**5**	**10**	**3**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**2**	**9**	**6**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:00 AM	1	7	9	6	*23*	0	0	0	0	*0*	0	1	0	0	*1*
8:15 AM	1	5	14	7	*27*	0	0	0	0	*0*	0	0	1	0	*1*
8:30 AM	0	7	18	7	*32*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	2	4	15	4	*25*	0	0	0	0	*0*	0	0	1	0	*1*
Count Total	5	38	97	41	*181*	0	0	0	0	*0*	0	1	3	0	*4*
Peak Hour	**1**	**15**	**41**	**17**	***74***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E San Martin Ave				E San Martin Ave				Monterey Rd				Monterey Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**9**	**1**	**0**	**0**	**2**	**0**	**15**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**3**	**0**	**0**	**10**	**2**	**0**	**2**	**4**	**0**	**24**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**9**	**1**	**0**	**1**	**2**	**0**	**18**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**6**	**0**	**17**	**74**
8:00 AM	0	0	1	0	0	3	1	3	0	1	7	1	0	1	5	0	23	82
8:15 AM	0	0	1	0	0	2	1	2	0	0	9	5	0	2	5	0	27	85
8:30 AM	0	0	0	0	0	4	0	3	0	1	9	8	0	1	6	0	32	99
8:45 AM	0	0	2	0	0	3	1	0	0	0	9	6	0	1	3	0	25	107
Count Total	0	1	4	0	0	16	6	16	0	2	71	24	0	8	33	0	181	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**4**	**3**	**8**	**0**	**0**	**37**	**4**	**0**	**3**	**14**	**0**	**74**	**0**

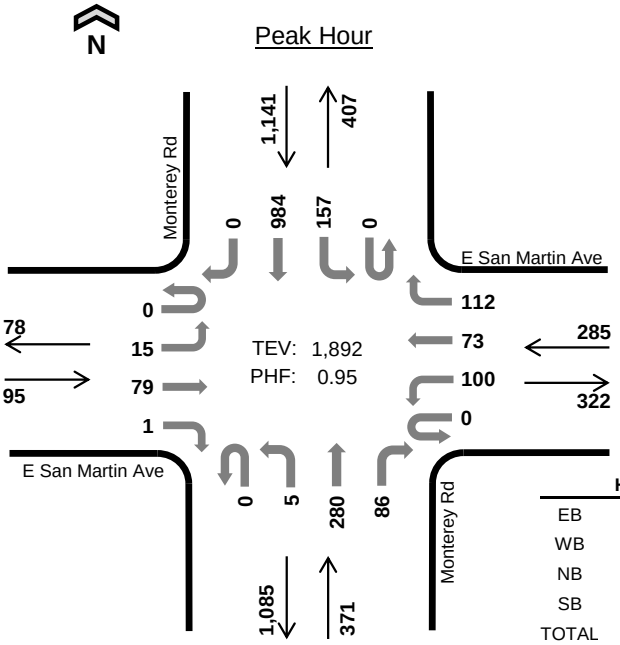
Two-Hour Count Summaries - Bikes

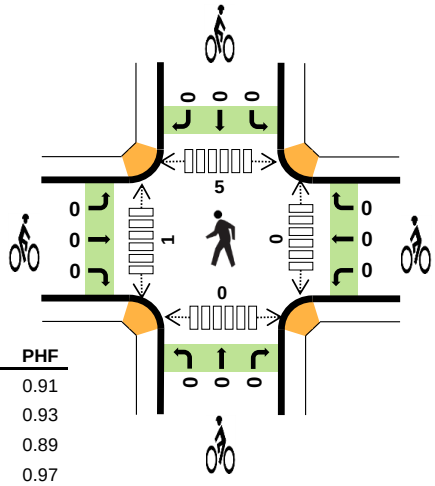
Interval Start	E San Martin Ave			E San Martin Ave			Monterey Rd			Monterey Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Monterey Rd
E San Martin Ave

Date: 03/30/2022
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	2.1%	0.91
WB	3.9%	0.93
NB	5.7%	0.89
SB	1.6%	0.97
TOTAL	2.7%	0.95

Two-Hour Count Summaries

Interval Start	E San Martin Ave Eastbound				E San Martin Ave Westbound				Monterey Rd Northbound				Monterey Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	6	22	0	0	31	19	32	0	4	72	16	0	35	187	0	424	0
4:15 PM	0	1	14	0	0	26	18	35	0	0	69	25	0	36	217	1	442	0
4:30 PM	**0**	**6**	**13**	**0**	**0**	**32**	**14**	**25**	**0**	**2**	**69**	**27**	**0**	**43**	**250**	**0**	**481**	0
4:45 PM	**0**	**4**	**21**	**1**	**0**	**25**	**22**	**30**	**0**	**1**	**81**	**22**	**0**	**42**	**249**	**0**	**498**	1,845
5:00 PM	**0**	**3**	**23**	**0**	**0**	**26**	**22**	**19**	**0**	**0**	**56**	**21**	**0**	**44**	**245**	**0**	**459**	1,880
5:15 PM	**0**	**2**	**22**	**0**	**0**	**17**	**15**	**38**	**0**	**2**	**74**	**16**	**0**	**28**	**240**	**0**	**454**	**1,892**
5:30 PM	0	3	26	0	0	14	17	22	0	0	65	19	0	31	236	0	433	1,844
5:45 PM	0	3	12	0	0	12	24	18	0	0	65	9	1	36	188	0	368	1,714
Count Total	0	28	153	1	0	183	151	219	0	9	551	155	1	295	1,812	1	3,559	0
Peak Hour All	**0**	**15**	**79**	**1**	**0**	**100**	**73**	**112**	**0**	**5**	**280**	**86**	**0**	**157**	**984**	**0**	**1,892**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**3**	**1**	**7**	**0**	**0**	**15**	**6**	**0**	**3**	**15**	**0**	**52**	**0**
Peak Hour HV%	**-**	**0%**	**3%**	**0%**	**-**	**3%**	**1%**	**6%**	**-**	**0%**	**5%**	**7%**	**-**	**2%**	**2%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	7	7	5	*22*	0	0	0	0	*0*	0	2	0	0	*2*
4:15 PM	0	5	2	7	*14*	0	0	0	0	*0*	0	0	2	0	*2*
4:30 PM	**0**	**3**	**8**	**3**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
4:45 PM	**0**	**5**	**3**	**6**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
5:00 PM	**2**	**1**	**4**	**7**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	*2*
5:15 PM	**0**	**2**	**6**	**2**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**0**	***2***
5:30 PM	2	1	3	8	*14*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	4	2	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	7	24	37	40	*108*	0	0	0	0	*0*	0	3	7	0	*10*
Peak Hour	**2**	**11**	**21**	**18**	***52***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**5**	**0**	***6***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E San Martin Ave				E San Martin Ave				Monterey Rd				Monterey Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	2	0	5	0	0	5	2	0	1	4	0	22	0
4:15 PM	0	0	0	0	0	2	0	3	0	0	1	1	0	1	6	0	14	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**4**	**4**	**0**	**0**	**3**	**0**	**14**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**0**	**0**	**2**	**1**	**0**	**3**	**3**	**0**	**14**	64
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**7**	**0**	**14**	56
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**	**10**	**52**
5:30 PM	0	0	2	0	0	0	0	1	0	0	2	1	0	1	7	0	14	52
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	1	1	0	6	44
Count Total	0	0	7	0	0	7	1	16	0	0	25	12	0	7	33	0	108	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**3**	**1**	**7**	**0**	**0**	**15**	**6**	**0**	**3**	**15**	**0**	**52**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E San Martin Ave			E San Martin Ave			Monterey Rd			Monterey Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Appendix C

Intersection

Level of Service

Calculations

Existing

Conditions

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 3.2 Worst Case Level Of Service: F[56.8]

Street Name:	Monterey Rd									California Ave								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	2	0	0	1	0	2	0	1	0	0	1!	0	0	0	0	0	0	0
Volume Module: AM Peak Hour																				
Base Vol:	18	1898		0		0	153		18		105		0		17	0		0		0
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	18	1898		0		0	153		18		105		0		17	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.93	0.93		0.93		0.93	0.93		0.93		0.93		0.93		0.93	0.93		0.93		0.93
PHF Volume:	19	2041		0		0	165		19		113		0		18	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	19	2041		0		0	165		19		113		0		18	0		0		0
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx					6.8		6.5		6.9	xxxxx	xxxx	xxxxx		
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx					3.5		4.0		3.3	xxxxx	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	184	xxxx	xxxxx	xxxx	xxxx	xxxxx					1224		2244		82	xxxx	xxxx	xxxxx		
Potent Cap.:	1388	xxxx	xxxxx	xxxx	xxxx	xxxxx					171		41		961	xxxx	xxxx	xxxxx		
Move Cap.:	1388	xxxx	xxxxx	xxxx	xxxx	xxxxx					170		41		961	xxxx	xxxx	xxxxx		
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx					0.67		0.00		0.02	xxxx	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
Control Del:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
LOS by Move:	A	*		*		*	*		*		*		*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	192	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.2	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	56.8	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*		*		*	*		*		*		F		*		*		*		*
ApproachDel:	xxxxxx			xxxxxx				56.8			xxxxxx									
ApproachLOS:	*			*				F			*									

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	120	Critical Vol./Cap.(X):	1.001
Loss Time (sec):	16	Average Delay (sec/veh):	62.3
Optimal Cycle:	180	Level Of Service:	E

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 1	0 0	0	2 0	1 0	1
Volume Module:AM Peak Hour												
Base Vol:	3	1506	73	116	180	0	55	90	0	92	76	325
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	1506	73	116	180	0	55	90	0	92	76	325
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	4	1793	87	138	214	0	65	107	0	110	90	387
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	1793	87	138	214	0	65	107	0	110	90	387
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	4	1793	87	138	214	0	65	107	0	110	90	387
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.95	0.95	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.38	0.62	0.00	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	683	1117	0	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.47	0.05	0.08	0.06	0.00	0.10	0.10	0.00	0.03	0.05	0.22
Crit Moves:		****		****			****					****
Green Time:	7.0	56.5	56.5	9.5	38.8	0.0	11.5	11.5	0.0	26.5	26.5	26.5
Volume/Cap:	0.04	1.00	0.11	1.00	0.18	0.00	1.00	1.00	0.00	0.16	0.22	1.00
Uniform Del:	53.3	31.7	17.7	55.3	29.1	0.0	54.3	54.3	0.0	37.7	38.2	46.8
IncremntDel:	0.1	21.6	0.1	76.9	0.1	0.0	68.9	68.9	0.0	0.1	0.3	46.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	53.5	53.3	17.7	132.2	29.2	0.0	123.1	123	0.0	37.8	38.5	92.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.5	53.3	17.7	132.2	29.2	0.0	123.1	123	0.0	37.8	38.5	92.8
LOS by Move:	D-	D-	B	F	C	A	F	F	A	D+	D+	F
HCM2kAvgQ:	0	41	2	7	3	0	11	11	0	2	3	21

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Monterey Rd / Project Dwy S

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: [0.0]

Street Name:	Monterey Rd						Project Dwy S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 2	0	0	0 0 1	1	0	0 0 0	0	0	0 0 0	0	0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Growth Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Bse:	0	0	0	0	0	0	0	0	0	0	0	0
User Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Adj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PHF Volume:	0	0	0	0	0	0	0	0	0	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Critical Gap Module:												
Critical Gp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FollowUpTim:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Module:												
Cnflict Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Potent Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
Move Cap.:	1	1	1	1	1	1	1	1	1	1	1	1
Total Cap:	0	0	0	0	0	0	0	0	0	0	0	0
Volume/Cap:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Del:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS by Move:												
Movement:	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT
Shared Cap.:	0	0	0	0	0	0	0	0	0	0	0	0
SharedQueue:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shrd ConDel:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Shared LOS:												
ApproachDel:	0.0			0.0			0.0			0.0		
ApproachLOS:												

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: E[39.1]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	0	0	1 0 2	0	1	0 0 1!	0	0	0 0 0	0	0
Volume Module: PM Peak Hour												
Base Vol:	18 458	0	0	1135	65		33	0	17	0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00 1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18 458	0	0	1135	65		33	0	17	0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00 1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96 0.96	0.96	0.96	0.96	0.96		0.96 0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	19 477	0	0	1182	68		34	0	18	0	0	0
Reduct Vol:	0 0	0	0	0	0		0	0	0	0	0	0
FinalVolume:	19 477	0	0	1182	68		34	0	18	0	0	0
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx	xxxxx	xxxx	xxxxx			6.8	6.5	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2 xxxx xxxxx	xxxxx	xxxx	xxxxx			3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1250 xxxx xxxxx	xxxx	xxxx	xxxxx			1458	1697	591	xxxx	xxxx	xxxxx
Potent Cap.:	553 xxxx xxxxx	xxxx	xxxx	xxxxx			120	92	450	xxxx	xxxx	xxxxx
Move Cap.:	553 xxxx xxxxx	xxxx	xxxx	xxxxx			117	88	450	xxxx	xxxx	xxxxx
Volume/Cap:	0.03 xxxx xxxx	xxxx	xxxx	xxxx			0.29	0.00	0.04	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1 xxxx xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	11.7 xxxx xxxxx	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B *	*	*	*	*		*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	156	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	1.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	39.1	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	* *	*	*	*	*		*	E	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			39.1			xxxxxx		
ApproachLOS:	*			*			E			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	70	Critical Vol./Cap.(X):	0.495
Loss Time (sec):	16	Average Delay (sec/veh):	22.1
Optimal Cycle:	53	Level Of Service:	C+

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 0	1! 0	0	2 0	1 0	1
Volume Module: PM Peak Hour												
Base Vol:	5	335	86	157	984	0	17	79	1	100	73	115
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	335	86	157	984	0	17	79	1	100	73	115
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	5	353	91	165	1036	0	18	83	1	105	77	121
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	353	91	165	1036	0	18	83	1	105	77	121
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	353	91	165	1036	0	18	83	1	105	77	121
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.18	0.81	0.01	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	307	1425	18	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.09	0.05	0.09	0.28	0.00	0.06	0.06	0.06	0.03	0.04	0.07
Crit Moves:	****				****			****			****	
Green Time:	7.0	20.0	20.0	14.0	27.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
Volume/Cap:	0.03	0.32	0.18	0.47	0.73	0.00	0.41	0.41	0.41	0.23	0.28	0.48
Uniform Del:	28.4	19.7	18.8	24.7	18.3	0.0	27.3	27.3	27.3	26.6	26.8	27.6
IncremntDel:	0.1	0.2	0.2	1.0	1.9	0.0	1.1	1.1	1.1	0.3	0.6	1.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.5	19.9	19.0	25.7	20.2	0.0	28.4	28.4	28.4	26.9	27.4	29.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.5	19.9	19.0	25.7	20.2	0.0	28.4	28.4	28.4	26.9	27.4	29.1
LOS by Move:	C	B-	B-	C	C+	A	C	C	C	C	C	C
HCM2kAvgQ:	0	3	2	3	10	0	3	3	3	1	2	3

Note: Queue reported is the number of cars per lane.

Appendix D

Intersection

Level of Service

Calculations

Existing Plus Project

Conditions

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 3.2 Worst Case Level Of Service: F[57.0]

Street Name:	Monterey Rd									California Ave									West Bound					
Approach:	North Bound						South Bound						East Bound											
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Lanes:	1	0	2	0	0		1	0	2	0	1		0	0	1!	0	0		0	0	0	0	0	
Volume Module: AM Peak Hour																								
Base Vol:	18	1898		0		0	154		18		105		0		17			0	0		0			
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00			1.00	1.00		1.00			
Initial Bse:	18	1898		0		0	154		18		105		0		17			0	0		0			
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00			1.00	1.00		1.00			
PHF Adj:	0.93	0.93		0.93		0.93	0.93		0.93		0.93		0.93		0.93			0.93	0.93		0.93			
PHF Volume:	19	2041		0		0	166		19		113		0		18			0	0		0			
Reduct Vol:	0	0		0		0	0		0		0		0		0			0	0		0			
FinalVolume:	19	2041		0		0	166		19		113		0		18			0	0		0			
Critical Gap Module:																								
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx					6.8		6.5		6.9	xxxxx	xxxx	xxxxx						
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx					3.5		4.0		3.3	xxxxx	xxxx	xxxxx						
Capacity Module:																								
Cnflict Vol:	185	xxxx	xxxxx	xxxx	xxxx	xxxxx					1225		2245		83	xxxx	xxxx	xxxxx						
Potent Cap.:	1387	xxxx	xxxxx	xxxx	xxxx	xxxxx					171		41		960	xxxx	xxxx	xxxxx						
Move Cap.:	1387	xxxx	xxxxx	xxxx	xxxx	xxxxx					169		41		960	xxxx	xxxx	xxxxx						
Volume/Cap:	0.01	xxxx	xxxx	xxxx	xxxx	xxxx					0.67		0.00		0.02	xxxx	xxxx	xxxx						
Level Of Service Module:																								
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx												
Control Del:	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx												
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*												
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	191	xxxxx	xxxx	xxxx	xxxxx												
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.2	xxxxx	xxxxx	xxxx	xxxxx												
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	57.0	xxxxx	xxxxx	xxxx	xxxxx												
Shared LOS:	*	*	*	*	*	*	*	F	*	*	*	*												
ApproachDel:	xxxxxx			xxxxxx			57.0			xxxxxx														
ApproachLOS:	*			*			F			*														

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	120	Critical Vol./Cap.(X):	1.004
Loss Time (sec):	16	Average Delay (sec/veh):	63.1
Optimal Cycle:	180	Level Of Service:	E

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 1	0 0	0	2 0	1 0	1
Volume Module:AM Peak Hour												
Base Vol:	3	1506	73	120	180	0	55	90	0	92	76	325
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	1506	73	120	180	0	55	90	0	92	76	325
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	4	1793	87	143	214	0	65	107	0	110	90	387
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	4	1793	87	143	214	0	65	107	0	110	90	387
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	4	1793	87	143	214	0	65	107	0	110	90	387
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.95	0.95	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.38	0.62	0.00	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	683	1117	0	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.47	0.05	0.08	0.06	0.00	0.10	0.10	0.00	0.03	0.05	0.22
Crit Moves:		****		****			****					****
Green Time:	7.0	56.3	56.3	9.8	38.9	0.0	11.5	11.5	0.0	26.4	26.4	26.4
Volume/Cap:	0.04	1.00	0.11	1.00	0.18	0.00	1.00	1.00	0.00	0.16	0.22	1.00
Uniform Del:	53.3	31.8	17.8	55.1	29.1	0.0	54.3	54.3	0.0	37.8	38.3	46.8
IncremntDel:	0.1	22.5	0.1	75.0	0.1	0.0	69.9	69.9	0.0	0.1	0.3	47.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	53.5	54.3	17.8	130.1	29.2	0.0	124.2	124	0.0	37.9	38.6	93.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.5	54.3	17.8	130.1	29.2	0.0	124.2	124	0.0	37.9	38.6	93.9
LOS by Move:	D-	D-	B	F	C	A	F	F	A	D+	D+	F
HCM2kAvgQ:	0	41	2	7	3	0	11	11	0	2	3	21

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Monterey Rd / Project Dwy S

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[9.7]

Street Name:	Monterey Rd						Project Dwy S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 2	0	0	0 0 1	1	0	0 0 0	0	1	0 0 0	0	0
Volume Module: AM Peak Hour												
Base Vol:	0 1710	0	0	152	1	0	0	4	0	0	0	
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0 1710	0	0	152	1	0	0	4	0	0	0	
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0 1859	0	0	165	1	0	0	4	0	0	0	
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	
FinalVolume:	0 1859	0	0	165	1	0	0	4	0	0	0	
Critical Gap Module:												
Critical Gp:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.4	xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	4.1	xxxxx	xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	83	xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	767	xxxx	xxxx	xxxxx	
Move Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	767	xxxx	xxxx	xxxxx	
Total Cap:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	199	52	xxxxx	74	118	xxxxx	
Volume/Cap:	xxxx xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.0	xxxx	xxxx	xxxxx	
Control Del:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	9.7	xxxxx	xxxx	xxxxx	
LOS by Move:	*	*	*	*	*	*	*	A	*	*	*	
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	
ApproachDel:	xxxxxx			xxxxxx			9.7			xxxxxx		
ApproachLOS:	*			*			A			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: E[39.3]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2 0 0			1 0 2 0 1			0 0 1! 0 0			0 0 0 0 0		
Volume Module: PM Peak Hour												
Base Vol:	18	458	0	0	1138	65	33	0	17	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	458	0	0	1138	65	33	0	17	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	19	477	0	0	1185	68	34	0	18	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	19	477	0	0	1185	68	34	0	18	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.8	6.5	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1253	xxxx	xxxxx	xxxx	xxxx	xxxxx	1461	1700	593	xxxx	xxxx	xxxxx
Potent Cap.:	551	xxxx	xxxxx	xxxx	xxxx	xxxxx	120	91	449	xxxx	xxxx	xxxxx
Move Cap.:	551	xxxx	xxxxx	xxxx	xxxx	xxxxx	117	88	449	xxxx	xxxx	xxxxx
Volume/Cap:	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.30	0.00	0.04	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	11.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	156	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	1.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	39.3	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	E	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			39.3			xxxxxx		
ApproachLOS:	*			*			E			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	70	Critical Vol./Cap.(X):	0.495
Loss Time (sec):	16	Average Delay (sec/veh):	22.1
Optimal Cycle:	53	Level Of Service:	C+

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 0	1! 0	0	2 0	1 0	1
Volume Module: PM Peak Hour												
Base Vol:	5	335	86	158	984	0	17	79	1	100	73	115
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	335	86	158	984	0	17	79	1	100	73	115
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	5	353	91	166	1036	0	18	83	1	105	77	121
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	353	91	166	1036	0	18	83	1	105	77	121
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	353	91	166	1036	0	18	83	1	105	77	121
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.18	0.81	0.01	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	307	1425	18	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.09	0.05	0.10	0.28	0.00	0.06	0.06	0.06	0.03	0.04	0.07
Crit Moves:	****			****			****			****		
Green Time:	7.0	20.0	20.0	14.0	27.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
Volume/Cap:	0.03	0.32	0.18	0.48	0.73	0.00	0.41	0.41	0.41	0.23	0.28	0.48
Uniform Del:	28.4	19.7	18.8	24.8	18.3	0.0	27.3	27.3	27.3	26.6	26.8	27.6
IncremntDel:	0.1	0.2	0.2	1.0	1.9	0.0	1.1	1.1	1.1	0.3	0.6	1.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.5	19.9	19.0	25.8	20.2	0.0	28.4	28.4	28.4	26.9	27.4	29.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.5	19.9	19.0	25.8	20.2	0.0	28.4	28.4	28.4	26.9	27.4	29.1
LOS by Move:	C	B-	B-	C	C+	A	C	C	C	C	C	C
HCM2kAvgQ:	0	3	2	3	10	0	3	3	3	1	2	3

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Monterey Rd / Project Dwy S

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[9.9]

Street Name:	Monterey Rd						Project Dwy S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 2	0	0	0 0 1	1	0	0 0 0	0	1	0 0 0	0	0
Volume Module: PM Peak Hour												
Base Vol:	0 449	0	0	187	3	0	0	0	1	0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0 449	0	0	187	3	0	0	0	1	0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0 488	0	0	203	3	0	0	0	1	0	0	0
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0 488	0	0	203	3	0	0	0	1	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.4	xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	4.1	xxxxx	xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	103	xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	740	xxxx	xxxx	xxxxx	
Move Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	740	xxxx	xxxx	xxxxx	
Total Cap:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	509	360	xxxxx	500	500	xxxxx	
Volume/Cap:	xxxx xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.0	xxxx	xxxx	xxxxx	
Control Del:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	9.9	xxxxx	xxxx	xxxxx	
LOS by Move:	* *	*	*	*	*	*	*	A	*	*	*	
Movement:	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	* *	*	*	*	*	*	*	*	*	*	*	
ApproachDel:	xxxxxx		xxxxxx		9.9		xxxxxx					
ApproachLOS:	*		*		A		*					

Note: Queue reported is the number of cars per lane.

Appendix E

Intersection

Level of Service

Calculations

Cumulative Without Project

Conditions

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 11.9 Worst Case Level Of Service: F[218.8]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	0	0	1 0 2	0	1	0 0 1!	0	0	0 0 0	0	0
Volume Module: AM Peak Hour												
Base Vol:	29 2332		0	0	201	21	117	0	30	0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	29 2332		0	0	201	21	117	0	30	0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93 0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	31 2508		0	0	216	23	126	0	32	0	0	0
Reduct Vol:	0 0		0	0	0	0	0	0	0	0	0	0
FinalVolume:	31 2508		0	0	216	23	126	0	32	0	0	0
Critical Gap Module:												
Critical Gp:	4.1 xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	
FollowUpTim:	2.2 xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	239 xxxx	xxxxx	xxxx	xxxx	xxxxx	1532	2786	108	xxxx	xxxx	xxxxx	
Potent Cap.:	1325 xxxx	xxxxx	xxxx	xxxx	xxxxx	107	18	925	xxxx	xxxx	xxxxx	
Move Cap.:	1325 xxxx	xxxxx	xxxx	xxxx	xxxxx	105	18	925	xxxx	xxxx	xxxxx	
Volume/Cap:	0.02 xxxx	xxxx	xxxx	xxxx	xxxx	1.19	0.00	0.03	xxxx	xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	0.1 xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
Control Del:	7.8 xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	129	xxxxx	xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.7	xxxxx	xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	219	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*	*	*	*	F	*	*	*	*	
ApproachDel:	xxxxxx		xxxxxx			218.8		xxxxxx				
ApproachLOS:	*		*			F		*				

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	120	Critical Vol./Cap.(X):	1.196
Loss Time (sec):	16	Average Delay (sec/veh):	120.1
Optimal Cycle:	180	Level Of Service:	F

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 1	0 0	0	2 0	1 0	1
Volume Module:AM Peak Hour												
Base Vol:	4	1831	89	129	219	0	61	100	0	102	84	395
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	1831	89	129	219	0	61	100	0	102	84	395
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	5	2180	106	154	261	0	73	119	0	121	100	470
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	2180	106	154	261	0	73	119	0	121	100	470
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	2180	106	154	261	0	73	119	0	121	100	470
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.95	0.95	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.38	0.62	0.00	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	682	1118	0	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.57	0.06	0.09	0.07	0.00	0.11	0.11	0.00	0.04	0.05	0.27
Crit Moves:		****		****				****				****
Green Time:	7.0	57.6	57.6	8.8	39.0	0.0	10.7	10.7	0.0	27.0	27.0	27.0
Volume/Cap:	0.05	1.20	0.13	1.20	0.22	0.00	1.20	1.20	0.00	0.17	0.23	1.20
Uniform Del:	53.4	31.2	17.3	55.6	29.4	0.0	54.7	54.7	0.0	37.5	38.1	46.5
IncremntDel:	0.2	93.9	0.1	141.5	0.1	0.0	133.5	134	0.0	0.1	0.3	110.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	53.5	125	17.4	197.1	29.5	0.0	188.2	188	0.0	37.6	38.4	157.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.5	125	17.4	197.1	29.5	0.0	188.2	188	0.0	37.6	38.4	157.0
LOS by Move:	D-	F	B	F	C	A	F	F	A	D+	D+	F
HCM2kAvgQ:	0	64	2	10	3	0	14	14	0	2	3	32

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 4.7 Worst Case Level Of Service: F[155.5]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	0	0	1 0 2	0	1	0 0 1!	0	0	0 0 0	0	0
Volume Module: PM Peak Hour												
Base Vol:	40	649	0	14	1446	74	38	0	27	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	649	0	14	1446	74	38	0	27	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	42	676	0	15	1506	77	40	0	28	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	42	676	0	15	1506	77	40	0	28	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	6.8	6.5	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1583	xxxx	xxxxx	676	xxxx	xxxxx	1957	2295	753	xxxx	xxxx	xxxxx
Potent Cap.:	411	xxxx	xxxxx	911	xxxx	xxxxx	56	38	352	xxxx	xxxx	xxxxx
Move Cap.:	411	xxxx	xxxxx	911	xxxx	xxxxx	51	34	352	xxxx	xxxx	xxxxx
Volume/Cap:	0.10	xxxx	xxxx	0.02	xxxx	xxxx	0.78	0.00	0.08	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	14.7	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	79	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	156	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			155.5			xxxxxx		
ApproachLOS:	*			*			F			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	70	Critical Vol./Cap.(X):	0.588
Loss Time (sec):	16	Average Delay (sec/veh):	25.8
Optimal Cycle:	53	Level Of Service:	C

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 0	1! 0	0	2 0	1 0	1
Volume Module: PM Peak Hour												
Base Vol:	6	407	105	167	1196	0	19	88	1	111	81	140
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	407	105	167	1196	0	19	88	1	111	81	140
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	428	111	176	1259	0	20	93	1	117	85	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	428	111	176	1259	0	20	93	1	117	85	147
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	428	111	176	1259	0	20	93	1	117	85	147
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.18	0.81	0.01	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	308	1426	16	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.06	0.10	0.34	0.00	0.06	0.06	0.06	0.04	0.04	0.08
Crit Moves:	****				****		****				****	
Green Time:	7.0	19.9	19.9	14.0	27.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
Volume/Cap:	0.04	0.40	0.22	0.50	0.88	0.00	0.45	0.45	0.45	0.26	0.31	0.59
Uniform Del:	28.5	20.2	19.1	24.9	20.0	0.0	27.5	27.5	27.5	26.7	26.9	28.1
IncremntDel:	0.1	0.2	0.2	1.1	6.8	0.0	1.3	1.3	1.3	0.3	0.7	3.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.5	20.4	19.3	26.0	26.9	0.0	28.8	28.8	28.8	27.0	27.6	31.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.5	20.4	19.3	26.0	26.9	0.0	28.8	28.8	28.8	27.0	27.6	31.7
LOS by Move:	C	C+	B-	C	C	A	C	C	C	C	C	C
HCM2kAvgQ:	0	4	2	4	14	0	3	3	3	2	2	4

Note: Queue reported is the number of cars per lane.

Appendix F

Intersection

Level of Service

Calculations

Cumulative Plus Project

Conditions

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 12.8 Worst Case Level Of Service: F[236.3]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	0	0	1 0 2	0	1	0 0 1!	0	0	0 0 0	0	0
Volume Module: AM Peak Hour												
Base Vol:	29 2332		0	4 202		21	117	0	30	0 0		0
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	29 2332		0	4 202		21	117	0	30	0 0		0
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.93 0.93	0.93		0.93 0.93	0.93		0.93 0.93	0.93		0.93 0.93	0.93	
PHF Volume:	31 2508		0	4 217		23	126	0	32	0 0		0
Reduct Vol:	0 0		0	0 0		0	0	0	0	0 0		0
FinalVolume:	31 2508		0	4 217		23	126	0	32	0 0		0
Critical Gap Module:												
Critical Gp:	4.1 xxxx	xxxxx		4.1 xxxx	xxxxx		6.8 6.5		6.9	xxxxx xxxx	xxxxx	
FollowUpTim:	2.2 xxxx	xxxxx		2.2 xxxx	xxxxx		3.5 4.0		3.3	xxxxx xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	240 xxxx	xxxxx		2508 xxxx	xxxxx		1542 2796		109	xxxx xxxx	xxxxx	
Potent Cap.:	1324 xxxx	xxxxx		178 xxxx	xxxxx		106 18		924	xxxx xxxx	xxxxx	
Move Cap.:	1324 xxxx	xxxxx		178 xxxx	xxxxx		102 17		924	xxxx xxxx	xxxxx	
Volume/Cap:	0.02 xxxx	xxxx		0.02 xxxx	xxxx		1.23 0.00		0.03	xxxx xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	0.1 xxxx	xxxxx		0.1 xxxx	xxxxx		xxxx xxxx	xxxxx		xxxx xxxx	xxxxx	
Control Del:	7.8 xxxx	xxxxx		25.7 xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx	
LOS by Move:	A	*	*	D	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx	xxxxx		xxxx xxxx	xxxxx		xxxx 125	xxxxx		xxxx xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx 10.1	xxxxx		xxxxx xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx 236	xxxxx		xxxxx xxxx	xxxxx	
Shared LOS:	*	*	*	*	*	*	* F		*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			236.3			xxxxxx		
ApproachLOS:	*			*			F			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	120	Critical Vol./Cap.(X):	1.199
Loss Time (sec):	16	Average Delay (sec/veh):	121.3
Optimal Cycle:	180	Level Of Service:	F

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 1	0 0	0	2 0	1 0	1
Volume Module:AM Peak Hour												
Base Vol:	4	1831	89	133	219	0	61	100	0	102	84	395
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	1831	89	133	219	0	61	100	0	102	84	395
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
PHF Volume:	5	2180	106	158	261	0	73	119	0	121	100	470
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	2180	106	158	261	0	73	119	0	121	100	470
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	2180	106	158	261	0	73	119	0	121	100	470
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.95	0.95	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.38	0.62	0.00	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	682	1118	0	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.57	0.06	0.09	0.07	0.00	0.11	0.11	0.00	0.04	0.05	0.27
Crit Moves:		****		****				****				****
Green Time:	7.0	57.4	57.4	9.1	39.1	0.0	10.7	10.7	0.0	26.9	26.9	26.9
Volume/Cap:	0.05	1.20	0.13	1.20	0.22	0.00	1.20	1.20	0.00	0.17	0.23	1.20
Uniform Del:	53.4	31.3	17.4	55.5	29.3	0.0	54.7	54.7	0.0	37.6	38.1	46.6
IncremntDel:	0.2	95.2	0.1	141.6	0.1	0.0	134.7	135	0.0	0.1	0.3	111.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	53.5	127	17.4	197.1	29.4	0.0	189.4	189	0.0	37.7	38.4	158.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.5	127	17.4	197.1	29.4	0.0	189.4	189	0.0	37.7	38.4	158.3
LOS by Move:	D-	F	B	F	C	A	F	F	A	D+	D+	F
HCM2kAvgQ:	0	64	2	10	3	0	14	14	0	2	3	32

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Monterey Rd / Project Dwy S

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: A[10.0]

Street Name:	Monterey Rd						Project Dwy S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 2	0	0	0 0 1	1	0	0 0 0	0	1	0 0 0	0	0
Volume Module: AM Peak Hour												
Base Vol:	0 2361	0	0	209	1	0	0	0	4	0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0 2361	0	0	209	1	0	0	0	4	0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0 2566	0	0	227	1	0	0	0	4	0	0	0
Reduct Vol:	0 0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0 2566	0	0	227	1	0	0	0	4	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.4	xxxxx	xxxx	xxxxx	
FollowUpTim:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	4.1	xxxxx	xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	114	xxxx	xxxx	xxxxx	
Potent Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	726	xxxx	xxxx	xxxxx	
Move Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	726	xxxx	xxxx	xxxxx	
Total Cap:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	115	17	xxxxx	26	51	xxxxx	
Volume/Cap:	xxxx xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.0	xxxx	xxxx	xxxxx	
Control Del:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.0	xxxxx	xxxx	xxxxx	
LOS by Move:	* *	*	*	*	*	*	*	A	*	*	*	
Movement:	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT	LT - LTR	- RT		
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	
Shared LOS:	* *	*	*	*	*	*	*	*	*	*	*	
ApproachDel:	xxxxxx		xxxxxx		10.0		xxxxxx					
ApproachLOS:	*		*		A		*					

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Average Delay (sec/veh): 4.8 Worst Case Level Of Service: F[157.1]

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	0	0	1 0 2	0	1	0 0 1!	0	0	0 0 0	0	0
Volume Module: PM Peak Hour												
Base Vol:	40	649	0	14	1449	74	38	0	27	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	649	0	14	1449	74	38	0	27	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	42	676	0	15	1509	77	40	0	28	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	42	676	0	15	1509	77	40	0	28	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	6.8	6.5	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1586	xxxx	xxxxx	676	xxxx	xxxxx	1960	2298	755	xxxx	xxxx	xxxxx
Potent Cap.:	410	xxxx	xxxxx	911	xxxx	xxxxx	55	38	351	xxxx	xxxx	xxxxx
Move Cap.:	410	xxxx	xxxxx	911	xxxx	xxxxx	51	34	351	xxxx	xxxx	xxxxx
Volume/Cap:	0.10	xxxx	xxxx	0.02	xxxx	xxxx	0.78	0.00	0.08	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.3	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	14.8	xxxx	xxxxx	9.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	78	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	4.4	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	157	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			157.1			xxxxxx		
ApproachLOS:	*			*			F			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Monterey Rd / San Martin Ave

Cycle (sec):	70	Critical Vol./Cap.(X):	0.588
Loss Time (sec):	16	Average Delay (sec/veh):	25.8
Optimal Cycle:	53	Level Of Service:	C

Street Name:	Monterey Rd						San Martin Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	1	1 0	1 1	0	0 0	1! 0	0	2 0	1 0	1
Volume Module: PM Peak Hour												
Base Vol:	6	407	105	168	1196	0	19	88	1	111	81	140
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	6	407	105	168	1196	0	19	88	1	111	81	140
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	6	428	111	177	1259	0	20	93	1	117	85	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	428	111	177	1259	0	20	93	1	117	85	147
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	428	111	177	1259	0	20	93	1	117	85	147
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.83	1.00	0.92
Lanes:	1.00	2.00	1.00	1.00	2.00	0.00	0.18	0.81	0.01	2.00	1.00	1.00
Final Sat.:	1750	3800	1750	1750	3700	0	308	1426	16	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.06	0.10	0.34	0.00	0.06	0.06	0.06	0.04	0.04	0.08
Crit Moves:	****				****		****				****	
Green Time:	7.0	19.9	19.9	14.1	27.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0
Volume/Cap:	0.04	0.40	0.22	0.50	0.88	0.00	0.45	0.45	0.45	0.26	0.31	0.59
Uniform Del:	28.5	20.2	19.1	24.8	20.0	0.0	27.5	27.5	27.5	26.7	26.9	28.1
IncremntDel:	0.1	0.2	0.2	1.2	6.8	0.0	1.3	1.3	1.3	0.3	0.7	3.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	28.5	20.4	19.4	26.0	26.9	0.0	28.8	28.8	28.8	27.0	27.6	31.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	28.5	20.4	19.4	26.0	26.9	0.0	28.8	28.8	28.8	27.0	27.6	31.7
LOS by Move:	C	C+	B-	C	C	A	C	C	C	C	C	C
HCM2kAvgQ:	0	4	2	4	15	0	3	3	3	2	2	4

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #3 Monterey Rd / Project Dwy S

Average Delay (sec/veh): 0.0 Worst Case Level Of Service: C[23.3]

Street Name:	Monterey Rd						Project Dwy S					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 2	0	0	0 0 1	1	0	0 0 0	0	1	0 0 0	0	0
Volume Module: PM Peak Hour												
Base Vol:	0 689	0	0	1520	3		0 0	0	1	0 0	0	0
Growth Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	0 689	0	0	1520	3		0 0	0	1	0 0	0	0
User Adj:	1.00 1.00	1.00	1.00	1.00	1.00		1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92	0.92		0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92
PHF Volume:	0 749	0	0	1652	3		0 0	0	1	0 0	0	0
Reduct Vol:	0 0	0	0	0	0		0 0	0	0	0 0	0	0
FinalVolume:	0 749	0	0	1652	3		0 0	0	1	0 0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx xxxx		8.4	xxxxx xxxx	xxxxx	
FollowUpTim:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx xxxx		4.1	xxxxx xxxx	xxxxx	
Capacity Module:												
Cnflict Vol:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx xxxx		828	xxxx xxxx	xxxxx	
Potent Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx xxxx		198	xxxx xxxx	xxxxx	
Move Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx xxxx		198	xxxx xxxx	xxxxx	
Total Cap:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		64 68	xxxxx	247	141	xxxxx	
Volume/Cap:	xxxx xxxx	xxxx	xxxx	xxxx	xxxx		xxxx xxxx		0.01	xxxx xxxx	xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx xxxx		0.0	xxxx xxxx	xxxxx	
Control Del:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx xxxx		23.3	xxxxx xxxx	xxxxx	
LOS by Move:	*	*	*	*	*		*	*	C	*	*	*
Movement:	LT - LTR	- RT	LT - LTR	- RT			LT - LTR	- RT		LT - LTR	- RT	
Shared Cap.:	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx		xxxx xxxx	xxxxx		xxxx xxxx	xxxxx	
SharedQueue:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx	
Shrd ConDel:	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx		xxxxx xxxx	xxxxx		xxxxx xxxx	xxxxx	
Shared LOS:	*	*	*	*	*		*	*	*	*	*	*
ApproachDel:	xxxxxx		xxxxxx				23.3			xxxxxx		
ApproachLOS:	*		*				C			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Cycle (sec):	100	Critical Vol./Cap.(X):	0.855
Loss Time (sec):	12	Average Delay (sec/veh):	22.3
Optimal Cycle:	92	Level Of Service:	C+

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	0	1 0	2 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:AM Peak Hour												
Base Vol:	29	2332	0	4	202	21	117	0	30	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	29	2332	0	4	202	21	117	0	30	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	31	2508	0	4	217	23	126	0	32	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	2508	0	4	217	23	126	0	32	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	31	2508	0	4	217	23	126	0	32	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	1.00	0.92
Lanes:	1.00	2.00	0.00	1.00	2.00	1.00	0.80	0.00	0.20	0.00	0.00	0.00
Final Sat.:	1750	3800	0	1750	3800	1750	1393	0	357	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.02	0.66	0.00	0.00	0.06	0.01	0.09	0.00	0.09	0.00	0.00	0.00
Crit Moves:		****		****			****					
Green Time:	32.1	71.0	0.0	7.0	45.9	45.9	10.0	0.0	10.0	0.0	0.0	0.0
Volume/Cap:	0.06	0.93	0.00	0.04	0.12	0.03	0.90	0.00	0.90	0.00	0.00	0.00
Uniform Del:	23.5	12.4	0.0	43.4	15.5	14.8	44.5	0.0	44.5	0.0	0.0	0.0
IncremntDel:	0.0	6.5	0.0	0.1	0.0	0.0	41.5	0.0	41.5	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	23.5	18.8	0.0	43.5	15.6	14.8	86.1	0.0	86.1	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.5	18.8	0.0	43.5	15.6	14.8	86.1	0.0	86.1	0.0	0.0	0.0
LOS by Move:	C	B-	A	D	B	B	F	A	F	A	A	A
HCM2kAvgQ:	1	31	0	0	2	0	8	0	8	0	0	0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #1 Monterey Rd / California Ave

Cycle (sec):	70	Critical Vol./Cap.(X):	0.555
Loss Time (sec):	12	Average Delay (sec/veh):	12.3
Optimal Cycle:	42	Level Of Service:	B

Street Name:	Monterey Rd						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 0	0	1 0	2 0	1	0 0	1! 0	0	0 0	0 0	0
Volume Module:PM Peak Hour												
Base Vol:	40	649	0	14	1449	74	38	0	27	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	40	649	0	14	1449	74	38	0	27	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	42	676	0	15	1509	77	40	0	28	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	676	0	15	1509	77	40	0	28	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	42	676	0	15	1509	77	40	0	28	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	1.00	0.92
Lanes:	1.00	2.00	0.00	1.00	2.00	1.00	0.58	0.00	0.42	0.00	0.00	0.00
Final Sat.:	1750	3800	0	1750	3800	1750	1023	0	727	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.02	0.18	0.00	0.01	0.40	0.04	0.04	0.00	0.04	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green Time:	7.0	30.7	0.0	17.3	41.0	41.0	10.0	0.0	10.0	0.0	0.0	0.0
Volume/Cap:	0.24	0.41	0.00	0.03	0.68	0.08	0.27	0.00	0.27	0.00	0.00	0.00
Uniform Del:	29.0	13.4	0.0	20.0	10.0	6.3	26.7	0.0	26.7	0.0	0.0	0.0
IncremntDel:	0.7	0.2	0.0	0.0	0.9	0.0	0.6	0.0	0.6	0.0	0.0	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Delay/Veh:	29.7	13.6	0.0	20.1	10.8	6.3	27.3	0.0	27.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	29.7	13.6	0.0	20.1	10.8	6.3	27.3	0.0	27.3	0.0	0.0	0.0
LOS by Move:	C	B	A	C+	B+	A	C	A	C	A	A	A
HCM2kAvgQ:	1	5	0	0	11	1	2	0	2	0	0	0

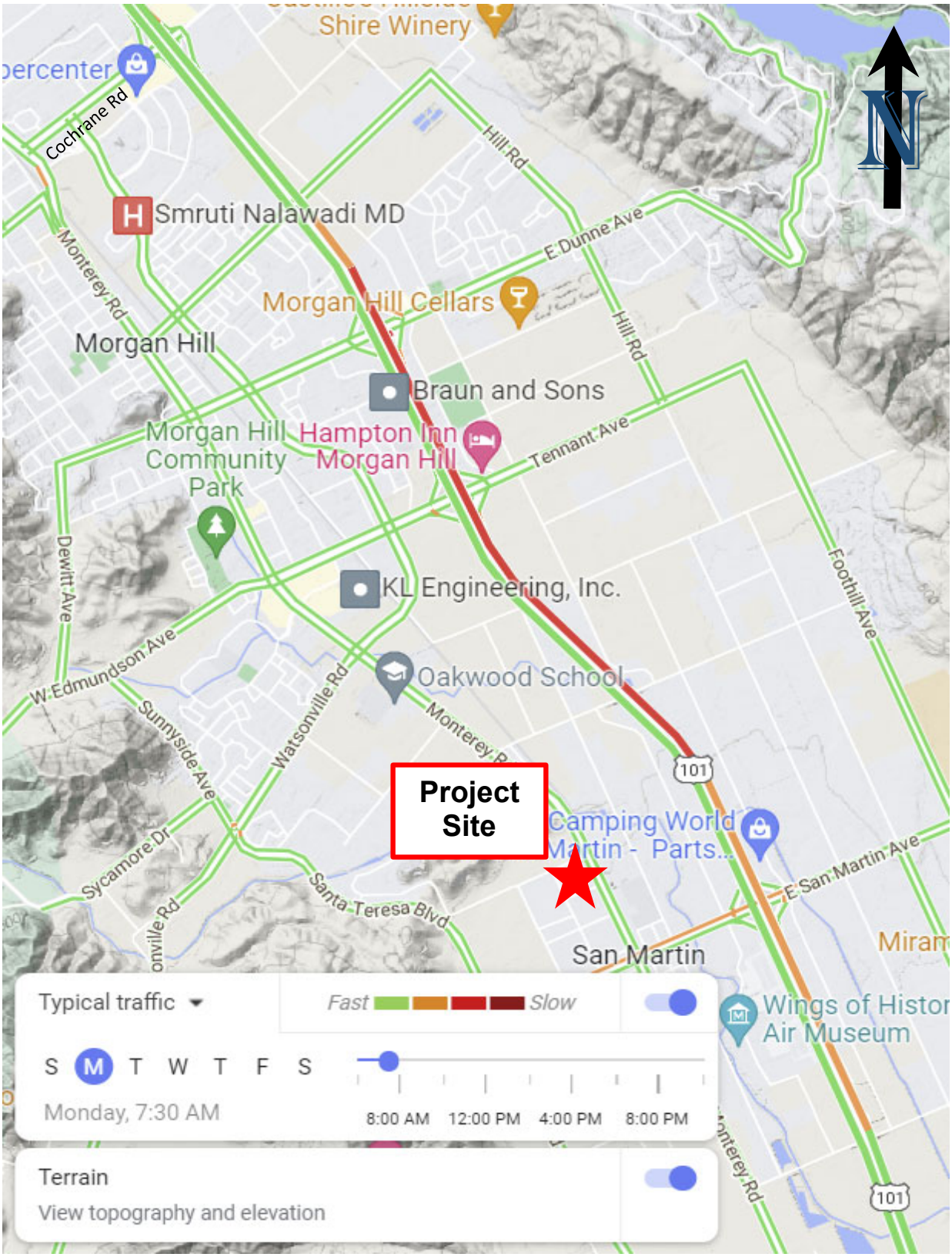
Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to CITY OF CAMPBELL

Appendix G

AM Vehicle

Delay Documentation



Basemap Source: Google Maps, 2021.

Appendix H

Sight Distance

Calculations

Appendix H
Sight Distance Evaluation
Caltrans Method (Highway Design Manual)

Project Name:	San Martin NWC #5
Location:	California Ave, Eastbound
Date:	10/6/20
Prepared by:	Jeff Waller

A. Data:

Vehicle Type:	Combination Truck	
Type of Maneuver:	Left Turn	
Number of Lanes Crossed When Making Maneuver:	2	lanes
Median Width:	12	feet (including left turn lanes)
Travel Speed:		
Northbound:	55	mph
Southbound:	55	mph
Grade:		
Stopped Approach:	0.00%	

B. Corner Sight Distance

Sight Distance Standard:			
To/From North:	1,043	feet	
To/From South:	1,043	feet	
Available Sight Distance:			
To/From North:	850	feet	**Deficient**
To/From South:	1,000	feet	**Deficient**

C. Stopping Sight Distance

Sight Distance Standard:			
To/From North:	500	feet	
To/From South:	500	feet	
Available Sight Distance:			
To/From North:	850	feet	**Adequate**
To/From South:	1,000	feet	**Adequate**

D. Overall Conclusion

To/From North:	**Adequate**
To/From South:	**Adequate**

Appendix H
Sight Distance Evaluation
Caltrans Method (Highway Design Manual)

Project Name:	San Martin NWC #5
Location:	Monterey Road Driveway, Eastbound
Date:	10/6/20
Prepared by:	Jeff Waller

A. Data:

		Applicable?	
Location Type:	Private Driveway	Corner	No
Vehicle Type:	Combination Truck	Stopping	Yes
Type of Maneuver:	Left Turn		
Number of Lanes Crossed When Making Maneuver:	1 lanes		
Median Width:	0 feet (including left turn lanes)		
Travel Speed:			
Northbound:	55 mph		
Southbound:	55 mph		
Grade:			
Stopped Approach:	0.00%		

B. Corner Sight Distance

Does not apply to Private Intersections and Driveways

C. Stopping Sight Distance

Sight Distance Standard:		
To/From North:	500 feet	
To/From South:	500 feet	
Available Sight Distance:		
To/From North:	490 feet	**Deficient**
To/From South:	800 feet	**Adequate**

D. Overall Conclusion

To/From North:	**Deficient**
To/From South:	**Adequate**

Appendix I

Vehicle Queue

Calculations

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Southbound Left Turn
Analysis Period: AM Peak Hour

Existing Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	116
Volume (vphpl)	116
Average Queue (veh/ln)	3.87
Percentile	0.95
95% Queue (veh/ln)	7

Cumulative Probability	Queued Vehicles
0.021	0
0.102	1
0.258	2
0.459	3
0.654	4
0.805	5
0.902	6
0.956	7
0.982	8
0.993	9
0.998	10
0.999	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Existing Plus Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	120
Volume (vphpl)	120
Average Queue (veh/ln)	4
Percentile	0.95
95% Queue (veh/ln)	8

Cumulative Probability	Queued Vehicles
0.018	0
0.092	1
0.238	2
0.433	3
0.629	4
0.785	5
0.889	6
0.949	7
0.979	8
0.992	9
0.997	10
0.999	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Southbound Left Turn
Analysis Period: PM Peak Hour

Existing Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	157
Volume (vphpl)	157
Average Queue (veh/ln)	3.05
Percentile	0.95
95% Queue (veh/ln)	6

Cumulative Probability	Queued Vehicles
0.047	0
0.192	1
0.412	2
0.636	3
0.807	4
0.911	5
0.964	6
0.987	7
0.996	8
0.999	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Existing Plus Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	158
Volume (vphpl)	158
Average Queue (veh/ln)	3.07
Percentile	0.95
95% Queue (veh/ln)	6

Cumulative Probability	Queued Vehicles
0.046	0
0.189	1
0.408	2
0.632	3
0.803	4
0.909	5
0.963	6
0.987	7
0.996	8
0.999	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Westbound Right Turn
Analysis Period: AM Peak Hour

Existing Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	325
Volume (vphpl)	325
Average Queue (veh/ln)	10.83
Percentile	0.95
95% Queue (veh/ln)	16

Cumulative Probability	Queued Vehicles
0.000	0
0.000	1
0.001	2
0.006	3
0.017	4
0.042	5
0.086	6
0.155	7
0.247	8
0.359	9
0.480	10
0.600	11
0.707	12
0.797	13
0.866	14
0.916	15
0.950	16
0.972	17
0.985	18
0.992	19
0.996	20
0.998	21
0.999	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Existing Plus Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	325
Volume (vphpl)	325
Average Queue (veh/ln)	10.83
Percentile	0.95
95% Queue (veh/ln)	16

Cumulative Probability	Queued Vehicles
0.000	0
0.000	1
0.001	2
0.006	3
0.017	4
0.042	5
0.086	6
0.155	7
0.247	8
0.359	9
0.480	10
0.600	11
0.707	12
0.797	13
0.866	14
0.916	15
0.950	16
0.972	17
0.985	18
0.992	19
0.996	20
0.998	21
0.999	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Westbound Right Turn
Analysis Period: PM Peak Hour

Existing Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	115
Volume (vphpl)	115
Average Queue (veh/ln)	2.24
Percentile	0.95
95% Queue (veh/ln)	5

Cumulative Probability	Queued Vehicles
0.106	0
0.345	1
0.612	2
0.811	3
0.923	4
0.973	5
0.992	6
0.998	7
0.999	8
1.000	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Existing Plus Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	115
Volume (vphpl)	115
Average Queue (veh/ln)	2.24
Percentile	0.95
95% Queue (veh/ln)	5

Cumulative Probability	Queued Vehicles
0.106	0
0.345	1
0.612	2
0.811	3
0.923	4
0.973	5
0.992	6
0.998	7
0.999	8
1.000	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Southbound Left Turn
Analysis Period: AM Peak Hour

Cumulative Without Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	129
Volume (vphpl)	129
Average Queue (veh/ln)	4.3
Percentile	0.95
95% Queue (veh/ln)	8

Cumulative Probability	Queued Vehicles
0.014	0
0.072	1
0.197	2
0.377	3
0.570	4
0.737	5
0.856	6
0.929	7
0.968	8
0.987	9
0.995	10
0.998	11
0.999	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Cumulative Plus Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	133
Volume (vphpl)	133
Average Queue (veh/ln)	4.43
Percentile	0.95
95% Queue (veh/ln)	8

Cumulative Probability	Queued Vehicles
0.012	0
0.065	1
0.182	2
0.354	3
0.545	4
0.715	5
0.840	6
0.919	7
0.963	8
0.984	9
0.994	10
0.998	11
0.999	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Southbound Left Turn
Analysis Period: PM Peak Hour

Cumulative Without Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	167
Volume (vphpl)	167
Average Queue (veh/ln)	3.25
Percentile	0.95
95% Queue (veh/ln)	6

Cumulative Probability	Queued Vehicles
0.039	0
0.165	1
0.370	2
0.591	3
0.772	4
0.889	5
0.952	6
0.982	7
0.994	8
0.998	9
0.999	10
1.000	11
1.000	12
1.000	13
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1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Cumulative Plus Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	168
Volume (vphpl)	168
Average Queue (veh/ln)	3.27
Percentile	0.95
95% Queue (veh/ln)	6

Cumulative Probability	Queued Vehicles
0.038	0
0.162	1
0.365	2
0.587	3
0.768	4
0.886	5
0.951	6
0.981	7
0.993	8
0.998	9
0.999	10
1.000	11
1.000	12
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1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Westbound Right Turn
Analysis Period: AM Peak Hour

Cumulative Without Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	395
Volume (vphpl)	395
Average Queue (veh/ln)	13.17
Percentile	0.95
95% Queue (veh/ln)	19

Cumulative Probability	Queued Vehicles
0.000	0
0.000	1
0.000	2
0.001	3
0.003	4
0.010	5
0.023	6
0.049	7
0.092	8
0.155	9
0.237	10
0.336	11
0.445	12
0.554	13
0.658	14
0.748	15
0.823	16
0.881	17
0.923	18
0.953	19
0.972	20
0.984	21
0.991	22
0.995	23
0.998	24
0.999	25
0.999	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Cumulative Plus Project Conditions

Cycle Length (sec)	120
Lanes	1
Volume (vph)	395
Volume (vphpl)	395
Average Queue (veh/ln)	13.17
Percentile	0.95
95% Queue (veh/ln)	19

Cumulative Probability	Queued Vehicles
0.000	0
0.000	1
0.000	2
0.001	3
0.003	4
0.010	5
0.023	6
0.049	7
0.092	8
0.155	9
0.237	10
0.336	11
0.445	12
0.554	13
0.658	14
0.748	15
0.823	16
0.881	17
0.923	18
0.953	19
0.972	20
0.984	21
0.991	22
0.995	23
0.998	24
0.999	25
0.999	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Vehicle Queue Estimates - Turning Movements

Intersection: 2. Monterey Road / San Martin Avenue
Movement: Westbound Right Turn
Analysis Period: PM Peak Hour

Cumulative Without Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	140
Volume (vphpl)	140
Average Queue (veh/ln)	2.72
Percentile	0.95
95% Queue (veh/ln)	6

Cumulative Probability	Queued Vehicles
0.066	0
0.245	1
0.489	2
0.710	3
0.860	4
0.942	5
0.979	6
0.993	7
0.998	8
0.999	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Cumulative Plus Project Conditions

Cycle Length (sec)	70
Lanes	1
Volume (vph)	140
Volume (vphpl)	140
Average Queue (veh/ln)	2.72
Percentile	0.95
95% Queue (veh/ln)	6

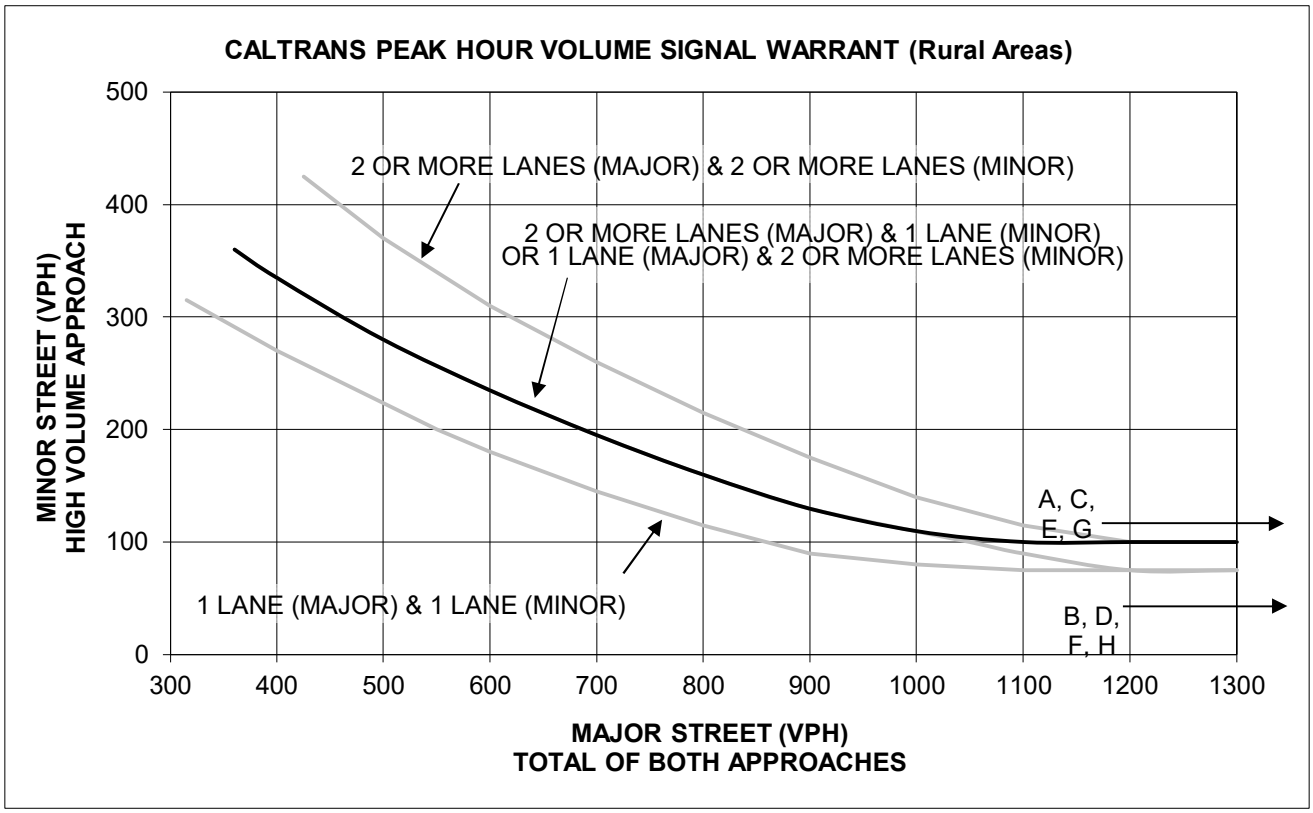
Cumulative Probability	Queued Vehicles
0.066	0
0.245	1
0.489	2
0.710	3
0.860	4
0.942	5
0.979	6
0.993	7
0.998	8
0.999	9
1.000	10
1.000	11
1.000	12
1.000	13
1.000	14
1.000	15
1.000	16
1.000	17
1.000	18
1.000	19
1.000	20
1.000	21
1.000	22
1.000	23
1.000	24
1.000	25
1.000	26
1.000	27
1.000	28
1.000	29
1.000	30
1.000	31
1.000	32
1.000	33
1.000	34
1.000	35

Appendix J

Warrant

Worksheets

Intersection #1
Monterey Road / California Avenue



Scenario	Monterey	California	Warrant
	North/South	East/West	Met?
A. Exist AM	2087	122	Yes
B. Exist PM	1676	50	No
C. E+P AM - Mont	2088	122	Yes
D. E+P PM - Mont	1679	50	No
E. CumNoPro AM	2587	147	Yes
F. CumNoPro PM	2223	65	No
G. C+P AM - Mont	2588	147	Yes
H. C+P PM - Mont	2226	65	No

Notes:

1. 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 approaching with one lane.
2. Bold line applies to intersection geometry.

Warrant 3 (Part B) - Peak Hour Delay
#1 - Monterey Road / California Avenue

Number of Approaches to Intersection: 3 approaches **Minimum Entering Vehicles: 650 vehicles**
Number of Approach Lanes: EB California: 1 lanes

Total Entering Volumes:

Existing AM:	2,209 vehicles		
Existing PM:	1,726 vehicles		
E+P AM - Mont:	2,210 vehicles	CumNoPro AM:	2,734 vehicles
E+P PM - Mont:	1,729 vehicles	CumNoPro PM:	2,288 vehicles
		C+P AM - Mont:	2,735 vehicles
		C+P PM - Mont:	2,291 vehicles

Street	Direction	Scenario	Peak Hour	No. of Stopped Vehicles	Average Vehicle Delay (sec)	Total Vehicle Delay (sec)	Total Delay (hours)	Min. Approach Delay? 4 Veh-Hrs (One-Lane)	Min. Approach Delay? 5 Veh-Hrs (Two-Lane)	Min. Approach Vols? 100 Veh (One-Lane)	Min. Approach Vols? 150 Veh (Two-Lane)	At least 650 Veh? (Intersection)	Warrant Met?
California	EB	Existing	AM	122	56.0	6,832	1.90	NO	N/A	YES	N/A	YES	NO
California	EB	Existing	PM	50	39.1	1,955	0.54	NO	N/A	NO	N/A	YES	NO
California	EB	E+P - Mont	AM	122	57.0	6,954	1.93	NO	N/A	YES	N/A	YES	NO
California	EB	E+P - Mont	PM	50	39.3	1,965	0.55	NO	N/A	NO	N/A	YES	NO
California	EB	CumNoPro	AM	147	218.8	32,164	8.93	YES	N/A	YES	N/A	YES	YES
California	EB	CumNoPro	PM	65	155.5	10,108	2.81	NO	N/A	NO	N/A	YES	NO
California	EB	C+P - Mont	AM	147	236.3	34,736	9.65	YES	N/A	YES	N/A	YES	YES
California	EB	C+P - Mont	PM	65	157.1	10,212	2.84	NO	N/A	NO	N/A	YES	NO

Notes:
1. Warrant based on level of service calculations.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. N/A = Not Applicable - this evaluation does not apply to that approach.