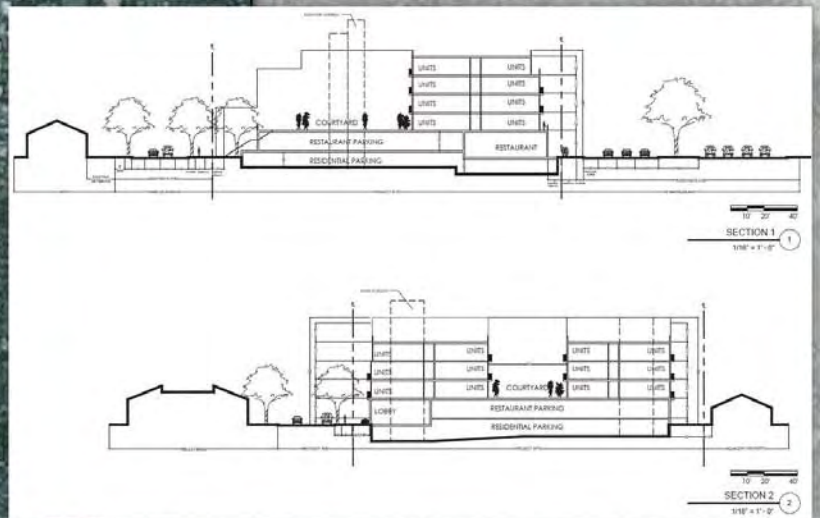




Final Transportation Impact Analysis

311 South Mathilda Avenue

May 2018



**311 South Mathilda Avenue
Sunnyvale, CA**

TRANSPORTATION IMPACT ANALYSIS

FINAL REPORT

**Prepared For:
The City of Sunnyvale**

Prepared By



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

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May 2018

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AUTO TRIP REDUCTION STATEMENT

UPDATED: October 2014



PROJECT INFORMATION		Relevant TIA Section:	Project Description	
Project Name: 311 South Mathilda Avenue				
Location: 311 S. Mathilda Avenue, Sunnyvale, CA				
Description: Development of 75 new residential apartments (including 4 townhomes and 6 affordable housing units) and 4,860 square feet of commercial space with parking structure on a 1.01 acre site containing a 4,057 square foot Denny's restaurant (to be demolished).				
Size (net new):	75	D.U. Residential	4,860	Sq. Ft. Comm. 1.01 Acres (Gr.)
Density:	75	D.U. / Acre	Floor Area Ratio (FAR)	
Located within 2000 feet walking distance of an LRT, BRT, BART or Caltrain station or major bus stop? Yes				

PROJECT AUTO TRIP GENERATION		Relevant TIA Section:	Project Generated Trips	
Auto Trips Generated:	96	AM Pk Hr	107	PM Pk Hr 1,198 Total Weekday
Methodology (check one)	<input checked="" type="checkbox"/> ITE		<input type="checkbox"/> Other (Please describe below)	
ITE methodology was used to calculate raw trips generated by the apartment, townhome, and commercial portion of the project. Trip rates found in City of Los Angeles Traffic Impact Study Guidelines (December 2016) were used for the affordable housing units.				

AUTO TRIP REDUCTION APPROACH		Relevant TIA Section:	Project Generated Trips	
<input checked="" type="checkbox"/> Standard Complete Table A below	<input type="checkbox"/> Peer/Study-Based Complete Table B below	<input type="checkbox"/> Target-Based Complete Table C below	<input type="checkbox"/> None Taken	

TRIP REDUCTION REQUIREMENTS		Relevant TIA Section:	Project Generated Trips	
Is the project required to meet any trip reduction requirements or targets? Yes		If so, specify percent: 17%		
Reference code or requirement: VTA TIA Guidelines (October 2014) Table 1				

TRIP REDUCTION APPROACHES

A. STANDARD APPROACH		Relevant TIA Section:	Project Generated Trips		
Type of Reduction Specify reduction. See Table 2 in TIA Guidelines		% Reduction from ITE Rates	Total Trips Reduced (AM/PM/Daily)	TOTAL REDUCTION CLAIMED	
				%	Trips
Transit	Housing near a Major Bus Stop	2%	2/2/23	17%	14 (AM)
Mixed-Use	With housing and retail components	15%	12/14/166	17%	16 (PM)
Financial Incentives				17%	189 (Daily)
Shuttle					

B. PEER/STUDY-BASED APPROACH		Relevant TIA Section:	Project Generated Trips		
Basis of Reduction				TOTAL REDUCTION CLAIMED	
				%	Trips

Last updated 11/4/2014

C. TARGET-BASED APPROACH			Relevant TIA Section:		
Type of Reduction (check all that apply)				TOTAL REDUCTION CLAIMED	
<input type="checkbox"/> % Trip Reduction	<input type="checkbox"/> % SOV mode share	<input type="checkbox"/> Trip Cap	%	Trips	
Description					
Time period for reduction	Peak Hour	Peak Period	Full Day		
	<input type="checkbox"/> AM/PM	<input type="checkbox"/> AM/PM	<input type="checkbox"/>		

OTHER TDM/REDUCTION MEASURES			
Bicycle/Pedestrian	Yes	Relevant TIA Section:	Transportation Demand Management Program
The proposed project plans to provide 54 secured bicycle storage spaces for residents and approximately six (6) bicycle rack spaces for commercial customers.			
Parking Management	Yes	Relevant TIA Section:	Transportation Demand Management Program
The project plans to designate 11 electric vehicle residential parking spaces.			
Transit	Yes	Relevant TIA Section:	
The project will be located less than 0.5 miles from a Caltrain Station.			
Site Planning and Design	No	Relevant TIA Section:	
TDM Program	Yes	Relevant TIA Section:	Transportation Demand Management Program
The project will follow City of Sunnyvale TDM guidelines. The project specific TDM Program lists the following elements: on-site wayfinding station providing multi-modal and transit information; on-site TDM Coordinator offering: multi-modal and wayfinding information, rideshare matching, walking/biking group coordination; distribution of transit and wayfinding information to residents.			

IMPLEMENTATION		Relevant TIA Section:
Transportation Demand Management Program		
Have the project sponsor and Lead Agency agreed to any of the following measures?		
<input checked="" type="checkbox"/> Monitoring	The Project will follow City of Sunnyvale TDM monitoring system guidelines. (Typical requirements could include annual traffic counts for the Project, etc.)	
<input checked="" type="checkbox"/> Enforcement	The Project will follow City of Sunnyvale TDM monitoring system guidelines. (Typically, if the proposed Project is found to be in non-compliance, a penalty fee may be imposed based on trip reduction percentage achieved.)	
<input checked="" type="checkbox"/> Data Sharing	The Project will follow City of Sunnyvale TDM monitoring system guidelines. (Typical requirements could include an annual TDM report submitted to the City including all traffic count information.)	

EXECUTIVE SUMMARY

This report has been prepared to present the results of a Transportation Impact Analysis (TIA) performed by Wood Rodgers, Inc. for the proposed 311 South Mathilda Avenue Development (Project) in Sunnyvale, California. This analysis has been performed to determine any impacts the proposed Project may have on surrounding transportation facilities and potential mitigation measures that could be implemented to address any significant impacts. This TIA report was prepared in accordance with City of Sunnyvale and Santa Clara Valley Transportation Authority (VTA) guidelines.

The Project site currently contains an existing 4,057-square-foot Denny's restaurant which will be demolished to accommodate the construction of 4,860-square-feet of commercial buildings, 75 residential apartments (including 4 townhouse type units and 6 affordable housing units), courtyard, and parking structure.

PROJECT GENERATED TRIPS

New trips generated by the proposed Project were estimated using rates from the *Institute of Transportation Engineers Trip Generation Manual, 9th Edition*. A 15 percent mixed-use reduction and a two (2) percent proximity to major bus stop reduction were applied to the trip generation estimates, consistent with the VTA Trip Reduction Statement and the VTA Standard Trip Reduction Method. Trips from the existing 4,057-square-foot Denny's restaurant were subtracted from the proposed Project's trip generation. The proposed Project is anticipated to generate a total of 503 daily, 39 AM peak hour (8 inbound, 31 outbound), and 52 PM peak hour (35 inbound, 17 outbound) net new trips under typical traffic demand conditions.

INTERSECTION OPERATIONS, IMPACTS, AND MITIGATION MEASURES

This TIA report analyzed 17 "study" intersections under "Existing", "Existing plus Project", "Background", "Background plus Project", "Cumulative", and "Cumulative plus Project" AM and PM peak hour conditions. Based on direction from City staff, the "Cumulative plus Project" scenario in this TIA also includes analysis of traffic from a proposed Affordable Housing Development located just south of the Project site on the northwest quadrant of the Mathilda Avenue / Iowa Avenue intersection. HCM 2000 based analysis was performed using TRAFFIX and Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) was also checked for all unsignalized study intersections. Level of service standards and significance criteria used in this TIA were based on VTA and City of Sunnyvale guidelines.

The Mathilda Avenue intersections with Ross Drive, State Route 237 (SR 237) Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive are projected to operate at unacceptable AM and/or PM peak hour LOS "F" under "Background", "Background plus Project", "Cumulative", and "Cumulative plus Project" conditions. The Mathilda Avenue intersections with Washington Avenue and California Avenue are projected to operate at unacceptable PM peak hour LOS "F" under "Cumulative" and "Cumulative plus Project" conditions.

Based on the VTA and City of Sunnyvale significance criteria used in this TIA, the Project was found to have "**less than significant**" impacts on all 17 study intersections under "Existing plus Project", "Background plus Project", and "Cumulative plus Project" AM and PM peak hour conditions.

FREEWAY SEGMENT/RAMP OPERATIONS, IMPACTS, AND MITIGATION MEASURES

This TIA report analyzed four (4) "study" freeway segments and four (4) "study" freeway ramps under "Existing" and "Existing plus Project" AM and PM peak hour conditions. Freeway segment

operations were quantified using density based level of service, and freeway ramp operations were quantified using volume to capacity (V/C) ratios. Level of service and V/C ratio standards as well as freeway segment/ramp significance criteria used in this TIA were based on VTA and City of Sunnyvale guidelines.

Based on the VTA and City of Sunnyvale significance criteria used in this TIA, the Project was found to have “**less than significant**” impacts on all four (4) study freeway segments and all four (4) study freeway ramps under “Existing plus Project” AM and PM peak hour conditions.

SITE ACCESS AND CIRCULATION

The proposed Project would gain access to the nearby roadway network via three (3) proposed Project Driveways:

- **Project Driveway (Restaurant Parking Access)** - A right-in right-out driveway on Mathilda Avenue approximately 150 feet south of McKinley Avenue. This driveway would provide access to the ground level restaurant parking spaces only.
- **Project Driveway (Residential Parking Access)**: A left-out restricted driveway on McKinley Avenue approximately 160 feet west of Mathilda Avenue. This driveway would provide access to the lower-level residential parking spaces only.
- **Project Driveway (Trash Pick-Up)**: A full-access driveway on Charles Street approximately 200 feet south of McKinley Avenue. This driveway would not provide access to any parking spaces and would only be used for trash pick-up or by residents moving in.

HCM 2000 queuing analysis was performed at the Project driveways under the “plus Project” conditions and it was found that queuing would not exceed the proposed Project Driveway egress throat depths and therefore would not block internal circulation. Westbound left-turn queues caused by vehicles entering the proposed residential Project Driveway on McKinley Avenue were projected to not exceed 25 feet or one (1) vehicle and therefore would not back up to the adjacent Mathilda Avenue / McKinley Avenue intersection. Vehicles, pedestrians, and bicycles are projected to be able to navigate the internal roadway/walkway system without issue, therefore no internal roadway improvements beyond those shown in the current site plan are recommended.

PROJECT DRIVEWAY SIGHT DISTANCE

Sight distance analysis was performed for all proposed Project Driveways based on criteria found in *A Policy on Geometric Design of Highways and Streets 2011 6th Edition* (AASHTO Green Book, by American Association of State Highway and Transportation Officials, last updated November 2013). The sight distance analysis found that the proposed Project Driveway (Residential Parking Access) and Project Driveway (Trash Pick-Up) are not projected to meet all minimum sight distance requirements as defined in the AASHTO Green Book. The proposed Project Driveway (Restaurant Parking Access) is projected to meet all minimum sight distance requirements as defined in the AASHTO Green Book. However, the AASHTO Green Book states that it may not always be practical for driveways to meet all roadway sight distance criteria.

It is recommended that the proposed Project Driveway (Residential Parking Access) be relocated to Charles Street, approximately 175 feet south of McKinley Avenue, in order to meet minimum sight distance requirements defined in the AASHTO Green Book. In order to provide an unobstructed view for vehicles exiting the Project site at this location, “no parking” zones would need to be installed, using appropriate markings or signage, extending a minimum 20 feet beyond the proposed driveway in either direction along the east side of Charles Street.

ON-SITE PARKING

Based on the City of Sunnyvale Municipal Code Sections 19.28.140 and 19.46, and parking reductions allowed under the California State Density Bonus Law, the proposed residential portion of the Project site would be required to provide a minimum of 51 vehicular parking spaces and 19 secured bicycle parking spaces. The Project site plan proposes 82 vehicular parking spaces and 54 secured bicycle parking spaces in the lower-level residential parking structure, which exceed City Municipal Code requirements.

Based on the City of Sunnyvale Municipal Code Sections 19.28.140 and 19.46, the proposed commercial portion of the Project site would be required to provide a minimum of 45 vehicular parking spaces and three (3) bicycle parking spaces. The Project site plan proposes 47 vehicular parking spaces and six (6) bicycle parking spaces in the ground-level commercial parking lot, which exceed City Municipal Code requirements.

TRANSIT IMPACTS

Project impact on peak hour bus route delay in the study area was estimated by summing projected increases in vehicle delay along the bus routes. The Project was found to increase delay of nearby bus routes 54, 22/522, 53, and 32 by up to 18 seconds, depending on route and direction. The projected small increases in transit vehicle delay should not affect the overall schedule of the transit routes.

PEDESTRIAN IMPACTS

There are sidewalks fronting the full length of the project site on Mathilda Avenue, McKinley Avenue, and Charles Street. Pedestrians can use the continuous sidewalks on Mathilda Avenue, El Camino Real, Olive Avenue, McKinley Avenue, and/or Washington Avenue within the Project vicinity, as well as the pedestrian crosswalks with push buttons which exist on all legs of the Mathilda Avenue intersections with El Camino Real, Olive Avenue, McKinley Avenue and Washington Avenue, to access the Sunnyvale Transit Center, Sunnyvale Caltrain Station, and various other mid-block bus stops all located within a half-mile walk of the Project site. Curb ramps are provided on all corners of the two-way stop-controlled Charles Street intersections with McKinley Avenue and Iowa Avenue, but crosswalks on all four legs of these two intersections are currently unmarked.

BICYCLE IMPACTS

According to City staff, there is a proposed improvement project which would install Class II bike lanes along Mathilda Avenue adjacent to the Project site. These Class II bike lanes are projected to be completed by Project opening day, and therefore could be used by future Project residents, customers, and employees to access the project site and surrounding bike lane network. Bicyclists will be able to use existing or planned bike lane and route facilities on Mathilda Avenue, Evelyn Avenue, Sunnyvale Avenue, Olive Avenue, and Central Expressway, among others, to travel between the Project site and Sunnyvale Transit Center, Sunnyvale Caltrain Station, and other nearby mid-block bus stops. The proposed Project will install secured bike storage and bike racks at the Project site.

VEHICLE QUEUING

Queuing analysis for AM and PM peak hour left-turn movements was performed at all study intersection approaches that contained one or more left-turn pockets, under “Existing”, “Existing plus Project”, “Background”, “Background plus Project”, “Cumulative”, and “Cumulative plus Project”

conditions. Project and/or Affordable Housing Development generated trips are projected to cause queuing deficiencies at the following locations, under the specified conditions:

- Intersection 1 – Mathilda Avenue / El Camino Real – Southbound left-turn movement under “Cumulative plus Project” PM peak hour conditions and eastbound left-turn movement under “Background plus Project” and “Cumulative plus Project” PM peak hour conditions.
- Intersection 4 – Mathilda Avenue / Iowa Avenue – Eastbound left-turn movement under “Cumulative plus Project” AM and PM peak hour conditions.
- Intersection 8 – Mathilda Avenue / McKinley Avenue – Eastbound left-turn movement under “Cumulative plus Project” AM peak hour conditions.
- Intersection 9 – Mathilda Avenue / Washington Avenue – Westbound left-turn movement under “Cumulative plus Project” PM peak hour conditions.

Lengthening the eastbound left-turn pocket at the Mathilda Avenue / El Camino Real intersection by 200 feet may alleviate PM peak hour queues; however, AM peak hour queues under “Existing” conditions would continue to exceed available storage length. Therefore, lengthening the eastbound left-turn pocket may not be feasible. For all other queuing deficiencies, lengthening the corresponding left-turn pockets would likely not be feasible due to site constraints. Project related queuing deficiencies could be improved by implementation of the City’s Intelligent Transportation System (ITS) strategies and projects. The City is proposing to implement a fully coordinated and interconnected traffic management system to improve signal operations and vehicle progression which could alleviate queuing issues. The proposed Project will contribute towards the ITS projects through the City’s Transportation Impact Fee.

1. INTRODUCTION

This report has been prepared to present the results of a Transportation Impact Analysis performed by Wood Rodgers, Inc. for the proposed 311 South Mathilda Avenue Development in Sunnyvale, California. This analysis has been performed to determine any impacts the proposed Project may have on surrounding transportation facilities and potential mitigation measures that could be implemented to address any significant impacts. This TIA report was prepared in accordance with City of Sunnyvale and Santa Clara Valley Transportation Authority guidelines. This introduction outlines Project description, study area, analysis scenarios, analysis methods, significance criteria, and organization of the overall report.

1.1 PROJECT DESCRIPTION

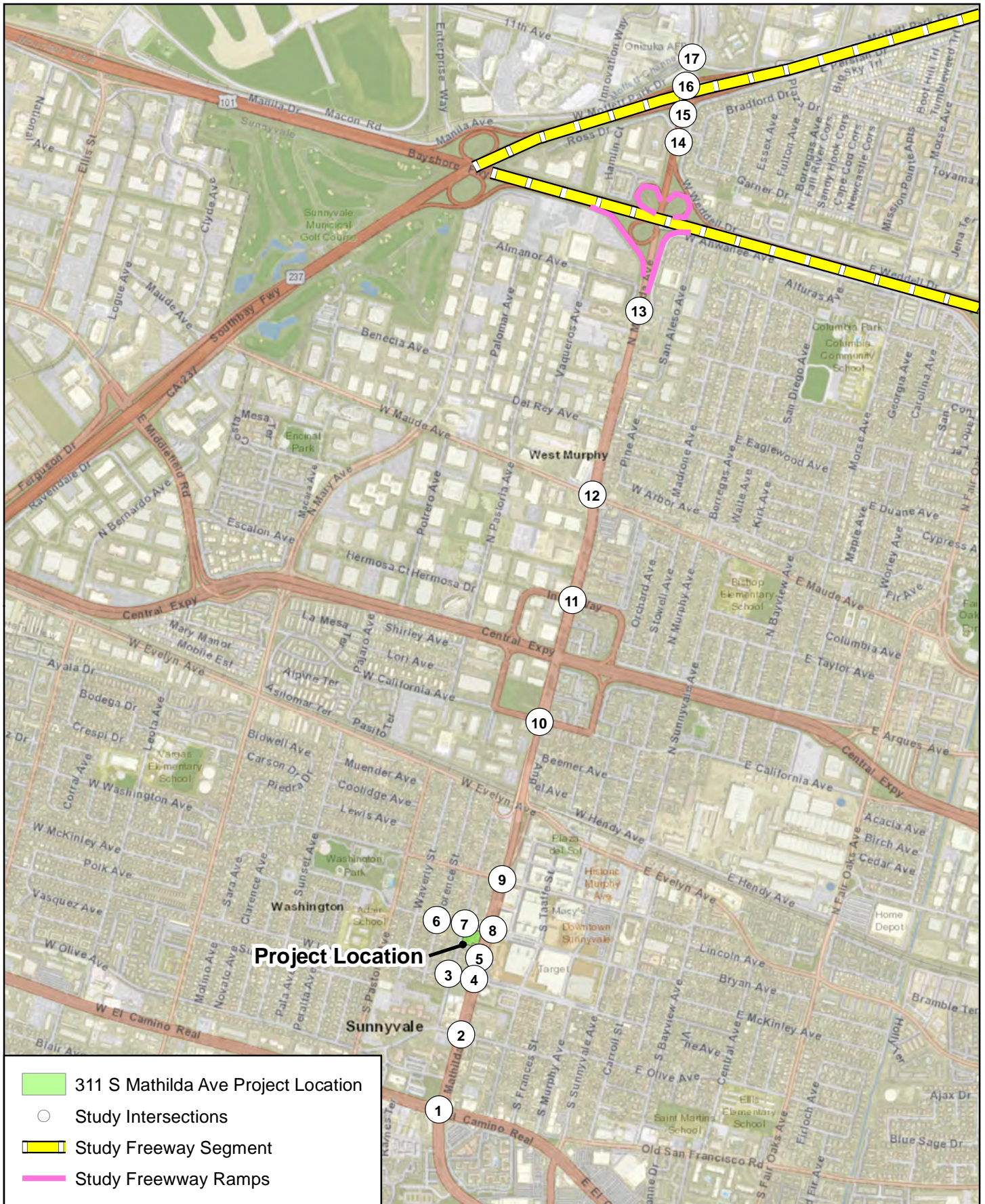
The Project site consists of a 1.01 acre lot located on the southwest quadrant of the South Mathilda Avenue / McKinley Avenue intersection in the Downtown Specific Plan Area in Sunnyvale, CA (City). The site is generally bound by Charles Street to the west, McKinley Avenue to the north, South Mathilda Avenue to the east, and single family residential to the south. The Project site location is shown on the map in **Figure 1**.

The proposed Project site plan (by Studio T Square, dated 03/21/2018) is shown in **Figure 2**. The full version of the most recent Project site plan is also included in **Appendix M**. There is an existing 4,057-square-foot (approximate) Denny's restaurant located at the existing Project site, which will be demolished to accommodate the new construction. The existing land use is commercial, and the site is zoned for very high density residential and commercial. The Project proposes 4,860-square-feet of commercial (restaurant) frontage along Mathilda Avenue and 75 residential units, approximately six (6) of which will be designated affordable to very low income households under the California State Density Bonus Law. Four of the residential units along Charles Street would be townhouse type units to reduce the scale towards the single-family neighborhood. The site also includes a two-floor parking structure located below the residential units and a central podium courtyard which will provide open space for the residents. The proposed Project site will consist of five (5) floors once completed. The basement floor will be a parking level for residents only. The ground floor will include the proposed commercial space, commercial parking area, townhomes, and apartment complex lobby and leasing office. The four upper floors will include apartment units and courtyard.

The existing site has three (3) access driveways, one fronting Charles Street, one fronting McKinley Avenue, and one fronting South Mathilda Avenue. The Project also proposes three (3) access driveways. A commercial parking (ground level) access driveway would be located off of South Mathilda Avenue in approximately the same location as the existing Denny's South Mathilda Avenue Driveway. A residential parking (lower-level) access driveway would be located off of McKinley Avenue in the northwest corner of the Project site. A trash pick-up / move-in only driveway would be located off of Charles Street on the southwest corner of the Project site.

1.1.1 AFFORDABLE HOUSING DEVELOPMENT

Based on direction from City staff, traffic generated by a proposed Affordable Housing Development located on the northwest quadrant of the Mathilda Avenue / Iowa Avenue intersection was also analyzed under the Cumulative plus Project section of this TIA. The proposed Affordable Housing Development is a separate project from the 311 South Mathilda Avenue Development. While no final site plan or land uses are available, this TIA assumed that the Affordable Housing Development would consist of approximately 92 affordable housing units (a portion of which would be designated as supportive housing for disabled persons) and approximately 5,400 square-feet of commercial space. It was also assumed the proposed Affordable Housing Development would have one full access driveway on Iowa Avenue.



Project Location and Study Facilities
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

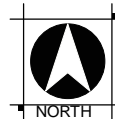
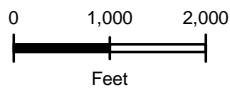


Figure 1



Figure 2. Project Site Plan



1.2 STUDY AREA

The study area generally extends along Mathilda Avenue between El Camino Real and Moffett Park Drive, along Iowa Avenue between Charles Street and Mathilda Avenue, along Charles Street between Iowa Avenue and McKinley Avenue, along McKinley Avenue between Charles Street and Mathilda Avenue, along SR 237 between US 101 and Fair Oaks Avenue, and along US 101 between SR 237 and Fair Oaks Avenue.

Study facilities include the intersections, freeway segments, and freeway ramps as discussed below.

1.2.1 INTERSECTIONS

Intersections were selected for analysis using *VTA TIA Guidelines* criteria thresholds, engineering judgement, and coordination with City staff. Intersections that may experience impacts from the proposed Project, based on a preliminary trip generation and distribution, were included. The list of study intersections was reviewed and approved by City staff before beginning this TIA. The following 17 existing study intersections were analyzed in this TIA:

1. Mathilda Avenue / El Camino Real
2. Mathilda Avenue / Olive Avenue
3. Charles Street / Iowa Avenue*
4. Mathilda Avenue / Iowa Avenue
5. Mathilda Avenue / Project Driveway (Restaurant Parking Access)*
6. Charles Street / McKinley Avenue*
7. Project Driveway (Residential Parking Access) / McKinley Avenue*
8. Mathilda Avenue / McKinley Avenue
9. Mathilda Avenue / Washington Avenue
10. Mathilda Avenue / California Avenue
11. Mathilda Avenue / Indio Avenue
12. Mathilda Avenue / Maude Avenue
13. Mathilda Avenue / Almanor Avenue/Ahwanee Avenue
14. Mathilda Avenue / Ross Drive
15. Mathilda Avenue / SR 237 Eastbound Ramps
16. Mathilda Avenue / SR 237 Westbound Ramps
17. Mathilda Avenue / Moffett Park Drive

Unsignalized study intersections are indicated with an “*” above. All other study intersections are signalized. The above study intersections are also shown on **Figure 1**.

1.2.2 FREEWAY SEGMENTS

Freeway segments were selected for analysis based on *VTA TIA Guidelines*, engineering judgement, and coordination with City staff. The following four (4) existing study freeway segments were analyzed in this TIA:

1. SR 237 – Between US 101 and Mathilda Avenue
2. SR 237 – Between Mathilda Avenue and Fair Oaks Avenue
3. US 101 – Between SR 237 and Mathilda Avenue
4. US 101 – Between Mathilda Avenue and Fair Oaks Avenue

1.2.3 FREEWAY RAMPS

Freeway ramps were selected for analysis based on *VTA TIA Guidelines*, engineering judgement, input from Caltrans, and coordination with City staff. The following four (4) existing study freeway ramps were analyzed in this TIA:

1. US 101 Northbound Off-Ramp to Southbound Mathilda Avenue
2. US 101 Northbound On-Ramp from Northbound Mathilda Avenue
3. US 101 Southbound Off-Ramp to Southbound Mathilda Avenue
4. US 101 Southbound On-Ramp from Northbound Mathilda Avenue

1.2.4 PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

This TIA analyzes Project impacts to pedestrian, bicycle, and transit facilities within an approximately half-mile radius around the Project site.

1.3 ANALYSIS SCENARIOS

The 17 study intersections were evaluated under AM and PM peak hour conditions for the following scenarios:

- **Existing Conditions:** Existing traffic volumes from counts.
- **Existing plus Project Conditions:** Existing traffic volumes plus traffic projected to be generated by the proposed Project.
- **Background Conditions:** Existing volumes plus traffic from “approved but not yet constructed or occupied” developments within an approximately one-mile radius of the Project site. Trips generated by the Project are **not** included.
- **Background plus Project Conditions:** Background volumes plus traffic projected to be generated by the proposed Project.
- **Cumulative Conditions:** Existing volumes plus traffic from “approved but not yet constructed or occupied” and “pending” developments within an approximately one-mile radius of the Project site plus an assumed yearly 1.5% growth rate to increase overall base Existing traffic volumes to a cumulative condition approximately 10 years in the future. Trips generated by the Project and a proposed Affordable Housing Development, another nearby anticipated development located on the northwest quadrant of the South Mathilda Avenue / Iowa Avenue intersection, are **not** included.
- **Cumulative plus Project Conditions:** Cumulative volumes plus traffic projected to be generated by the proposed Project and Affordable Housing Development.

Since the Project and the nearby Affordable Housing Development proposed land uses that are different from, and which could potentially generate more traffic than, build-out assumed for those parcels in the Downtown Specific Plan, a Cumulative and Cumulative plus Project analysis is being prepared as part of this TIA per the City’s request. The Cumulative plus Project analysis will consider development of both the 311 South Mathilda Avenue Project as well as the nearby Affordable Housing Development.

The four (4) study freeway segments and four (4) study freeway ramps were evaluated under Existing and Existing plus Project conditions only, per *VTA TIA guidelines*.

1.4 ANALYSIS METHODS

Traffic operations in this TIA have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. Level of Service “A” represents free-flow conditions with little to no delays, while LOS “F” represents jammed or grid-lock conditions.

1.4.1 SIGNALIZED INTERSECTIONS

Level of Service has been calculated for signalized intersections using methods documented in the Transportation Research Board Publication *Highway Capacity Manual, Fourth Edition, 2000* (HCM-2000), consistent with the *VTA Traffic Level of Service Analysis Guidelines*. For signalized intersections, the “average” intersection delay per vehicle, including all intersection movements, has been calculated and reported using either TRAFFIX or Synchro analysis software. TRAFFIX software was used to analyze all study area signalized intersections except for the Mathilda Avenue intersections with Ross Drive, SR 237 Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive, which were analyzed with Synchro software. Synchro was used at these four intersections because it is able to more accurately capture the specific weaving and lane change movements and corresponding delays that occur. The calculated signalized intersection delays correspond to the LOS designations shown in **Table 1**, which were derived from Exhibit 16-2 of HCM 2000 and are consistent with *VTA Traffic Level of Service Analysis Guidelines*.

1.4.2 UNSIGNALIZED INTERSECTIONS

Level of Service has been calculated for unsignalized intersections using methods documented in the Transportation Research Board Publication *Highway Capacity Manual, Fourth Edition, 2000* (HCM-2000), consistent with the *VTA Traffic Level of Service Analysis Guidelines*. For all-way-stop-controlled (AWSC) unsignalized intersections, the “average” intersection delay per vehicle, including all intersection movements, has been calculated and reported using TRAFFIX analysis software. For two-way-stop-controlled (TWSC) unsignalized intersections, the “worst case” movement delay, i.e. delay per vehicle of the intersection’s worst operating movement, has been calculated and reported using TRAFFIX analysis software. The calculated unsignalized intersection delays correspond to the LOS designations shown in **Table 2**, which were derived from Exhibits 17-2 and 17-22 of HCM 2000 and are consistent with *VTA Traffic Level of Service Analysis Guidelines*.

1.4.3 FREEWAY SEGMENTS AND RAMPS

As required by the *VTA TIA Guidelines*, freeway segment/ramp LOS has been evaluated under Existing and Existing plus Project conditions. Freeway segment/ramp LOS has been evaluated using density expressed as passenger cars per mile per lane (pcpmp), consistent with HCM methods and Santa Clara County standards. Density is used for evaluating freeways as it gives a good indication of a motorist’s ability to maneuver in a traffic stream. The ranges of densities that correspond to each freeway segment LOS are shown in **Table 3**. These density ranges are consistent with *VTA Traffic Level of Service Analysis Guidelines*. The density values for the LOS A/B, B/C, and C/D thresholds are based on values from HCM 2000. The LOS D/E and E/F thresholds are essentially based on Santa Clara County conditions.

1.4.4 INTERSECTION PARAMETERS

For all intersections modeled in TRAFFIX software, default peak hour factors and saturation flow rates were used as defined in the *VTA Traffic Level of Service Analysis Guidelines*. For all intersections modeled in Synchro software, peak hour factors obtained from traffic counts were used. Lower-than-average saturation flow rates of 1,400 vehicles per hour per lane were used for all Synchro intersections due to the closely-spaced nature of those intersections, as well as the high volumes of traffic turning on to and off of the SR 237 freeway ramps and adjacent side streets.

Table 1. HCM-2000 Based Signalized Intersection LOS Thresholds

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Free-flow conditions with negligible to minimal delays. Excellent progression with most vehicles arriving during the green phase and not having to stop at all. Nearly all drivers find freedom of operation.	delay \leq 10.0
B+	Good progression with slight delays. Short cycle-lengths typical. Relatively more vehicles stop than under LOS "A". Vehicle platoons are formed. Drivers begin to feel somewhat restricted within groups of vehicles.	10.0 < delay \leq 12.0
B		12.0 < delay \leq 18.0
B-		18.0 < delay \leq 20.0
C+	Relatively higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, although many still pass through without stopping. Most drivers feel somewhat restricted.	20.0 < delay \leq 23.0
C		23.0 < delay \leq 32.0
C-		32.0 < delay \leq 35.0
D+	Somewhat congested conditions. Longer but tolerable delays may result from unfavorable progression, long cycle lengths, and/or high volume-to-capacity ratios. Many vehicles are stopped. Individual cycle failures may be noticeable. Drivers feel restricted during short periods due to temporary back-ups.	35.0 < delay \leq 39.0
D		39.0 < delay \leq 51.0
D-		51.0 < delay \leq 55.0
E+	Congested conditions. Significant delays result from poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures occur frequently. There are typically long queues of vehicles waiting upstream of the intersection. Driver maneuverability is very restricted.	55.0 < delay \leq 60.0
E		60.0 < delay \leq 75.0
E-		75.0 < delay \leq 80.0
F	Jammed or grid-lock type operating conditions. Generally considered to be unacceptable for most drivers. Zero or very poor progression, with over-saturation or high volume-to-capacity ratios. Several individual cycle failures occur. Queue spillovers from other locations restrict or prevent movement.	delay > 80.0

Source: Traffic Level of Service Analysis Guidelines, June 2003; HCM-2000 Exhibit 16-2.

Table 2. HCM-2000 Based Unsignalized Intersection LOS Thresholds

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Free-flow conditions with negligible to minimal delays.	delay \leq 10.0
B	Good progression with slight delays.	10.0 < delay \leq 15.0
C	Relatively higher delays.	15.0 < delay \leq 25.0
D	Somewhat congested conditions with longer but tolerable delays.	25.0 < delay \leq 35.0
E	Congested conditions with significant delays.	35.0 < delay \leq 50.0
F	Jammed or grid-lock type operating conditions.	delay > 50.0

Source: Traffic Level of Service Analysis Guidelines, June 2003; HCM-2000 Exhibit 17-2 and 17-22.

Table 3. HCM-2000 Based Freeway Segment LOS Thresholds

Level of Service	Density (passenger cars/mile/lane)
A	density \leq 11.0
B	11.0 < density \leq 18.0
C	18.0 < density \leq 26.0
D	26.0 < density \leq 46.0
E	46.0 < density \leq 58.0
F	density > 58.0

Source: Traffic Level of Service Analysis Guidelines, June 2003; HCM-2000

1.5 LEVEL OF SERVICE STANDARDS AND IMPACT CRITERIA

1.5.1 INTERSECTION LEVEL OF SERVICE IMPACT CRITERIA

1.5.1.1 Signalized Intersections

The City of Sunnyvale currently utilizes LOS “D” as the minimum acceptable LOS threshold for signalized intersections within the City during the AM and PM peak periods, except for intersections that have been designated as regionally significant. Project impacts at City (not regionally significant) signalized intersections would be considered significant if one of the following criteria is met:

1. If the addition of project generated traffic to an intersection causes the AM or PM peak hour LOS of the intersection to degrade from an acceptable LOS “D” or better to an unacceptable LOS “E” or worse, then the impact is significant.
2. If an intersection operates at an unacceptable AM or PM peak hour LOS “E” or worse without the addition of project generated traffic, and the addition of project generated traffic increases the average control delay for critical movements by four (4) or more seconds and increases the critical volume-to-capacity (V/C) ratio by 0.01 or more, then the impact is significant.
 - a. If the addition of project traffic reduces the amount of average control delay for critical movements (i.e. a negative change in delay) and the project increases the critical V/C by 0.01 or more, then the impact is significant.

The City of Sunnyvale and VTA currently utilize LOS “E” as the minimum acceptable LOS threshold for signalized intersections that have been designated as regionally significant by the City, that have been designated as part of the Congestion Management Plan (CMP), or which are County intersections. CMP intersections within the study area include Mathilda Avenue / El Camino Real and Mathilda Avenue / Maude Avenue. All signalized study intersections along Mathilda Avenue and El Camino Real are considered regionally significant. Project impacts at regionally significant City intersections, CMP intersections, and County intersections would be considered significant if one of the following criteria is met:

1. If the addition of project generated traffic to an intersection causes the AM or PM peak hour LOS of the intersection to degrade from an acceptable LOS “E” or better to an unacceptable LOS “F”, then the impact is significant.
2. If an intersection operates at an unacceptable AM or PM peak hour LOS “F” without the addition of project generated traffic, and the addition of project generated traffic increases the average control delay for critical movements by four (4) or more seconds and increases the critical volume-to-capacity (V/C) ratio by 0.01 or more, then the impact is significant.
 - a. If the addition of project traffic reduces the amount of average control delay for critical movements (i.e. a negative change in delay) and the project increases the critical V/C by 0.01 or more, then the impact is significant.

1.5.1.2 Unsignalized Intersections

The City of Sunnyvale does not currently have an officially adopted significance criterion for unsignalized intersections. Based on previously approved traffic studies, significant impacts are defined to occur when the addition of project generated traffic causes the average intersection delay for all-way stop controlled intersections, or worst movement delay for two-way stop controlled intersections, to degrade to unacceptable levels (LOS “E” or worse for City intersections and LOS

“F” for regionally significant roadways) and the intersection satisfies the CA MUTCD peak-hour volume signal warrant.

1.5.1.3 Signal Warrants

In order to determine whether traffic signals should be installed at currently unsignalized intersections, a supplemental *California Manual on Uniform Traffic Control Devices*, last updated April 2017 (CA-MUTCD) based traffic signal warrant analysis was also completed. The term “signal warrants” refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an unsignalized intersection location. The CA-MUTCD signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, location of school areas, frequency and type of collisions, etc. This TIA evaluated CA-MUTCD based Peak-Hour-Volume-based Warrant 3 (Urban Areas) as a representative type of warrant analysis. However, the CA-MUTCD indicates that “the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.”

1.5.2 QUEUING

Vehicle queuing deficiencies were analyzed at all study intersections. 95th percentile queue lengths were reported for all left-turn movements at all study intersections. 95th percentile queues essentially represent a worst case queue length that will be reached or exceeded only 5% of the time during the peak hour (i.e. 95% of queues would be less than this length). Based on discussion with City staff, queuing deficiencies were considered to occur when one of the following conditions is met:

1. A queuing deficiency would occur when the addition of project trips causes the 95th percentile queue to exceed available storage length (when the 95th percentile queue did not exceed storage length before the addition of project trips).
2. Where the 95th percentile queue already exceeds the turn pocket length under “no project” conditions, a queuing deficiency would occur if project traffic lengthens the 95th percentile queue by 25 feet or more.

1.5.3 FREEWAY SEGMENT IMPACT CRITERIA

According to the *VTA Traffic Level of Service Analysis Guidelines*, the VTA currently utilizes LOS “E” as the minimum acceptable LOS threshold for CMP freeway segments. Project impacts at CMP freeway segments would be considered significant if one of the following criteria is met:

1. If the addition of project generated traffic to a CMP freeway segment causes the density-based LOS to degrade from an acceptable LOS “E” or better to an unacceptable LOS “F”, then the impact is significant.
2. If CMP freeway segment operates at an unacceptable density-based LOS “F” without the addition of project generated traffic, and the addition of project generated traffic increases the traffic volume on this segment by more than one (1) percent of the capacity of the segment, then the impact is significant.

1.5.4 FREEWAY RAMP IMPACT CRITERIA

A freeway ramp analysis was performed as part of this TIA in order to verify that the freeway ramps would have sufficient capacity to serve the Existing and Existing plus Project traffic volumes. For this TIA, Project impacts at freeway ramps would be considered significant if one of the following criteria is met:

1. If the addition of project generated traffic to a freeway ramp causes the V/C ratio of the freeway ramp to exceed 1.0, then the impact is significant.
2. If freeway ramp already has a V/C ratio of greater than 1.0 without the addition of project generated traffic, and the addition of project generated traffic increases the traffic volume on this ramp by more than one (1) percent of the capacity of the ramp, then the impact is significant.

1.6 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

- **Chapter 2: Existing Conditions** – Describes existing conditions and operations of the study area intersections, freeways, transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 3: Existing Plus Project Conditions** – Describes the methods used to estimate and distribute Project generated traffic and the resulting study area operations.
- **Chapter 4: Background Conditions** – Describes projected conditions and operations of study area facilities under Background (without Project) conditions.
- **Chapter 5: Background Plus Project Conditions** – Describes projected conditions and operations of study area facilities under Background plus Project conditions.
- **Chapter 6: Cumulative Conditions** – Describes projected conditions and operations of study area facilities under Cumulative (without Project and nearby Affordable Housing Development) conditions.
- **Chapter 7: Cumulative Plus Project Conditions** - Describes projected conditions and operations of study area facilities under Cumulative plus Project (including trips from the nearby Affordable Housing Development) conditions.
- **Chapter 8: Site Access and Circulation** – Describes site access and circulation for the Project site.
- **Chapter 9: Potential Effects on Transit, Bicycle, and Pedestrian Facilities and Services** – Describes potential effects the proposed Project will have on the transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 10: Impacts and Mitigation Measures** – Describes the projected impacts the Project will have on study area facilities (if any) and presents potential mitigations.
- **Chapter 11: Queuing Analysis, Deficiencies, and Recommended Improvements** – Describes vehicle queuing analysis for the study intersections, the projected operational queue deficiencies caused by the addition of Project trips to study intersections, and presents recommendations for improvements.

2. EXISTING CONDITIONS

This chapter describes the existing roadway and freeway network, transit services, pedestrian facilities, and bicycle facilities within the study area. It also presents existing turning movement volumes at study intersections and TRAFFIX/Synchro calculated intersection delays and LOS.

2.1 EXISTING ROADWAY NETWORK

This section provides descriptions of the study area roadways and freeways.

US 101 is an eight-lane freeway (three mixed-flow lanes and one HOV lane in each direction within the study area) that primarily runs north-south, but runs east-west to the north of the Project site.

US 101 connects multiple Bay Area cities, from San Francisco in the north to Gilroy in the south.

US 101 has an interchange with Mathilda Avenue near the Project study area. The posted speed limit on US 101 near the Project study area is 65 miles per hour.

State Route 237 is a four to six-lane freeway near the Project study area that extends between State Route 82 in Mountain View and Interstate 880 in Milpitas. SR 237 has two mixed-flow lanes and one HOV lane in each direction east of Mathilda Avenue, and has just two mixed-flow lanes in each direction west of Mathilda Avenue. SR 237 has interchanges with Mathilda Avenue and Maude Avenue within the Project study area. The posted speed limit on SR 237 near the Project study area is 65 miles per hour.

Central Expressway is a four to six-lane expressway that runs east-west between San Antonio Road in Mountain View (western limit) and Trimble Road/De La Cruz Boulevard in Santa Clara (eastern limit). Within the Project study area, Central Expressway has a four-lane cross section and a 50 mile per hour posted speed limit. Central Expressway has a CMP designated at-grade intersection with Mary Avenue.

El Camino Real (State Route 82) is a six-lane arterial that runs northwest-southeast between A Street in Daly City (where it becomes Mission Street) and The Alameda in Santa Clara (where it becomes The Alameda), running through San Mateo, Palo Alto, Mountain View, and Sunnyvale along the way. El Camino Real has been designated as a regionally significant roadway by the City of Sunnyvale and the posted speed limit is 40 miles per hour within the Project study area.

Mathilda Avenue is a six to eight-lane arterial that runs north-south through Sunnyvale between Sunnyvale-Saratoga Road (southern limit) and Caribbean Drive (northern limit). Within the Project Study area, Mathilda Avenue has three lanes northbound and three lanes southbound between Sunnyvale-Saratoga Road and Olive Avenue, four lanes northbound and three lanes southbound between Olive Avenue and Washington Avenue, three lanes northbound and three lanes southbound between Washington Avenue and Maude Avenue, three lanes northbound and four lanes southbound between Maude Avenue and Ahwanee Avenue, four lanes northbound and three lanes southbound between Ahwanee Avenue and the Moffett Park Drive, and three lanes northbound and three lanes southbound between Moffett Park Drive and Caribbean Drive. Mathilda Avenue has been designated as a regionally significant roadway by the City of Sunnyvale. The posted speed limit along Mathilda Avenue is 40 miles per hour south of El Camino Real, 35 miles per hour between El Camino Real Washington Avenue, and 45 miles per hour between Washington Avenue and Caribbean Drive.

California Avenue is a two-lane collector that runs east-west between Mary Avenue (western limit) and Bartlett Avenue (eastern limit). It has a posted speed limit of 25 miles per hour within the Project study area. California Avenue has an at-grade signalized intersection with Mathilda Avenue and provides access to eastbound Central Expressway “box” ramps.

Iowa Avenue is a two to four-lane collector that runs east-west between Bernardo Avenue (western limit) and Flora Vista Avenue (eastern limit). It has four lanes between Mathilda Avenue and Sunnyvale Avenue, and two lanes for the rest of its length. The posted speed limit is 25 miles per hour.

Maude Avenue is a three to five-lane collector that runs east-west between SR 237 (western limit) and Wolfe Road (eastern limit). It has five lanes (including a two-way left-turn lane) and a posted speed limit of 35 miles per hour west of Mathilda Avenue, and three lanes (including a two-way left-turn lane) and a posted speed limit of 30 miles per hour east of Mathilda Avenue. Maude Avenue has a single point intersection/interchange with the SR 237 ramps which is part of a split diamond interchange with SR 237.

Moffett Park Drive is a two to three-lane collector that runs east-west parallel to the north side of SR 237 between Enterprise Way (western limit, where it becomes Manila Drive) and Caribbean Drive (eastern limit). It generally has two-lanes, one in each direction, but has one segment of two westbound lanes and one eastbound lane between Innovation Way and Mathilda Avenue. It has a posted speed limit of 40 miles per hour within the Project study area.

Olive Avenue is a two-lane collector that runs east-west between Bernardo Avenue (western limit) and Hawthorn Avenue (eastern limit). It has a posted speed limit of 25 miles per hour.

Washington Avenue is a two-lane collector that runs east-west between a cul-de-sac west of Acalanes Drive (western limit) and a cul-de-sac east of Bayview Avenue (eastern limit). The posted speed limit is 25 miles per hour.

Almanor Avenue is a two-lane local roadway that generally runs east-west between Mary Avenue (western limit) and Mathilda Avenue (eastern limit). Almanor Avenue has one lane in each direction with a posted speed limit of 30 mph.

Charles Street is a two-lane local roadway that generally runs north-south parallel to Mathilda Avenue between Olive Avenue (southern limit) and Evelyn Avenue (northern limit). The posted speed limit is 25 miles per hour.

Indio Avenue is a two-lane local roadway that generally runs east-west between Soquel Way and San Bernardino Way and is part of the westbound Central Expressway “box” ramps. The posted speed limit is 25 miles per hour.

McKinley Avenue is a two-lane local roadway that runs east-west between Sunset Avenue (western limit) and Bayview Avenue (eastern limit). The posted speed limit is 25 miles per hour.

Ross Drive is a two-lane local street that starts just east of Mathilda Avenue at Bradford Drive and runs west until it ends at an office park driveway just west of Hamlin Court. Ross Drive has a 25 mile per hour posted speed limit.

2.2 PEDESTRIAN FACILITIES

Adjacent to or nearby the Project site, sidewalks are provided on both sides of South Mathilda Avenue, McKinley Avenue, Charles Street, and Iowa Avenue. Sidewalks exist along both sides of Mathilda Avenue for most of the study area, with gaps at the Evelyn Avenue / Caltrain overcrossing, and on the western side between Almanor Avenue and West Moffett Park Drive. El Camino Real, Olive Avenue, and Washington Avenue all have sidewalks on both sides of the road within the Project study area vicinity. Almanor Avenue has periodic gaps in sidewalks on both sides of the road, while California Avenue has a single gap in the Project study area vicinity between Sobrante Way and Mathilda Avenue. Central Expressway has no sidewalks near Mathilda Avenue. Ross Drive provides sidewalks on the east leg of its intersection with Mathilda Avenue, but not the west leg.

Pedestrian crosswalks with push buttons exist on all legs of the Mathilda Avenue intersections with El Camino Real, Olive Avenue, Iowa Avenue, McKinley Avenue, Washington Avenue, California Avenue, Indio Avenue, and Maude Avenue. The Mathilda Avenue intersections with Almanor Avenue and Ross Drive have crosswalks with pedestrian push buttons on the south and east legs, while the Mathilda Avenue intersections with SR 237 Eastbound and Westbound Ramps have crosswalks with push buttons on the east legs only. The Mathilda Avenue / Moffett Park Drive intersection has crosswalks with pedestrian push buttons on the north and east legs only.

2.3 BICYCLE FACILITIES

The *VTA Bicycle Technical Guidelines* (December 2012) refers to the Caltrans Highway Design Manual (HDM), Chapter 1000 for standards on designing bicycle facilities. The Caltrans HDM classifies bikeways as follows:

Class I Bikeway (Bike Path) – Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized.

Class II Bikeway (Bike Lane) – Provides a striped lane for one-way bicycle travel on a street or highway. These lanes are generally adjacent to the outside vehicular travel lane and are marked by special lane marking and signs.

Class III Bikeway (Bike Route) – Provides for shared use with bicycle or motor vehicle traffic, typically on lower volume roadways. Class III bikeways are typically designated by signs and are used to provide continuity to other bicycle facilities.

Within or near the Project study area, Class II bikeways exist on the following facilities:

- Mary Avenue between Maude Avenue and Almanor Avenue and between Evelyn Avenue and Homestead Road
- Almanor Avenue between North Mary Avenue and Vaqueros Avenue
- Maude Avenue between Logue Avenue in Mountain View and Borregas Avenue (with the exception of eastbound Maude Avenue between Pastoria Avenue and Mathilda Avenue)
- Northbound Mathilda Avenue between Washington Avenue and Ahwanee Avenue, southbound Mathilda Avenue between Washington Avenue and Del Rey Avenue, and northbound and southbound Mathilda Avenue between El Camino Real and Sunnyvale Saratoga Road
- Evelyn Avenue between Hope Street in Mountain View and Reed Avenue
- Borregas Avenue between Maude Avenue and Ahwanee Avenue, Weddell Drive and Persian Drive, and Moffett Park Drive and Caribbean Drive
- 11th Avenue between Enterprise Way and Innovation Way
- Enterprise Way between Manila Drive / West Moffett Park Drive and 5th Avenue
- Persian Drive between Ross Drive and Lawrence Expressway
- Sunnyvale Avenue between Evelyn Avenue and Sunnyvale Saratoga Road
- Hendy Avenue between Sunnyvale Avenue and Fair Oaks Avenue
- Morse Avenue between Weddell Drive and Persian Drive
- Moffett Park Drive between Enterprise Way and Innovation Way and between Bordeaux Drive and Caribbean Drive

Within the Project study area, the City has designated the following facilities as bike routes (i.e. Class III bikeways):

- Olive Avenue between Bernardo Avenue and Fair Oaks Avenue
- Mary Avenue between Evelyn Avenue and Maude Avenue
- Maude Avenue between Borregas Avenue and Fair Oaks Avenue
- Sunnyvale Avenue between Evelyn Avenue and California Avenue
- California Avenue between Sunnyvale Avenue and Morse Avenue
- Morse Avenue between California Avenue and Ahwanee Avenue
- Ahwanee Avenue between Borregas Avenue and Morse Avenue

Bicycles are allowed to use the approximately seven (7) foot shoulders on Central Expressway, however caution is advised due to high traffic. For all other Project study area roadways, it can be assumed that bicycles are allowed to share the roadway with vehicles. There are no Class I bikeways within the Project study area. Existing Project study area bicycle facilities are shown in **Figure 3**.

2.4 EXISTING TRANSIT SERVICE

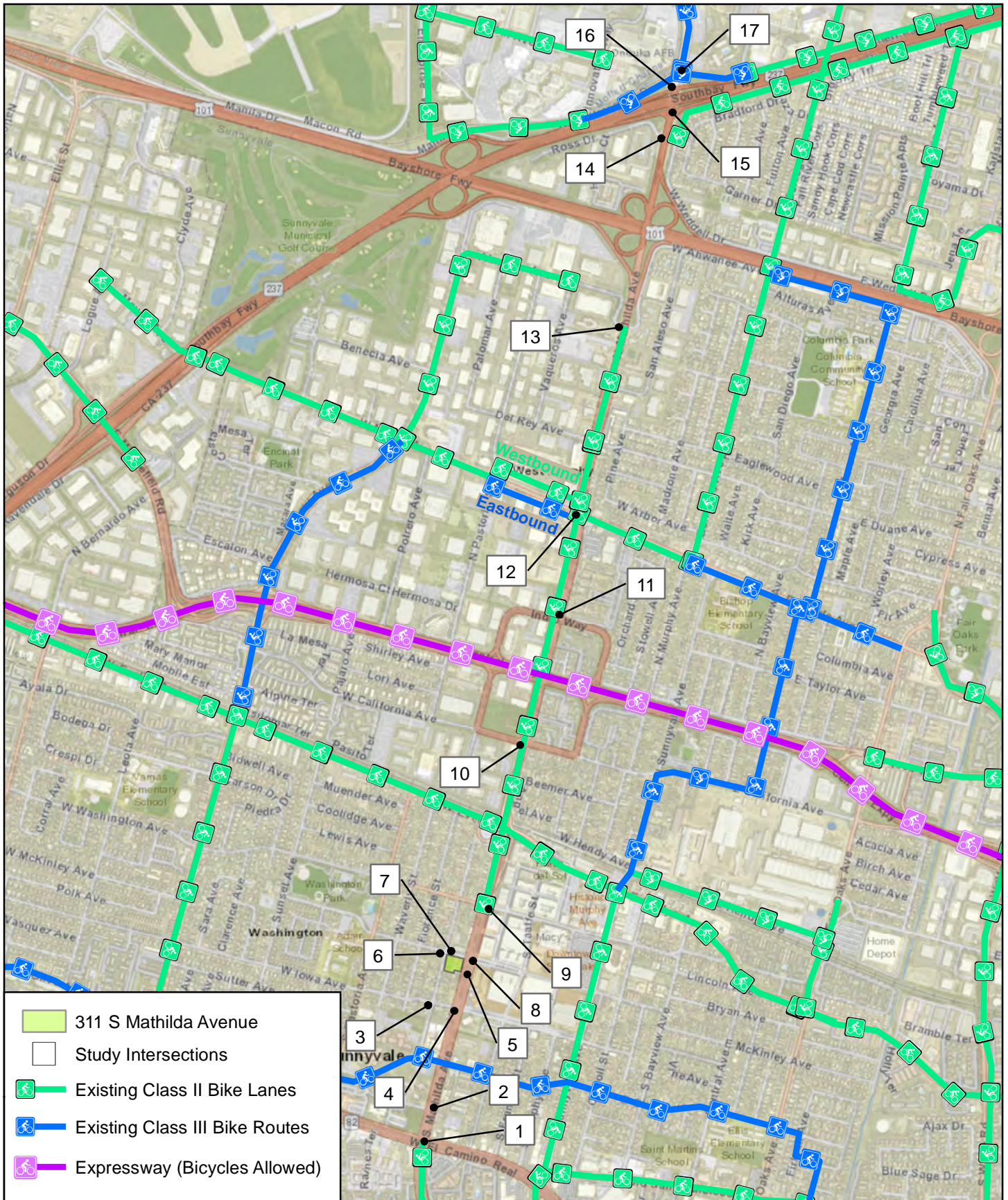
Existing transit service in the Project study area is provided by Caltrain and VTA bus routes. Existing Project study area transit services are shown in **Figure 4**. A description of transit services is provided below.

2.4.1 VTA BUS SERVICE

VTA operates bus service within the Project study area. Local buses that run through/nearby the Project area include bus routes 22, 32, 53, 54, 55, 304, and 522. A summary of each local route is included below:

Route 22 is a local service that runs between the Palo Alto Transit Center in Palo Alto and the Eastridge Transit Center in San Jose. Near the Project study area, Route 22 primarily runs along El Camino Real, with stops at the El Camino Real intersections with Pastoria Avenue (0.6 miles from the Project site) and Mathilda Avenue (0.4 miles from the Project site). Eastbound and westbound Route 22 operate 24 hours a day, seven days a week on approximately 15 to 60 minute headways, with 15 minute headways for the majority of the day.

Route 32 is a local service that runs between the San Antonio Transit Center in Mountain View and the Santa Clara Caltrain Station in Santa Clara. Near the Project study area, Route 32 runs along Central Expressway, Mathilda Avenue, and Evelyn Avenue, with stops at the intersections of Mathilda Avenue / California Avenue (0.6 miles from the Project site), Evelyn Avenue / Frances Street (0.4 miles from the Project site), and Evelyn Avenue / Bayview Avenue (0.9 miles from the Project site), as well as the Sunnyvale Transit Center (0.4 miles from the Project site). On weekdays, eastbound and westbound Route 32 operate between approximately 5:45 AM and 8:33 PM on 30 minute headways, except for the last bus of the day, which operates on a 60 minute headway. On Saturday, eastbound and westbound Route 32 operate between 8:45 AM and 6:00 PM on 60 minute headways. Route 32 does not operate on Sundays.



Existing Project Study Area Bicycle Facilities
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

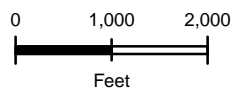
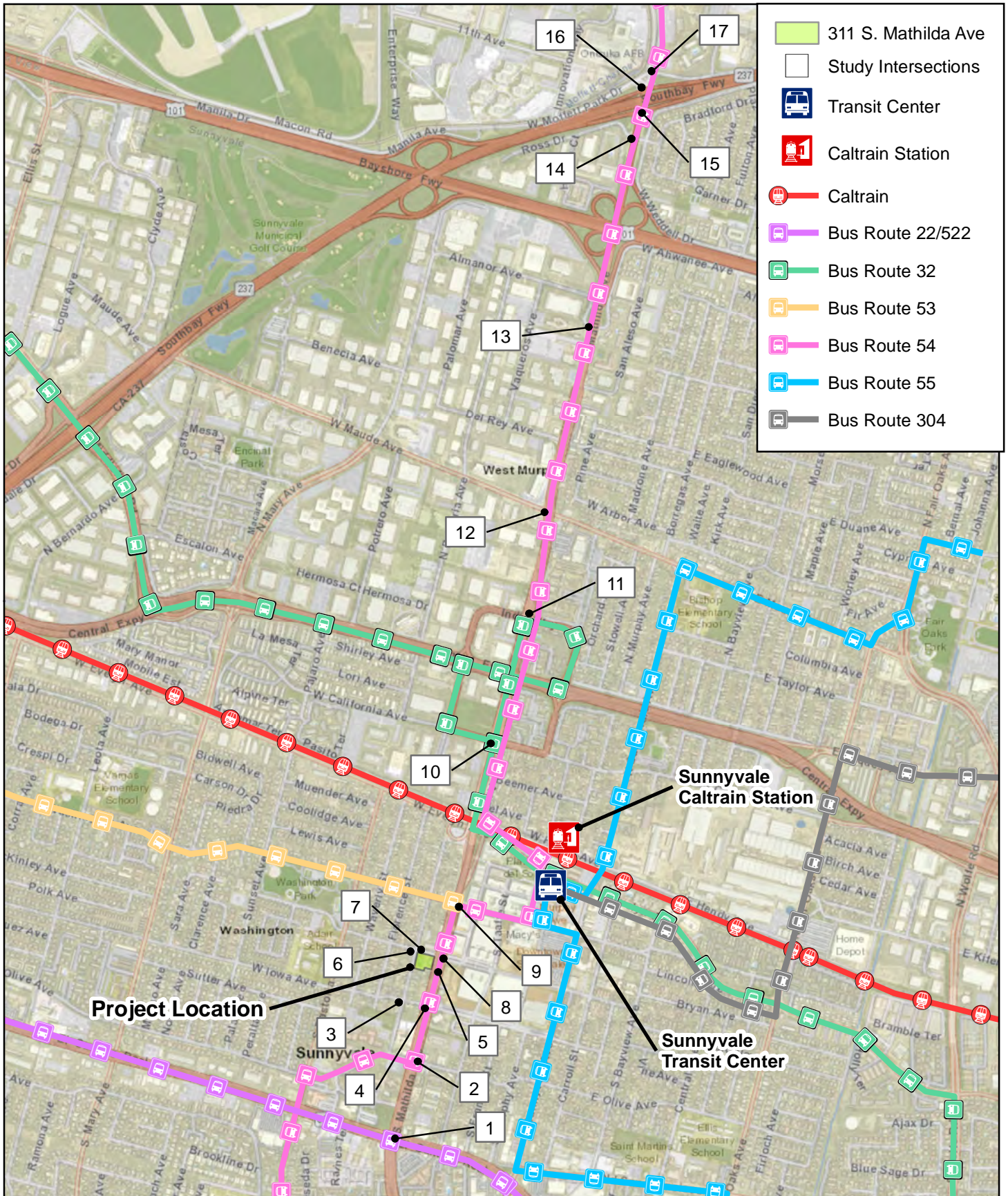


Figure 3





Existing Project Study Area Transit Services
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

0 1,000 2,000
 Feet

NORTH

Figure 4

WOOD RODGERS
 BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Route 53 is a local service that runs between the West Valley Community College in Saratoga and the Sunnyvale Transit Center in Sunnyvale. Near the Project study area, Route 32 runs along Washington Avenue, with stops at the intersections of Washington Avenue / Charles Street (0.2 miles from the Project site) and Washington Avenue / Pastoria Avenue (0.4 miles from the Project site), as well as the Sunnyvale Transit Center (0.4 miles from the Project site). On weekdays, northbound Route 53 operates between 6:55 AM and 6:56 PM on 60 minute headways, and southbound Route 53 operates between 6:55 AM and 6:59 PM on 20 to 60 minute headways. More specifically, southbound Route 53 within the City of Sunnyvale operates on 20 to 30 minute headways between 6:55 AM and 8:57 AM and then 60 minute headways the rest of the day. Route 53 does not operate on Saturdays or Sundays.

Route 54 is a local service that runs between De Anza College in Cupertino and the Lockheed Martin Transit Center in Sunnyvale. Near the Project study area, Route 54 primarily runs along Mathilda Avenue, with stops at the Mathilda Avenue intersections with Olive Avenue (0.2 miles from the Project site), Iowa Avenue (0.1 miles from the Project site), Washington Avenue (0.1 miles from the Project site), and California Avenue (0.6 miles from the Project site), as well as the Sunnyvale Transit Center (0.4 miles from the Project site). On weekdays, northbound and southbound Route 54 operate between approximately 6:07 AM and 9:30 PM on 30 minute headways, except for the last two busses of the day, which operate on approximately 40 and 60 minute headways, respectively. On Saturday, northbound and southbound Route 54 operate between 7:56 AM and 7:38 PM on 45 to 60 minute headways. On Sunday, northbound and southbound Route 54 operate between 8:57 AM and 7:20 PM on 45 to 60 minute headways. Note that under the VTA Fiscal Year 2018-2019 Transit Service Plan, Route 54 will be discontinued with the introduction of the Rapid 523 line along Mathilda Avenue, Sunnyvale Avenue, and Sunnyvale-Saratoga Road.

Route 55 is a local service that runs between De Anza College in Cupertino and Great America in Santa Clara. Near the Project study area, Route 55 primarily runs along Sunnyvale Avenue, with stops at the Sunnyvale Avenue intersections with Old San Francisco Road (0.7 miles from the Project site), Olive Avenue (0.5 miles from the Project site), McKinley Avenue (0.3 miles from the Project site), and Hendy Avenue (0.6 miles from the Project site), as well as the Sunnyvale Transit Center (0.4 miles from the Project site). On weekdays, northbound and southbound Route 55 operate between approximately 5:33 AM and 10:50 PM on approximately 15 to 30 minute headways, except for the last two busses of the day, which operate on approximately 60 minute headways. The 15 minute headways generally occur within the Project vicinity from approximately 7:30 AM to 9:30 AM and 2:30 PM to 6:00 PM. On Saturday, northbound and southbound Route 55 operate between approximately 7:38 AM and 9:07 PM on approximately 30 minute headways except for the first and last few busses of the day which operate on 60 minute headways. On Sunday, northbound and southbound Route 55 operate between approximately 7:50 AM and 8:34 PM on 45 to 60 minute headways.

Route 304 is a limited stop bus route that runs from the Santa Teresa Light Rail Station in San Jose to the Sunnyvale Transit Center in Sunnyvale. Near the Project study area, Route 304 runs along Evelyn Avenue, with a stop at the Sunnyvale Transit Center (0.4 miles from the Project site). On weekdays, northbound Route 304 operates between 5:52 AM and 8:49 AM on approximately 30 minute headways, and southbound Route 304 operates between 3:33 PM and 7:07 PM on varying (approximately 30 to 50 minute) headways. Route 304 does not operate on Saturdays and Sundays.

Route 522 is a local service that runs between the Palo Alto Transit Center in Palo Alto and the Eastridge Transit Center in San Jose. Near the Project study area, Route 522 primarily runs along El Camino Real, with a stop at the El Camino Real / Pastoria Avenue intersection (0.6 miles from the Project site). On weekdays, eastbound and westbound Route 522 operate between approximately

4:39 AM and 11:24 PM on approximately 10 to 30 minute headways, with 10 minute headways for the majority of the day. On Saturday, eastbound and westbound Route 522 operate between approximately 7:46 AM and 11:15 PM on approximately 15 to 30 minute headways, with 15 minute headways for the majority of the day. On Sunday, eastbound and westbound Route 522 operate between approximately 8:31 AM and 7:34 PM approximately 15 to 25 minute headways, with 15 minute headways for the majority of the day.

2.4.2 Caltrain Service

Caltrain is a commuter rail line that runs between San Francisco and Santa Clara County. The nearest Caltrain station to the Project study area is the Sunnyvale Station, located on West Evelyn Avenue between South Mathilda Avenue and South Sunnyvale Avenue, approximately 0.5 miles (within walking distance) from the Project site. The Sunnyvale Station is accessible via VTA bus route 32, which has a stop directly in front of the station on West Evelyn Avenue. Parking is also provided at the Sunnyvale Station.

The Sunnyvale Station provides Caltrain services with approximately 20 to 30 minute headways during the weekday AM and PM peak periods, and with approximately 60 minute headways during weekday off-peak hours (midday and evenings) and weekends. The Sunnyvale Station is utilized by local, limited, and baby bullet trains.

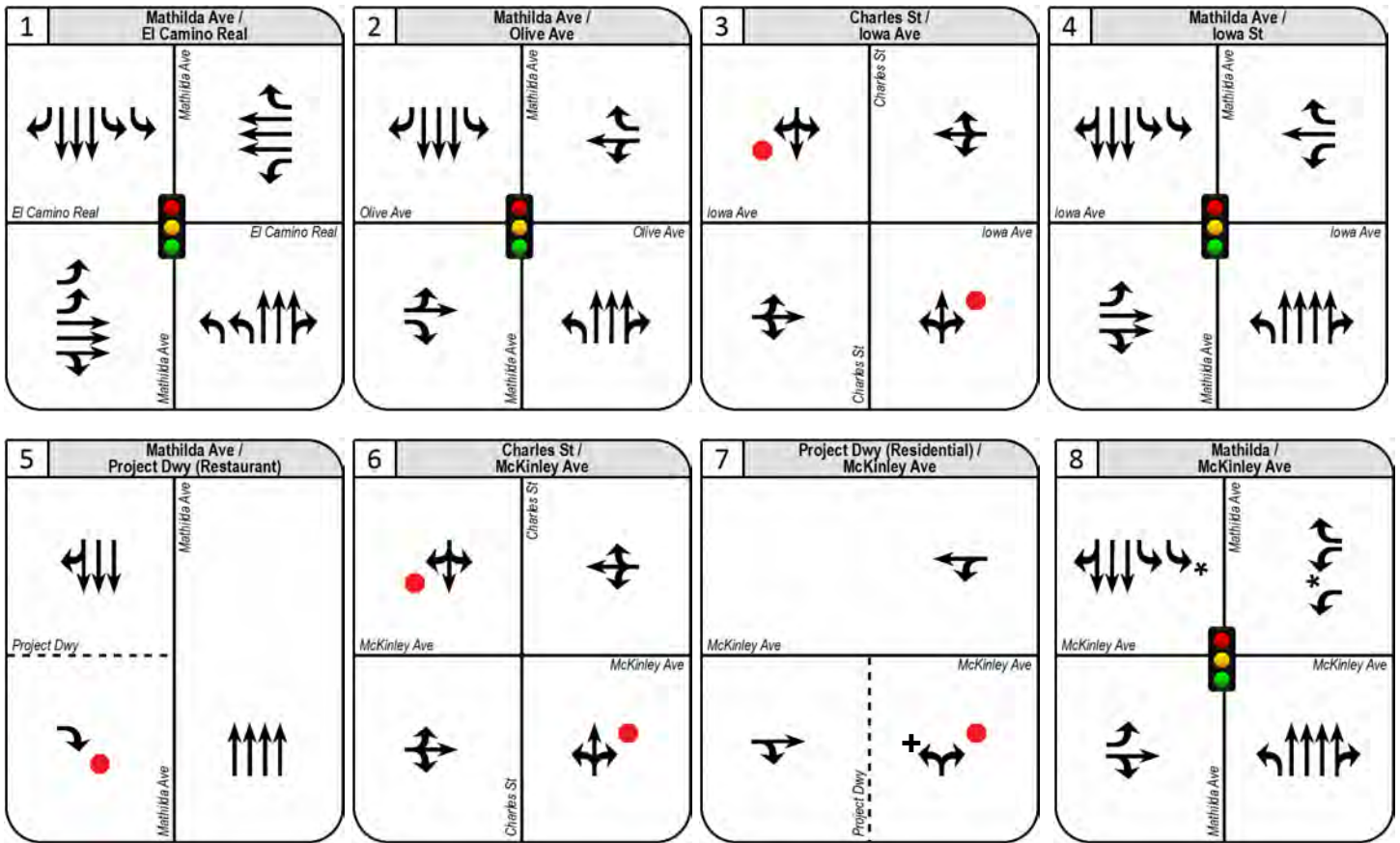
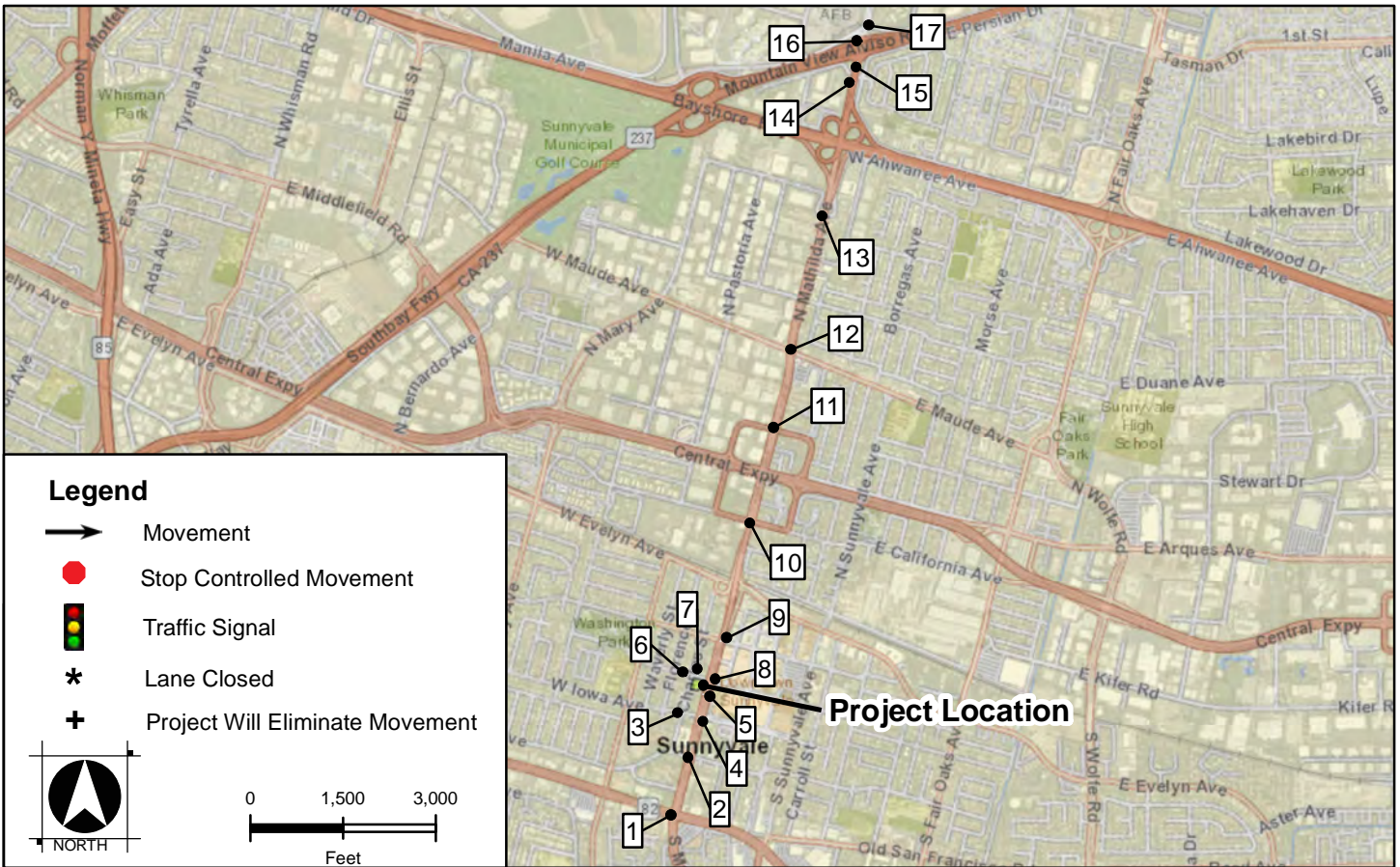
2.5 EXISTING INTERSECTION VOLUMES AND LANE GEOMETRICS

Project study intersection traffic operations were evaluated for the AM and PM peak hours under existing conditions. The AM peak hour is defined as the highest one hour of traffic flow counted between 7:00 AM and 9:00 AM on a typical weekday, and the PM peak hour is defined as the highest one hour of traffic flow counted between 4:00 PM and 6:00 PM on a typical weekday.

Existing AM and PM peak hour intersection counts were obtained from new intersection counts and recent counts provided by the City. Wood Rodgers conducted new AM and PM peak hour vehicular, pedestrian, and bicycle traffic counts at the following study intersections on the dates shown below:

- Charles Street / West Iowa Avenue (Tuesday May 2, 2017)
- Charles Street / West McKinley Avenue (Tuesday May 2, 2017)

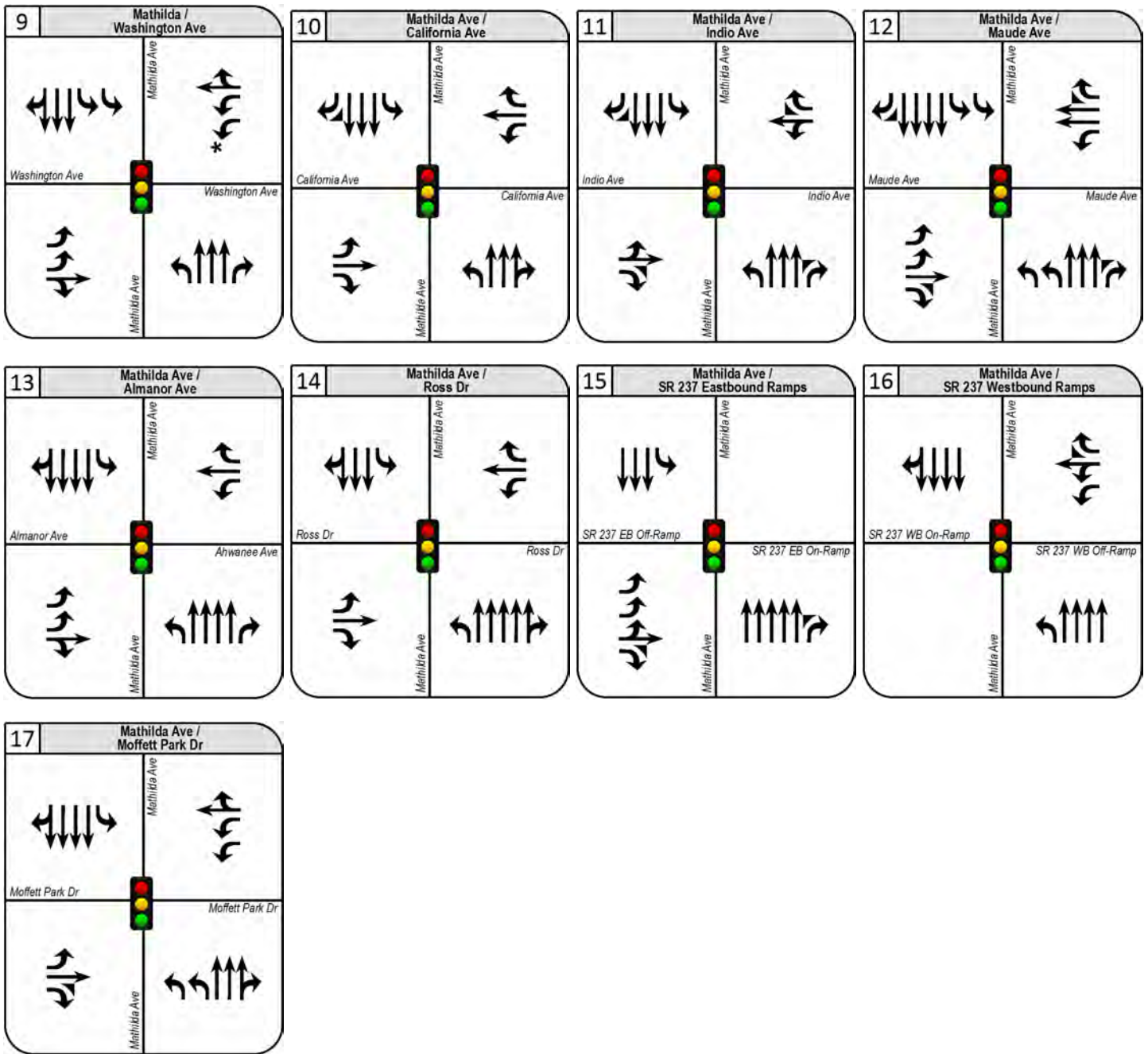
All other study area intersection counts were obtained from the City (these counts were collected in November 2015). Per City instruction, all City provided counts were used as-is and were assumed to be a reasonable representation of “Existing” conditions. **Figure 5** illustrates existing intersection lane geometrics and control and **Figure 6** illustrates “Existing” conditions study intersection traffic volumes. Study intersection raw count sheets are included in **Appendix A**.



Existing Intersection Lane Geometrics and Control
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 5

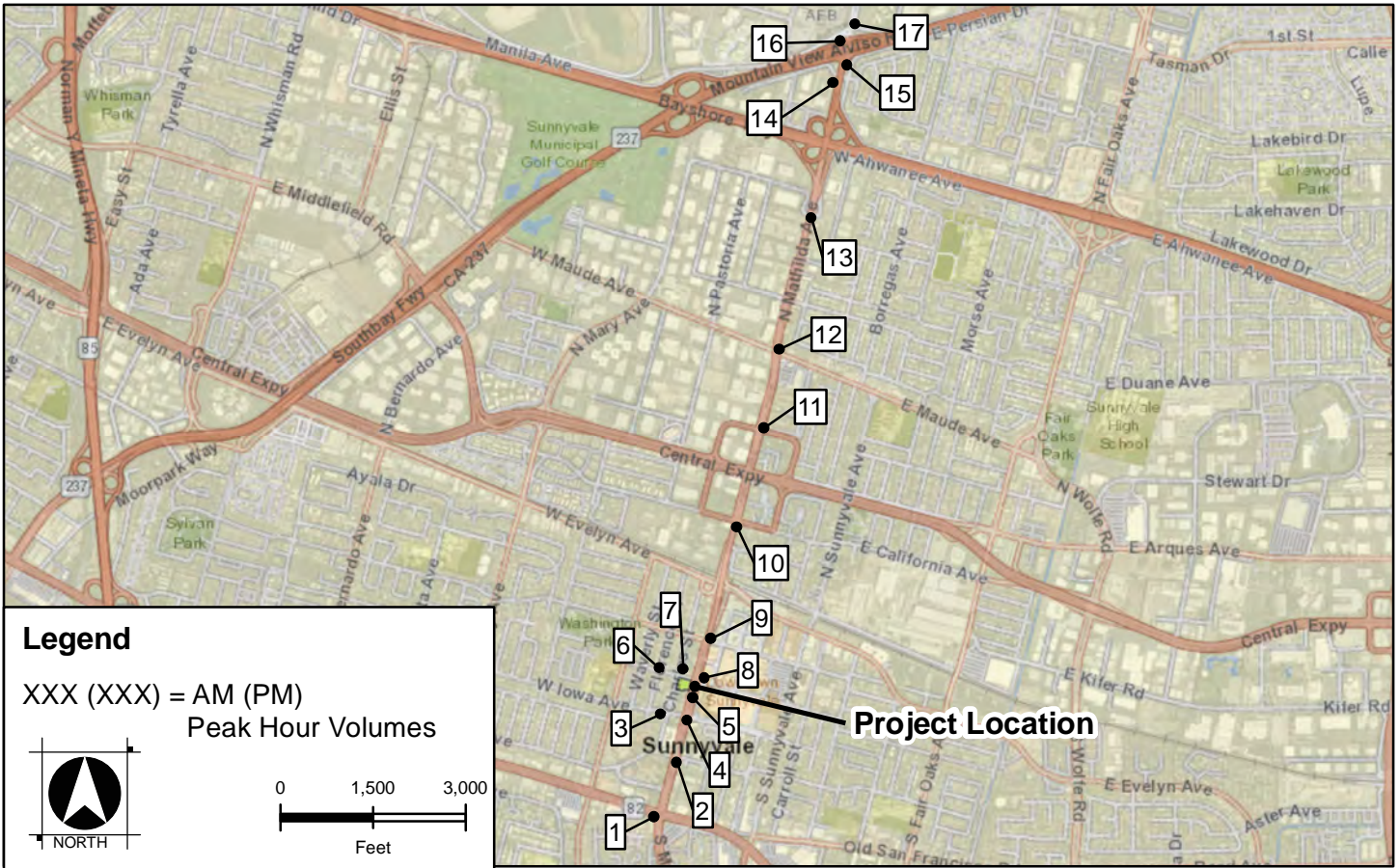




Existing Intersection Lane Geometrics and Control
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 5-2



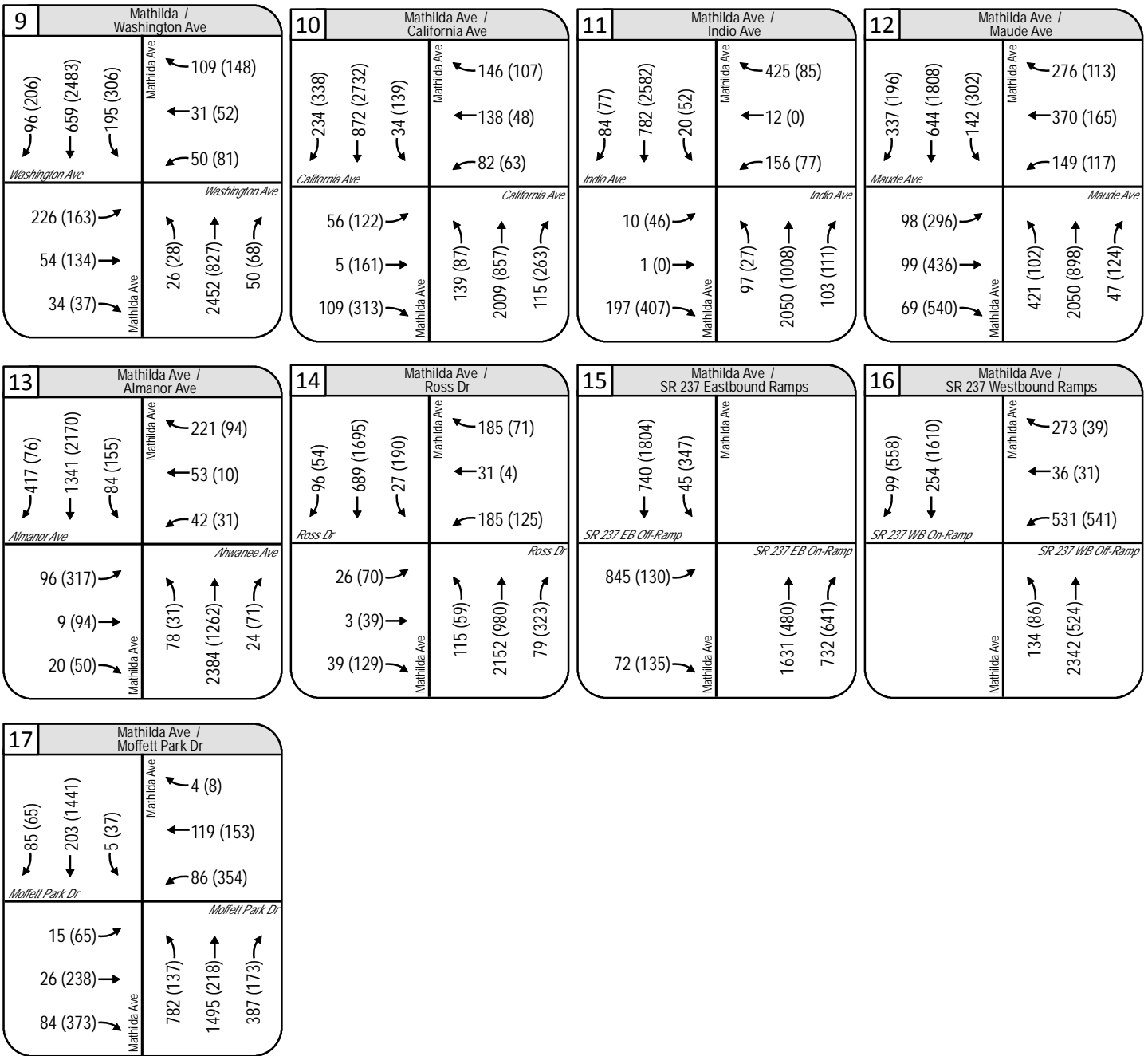


<p>1 Mathilda Ave / El Camino Real</p> <p>Mathilda Ave ↖ 375 (188) ← 1099 (688) ↘ 8 (82)</p> <p>El Camino Real ↖ 178 (348) ↘ 277 (1642) ↖ 132 (510)</p> <p>Mathilda Ave ↗ 443 (227) ↘ 468 (1361) ↖ 78 (153)</p> <p>El Camino Real ↖ 253 (194) ↘ 1793 (418) ↖ 17 (58)</p>	<p>2 Mathilda Ave / Olive Ave</p> <p>Mathilda Ave ↖ 65 (31) ← 62 (65) ↘ 26 (28)</p> <p>Olive Ave ↖ 65 (91) ↘ 538 (2252) ↖ 26 (75)</p> <p>Mathilda Ave ↗ 67 (54) ↘ 29 (71) ↖ 22 (100)</p> <p>Olive Ave ↖ 74 (56) ↘ 2520 (755) ↖ 12 (43)</p>	<p>3 Charles St / Iowa Ave</p> <p>Charles St ↖ 7 (12) ← 58 (102) ↘ 9 (13)</p> <p>Iowa Ave ↖ 8 (6) ↘ 20 (32) ↖ 4 (10)</p> <p>Iowa Ave ↖ 10 (10) ↘ 93 (146) ↖ 1 (2)</p> <p>Charles St ↖ 1 (3) ↘ 14 (12) ↖ 15 (16)</p>	<p>4 Mathilda Ave / Iowa St</p> <p>Mathilda Ave ↖ 67 (50) ← 41 (59) ↘ 23 (75)</p> <p>Iowa Ave ↖ 31 (25) ↘ 613 (2053) ↖ 27 (66)</p> <p>Iowa Ave ↖ 63 (26) ↘ 48 (75) ↖ 16 (36)</p> <p>Mathilda Ave ↖ 18 (24) ↘ 2526 (756) ↖ 29 (30)</p>
<p>5 Mathilda Ave / Project Dwy (Restaurant)</p> <p>Mathilda Ave ↖ 17 (12) ↘ 671 (2421)</p> <p>Project Dwy ↖ 10 (8)</p> <p>Mathilda Ave ↖ 2745 (929)</p>	<p>6 Charles St / McKinley Ave</p> <p>Charles St ↖ 10 (19) ← 55 (94) ↘ 3 (13)</p> <p>McKinley Ave ↖ 5 (9) ↘ 20 (35) ↖ 2 (54)</p> <p>McKinley Ave ↖ 5 (9) ↘ 76 (122) ↖ 3 (10)</p> <p>Charles St ↖ 13 (5) ↘ 17 (16) ↖ 7 (5)</p>	<p>7 Project Dwy (Residential) / McKinley Ave</p> <p>McKinley Ave ↖ 63 (116) ↘ 5 (10)</p> <p>McKinley Ave ↖ 95 (180) ↘ 1 (1)</p> <p>Project Dwy ↖ 1 (1) ↘ 9 (7)</p>	<p>8 Mathilda / McKinley Ave</p> <p>Mathilda Ave ↖ 62 (95) ← 1 (3) ↘ 13 (91)</p> <p>McKinley Ave ↖ 38 (32) ↘ 660 (2298) ↖ 48 (47)</p> <p>McKinley Ave ↖ 61 (75) ↘ 20 (33) ↖ 15 (44)</p> <p>Mathilda Ave ↖ 27 (30) ↘ 2619 (865) ↖ 99 (34)</p>

"Existing" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 6





"Existing" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 6-2



2.6 “EXISTING” INTERSECTION OPERATIONS

Table 4 presents existing study intersection traffic operations under existing intersection geometrics and control (illustrated in **Figure 5**) and “Existing” traffic volumes (illustrated in **Figure 6**).

Table 4. “Existing” Conditions Intersection Traffic Operation

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions		
					Delay (S/V) ¹	LOS	Wrnt Met? ²
1	Mathilda Avenue / El Camino Real	Signal	E	AM	49.4	D	-
				PM	45.4	D	-
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	13.5	B	-
				PM	16.4	B	-
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.0	A	No
				PM	11.1	B	No
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	15.1	B	-
				PM	18.3	B-	-
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	9.7	A	No
				PM	16.3	C	No
6	Charles Street / McKinley Avenue	TWSC	D	AM	9.8	A	No
				PM	11.4	B	No
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	8.8	A	No
				PM	9.3	A	No
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	14.2	B	-
				PM	19.1	B-	-
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	30.3	C	-
				PM	31.1	C	-
10	Mathilda Avenue / California Avenue	Signal	E	AM	24.6	C	-
				PM	31.5	C	-
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	28.1	C	-
				PM	24.9	C	-
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	39.3	D	-
				PM	46.6	D	-
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	22.9	C+	-
				PM	28.4	C	-
14	Mathilda Avenue / Ross Drive	Signal	E	AM	15.9	B	-
				PM	49.2	D	-
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	46.1	D	-
				PM	65.2	E	-
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	28.3	C	-
				PM	48.4	D	-
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	21.5	C+	-
				PM	73.0	E	-

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, "worst-case" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)
3. CMP Intersection(s)
4. Regionally significant intersection(s)
BOLD indicates unacceptable level of service.

As shown in **Table 4**, all intersections are currently operating at acceptable level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hours. All delay and LOS results shown in **Table 4** were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not currently met at any study intersections. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

2.7 FIELD OBSERVATIONS

Wood Rodgers traffic engineers conducted peak hour field observations of the study intersections on Wednesday May 31, 2017. Observed conditions appeared generally consistent with calculated “Existing” conditions levels of service shown in **Table 4**. A summary of specific observations made for certain study intersections is provided below:

- Mathilda Avenue intersections with Olive Avenue, Iowa Avenue, McKinley Avenue, and Washington Avenue (#2, #4, #8, #9) – The heaviest congestion occurs in the northbound approach in the morning and the southbound approach in the afternoon. Northbound and southbound U-turns on Mathilda Avenue are allowed as part of a protected left-turn phase.
- Mathilda Avenue / Project Driveway (#5) – Current Denny’s driveway at this location functions as right-in right-out due to landscaped median on Mathilda Avenue.
- Project Driveway / McKinley Avenue (#7) – Current Denny’s driveway at/near this location functions as a full access driveway.
- Mathilda Avenue / Indio Avenue (#11) – Westbound Indio Avenue approach experiences relatively heavy queuing during the morning commute hours and eastbound Indio Avenue approach experiences relatively heavy queuing during the afternoon commute hours.
- Mathilda Avenue / Maude Avenue (#12) – The heaviest congestion occurs in the northbound and westbound approaches in the morning, and southbound and eastbound approaches in the afternoon.
- Mathilda Avenue / Almanor Avenue (#13) – The heaviest congestion occurs in the northbound approach in the morning and southbound approach in the afternoon. The southbound approach experiences particularly long queues during the afternoon, with queues that exceed 60 vehicles (1,500 feet).
- Mathilda Avenue / SR 237 Eastbound Ramps (#15) – During the morning, both the northbound through movement on Mathilda Avenue and the eastbound left turn from the eastbound SR 237 off-ramp to northbound Mathilda Avenue are congested. Cars tend to temporarily queue mid intersection as they wait for the northbound left turn movement onto West Moffett Park Drive to clear out. However, the northbound left-turn queue does appear to generally clear out fully each cycle. During the afternoon, the southbound approach is very congested.
- Mathilda Avenue / SR 237 Westbound Ramps (#16) – The heaviest congestion occurs in the northbound approach in the morning and southbound approach in the afternoon. The SR 237 westbound off-ramp never appears to back up beyond its capacity.

2.8 “EXISTING” FREEWAY SEGMENT OPERATIONS

Four (4) freeway segments near the Project study area were selected for analysis. **Table 5** summarizes “Existing” conditions freeway segment LOS based on segment density, for both mixed flow and HOV lanes. Existing freeway segment worst-case peak hour speeds, flows, and densities

were obtained from the *Santa Clara County Annual Monitoring and Conformance Report* (VTA, 2014), the most recently available VTA CMP monitoring report as of July 2017. As defined in the *VTA Traffic Level of Service Analysis Guidelines*, the minimum acceptable LOS threshold for CMP freeway segments is LOS “E”.

As shown in **Table 5**, the following freeway segments operate at unacceptable density-based LOS “F” under “Existing” AM and/or PM peak hour conditions:

- Eastbound SR 237 between US 101 and Mathilda Avenue during the PM peak hour.
- Eastbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour (mixed-flow lanes only).
- Westbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour.
- Northbound US 101 between Mathilda Avenue and Fair Oaks Avenue during the AM peak hour (mixed-flow lanes only).

Table 5. “Existing” Conditions Freeway Segment Traffic Operations

#	Freeway	Segment	Dir	Peak Hour	Capacity ¹		Lanes		Existing Peak Density		Existing Peak LOS	
					Mixed	HOV	Mixed	HOV	Mixed	HOV	Mixed	HOV
1	SR 237	Between US 101 and Mathilda Avenue	EB	AM	4,400	-	2	-	38.0	-	D	-
				PM	4,400	-	2	-	96.0	-	F	-
			WB	AM	4,400	-	2	-	45.0	-	D	-
				PM	4,400	-	2	-	33.0	-	D	-
2	SR 237	Between Mathilda Avenue and Fair Oaks Avenue	EB	AM	4,400	1,650	2	1	43.0	15.1	D	B
				PM	4,400	1,650	2	1	98.0	28.0	F	D
			WB	AM	6,900	-	3	-	56.0	-	E	-
				PM	6,900	-	3	-	83.0	-	F	-
3	US 101	Between SR 237 and Mathilda Avenue	SB	AM	6,900	1,650	3	1	23.0	22.1	C	C
				PM	6,900	1,650	3	1	31.0	31.0	D	D
			NB	AM	6,900	1,650	3	1	40.0	42.1	D	D
				PM	6,900	1,650	3	1	26.0	37.0	C	D
4	US 101	Between Mathilda Avenue and Fair Oaks Avenue	SB	AM	6,900	1,650	3	1	34.0	14.0	D	B
				PM	6,900	1,650	3	1	43.0	31.0	D	D
			NB	AM	6,900	1,650	3	1	59.0	37.1	F	D
				PM	6,900	1,650	3	1	27.8	24.0	D	C

Notes: Freeway volumes were obtained from *Santa Clara County Annual Monitoring and Conformance Report* (VTA, 2014)
1. Freeway segment capacities were obtained from the *Peery Park 7 Projects TIA*.
BOLD indicates unacceptable level of service

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

2.9 “EXISTING” FREEWAY RAMP OPERATIONS

Four (4) freeway ramps near the Project site were selected for analysis. **Table 6** summarizes “Existing” conditions freeway segment volume to capacity (V/C) ratios. Existing freeway ramp AM and PM peak hour capacities, volumes, and V/C ratios were obtained from the *Peery Park Near-Term 7 Projects Draft Traffic Impact Analysis* (Hexagon, February 3, 2016), which included analysis

of all Project study ramps. VTA defines unacceptable ramp operations as any ramp with a V/C ratio greater than one (1.0).

Table 6. “Existing” Conditions Freeway Ramp Traffic Operations

#	Ramp	Type	Peak Hour	Lanes				Existing Peak	
				Mixed	HOV	Meter	Capacity ¹	Volume ²	V/C ³
1	US 101 Northbound Off-Ramp to Southbound Mathilda Avenue	Loop	AM	1	-	-	1,800	621	0.35
			PM	1	-	-	1,800	738	0.41
2	US 101 Northbound On-Ramp from Northbound Mathilda Avenue	Loop	AM	1	1	ON	1,800	314	0.17
			PM	1	1	-	2,700	247	0.09
3	US 101 Southbound Off-Ramp to Southbound Mathilda Avenue	Diagonal	AM	1	-	-	2,000	337	0.17
			PM	1	-	-	2,000	442	0.22
4	US 101 Southbound On-Ramp from Northbound Mathilda Avenue	Diagonal	AM	1	1	-	2,900	554	0.19
			PM	1	1	-	2,900	488	0.17

Notes: 1. Ramp Capacities were obtained from the Peery Park 7 Projects TIA.
2. Ramp Volumes were obtained from the Peery Park 7 Projects TIA.
3. V/C = Volume-to-capacity ratio.
BOLD indicates unacceptable level of service

As shown in **Table 6**, all study freeway ramps are currently operating at acceptable V/C ratios of less than 1.0.

3. EXISTING PLUS PROJECT CONDITIONS

This chapter provides a description of the proposed Project, a discussion of the trip generation and distribution/assignment methods used to come up with Project only volumes at study intersections, and an analysis of projected traffic operations and impacts due to the proposed Project.

3.1 PROJECT SITE AND DEMAND MANAGEMENT

3.1.1 PROJECT SITE DESCRIPTION

The Project site consists of a 1.01 acre lot located on the southwest quadrant of the South Mathilda Avenue / McKinley Avenue intersection, which contains an existing 4,057-square-foot Denny’s restaurant. The Project proposes to demolish the existing Denny’s restaurant to accommodate construction of 4,860 square-feet of commercial frontage along Mathilda Avenue, 75 residential units with approximately six units allotted for below market rate, and a central podium courtyard which would provide open space for the residents. Four of the proposed residential units would be townhouse type units to reduce the scale of the development towards the existing single-family neighborhood across Charles Street. A detailed list of Project items follows:

- 75 Residential Units
 - 8 Studios
 - 41 1-Bedroom Units
 - 26 2-Bedroom Units
- Residential Parking (located in the basement)
 - 82 Parking Spaces
 - 54 Bicycle Spaces
- Commercial
 - 4,860-square-feet of retail (restaurant)
 - 47 Commercial Parking Spaces (located on the ground floor)

- Common Space
 - 5,035 square-feet of Common Space Provided including roof deck and courtyard
- 8,500-square-feet of Open Area

The existing Denny's restaurant has two full-access driveways, one on Charles Street and one on McKinley Avenue, and one right-in right-out driveway on South Mathilda Avenue. The Project also proposes three (3) access driveways. A restaurant parking (ground level) right-in right-out access driveway would be located off of South Mathilda Avenue in approximately the same location as the existing Denny's South Mathilda Avenue Driveway. A left-out restricted residential parking (lower-level) access driveway would be located off of McKinley Avenue in the northwest corner of the Project site. A trash pick-up / move-in only driveway would be located off of Charles Street on the southwest corner of the Project site. **Appendix N** illustrates the truck turn analysis for Project Driveway (Residential Access) and Project Driveway (Trash Pickup).

3.1.2 TRANSPORTATION DEMAND MANAGEMENT PROGRAM

The proposed Project is located in the Downtown Specific Plan area. The Downtown Specific Plan does not establish specific Transportation Demand Management (TDM) strategies. A Project-specific City of Sunnyvale Multi-Family Residential TDM Program has been developed. The TDM strategies that the Project plans to follow as part of the Project-specific Multi-Family Residential TDM Program are:

- Located less than 0.5 miles to Caltrain/Light Rail station
- Located less than 0.25 miles from:
 - A shopping center consisting of at least three tenant spaces, or
 - Three separate retail/restaurant/recreational uses
- On-site kiosk or information center with multimodal wayfinding information and transit information
- On-site TDM coordinator (can be property manager) offering: multi-modal and wayfinding information, rideshare matching, walking/biking group coordination
- Distribution of transit, wayfinding and other TDM informational materials to new residents as they move in and annually to all residents

The TDM strategies listed above are not subject to enforcement or monitoring by the City. The Project will also install secured bicycle storage, bike racks, and designated parking spaces for low-emission vehicles to encourage alternative modes of transportation.

3.2 PROJECT GENERATED TRIPS

3.2.1 TRIP GENERATION AND REDUCTIONS

Consistent with methods described in the *VTA TIA Guidelines, Institute of Transportation Engineers Trip Generation Manual* rates were used to estimate Project trip generation. However, as the ITE Trip Generation Manual does not provide rates for affordable/low-income housing, daily, AM, and PM peak hour rates found in *City of Los Angeles Traffic Impact Study Guidelines* (December 2016) were used for the six (6) affordable housing units. City of Los Angeles trip rates were used as they had available data from projects of similar size and density.

The following trip generation rates from the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition* were used to estimate the remaining Project generated trips:

Apartment – For the proposed 65 one and two bedroom apartment units, not including the affordable housing units, the “Apartment” (Use Code 220) trip generation rate is used. ITE Trip Generation describes the Apartment land use as: “...rental dwelling units located within the same building with at least three other dwelling units...”

Residential Condominium/Townhouse – For the proposed four (4) townhouse type units, the “Residential Condominium/Townhouse” (Use Code 230) trip generation rate is used. ITE Trip Generation describes Residential Condominium/Townhouse as: “...*ownership units that have at least one other owned unit within the same building structure.*”

High-Turnover (Sit-Down) Restaurant – For the proposed 4,860 square foot commercial space, the “High-Turnover (Sit-Down) Restaurant” (Use Code 932) trip generation rate is used. ITE Trip Generation describes High-Turnover (Sit-Down) Restaurant as: *This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain.*”

Trips generated by the existing Denny’s restaurant on the Project site were estimated using the High-Turnover (Sit-Down) Restaurant ITE land use type as well. These existing trips are assumed to already be on the Project study area facilities and therefore were subtracted from proposed Project trips to obtain net new Project generated trips.

Trip reductions were considered and applied to the Project generated trips as recommended in the VTA TIA Guidelines. Typical reductions are typically applied for factors such as mixed-use developments, Project features that encourage walking, biking, and transit usage, or other factors that help to decrease the number of vehicles generated by the Project.

Since the Project is located in the Downtown Specific Plan area, the Standard Trip Reduction Approach was assumed per the VTA TIA Guidelines. Trip reductions were applied to the Project’s trip generation based on the Standard Auto Trip Reduction Rates found in Table 1 of the VTA TIA Guidelines. A 15 percent reduction (of the lower trip generator) was applied to the Project since it is a mixed-use development with housing and retail components, and a two (2) percent reduction was applied as the Project is within 2,000 feet of a major bus stop. Overall, a 17 percent reduction was applied to the Project using the Standard Trip Reduction method. Residents of affordable housing units may be assumed to already utilize public/alternative transportation. As such, the affordable housing trip generation rates are lower than “Apartment” land-use rates found in the TIE Trip Generation Manual. As a result, the VTA Standard Trip Reduction was not applied to the trips generated by the affordable housing land use. A VTA Trip Reduction Statement form was filled out for this Project and is attached at the beginning of this TIA which documents the trip reductions applied to this Project. **Table 7** summarizes the trip generation rates used for the proposed Project and **Table 8** summarizes the trip generation volumes and reductions for the proposed Project.

As illustrated in **Table 8**, the proposed Project is anticipated to generate a total of 503 daily trips, 39 AM peak hour trips (8 inbound, 31 outbound), and 52 PM peak hour trips (35 inbound, 17 outbound) under typical traffic demand conditions. These trips would be considered “new” (or incremental) trips on the City’s immediate local circulation system.

3.2.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The Project trip distribution was based on existing conditions traffic volumes and patterns, engineering judgement, discussion with City staff, and the residential land use trip distribution assumed for projects to be constructed in the nearby Peery Park Specific Plan area in the *Peery Park Near-Term 7 Projects TIA*. **Figure 7** illustrates the estimated Project directional trip distribution and assignment patterns projected to be generally applicable for the Project under existing, near-term, and long-term conditions, on an annualized average usage basis.

Project trips were assigned to the study area network based on the trip distribution discussed above and to the corresponding Project driveway based on land use. **Figure 8** illustrates the estimated AM and PM peak hour “Project Only” traffic volumes projected to be applicable under existing and near-term conditions. “Project Only” traffic volumes were also added on top of “Existing” conditions

Table 7. Project Trip Generation Rates

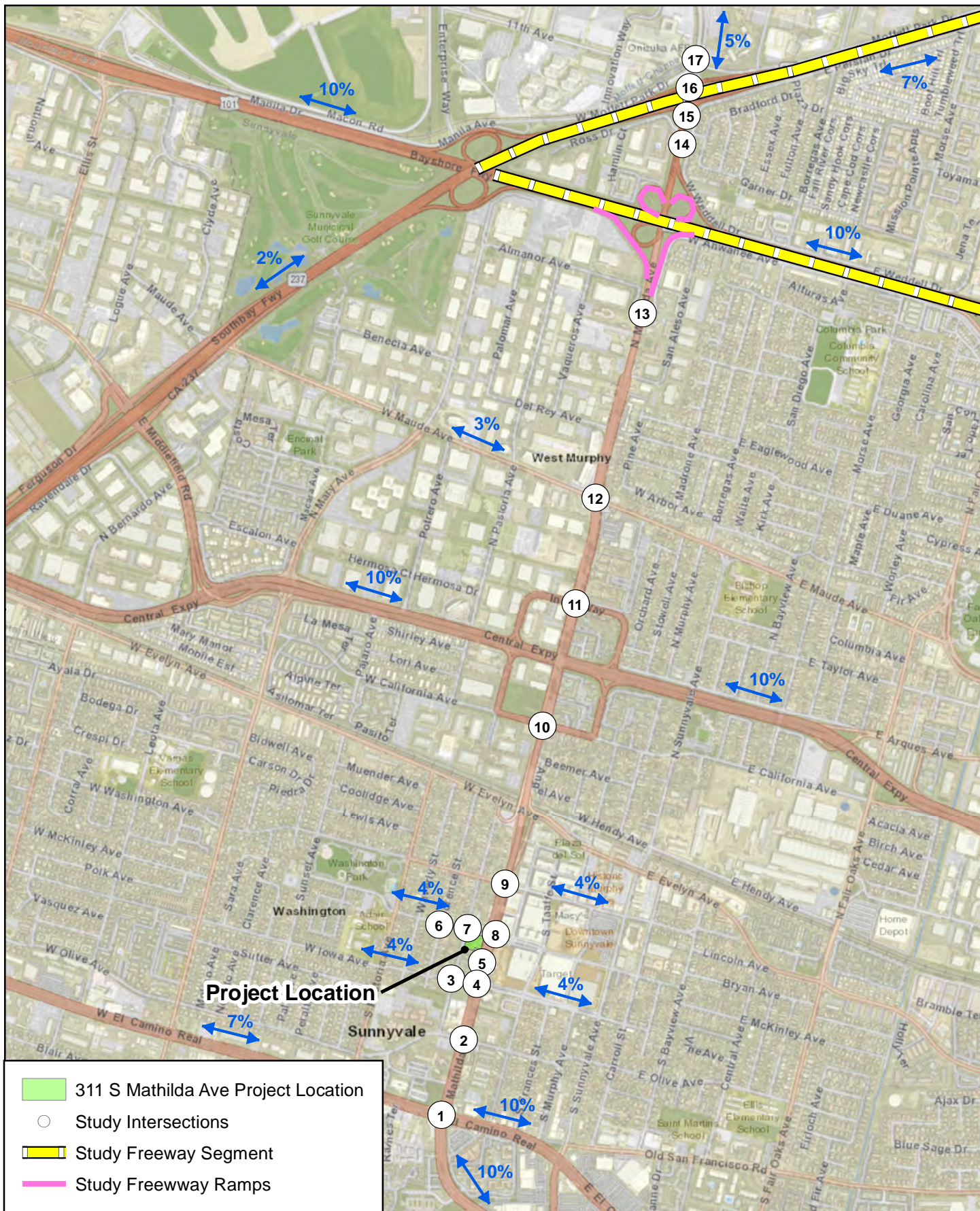
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit ¹	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Apartment	ITE	220	DU ²	7.95	0.55	20%	80%	0.82	65%	35%
Residential Condominium/Townhouse	ITE	230	DU	9.75	1.00	17%	83%	1.00	67%	33%
Affordable Housing	LADOT TIS Guidelines ³	-	DU	4.08	0.50	40%	60%	0.34	55%	45%
High-Turnover (Sit-Down) Restaurant	ITE	932	Ksf ⁴	127.15	10.81	55%	45%	9.85	60%	40%

Notes: ¹The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) fitted curve equations (Apartment and Residential Condominium/Townhouse) and average trip generation rates (High-Turnover (Sit-Down) Restaurant).
²DU = Dwelling Unit
³City of Los Angeles Transportation Impact Study Guidelines (December 2016) Section 3.3B, Table 5: Trip Generation Rates for Affordable Housing Projects
⁴ksf = 1,000 Sq. feet gross floor area

Table 8. Project Trip Generation Volumes

Land Use	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips ¹			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Apartment	DU ²	65	517	36	7	29	53	34	19
Residential Condominium/Townhouse	DU	4	39	4	1	3	4	3	1
Affordable Housing	DU	6	24	3	1	2	2	1	1
<i>Total Residential</i>			580	43	9	34	59	38	21
<i>Mixed-Use Reduction</i>	15%		-83	-6	-1	-5	-7	-3	-4
<i>Near Bus Stop Reduction</i>	2%		-11	-1	0	-1	-1	-1	0
<i>Net Total Residential</i>			486	36	8	28	51	34	17
High-Turnover (Sit-Down) Restaurant	ksf ³	4.860	618	53	29	24	48	29	19
<i>Mixed-Use Reduction</i>	15%		-83	-6	-5	-1	-7	-4	-3
<i>Near Bus Stop Reduction</i>	2%		-12	-1	-1	0	-1	-1	0
<i>Net Total Restaurant</i>			523	46	23	23	40	24	16
Existing High-Turnover (Sit-Down) Restaurant	ksf	-4.057	-516	-44	-24	-20	-40	-24	-16
<i>Near Bus Stop (Existing Reduction)</i>	2%		10	1	1	0	1	1	0
<i>Net Total Existing Restaurant</i>			-506	-43	-23	-20	-39	-23	-16
Net New Project Trip Generation			503	39	8	31	52	35	17

Notes: ¹The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) fitted curve equations (Apartment and Residential Condominium/Townhouse) and average trip generation rates (High-Turnover (Sit-Down) Restaurant) and City of Los Angeles Transportation Impact Study Guidelines (December 2016) Section 3.3B, Table 5: Trip Generation Rates for Affordable Housing Projects.
²DU = Dwelling Unit
³ksf = 1,000 Sq. feet gross floor area



Project Trip Distribution
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

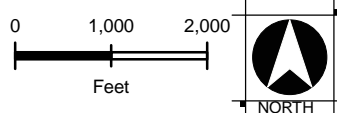
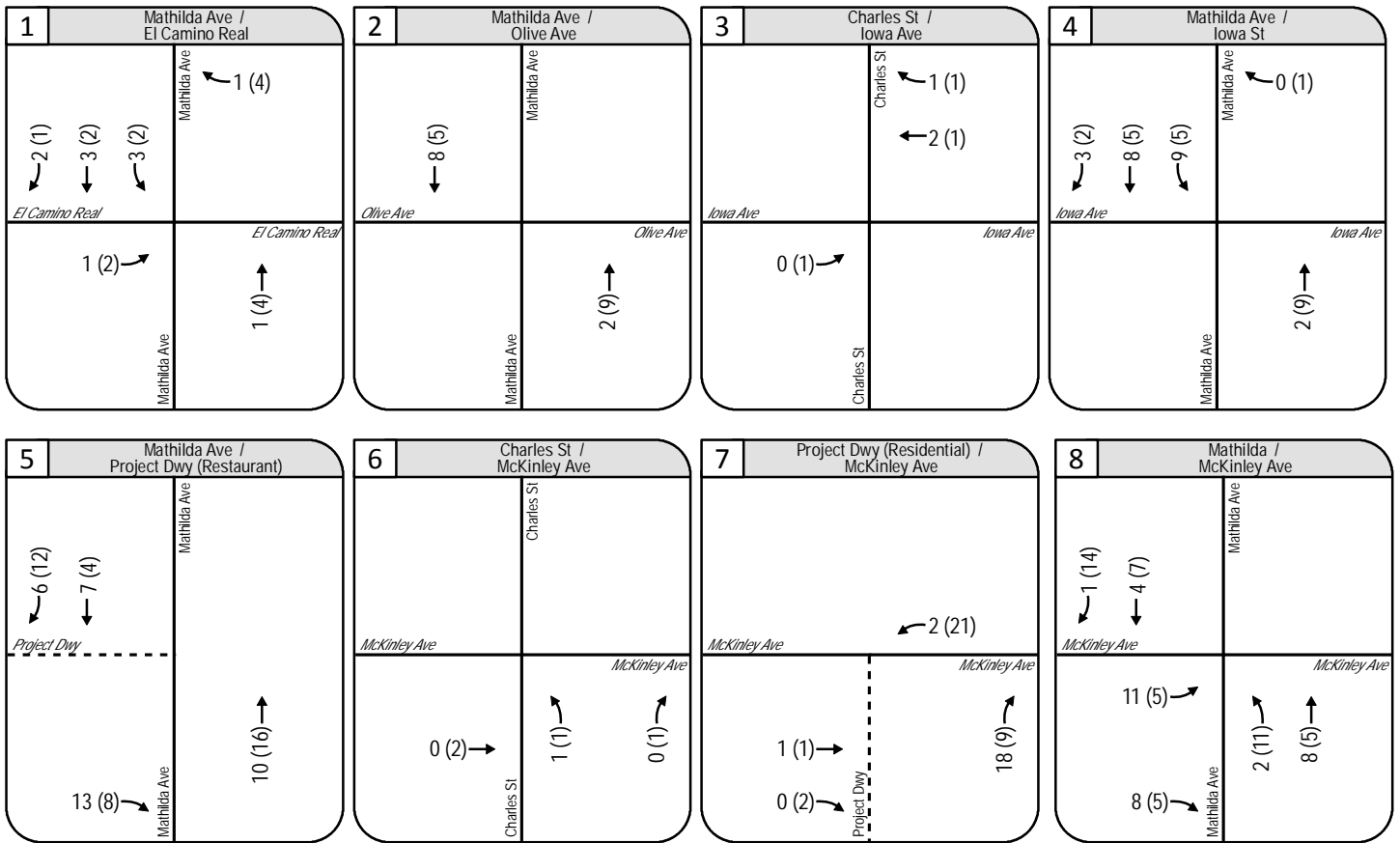
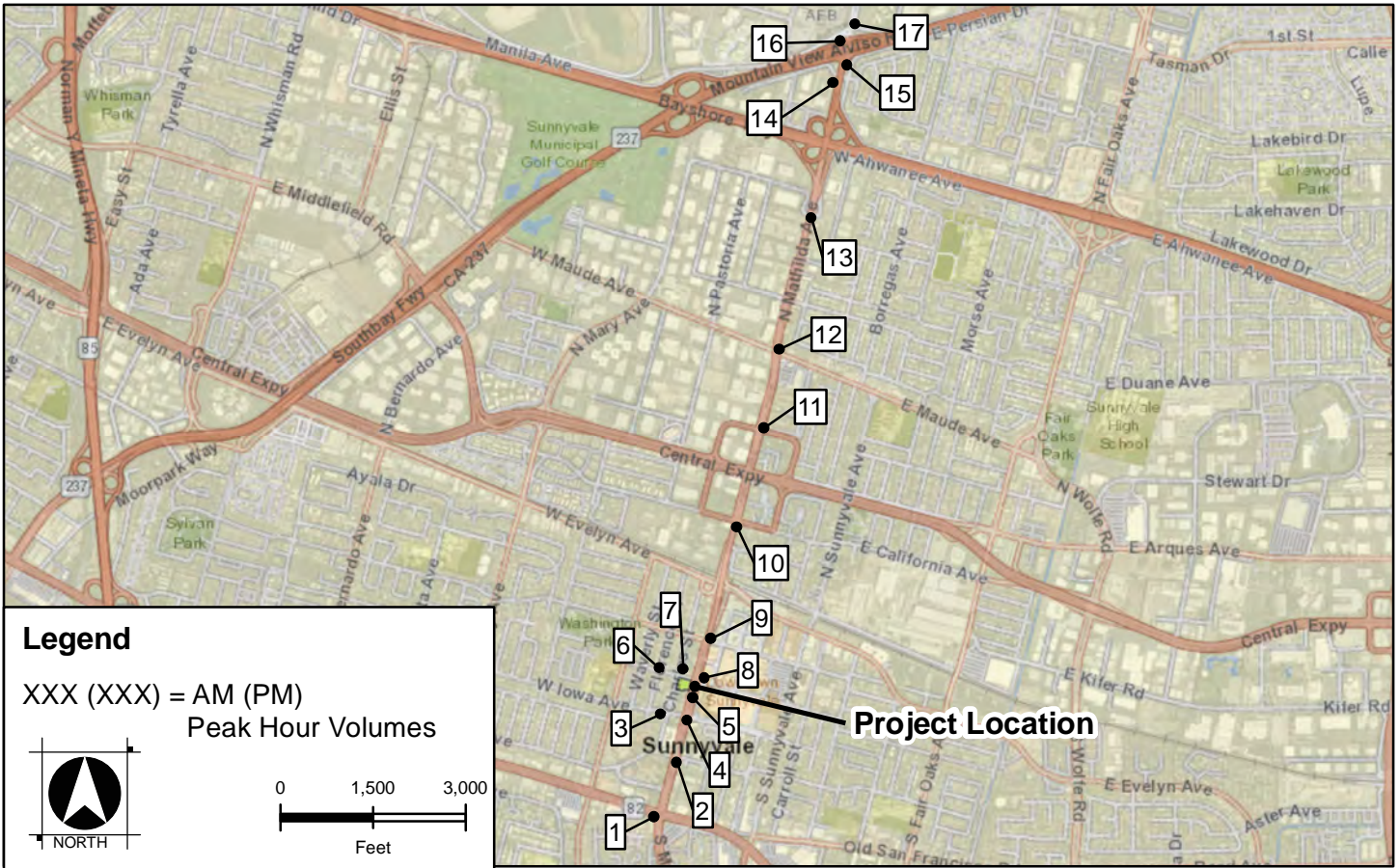


Figure 7






"Project Only Traffic Volumes"
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 8





"Project Only Traffic Volumes"
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 8-2

 BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

traffic volumes at study intersections, freeway segments, and freeway ramps to create “Existing plus Project” conditions traffic volumes. **Figure 9** illustrates the estimated AM and PM peak hour “Existing plus Project” conditions traffic volumes at study intersections.

3.3 “EXISTING PLUS PROJECT” INTERSECTION OPERATIONS

“Existing plus Project” intersection operations were quantified under “Existing plus Project” traffic volumes (shown in **Figure 9**) and existing intersection lane geometrics and control (shown in **Figure 5**). **Table 9** illustrates the resulting “Existing plus Project” intersection LOS operations. **Table 9** also contains “Existing” conditions intersection delays and LOS for comparison purposes, as well as the projected change in delay of critical movements and critical V/C ratio caused by the addition of Project generated trips. The projected change in delay of critical movements and critical V/C ratio were reported for use in identifying significant impacts. Note that the Project site plan and residential unit count has been updated since the initial administrative draft version of this TIA was prepared. The changes resulted in a small decrease in trips generated by the Project (less than 5 peak hour trips). Therefore, the original “plus Project” analysis was considered to be a good, conservative estimate of “plus Project” operating conditions, and was retained where reasonable.

As shown in **Table 9**, all study intersections are projected to operate at acceptable “Existing plus Project” level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hours. All delay and LOS results shown were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not projected to be met at any study intersections under “Existing plus Project” conditions. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

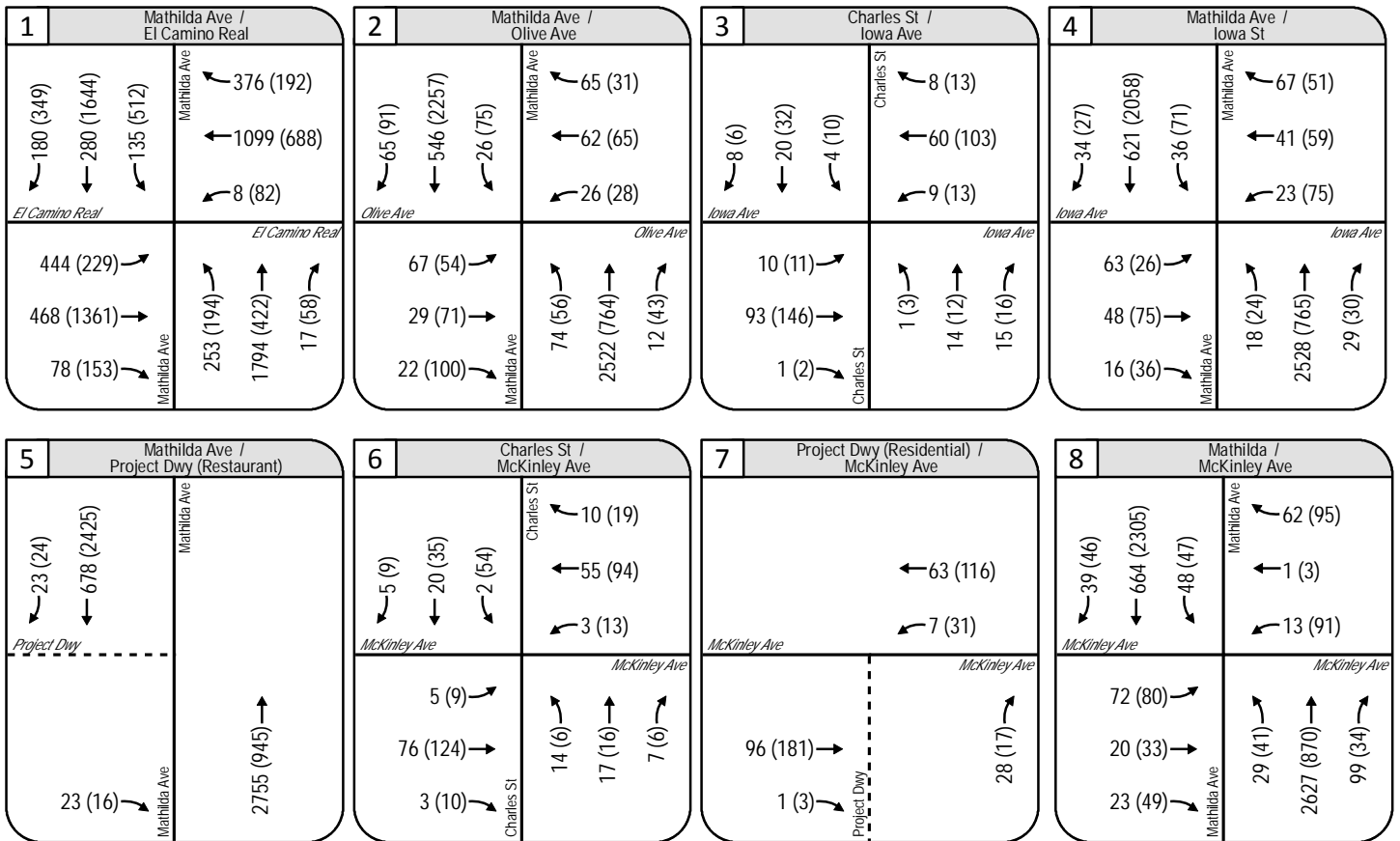
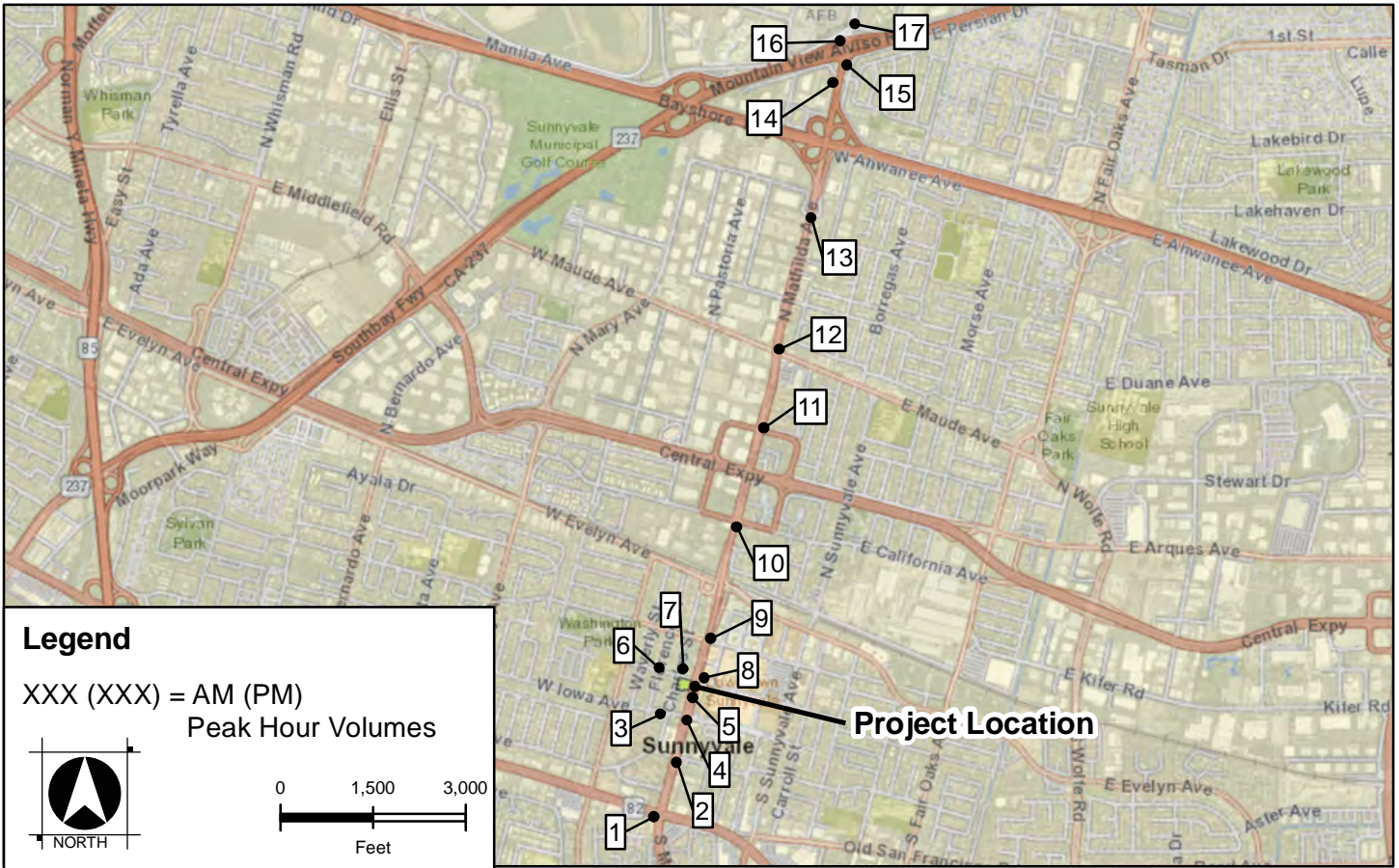
3.4 “EXISTING PLUS PROJECT” FREEWAY SEGMENT OPERATIONS

The four (4) study freeway segments were analyzed under “Existing plus Project” AM and PM peak hour conditions. “Existing plus Project” freeway segment volumes were developed by estimating how many peak hour trips the Project would add to each freeway segment, using the Project trip generation values and trip distribution percentages discussed in Section 3.2, and adding those Project trips on top of the existing freeway segment counts. Project traffic was assigned to HOV lanes using HOV percentages calculated for each segment from existing freeway counts. **Table 10** presents the projected study freeway segment densities and LOS under “Existing plus Project” conditions, as well as the number of Project generated trips added to each segment.

As shown in **Table 10**, the following mixed-flow lane freeway segments operate at unacceptable density-based LOS “F” under “Existing plus Project” AM and/or PM peak hour conditions:

- Eastbound SR 237 between US 101 and Mathilda Avenue during the PM peak hour.
- Eastbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour (mixed-flow lanes only).
- Westbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour.
Northbound US 101 between Mathilda Avenue and Fair Oaks Avenue during the AM peak hour (mixed-flow lanes only).

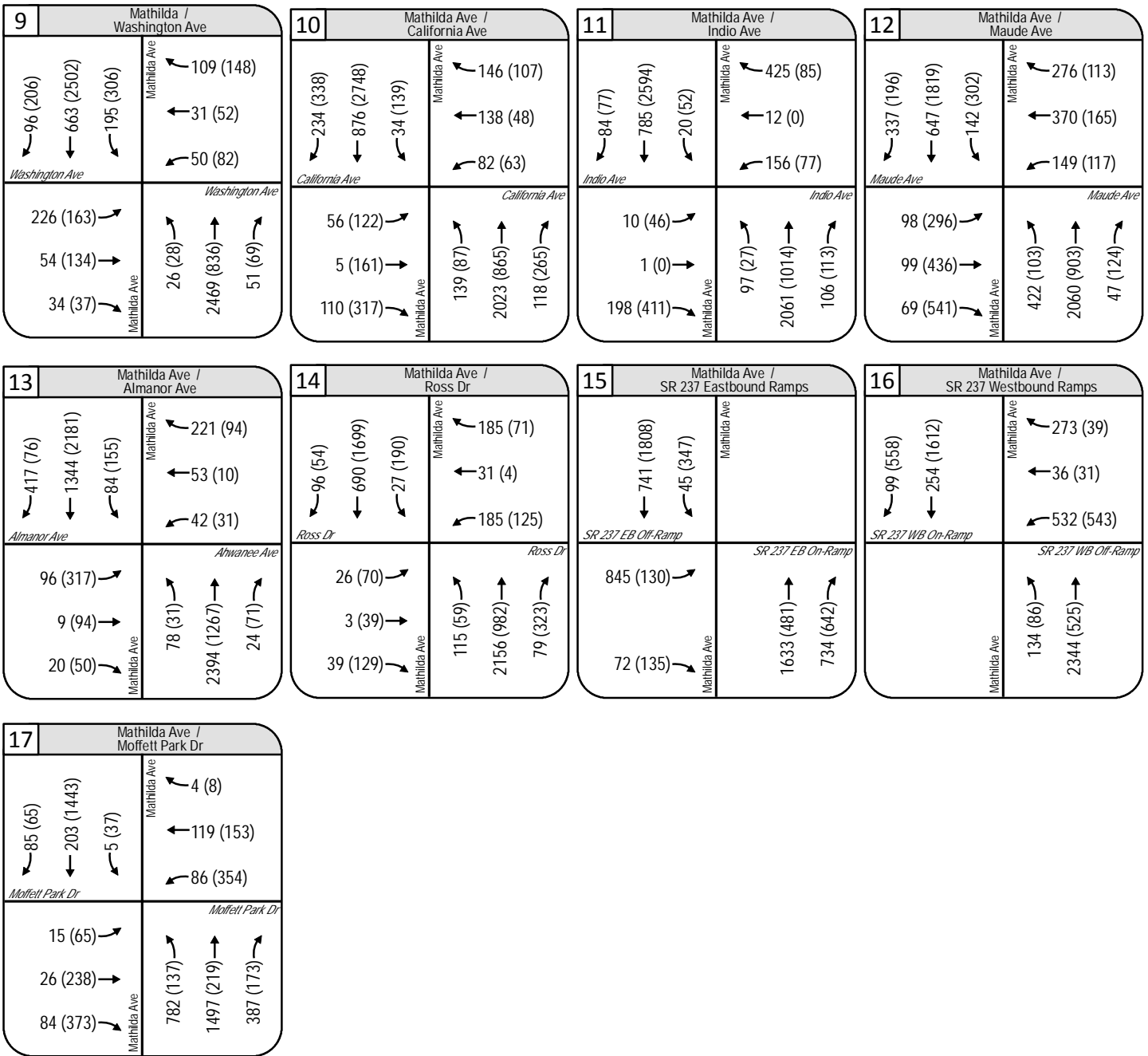
All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.



"Existing plus Project" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 9





"Existing plus Project" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 9-2



Table 9. "Existing plus Project" Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
1	Mathilda Avenue / El Camino Real	Signal	E	AM	49.4	D	-	49.5	D	-	0.002	0.1
				PM	45.4	D	-	45.5	D	-	0.000	0.0
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	13.5	B	-	13.5	B	-	0.001	0.0
				PM	16.4	B	-	16.4	B	-	0.001	0.0
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.0	A	No	9.9	A	No	0.000	0.0
				PM	11.1	B	No	11.2	B	No	0.000	0.0
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	15.1	B	-	15.3	B	-	0.003	0.2
				PM	18.3	B-	-	18.3	B-	-	0.001	-0.1
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	9.7	A	No	9.8	A	No	0.017	0.1
				PM	16.3	C	No	16.8	C	No	0.028	0.1
6	Charles Street / McKinley Avenue	TWSC	D	AM	9.8	A	No	9.8	A	No	0.000	0.0
				PM	11.4	B	No	11.5	B	No	0.001	0.0
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	8.8	A	No	8.9	A	No	0.017	0.8
				PM	9.3	A	No	9.4	A	No	0.015	0.7
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	14.2	B	-	15.1	B	-	0.008	0.8
				PM	19.1	B-	-	19.6	B-	-	0.014	0.6
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	30.3	C	-	30.2	C	-	0.003	0.0
				PM	31.1	C	-	31.1	C	-	0.003	0.0
10	Mathilda Avenue / California Avenue	Signal	E	AM	24.6	C	-	24.5	C	-	0.003	-0.1
				PM	31.5	C	-	31.7	C	-	0.006	0.3
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	28.1	C	-	28.0	C	-	0.002	0.0
				PM	24.9	C	-	25.1	C	-	0.005	0.2
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	39.3	D	-	39.3	D	-	0.002	-0.1
				PM	46.6	D	-	46.6	D	-	0.002	0.0
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	22.9	C+	-	22.8	C+	-	0.001	-0.1
				PM	28.4	C	-	28.3	C	-	0.002	0.0
14	Mathilda Avenue / Ross Drive	Signal	E	AM	15.9	B	-	15.8	B	-	0.000	0.0
				PM	49.2	D	-	49.5	D	-	0.010	0.3

Table 9. "Existing plus Project" Conditions Intersection Traffic Operations (Continued)

#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	46.1	D	-	46.4	D	-	0.000	0.6
				PM	65.2	E	-	65.1	E	-	0.008	0.1
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	28.3	C	-	28.3	C	-	0.000	0.0
				PM	48.4	D	-	49.1	D	-	0.003	0.9
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	21.5	C+	-	21.5	C+	-	0.000	0.0
				PM	73.0	E	-	73.2	E	-	0.000	0.3

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, "worst-case" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)
3. CMP Intersection(s)
4. Regionally significant intersection(s)
BOLD indicates unacceptable level of service.

Table 10. "Existing Plus Project" Freeway Segment Traffic Operations

#	Fwy	Segment	Dir	Peak Hour	Capacity ¹		Lanes		Existing Peak Density		Existing Peak LOS		Trips Added from Project		Existing plus Project Density		Existing plus Project LOS		% of Capacity ⁴	
					MF ²	HOV ³	MF	HOV	MF	HOV	MF	HOV	MF	HOV	MF	HOV	MF	HOV	MF	HOV
1	SR 237	Between US 101 and Mathilda Avenue	EB	AM	4,400	-	2	-	38.0	-	D	-	1	-	38.0	-	D	-	0.02%	-
				PM	4,400	-	2	-	96.0	-	F	-	0	-	96.0	-	F	-	0.00%	-
			WB	AM	4,400	-	2	-	45.0	-	D	-	0	-	45.0	-	D	-	0.00%	-
				PM	4,400	-	2	-	33.0	-	D	-	1	-	33.1	-	D	-	0.02%	-
2	SR 237	Between Mathilda Avenue and Fair Oaks Avenue	EB	AM	4,400	1,650	2	1	43.0	15.1	D	B	2	1	43.1	15.1	D	B	0.05%	0.06%
				PM	4,400	1,650	2	1	98.0	28.0	F	D	1	1	98.0	28.0	F	D	0.02%	0.06%
			WB	AM	6,900	-	3	-	56.0	-	E	-	1	-	56.0	-	E	-	0.01%	-
				PM	6,900	-	3	-	83.0	-	F	-	3	-	83.1	-	F	-	0.04%	-
3	US 101	Between SR 237 and Mathilda Avenue	SB	AM	6,900	1,650	3	1	23.0	22.1	C	C	1	0	23.0	22.1	C	C	0.01%	0.00%
				PM	6,900	1,650	3	1	31.0	31.0	D	D	3	1	31.0	31.0	D	D	0.04%	0.06%
			NB	AM	6,900	1,650	3	1	40.0	42.1	D	D	2	1	40.0	42.1	D	D	0.03%	0.06%
				PM	6,900	1,650	3	1	26.0	37.0	C	D	1	1	26.0	37.0	D	D	0.01%	0.06%
4	US 101	Between Mathilda Avenue and Fair Oaks Avenue	SB	AM	6,900	1,650	3	1	34.0	14.0	D	B	3	0	34.0	14.0	D	B	0.04%	0.00%
				PM	6,900	1,650	3	1	43.0	31.0	D	D	2	0	43.0	31.0	D	D	0.03%	0.00%
			NB	AM	6,900	1,650	3	1	59.0	37.1	F	D	1	0	59.0	37.1	F	D	0.01%	0.00%
				PM	6,900	1,650	3	1	27.8	24.0	D	C	3	1	27.8	24.0	D	C	0.04%	0.06%

Notes: Freeway volumes were obtained from the Santa Clara County Annual Monitoring and Conformance Report (VTA, 2014). **BOLD** indicates unacceptable level of service.

1. Freeway segment capacities were obtained from the Peery Park 7 Projects TIA.

2. MF = Mixed Flow

3. HOV = High Occupancy Vehicle

4. % of Capacity = Number of Project trips added / Capacity

3.5 EXISTING PLUS PROJECT FREEWAY RAMP OPERATIONS

The four (4) study freeway ramps were analyzed under “Existing plus Project” AM and PM peak hour conditions. “Existing plus Project” freeway ramp volumes were developed by estimating how many peak hour trips the Project would add to each freeway ramp, using the Project trip generation values and trip distribution percentages discussed in Section 3.2, and adding those Project trips on top of the existing freeway ramps counts. **Table 11** presents the projected study freeway ramp V/C ratios under “Existing plus Project” conditions, as well as the number of Project generated trips added to each ramp.

As shown in **Table 11**, all study freeway ramps are projected to operate at acceptable V/C ratios of less than 1.0.

4. “BACKGROUND” CONDITIONS

This chapter presents the study area intersection traffic operations results under “Background” conditions without Project generated trips. The City and the VTA define “Background” conditions as existing traffic volumes plus traffic generated by “approved but not yet constructed” developments within the vicinity of the Project site. “Background” conditions are a near-term future condition that could reasonably represent study area conditions at the time of Project completion.

4.1 “BACKGROUND” (NO PROJECT) CONDITIONS VOLUMES

“Background” conditions traffic volumes were developed by adding trips generated by nearby “approved but not constructed” developments to the “Existing” conditions traffic volumes. In order to determine which nearby developments to include in “Background” conditions, a list of approved and pending projects was obtained from City of Sunnyvale staff, dated May 19, 2017. Per City of Sunnyvale policy, only projects that were designated as “approved” on the list of approved and pending projects, that consisted of land uses larger than 20 residential units or 10,000 square-feet of office/commercial space, and which were located within a one mile radius of the Project site were selected to be a part of “Background” conditions volumes.

The Project is located close to the Peery Park Specific Plan Area. As such, trips generated by “approved but not constructed” projects included in background conditions of the *Peery Park Near-Term 7 Projects Draft Transportation Impact Analysis* (dated February 3, 2016) were also added to “Existing” conditions traffic volumes. The net new trips from “approved” developments assumed in the *Peery Park 7 Projects TIA* background conditions were calculated using the difference method. *Peery Park 7 Projects TIA* existing traffic volumes were subtracted from *Peery Park 7 Projects TIA* background traffic volumes in order to get the net new background development trips. Most Project study intersections were included in the *Peery Park 7 Projects TIA*. However, for the few that were not, net new trips were estimated using their associated trip generation and distribution percentages and volume balancing methods.

Net new trips from any “approved” developments within the Project vicinity which were not included in the background conditions of the *Peery Park 7 Projects TIA* were estimated using typical *ITE Trip Generation Manual 9th Edition* rates and City of Sunnyvale and VTA trip reduction guidelines/ targets. These “approved” development trips were then assigned to the study area network using existing traffic volume patterns and available planning documents and added to “Existing” traffic volumes and trips from “approved” developments included in the *Peery Park 7 Projects TIA* to obtain “Background” traffic volumes. A full list of “approved but not constructed” developments assumed under “Background” conditions is included in **Appendix D**. “Approved” development trip generation worksheets are included in **Appendix E**, “approved” development trip

Table 11. "Existing Plus Project" Freeway Ramp Traffic Operations

#	Ramp	Type	Peak Hour	Lanes				Existing Peak		Trips Added by Project	Existing plus Project Peak		% of Capacity ⁴
				Mixed	HOV	Meter	Capacity ¹	Volume ²	V/C ³		Volume	V/C	
5	US 101 Northbound Off-Ramp to Southbound North Mathilda Avenue	Loop	AM	1	-	-	1,800	621	0.35	1	622	0.35	0.1%
			PM	1	-	-	1,800	738	0.41	4	742	0.41	0.2%
6	US 101 Northbound On-Ramp from Northbound North Mathilda Avenue	Loop	AM	1	1	ON	1,800	314	0.17	3	317	0.18	0.2%
			PM	1	1	-	2,700	247	0.09	2	249	0.09	0.1%
7	US 101 Southbound Off-Ramp to Southbound North Mathilda Avenue	Diagonal	AM	1	-	-	2,000	337	0.17	1	338	0.17	0.1%
			PM	1	-	-	2,000	442	0.22	4	446	0.22	0.2%
8	US 101 Southbound On-Ramp from Northbound North Mathilda Avenue	Diagonal	AM	1	1	-	2,900	554	0.19	3	557	0.19	0.1%
			PM	1	1	-	2,900	488	0.17	2	490	0.17	0.1%

Notes: 1. Ramp Capacities were obtained from the Peery Park 7 Projects TIA.
2. Ramp Volumes were obtained from the Peery Park 7 Projects TIA.
3. V/C = Volume-to-capacity ratio.
4. % of Capacity = Number of Project trips added / Capacity
BOLD indicates unacceptable level of service

distributions are included in **Appendix F**, and total “approved” development volumes are included in **Appendix G**. “Background” study intersection turning movement volumes are presented in **Figure 10**.

4.2 “BACKGROUND” (NO PROJECT) IMPROVEMENTS

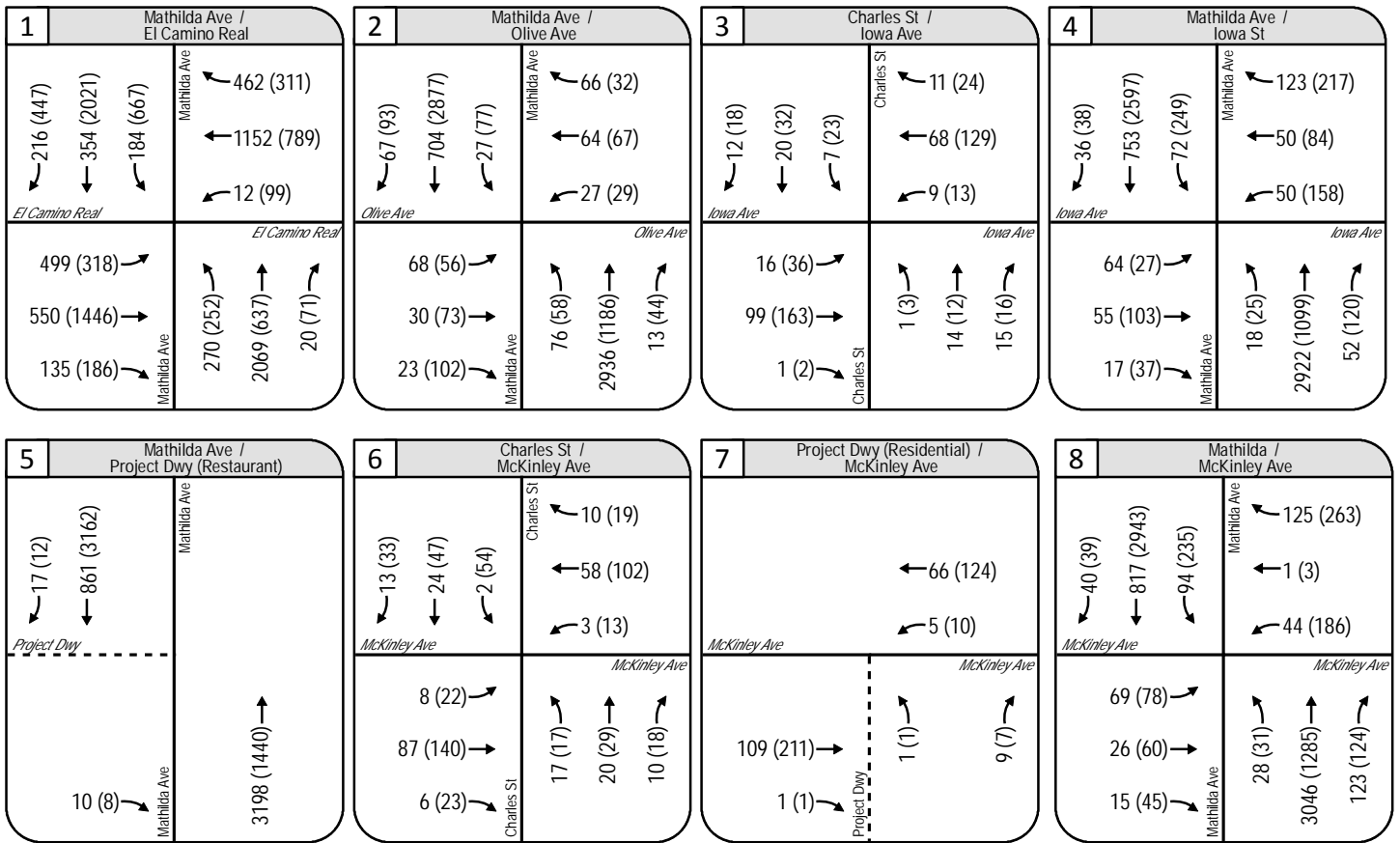
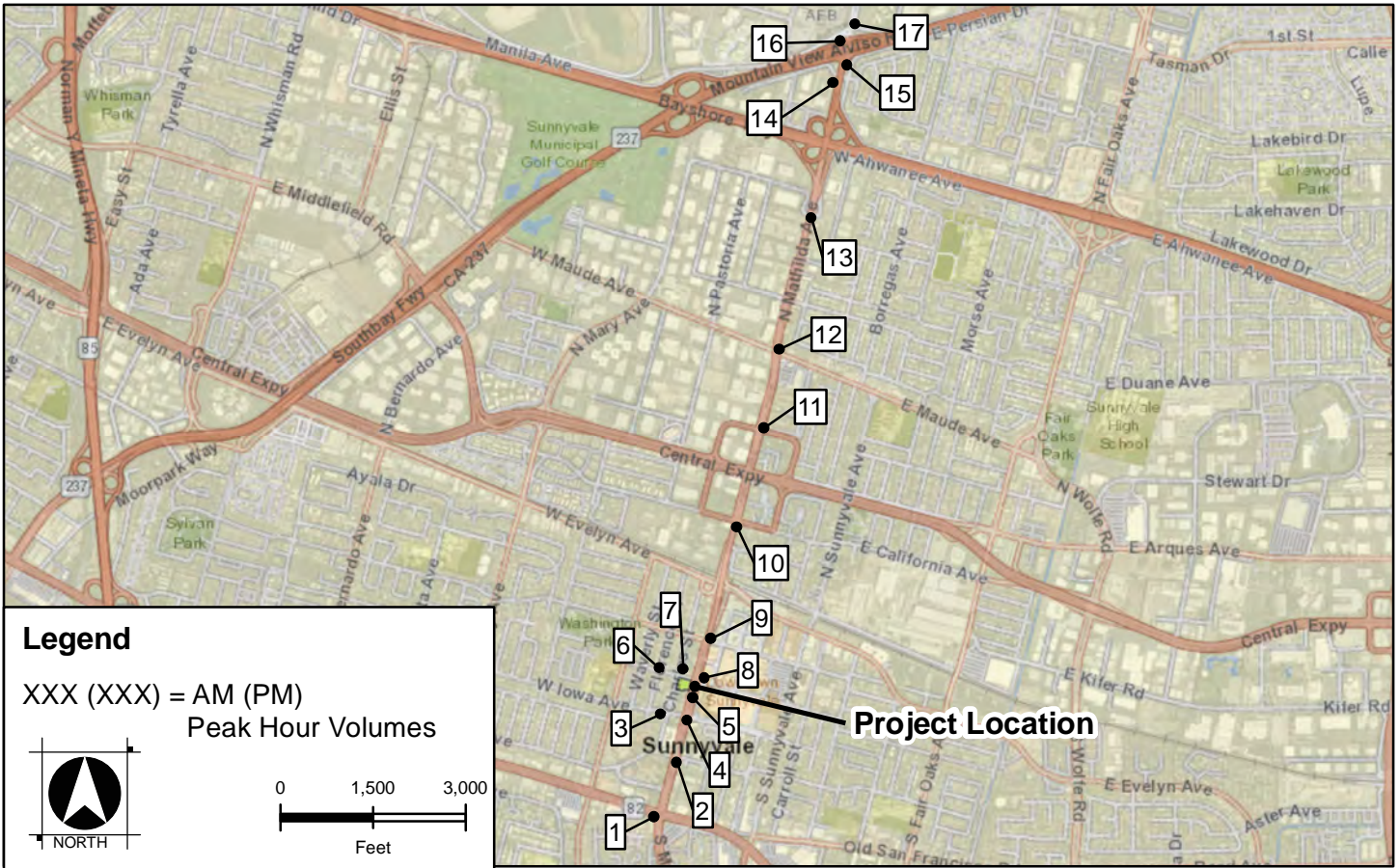
Based on direction from the City, one roadway improvement project was assumed to be complete by near-term future “Background” conditions within the Project study area. This project proposes to construct Class 2 bike lanes along both directions of Mathilda Avenue in the Project vicinity. The proposed northbound bike lane will be installed by restriping/reconfiguring the northbound lane configuration on Mathilda Avenue. In addition, some currently closed lanes will be reopened under “Background” conditions. The following intersections will be reconfigured as listed below under “Background Conditions”:

Mathilda Avenue / Iowa Avenue: The existing northbound shared-through right lane will be converted to a dedicated right-turn lane and one additional westbound left-turn lane will be added.

Mathilda Avenue / McKinley Avenue: The outside northbound through lane will be removed. Both westbound left-turn lanes will be opened (only-one left-turn lane is currently open under “Existing” conditions). Both southbound left-turn lanes will be opened (only-one left-turn lane is currently open under “Existing” conditions).

Mathilda Avenue / Washington Avenue: The existing northbound dedicated right-turn lane will be removed. Both westbound left-turn lanes will be opened (only-one left-turn lane is currently open under “Existing” conditions).

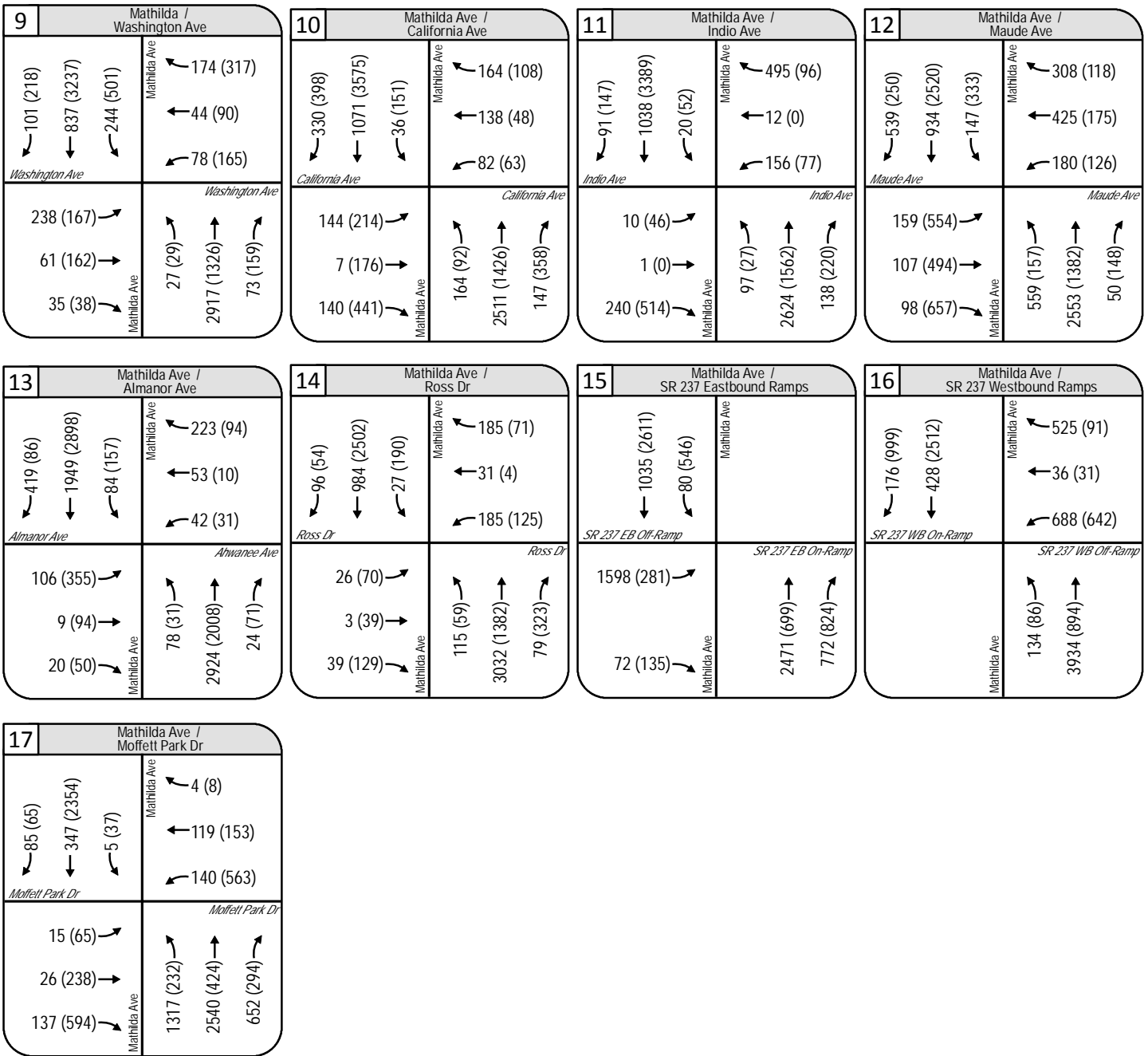
The proposed southbound bike lane will be constructed in dedicated right-of-way from adjacent projects. “Background” lane geometrics are shown in **Figure 11**.



"Background" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 10

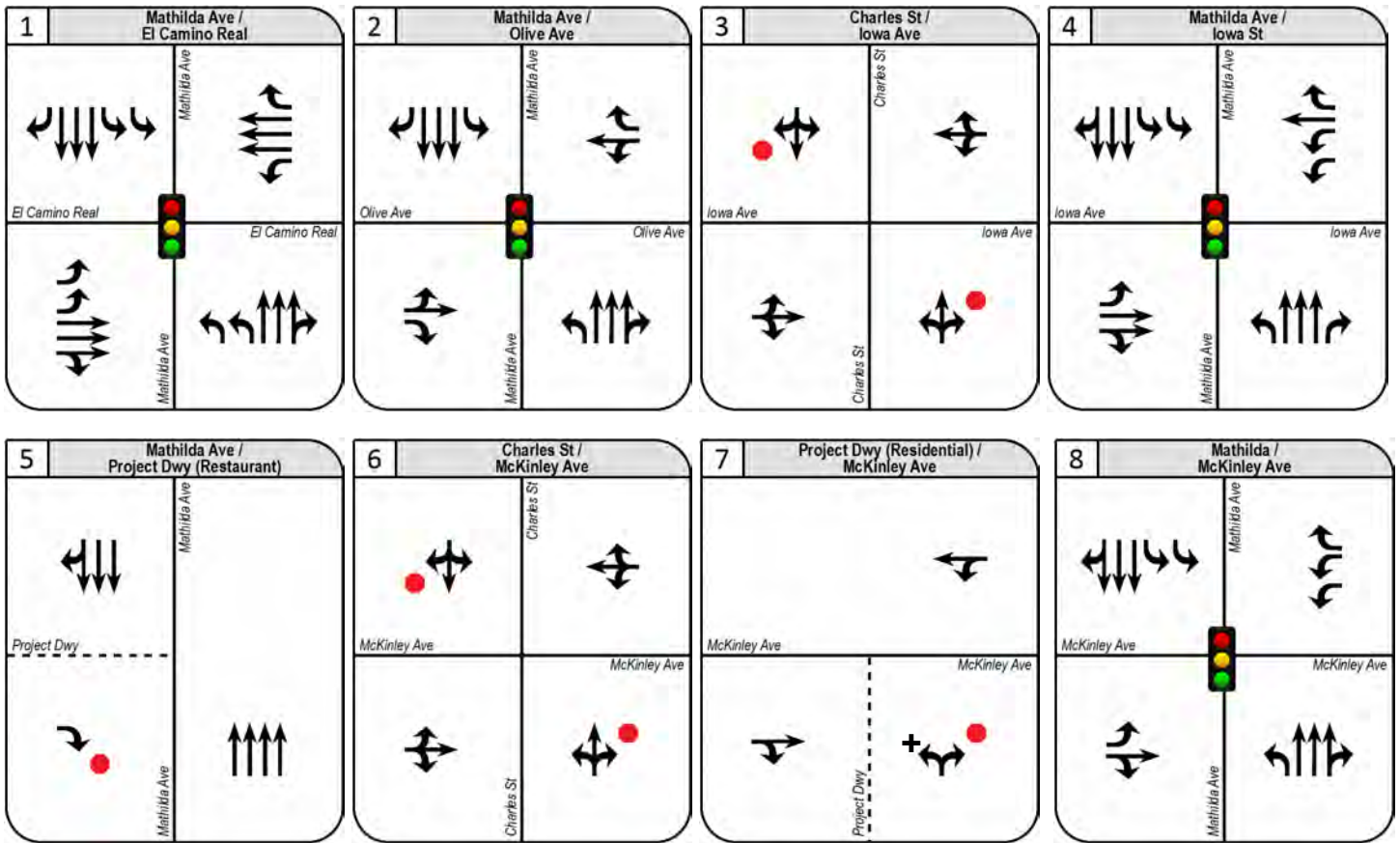
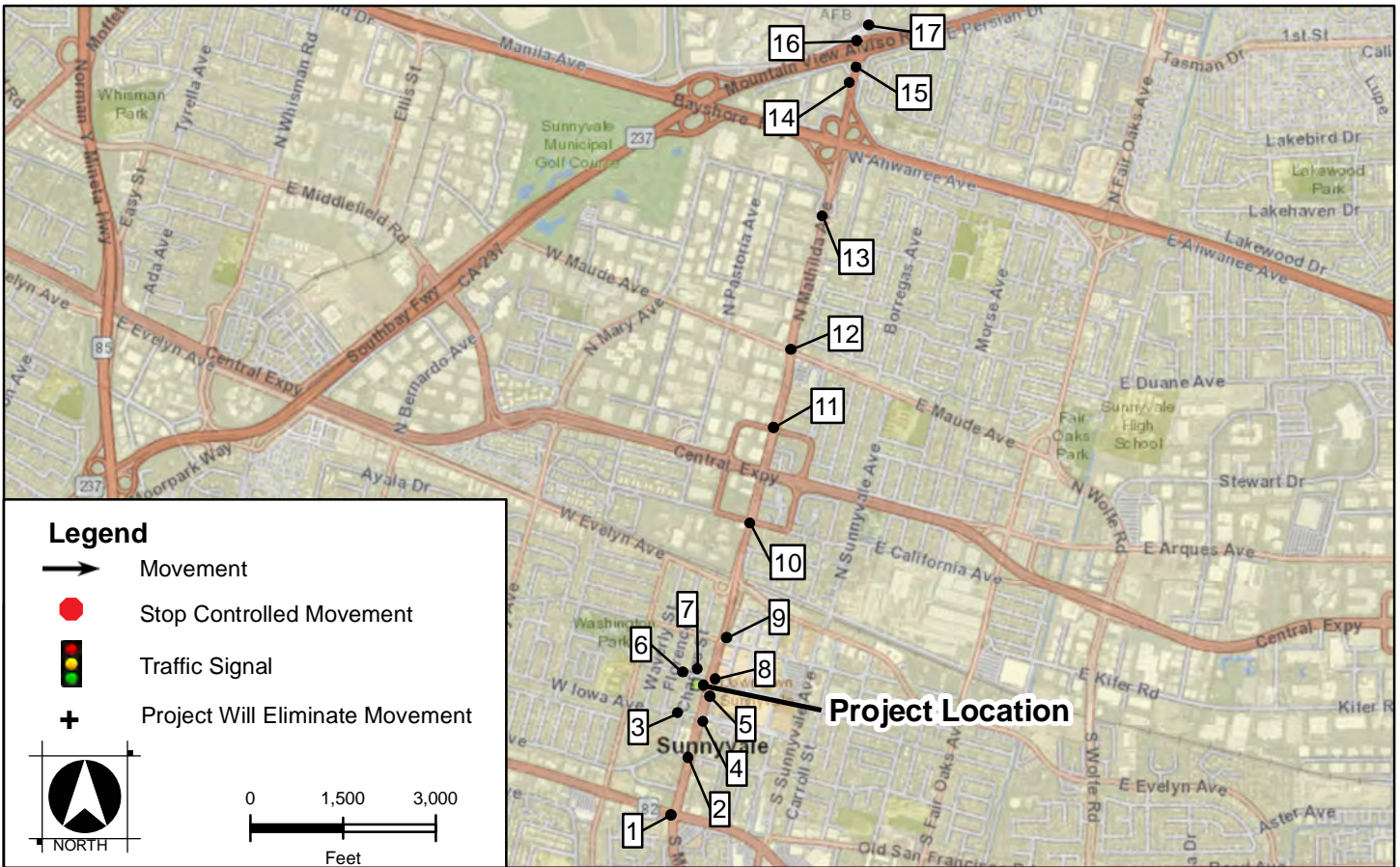




"Background" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 10-2

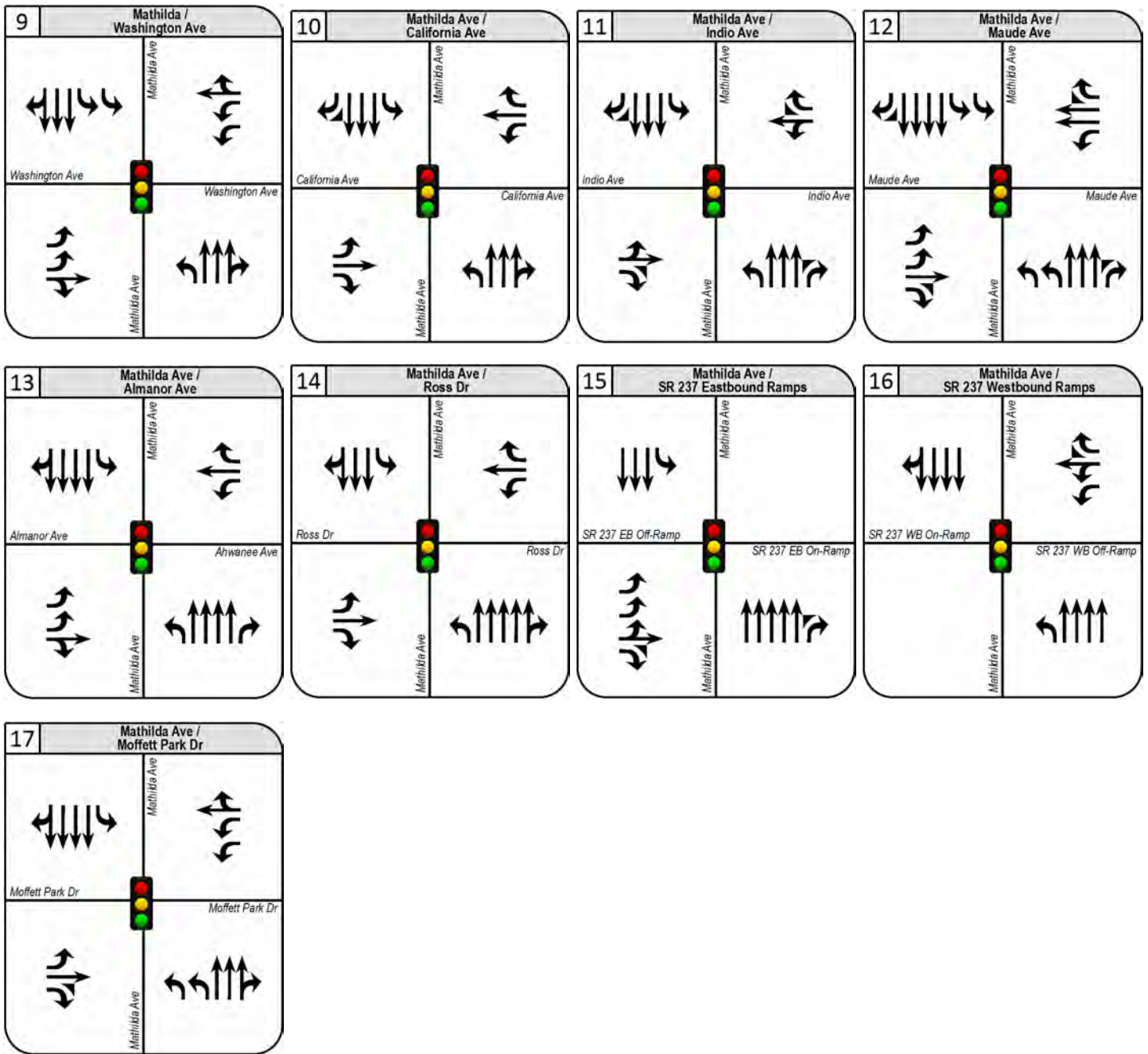




Background Intersection Lane Geometrics and Control
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 11





Background Intersection Lane Geometrics and Control
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 11-2



4.3 “BACKGROUND” (NO PROJECT) INTERSECTION OPERATIONS

“Background” intersection operations were quantified under “Background” traffic volumes (shown in **Figure 10**) and background intersection lane geometrics and control (shown in **Figure 11**). **Table 12** illustrates the resulting “Background” intersection LOS operations.

Table 12. “Background” Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions		
					Delay (S/V) ¹	LOS	Wrnt Met? ²
1	Mathilda Avenue / El Camino Real	Signal	E	AM	54.1	D-	-
				PM	50.0	D	-
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	13.0	B	-
				PM	14.8	B	-
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.1	B	No
				PM	12.1	B	No
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	17.4	B	-
				PM	22.4	C+	-
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	10.2	B	No
				PM	21.7	C	No
6	Charles Street / McKinley Avenue	TWSC	D	AM	10.0	B	No
				PM	12.3	B	No
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	8.9	A	No
				PM	9.5	A	No
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	17.6	B	-
				PM	24.0	C	-
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	38.2	D+	-
				PM	56.3	E+	-
10	Mathilda Avenue / California Avenue	Signal	E	AM	29.1	C	-
				PM	47.6	D	-
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	29.9	C	-
				PM	32.6	C-	-
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	43.2	D	-
				PM	49.9	D	-
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	20.9	C+	-
				PM	26.8	C	-
14	Mathilda Avenue / Ross Drive	Signal	E	AM	23.0	C+	-
				PM	140.8	F	-
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	110.3	F	-
				PM	114.4	F	-
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	140.7	F	-
				PM	181.5	F	-
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	143.3	F	-
				PM	251.1	F	-

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, “worst-case” movement delay is indicated. “Average” control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.

2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)

3. CMP Intersection(s)

4. Regionally significant intersection(s)

BOLD indicates unacceptable level of service.

As shown in **Table 12**, the signalized Mathilda Avenue intersections with Ross Drive, SR 237 Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive are projected to operate at unacceptable average intersection LOS “F” under “Background” AM and/or PM peak hour conditions. All of the remaining study intersections are projected to operate at acceptable “Background” level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hour. All delay and LOS results shown in **Table 12** were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not projected to be met at any study intersections under “Background” conditions. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

5. “BACKGROUND PLUS PROJECT” CONDITIONS

This chapter presents the study area intersection traffic operations results under “Background plus Project” conditions.

5.1 “BACKGROUND PLUS PROJECT” CONDITIONS VOLUMES

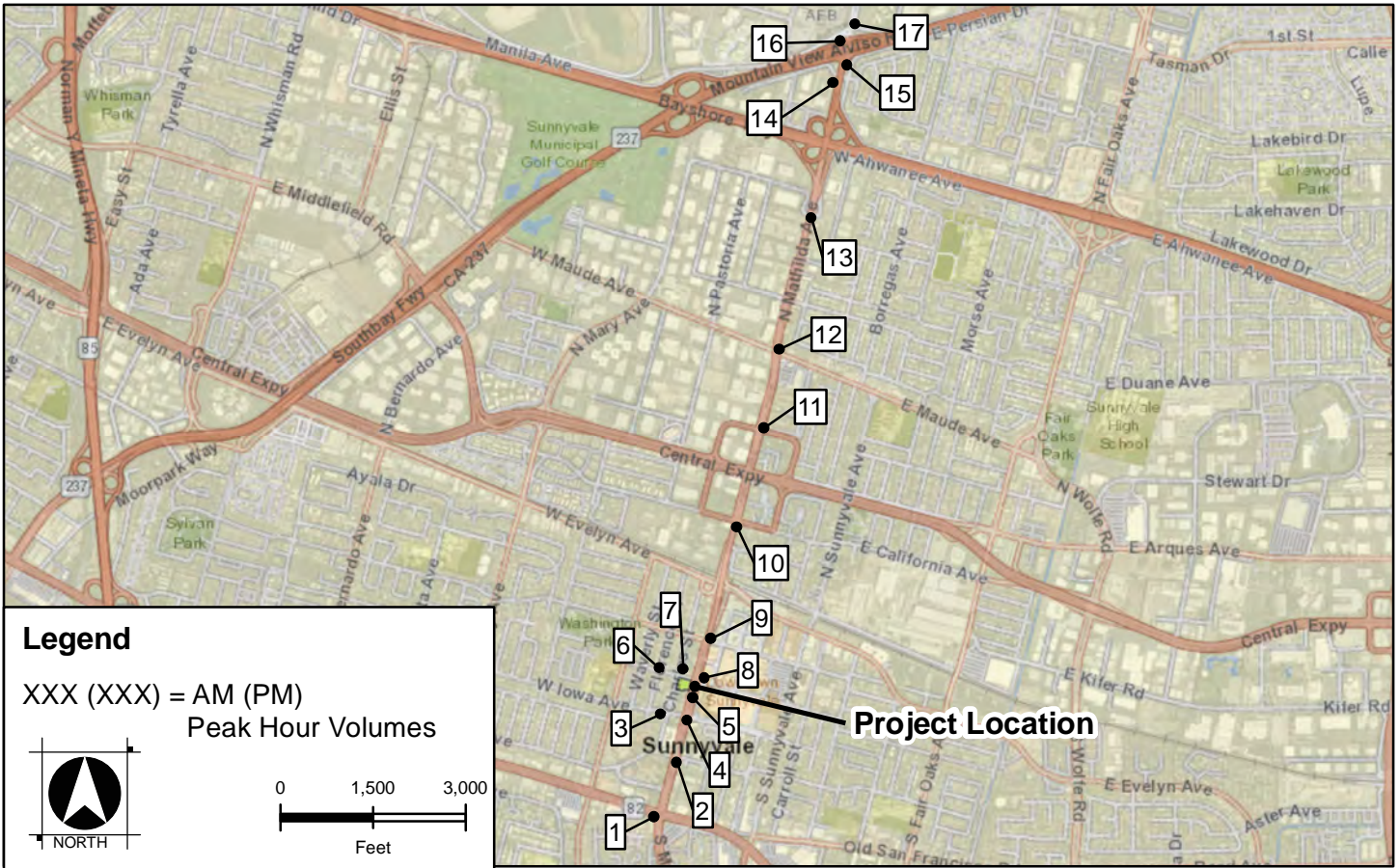
“Project Only” traffic volumes were added on top of “Background” conditions traffic volumes at study intersections to generate “Background plus Project” conditions traffic volumes. **Figure 12** illustrates the estimated AM and PM peak hour “Background plus Project” conditions traffic volumes at study intersections.

5.2 “BACKGROUND PLUS PROJECT” INTERSECTION OPERATIONS

“Background plus Project” intersection operations were quantified under “Background plus Project” traffic volumes (shown in **Figure 12**) and “Background” intersection lane geometrics and control (shown in **Figure 11**). **Table 13** illustrates the resulting “Background plus Project” intersection LOS operations. **Table 13** also contains “Background” conditions intersection delays and LOS for comparison purposes, as well as the projected change in delay of critical movements and critical V/C ratio caused by the addition of Project generated trips. The projected change in delay of critical movements and critical V/C ratio were reported for use in identifying significant impacts.

As shown in **Table 13**, the signalized Mathilda Avenue intersections with Ross Drive, SR 237 Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive are projected to operate at unacceptable average intersection LOS “F” under “Background plus Project” AM and/or PM peak hour conditions. All of the remaining study intersections are projected to operate at acceptable “Background plus Project” level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hour. All delay and LOS results shown in **Table 13** were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not projected to be met at any study intersections under “Background plus Project” conditions. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

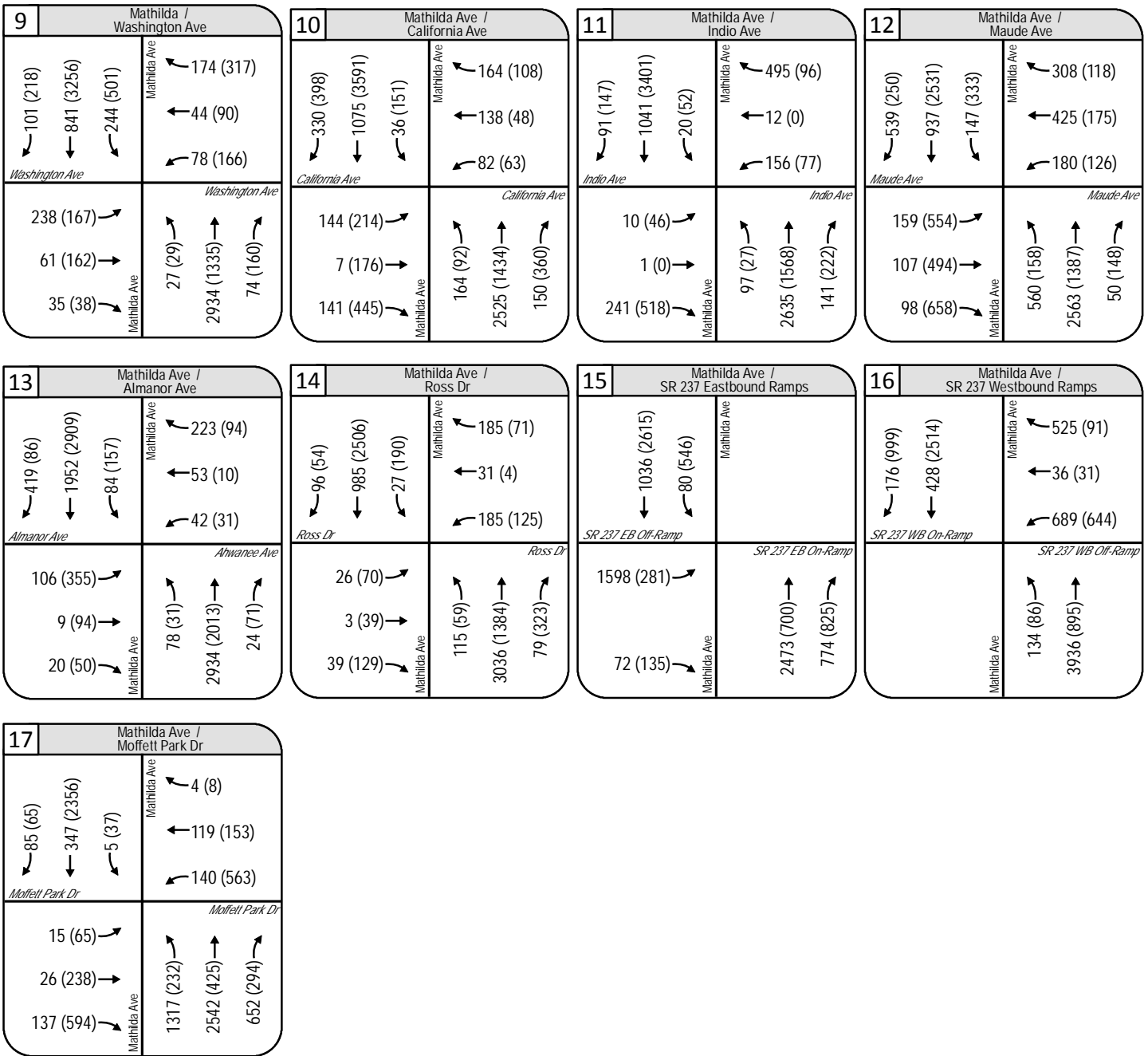


<p>1 Mathilda Ave / El Camino Real</p> <p>Mathilda Ave ↖ 463 (315) ↙ 1152 (789) ↘ 12 (99)</p> <p>El Camino Real ↖ 218 (448) ↘ 357 (2023) ↙ 187 (669)</p> <p>Mathilda Ave ↗ 500 (320) ↘ 550 (1446) ↙ 135 (186)</p> <p>El Camino Real ↖ 270 (252) ↘ 2070 (641) ↙ 20 (71)</p>	<p>2 Mathilda Ave / Olive Ave</p> <p>Mathilda Ave ↖ 66 (32) ↙ 64 (67) ↘ 27 (29)</p> <p>Olive Ave ↖ 67 (93) ↘ 712 (2882) ↙ 27 (77)</p> <p>Mathilda Ave ↗ 68 (56) ↘ 30 (73) ↙ 23 (102)</p> <p>Olive Ave ↖ 76 (58) ↘ 2938 (1195) ↙ 13 (44)</p>	<p>3 Charles St / Iowa Ave</p> <p>Charles St ↖ 12 (25) ↙ 70 (130) ↘ 9 (13)</p> <p>Iowa Ave ↖ 12 (18) ↘ 20 (32) ↙ 7 (23)</p> <p>Charles St ↗ 16 (37) ↘ 99 (163) ↙ 1 (2)</p> <p>Iowa Ave ↖ 1 (3) ↘ 14 (12) ↙ 15 (16)</p>	<p>4 Mathilda Ave / Iowa St</p> <p>Mathilda Ave ↖ 123 (218) ↙ 50 (84) ↘ 50 (158)</p> <p>Iowa Ave ↖ 39 (40) ↘ 761 (2602) ↙ 81 (254)</p> <p>Mathilda Ave ↗ 64 (27) ↘ 55 (103) ↙ 17 (37)</p> <p>Iowa Ave ↖ 18 (25) ↘ 2924 (1108) ↙ 52 (120)</p>
<p>5 Mathilda Ave / Project Dwy (Restaurant)</p> <p>Mathilda Ave ↖ 23 (24) ↘ 868 (3166)</p> <p>Project Dwy ↖ 23 (16)</p> <p>Mathilda Ave ↗ 3208 (1456)</p>	<p>6 Charles St / McKinley Ave</p> <p>Charles St ↖ 10 (19) ↙ 58 (102) ↘ 3 (13)</p> <p>McKinley Ave ↖ 13 (33) ↘ 24 (47) ↙ 2 (54)</p> <p>Charles St ↗ 8 (22) ↘ 87 (142) ↙ 6 (23)</p> <p>McKinley Ave ↖ 18 (18) ↘ 20 (29) ↙ 10 (19)</p>	<p>7 Project Dwy (Residential) / McKinley Ave</p> <p>McKinley Ave ↖ 66 (124) ↘ 7 (31)</p> <p>Project Dwy ↖ 110 (212) ↘ 1 (3)</p> <p>McKinley Ave ↗ 28 (17)</p>	<p>8 Mathilda / McKinley Ave</p> <p>Mathilda Ave ↖ 125 (263) ↙ 1 (3) ↘ 44 (186)</p> <p>McKinley Ave ↖ 41 (53) ↘ 821 (2950) ↙ 94 (235)</p> <p>Mathilda Ave ↗ 80 (83) ↘ 26 (60) ↙ 23 (50)</p> <p>McKinley Ave ↖ 30 (42) ↘ 3054 (1290) ↙ 123 (124)</p>

"Background plus Project" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 12





"Background plus Project" Traffic Volumes

311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 12-2



Table 13. "Background plus Project" Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions			Background plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
1	Mathilda Avenue / El Camino Real	Signal	E	AM	54.1	D-	-	54.2	D-	-	0.001	0.1
				PM	50.0	D	-	50.1	D	-	0.000	0.0
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	13.0	B	-	12.9	B	-	0.000	0.0
				PM	14.8	B	-	14.8	B	-	0.001	0.0
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.1	B	No	10.1	B	No	0.000	0.0
				PM	12.1	B	No	12.1	B	No	0.000	0.0
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	17.4	B	-	17.6	B	-	0.003	0.2
				PM	22.4	C+	-	22.4	C+	-	0.001	0.0
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	10.2	B	No	10.3	B	No	0.019	0.1
				PM	21.7	C	No	22.6	C	No	0.041	0.1
6	Charles Street / McKinley Avenue	TWSC	D	AM	10.0	B	No	10.1	B	No	0.000	0.0
				PM	12.3	B	No	12.4	B	No	0.001	0.0
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	8.9	A	No	9.0	A	No	0.017	0.7
				PM	9.5	A	No	9.6	A	No	0.015	0.7
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	17.6	B	-	18.5	B-	-	0.008	0.9
				PM	24.0	C	-	24.5	C	-	0.014	0.6
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	38.2	D+	-	38.3	D+	-	0.003	0.2
				PM	56.3	E+	-	56.9	E+	-	0.004	1.1
10	Mathilda Avenue / California Avenue	Signal	E	AM	29.1	C	-	29.0	C	-	0.003	0.0
				PM	47.6	D	-	48.6	D	-	0.006	1.6
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	29.9	C	-	29.9	C	-	0.002	0.0
				PM	32.6	C-	-	33.1	C-	-	0.005	0.8
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	43.2	D	-	43.2	D	-	0.001	0.1
				PM	49.9	D	-	49.9	D	-	0.002	0.1
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	20.9	C+	-	20.9	C+	-	0.001	0.0
				PM	26.8	C	-	26.7	C	-	0.002	0.0
14	Mathilda Avenue / Ross Drive	Signal	E	AM	23.0	C+	-	23.3	C	-	0.000	0.4
				PM	140.8	F	-	141.4	F	-	0.000	0.6

Table 13. "Background plus Project" Conditions Intersection Traffic Operations (Continued)

#	Intersection	Control Type	LOS Criteria	Peak Hour	Background Conditions			Background plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	110.3	F	-	110.5	F	-	0.006	0.1
				PM	114.4	F	-	114.9	F	-	0.000	0.5
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	140.7	F	-	140.9	F	-	0.000	0.2
				PM	181.5	F	-	182.1	F	-	0.000	0.4
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	143.3	F	-	143.6	F	-	0.000	0.3
				PM	251.1	F	-	251.4	F	-	0.000	0.4

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, "worst-case" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)
3. CMP Intersection(s)
4. Regionally significant intersection(s)
BOLD indicates unacceptable level of service.

6. "CUMULATIVE" CONDITIONS

This chapter presents the study area intersection traffic operations results under "Cumulative" conditions without Project generated trips. Per direction from City staff, and consistent with VTA guidelines, "Cumulative" conditions traffic volumes were obtained by applying a 1.5% per year growth rate to existing volumes over 10 years, and then adding traffic generated by "approved but not yet constructed" and "pending" developments within the vicinity of the Project site.

"Cumulative" conditions are a long-term future condition that could reasonably represent study area conditions approximately 10 years after Project completion. "Cumulative" conditions analysis has been included in this TIA per direction from the City as the proposed land uses on the Project site and an adjacent, vacant parcel to the south are different than, and could potentially generate more traffic than, what is currently assumed in the Downtown Specific Plan.

6.1 "CUMULATIVE" (NO PROJECT) CONDITIONS VOLUMES

"Cumulative" conditions traffic volumes were developed by adding trips generated by nearby "approved but not constructed" and "pending" developments to growth rated "Existing" conditions traffic volumes. In order to determine which nearby developments to include in "Cumulative" conditions, a list of approved and pending projects was obtained from City of Sunnyvale staff. Per City of Sunnyvale policy, only projects that consisted of land uses larger than 20 residential units or 10,000 square-feet of office/commercial space, and which were located within a one mile radius of the Project site were selected to be a part of "Cumulative" conditions volumes.

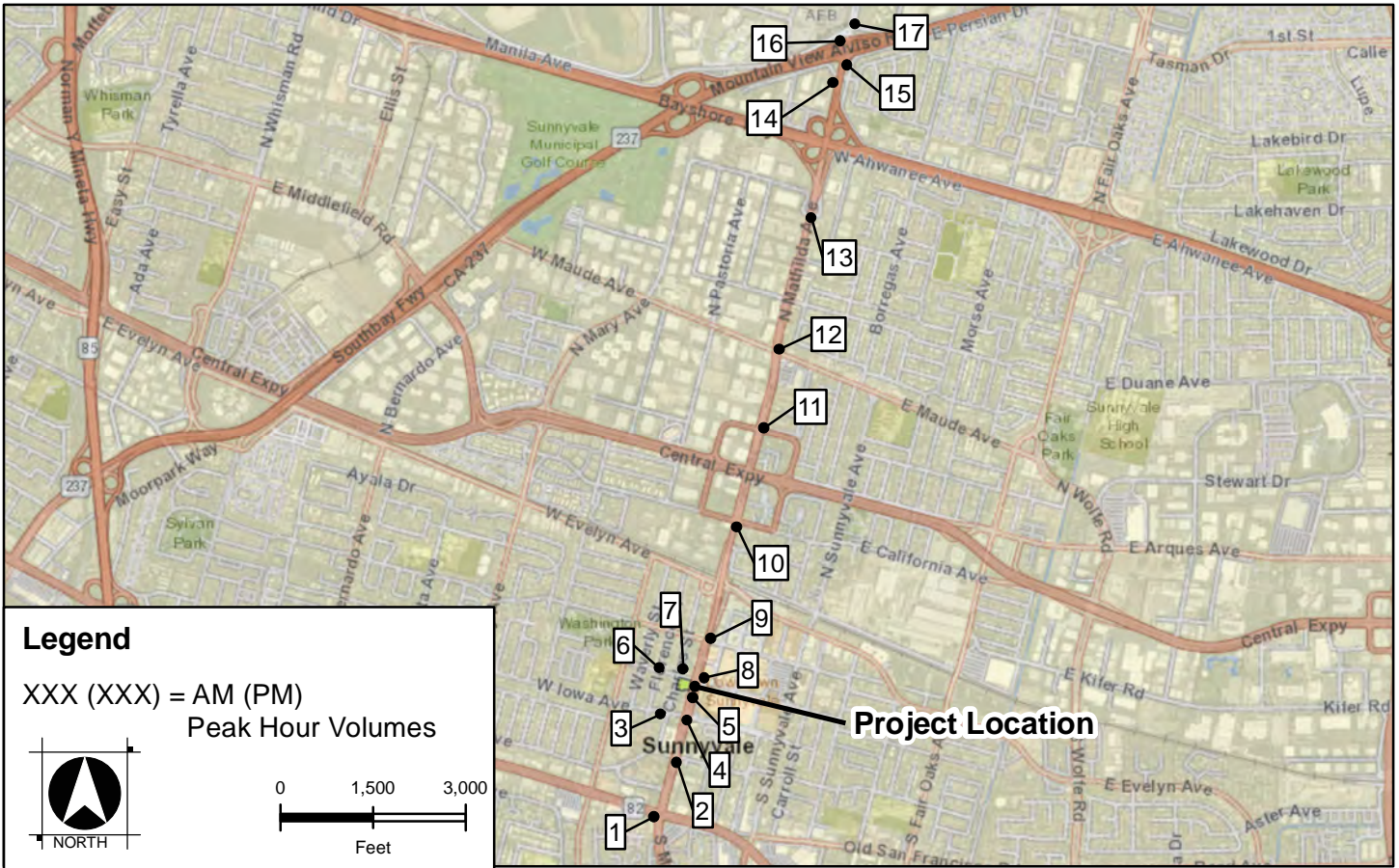
Net new trips from "approved" developments within the Project vicinity were obtained for "Background" conditions, discussed in Section 4.1 of this TIA, and are included in **Appendix G**. Net new trips from any "pending" developments within the Project vicinity were estimated using typical *ITE Trip Generation Manual 9th Edition* rates and City of Sunnyvale and VTA trip reduction guidelines/ targets. These "pending" development trips were then assigned to the study area network using existing traffic volume patterns and available planning documents. "Cumulative" traffic volumes were obtained by applying a 1.5% per year growth rate to "Existing" traffic volumes and adding the assigned "pending" development trips and "approved" development trips. A full list of "pending" developments assumed under "Cumulative" conditions is included in **Appendix H**. "Pending" development trip generation worksheets are included in **Appendix I**, "pending" development trip distributions are included in **Appendix J**, and total "pending" development volumes are included in **Appendix K**. "Cumulative" study intersection turning movement volumes are presented in **Figure 13**.

6.2 "CUMULATIVE" (NO PROJECT) IMPROVEMENTS

Based on direction from the City, no additional roadway improvements were assumed under "Cumulative" conditions beyond what was assumed under "Background" conditions. Therefore, "Background" lane geometrics were used for all "Cumulative" conditions analysis and are shown in **Figure 11**.

6.3 "CUMULATIVE" (NO PROJECT) INTERSECTION OPERATIONS

"Cumulative" intersection operations were quantified under "Cumulative" traffic volumes (shown in **Figure 13**) and background intersection lane geometrics and control (shown in **Figure 11**). **Table 14** illustrates the resulting "Cumulative" intersection LOS operations.

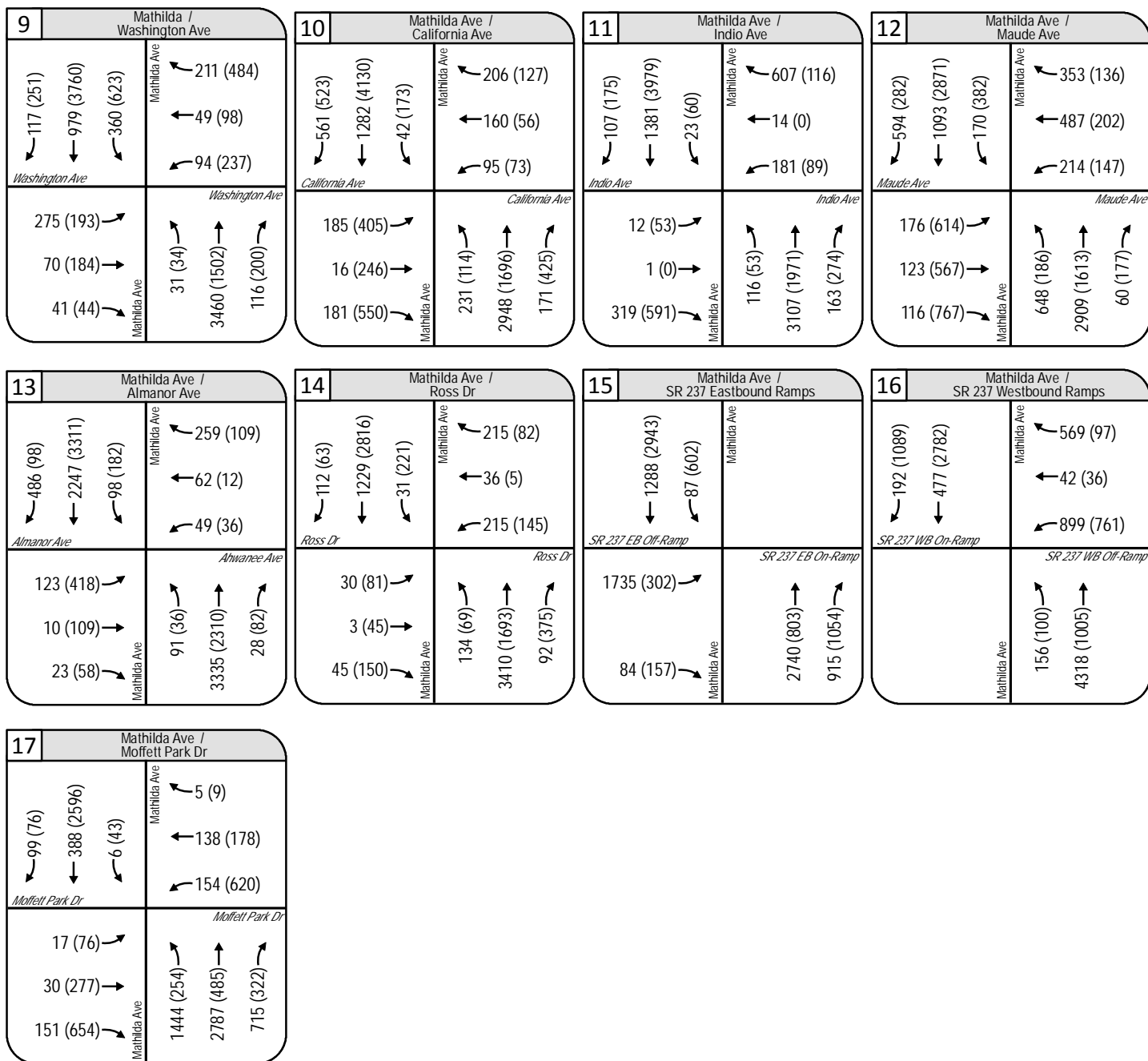


<p>1 Mathilda Ave / El Camino Real</p> <p>Mathilda Ave</p> <p>← 259 (532) ← 403 (2313) ← 210 (788)</p> <p>← 539 (356) ← 1330 (900) ← 13 (112)</p> <p>El Camino Real</p> <p>Mathilda Ave</p> <p>→ 596 (384) → 626 (1666) → 150 (214)</p> <p>Mathilda Ave</p> <p>→ 314 (286) → 2375 (719) → 23 (80)</p>	<p>2 Mathilda Ave / Olive Ave</p> <p>Mathilda Ave</p> <p>← 78 (108) ← 809 (3329) ← 31 (89)</p> <p>← 77 (37) ← 74 (78) ← 31 (34)</p> <p>Olive Ave</p> <p>Mathilda Ave</p> <p>→ 79 (65) → 35 (84) → 27 (118)</p> <p>Mathilda Ave</p> <p>→ 93 (72) → 3408 (1362) → 15 (51)</p>	<p>3 Charles St / Iowa Ave</p> <p>Charles St</p> <p>← 13 (19) ← 23 (37) ← 8 (25)</p> <p>← 12 (26) ← 77 (146) ← 10 (15)</p> <p>Iowa Ave</p> <p>Charles St</p> <p>→ 18 (38) → 114 (187) → 1 (2)</p> <p>Charles St</p> <p>→ 1 (3) → 16 (14) → 17 (19)</p>	<p>4 Mathilda Ave / Iowa St</p> <p>Mathilda Ave</p> <p>← 41 (42) ← 895 (3109) ← 76 (260)</p> <p>← 134 (225) ← 57 (94) ← 54 (170)</p> <p>Iowa Ave</p> <p>Mathilda Ave</p> <p>→ 74 (31) → 63 (115) → 20 (43)</p> <p>Mathilda Ave</p> <p>→ 21 (29) → 3512 (1293) → 57 (125)</p>
<p>5 Mathilda Ave / Project Dwy (Restaurant)</p> <p>Mathilda Ave</p> <p>← 20 (14) ← 1013 (3734)</p> <p>Project Dwy</p> <p>Mathilda Ave</p> <p>→ 12 (9) → 3823 (1662)</p>	<p>6 Charles St / McKinley Ave</p> <p>Charles St</p> <p>← 14 (34) ← 27 (53) ← 2 (63)</p> <p>← 12 (22) ← 67 (117) ← 3 (15)</p> <p>McKinley Ave</p> <p>Charles St</p> <p>→ 9 (23) → 99 (160) → 6 (25)</p> <p>Charles St</p> <p>→ 19 (18) → 23 (32) → 11 (19)</p>	<p>7 Project Dwy (Residential) / McKinley Ave</p> <p>Project Dwy</p> <p>McKinley Ave</p> <p>→ 124 (240) → 1 (1)</p> <p>Project Dwy</p> <p>McKinley Ave</p> <p>→ 76 (143) → 6 (12) → 1 (1) → 10 (9)</p>	<p>8 Mathilda / McKinley Ave</p> <p>Mathilda Ave</p> <p>← 46 (44) ← 967 (3495) ← 102 (243)</p> <p>← 135 (278) ← 1 (3) ← 46 (201)</p> <p>McKinley Ave</p> <p>Mathilda Ave</p> <p>→ 79 (90) → 29 (65) → 17 (52)</p> <p>Mathilda Ave</p> <p>→ 32 (36) → 3651 (1497) → 139 (130)</p>

"Cumulative" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 13





"Cumulative" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 13-2



Table 14. “Cumulative” Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative Conditions		
					Delay (S/V) ¹	LOS	Wrnt Met? ²
1	Mathilda Avenue / El Camino Real	Signal	E	AM	69.6	E	-
				PM	58.9	E+	-
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	14.7	B	-
				PM	16.7	B	-
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.4	B	No
				PM	12.9	B	No
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	19.3	B-	-
				PM	23.3	C	-
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	10.6	B	No
				PM	27.8	D	No
6	Charles Street / McKinley Avenue	TWSC	D	AM	10.3	B	No
				PM	13.3	B	No
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	9.0	A	No
				PM	9.7	A	No
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	21.2	C+	-
				PM	26.5	C	-
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	70.1	E	-
				PM	119.2	F	-
10	Mathilda Avenue / California Avenue	Signal	E	AM	35.2	D+	-
				PM	97.2	F	-
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	38.5	D+	-
				PM	61.9	E	-
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	49.7	D	-
				PM	60.7	E	-
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	22.9	C+	-
				PM	29.2	C	-
14	Mathilda Avenue / Ross Drive	Signal	E	AM	76.7	E-	-
				PM	181.9	F	-
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	148.1	F	-
				PM	197.0	F	-
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	200.2	F	-
				PM	241.6	F	-
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	204.7	F	-
				PM	301.0	F	-

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, "worst-case" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)
3. CMP Intersection(s)
4. Regionally significant intersection(s)
BOLD indicates unacceptable level of service.

As shown in **Table 14**, the signalized Mathilda Avenue intersections with Ross Drive, SR 237 Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive are projected to operate at unacceptable average intersection LOS “E-/F” under “Cumulative” AM and PM peak hour conditions. The signalized Mathilda Avenue intersections with Washington Avenue and California Avenue are projected to operate at unacceptable average intersection LOS “F” under “Cumulative”

PM peak hour conditions. All of the remaining study intersections are projected to operate at acceptable “Cumulative” level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hour. All delay and LOS results shown in were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not projected to be met at any study intersections under “Cumulative” conditions. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

7. “CUMULATIVE PLUS PROJECT” CONDITIONS

This chapter presents the study area intersection traffic operations results under “Cumulative plus Project” conditions.

7.1 AFFORDABLE HOUSING DEVELOPMENT DESCRIPTION

Per direction from City staff, this TIA analyzes impacts from the proposed Project and an adjacent proposed Affordable Housing Development under “Cumulative plus Project” conditions as both of these developments propose land uses different than, and that could potentially generate more traffic than, what is assumed in the current Downtown Specific Plan. The Affordable Housing Development is proposed to be constructed on a currently vacant parcel located at the northwest quadrant of the Mathilda Avenue / Iowa Avenue intersection, just south of the Project site. There is currently no site plan or final land uses available for the Affordable Housing Development, so assumptions were made about the development based on best available information. This TIA assumed that the Affordable Housing Development would consist of approximately 92 affordable housing residential units (25% of which would be proposed to be designated as supportive housing for disabled persons) and approximately 5,400 square-feet of commercial space. Potential commercial land uses include a diner, day care center, or retail shop, which could be used by the nearby community. It was assumed the proposed Affordable Housing Development would have one full-access driveway on Iowa Avenue.

7.2 AFFORDABLE HOUSING DEVELOPMENT GENERATED TRIPS

7.2.1 TRIP GENERATION AND REDUCTIONS

Consistent with methods described in the *VTA TIA Guidelines, Institute of Transportation Engineers Trip Generation Manual* rates were used to estimate Affordable Housing Development trip generation. However, as the ITE Trip Generation Manual does not provide rates for affordable/low-income housing, daily, AM, and PM peak hour rates found in *City of Los Angeles Traffic Impact Study Guidelines* (December 2016) were used for the 92 affordable housing units.

The following trip generation rates from the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition* were considered when estimating Affordable Housing Development generated trips:

High-Turnover (Sit-Down) Restaurant – For the proposed 5,400 square foot commercial space, the “High-Turnover (Sit-Down) Restaurant” (Use Code 932) trip generation rate was considered. ITE Trip Generation describes High-Turnover (Sit-Down) Restaurant as: “*This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain.*”

Day Care Center – For the proposed 5,400 square foot commercial space, the “Day Care Center” (Use Code 565) trip generation rate was considered. ITE Trip Generation describes Day Care Center as: “...a facility where care for pre-school age children is provided, normally during the daytime hours.”

Shopping Center – For the proposed 5,400 square foot commercial space, the “Shopping Center” (Use Code 820) trip generation rate was considered. ITE Trip Generation describes Shopping Center as: “...an integrated group of commercial establishments that is planned, developed, owned and managed as a unit.”

Trip generation rates considered when estimating the Affordable Housing Development generated trips are shown in **Table 15**. Base on the trip generation rates shown in **Table 15**, the Day Care Center trip generation rates were chosen to estimate trips from the 5,400 square foot commercial building proposed as part of the Affordable Housing Development. While this commercial building may end up as some other land use, the Day Care Center trip generation rates were chosen as they produced reasonably high/conservative trips in both the AM and PM peak hours.

Table 15. Affordable Housing Development Trip Generation Rates

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit ¹	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Affordable Housing	LADOT TIS Guidelines ²	-	DU ³	4.08	0.50	40%	60%	0.34	55%	45%
High-Turnover (Sit-Down) Restaurant	ITE	932	ksf ⁴	127.15	10.81	55%	45%	9.85	60%	40%
Day Care Center	ITE	565	ksf	74.06	12.18	53%	47%	12.34	47%	53%
Shopping Center	ITE	820	ksf	188.62	4.87	62%	38%	15.70	48%	52%

*Notes: ¹The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) fitted curve equations (Shopping Center) and average trip generation rates (Day Care Center, High-Turnover (Sit-Down) Restaurant).
²City of Los Angeles Transportation Impact Study Guidelines (December 2016) Section 3.3B, Table 5: Trip Generation Rates for Affordable Housing Projects
³Occ. DU = Occupied Dwelling Unit
⁴ksf = 1,000 Sq. feet gross floor area*

Trip reductions were considered and applied to the commercial land use of the Affordable Housing Development generated trips as recommended in the VTA TIA Guidelines. Reductions are typically applied for factors such as mixed-use developments, a strong TDM program, project features that encourage walking, biking, and transit usage, or other factors that help to decrease the number of vehicles generated by the project.

Since the development is located in the Downtown Specific Plan area, the Standard Trip Reduction Approach was applied to the development per the VTA TIA Guidelines. Based on the Standard Auto Trip Reduction Rates found in Table 1 of the VTA TIA Guidelines, a two (2) percent reduction can be applied to the commercial portion of the development, as the development is within 2,000 feet of a major bus stop. Per City direction, a 25% trip reduction was applied to the residential portion of the development, as an estimated 25% of the development is planned to entail supportive housing for disabled persons. Residents of affordable housing units may be assumed to already utilize public/alternative transportation. As such, the affordable housing trip generation rates are lower than “Apartment” land-use rates found in the TIE Trip Generation Manual. As a result, the VTA Standard Trip Reduction was not applied to the trips generated by the affordable housing land use. **Table 16** summarizes the trip generation volumes and reductions for the proposed development.

As illustrated in **Table 16**, the proposed Affordable Housing Development is anticipated to generate a total of 673 daily trips, 99 AM peak hour trips (47 inbound, 51 outbound), and 89 PM peak hour trips (43 inbound, 45 outbound) under typical “annual average” traffic demand conditions. These trips would be considered “new” (or incremental) trips on the City’s immediate local circulation system.

Table 16. Affordable Housing Development Trip Generation Volumes

Land Use	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips ¹			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Affordable housing	DU ²	92	375	46	18	28	31	17	14
Supportive Housing for Disabled Persons	25%		-94	-12	-5	-7	-8	-4	-4
<i>Net Total Residential</i>			281	34	13	21	23	13	10
Day Care Center	ksf ³	5.4	400	66	35	31	67	31	36
Near Bus Stop Reduction	2%		-8	-2	-1	-1	-2	-1	-1
<i>Net Total Commercial</i>			392	65	34	30	66	30	35
Net New Affordable Housing Development Trip Generation			673	98	47	51	88	43	45

*Notes: ¹The trip rates illustrated in this table are based on ITE Trip Generation (9th Edition) average rates (Day Care Center) and City of Los Angeles Transportation Impact Study Guidelines (December 2016) Section 3.3B, Table 5: Trip Generation Rates for Affordable Housing Projects.
²Occ. DU = Occupied Dwelling Unit
³ksf = 1,000 Sq. feet gross floor area*

7.2.2 AFFORDABLE HOUSING DEVELOPMENT TRIP DISTRIBUTION AND ASSIGNMENT

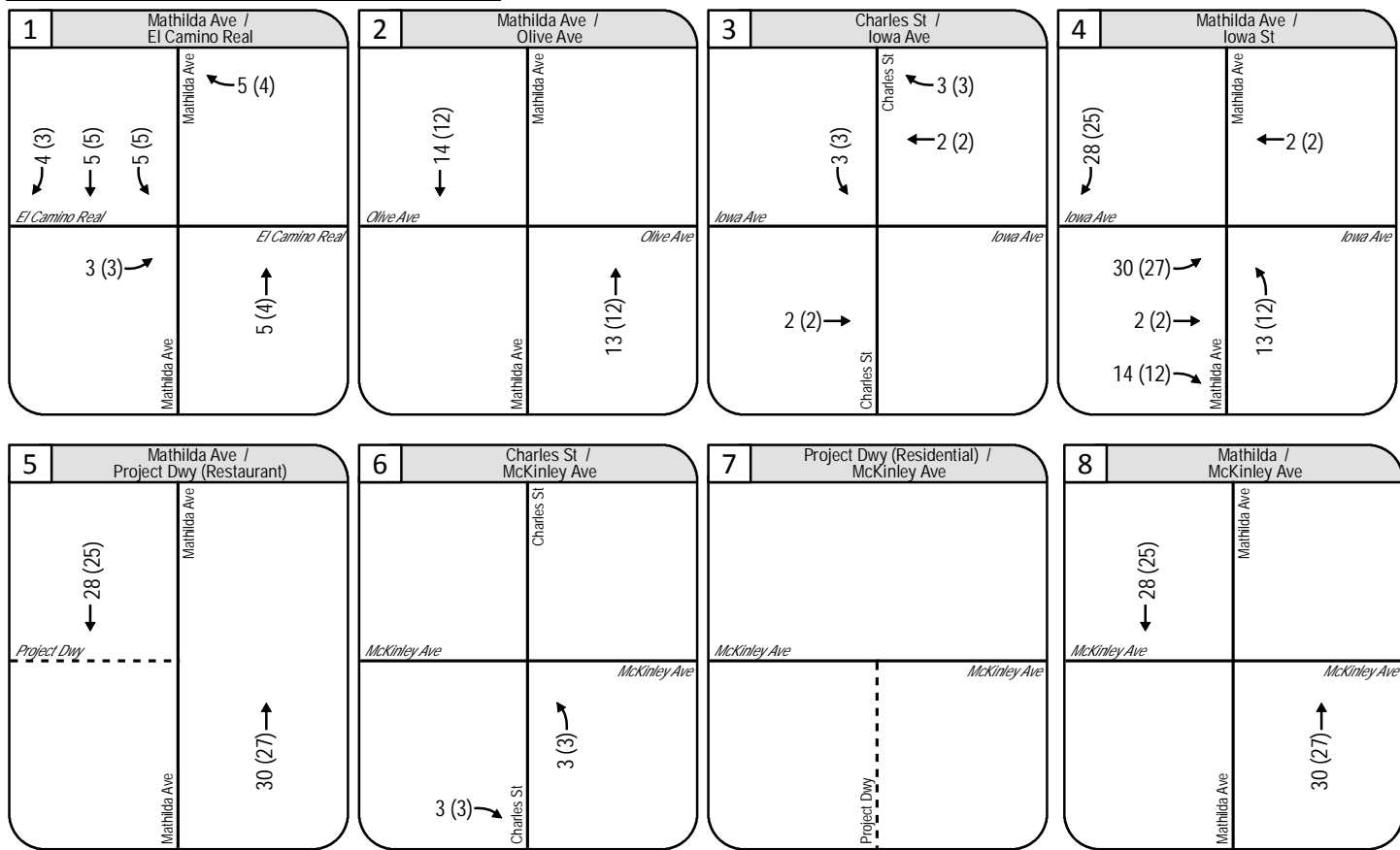
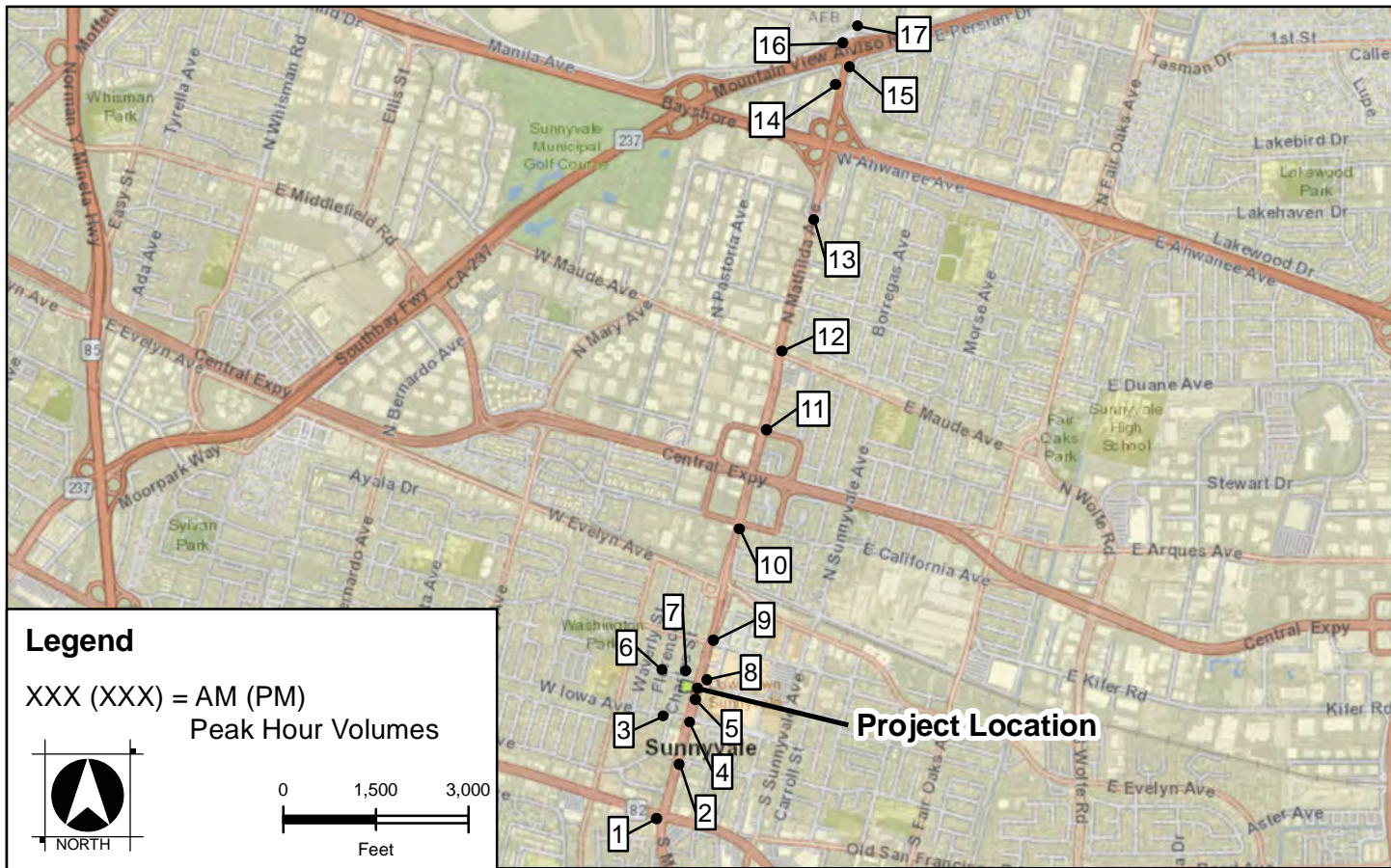
Affordable Housing Development trips were assigned to the study area network based on the Project trip distribution shown in **Figure 7**. **Figure 14** illustrates the estimated AM and PM peak hour “Affordable Housing Development Only” traffic volumes projected to be applicable under existing and near-term conditions.

7.3 “CUMULATIVE PLUS PROJECT” CONDITIONS VOLUMES

“Project Only” traffic volumes and “Affordable Housing Development Only” traffic volumes were added on top of “Cumulative” conditions traffic volumes at study intersections to generate “Cumulative plus Project” conditions traffic volumes. **Figure 15** illustrates the estimated AM and PM peak hour “Cumulative plus Project” conditions traffic volumes at study intersections.

7.4 “CUMULATIVE PLUS PROJECT” INTERSECTION OPERATIONS

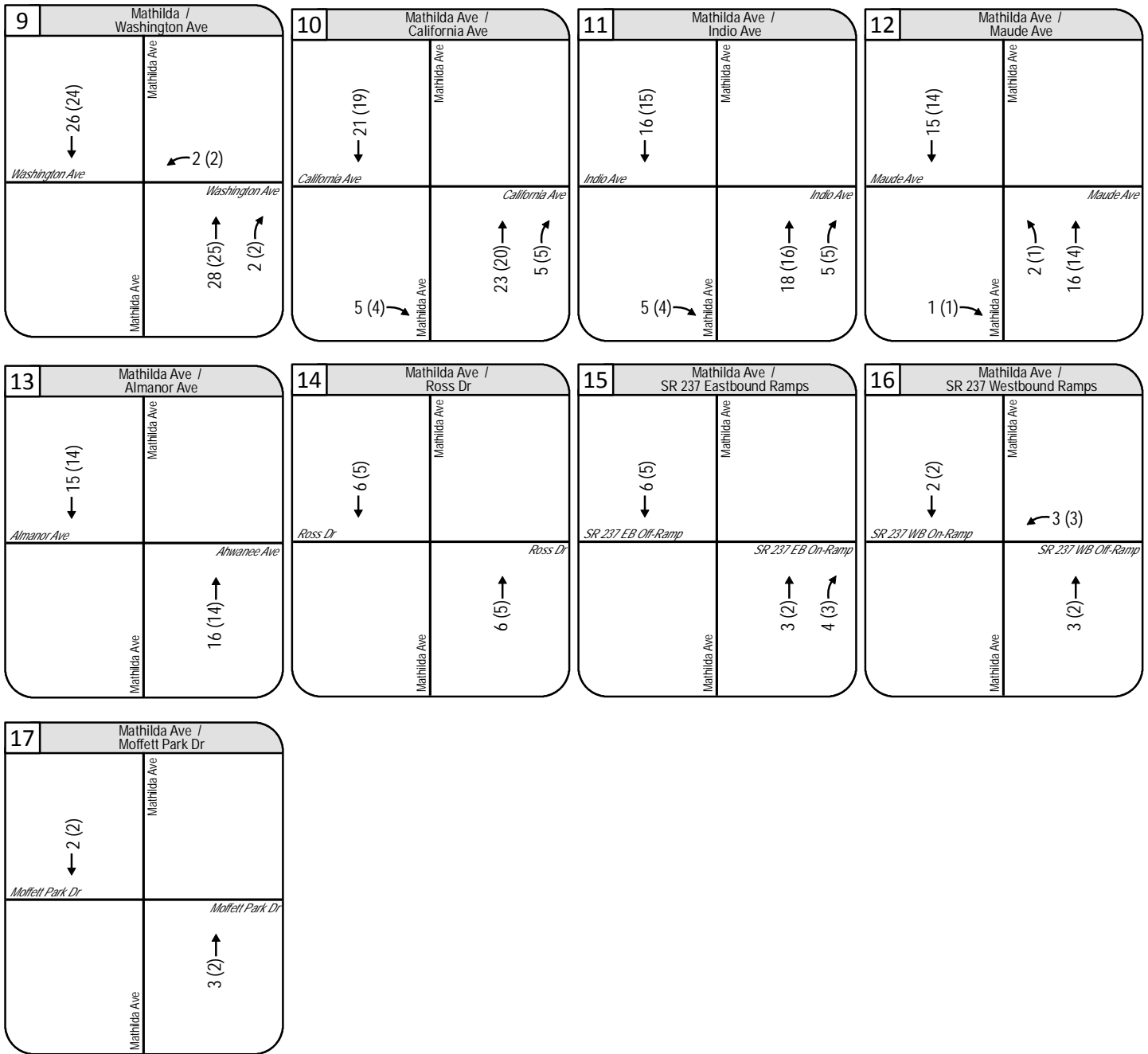
“Cumulative plus Project” intersection operations were quantified under “Cumulative plus Project” traffic volumes (shown in **Figure 15**) and “Background” intersection lane geometrics and control (shown in **Figure 11**). **Table 17** illustrates the resulting “Cumulative plus Project” intersection LOS operations. **Table 17** also contains “Cumulative” conditions intersection delays and LOS for comparison purposes, as well as the projected change in delay of critical movements and critical V/C ratio caused by the addition of Project and Affordable Housing Development generated trips. The projected change in delay of critical movements and critical V/C ratio were reported for use in identifying significant impacts.



"Affordable Housing Development Only" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018


Figure 14

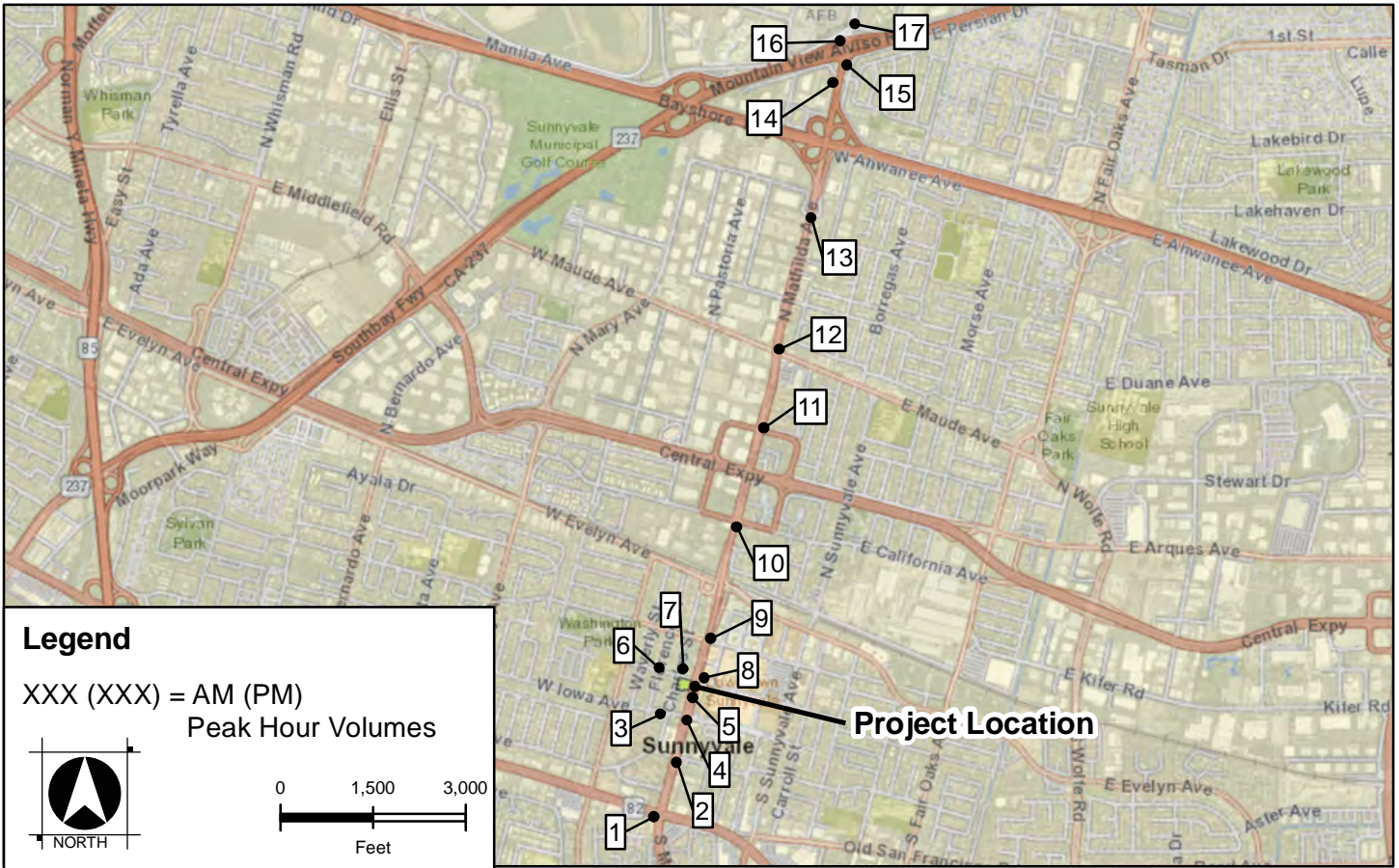




"Affordable Housing Development Only" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 14-2


WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

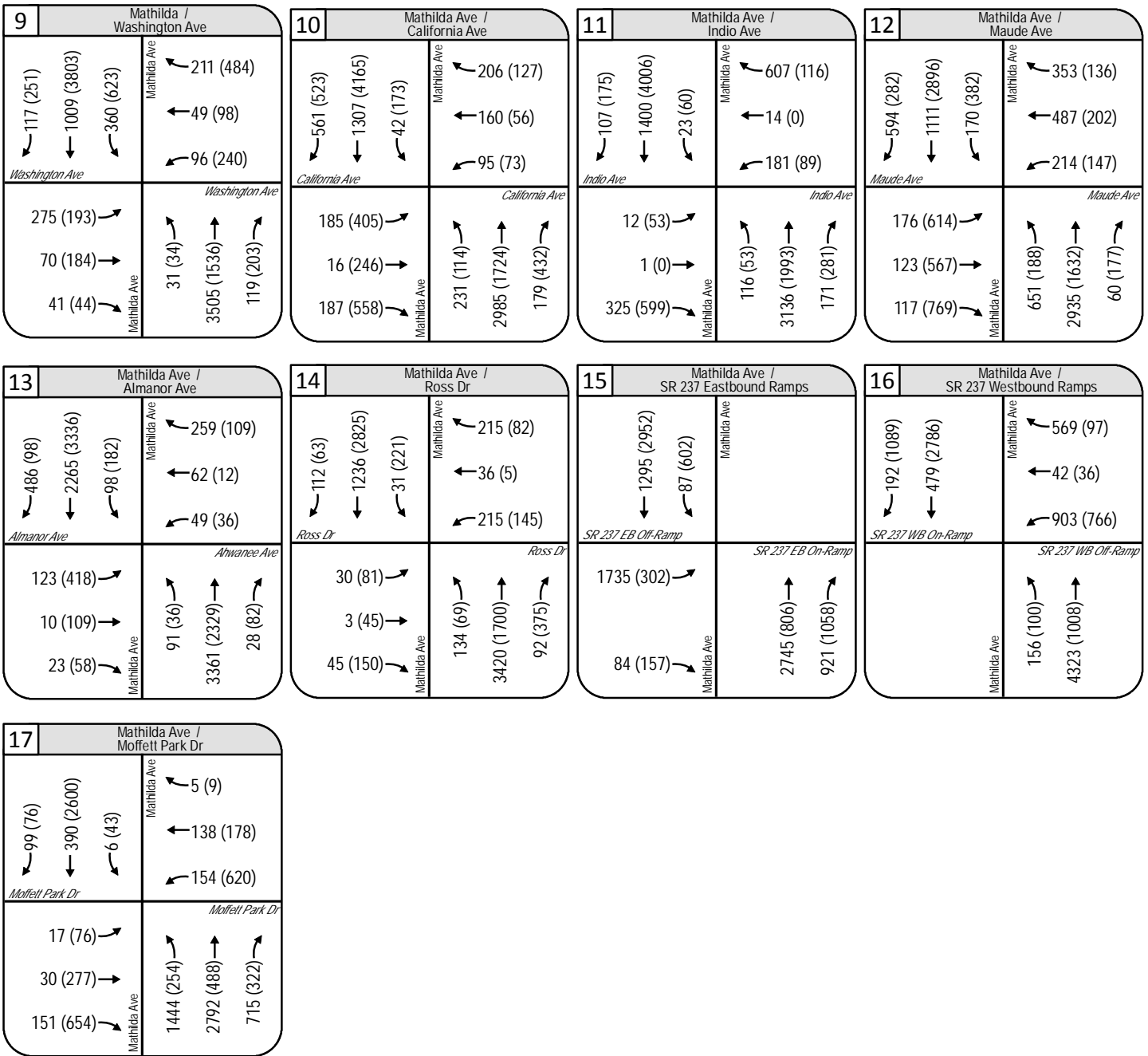


<p>1 Mathilda Ave / El Camino Real</p> <p>Mathilda Ave</p> <p>← 265 (536) ← 411 (2320) ← 218 (795)</p> <p>Mathilda Ave</p> <p>↖ 545 (364) ← 1330 (900) ↖ 13 (112)</p> <p>El Camino Real</p> <p>Mathilda Ave</p> <p>↗ 600 (389) ↗ 626 (1666) ↗ 150 (214)</p> <p>El Camino Real</p> <p>Mathilda Ave</p> <p>↖ 314 (286) ↖ 2381 (727) ↖ 23 (80)</p>	<p>2 Mathilda Ave / Olive Ave</p> <p>Mathilda Ave</p> <p>← 78 (108) ← 831 (3346) ← 31 (89)</p> <p>Mathilda Ave</p> <p>↖ 77 (37) ← 74 (78) ↖ 31 (34)</p> <p>Olive Ave</p> <p>Mathilda Ave</p> <p>↗ 79 (65) ↗ 35 (84) ↗ 27 (118)</p> <p>Olive Ave</p> <p>Mathilda Ave</p> <p>↖ 93 (72) ↖ 3423 (1383) ↖ 15 (51)</p>	<p>3 Charles St / Iowa Ave</p> <p>Charles St</p> <p>← 13 (19) ← 23 (37) ← 11 (28)</p> <p>Charles St</p> <p>↖ 16 (30) ← 81 (149) ↖ 10 (15)</p> <p>Iowa Ave</p> <p>Charles St</p> <p>↗ 18 (39) ↗ 116 (189) ↗ 1 (2)</p> <p>Iowa Ave</p> <p>Charles St</p> <p>↖ 1 (3) ↖ 16 (14) ↖ 17 (19)</p>	<p>4 Mathilda Ave / Iowa St</p> <p>Mathilda Ave</p> <p>← 72 (69) ← 903 (3114) ← 85 (265)</p> <p>Mathilda Ave</p> <p>↖ 134 (226) ← 59 (96) ↖ 54 (170)</p> <p>Iowa Ave</p> <p>Mathilda Ave</p> <p>↗ 104 (58) ↗ 65 (117) ↗ 34 (55)</p> <p>Iowa Ave</p> <p>Mathilda Ave</p> <p>↖ 34 (41) ↖ 3514 (1302) ↖ 57 (125)</p>
<p>5 Mathilda Ave / Project Dwy (Restaurant)</p> <p>Mathilda Ave</p> <p>← 26 (26) ← 1048 (3763)</p> <p>Project Dwy</p> <p>Mathilda Ave</p> <p>↖ 25 (17)</p> <p>Mathilda Ave</p> <p>↖ 3863 (1705)</p>	<p>6 Charles St / McKinley Ave</p> <p>Charles St</p> <p>← 14 (34) ← 27 (53) ← 2 (63)</p> <p>Charles St</p> <p>↖ 12 (22) ← 67 (117) ↖ 3 (15)</p> <p>McKinley Ave</p> <p>Charles St</p> <p>↗ 9 (23) ↗ 99 (162) ↗ 9 (28)</p> <p>McKinley Ave</p> <p>Charles St</p> <p>↖ 23 (22) ↖ 23 (32) ↖ 11 (20)</p>	<p>7 Project Dwy (Residential) / McKinley Ave</p> <p>Project Dwy</p> <p>McKinley Ave</p> <p>↖ 76 (143) ↖ 8 (33)</p> <p>McKinley Ave</p> <p>Project Dwy</p> <p>↖ 125 (241) ↖ 1 (3)</p> <p>McKinley Ave</p> <p>Project Dwy</p> <p>↖ 29 (19)</p>	<p>8 Mathilda / McKinley Ave</p> <p>Mathilda Ave</p> <p>← 47 (58) ← 999 (3527) ← 102 (243)</p> <p>Mathilda Ave</p> <p>↖ 135 (278) ← 1 (3) ↖ 46 (201)</p> <p>McKinley Ave</p> <p>Mathilda Ave</p> <p>↗ 90 (95) ↗ 29 (65) ↗ 25 (57)</p> <p>McKinley Ave</p> <p>Mathilda Ave</p> <p>↖ 34 (47) ↖ 3689 (1529) ↖ 139 (130)</p>

"Cumulative plus Project" Traffic Volumes
311 South Mathilda Avenue TIA
Sunnyvale, CA
May 2018

Figure 15





"Cumulative plus Project" Traffic Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Figure 15-2



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Table 17. "Cumulative plus Project" Conditions Intersection Traffic Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative Conditions			Cumulative plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
1	Mathilda Avenue / El Camino Real	Signal	E	AM	69.6	E	-	70.6	E	-	0.002	0.4
				PM	58.9	E+	-	59.1	E+	-	0.000	0.0
2	Mathilda Avenue / Olive Avenue	Signal	E	AM	14.7	B	-	14.7	B	-	0.000	0.0
				PM	16.7	B	-	16.7	B	-	0.001	0.0
3	Charles Street / Iowa Avenue	TWSC	D	AM	10.4	B	No	10.4	B	No	0.000	0.0
				PM	12.9	B	No	13.1	B	No	0.001	0.0
4	Mathilda Avenue / Iowa Avenue	Signal	E	AM	19.3	B-	-	21.8	C+	-	0.004	0.2
				PM	23.3	C	-	24.2	C	-	0.001	0.0
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	TWSC	D	AM	10.6	B	No	10.9	B	No	0.021	0.1
				PM	27.8	D	No	29.9	D	No	0.055	0.1
6	Charles Street / McKinley Avenue	TWSC	D	AM	10.3	B	No	10.3	B	No	0.000	0.1
				PM	13.3	B	No	13.4	B	No	0.001	0.0
7	Project Driveway (Residential Parking Access) / McKinley Avenue	TWSC	D	AM	9.0	A	No	9.1	A	No	0.017	0.7
				PM	9.7	A	No	9.8	A	No	0.015	0.6
8	Mathilda Avenue / McKinley Avenue	Signal	E	AM	21.2	C+	-	22.6	C+	-	0.008	1.2
				PM	26.5	C	-	27.2	C	-	0.014	0.8
9	Mathilda Avenue / Washington Avenue	Signal	E	AM	70.1	E	-	72.3	E	-	0.004	1.2
				PM	119.2	F	-	121.4	F	-	0.004	1.6
10	Mathilda Avenue / California Avenue	Signal	E	AM	35.2	D+	-	35.4	D+	-	0.004	0.2
				PM	97.2	F	-	99.5	F	-	0.003	1.4
11	Mathilda Avenue / Indio Avenue	Signal	E	AM	38.5	D+	-	38.9	D+	-	0.002	0.3
				PM	61.9	E	-	64.6	E	-	0.004	2.1
12	Mathilda Avenue / Maude Avenue	Signal	E	AM	49.7	D	-	49.9	D	-	0.002	0.2
				PM	60.7	E	-	61.3	E	-	0.002	0.4
13	Mathilda Avenue / Almanor Avenue	Signal	E	AM	22.9	C+	-	22.9	C+	-	0.001	0.0
				PM	29.2	C	-	29.1	C	-	0.002	0.0
14	Mathilda Avenue / Ross Drive	Signal	E	AM	76.7	E-	-	78.1	E-	-	0.000	1.5
				PM	181.9	F	-	183.4	F	-	0.006	1.4

Table 17. "Cumulative plus Project" Conditions Intersection Traffic Operations (Continued)

#	Intersection	Control Type	LOS Criteria	Peak Hour	Cumulative Conditions			Cumulative plus Project Conditions				
					Delay (S/V) ¹	LOS	Wrnt Met? ²	Delay (S/V) ¹	LOS	Wrnt Met? ²	Δ in Critical V/C	Δ in Critical Delay
15	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	E	AM	148.1	F	-	149.0	F	-	0.000	0.4
				PM	197.0	F	-	198.7	F	-	0.006	3.2
16	Mathilda Avenue / SR 237 Westbound Ramps	Signal	E	AM	200.2	F	-	200.9	F	-	0.000	0.6
				PM	241.6	F	-	242.9	F	-	0.000	0.8
17	Mathilda Avenue / Moffett Park Drive	Signal	E	AM	204.7	F	-	205.5	F	-	0.000	0.9
				PM	301.0	F	-	301.5	F	-	0.007	0.8

Notes: 1. For OWSC (One-Way-Stop-Control) and TWSC (Two-Way-Stop-Control) intersections, "worst-case" movement delay is indicated. "Average" control delays (in seconds/vehicle) are indicated for AWSC (All-Way-Stop-Control) and Signal-Control intersections.
2. Wrnt Met? = CA-MUTCD based Peak-hour-Volume Warrant #3 (Urban Areas)
3. CMP Intersection(s)
4. Regionally significant intersection(s)
BOLD indicates unacceptable level of service.

As shown in **Table 17**, the signalized Mathilda Avenue intersections with Ross Drive, SR 237 Eastbound Ramps, SR 237 Westbound Ramps, and Moffett Park Drive are projected to operate at unacceptable average intersection LOS “E-/F” under “Cumulative plus Project” AM and PM peak hour conditions. The signalized Mathilda Avenue intersections with Washington Avenue and California Avenue are projected to operate at unacceptable average intersection LOS “F” under “Cumulative plus Project” PM peak hour conditions. All of the remaining study intersections are projected to operate at acceptable “Cumulative plus Project” level of service conditions (LOS “D” or better for City intersections and LOS “E” or better for regionally significant and CMP intersections) during the AM and PM peak hour. All delay and LOS results shown in **Table 17** were calculated using TRAFFIX or Synchro software. CA-MUTCD based peak hour signal warrant-3 (urban areas) is not projected to be met at any study intersections under “Cumulative plus Project” conditions. TRAFFIX and Synchro software intersection LOS outputs can be found in **Appendix B**, and CA-MUTCD signal warrant-3 worksheets can be found in **Appendix C**.

All recommended improvements and mitigation measures are discussed in a subsequent section of this TIA report.

8. SITE ACCESS AND CIRCULATION

This chapter reviews the proposed Project site plan, including discussion of site access driveways, internal queuing, internal circulation, pedestrian and bicycle facilities, on-site parking, and potential aisle or parking conflicts.

8.1 PROJECT ACCESS DRIVEWAYS

According to the *311 Mathilda W. McKinley Ave & Charles St Entrances Turning Exhibit* (BKF, August 31, 2017), the proposed Project would gain access to the nearby roadway network via three (3) proposed Project Driveways. The three project access driveways are described below:

- **Project Driveway (Restaurant Parking Access):** A right-in right-out driveway that would extend west from Mathilda Avenue approximately 150 feet south of McKinley Avenue in the southeast corner of the Project site, approximately in the same location as the existing Denny’s driveway on Mathilda Avenue. An existing raised median along Mathilda Avenue prevents any left-turn movements at this driveway. This driveway would provide access to the ground level restaurant parking spaces only. Project Driveway (Restaurant Parking Access) would be single lane in, single lane out, and egress stop-controlled, with Mathilda Avenue traffic having the right-of-way.
- **Project Driveway (Residential Parking Access):** A left-out restricted driveway that would extend south from McKinley Avenue approximately 160 feet west of Mathilda Avenue in the northwest corner of the Project site. This driveway would provide access to the lower-level residential parking spaces only. Project Driveway (Residential Parking Access) would be single lane in, single lane out, and egress stop-controlled, with McKinley Avenue traffic having the right-of-way. Striping on McKinley Avenue adjacent to the proposed Project Driveway (Residential Parking Access) would remain the same as existing conditions (one 20 foot lane in each direction). Based on HCM 2000 TRAFFIX queuing analysis performed for this TIA, it is estimated that westbound left-turn queues at the Project Driveway (Residential Parking Access) / McKinley Avenue intersection, caused by Project residents entering the site, would reach a maximum length of 25 feet or one (1) vehicle under all analyzed conditions. Therefore, traffic from the proposed left-out restricted Project Driveway

(Residential Parking Access) on McKinley Avenue is not projected to back up to or block the Mathilda Avenue / McKinley Avenue intersection to the east.

- **Project Driveway (Trash Pick-Up):** A full-access driveway that would extend east from Charles Street approximately 200 feet south of McKinley Avenue in the southwest corner of the Project site. This driveway would not provide access to any parking spaces and would only be used for trash pick-up or by residents moving in. Project Driveway (Trash-Pick-Up) would be single lane in, single lane out, and egress stop-controlled, with Charles Street traffic having the right-of-way.

8.1.1 INTERNAL QUEUEING AT PROJECT ACCESS DRIVEWAYS

According to the current Project site plan, Project Driveway (Restaurant Parking Access) would have an approximately 40 foot throat depth, which means it could accommodate up to approximately one (1) queued egress vehicle. If any more than one (1) vehicle queues at the Project driveway, the queue would block internal circulation and/or parking spaces within the Project site's restaurant parking lot. Based on the HCM 2000 TRAFFIX analysis performed for the Project driveway intersections, it is projected that Project Driveway (Restaurant Parking Access) would have a maximum peak hour conditions egress queue of approximately 25 feet (or one vehicle) under all analyzed conditions. Therefore, the proposed Project Driveway (Restaurant Parking Access) throat depth is projected to be adequate.

According to the current Project site plan, Project Driveway (Residential Parking Access) would have an approximately 100 foot throat depth, which means it could accommodate up to approximately four (4) queued egress vehicles. If any more than four (4) vehicles queue at the Project driveway, the queue would block internal circulation of the Project site's residential parking lot. Based on the HCM 2000 TRAFFIX analysis performed for the Project driveway intersections, it is projected that Project Driveway (Residential Parking Access) would have a maximum peak hour conditions egress queue of approximately 25 feet (or one vehicle) under all analyzed conditions, 75 feet less than the available storage. Therefore, the proposed Project Driveway (Residential Parking Access) throat depth is projected to be adequate.

The throat depth of Project Driveway (Trash Pick-Up) is projected to be adequate due to the limited traffic the driveway would experience as proposed.

8.1.2 SIGHT DISTANCE AT PROJECT ACCESS DRIVEWAYS

Sight distance analysis was performed at all Project access driveways as requested by the City. All sight distance analysis was performed based on standards contained in Chapter 9 of *A Policy on Geometric Design of Highways and Streets 2011 6th Edition* (AASHTO Green Book, by American Association of State Highway and Transportation Officials, last updated November 2013) for typical roadway intersections. Section 9.11.6 of the AASHTO Green Book states the following regarding driveways:

“It is desirable that they [driveways] be designed and located to meet criteria for intersection sight distance and other design elements set forth in this chapter. However, where this is not practical, they should be located to provide the best reasonable sight distance and meet other design criteria to the extent practicable considering such factors as functional class, speed, and traffic volume of the roadway relative to the volume and type of vehicles using the driveway.”

In the analysis below, “Intersection Sight Distance” refers to the distance a vehicle stopped on the minor leg of an intersection (in this case the driveway) needs to be able to see along the major (perpendicular) leg of the intersection (in this case the street) to be able to safely complete their movement. “Stopping Sight Distance” refers to the distance a vehicle needs to be able to see an obstacle in front of them in order to stop in time to avoid a collision. The Project access driveway sight distance analysis below focuses on sight distance cases where potential issues could exist.

Project Driveway (Restaurant Parking Access)

Intersection Sight Distance – Right Turn Egress (Oncoming Traffic Originating on Mathilda Avenue): The proposed Project Driveway (Restaurant Parking Access) on Mathilda Avenue is right-in right-out. The posted speed limit on Mathilda Avenue adjacent to the proposed Project Driveway is 35 miles per hour. Based on “Table 9-8. Design Intersection Sight Distance-Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver” in the AASHTO Green Book, the Design Intersection Sight Distance for a vehicle making an egress right turn at an intersection when the major road has a design speed of 35 miles per hour is 335 feet. Since Mathilda Avenue adjacent to the proposed Project Driveway does not allow parking and there are currently no visible obstacles obstructing the view to the north, the proposed Project Driveway (Restaurant Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress right turn to view oncoming southbound vehicles originating on Mathilda Avenue (i.e. at least 335 feet).

Intersection Sight Distance – Right Turn Egress (Oncoming Traffic Originating on McKinley Avenue): The proposed Project Driveway (Restaurant Parking Access) on Mathilda Avenue is located approximately 150 feet south of McKinley Avenue. According to the latest Project site plan, the southwest quadrant of the Mathilda Avenue / McKinley Avenue intersection will have a curb return radius of 40 feet once the Project is complete. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, the maximum speed an eastbound vehicle on McKinley Avenue could make a right turn onto Mathilda Avenue is approximately 12 miles per hour. Based on Table 9-8 in the AASHTO Green Book, a design speed of 12 miles per hour for oncoming vehicles would correspond to a Design Intersection Sight Distance of approximately 115 feet using interpolation. Since Mathilda Avenue adjacent to the proposed Project Driveway does not allow parking and there are currently no visible obstacles obstructing the view to the north, the proposed Project Driveway (Restaurant Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress right turn to view oncoming southbound vehicles originating on eastbound McKinley Avenue (i.e. 150 feet to McKinley Avenue is greater than the 115 foot minimum). Vehicles exiting the Project Driveway can currently view oncoming southbound vehicles originating on westbound McKinley Avenue within the Mathilda Avenue / McKinley Avenue intersection (220+ feet away), so the proposed Project Driveway (Restaurant Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book for right-turn egress vehicles to view oncoming vehicles originating on westbound McKinley Avenue.

Project Driveway (Residential Parking Access)

Intersection Sight Distance – Right Turn Egress (Oncoming Traffic Originating on McKinley Avenue): The proposed Project Driveway (Residential Parking Access) on McKinley Avenue is left-out restricted. The posted speed limit on McKinley Avenue adjacent to the proposed Project Driveway is 25 miles per hour. Based on Table 9-8 in the AASHTO Green Book, the Design Intersection Sight Distance for a vehicle making an egress right turn at an intersection when the major road has a design speed of 25 miles per hour is 240 feet. Since McKinley Avenue adjacent to the proposed Project Driveway does not allow parking and there are currently no visible obstacles

obstructing the view to the west, the proposed Project Driveway (Residential Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress right turn to view oncoming eastbound vehicles originating on McKinley Avenue (i.e. at least 240 feet).

Intersection Sight Distance – Right Turn Egress (Oncoming Traffic Originating on Charles Street):

The proposed Project Driveway (Residential Parking Access) on McKinley Avenue is located approximately 60 feet east of Charles Street. According to the latest Project site plan, the southeast quadrant of the Charles Street / McKinley Avenue intersection will have a curb return radius of 30 feet once the Project is complete. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, the maximum speed a northbound vehicle on Charles Street could make a right turn around onto McKinley Avenue is approximately 11 miles per hour. Based on Table 9-8 in the AASHTO Green Book, a design speed of 11 miles per hour for oncoming vehicles would correspond to a Design Intersection Sight Distance of approximately 105 feet using interpolation. The proposed Project Driveway (Residential Parking Access) is not projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress right turn to view oncoming eastbound vehicles originating on northbound Charles Street (i.e. 60 feet to Charles Street is less than the 105 foot minimum). Vehicles exiting the Project Driveway can currently view oncoming eastbound vehicles originating on southbound Charles Street at the Charles Street / McKinley Avenue intersection southbound stop bar (100+ feet away), so the proposed Project Driveway (Residential Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book for right turn egress vehicles to view oncoming vehicles originating on southbound Charles Street.

Stopping Sight Distance (Oncoming Traffic Originating on Mathilda Avenue): The proposed Project Driveway (Residential Parking Access) on McKinley Avenue is located approximately 160 feet west of Mathilda Avenue. Based on aerial imagery of the Project study area, the northwest quadrant of the Mathilda Avenue / McKinley Avenue intersection currently has a curb return radius of 45 feet. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, the maximum speed a southbound vehicle on Mathilda Avenue could make a right turn onto McKinley Avenue is approximately 13 miles per hour. Based on Table 9-8 in the AASHTO Green Book, a design speed of 13 miles per hour for oncoming vehicles would correspond to a Stopping Sight Distance of approximately 66 feet using interpolation. The stopping sight distance for westbound vehicles originating on southbound Mathilda Avenue to view and stop for a vehicle queued in the travel lane on McKinley Avenue to make a left turn into the proposed Project Driveway (Residential Parking Access) is projected to meet minimum sight distance requirements defined in the AASHTO Green Book (assuming a typical vehicle is up to 20 feet long, the distance between the back of the queued vehicle and Mathilda Avenue is 140 feet, which is greater than the 66 foot minimum). Northbound vehicles on Mathilda Avenue can view a vehicle queued in the travel lane on McKinley Avenue (to make a left turn into the Project Driveway) from the Mathilda Avenue / McKinley Avenue intersection northbound stop bar (220+ feet away), so the stopping sight distance for vehicles originating on northbound Mathilda Avenue to view and stop for a vehicle queued in the travel lane on McKinley Avenue is projected to meet minimum stopping sight distance requirements defined in the AASHTO Green Book.

Project Driveway (Trash Pick-Up)

Intersection Sight Distance – Right & Left Turn Egress (Oncoming Traffic Originating on Charles Street): The proposed Project Driveway (Trash Pick-Up) on Charles Street is full-access. The posted speed limit on Charles Street adjacent to the proposed Project Driveway is 25 miles per hour. Based on Table 9-8 in the AASHTO Green Book, the Design Intersection Sight Distance for a vehicle

making an egress right turn at an intersection when the major road has a design speed of 25 miles per hour is 240 feet. Based on “Table 9-6. Design Intersection Sight Distance-Case B1, Left Turn from Stop” in the AASHTO Green Book, the Design Intersection Sight Distance for a vehicle making an egress left turn at an intersection when the major road has a design speed of 25 miles per hour is 280 feet. Assuming no obstacles obstructing the view, the proposed Project Driveway (Trash Pick-Up) would provide the minimum sight distances defined in the AASHTO Green Book (at least 240/280 feet). However, since Charles Street adjacent to the proposed Project Driveway currently does allow parking, a vehicle parked directly next to the Project Driveway would block the view to the south/north and the Project Driveway (Trash Pick-Up) is not projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress right or left turn to view oncoming vehicles originating on Charles Street.

Intersection Sight Distance – Left Turn Egress (Oncoming Traffic Originating on McKinley Avenue): The proposed Project Driveway (Trash Pick-Up) on Charles Street is located approximately 200 feet south of McKinley Avenue. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, and aerial imagery of the Project study area, the maximum speed a westbound vehicle on McKinley Avenue could make a left turn onto Charles Street is approximately 15 miles per hour. Based on Table 9-6 in the AASHTO Green Book, a design speed of 15 miles per hour for oncoming vehicles would correspond to a Design Intersection Sight Distance of approximately 170 feet. Assuming no obstacles obstructing the view, the proposed Project Driveway (Trash Pick-Up) would provide the minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress left turn to view oncoming southbound vehicles originating on westbound McKinley Avenue (i.e. 200 feet to McKinley Avenue is greater than the 170 foot minimum). Vehicles exiting the Project Driveway can currently view oncoming southbound vehicles originating on eastbound McKinley Avenue within the Charles Street / McKinley Avenue intersection (210+ feet away), so assuming no obstructions, the proposed Project Driveway (Trash Pick-Up) would provide the minimum sight distance defined in the AASHTO Green Book (i.e. 210+ feet to a vehicle on eastbound McKinley Avenue is greater than the 170 foot minimum). However, since Charles Street adjacent to the proposed Project Driveway currently does allow parking, a vehicle parked directly next to the Project Driveway would block the view to the north and the Project Driveway (Trash Pick-Up) is not projected to meet minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress left turn to view oncoming southbound vehicles originating on eastbound or westbound McKinley Avenue.

Stopping Sight Distance (Oncoming Traffic Originating on McKinley Avenue): The proposed Project Driveway (Trash Pick-Up) on Charles Street is located approximately 200 feet south of McKinley Avenue. Based on aerial imagery of the Project study area, the southwest quadrant of the Charles Street / McKinley Avenue intersection currently has a curb return radius of 10 feet. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, the maximum speed an eastbound vehicle on McKinley Avenue could make a right turn onto Charles Street is approximately 10 miles per hour. Based on Table 9-8 in the AASHTO Green Book, a design speed of 10 miles per hour for oncoming vehicles would correspond to a Stopping Sight Distance of approximately 55 feet using interpolation. The stopping sight distance for southbound vehicles originating on McKinley Avenue to view and stop for a vehicle queued in the travel lane on Charles Street to make a left turn into the Project Driveway is projected to meet stopping sight distance minimum requirements defined in the AASHTO Green Book (assuming a typical vehicle is up to 20 feet long, the distance between the back of the queued vehicle and McKinley Avenue is 180 feet, which is greater than the 55 foot minimum). Westbound vehicles on McKinley Avenue can view a vehicle queued in the travel lane on Charles Street (to make a left turn into the Project Driveway) from the Charles Street / McKinley Avenue intersection (200+ feet away), so the stopping sight

distance for vehicles originating on westbound McKinley Avenue to view a vehicle queued in the travel lane on Charles Street is projected to meet minimum stopping sight distance requirements defined in the AASHTO Green Book.

All sight Project access driveway distance analysis results are summarized in **Table 18** below.

Table 18. Project Access Driveway Sight Distance Analysis

Project Driveway	Case	Origin of Oncoming Traffic	Minimum Sight Distance (ft) ³	Minimum Sight Distance Met?
Restaurant Parking Access	ISD ¹ – Right Turn Egress	SB Mathilda Ave	335	Yes
	ISD – Right Turn Egress	EB McKinley Ave	115	Yes
Residential Parking Access	ISD – Right Turn Egress	EB McKinley Ave	240	Yes
	ISD – Right Turn Egress	NB Charles St	105	No
	SSD ²	SB Mathilda Ave	66	Yes
Trash Pick-Up	ISD – Right & Left Turn Egress	NB/SB Charles St	240 / 280	No
	ISD – Left Turn Egress	WB McKinley Ave	170	No
	SSD	EB McKinley Ave	55	Yes

Notes:
¹ISD = Intersection Sight Distance
²SSD = Stopping Sight Distance
³All Minimum Sight Distances were based on guidelines found in the AASHTO Green Book.

Residential Parking Access Driveway Location Recommendations

As shown in **Table 18**, the proposed Project Driveway (Residential Parking Access) would not meet all minimum sight distances as outlined in the AASHTO Green Book due to its close proximity to Charles Street. It is recommended that the proposed Project Driveway (Residential Parking Access) be relocated to the following location in order to meet minimum sight distances:

- **On Charles Street approximately 175 feet south of McKinley Avenue** - This is approximately where the Trash Pick-Up Driveway is currently proposed. In order to provide an unobstructed view for vehicles exiting the Project site at this recommended location, “no parking” zones would need to be installed, using appropriate markings or signage, extending a minimum 20 feet beyond the proposed driveway in either direction along the east side of Charles Street. The “no parking” zones would be consistent with City of Sunnyvale Municipal Code Section 10.16.020(d) and *California Manual on Uniform Traffic Control Devices Figure 3B-21 (CA) Examples of Parking Space Markings*. If the Project Driveway (Residential Parking Access) was installed following these recommendations, minimum sight distances as outlined in the AASHTO Green Book would be met.

If the Project Driveway (Residential Parking Access) were constructed at its currently proposed location (approximately 60 feet east of Charles Street), the following improvements are recommended to improve sight distances:

- It is recommended that the building footprint and proposed landscaping on the northwest corner of the Project site be moved back into the parcel to allow a clear view between a northbound car stopped at the Charles Street / McKinley Avenue intersection and a car exiting the proposed Project Driveway (Residential Parking Access). While implementation of this improvement would lead to improved sight distances, minimum sight distances as outlined in the AASHTO Green Book would still not be met.

8.1.3 ADDITION OF A LEFT-TURN POCKET AT PROJECT DRIVEWAY (RESIDENTIAL PARKING ACCESS)

As shown in **Appendix P**, a 10 foot wide left-turn pocket with 50 feet of storage and a 60 foot taper may begin approximately 25 feet west of the proposed north-south crosswalk along the west leg of the Mathilda Avenue / McKinley Avenue intersection to serve vehicles accessing the Residential Project Driveway. Fifty feet of storage space would accommodate the maximum projected queue for this movement as indicated in **Table 20** of this TIA. Through vehicles along westbound McKinley Avenue would utilize an approximately 10 foot-wide through lane. With the above improvements in place, and as shown in **Appendix P**, 45 foot buses would be able to navigate northbound left-turns and southbound right-turns from Mathilda Avenue onto McKinley Avenue without infringing on the 50 foot left-turn pocket storage space. Passenger cars would be able to make a northbound right-turn from the Residential Project Driveway onto McKinley Avenue without infringing on the 50 foot left-turn pocket storage space. Vehicles larger than a passenger car, such as moving vans and delivery trucks, would not be able to make a northbound right-turn from the Residential Project Driveway onto McKinley Avenue without encroaching into the left-turn pocket due to the inclusion of a proposed raised island within the Residential Project Driveway. However, the percentage of larger vehicles turning out of the driveway is anticipated to be low, minimizing the frequency at which the encroachment will occur. Removal of the proposed raised island within the Residential Project Driveway would allow vehicles larger than a passenger car to make this turn.

Based on the definition of functional area found in Section 9.2.2 and stopping sight distance values found in Table 3-1, of the AASHTO Green Book, the functional area of the Mathilda Avenue / McKinley Avenue intersection extends approximately 80 feet into the westbound lane of the west leg of the intersection. The storage space of the left-turn pocket shown in **Appendix P** would not fall within this functional area. A striped median within the taper area of the left-turn pocket would guide vehicles making a northbound left-turn or southbound right-turn onto McKinley Avenue from Mathilda Avenue away from vehicles queued in the left-turn pocket. The north-south crosswalk crossing the west leg of the Mathilda Avenue / McKinley Avenue intersection is planned to be shifted west from its current location as part of future curb ramp and crosswalk improvements at the intersection. As a result, existing striping and loop detector placement would require modification per the new crosswalk layout.

With the inclusion of a left-turn pocket along McKinley Avenue as described above, vehicles traveling westbound towards Charles Street would be traveling closer to the curb along the north side of McKinley Avenue than they would be without a left-turn pocket. As a result, intersection sight-distance for vehicles exiting from the Wells Fargo Bank parking lot driveway directly across the Project site onto eastbound McKinley Avenue may be impacted by the existing trees planted east of the Wells Fargo driveway. The existing Wells Fargo Bank driveway on McKinley Avenue is full-access and is located approximately 190 feet west of Mathilda Avenue. Based on aerial imagery of the Project study area, the northwest quadrant of the Mathilda Avenue / McKinley Avenue intersection currently has a curb return radius of 45 feet. Based on default values in Section 3.3.2 and equations in Section 3.3.3 of the AASHTO Green Book, the maximum speed a southbound vehicle on Mathilda Avenue could make a right turn onto McKinley Avenue is approximately 13 miles per hour. Based on Table 9-6 in the AASHTO Green Book, a design speed of 13 miles per hour for oncoming vehicles would correspond to a Design Intersection Sight Distance of approximately 148 feet. Assuming no obstacles obstructing the view, the existing Wells Fargo Bank driveway would provide the minimum sight distance requirements defined in the AASHTO Green Book for vehicles making an egress left turn to view oncoming westbound vehicles originating on southbound Mathilda Avenue (i.e. 190 feet to Mathilda Avenue is greater than the 148 foot minimum). However, sight

distance of a vehicle exiting the Wells Fargo Bank driveway onto eastbound McKinley Avenue may be impeded by existing trees if the vehicle is stopped fully behind the sidewalk. Therefore vehicles may have to stop at the front of walk (i.e. temporarily block the sidewalk) to have a clear view of oncoming westbound traffic.

Vehicles traveling westbound on McKinley Avenue looking to turn left onto Charles Street would have approximately 65 feet of length immediately after the left-turn pocket to maneuver to the left-hand side of the lane to make a westbound left-turn. Some drivers may find it inconvenient to make this weaving movement over this relatively short length, and may choose to turn left from the outside of the westbound lane, blocking through vehicles.

8.2 INTERNAL CIRCULATION

All roadways within the Project site plan will allow two-way traffic and all internal intersections will be yield-controlled. Traffic volumes on proposed internal Project site roadways are not projected to be large enough to require any critical traffic control improvements. Therefore, no internal street intersection improvements are recommended.

8.3 PEDESTRIAN AND BICYCLE ACCESS AND CIRCULATION

Pedestrians will be able to use the proposed internal walkways and courtyard to navigate between proposed residential units. The lower-level parking spaces will be connected to the upper levels by stairs and an elevator. The proposed lobby, leasing office, and restaurant will all have access to/from the sidewalks fronting the Project site on McKinley Avenue and Mathilda Avenue. There are existing sidewalks fronting the full length of the Project site on Mathilda Avenue, McKinley Avenue, and Charles Street. Pedestrians can also use the continuous sidewalks on Mathilda Avenue to access nearby transit stops.

Bicyclists can share the proposed on-site roadways with vehicles to navigate the Project site. Bicyclists will be able to access the Project site via the proposed Class 2 bike lanes which are expected to be constructed along both directions of Mathilda Avenue within the Project vicinity. The proposed Project will provide secured bicycle storage at the Project site.

8.4 ON-SITE PARKING

Parking requirements for developments within the Downtown Specific Plan area are included in the City of Sunnyvale Municipal Code Section 19.28.140. Parking requirements not specified in Section 19.28.140, such as bicycle parking, are subject to Municipal Code Section 19.46. For multiple-family residential units, Table 19.28.140 requires one (1) assigned and covered parking space and 0.50 unassigned spaces per studio or one-bedroom dwelling unit and one (1) assigned and covered parking space and one (1) unassigned space per two- or more bedroom dwelling unit. For "Restaurant without Bar" land use, Table 19.28.140 requires one (1) parking space per 110 square foot.

The Project proposes to construct 8 studio, 41 one-bedroom, and 26 two-bedroom dwelling units (75 units total). Up to 11 percent of the Project's proposed multi-family dwelling units will be restricted to very low income households. Per the State Density Bonus Law, providing low income households, plus close proximity to major transit stops, results in reduced parking requirements for the Project. Overall, parking requirements for the residential portion of the Project have been reduced to 0.50 spaces per bedroom, for a total requirement of 51 spaces. The Project site plan proposes a lower-level parking structure for the multiple-family dwellings which would provide seven (7) unassigned guest stalls and 75 assigned residential stalls, for a total of 82 parking spaces, which exceeds minimum requirements. Based on the Project site plan, 11 of the Project's proposed 82 spaces will be designated as electric vehicle ready and three (3) will be designated as accessible parking spaces.

The City's Municipal Code requires multiple-family dwellings to provide one bicycle parking space for every four units. For multiple-family dwellings, all provided bicycle parking spaces are required to be Class I "secured bicycle parking" (lockable facilities such as lockers or limited access areas for parking bicycles). Based on the proposed 75 dwellings units, the City's Municipal Code would require the Project to provide a minimum of 19 secured bike parking spaces. The Project site plan proposes a bike storage facility for residents with 54 spaces, which exceeds the City's minimum requirements.

The Project proposes to construct a 4,860 foot commercial building which will be occupied by a restaurant. Based on the City's Municipal Code, the Project site would be required to provide a minimum of 45 parking spaces for restaurant use. The Project site plan proposes a ground level parking lot for the restaurant which would provide 47 total parking spaces, which exceeds the City's minimum requirements. Based on the Project site plan, five (5) of the Project's proposed 47 ground level spaces will be designated as compact and two (2) will be designated as accessible parking spaces.

The City's Municipal Code requires nonresidential land uses to provide bicycle parking spaces equal to five (5) percent of the total number of vehicular parking spaces provided. The City's Municipal Code also requires that a minimum of 75 percent of the required bicycle parking spaces be bicycle racks. Based on the proposed 47 ground-level vehicular parking spaces, the City's Municipal Code would require the Project to provide a minimum of three (3) bicycle parking spaces for the restaurants use. The Project site plan proposes bike racks that accommodate up to six (6) bicycles on the ground level parking area, which exceeds the City's minimum requirements.

9. POTENTIAL EFFECTS ON TRANSIT, BICYCLE, AND PEDESTRIAN FACILITIES AND SERVICES

This section discusses projected Project impacts on study area transit, bicycle, and pedestrian facilities.

9.1 TRANSIT IMPACTS

9.1.1 TRANSIT VEHICLE DELAY (FOR INFORMATIONAL PURPOSES)

Busses operating on study roadway facilities could experience increased delay due to the addition of Project trips to study intersections. The four bus routes that travel through Project study area intersections are Route 54 (which runs along Mathilda Avenue), Routes 22/522 (which run along El Camino Real), Route 53 (which runs along Washington Avenue), and Route 32 (which runs along segments of Central Expressway and Mathilda Avenue). The AM and PM peak hour delay experienced by each bus route within the Project study area was determined by summing the through movement delays on Mathilda Avenue (northbound/southbound), El Camino Real (eastbound/westbound), Washington Avenue (eastbound/westbound), and Central Expressway (eastbound/ westbound) study intersections. The difference in No Project and Plus Project scenarios' through movement delays was calculated to determine how much peak hour delay the Project would add to study area transit routes. The additional delays experienced by study area transit routes due to Project generated trips are shown in **Table 19**.

Table 19. Transit Delay Caused by Project Generated Traffic

Transit Route	Roadway	Peak Hour	Additional Transit Delay Caused by Project Generated Traffic					
			"Existing plus Project"		"Background plus Project"		"Cumulative plus Project"	
			NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
54	Mathilda Avenue	AM	0.7	-0.3	2.9	-0.1	10.2	-0.1
		PM	-0.2	1.7	0.1	6.6	1.0	18.4
22/522	El Camino Real	AM	0.0	0.1	0.1	0.3	0.0	0.3
		PM	0.0	0.2	0.0	0.1	0.3	0.4
53	Washington Avenue	AM	0.1	0.3	0.1	0.8	0.2	2.0
		PM	0.5	0.5	0.2	1.0	0.7	4.0
32	Mathilda Avenue	AM	-0.1	0.1	0.0	0.2	0.1	0.6
		PM	0.1	0.2	0.2	1.5	0.2	9.5

Note: All delay values were obtained using TRAFFIX or Synchro software.

As shown in **Table 19**, the Project generated traffic is projected to increase peak hour transit delay for Route 54 by up to 10.2 seconds in the northbound direction and 18.4 seconds in the southbound direction. The Project generated traffic is also projected to increase peak hour transit delay for Route 53 by up to 4.0 seconds in the westbound direction, and to increase peak hour transit delay for Route 32 by up to 9.5 seconds in the westbound direction. All other routes and directions see little to no change in delay due to Project generated traffic. The projected small increases in transit vehicle delay should not affect the overall schedule of the transit routes.

It should be noted that some changes in transit delay were calculated to be negative. This is due to how the analysis software calculates delay, and should be interpreted as showing that the Project trips would not increase transit delay.

9.2 PEDESTRIAN IMPACTS

There are sidewalks fronting the full length of the Project site on Mathilda Avenue, McKinley Avenue, and Charles Street. Pedestrians can use the continuous sidewalks on Mathilda Avenue, El Camino Real, Olive Avenue, McKinley Avenue, and/or Washington Avenue within the Project vicinity, as well as the pedestrian crosswalks with push buttons which exist on all legs of the Mathilda Avenue intersections with El Camino Real, Olive Avenue, McKinley Avenue and Washington Avenue, to access the Sunnyvale Transit Center, Sunnyvale Caltrain Station, and various other mid-block bus stops all located within a half-mile walk of the Project site. Curb ramps are provided on all corners of the two-way stop-controlled Charles Street intersections with McKinley Avenue and Iowa Avenue, but crosswalks on all four legs of these two intersections are currently unmarked.

9.3 BICYCLE IMPACTS

According to City staff, there is a proposed improvement project which would install Class II bike lanes along Mathilda Avenue adjacent to the Project site. These proposed bike lanes would be installed in the northbound direction by restriping/reconfiguring the existing lane configuration, while in the southbound direction the bike lane would be installed from dedicated right of way from development projects. These Class II bike lanes are projected to be completed by Project opening

day, and therefore could be used by future Project residents, customers, and employees to access the Project site and surrounding bike lane network.

Bicyclists will be able to use existing or planned bike lane and route facilities on Mathilda Avenue, Evelyn Avenue, Sunnyvale Avenue, Olive Avenue, and Central Expressway, among others, to travel between the Project site and Sunnyvale Transit Center, Sunnyvale Caltrain Station, and other nearby mid-block bus stops. The proposed Project will install secured bike storage and bike racks at the Project site.

10. IMPACTS AND MITIGATION MEASURES

This chapter of the TIA evaluates the study intersection operations results presented in **Table 9** (“Existing plus Project” conditions), **Table 13** (“Background plus Project” conditions), and **Table 17** (“Cumulative plus Project” conditions) against the LOS impact criteria defined in the City and VTA *TIA Guidelines* and summarized in Section 1.5 of this report. “Existing plus Project” study freeway segment operations results (shown in **Table 10**) and study freeway ramp operations results (shown in **Table 11**) are also evaluated against VTA and City impact criteria.

10.1 “EXISTING PLUS PROJECT” IMPACTS AND MITIGATION MEASURES

As illustrated in **Table 10**, the following mixed-flow lane freeway segments operate at unacceptable density-based LOS “F” under “Existing plus Project” AM and/or PM peak hour conditions:

- Eastbound SR 237 between US 101 and Mathilda Avenue during the PM peak hour.
- Eastbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour (mixed-flow lanes only).
- Westbound SR 237 between Mathilda Avenue and Fair Oaks Avenue during the PM peak hour.
- Northbound US 101 between Mathilda Avenue and Fair Oaks Avenue during the AM peak hour (mixed-flow lanes only).

The addition of Project generated trips is not projected to increase the traffic volume on any failing segment by more than one (1) percent of the capacity of the segment. Therefore, based on City of Sunnyvale and VTA freeway segment traffic impact criteria, Project impact at all study freeway segments is projected to be “**less than significant**”.

As illustrated in **Table 11**, all Project study freeway ramps are projected to operate at acceptable V/C ratio standards under “Existing” and “Existing plus Project” AM and PM peak hour conditions. Therefore, the Project is not projected to have any impacts on Project study freeway ramps under “Existing plus Project” conditions.

10.2 “BACKGROUND PLUS PROJECT” IMPACTS AND MITIGATIONS MEASURES

The following intersections were projected to operate at unacceptable LOS conditions under “Background plus Project” AM and/or PM peak hour conditions as illustrated in **Table 13**:

Intersection #14 – Mathilda Avenue / Ross Drive

The Mathilda Avenue / Ross Drive intersection is projected to operate at “Background” and “Background plus Project” PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / Ross Drive intersection is projected to be “**less than significant**”.

Intersection #15 – Mathilda Avenue / SR 237 Eastbound Ramps

The Mathilda Avenue / SR 237 Eastbound Ramps intersection is projected to operate at “Background” and “Background plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / SR 237 Eastbound Ramps intersection is projected to be **“less than significant”**.

Intersection #16 – Mathilda Avenue / SR 237 Westbound Ramps

The Mathilda Avenue / SR 237 Westbound Ramps intersection is projected to operate at “Background” and “Background plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / SR 237 Westbound Ramps intersection is projected to be **“less than significant”**.

Intersection #17 – Mathilda Avenue / Moffett Park Drive

The Mathilda Avenue / Moffett Park Drive intersection is projected to operate at “Background” and “Background plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / Moffett Park Drive intersection is projected to be **“less than significant”**.

10.3 “CUMULATIVE PLUS PROJECT” IMPACTS AND MITIGATIONS MEASURES

The following intersections were projected to operate at unacceptable LOS conditions under “Cumulative plus Project” AM and/or PM peak hour conditions as illustrated in **Table 17**:

Intersection #9 – Mathilda Avenue / Washington Avenue

The Mathilda Avenue / Washington Avenue intersection is projected to operate at “Cumulative” and “Cumulative plus Project” PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / Washington Avenue intersection is projected to be **“less than significant”**.

Intersection #10 – Mathilda Avenue / California Avenue

The Mathilda Avenue / California intersection is projected to operate at “Cumulative” and “Cumulative plus Project” PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / California Avenue intersection is projected to be **“less than significant”**.

Intersection #14 – Mathilda Avenue / Ross Drive

The Mathilda Avenue / Ross Drive intersection is projected to operate at “Cumulative” and “Cumulative plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / Ross

Drive intersection is projected to be “**less than significant**”.

Intersection #15 –Mathilda Avenue / SR 237 Eastbound Ramps

The Mathilda Avenue / SR 237 Eastbound Ramps intersection is projected to operate at “Cumulative” and “Cumulative plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / SR 237 Eastbound Ramps intersection is projected to be “**less than significant**”.

Intersection #16 –Mathilda Avenue / SR 237 Westbound Ramps

The Mathilda Avenue / SR 237 Westbound Ramps intersection is projected to operate at “Cumulative” and “Cumulative plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / SR 237 Westbound Ramps intersection is projected to be “**less than significant**”.

Intersection #17 –Mathilda Avenue / Moffett Park Drive

The Mathilda Avenue / Moffett Park Drive intersection is projected to operate at “Cumulative” and “Cumulative plus Project” AM and PM peak hour LOS “F” conditions. The addition of Project generated trips is not projected to increase the average delay of critical movements by four (4) or more seconds or increase the critical V/C ratio by 0.01 or more. Therefore, based on City of Sunnyvale and VTA intersection traffic impact criteria, Project impact at the Mathilda Avenue / Moffett Park Drive intersection is projected to be “**less than significant**”.

11. QUEUING ANALYSIS, DEFICIENCIES, AND RECOMMENDED IMPROVEMENTS

11.1 QUEUEING ANALYSIS

Queuing analysis for left-turn movements was performed at all signalized study intersection approaches that contained one or more left-turn pockets. Queuing analysis for overall approach queues was performed for two-way stop-controlled intersections. **Table 20** shows total available storage length and total projected 95th percentile left-turn queues for each approach under “Existing”, “Existing plus Project”, “Background”, “Background plus Project”, “Cumulative”, and “Cumulative plus Project” AM and PM peak hour conditions.

As shown in **Table 20**, left-turn queues are projected to exceed the available storage length at the following intersections under “Existing”, “Existing plus Project”, “Background”, “Background plus Project”, “Cumulative”, and/or “Cumulative plus Project” AM and/or PM peak hour conditions:

- Intersection 1 – Mathilda Avenue / El Camino Real (SBL, EBL)
- Intersection 4 – Mathilda Avenue / Iowa Avenue (EBL)
- Intersection 8 – Mathilda Avenue / McKinley Avenue (SBL, EBL, WBL)
- Intersection 9 – Mathilda Avenue / Washington Avenue (SBL, EBL, WBL)
- Intersection 10 – Mathilda Avenue / California Avenue (SBL, EBL)
- Intersection 12 – Mathilda Avenue / Maude Avenue (NBL, SBL, EBL, WBL)
- Intersection 13 – Mathilda Avenue / Almanor Avenue (SBL, EBL)
- Intersecting 14 – Mathilda Avenue / Maude Avenue (SBL, EBL, WBL)
- Intersection 15 – Mathilda Avenue / Maude Avenue (SBL, EBL)

- Intersection 16 – Mathilda Avenue / SR 237 Westbound Ramps (NBL, WBL)
- Intersection 17 – Mathilda Avenue / Moffett Park Drive (NBL)

11.2 PROJECT QUEUEING DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section of the TIA evaluates the study intersection queue results presented in **Table 20** against the queuing deficiency criteria summarized in Section 1.5 of this report. As shown in **Table 20**, Project generated trips are projected to contribute to queuing deficiencies at the following locations, under the specified conditions:

- Intersection 1 – Mathilda Avenue / El Camino Real – Southbound left-turn movement under “Cumulative plus Project” PM peak hour conditions and eastbound left-turn movement under “Background plus Project” and “Cumulative plus Project” PM peak hour conditions
 - a. An additional 550 feet of storage would be needed to accommodate the projected worst-case “Cumulative plus Project” 95th percentile queue for the southbound left-turn movement (the 311 South Mathilda Project and Affordable Housing Development contribute approximately 25 feet of queue). Since the north leg of this intersection currently has curb, gutter, and sidewalk on both sides, as well as an existing median and close proximity to Olive Avenue (located approximately 850-feet north of El Camino Real), lengthening the southbound left-turn pocket may not be feasible.
 - b. An additional 50 feet of storage would be needed to accommodate the projected worst-case “Background plus Project” 95th percentile queues and an additional 200 feet of storage would be needed to accommodate the projected worst-case “Cumulative plus Project” 95th percentile queues for the eastbound left-turn movement (the 311 South Mathilda Project and Affordable Housing Development contribute approximately 25 feet of queue under both conditions). Lengthening the eastbound left-turn pockets at this intersection may be possible with removal of part of the existing landscaped median along the west leg. However, this improvement would potentially alleviate queueing problems for the PM peak hour, the AM peak hour queue under all conditions would continue to exceed available storage length. Therefore, lengthening the eastbound left-turn pocket may not be feasible.
- Intersection 4 – Mathilda Avenue / Iowa Avenue – Eastbound left-turn movement under “Cumulative plus Project” AM and PM peak hour conditions.
 - a. An additional 175 feet of storage would be needed to accommodate the projected worst-case 95th percentile AM peak hour queue for the eastbound left-turn movement (the 311 South Mathilda Project and Affordable Housing Development contribute approximately 75 feet of queue), and an additional 75 feet of storage would be needed to accommodate the projected worst-case 95th percentile PM peak hour queue for the eastbound left-turn movement (project contributes approximately 75 feet of queue) under “Cumulative plus Project” conditions. Since the west leg of this intersection currently has curb, gutter, and sidewalk on both sides, as well as close proximity to the Charles Street / Iowa Avenue intersection (located approximately 200-feet west of Mathilda Avenue), lengthening the eastbound left-turn pocket may not be feasible.
- Intersection 8 – Mathilda Avenue / McKinley Avenue – Eastbound left-turn movement under “Cumulative plus Project” AM peak hour conditions.
 - a. An additional 25 feet of storage would be needed to accommodate the projected worst-case “Cumulative plus Project” 95th percentile queue for the eastbound left-turn movement (the 311 South Mathilda Project and Affordable Housing Development contribute approximately 25 feet of queue). Since the west leg of this intersection

currently has curb, gutter, and sidewalk on both sides, as well as close proximity to the Charles Street / McKinley Avenue intersection (located approximately 200-feet west of Mathilda Avenue), lengthening the eastbound left-turn pocket may not be feasible.

- Intersection 9 – Mathilda Avenue / Washington Avenue – Westbound left-turn movement under “Cumulative plus Project” PM peak hour conditions.
 - a. An additional 200 feet of storage would be needed to accommodate the projected worst-case “Cumulative plus Project” 95th percentile queue for the westbound left-turn movement (the 311 South Mathilda Project and Affordable Housing Development contribute approximately 25 feet of queue). Since the east leg of this intersection currently has curb, gutter, and sidewalk on both sides, as well as close proximity to the Taaffe Street / Washington Avenue intersection (located approximately 450-feet west of Mathilda Avenue), lengthening the westbound left-turn pocket may not be feasible.

For the above cases where lengthening left-turn pockets is not feasible, Project related queueing deficiencies could be improved by implementation of the City’s Intelligent Transportation System (ITS) strategies and projects. The City is proposing to implement a fully coordinated and interconnected traffic management system to improve signal operations and vehicle progression which could alleviate queueing issues. The proposed Project will contribute towards the ITS projects through the City’s Transportation Impact Fee. Fair share percentages at study intersections were estimated for both the Project and the Affordable Housing Development and are included in **Appendix L**.

Table 20. Queueing Analysis

#	Intersection	Movement	Available Storage Length (ft) ¹	Peak Hour	# Proj. Trips (# Affordable Housing Trips) ³		Projected Queue Length (ft) ²					
							Existing (Existing plus Project)		Background (Background plus Project)		Cumulative (Cumulative plus Project)	
1	Mathilda Avenue / El Camino Real	NBL	850	AM	0	(0)	525	(525)	550	(550)	625	(625)
			850	PM	0	(0)	500	(500)	625	(625)	725	(725)
		SBL	1000	AM	3	(5)	350	(350)	475	(475)	550	(575)
			1000	PM	2	(5)	975	(1000)	1300	(1300)	1525	(1550)
		EBL	700	AM	1	(3)	1025	(1025)	1150	(1150)	1375	(1375)
			700	PM	3	(3)	525	(525)	725	(750)	875	(900)
		WBL	275	AM	0	(0)	25	(25)	50	(50)	50	(50)
			275	PM	0	(0)	200	(200)	250	(250)	275	(275)
2	Mathilda Avenue / Olive Avenue	NBL	175	AM	0	(0)	150	(150)	150	(150)	175	(175)
			175	PM	0	(0)	150	(150)	150	(150)	175	(175)
		SBL	350	AM	0	(0)	75	(75)	75	(75)	75	(75)
			350	PM	0	(0)	150	(150)	175	(175)	200	(200)
3	Charles Street / Iowa Avenue	NB	150	AM	0	(0)	25	(25)	25	(25)	25	(25)
			150	PM	0	(0)	25	(25)	25	(25)	25	(25)
		SB	350	AM	1	(3)	25	(25)	25	(25)	25	(25)
			350	PM	0	(3)	25	(25)	25	(25)	25	(25)
4	Mathilda Avenue / Iowa Avenue	NBL	225	AM	0	(13)	50	(50)	50	(50)	50	(75)
			225	PM	0	(12)	75	(75)	75	(75)	75	(100)
		SBL	650	AM	9	(0)	75	(100)	200	(225)	200	(225)
			650	PM	6	(0)	150	(150)	550	(550)	575	(575)
		EBL	75	AM	0	(30)	150	(150)	150	(150)	175	(250)
			75	PM	0	(27)	75	(75)	75	(75)	75	(150)
		WBL	225	AM	0	(0)	75	(75)	75	(75)	75	(75)
			225	PM	0	(0)	175	(175)	200	(200)	225	(225)

Table 20. Queueing Analysis (Continued)

#	Intersection	Movement	Available Storage Length (ft) ¹	Peak Hour	# Proj. Trips (# Affordable Housing Trips) ³		Projected Queue Length (ft) ²					
							Existing (Existing plus Project)		Background (Background plus Project)		Cumulative (Cumulative plus Project)	
5	Mathilda Avenue / Project Driveway (Restaurant Parking Access)	EB	75	AM	13	(0)	25	(25)	25	(25)	25	(25)
			75	PM	9	(0)	25	(25)	25	(25)	25	(25)
6	Charles Street / McKinley Avenue	NB	150	AM	1	(3)	25	(25)	25	(25)	25	(25)
			150	PM	1	(3)	25	(25)	25	(25)	25	(25)
		SB	225	AM	0	(0)	25	(25)	25	(25)	25	(25)
			225	PM	0	(0)	25	(25)	25	(25)	50	(50)
7	Project Driveway (Residential Parking Access) / McKinley Avenue	NB	100	AM	18	(0)	25	(25)	25	(25)	25	(25)
			100	PM	9	(0)	25	(25)	25	(25)	25	(25)
		WB	150	AM	2	(0)	25	(25)	25	(25)	25	(25)
			150	PM	22	(0)	25	(25)	25	(25)	25	(25)
8	Mathilda Avenue / McKinley Avenue	NBL	150	AM	3	(0)	75	(75)	75	(75)	75	(75)
			150	PM	11	(0)	75	(100)	75	(100)	100	(125)
		SBL	500	AM	0	(0)	225	(225)	250	(250)	275	(275)
			500	PM	0	(0)	200	(200)	550	(550)	575	(575)
		EBL	200	AM	11	(0)	150	(175)	175	(200)	200	(225)
			200	PM	5	(0)	175	(200)	200	(200)	225	(225)
		WBL	320	AM	0	(0)	75	(75)	125	(125)	125	(125)
			320	PM	0	(0)	425	(425)	450	(450)	475	(475)
9	Mathilda Avenue / Washington Avenue	NBL	250	AM	0	(0)	75	(75)	75	(75)	75	(75)
			250	PM	0	(0)	75	(75)	75	(75)	100	(100)
		SBL	725	AM	0	(0)	500	(500)	625	(625)	900	(900)
			725	PM	0	(0)	625	(625)	1075	(1075)	1350	(1350)

Table 20. Queueing Analysis (Continued)

#	Intersection	Movement	Available Storage Length (ft) ¹	Peak Hour	# Proj. Trips (# Affordable Housing Trips) ³		Projected Queue Length (ft) ²					
							Existing (Existing plus Project)		Background (Background plus Project)		Cumulative (Cumulative plus Project)	
9	Mathilda Avenue / Washington Avenue	EBL	250	AM	0	(0)	575	(575)	600	(600)	700	(700)
			250	PM	0	(0)	425	(425)	450	(450)	500	(500)
		WBL	400	AM	0	(2)	225	(225)	200	(200)	250	(250)
			400	PM	1	(2)	375	(375)	425	(425)	575	(600)
10	Mathilda Avenue / California Avenue	NBL	450	AM	0	(0)	275	(275)	325	(325)	450	(450)
			450	PM	0	(0)	200	(200)	225	(225)	275	(275)
		SBL	225	AM	0	(0)	100	(100)	100	(100)	100	(100)
			225	PM	0	(0)	275	(275)	325	(325)	375	(375)
		EBL	250	AM	0	(0)	150	(150)	325	(325)	425	(425)
			250	PM	0	(0)	275	(275)	450	(450)	850	(850)
		WBL	225	AM	0	(0)	200	(200)	200	(200)	225	(225)
			225	PM	0	(0)	150	(150)	150	(150)	175	(175)
11	Mathilda Avenue / Indio Avenue	NBL	325	AM	0	(0)	200	(200)	225	(225)	250	(250)
			325	PM	0	(0)	75	(75)	75	(75)	125	(125)
		SBL	325	AM	0	(0)	50	(50)	50	(50)	75	(75)
			325	PM	0	(0)	125	(125)	125	(125)	150	(150)
12	Mathilda Avenue / Maude Avenue	NBL	545	AM	1	(2)	850	(850)	1200	(1200)	1375	(1375)
			545	PM	1	(1)	275	(275)	425	(425)	500	(500)
		SBL	640	AM	0	(0)	375	(375)	400	(400)	450	(450)
			640	PM	0	(0)	725	(725)	800	(800)	925	(925)
		EBL	1175	AM	0	(0)	275	(275)	425	(425)	450	(450)
			1175	PM	0	(0)	600	(600)	1050	(1075)	1175	(1175)
		WBL	500	AM	0	(0)	325	(325)	375	(375)	450	(450)
			500	PM	0	(0)	275	(275)	300	(300)	350	(350)

Table 20. Queueing Analysis (Continued)

#	Intersection	Approach	Available Storage Length (ft) ¹	Peak Hour	# Proj. Trips (# Affordable Housing Trips) ³	Projected Queue Length (ft) ²						
						Existing (Existing plus Project)		Background (Background plus Project)		Cumulative (Cumulative plus Project)		
13	Mathilda Avenue / Almanor Avenue	NBL	370	AM	0	(0)	175	(175)	175	(175)	225	(225)
			370	PM	0	(0)	75	(75)	75	(75)	100	(100)
		SBL	145	AM	0	(0)	200	(200)	200	(200)	225	(225)
			145	PM	0	(0)	300	(300)	325	(325)	375	(375)
		EBL	500	AM	0	(0)	250	(250)	275	(275)	325	(325)
			500	PM	0	(0)	700	(700)	825	(825)	950	(950)
		WBL	335	AM	0	(0)	100	(100)	100	(100)	125	(125)
			335	PM	0	(0)	75	(75)	75	(75)	100	(100)
14	Mathilda Avenue / Ross Drive	NBL	175	AM	0	(0)	125	(125)	75	(75)	75	(75)
			175	PM	0	(0)	75	(100)	75	(75)	75	(75)
		SBL	200	AM	0	(0)	50	(50)	50	(50)	50	(50)
			200	PM	0	(0)	250	(250)	200	(200)	200	(200)
		EBL	120	AM	0	(0)	50	(50)	50	(50)	50	(50)
			120	PM	0	(0)	100	(100)	100	(100)	125	(125)
		WBL	35	AM	0	(0)	225	(225)	225	(225)	275	(275)
			35	PM	0	(0)	175	(175)	175	(175)	200	(200)
15	Mathilda Avenue / SR 237 Eastbound Ramps	SBL	160	AM	0	(0)	50	(50)	150	(150)	175	(175)
			160	PM	0	(0)	450	(450)	450	(450)	450	(450)
		EBL	890	AM	0	(0)	700	(700)	1675	(1675)	1850	(1850)
			890	PM	0	(0)	175	(175)	350	(350)	350	(350)
16	Mathilda Avenue / SR 237 Westbound Ramps	NBL	165	AM	0	(0)	100	(100)	75	(75)	75	(75)
			165	PM	0	(0)	150	(150)	150	(150)	175	(175)
		WBL	310	AM	1	(3)	425	(425)	575	(575)	800	(800)
			310	PM	3	(3)	575	(575)	675	(675)	825	(825)

Table 20. Queueing Analysis (Continued)

#	Intersection	Approach	Available Storage Length (ft) ¹	Peak Hour	# Proj. Trips (# Affordable Housing Trips) ³	Projected Queue Length (ft) ²					
						Existing (Existing plus Project)		Background (Background plus Project)		Cumulative (Cumulative plus Project)	
17	Mathilda Avenue / Moffett Park Drive	NBL	200	AM	0 (0)	800	(800)	950	(950)	950	(950)
			200	PM	0 (0)	250	(250)	500	(500)	550	(550)
		SBL	200	AM	0 (0)	25	(25)	25	(25)	25	(25)
			200	PM	0 (0)	75	(75)	75	(75)	100	(100)
		EBL	350	AM	0 (0)	50	(50)	50	(50)	50	(50)
			350	PM	0 (0)	125	(125)	125	(125)	150	(150)
		WBL	1000	AM	0 (0)	125	(125)	175	(175)	200	(200)
			1000	PM	0 (0)	475	(475)	925	(925)	1050	(1050)

Notes: **Bold** values show queues projected to exceed available storage.
Highlighted values show queuing deficiencies exacerbated by Project generated traffic.
1. Total storage length provided by all left-turn pockets (signalized intersections) and approach/throat depth (two-way stop-controlled intersections).
2. Total queued vehicle length in all pockets. All queue lengths were rounded up to the nearest 25 foot increment.
3. # Proj. Trips = 311 South Mathilda Project Trips Added
Affordable Housing Trips = Affordable Housing Development Trips Added. Applies under "Cumulative plus Project" conditions only.

Appendix A
Raw Count Sheets

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE				SURVEY DATE: 5/2/2017				DAY: TUESDAY			
N-S APPROACH: CHARLES STREET				SURVEY TIME: 7:00 AM				TO 9:00 AM			
E-W APPROACH: W IOWA AVENUE				JURISDICTION: SUNNYVALE				FILE: 3705036-1AM			

<p>PEAK HOUR 7:45 AM to 8:45 AM</p> <p style="text-align: center;">NORTH</p> <p style="text-align: center;">W IOWA AVENUE</p> <p style="text-align: center;">CHARLES STREET</p>	<p style="text-align: center;">ARRIVAL / DEPARTURE VOLUMES</p> <p style="text-align: center;">PHF = 0.53</p> <p style="text-align: center;">PHF = 0.88</p> <p style="text-align: center;">PHF = 0.79</p> <p style="text-align: center;">PHF = 0.75</p>
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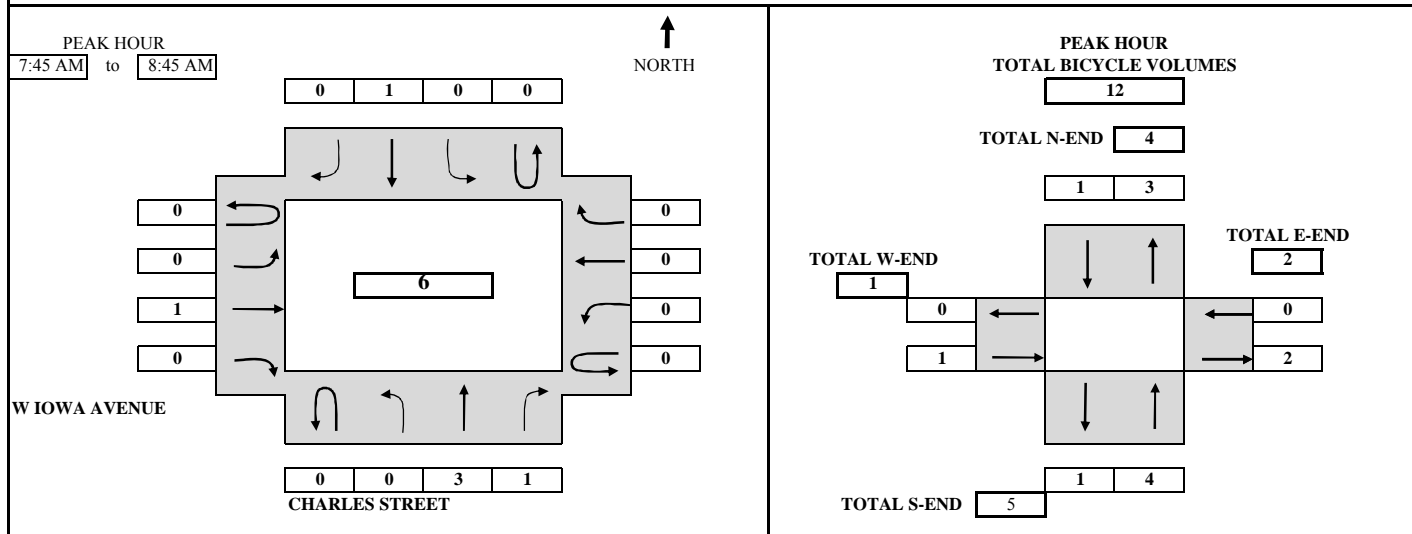
TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM to 7:15 AM			0	2	0	1	1	0	0	9	0	1	8	0					22
7:15 AM to 7:30 AM			0	4	1	3	2	2	1	20	0	1	15	1					50
7:30 AM to 7:45 AM			0	7	3	3	4	2	2	35	0	3	24	3					86
7:45 AM to 8:00 AM			1	11	7	3	9	3	4	58	0	4	40	7					147
8:00 AM to 8:15 AM			1	13	9	3	20	7	7	88	0	8	56	7					219
8:15 AM to 8:30 AM			1	19	13	3	24	9	11	111	0	11	69	7					278
8:30 AM to 8:45 AM			1	21	18	7	24	10	12	128	1	12	82	10					326
8:45 AM to 9:00 AM			3	26	21	8	24	10	13	151	2	13	99	15					385
TOTAL BY PERIOD																			
7:00 AM to 7:15 AM			0	0	2	0	1	1	0	0	0	9	0	0	1	8	0		22
7:15 AM to 7:30 AM			0	0	2	1	0	2	1	2	0	1	11	0	0	0	7	1	28
7:30 AM to 7:45 AM			0	0	3	2	0	0	2	0	0	1	15	0	0	2	9	2	36
7:45 AM to 8:00 AM			0	1	4	4	0	0	5	1	0	2	23	0	0	1	16	4	61
8:00 AM to 8:15 AM			0	0	2	2	0	0	11	4	0	3	30	0	0	4	16	0	72
8:15 AM to 8:30 AM			0	0	6	4	0	0	4	2	0	4	23	0	0	3	13	0	59
8:30 AM to 8:45 AM			0	0	2	5	0	4	0	1	0	1	17	1	0	1	13	3	48
8:45 AM to 9:00 AM			0	2	5	3	0	1	0	0	0	1	23	1	0	1	17	5	59
HOURLY TOTALS																			
7:00 AM to 8:00 AM			0	1	11	7	0	3	9	3	0	4	58	0	0	4	40	7	147
7:15 AM to 8:15 AM			0	1	11	9	0	2	19	7	0	7	79	0	0	7	48	7	197
7:30 AM to 8:30 AM			0	1	15	12	0	0	22	7	0	10	91	0	0	10	54	6	228
7:45 AM to 8:45 AM			0	1	14	15	0	4	20	8	0	10	93	1	0	9	58	7	240
8:00 AM to 9:00 AM			0	2	15	14	0	5	15	7	0	9	93	2	0	9	59	8	238
PEAK HOUR SUMMARY																			
7:45 AM to 8:45 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR			
VOLUME	0	1	14	15	0	4	20	8	0	10	93	1	0	9	58	7			240
PHF BY MOVEMENT	0.00	0.25	0.58	0.75	0.00	0.25	0.45	0.50	0.00	0.63	0.78	0.25	0.00	0.56	0.91	0.44			OVERALL
PHF BY APPROACH	0.75				0.53				0.79				0.88				0.83		
BICYCLE	4				1				1				0				6		
PEDESTRIAN	1				7				2				0				10		
	N-LEG				S-LEG				E-LEG				W-LEG						
PEDESTRIAN BY LEG:	0				2				0				8				10		

TEL: (510) 232 - 1271 EMAIL: BAYMETRICS@GMAIL.COM

B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	SURVEY DATE:	5/2/2017	DAY:	TUESDAY
N-S APPROACH:	CHARLES STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	W IOWA AVENUE	JURISDICTION:	SUNNYVALE	FILE:	3705036-1AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	

SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	to	7:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
7:30 AM	to	7:45 AM	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3
7:45 AM	to	8:00 AM	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
8:00 AM	to	8:15 AM	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	0	5
8:15 AM	to	8:30 AM	0	0	3	1	0	0	1	0	0	2	0	0	0	0	0	0	7
8:30 AM	to	8:45 AM	0	0	5	1	0	0	1	0	0	2	0	0	0	0	0	0	9
8:45 AM	to	9:00 AM	0	0	6	1	0	0	1	0	0	2	0	0	0	1	0	0	11

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	to	7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	to	8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	to	8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	to	8:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
8:30 AM	to	8:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	to	9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2

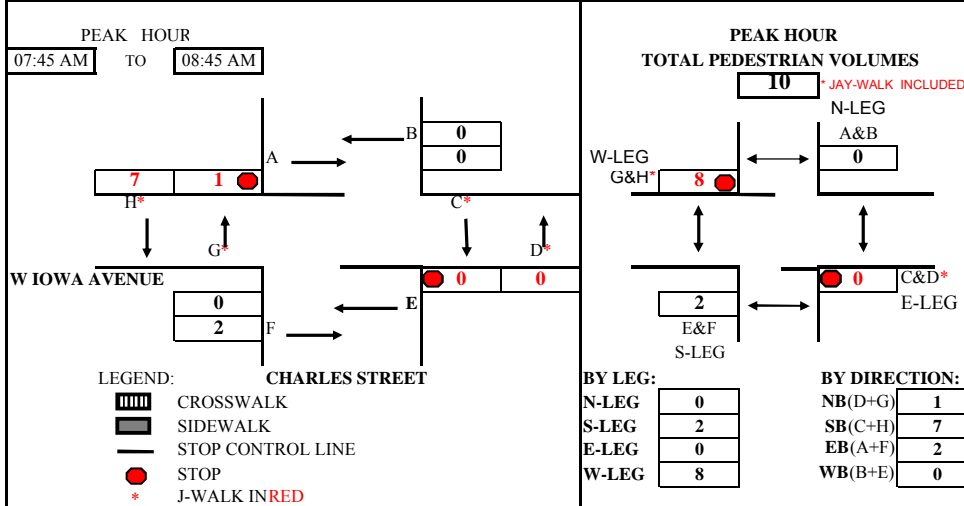
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
7:15 AM	to	8:15 AM	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	4
7:30 AM	to	8:30 AM	0	0	2	1	0	0	1	0	0	1	0	0	0	0	0	0	5
7:45 AM	to	8:45 AM	0	0	3	1	0	0	1	0	0	1	0	0	0	0	0	0	6
8:00 AM	to	9:00 AM	0	0	4	0	0	0	1	0	0	1	0	0	0	1	0	0	7

TEL: (510) 232 - 1271 EMAIL: BAYMETRICS@GMAIL.COM

7:45 AM	to	8:45 AM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL		
BICYCLE	4	1	1	0	6		

B.A.Y.M.E.T.R.I.C.S. PEDESTRIAN MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017	
N-S APPROACH: CHARLES STREET		DAY: TUESDAY	
E-W APPROACH: W IOWA AVENUE		JURISDICTION: SUNNYVALE	
SURVEY PERIOD 7:00 AM TO 9:00 AM		FILE: 3705036-1AM	



TIME PERIOD		NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		TOTAL
From	To	A	B	C*	D*	E	F	G*	H*	

SURVEY DATA											
07:00 AM	---	07:15 AM	1	0	0	1	0	0	1	0	3
07:15 AM	---	07:30 AM	1	1	0	3	0	0	1	1	7
07:30 AM	---	07:45 AM	1	1	0	3	0	0	1	1	7
07:45 AM	---	08:00 AM	1	1	0	3	0	2	2	5	14
08:00 AM	---	08:15 AM	1	1	0	3	0	2	2	6	15
08:15 AM	---	08:30 AM	1	1	0	3	0	2	2	7	16
08:30 AM	---	08:45 AM	1	1	0	3	0	2	2	8	17
08:45 AM	---	09:00 AM	2	1	1	3	1	2	3	8	21

TOTAL BY PERIOD											
07:00 AM	---	07:15 AM	1	0	0	1	0	0	1	0	3
07:15 AM	---	07:30 AM	0	1	0	2	0	0	0	1	4
07:30 AM	---	07:45 AM	0	0	0	0	0	0	0	0	0
07:45 AM	---	08:00 AM	0	0	0	0	0	2	1	4	7
08:00 AM	---	08:15 AM	0	0	0	0	0	0	0	1	1
08:15 AM	---	08:30 AM	0	0	0	0	0	0	0	1	1
08:30 AM	---	08:45 AM	0	0	0	0	0	0	0	1	1
08:45 AM	---	09:00 AM	1	0	1	0	1	0	1	0	4

HOURLY TOTALS											
07:00 AM	---	08:00 AM	1	1	0	3	0	2	2	5	14
07:15 AM	---	08:15 AM	0	1	0	2	0	2	1	6	12
07:30 AM	---	08:30 AM	0	0	0	0	0	2	1	6	9
07:45 AM	---	08:45 AM	0	0	0	0	0	2	1	7	10
08:00 AM	---	09:00 AM	1	0	1	0	1	0	1	3	7

Tel : (510) 232-1271

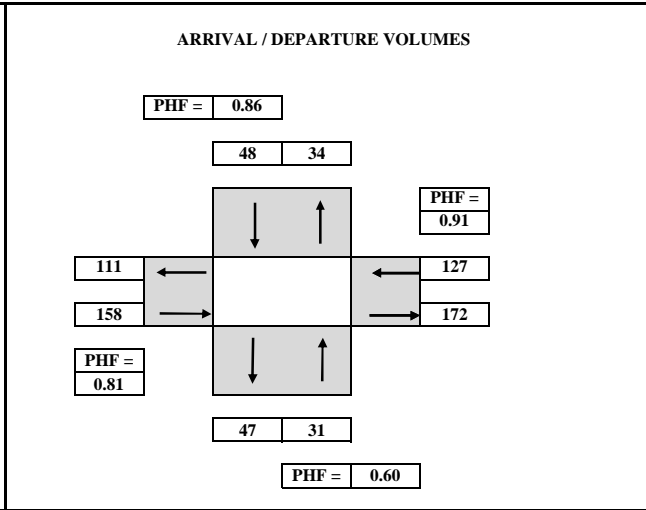
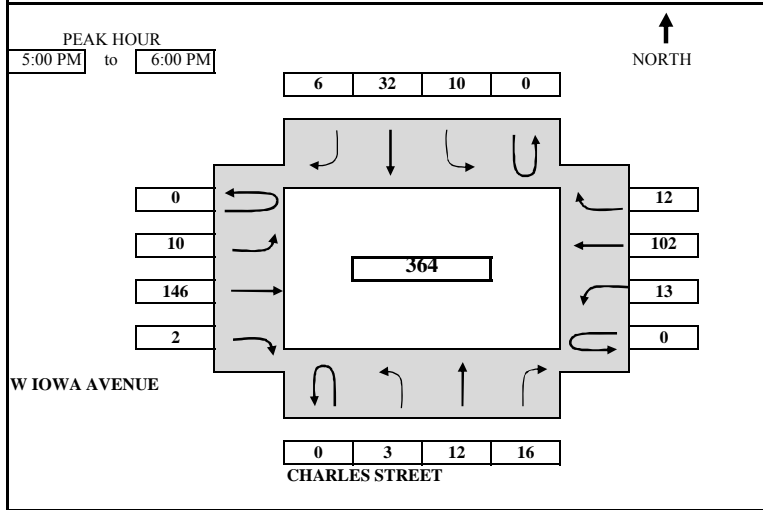
EMAIL: BAYMETRICS@GMAIL.COM

12:00 AM to 12:00 AM					
VOLUME BY DIRECTION	NB	SB	EB	WB	TOTAL
PEDESTRIAN	1	7	2	0	10
VOLUME BY LEG	N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN	0	2	0	8	10

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	SURVEY DATE:	5/2/2017	DAY:	TUESDAY
N-S APPROACH:	CHARLES STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	W IOWA AVENUE	JURISDICTION:	SUNNYVALE	FILE:	3705036-1PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	

SURVEY DATA																	
4:00 PM to 4:15 PM	1	2	3		1	2	2		2	21	1		2	18	4		59
4:15 PM to 4:30 PM	1	8	5		4	3	4		2	46	1		4	29	4		111
4:30 PM to 4:45 PM	1	11	8		5	8	4		3	68	1		4	60	5		178
4:45 PM to 5:00 PM	1	16	12		9	14	5		4	95	3		5	84	6		254
5:00 PM to 5:15 PM	3	19	20		10	24	6		6	125	3		7	107	12		342
5:15 PM to 5:30 PM	3	21	23		12	34	8		8	157	4		8	132	12		422
5:30 PM to 5:45 PM	3	24	28		15	38	10		12	202	4		12	160	15		523
5:45 PM to 6:00 PM	4	28	28		19	46	11		14	241	5		18	186	18		618

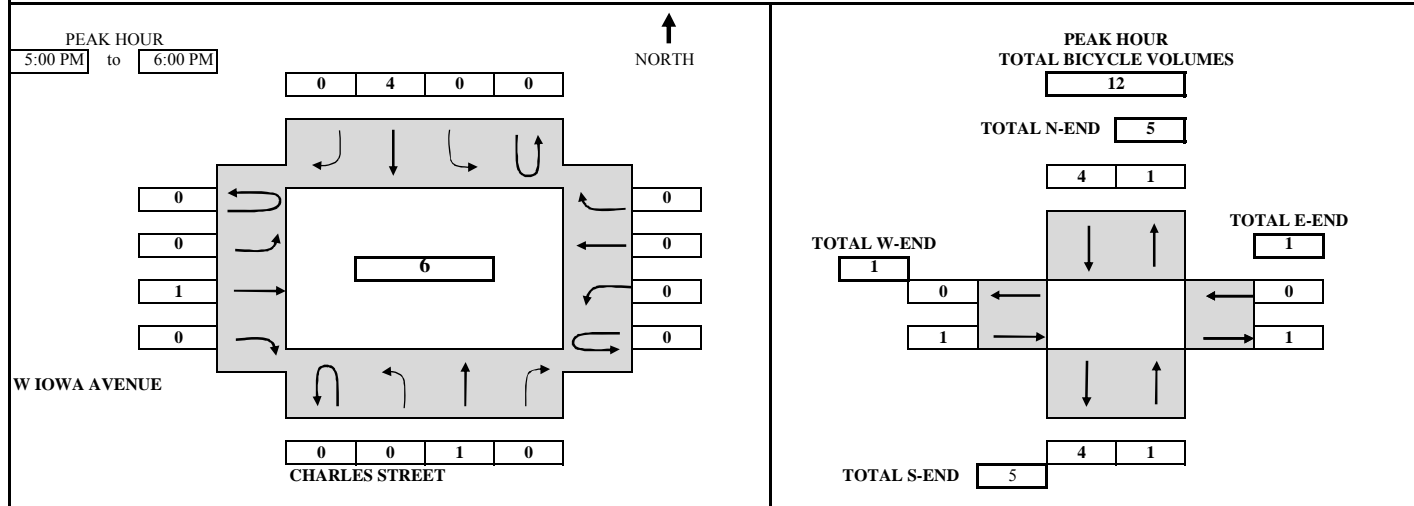
TOTAL BY PERIOD																	
4:00 PM to 4:15 PM	0	1	2	3	0	1	2	2	0	2	21	1	0	2	18	4	59
4:15 PM to 4:30 PM	0	0	6	2	0	3	1	2	0	0	25	0	0	2	11	0	52
4:30 PM to 4:45 PM	0	0	3	3	0	1	5	0	0	1	22	0	0	0	31	1	67
4:45 PM to 5:00 PM	0	0	5	4	0	4	6	1	0	1	27	2	0	1	24	1	76
5:00 PM to 5:15 PM	0	2	3	8	0	1	10	1	0	2	30	0	0	2	23	6	88
5:15 PM to 5:30 PM	0	0	2	3	0	2	10	2	0	2	32	1	0	1	25	0	80
5:30 PM to 5:45 PM	0	0	3	5	0	3	4	2	0	4	45	0	0	4	28	3	101
5:45 PM to 6:00 PM	0	1	4	0	0	4	8	1	0	2	39	1	0	6	26	3	95

HOURLY TOTALS																	
4:00 PM to 5:00 PM	0	1	16	12	0	9	14	5	0	4	95	3	0	5	84	6	254
4:15 PM to 5:15 PM	0	2	17	17	0	9	22	4	0	4	104	2	0	5	89	8	283
4:30 PM to 5:30 PM	0	2	13	18	0	8	31	4	0	6	111	3	0	4	103	8	311
4:45 PM to 5:45 PM	0	2	13	20	0	10	30	6	0	9	134	3	0	8	100	10	345
5:00 PM to 6:00 PM	0	3	12	16	0	10	32	6	0	10	146	2	0	13	102	12	364

PEAK HOUR SUMMARY																	
5:00 PM to 6:00 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	3	12	16	0	10	32	6	0	10	146	2	0	13	102	12	364
PHF BY MOVEMENT	0.00	0.38	0.75	0.50	0.00	0.63	0.80	0.75	0.00	0.63	0.81	0.50	0.00	0.54	0.91	0.50	OVERALL
PHF BY APPROACH	0.60				0.86				0.81				0.91				0.90
BICYCLE	1				4				1				0				6
PEDESTRIAN	2				5				0				4				11
PEDESTRIAN BY LEG:	N-LEG				S-LEG				E-LEG				W-LEG				
	0				4				2				5				11

B.A.Y.M.E.T.R.I.C.S. BICYCLE TURNING MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE	SURVEY DATE: 5/2/2017	DAY: TUESDAY
N-S APPROACH: CHARLES STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: W IOWA AVENUE	JURISDICTION: SUNNYVALE	FILE: 3705036-1PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM to 4:15 PM			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM			0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM to 4:45 PM			0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM to 5:00 PM			0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3
5:00 PM to 5:15 PM			0	1	2	0	0	0	0	1	0	0	1	0	0	0	0	0	5
5:15 PM to 5:30 PM			0	1	2	0	0	0	1	1	0	0	1	0	0	0	0	0	6
5:30 PM to 5:45 PM			0	1	2	0	0	0	2	1	0	0	1	0	0	0	0	0	7
5:45 PM to 6:00 PM			0	1	2	0	0	0	4	1	0	0	1	0	0	0	0	0	9
TOTAL BY PERIOD																			
4:00 PM to 4:15 PM			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM to 4:30 PM			0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM to 4:45 PM			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM to 5:00 PM			0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
5:00 PM to 5:15 PM			0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
5:15 PM to 5:30 PM			0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:30 PM to 5:45 PM			0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
5:45 PM to 6:00 PM			0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
HOURLY TOTALS																			
4:00 PM to 5:00 PM			0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3
4:15 PM to 5:15 PM			0	1	2	0	0	0	0	1	0	0	1	0	0	0	0	0	5
4:30 PM to 5:30 PM			0	0	2	0	0	0	1	1	0	0	1	0	0	0	0	0	5
4:45 PM to 5:45 PM			0	0	2	0	0	0	2	1	0	0	1	0	0	0	0	0	6
5:00 PM to 6:00 PM			0	0	1	0	0	0	4	0	0	0	1	0	0	0	0	0	6

TEL: (510) 232 - 1271

EMAIL: BAYMETRICS@GMAIL.COM

5:00 PM to 6:00 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	1	4	1	0	6

B.A.Y.M.E.T.R.I.C.S. PEDESTRIAN MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017	
N-S APPROACH: CHARLES STREET		DAY: TUESDAY	
E-W APPROACH: W IOWA AVENUE		JURISDICTION: SUNNYVALE	
SURVEY PERIOD: 4:00 PM TO 6:00 PM		FILE: 3705036-1PM	

<p style="text-align: center;">PEAK HOUR 05:00 PM TO 06:00 PM</p> <p style="text-align: center;">W IOWA AVENUE</p> <p style="text-align: center;">CHARLES STREET</p> <p>LEGEND: CROSSWALK SIDEWALK STOP CONTROL LINE STOP</p>	<p style="text-align: center;">PEAK HOUR TOTAL PEDESTRIAN VOLUMES 11 *JAY-WALK INCLUDED</p> <p>BY LEG:</p> <table border="1" style="margin-left: 20px;"> <tr><td>N-LEG</td><td>0</td></tr> <tr><td>S-LEG</td><td>4</td></tr> <tr><td>E-LEG</td><td>2</td></tr> <tr><td>W-LEG</td><td>5</td></tr> </table> <p>BY DIRECTION:</p> <table border="1" style="margin-left: 20px;"> <tr><td>NB(D+G)</td><td>2</td></tr> <tr><td>SB(C+H)</td><td>5</td></tr> <tr><td>EB(A+F)</td><td>0</td></tr> <tr><td>WB(B+E)</td><td>4</td></tr> </table>	N-LEG	0	S-LEG	4	E-LEG	2	W-LEG	5	NB(D+G)	2	SB(C+H)	5	EB(A+F)	0	WB(B+E)	4
N-LEG	0																
S-LEG	4																
E-LEG	2																
W-LEG	5																
NB(D+G)	2																
SB(C+H)	5																
EB(A+F)	0																
WB(B+E)	4																

TIME PERIOD		NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		TOTAL	
From	To	A	B	C*	D*	E	F	G*	H*		
SURVEY DATA											
04:00 PM	---	04:15 PM	0	0	0	0	1	2	1	2	6
04:15 PM	---	04:30 PM	0	0	2	0	1	2	3	2	10
04:30 PM	---	04:45 PM	0	1	2	0	2	2	4	3	14
04:45 PM	---	05:00 PM	1	1	2	0	4	2	6	4	20
05:00 PM	---	05:15 PM	1	1	2	0	4	2	7	5	22
05:15 PM	---	05:30 PM	1	1	2	0	6	2	8	7	27
05:30 PM	---	05:45 PM	1	1	3	0	7	2	8	7	29
05:45 PM	---	06:00 PM	1	1	4	0	8	2	8	7	31
TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	0	0	0	0	1	2	1	2	6
04:15 PM	---	04:30 PM	0	0	2	0	0	0	2	0	4
04:30 PM	---	04:45 PM	0	1	0	0	1	0	1	1	4
04:45 PM	---	05:00 PM	1	0	0	0	2	0	2	1	6
05:00 PM	---	05:15 PM	0	0	0	0	0	0	1	1	2
05:15 PM	---	05:30 PM	0	0	0	0	2	0	1	2	5
05:30 PM	---	05:45 PM	0	0	1	0	1	0	0	0	2
05:45 PM	---	06:00 PM	0	0	1	0	1	0	0	0	2
HOURLY TOTALS											
04:00 PM	---	05:00 PM	1	1	2	0	4	2	6	4	20
04:15 PM	---	05:15 PM	1	1	2	0	3	0	6	3	16
04:30 PM	---	05:30 PM	1	1	0	0	5	0	5	5	17
04:45 PM	---	05:45 PM	1	0	1	0	5	0	4	4	15
05:00 PM	---	06:00 PM	0	0	2	0	4	0	2	3	11

Tel : (510) 232-1271 EMAIL: BAYMETRICS@GMAIL.COM

12:00 AM	to	12:00 AM					
VOLUME BY DIRECTION			NB	SB	EB	WB	TOTAL
PEDESTRIAN			2	5	0	4	11
VOLUME BY LEG			N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN			0	4	2	5	11

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017		DAY: TUESDAY	
N-S APPROACH: CHARLES STREET		SURVEY TIME: 7:00 AM		TO 9:00 AM	
E-W APPROACH: W MCKINLEY AVENUE		JURISDICTION: SUNNYVALE		FILE: 3705036-2AM	

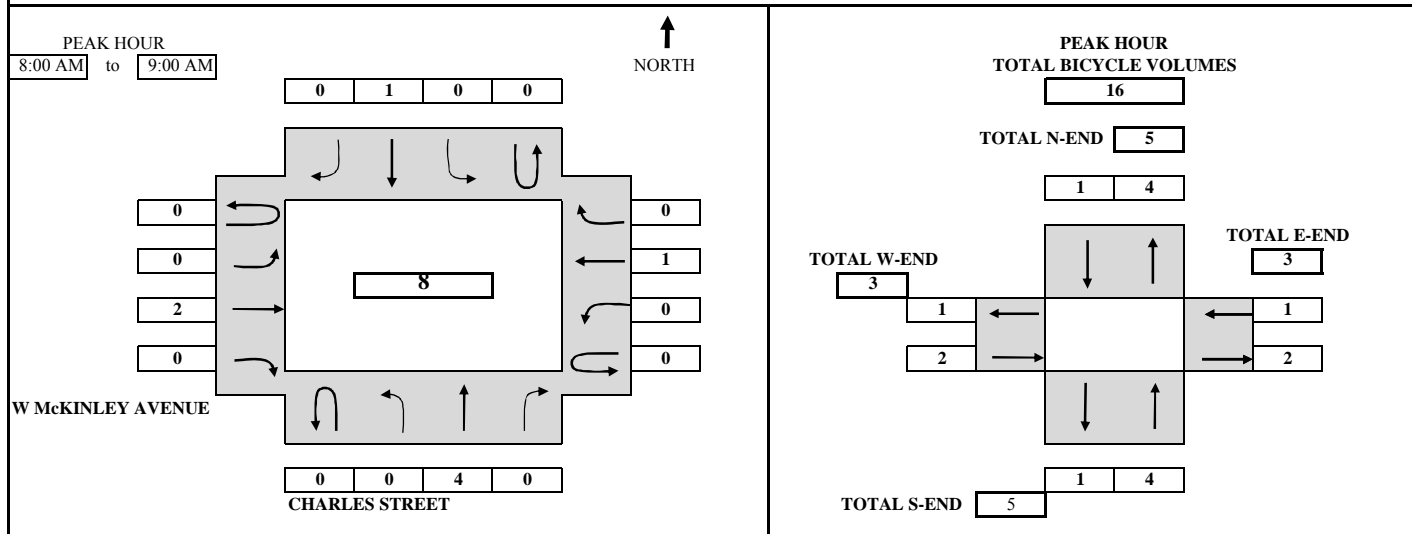
<p>PEAK HOUR 8:00 AM to 9:00 AM</p> <p style="text-align: center;">216</p> <p style="text-align: center;">NORTH</p> <p style="text-align: center;">W MCKINLEY AVENUE</p> <p style="text-align: center;">CHARLES STREET</p>	<p style="text-align: center;">ARRIVAL / DEPARTURE VOLUMES</p> <p style="text-align: center;">PHF = 0.42</p> <p style="text-align: center;">PHF = 0.53</p> <p style="text-align: center;">PHF = 0.84</p> <p style="text-align: center;">PHF = 0.71</p>
--	--

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																	
7:00 AM to 7:15 AM	1	1	3		1	0	1		2	6	0		2	2	0		19
7:15 AM to 7:30 AM	2	2	5		1	5	2		3	9	0		2	7	1		39
7:30 AM to 7:45 AM	3	4	6		1	6	3		5	16	0		3	12	1		60
7:45 AM to 8:00 AM	6	6	7		1	9	5		8	19	1		3	32	1		98
8:00 AM to 8:15 AM	13	10	9		2	21	8		9	42	2		5	59	4		184
8:15 AM to 8:30 AM	15	15	9		2	25	8		12	61	3		5	68	5		228
8:30 AM to 8:45 AM	15	19	9		3	27	9		12	80	3		6	78	8		269
8:45 AM to 9:00 AM	19	23	14		3	29	10		13	95	4		6	87	11		314
TOTAL BY PERIOD																	
7:00 AM to 7:15 AM	0	1	1	3	0	1	0	1	0	2	6	0	0	2	2	0	19
7:15 AM to 7:30 AM	0	1	1	2	0	0	5	1	0	1	3	0	0	0	5	1	20
7:30 AM to 7:45 AM	0	1	2	1	0	0	1	1	0	2	7	0	0	1	5	0	21
7:45 AM to 8:00 AM	0	3	2	1	0	0	3	2	0	3	3	1	0	0	20	0	38
8:00 AM to 8:15 AM	0	7	4	2	0	1	12	3	0	1	23	1	0	2	27	3	86
8:15 AM to 8:30 AM	0	2	5	0	0	0	4	0	0	3	19	1	0	0	9	1	44
8:30 AM to 8:45 AM	0	0	4	0	0	1	2	1	0	0	19	0	0	1	10	3	41
8:45 AM to 9:00 AM	0	4	4	5	0	0	2	1	0	1	15	1	0	0	9	3	45
HOURLY TOTALS																	
7:00 AM to 8:00 AM	0	6	6	7	0	1	9	5	0	8	19	1	0	3	32	1	98
7:15 AM to 8:15 AM	0	12	9	6	0	1	21	7	0	7	36	2	0	3	57	4	165
7:30 AM to 8:30 AM	0	13	13	4	0	1	20	6	0	9	52	3	0	3	61	4	189
7:45 AM to 8:45 AM	0	12	15	3	0	2	21	6	0	7	64	3	0	3	66	7	209
8:00 AM to 9:00 AM	0	13	17	7	0	2	20	5	0	5	76	3	0	3	55	10	216
PEAK HOUR SUMMARY																	
8:00 AM to 9:00 AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	13	17	7	0	2	20	5	0	5	76	3	0	3	55	10	216
PHF BY MOVEMENT	0.00	0.46	0.85	0.35	0.00	0.50	0.42	0.42	0.00	0.42	0.83	0.75	0.00	0.38	0.51	0.83	OVERALL
PHF BY APPROACH	0.71				0.42				0.84				0.53				0.63
BICYCLE	4				1				2				1				8
PEDESTRIAN	4				4				3				5				16
PEDESTRIAN BY LEG:	N-LEG				S-LEG				E-LEG				W-LEG				
	4				4				1				7				16

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B.A.Y.M.E.T.R.I.C.S.
BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	SURVEY DATE:	5/2/2017	DAY:	TUESDAY
N-S APPROACH:	CHARLES STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	W MCKINLEY AVENUE	JURISDICTION:	SUNNYVALE	FILE:	3705036-2AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	

SURVEY DATA																			
7:00 AM	to	7:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	to	7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	to	7:45 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	4	
7:45 AM	to	8:00 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	4	
8:00 AM	to	8:15 AM	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	5	
8:15 AM	to	8:30 AM	0	0	4	0	0	0	1	0	0	0	2	0	0	0	0	7	
8:30 AM	to	8:45 AM	0	0	7	0	0	0	1	0	0	0	3	0	0	0	0	11	
8:45 AM	to	9:00 AM	0	0	7	0	0	0	1	0	0	0	3	0	0	0	1	12	

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	to	7:45 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	2	
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	to	8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
8:15 AM	to	8:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	
8:30 AM	to	8:45 AM	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	4	
8:45 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	

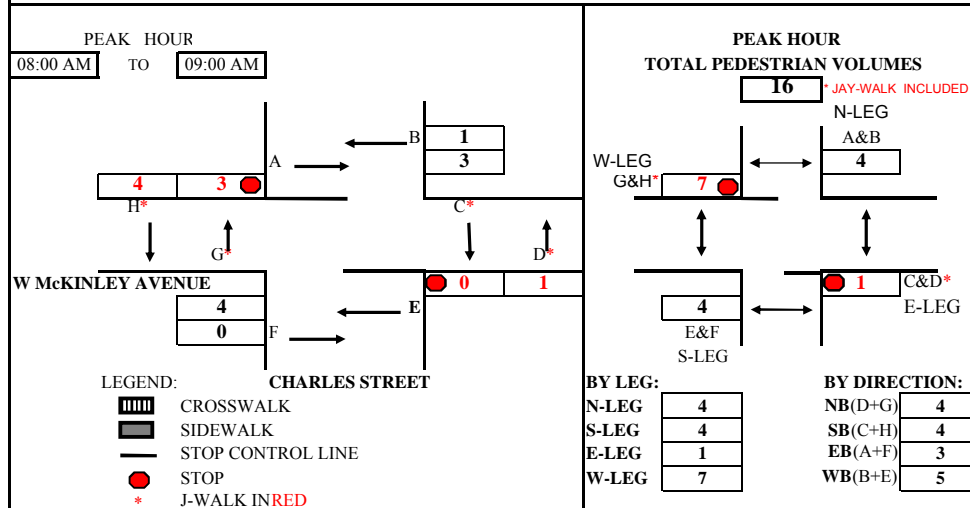
HOURLY TOTALS																		
7:00 AM	to	8:00 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	4
7:15 AM	to	8:15 AM	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	3
7:30 AM	to	8:30 AM	0	0	2	0	0	0	1	0	0	0	2	0	0	0	0	5
7:45 AM	to	8:45 AM	0	0	4	0	0	0	1	0	0	0	2	0	0	0	0	7
8:00 AM	to	9:00 AM	0	0	4	0	0	0	1	0	0	0	2	0	0	0	1	8

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8:00 AM to 9:00 AM	APPROACH VOLUME	NB	SB	EB	WB	TOTAL
	BICYCLE	4	1	2	1	8

B.A.Y.M.E.T.R.I.C.S. PEDESTRIAN MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017	
N-S APPROACH: CHARLES STREET		DAY: TUESDAY	
E-W APPROACH: W MCKINLEY AVENUE		JURISDICTION: SUNNYVALE	
SURVEY PERIOD 7:00 AM TO 9:00 AM		FILE: 3705036-2AM	



TIME PERIOD	NORTH X-WALK	EAST X-WALK	SOUTH X-WALK	WEST X-WALK	TOTAL
From To	A B	C* D*	E F	G* H*	

SURVEY DATA									
07:00 AM --- 07:15 AM	0	0	0	1	0	0	0	0	1
07:15 AM --- 07:30 AM	0	1	0	2	0	2	1	1	7
07:30 AM --- 07:45 AM	1	2	0	2	0	2	1	3	11
07:45 AM --- 08:00 AM	1	2	0	3	0	2	1	4	13
08:00 AM --- 08:15 AM	1	2	0	4	3	2	4	5	21
08:15 AM --- 08:30 AM	3	2	0	4	3	2	4	7	25
08:30 AM --- 08:45 AM	4	3	0	4	3	2	4	7	27
08:45 AM --- 09:00 AM	4	3	0	4	4	2	4	8	29

TOTAL BY PERIOD									
07:00 AM --- 07:15 AM	0	0	0	1	0	0	0	0	1
07:15 AM --- 07:30 AM	0	1	0	1	0	2	1	1	6
07:30 AM --- 07:45 AM	1	1	0	0	0	0	0	2	4
07:45 AM --- 08:00 AM	0	0	0	1	0	0	0	1	2
08:00 AM --- 08:15 AM	0	0	0	1	3	0	3	1	8
08:15 AM --- 08:30 AM	2	0	0	0	0	0	0	2	4
08:30 AM --- 08:45 AM	1	1	0	0	0	0	0	0	2
08:45 AM --- 09:00 AM	0	0	0	0	1	0	0	1	2

HOURLY TOTALS									
07:00 AM --- 08:00 AM	1	2	0	3	0	2	1	4	13
07:15 AM --- 08:15 AM	1	2	0	3	3	2	4	5	20
07:30 AM --- 08:30 AM	3	1	0	2	3	0	3	6	18
07:45 AM --- 08:45 AM	3	1	0	2	3	0	3	4	16
08:00 AM --- 09:00 AM	3	1	0	1	4	0	3	4	16

Tel : (510) 232-1271

EMAIL: BAYMETRICS@GMAIL.COM

12:00 AM to 12:00 AM	NB	SB	EB	WB	TOTAL
VOLUME BY DIRECTION	4	4	3	5	16
PEDESTRIAN					
VOLUME BY LEG	N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN	4	4	1	7	16

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017		DAY: TUESDAY	
N-S APPROACH: CHARLES STREET		SURVEY TIME: 4:00 PM		TO 6:00 PM	
E-W APPROACH: W MCKINLEY AVENUE		JURISDICTION: SUNNYVALE		FILE: 3705036-2PM	

<p>PEAK HOUR 5:00 PM to 6:00 PM</p> <p style="text-align: center;">NORTH</p> <p style="text-align: center;">W MCKINLEY AVENUE</p> <p style="text-align: center;">CHARLES STREET</p>	<p style="text-align: center;">ARRIVAL / DEPARTURE VOLUMES</p> <p style="text-align: center;">PHF = 0.82</p> <p style="text-align: center;">98 44</p> <p style="text-align: center;">PHF = 0.77</p> <p style="text-align: center;">108 126</p> <p style="text-align: center;">141 182</p> <p style="text-align: center;">PHF = 0.77</p> <p style="text-align: center;">57 26</p> <p style="text-align: center;">PHF = 0.59</p>
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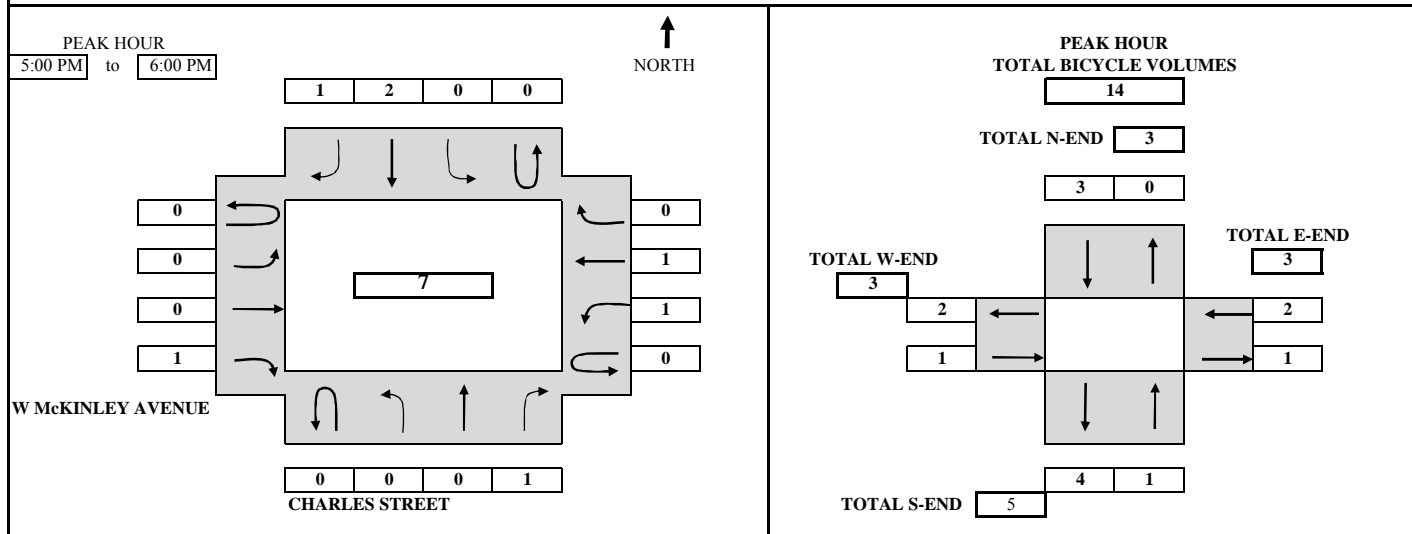
TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																	
4:00 PM to 4:15 PM	0	0	8	1	5	2	0	1	4	2	0	1	7	3	34		
4:15 PM to 4:30 PM	1	1	10	3	13	4	1	1	11	2	0	3	15	11	76		
4:30 PM to 4:45 PM	1	1	13	4	23	8	1	2	22	4	0	5	24	14	122		
4:45 PM to 5:00 PM	1	1	20	4	34	18	3	3	38	4	0	6	40	22	194		
5:00 PM to 5:15 PM	1	1	27	4	46	26	3	4	56	7	0	11	59	27	272		
5:15 PM to 5:30 PM	1	1	28	4	58	35	7	7	82	9	0	13	84	29	358		
5:30 PM to 5:45 PM	1	3	32	5	71	43	9	9	123	12	0	16	113	38	475		
5:45 PM to 6:00 PM	1	6	36	9	88	53	12	12	160	14	1	18	134	41	585		
TOTAL BY PERIOD																	
4:00 PM to 4:15 PM	0	0	8	1	0	5	2	0	0	1	4	2	0	1	7	3	34
4:15 PM to 4:30 PM	1	1	2	2	0	8	2	1	0	0	7	0	0	2	8	8	42
4:30 PM to 4:45 PM	0	0	3	1	0	10	4	0	0	1	11	2	0	2	9	3	46
4:45 PM to 5:00 PM	0	0	7	0	0	11	10	2	0	1	16	0	0	1	16	8	72
5:00 PM to 5:15 PM	0	0	7	0	0	12	8	0	0	1	18	3	0	5	19	5	78
5:15 PM to 5:30 PM	0	0	1	0	0	12	9	4	0	3	26	2	0	2	25	2	86
5:30 PM to 5:45 PM	0	2	4	1	0	13	8	2	0	2	41	3	0	3	29	9	117
5:45 PM to 6:00 PM	0	3	4	4	0	17	10	3	0	3	37	2	1	2	21	3	110
HOURLY TOTALS																	
4:00 PM to 5:00 PM	1	1	20	4	0	34	18	3	0	3	38	4	0	6	40	22	194
4:15 PM to 5:15 PM	1	1	19	3	0	41	24	3	0	3	52	5	0	10	52	24	238
4:30 PM to 5:30 PM	0	0	18	1	0	45	31	6	0	6	71	7	0	10	69	18	282
4:45 PM to 5:45 PM	0	2	19	1	0	48	35	8	0	7	101	8	0	11	89	24	353
5:00 PM to 6:00 PM	0	5	16	5	0	54	35	9	0	9	122	10	1	12	94	19	391
PEAK HOUR SUMMARY																	
5:00 PM to 6:00 PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
VOLUME	0	5	16	5	0	54	35	9	0	9	122	10	1	12	94	19	391
PHF BY MOVEMENT	0.00	0.42	0.57	0.31	0.00	0.79	0.88	0.56	0.00	0.75	0.74	0.83	0.25	0.60	0.81	0.53	OVERALL
PHF BY APPROACH	0.59				0.82				0.77				0.77				0.84
BICYCLE	1				3				1				2				7
PEDESTRIAN	2				2				0				6				10
PEDESTRIAN BY LEG:	N-LEG				S-LEG				E-LEG				W-LEG				
	2				4				1				3				10

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B.A.Y.M.E.T.R.I.C.S.

BICYCLE TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN SUNNYVALE	SURVEY DATE:	5/2/2017	DAY:	TUESDAY
N-S APPROACH:	CHARLES STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	W MCKINLEY AVENUE	JURISDICTION:	SUNNYVALE	FILE:	3705036-2PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	

SURVEY DATA																			
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	to	5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:00 PM	to	5:15 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	4
5:15 PM	to	5:30 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	0	5
5:30 PM	to	5:45 PM	0	0	1	1	0	0	1	1	0	0	0	1	0	1	0	0	6
5:45 PM	to	6:00 PM	0	0	1	1	0	0	3	1	0	0	0	1	0	1	1	0	9

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	to	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	to	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	to	5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:00 PM	to	5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
5:15 PM	to	5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	to	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	to	6:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3

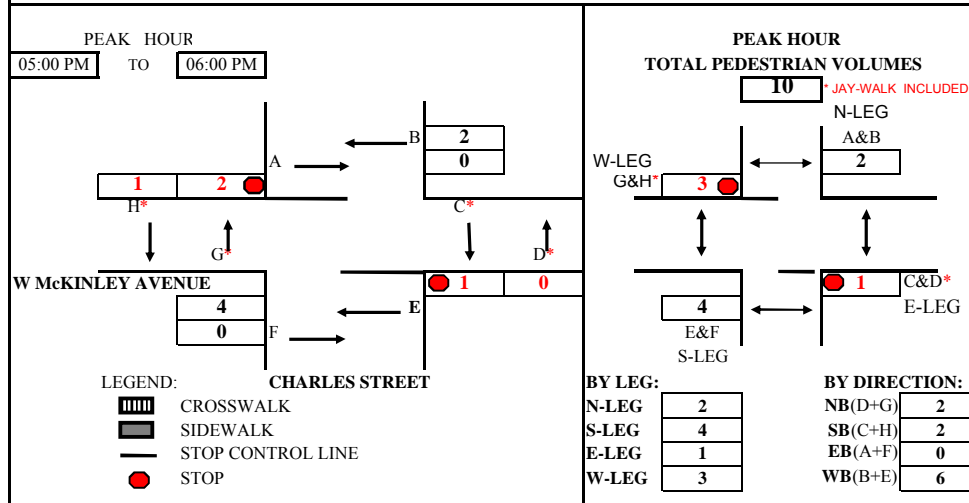
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
4:15 PM	to	5:15 PM	0	0	1	1	0	0	1	0	0	0	0	0	0	1	0	0	4
4:30 PM	to	5:30 PM	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	0	5
4:45 PM	to	5:45 PM	0	0	1	1	0	0	1	1	0	0	0	1	0	1	0	0	6
5:00 PM	to	6:00 PM	0	0	0	1	0	0	2	1	0	0	0	1	0	1	1	0	7

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5:00 PM to 6:00 PM					
APPROACH VOLUME	NB	SB	EB	WB	TOTAL
BICYCLE	1	3	1	2	7

B.A.Y.M.E.T.R.I.C.S. PEDESTRIAN MOVEMENT SUMMARY

PROJECT: TRAFFIC COUNTS IN SUNNYVALE		SURVEY DATE: 5/2/2017	
N-S APPROACH: CHARLES STREET		DAY: TUESDAY	
E-W APPROACH: W MCKINLEY AVENUE		JURISDICTION: SUNNYVALE	
SURVEY PERIOD 4:00 PM TO 6:00 PM		FILE: 3705036-2PM	



TIME PERIOD		NORTH X-WALK		EAST X-WALK		SOUTH X-WALK		WEST X-WALK		TOTAL
From	To	A	B	C*	D*	E	F	G*	H*	

SURVEY DATA											
04:00 PM	---	04:15 PM	1	1	0	0	0	1	1	0	4
04:15 PM	---	04:30 PM	1	1	0	0	0	1	1	0	4
04:30 PM	---	04:45 PM	2	1	0	0	0	2	2	0	7
04:45 PM	---	05:00 PM	2	1	1	0	0	2	2	1	9
05:00 PM	---	05:15 PM	2	1	1	0	0	2	2	1	9
05:15 PM	---	05:30 PM	2	3	1	0	4	2	4	1	17
05:30 PM	---	05:45 PM	2	3	2	0	4	2	4	1	18
05:45 PM	---	06:00 PM	2	3	2	0	4	2	4	2	19

TOTAL BY PERIOD											
04:00 PM	---	04:15 PM	1	1	0	0	0	1	1	0	4
04:15 PM	---	04:30 PM	0	0	0	0	0	0	0	0	0
04:30 PM	---	04:45 PM	1	0	0	0	0	1	1	0	3
04:45 PM	---	05:00 PM	0	0	1	0	0	0	0	1	2
05:00 PM	---	05:15 PM	0	0	0	0	0	0	0	0	0
05:15 PM	---	05:30 PM	0	2	0	0	4	0	2	0	8
05:30 PM	---	05:45 PM	0	0	1	0	0	0	0	0	1
05:45 PM	---	06:00 PM	0	0	0	0	0	0	0	1	1

HOURLY TOTALS											
04:00 PM	---	05:00 PM	2	1	1	0	0	2	2	1	9
04:15 PM	---	05:15 PM	1	0	1	0	0	1	1	1	5
04:30 PM	---	05:30 PM	1	2	1	0	4	1	3	1	13
04:45 PM	---	05:45 PM	0	2	2	0	4	0	2	1	11
05:00 PM	---	06:00 PM	0	2	1	0	4	0	2	1	10

Tel : (510) 232-1271

EMAIL: BAYMETRICS@GMAIL.COM

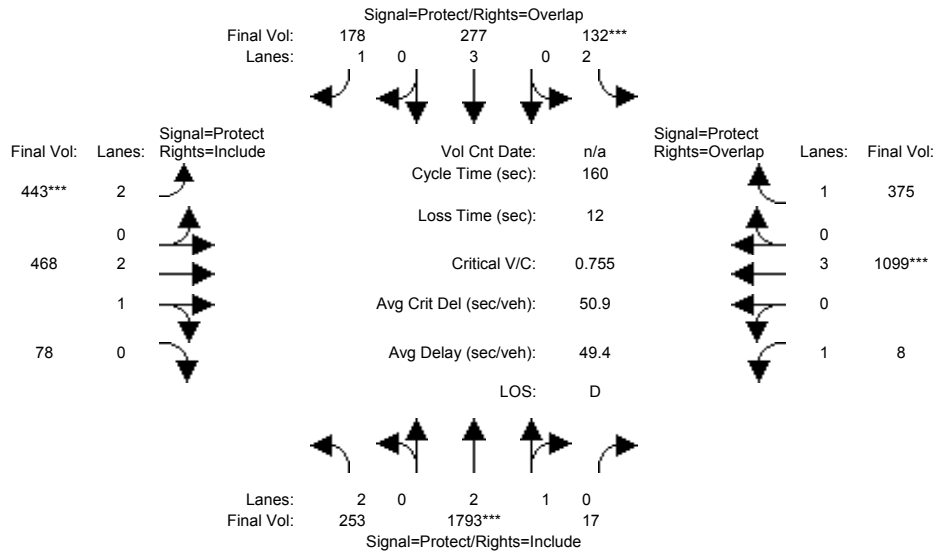
12:00 AM to 12:00 AM					
VOLUME BY DIRECTION	NB	SB	EB	WB	TOTAL
PEDESTRIAN	2	2	0	6	10
VOLUME BY LEG	N-LEG	S-LEG	E-LEG	W-LEG	TOTAL
PEDESTRIAN	2	4	1	3	10

Appendix B Intersection Level Of Service Outputs

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	253	1793	17	132	277	178	443	468	78	8	1099	375
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:	253	1793	17	132	277	178	443	468	78	8	1099	375
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	253	1793	17	132	277	178	443	468	78	8	1099	375
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	1793	17	132	277	178	443	468	78	8	1099	375
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	253	1793	17	132	277	178	443	468	78	8	1099	375

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.56	0.44	1.00	3.00	1.00
Final Sat.:	3150	5547	53	3150	5700	1750	3150	4799	800	1750	5700	1750

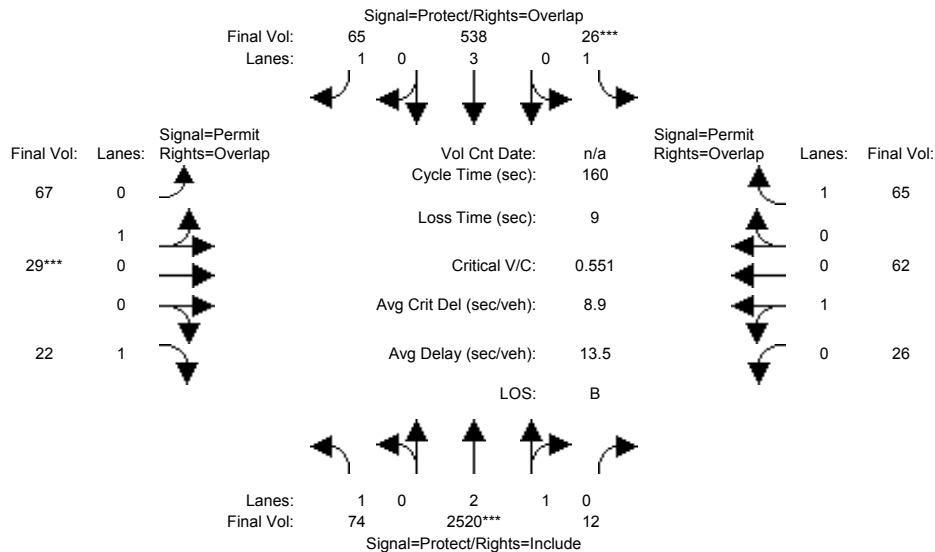
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.08	0.32	0.32	0.04	0.05	0.10	0.14	0.10	0.10	0.00	0.19	0.21
Crit Moves:	****			****			****			****		
Green Time:	43.5	68.5	68.5	8.9	33.9	63.6	29.8	48.8	48.8	21.9	40.8	49.7
Volume/Cap:	0.30	0.76	0.76	0.76	0.23	0.26	0.76	0.32	0.32	0.03	0.76	0.69
Delay/Veh:	46.3	40.1	40.1	91.5	52.4	32.5	67.2	43.0	43.0	59.9	57.3	52.1
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:	46.3	40.1	40.1	91.5	52.4	32.5	67.2	43.0	43.0	59.9	57.3	52.1
LOS by Move:	D	D	D	F	D-	C-	E	D	D	E+	E+	D-
DesignQueue:	252	853	853	169	164	266	502	294	294	17	639	661

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	74	2520	12	26	538	65	67	29	22	26	62	65
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:	74	2520	12	26	538	65	67	29	22	26	62	65
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	74	2520	12	26	538	65	67	29	22	26	62	65
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	2520	12	26	538	65	67	29	22	26	62	65
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	74	2520	12	26	538	65	67	29	22	26	62	65

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.70	0.30	1.00	0.30	0.70	1.00
Final Sat.:	1750	5573	27	1750	5700	1750	1256	544	1750	532	1268	1750

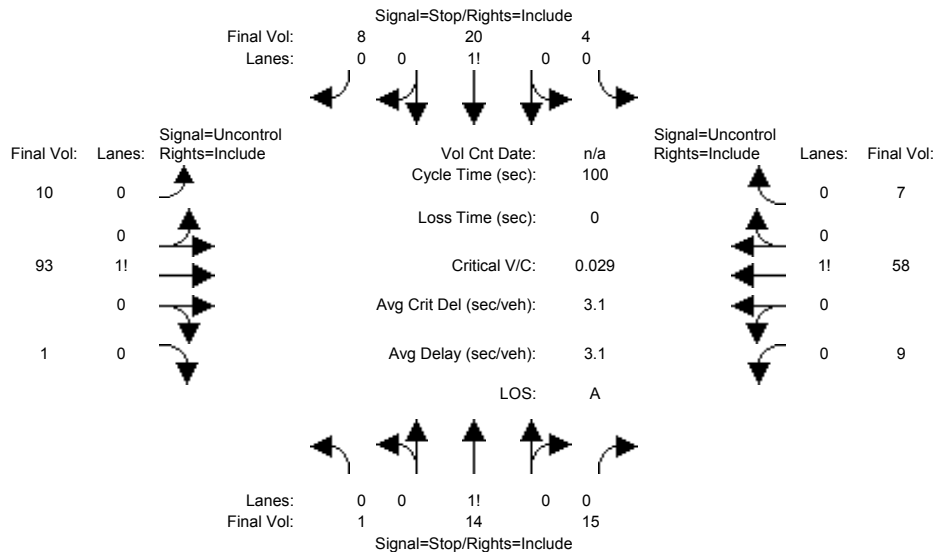
Capacity Analysis Module:												
Vol/Sat:	0.04	0.45	0.45	0.01	0.09	0.04	0.05	0.05	0.01	0.05	0.05	0.04
Crit Moves:	****			****			****					
Green Time:	43.0	129	128.8	7.0	92.8	92.8	15.2	15.2	58.2	15.2	15.2	22.2
Volume/Cap:	0.16	0.56	0.56	0.34	0.16	0.06	0.56	0.56	0.03	0.51	0.51	0.27
Delay/Veh:	44.8	5.7	5.7	76.9	15.6	14.7	73.4	73.4	32.8	71.6	71.6	62.2
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:	44.8	5.7	5.7	76.9	15.6	14.7	73.4	73.4	32.8	71.6	71.6	62.2
LOS by Move:	D	A	A	E-	B	B	E	E	C-	E	E	E
DesignQueue:	132	423	423	60	172	67	207	207	34	189	189	136

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	14	15	4	20	8	10	93	1	9	58	7
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:	1	14	15	4	20	8	10	93	1	9	58	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	14	15	4	20	8	10	93	1	9	58	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	1	14	15	4	20	8	10	93	1	9	58	7
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	207	197	94	208	194	62	65	xxxx	xxxxxx	94	xxxx	xxxxxx
Potent Cap.:	755	703	969	754	705	1009	1550	xxxx	xxxxxx	1513	xxxx	xxxxxx
Move Cap.:	726	694	969	724	697	1009	1550	xxxx	xxxxxx	1513	xxxx	xxxxxx
Volume/Cap:	0.00	0.02	0.02	0.01	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.5	xxxx	xxxxxx	0.4	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.3	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	810	xxxxxx	xxxx	759	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Shared Queue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.6	xxxxxx	xxxxxx	10.0	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*
ApproachDel:		9.6			10.0		xxxxxxx		xxxxxxx			
ApproachLOS:		A			A		*		*	*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	1	14	15		4	20	8		10	93	1		9	58	7					
ApproachDel:	9.6				10.0				xxxxxx				xxxxxx							

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=30]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=240]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=32]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=240]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	1	14	15		4	20	8		10	93	1		9	58	7					
Major Street Volume:					178															
Minor Approach Volume:					32															
Minor Approach Volume Threshold:					680															

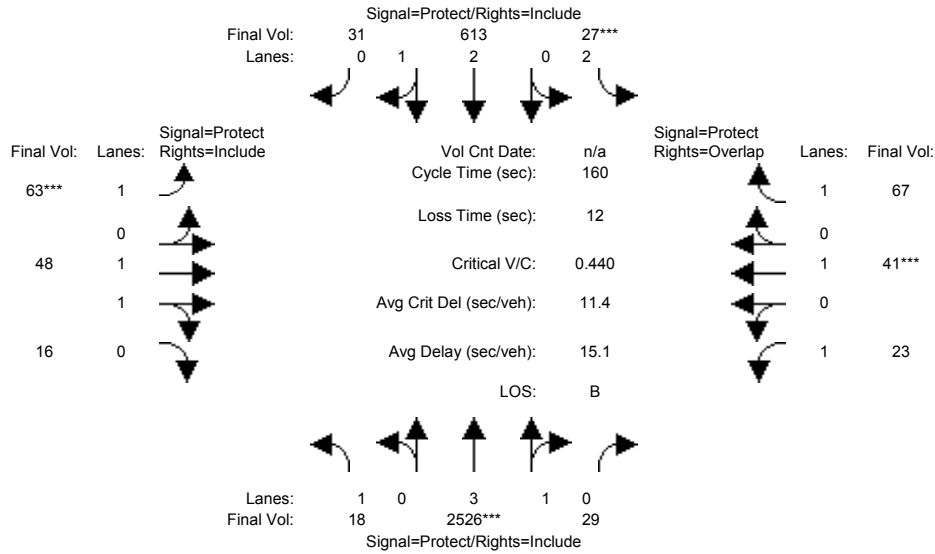
-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	18	2526	29	27	613	31	63	48	16	23	41	67
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	2526	29	27	613	31	63	48	16	23	41	67
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	2526	29	27	613	31	63	48	16	23	41	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2526	29	27	613	31	63	48	16	23	41	67
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	18	2526	29	27	613	31	63	48	16	23	41	67

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.98	0.95	0.92	1.00	0.92
Lanes:	1.00	3.95	0.05	2.00	2.85	0.15	1.00	1.49	0.51	1.00	1.00	1.00
Final Sat.:	1750	7415	85	3150	5330	270	1750	2774	925	1750	1900	1750

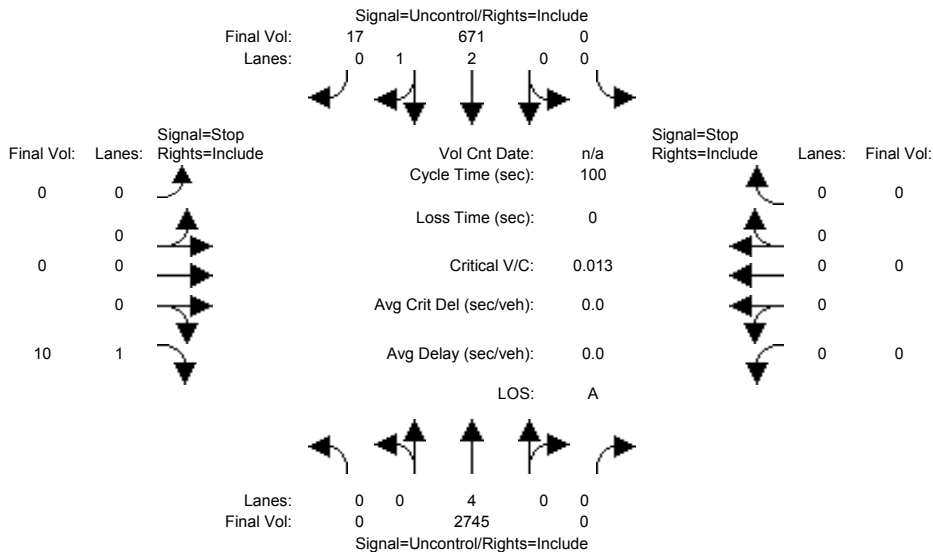
Capacity Analysis Module:												
Vol/Sat:	0.01	0.34	0.34	0.01	0.12	0.12	0.04	0.02	0.02	0.01	0.02	0.04
Crit Moves:	****			****			****			****		
Green Time:	34.6	118	118.5	7.0	90.9	90.9	12.5	13.2	13.2	9.3	10.0	17.0
Volume/Cap:	0.05	0.46	0.46	0.20	0.20	0.20	0.46	0.21	0.21	0.23	0.35	0.36
Delay/Veh:	49.7	8.2	8.2	74.5	16.9	16.9	72.9	68.8	68.8	73.1	73.6	67.6
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:	49.7	8.2	8.2	74.5	16.9	16.9	72.9	68.8	68.8	73.1	73.6	67.6
LOS by Move:	D	A	A	E	B	B	E	E	E	E	E	E
DesignQueue:	34	410	410	35	216	216	141	67	67	52	86	146

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name: S Mathilda Ave Project Dwy (Restaurant)
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	0	2745	0	0	671	17	0	0	10	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:	0	2745	0	0	671	17	0	0	10	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	2745	0	0	671	17	0	0	10	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	2745	0	0	671	17	0	0	10	0	0	0

Critical Gap Module:

Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	232	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	776	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	776	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	1.0	xxxx	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	9.7	xxxxxx	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	A	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxxx		xxxxxxx						9.7	xxxxxxx		xxxxxxx
ApproachLOS:	*		*						A	*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:        0 0 4 0 0      0 0 2 1 0      0 0 0 0 1      0 0 0 0 0
Initial Vol:  0 2745      0      0 671 17      0 0 10      0 0 0
ApproachDel:  xxxxxx      xxxxxx      9.7      xxxxxx
-----|-----|-----|-----|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=10]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=3443]
    SUCCEED - Total volume greater than or equal to 650 for intersection
                with less than four approaches.

```

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

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*****
Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)
*****
Base Volume Alternative: Peak Hour Warrant NOT Met

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-----|-----|-----|-----|
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
Lanes:        0 0 4 0 0      0 0 2 1 0      0 0 0 0 1      0 0 0 0 0
Initial Vol:  0 2745      0      0 671 17      0 0 10      0 0 0
-----|-----|-----|-----|
Major Street Volume:      3433
Minor Approach Volume:    10
Minor Approach Volume Threshold: -140 [less than minimum of 100]

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SIGNAL WARRANT DISCLAIMER

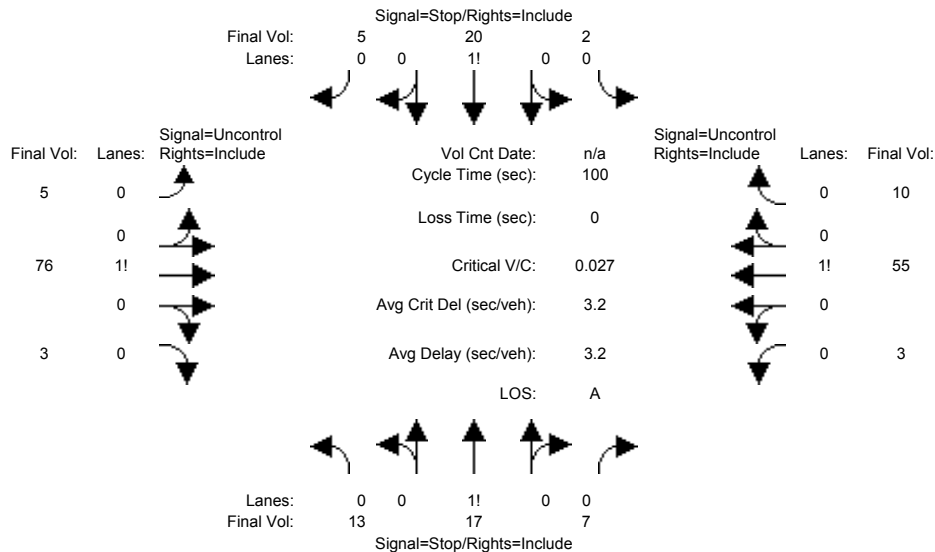
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	13	17	7	2	20	5	5	76	3	3	55	10
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:	13	17	7	2	20	5	5	76	3	3	55	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	13	17	7	2	20	5	5	76	3	3	55	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	13	17	7	2	20	5	5	76	3	3	55	10
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	166	159	78	166	155	60	65	xxxx	xxxxx	79	xxxx	xxxxx
Potent Cap.:	803	737	989	803	741	1011	1550	xxxx	xxxxx	1532	xxxx	xxxxx
Move Cap.:	779	733	989	781	737	1011	1550	xxxx	xxxxx	1532	xxxx	xxxxx
Volume/Cap:	0.02	0.02	0.01	0.00	0.03	0.00	0.00	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	788	xxxxx	xxxx	779	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	9.8	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*
ApproachDel:		9.8			9.8		xxxxxxx		xxxxxxx			
ApproachLOS:		A			A			*			*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met
-----|-----|-----|-----|
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	13	17	7		2	20	5		5	76	3		3	55	10					
ApproachDel:	9.8				9.8				xxxxxx				xxxxxx							

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=37]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=216]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=27]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=216]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	13	17	7		2	20	5		5	76	3		3	55	10					
Major Street Volume:					152															
Minor Approach Volume:					37															
Minor Approach Volume Threshold:					722															

SIGNAL WARRANT DISCLAIMER

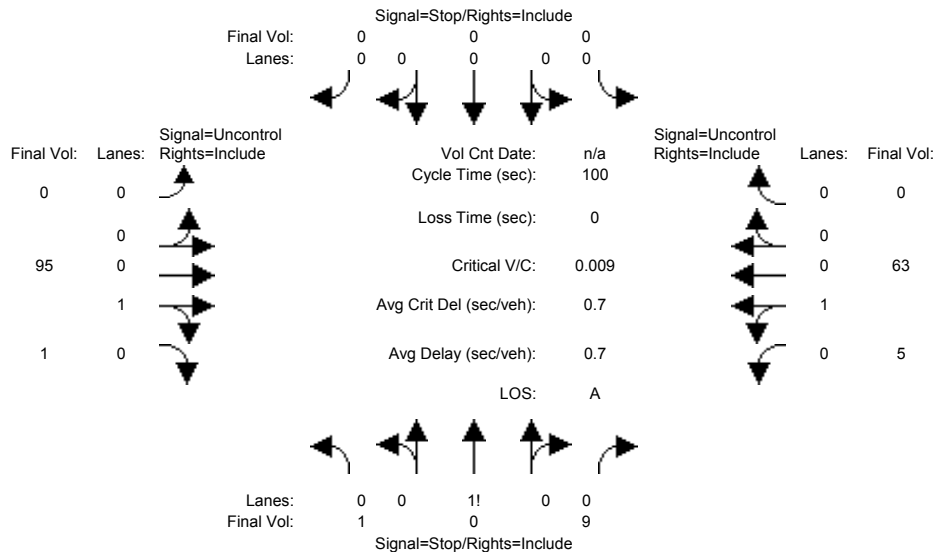
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)	W McKinley Ave
Approach:	North Bound	South Bound
Movement:	L - T - R	L - T - R
	L - T - R	L - T - R

Volume Module:												
Base Vol:	1	0	9	0	0	0	0	95	1	5	63	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:	1	0	9	0	0	0	0	95	1	5	63	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	9	0	0	0	0	95	1	5	63	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	0	9	0	0	0	0	95	1	5	63	0

Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:												
Cnflct Vol:	169	169	96	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	96	xxxxx	xxxxx
Potent Cap.:	826	728	967	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1510	xxxxx	xxxxx
Move Cap.:	824	726	967	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1510	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.00	xxxxx	xxxxx

Level Of Service Module:												
2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.2	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.4	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	950	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	8.8	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.4	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	8.8			xxxxxxx			xxxxxxx		xxxxxxx			
ApproachLOS:	A			*			*		*			*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 9	0 0 0	0 95 1	5 63 0
ApproachDel:	8.8	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=10]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=174]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 9	0 0 0	0 95 1	5 63 0

Major Street Volume: 164
 Minor Approach Volume: 10
 Minor Approach Volume Threshold: 702

SIGNAL WARRANT DISCLAIMER

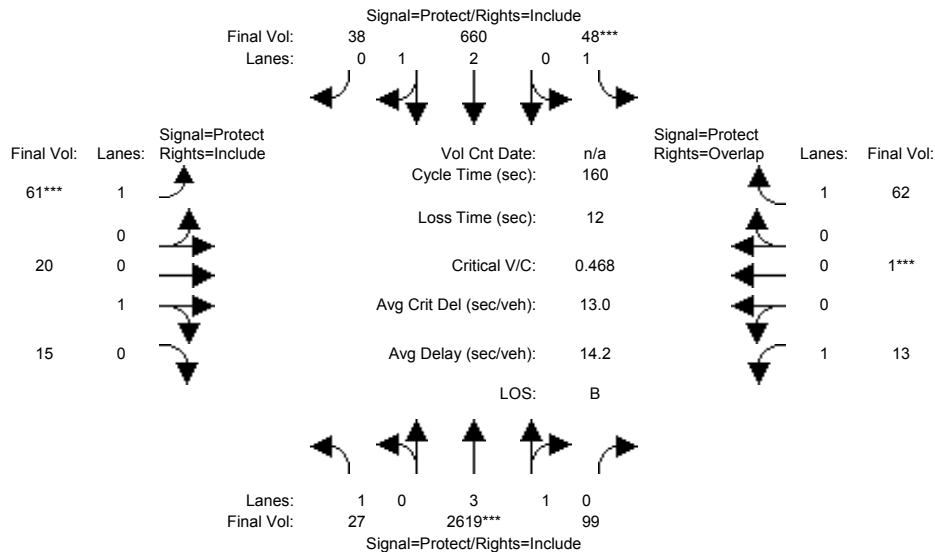
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	27	2619	99	48	660	38	61	20	15	13	1	62
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:	27	2619	99	48	660	38	61	20	15	13	1	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	2619	99	48	660	38	61	20	15	13	1	62
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	2619	99	48	660	38	61	20	15	13	1	62
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	2619	99	48	660	38	61	20	15	13	1	62

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Lanes:	1.00	3.85	0.15	1.00	2.83	0.17	1.00	0.57	0.43	0.93	0.07	1.00
Final Sat.:	1750	7226	273	1750	5295	305	1750	1029	771	1671	129	1800

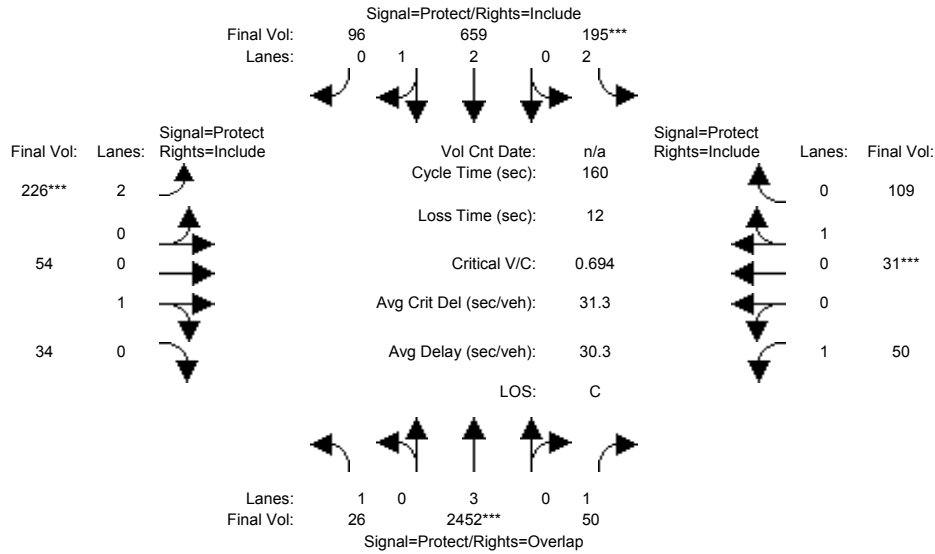
Capacity Analysis Module:												
Vol/Sat:	0.02	0.36	0.36	0.03	0.12	0.12	0.03	0.02	0.02	0.01	0.01	0.03
Crit Moves:	****			****			****			****		
Green Time:	32.9	118	117.8	8.9	93.8	93.8	11.3	12.5	12.5	8.8	10.0	18.9
Volume/Cap:	0.08	0.49	0.49	0.49	0.21	0.21	0.49	0.25	0.25	0.14	0.12	0.29
Delay/Veh:	51.4	8.8	8.8	77.2	15.7	15.7	74.6	70.2	70.2	72.1	71.0	65.0
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:	51.4	8.8	8.8	77.2	15.7	15.7	74.6	70.2	70.2	72.1	71.0	65.0
LOS by Move:	D-	A	A	E-	B	B	E	E	E	E	E	E
DesignQueue:	52	447	447	110	225	225	138	76	76	31	31	129

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	26	2452	50	195	659	96	226	54	34	50	31	109
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:	26	2452	50	195	659	96	226	54	34	50	31	109
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	2452	50	195	659	96	226	54	34	50	31	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2452	50	195	659	96	226	54	34	50	31	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	26	2452	50	195	659	96	226	54	34	50	31	109

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.99	0.95	0.83	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	2.00	2.60	0.40	2.00	0.61	0.39	1.00	0.22	0.78
Final Sat.:	1750	5700	1750	3150	4887	712	3150	1105	695	1750	399	1401

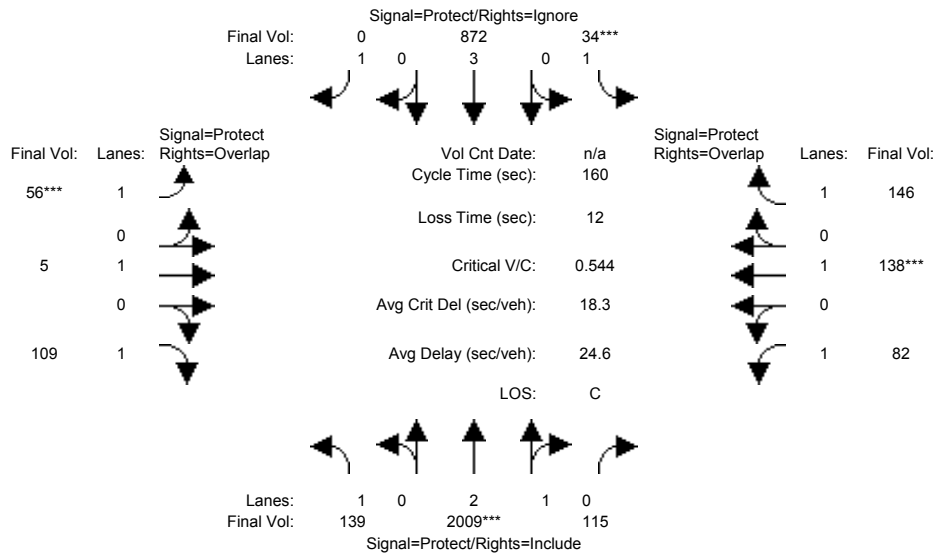
Capacity Analysis Module:												
Vol/Sat:	0.01	0.43	0.03	0.06	0.13	0.13	0.07	0.05	0.05	0.03	0.08	0.08
Crit Moves:	****			****			****			****		
Green Time:	27.8	99.2	113.4	14.3	85.7	85.7	16.5	20.3	20.3	14.2	17.9	17.9
Volume/Cap:	0.09	0.69	0.04	0.69	0.25	0.25	0.69	0.39	0.39	0.32	0.69	0.69
Delay/Veh:	55.6	20.9	7.0	78.0	20.0	20.0	75.6	65.2	65.2	69.6	78.4	78.4
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:	55.6	20.9	7.0	78.0	20.0	20.0	75.6	65.2	65.2	69.6	78.4	78.4
LOS by Move:	E+	C+	A	E-	B-	B-	E-	E	E	E	E-	E-
DesignQueue:	52	778	35	242	274	274	277	183	183	111	298	298

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	139	2009	115	34	872	234	56	5	109	82	138	146
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:	139	2009	115	34	872	234	56	5	109	82	138	146
User 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
PHF 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
PHF Volume:	139	2009	115	34	872	0	56	5	109	82	138	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	139	2009	115	34	872	0	56	5	109	82	138	146
PCE 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
MLF 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
Final Volume:	139	2009	115	34	872	0	56	5	109	82	138	146

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5296	303	1750	5700	1750	1750	1900	1750	1750	1900	1750

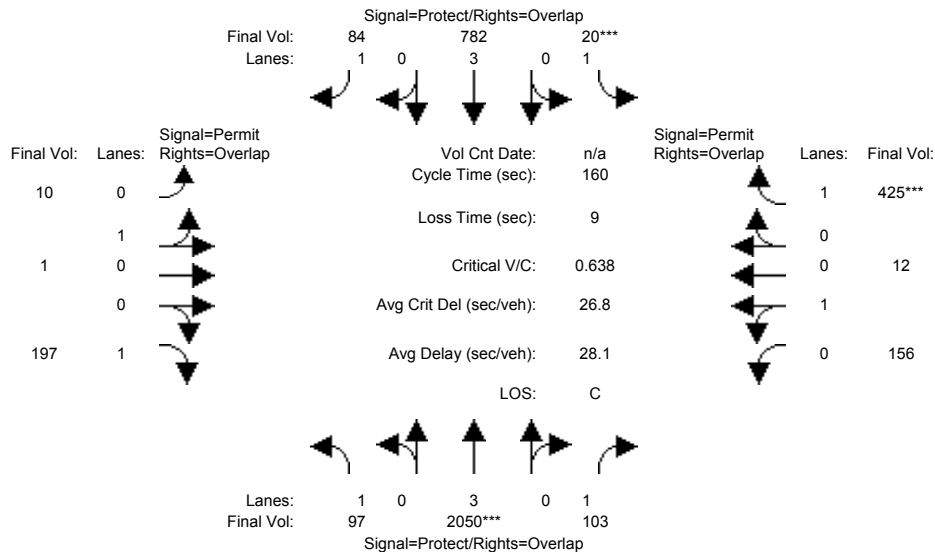
Capacity Analysis Module:												
Vol/Sat:	0.08	0.38	0.38	0.02	0.15	0.00	0.03	0.00	0.06	0.05	0.07	0.08
Crit Moves:	****			****			****			****		
Green Time:	40.2	111	110.5	7.0	77.4	0.0	9.3	17.4	57.6	13.1	21.2	28.2
Volume/Cap:	0.32	0.55	0.55	0.44	0.32	0.00	0.55	0.02	0.17	0.57	0.55	0.47
Delay/Veh:	49.2	12.5	12.5	78.7	25.3	0.0	79.5	63.7	35.1	76.4	67.5	60.4
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:	49.2	12.5	12.5	78.7	25.3	0.0	79.5	63.7	35.1	76.4	67.5	60.4
LOS by Move:	D	B	B	E-	C	A	E-	E	D+	E-	E	E
Design Queue:	257	550	550	79	348	0	128	10	171	184	271	297

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	97	2050	103	20	782	84	10	1	197	156	12	425
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:	97	2050	103	20	782	84	10	1	197	156	12	425
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	2050	103	20	782	84	10	1	197	156	12	425
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2050	103	20	782	84	10	1	197	156	12	425
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	97	2050	103	20	782	84	10	1	197	156	12	425

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.91	0.09	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1636	164	1750	1671	129	1750

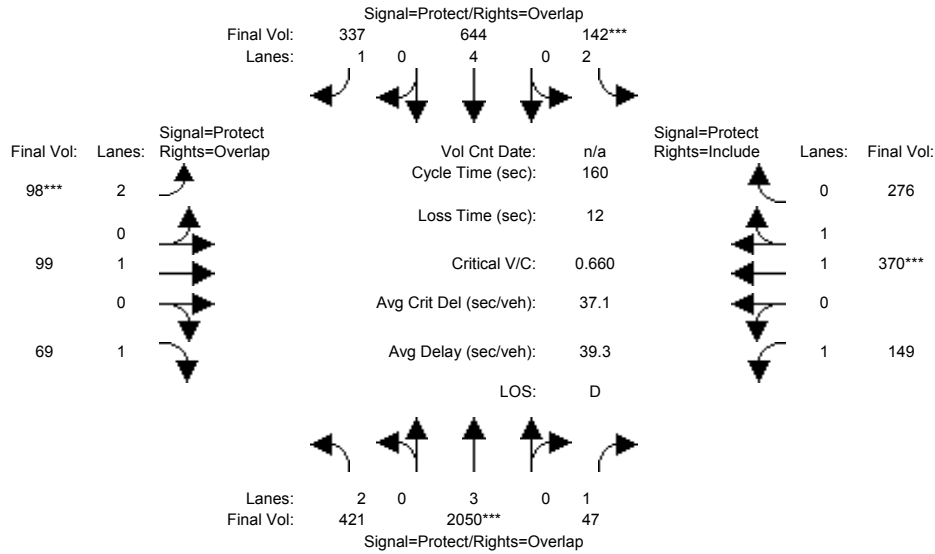
Capacity Analysis Module:												
Vol/Sat:	0.06	0.36	0.06	0.01	0.14	0.05	0.01	0.01	0.11	0.09	0.09	0.24
Crit Moves:	****			****						****		
Green Time:	28.7	92.7	92.7	7.0	71.0	71.0	51.3	51.3	80.0	51.3	51.3	58.3
Volume/Cap:	0.31	0.62	0.10	0.26	0.31	0.11	0.02	0.02	0.23	0.29	0.29	0.67
Delay/Veh:	57.6	22.5	15.1	75.8	28.8	26.1	37.2	37.2	22.7	41.0	41.0	45.4
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:	57.6	22.5	15.1	75.8	28.8	26.1	37.2	37.2	22.7	41.0	41.0	45.4
LOS by Move:	E+	C+	B	E-	C	C	D+	D+	C+	D	D	D
DesignQueue:	195	706	106	46	334	114	18	18	245	274	274	696

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	421	2050	47	142	644	337	98	99	69	149	370	276
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:	421	2050	47	142	644	337	98	99	69	149	370	276
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	421	2050	47	142	644	337	98	99	69	149	370	276
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	421	2050	47	142	644	337	98	99	69	149	370	276
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	421	2050	47	142	644	337	98	99	69	149	370	276

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.12	0.88
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2118	1580

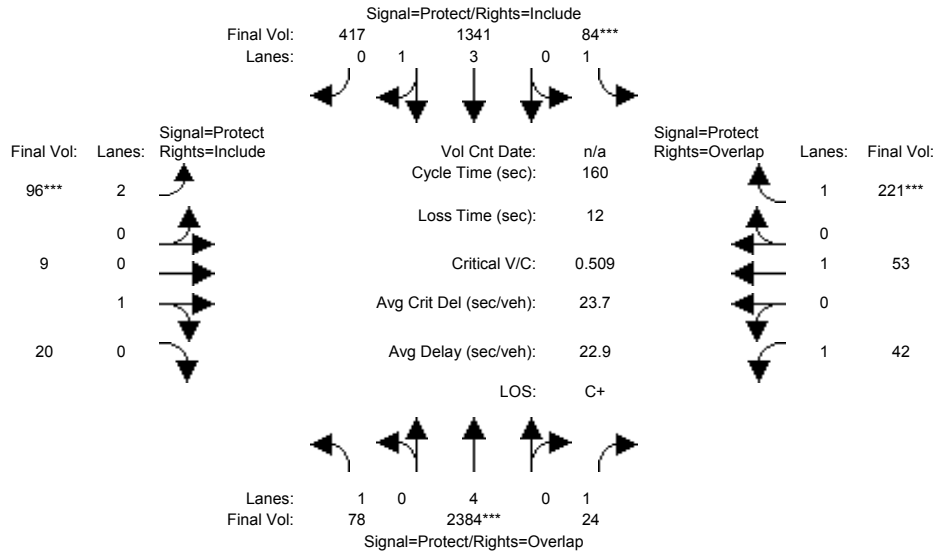
Capacity Analysis Module:												
Vol/Sat:	0.13	0.36	0.03	0.05	0.08	0.19	0.03	0.05	0.04	0.09	0.17	0.17
Crit Moves:	****			****			****			****		
Green Time:	44.4	87.2	116.0	10.9	53.7	61.2	7.5	21.1	65.6	28.8	42.3	42.3
Volume/Cap:	0.48	0.66	0.04	0.66	0.25	0.50	0.66	0.39	0.10	0.47	0.66	0.66
Delay/Veh:	48.6	26.4	6.2	80.1	38.6	38.4	85.5	64.6	29.1	60.0	54.1	54.1
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:	48.6	26.4	6.2	80.1	38.6	38.4	85.5	64.6	29.1	60.0	54.1	54.1
LOS by Move:	D	C	A	F	D+	D+	F	E	C	E+	D-	D-
Design Queue:	422	764	31	179	243	529	126	194	99	302	569	569

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	78	2384	24	84	1341	417	96	9	20	42	53	221
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:	78	2384	24	84	1341	417	96	9	20	42	53	221
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	2384	24	84	1341	417	96	9	20	42	53	221
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	2384	24	84	1341	417	96	9	20	42	53	221
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	78	2384	24	84	1341	417	96	9	20	42	53	221

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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.01	0.99	2.00	0.31	0.69	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	5718	1778	3150	559	1241	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.04	0.31	0.01	0.05	0.23	0.23	0.03	0.02	0.02	0.02	0.03	0.13
Crit Moves:	****			****			****			****		
Green Time:	18.2	98.7	112.8	15.1	95.6	95.6	9.6	20.1	20.1	14.1	24.6	39.7
Volume/Cap:	0.39	0.51	0.02	0.51	0.39	0.39	0.51	0.13	0.13	0.27	0.18	0.51
Delay/Veh:	67.1	17.2	7.1	71.5	17.0	17.0	75.2	62.4	62.4	69.1	59.2	52.7
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:	67.1	17.2	7.1	71.5	17.0	17.0	75.2	62.4	62.4	69.1	59.2	52.7
LOS by Move:	E	B	A	E	B	B	E-	E	E	E	E+	D-
DesignQueue:	169	553	17	186	425	425	122	60	60	93	100	415

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Existing AM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	3	39	185	31	185	115	2152	79	27	689	96
Future Volume (vph)	26	3	39	185	31	185	115	2152	79	27	689	96
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5522		1304	3669	
Flt Permitted	0.74	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1010	1373	1144	1029	1373	1167	1304	5522		1304	3669	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	3	41	195	33	195	121	2265	83	28	725	101
RTOR Reduction (vph)	0	0	32	0	0	150	0	3	0	0	13	0
Lane Group Flow (vph)	27	3	9	195	33	45	121	2345	0	28	813	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.5		5.7	64.8	
Effective Green, g (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.5		5.7	64.8	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.12	0.61		0.05	0.54	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	314	262	235	314	267	156	3382		61	1981	
v/s Ratio Prot		0.00			0.02		c0.09	c0.42		0.02	c0.22	
v/s Ratio Perm	0.03		0.01	c0.19		0.04						
v/c Ratio	0.12	0.01	0.04	0.83	0.11	0.17	0.78	0.69		0.46	0.41	
Uniform Delay, d1	36.6	35.7	35.9	44.0	36.5	37.1	51.2	15.7		55.6	16.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.56		0.49	0.30	
Incremental Delay, d2	0.2	0.0	0.1	20.9	0.1	0.3	16.2	1.1		5.1	0.1	
Delay (s)	36.9	35.7	36.0	64.9	36.7	37.4	71.2	9.9		32.3	5.0	
Level of Service	D	D	D	E	D	D	E	A		C	A	
Approach Delay (s)		36.3			50.0			12.9			5.9	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	845	0	72	0	0	0	0	1631	732	45	740	0
Future Volume (vph)	845	0	72	0	0	0	0	1631	732	45	740	0
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.96						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2373	1160						5559	1148	1304	3747	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2373	1160						5559	1148	1304	3747	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	880	0	75	0	0	0	0	1699	762	47	771	0
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	394	0	0	0
Lane Group Flow (vph)	642	253	0	0	0	0	0	1699	369	47	771	0
Confl. Bikes (#/hr)									9			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	36.7	36.7						58.0	58.0	6.8	71.1	
Effective Green, g (s)	36.7	36.7						58.0	58.0	6.8	71.1	
Actuated g/C Ratio	0.31	0.31						0.48	0.48	0.06	0.59	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	725	354						2686	554	73	2220	
v/s Ratio Prot	c0.27	0.22						0.31		c0.04	0.21	
v/s Ratio Perm									c0.32			
v/c Ratio	0.89	0.71						0.63	0.67	0.64	0.35	
Uniform Delay, d1	39.7	37.0						23.1	23.6	55.4	12.5	
Progression Factor	1.00	1.00						0.39	6.79	0.65	0.30	
Incremental Delay, d2	12.5	6.7						0.9	4.7	17.7	0.1	
Delay (s)	52.1	43.7						9.9	165.0	53.9	3.9	
Level of Service	D	D						A	F	D	A	
Approach Delay (s)		49.4			0.0			57.9			6.7	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			46.1		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			121.2%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

311 South Mathilda Avenue TIA
Existing AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖	↑↑↑			↑↑↑	↗
Traffic Volume (vph)	0	0	0	531	36	273	134	2342	0	0	254	99
Future Volume (vph)	0	0	0	531	36	273	134	2342	0	0	254	99
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1696	1583	1304	4722			4523	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1696	1583	1304	4722			4523	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	571	39	294	144	2518	0	0	273	106
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	95	0
Lane Group Flow (vph)	0	0	0	303	307	239	144	2518	0	0	284	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	66.5	84.7			12.9	
Effective Green, g (s)				25.1	25.1	25.1	66.5	84.7			12.9	
Actuated g/C Ratio				0.21	0.21	0.21	0.55	0.71			0.11	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	354	331	722	3332			486	
v/s Ratio Prot				0.18	c0.18		0.11	c0.53			0.06	
v/s Ratio Perm						0.15						
v/c Ratio				0.86	0.87	0.72	0.20	0.76			0.59	
Uniform Delay, d1				45.8	45.8	44.2	13.4	11.1			51.0	
Progression Factor				1.00	1.00	1.00	1.46	0.91			1.05	
Incremental Delay, d2				23.4	23.8	12.9	0.1	1.3			1.7	
Delay (s)				69.2	69.6	57.1	19.7	11.4			55.4	
Level of Service				E	E	E	B	B			E	
Approach Delay (s)		0.0			65.4			11.8			55.4	
Approach LOS		A			E			B			E	

Intersection Summary

HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	121.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



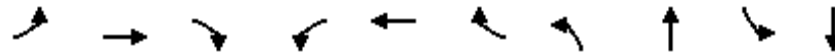
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	26	84	86	119	4	782	1495	387	5	203	85
Future Volume (vph)	15	26	84	86	119	4	782	1495	387	5	203	85
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3612		1304	4467	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3612		1304	4467	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	16	28	90	92	128	4	841	1608	416	5	218	91
RTOR Reduction (vph)	0	0	34	0	1	0	0	24	0	0	65	0
Lane Group Flow (vph)	16	28	56	92	131	0	841	2000	0	5	244	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.6	74.6	15.5	17.9		69.0	79.5		1.2	11.7	
Effective Green, g (s)	3.2	5.6	74.6	15.5	17.9		69.0	79.5		1.2	11.7	
Actuated g/C Ratio	0.03	0.05	0.62	0.13	0.15		0.58	0.66		0.01	0.10	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	64	763	326	203		1454	2392		13	435	
v/s Ratio Prot	0.01	c0.02	0.04	0.04	c0.10		c0.33	c0.55		0.00	0.05	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.44	0.07	0.28	0.65		0.58	0.84		0.38	0.56	
Uniform Delay, d1	57.6	55.7	9.0	47.2	48.1		16.2	15.3		59.0	51.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.88	0.84		1.00	1.00	
Incremental Delay, d2	9.9	4.7	0.0	0.5	6.9		1.1	2.5		17.9	1.7	
Delay (s)	67.5	60.4	9.0	47.7	55.0		15.5	15.3		76.9	53.4	
Level of Service	E	E	A	D	D		B	B		E	D	
Approach Delay (s)		26.8			52.0			15.4			53.7	
Approach LOS		C			D			B			D	

Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
Existing AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	3	41	195	33	195	121	2348	28	826
v/c Ratio	0.12	0.01	0.12	0.83	0.11	0.47	0.78	0.68	0.32	0.41
Control Delay	34.3	31.0	0.7	70.3	33.9	8.4	78.8	10.8	34.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.3	31.0	0.7	70.3	33.9	8.4	78.8	10.8	34.5	5.9
Queue Length 50th (ft)	17	2	0	143	20	0	73	342	19	40
Queue Length 95th (ft)	39	9	0	218	44	57	m113	100	m47	52
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	411	416	308	411	486	173	3458	173	1994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	272
Spillback Cap Reductn	4	0	0	0	0	9	0	80	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.10	0.63	0.08	0.41	0.70	0.70	0.16	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	642	313	1699	763	47	771
v/c Ratio	0.88	0.75	0.62	0.80	0.55	0.35
Control Delay	54.4	38.9	10.0	19.1	58.8	4.3
Queue Delay	0.0	0.6	0.2	31.7	0.0	0.3
Total Delay	54.4	39.5	10.3	50.8	58.8	4.6
Queue Length 50th (ft)	251	171	107	578	11	10
Queue Length 95th (ft)	#340	298	86	308	38	m30
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	436	2744	952	94	2219
Starvation Cap Reductn	0	0	316	227	0	818
Spillback Cap Reductn	0	16	357	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.75	0.71	1.05	0.50	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



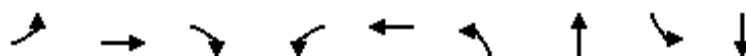
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	303	307	294	144	2518	379
v/c Ratio	0.86	0.87	0.76	0.20	0.76	0.65
Control Delay	70.0	70.3	48.0	21.4	11.6	43.7
Queue Delay	0.0	0.0	0.4	2.0	13.3	0.0
Total Delay	70.0	70.3	48.4	23.4	24.8	43.7
Queue Length 50th (ft)	240	243	167	56	206	45
Queue Length 95th (ft)	#404	#410	#294	97	224	72
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	354	385	722	3332	2303
Starvation Cap Reductn	0	0	0	449	850	13
Spillback Cap Reductn	0	0	6	0	468	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.87	0.78	0.53	1.01	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 South Mathilda Avenue TIA
Existing AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	28	90	92	132	841	2024	5	309
v/c Ratio	0.19	0.28	0.11	0.29	0.65	0.56	0.78	0.08	0.62
Control Delay	58.3	59.3	2.4	48.9	61.6	16.8	14.0	57.2	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	7.6	2.2	0.0	0.0
Total Delay	58.3	59.3	2.4	48.9	61.6	24.3	16.2	57.2	44.9
Queue Length 50th (ft)	12	21	0	35	93	217	340	4	51
Queue Length 95th (ft)	36	51	22	56	156	389	#683	18	76
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	785	506	388	1506	2581	65	611
Starvation Cap Reductn	0	0	0	0	0	617	403	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.11	0.18	0.34	0.95	0.93	0.08	0.51

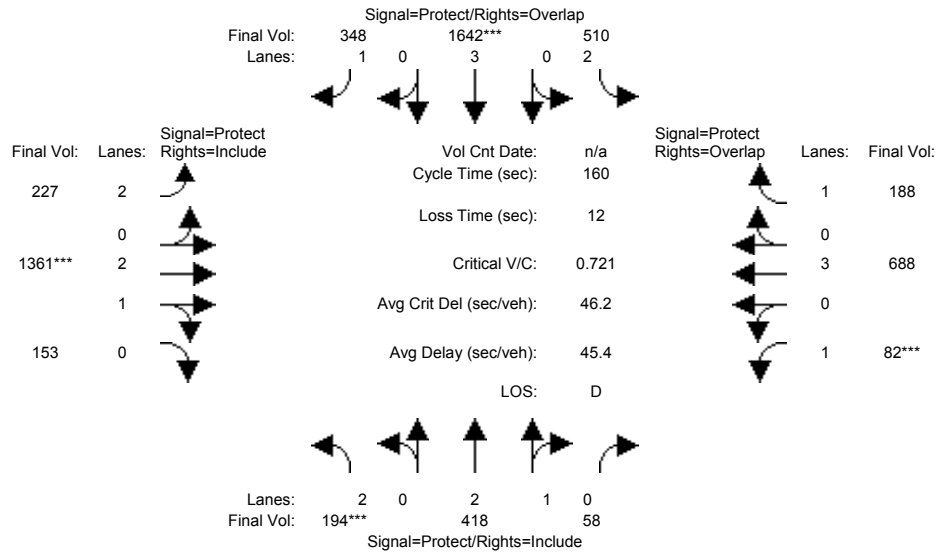
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	194	418	58	510	1642	348	227	1361	153	82	688	188
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:	194	418	58	510	1642	348	227	1361	153	82	688	188
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	194	418	58	510	1642	348	227	1361	153	82	688	188
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	194	418	58	510	1642	348	227	1361	153	82	688	188
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	194	418	58	510	1642	348	227	1361	153	82	688	188

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.62	0.38	2.00	3.00	1.00	2.00	2.69	0.31	1.00	3.00	1.00
Final Sat.:	3150	4917	682	3150	5700	1750	3150	5033	566	1750	5700	1750

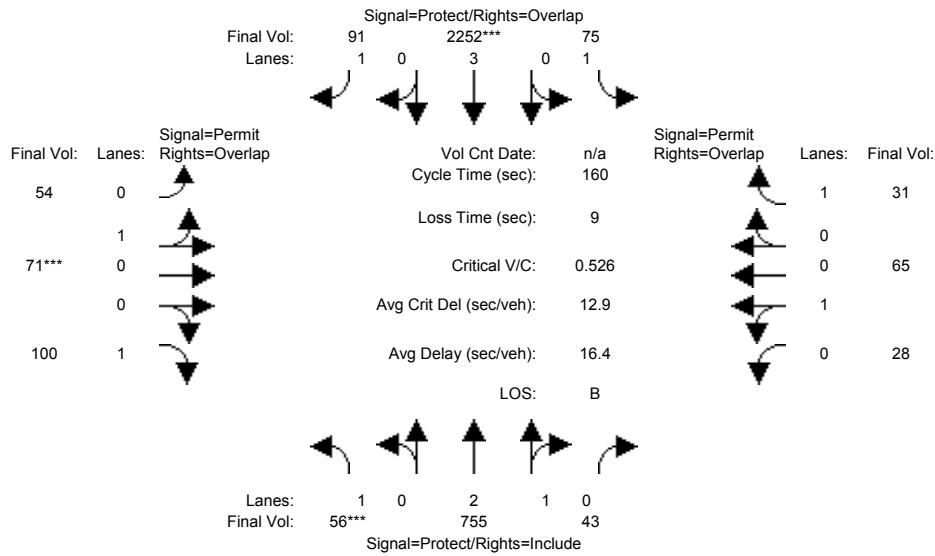
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.06	0.09	0.09	0.16	0.29	0.20	0.07	0.27	0.27	0.05	0.12	0.11
Crit Moves:	****			****			****			****		
Green Time:	13.7	26.7	26.7	50.9	63.9	90.2	26.3	60.0	60.0	10.4	44.1	95.0
Volume/Cap:	0.72	0.51	0.51	0.51	0.72	0.35	0.44	0.72	0.72	0.72	0.44	0.18
Delay/Veh:	80.5	61.1	61.1	44.8	41.7	19.2	60.8	44.1	44.1	93.5	47.9	14.9
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:	80.5	61.1	61.1	44.8	41.7	19.2	60.8	44.1	44.1	93.5	47.9	14.9
LOS by Move:	F	E	E	D	D	B-	E	D	D	F	D	B
DesignQueue:	242	306	306	487	790	386	259	768	768	187	381	190

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	56	755	43	75	2252	91	54	71	100	28	65	31
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:	56	755	43	75	2252	91	54	71	100	28	65	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	755	43	75	2252	91	54	71	100	28	65	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	755	43	75	2252	91	54	71	100	28	65	31
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:	56	755	43	75	2252	91	54	71	100	28	65	31

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	0.43	0.57	1.00	0.30	0.70	1.00
Final Sat.:	1750	5298	302	1750	5700	1750	778	1022	1750	542	1258	1750

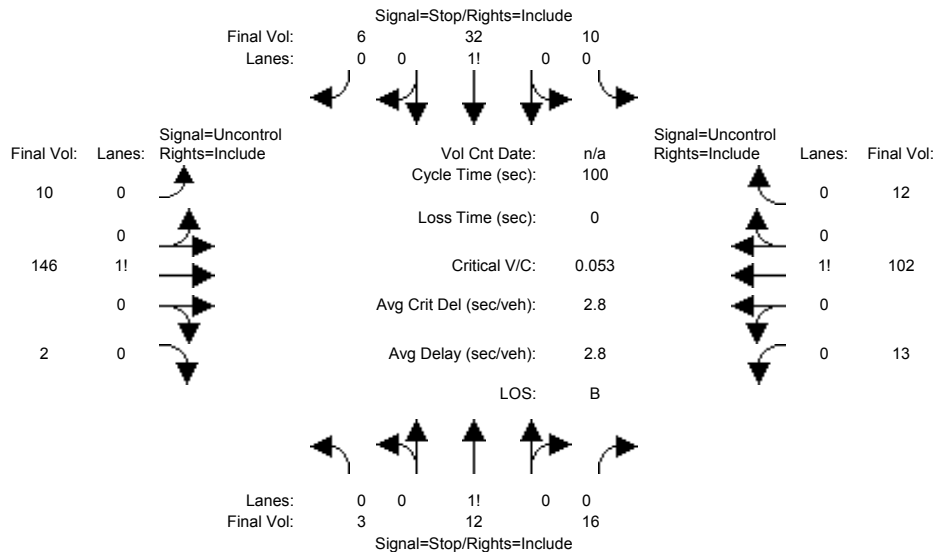
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.04	0.40	0.05	0.07	0.07	0.06	0.05	0.05	0.02
Crit Moves:	****				****			****				
Green Time:	9.7	99.4	99.4	30.5	120	120.1	21.1	21.1	30.9	21.1	21.1	51.6
Volume/Cap:	0.53	0.23	0.23	0.22	0.53	0.07	0.53	0.53	0.30	0.39	0.39	0.05
Delay/Veh:	77.7	13.4	13.4	55.1	8.3	5.3	67.0	67.0	55.8	64.6	64.6	37.4
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:	77.7	13.4	13.4	55.1	8.3	5.3	67.0	67.0	55.8	64.6	64.6	37.4
LOS by Move:	E-	B	B	E+	A	A	E	E	E+	E	E	D+
DesignQueue:	128	237	237	148	464	55	259	259	198	192	192	51

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	3	12	16	10	32	6	10	146	2	13	102	12
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	12	16	10	32	6	10	146	2	13	102	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	12	16	10	32	6	10	146	2	13	102	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	12	16	10	32	6	10	146	2	13	102	12
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	320	307	147	315	302	108	114	xxxx	xxxxx	148	xxxx	xxxxx
Potent Cap.:	637	610	905	642	614	951	1488	xxxx	xxxxx	1446	xxxx	xxxxx
Move Cap.:	600	601	905	613	604	951	1488	xxxx	xxxxx	1446	xxxx	xxxxx
Volume/Cap:	0.01	0.02	0.02	0.02	0.05	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	727	xxxxx	xxxx	635	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.2	xxxxx	xxxxx	11.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.2			11.1			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #3 Charles St / W Iowa Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	0	0	0	0	0	0	0
Initial Vol:	3	12	16	10	32	6	10	146	2	13	102	12							
ApproachDel:	10.2				11.1				xxxxxx				xxxxxx						

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=31]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=364]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=48]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=364]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	3	12	16	10	32	6	10	146	2	13	102	12								
Major Street Volume:	285																			
Minor Approach Volume:	48																			
Minor Approach Volume Threshold:	554																			

SIGNAL WARRANT DISCLAIMER

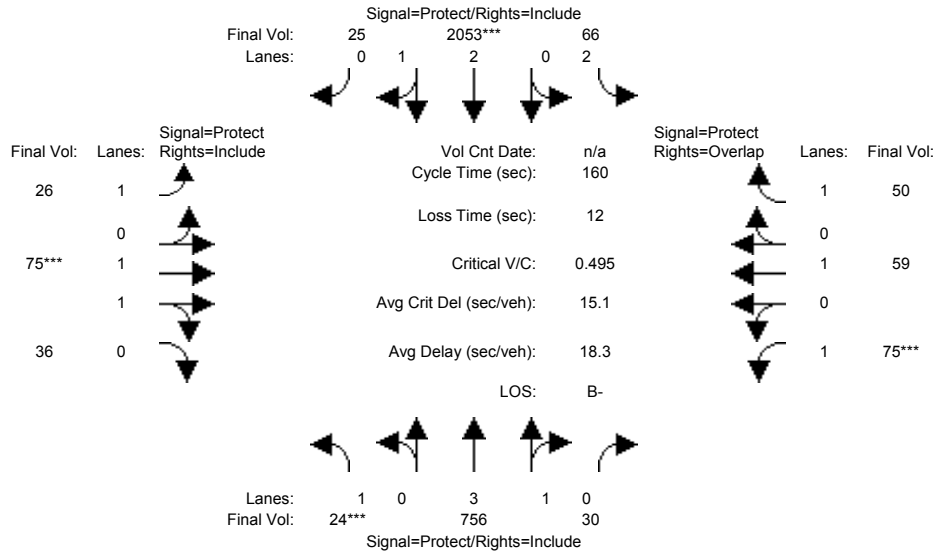
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	24	756	30	66	2053	25	26	75	36	75	59	50
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:	24	756	30	66	2053	25	26	75	36	75	59	50
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	756	30	66	2053	25	26	75	36	75	59	50
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	756	30	66	2053	25	26	75	36	75	59	50
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	24	756	30	66	2053	25	26	75	36	75	59	50

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.99	0.95	0.92	1.00	0.92
Lanes:	1.00	3.84	0.16	2.00	2.96	0.04	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1750	7213	286	3150	5533	67	1750	2499	1200	1750	1900	1750

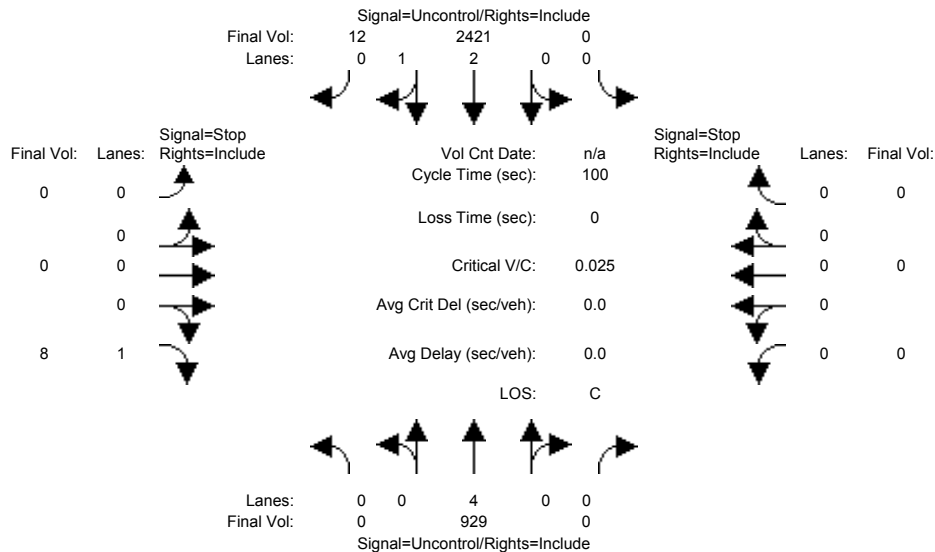
Capacity Analysis Module:												
Vol/Sat:	0.01	0.10	0.10	0.02	0.37	0.37	0.01	0.03	0.03	0.04	0.03	0.03
Crit Moves:	****			****			****			****		
Green Time:	7.0	87.8	87.8	36.6	117	117.4	9.7	10.0	10.0	13.6	13.9	50.5
Volume/Cap:	0.31	0.19	0.19	0.09	0.51	0.51	0.25	0.48	0.48	0.51	0.36	0.09
Delay/Veh:	76.5	18.2	18.2	48.6	9.1	9.1	72.9	74.1	74.1	72.8	70.2	38.6
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:	76.5	18.2	18.2	48.6	9.1	9.1	72.9	74.1	74.1	72.8	70.2	38.6
LOS by Move:	E-	B-	B-	D	A	A	E	E	E	E	E	D+
DesignQueue:	56	205	205	69	462	462	59	120	120	168	121	83

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name: S Mathilda Ave Project Dwy (Restaurant)
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	0	929	0	0	2421	12	0	0	8	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:	0	929	0	0	2421	12	0	0	8	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	929	0	0	2421	12	0	0	8	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	929	0	0	2421	12	0	0	8	0	0	0

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	813	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	326	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	326	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.9	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	16.3	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	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:	xxxxxxx		xxxxxxx						16.3	xxxxxxx		xxxxxxx
ApproachLOS:	*		*						C	*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 929 0	0 2421 12	0 0 8	0 0 0
ApproachDel:	xxxxxx	xxxxxx	16.3	xxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=8]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=3370]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 929 0	0 2421 12	0 0 8	0 0 0

Major Street Volume: 3362
 Minor Approach Volume: 8
 Minor Approach Volume Threshold: -133 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

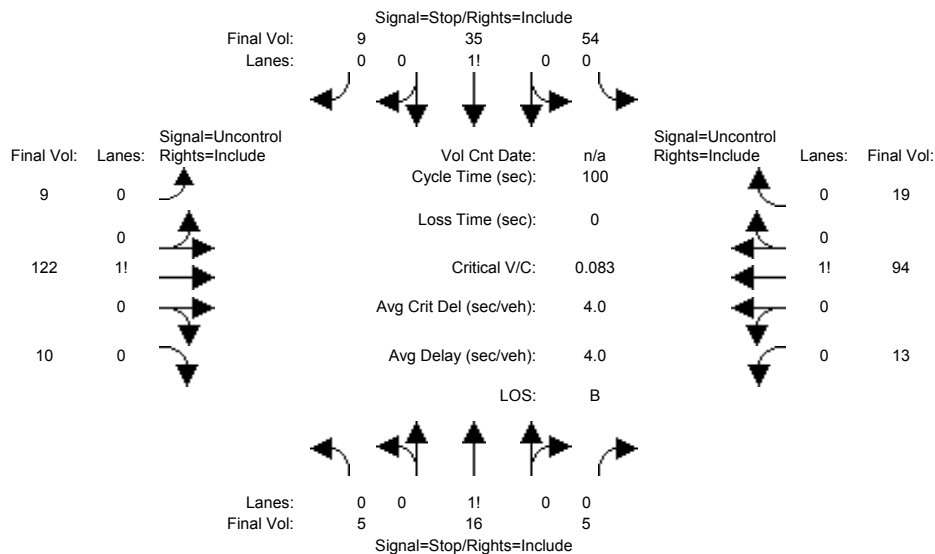
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name: Charles St W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	5	16	5	54	35	9	9	122	10	13	94	19
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	16	5	54	35	9	9	122	10	13	94	19
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	5	16	5	54	35	9	9	122	10	13	94	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	16	5	54	35	9	9	122	10	13	94	19

Critical Gap Module:

Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx

Capacity Module:

Cnflct Vol:	297	284	127	285	280	104	113	xxxx	xxxxx	132	xxxx	xxxxx
Potent Cap.:	660	628	929	671	632	957	1489	xxxx	xxxxx	1466	xxxx	xxxxx
Move Cap.:	618	619	929	647	623	957	1489	xxxx	xxxxx	1466	xxxx	xxxxx
Volume/Cap:	0.01	0.03	0.01	0.08	0.06	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	661	xxxxx	xxxx	657	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.7	xxxxx	xxxxx	11.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.7			11.4			xxxxxxx			xxxxxxx		
ApproachLOS:		B			B			*			*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	5	16	5	54	35	9	9	122	10	13	94	19							
ApproachDel:	10.7				11.4				xxxxxx				xxxxxx						

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=26]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=391]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=98]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=391]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	5	16	5	54	35	9	9	122	10	13	94	19								
Major Street Volume:	267																			
Minor Approach Volume:	98																			
Minor Approach Volume Threshold:	572																			

SIGNAL WARRANT DISCLAIMER

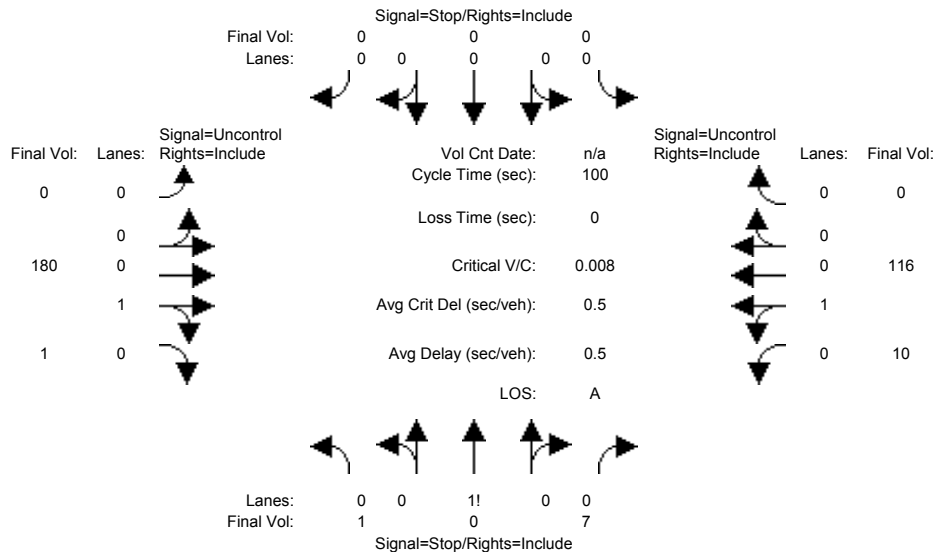
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Existing PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)			W McKinley Ave					
Approach:	North Bound			South Bound		East Bound		West Bound	
Movement:	L	T	R	L	T	R	L	T	R

Volume Module:	L	T	R	L	T	R	L	T	R	L	T	R
Base Vol:	1	0	7	0	0	0	0	180	1	10	116	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:	1	0	7	0	0	0	0	180	1	10	116	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	7	0	0	0	0	180	1	10	116	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	0	7	0	0	0	0	180	1	10	116	0

Critical Gap Module:	L	T	R	L	T	R	L	T	R	L	T	R
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:	L	T	R	L	T	R	L	T	R	L	T	R
Cnflct Vol:	317	317	181	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	181	xxxxx	xxxxx
Potent Cap.:	681	603	867	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1407	xxxxx	xxxxx
Move Cap.:	677	599	867	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1407	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.01	xxxxx	xxxxx

Level Of Service Module:	L	T	R	L	T	R	L	T	R	L	T	R
2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.5	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.6	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxxx	838	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.3	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.6	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.3			xxxxxxx			xxxxxxx			xxxxxxx		
ApproachLOS:	A			*			*			*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound		East Bound		West Bound	
Movement:	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled						
Lanes:	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Initial Vol:	1	0	7		0	0	0		0	180	1		10	116	0			
ApproachDel:	9.3				xxxxxxx				xxxxxxx			xxxxxxx						

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=8]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=315]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled								
Lanes:	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
Initial Vol:	1	0	7		0	0	0		0	180	1		10	116	0					

Major Street Volume: 307
 Minor Approach Volume: 8
 Minor Approach Volume Threshold: 534

SIGNAL WARRANT DISCLAIMER

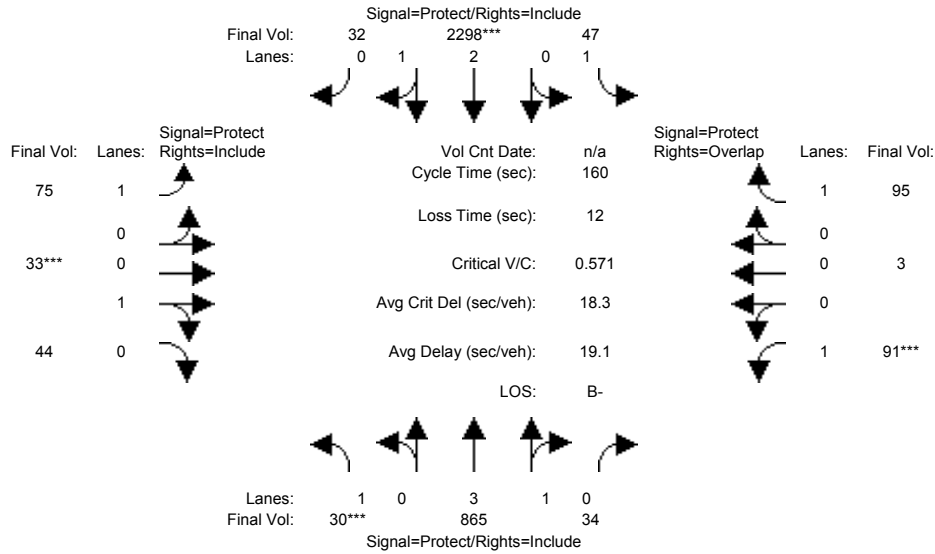
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	30	865	34	47	2298	32	75	33	44	91	3	95
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:	30	865	34	47	2298	32	75	33	44	91	3	95
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	30	865	34	47	2298	32	75	33	44	91	3	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	865	34	47	2298	32	75	33	44	91	3	95
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	30	865	34	47	2298	32	75	33	44	91	3	95

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Lanes:	1.00	3.84	0.16	1.00	2.96	0.04	1.00	0.43	0.57	0.97	0.03	1.00
Final Sat.:	1750	7216	284	1750	5523	77	1750	771	1029	1743	57	1800

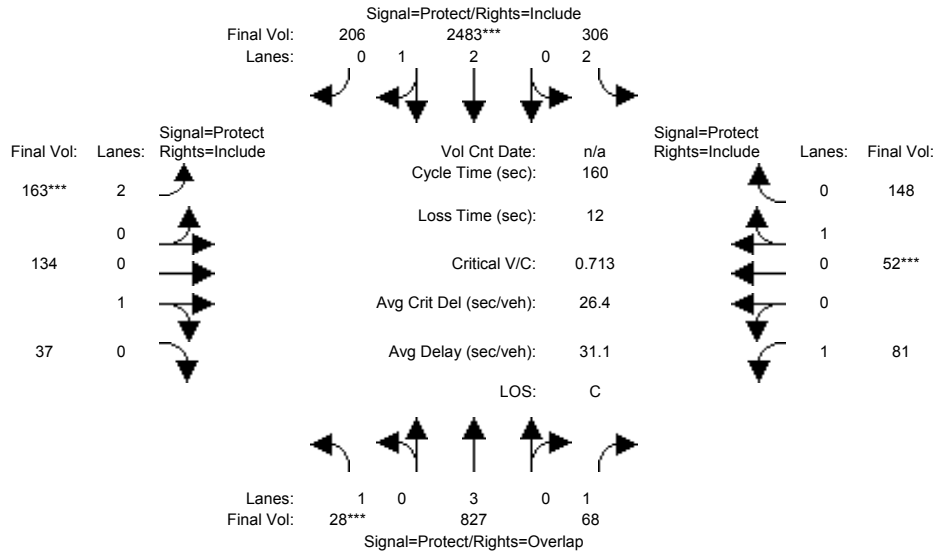
Capacity Analysis Module:												
Vol/Sat:	0.02	0.12	0.12	0.03	0.42	0.42	0.04	0.04	0.04	0.05	0.05	0.05
Crit Moves:	***			***			***			***		
Green Time:	7.0	89.2	89.2	32.6	115	114.8	10.8	11.8	11.8	14.4	15.4	48.0
Volume/Cap:	0.39	0.21	0.21	0.13	0.58	0.58	0.64	0.58	0.58	0.58	0.54	0.18
Delay/Veh:	77.7	17.8	17.8	52.3	11.2	11.2	83.6	78.0	78.0	72.5	70.7	41.5
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:	77.7	17.8	17.8	52.3	11.2	11.2	83.6	78.0	78.0	72.5	70.7	41.5
LOS by Move:	E-	B	B	D-	B+	B+	F	E-	E-	E	E	D
DesignQueue:	70	231	231	91	558	558	171	169	169	203	202	158

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	28	827	68	306	2483	206	163	134	37	81	52	148
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:	28	827	68	306	2483	206	163	134	37	81	52	148
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	28	827	68	306	2483	206	163	134	37	81	52	148
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	827	68	306	2483	206	163	134	37	81	52	148
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	28	827	68	306	2483	206	163	134	37	81	52	148

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.99	0.95	0.83	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	2.00	2.76	0.24	2.00	0.78	0.22	1.00	0.26	0.74
Final Sat.:	1750	5700	1750	3150	5170	429	3150	1411	389	1750	468	1332

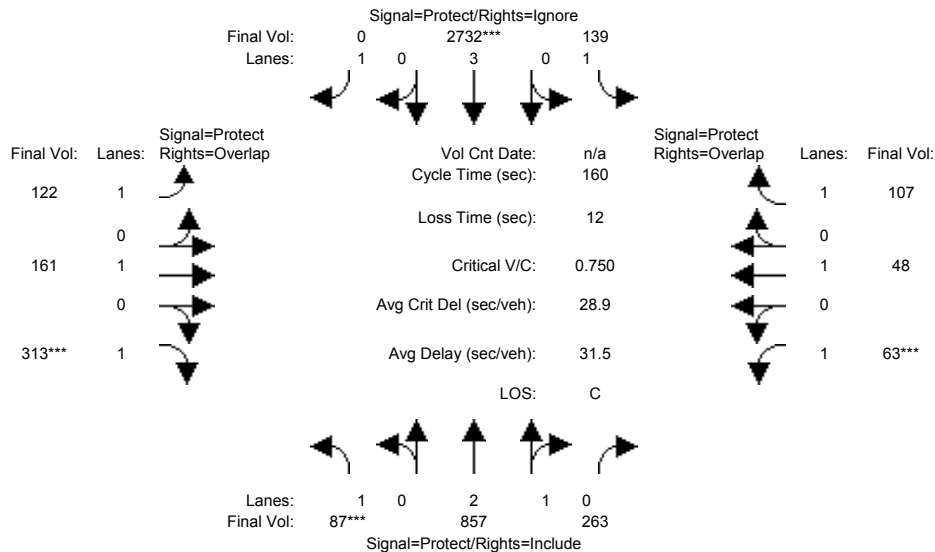
Capacity Analysis Module:												
Vol/Sat:	0.02	0.15	0.04	0.10	0.48	0.48	0.05	0.10	0.10	0.05	0.11	0.11
Crit Moves:	****			****			****			****		
Green Time:	7.0	67.3	79.0	45.0	105	105.3	11.3	24.0	24.0	11.7	24.4	24.4
Volume/Cap:	0.37	0.35	0.08	0.35	0.73	0.73	0.73	0.63	0.63	0.63	0.73	0.73
Delay/Veh:	77.3	31.5	21.4	46.0	18.8	18.8	84.4	68.7	68.7	82.0	74.2	74.2
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:	77.3	31.5	21.4	46.0	18.8	18.8	84.4	68.7	68.7	82.0	74.2	74.2
LOS by Move:	E-	C	C+	D	B-	B-	F	E	E	F	E	E
DesignQueue:	65	369	84	302	794	794	206	350	350	183	410	410

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	87	857	263	139	2732	338	122	161	313	63	48	107
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:	87	857	263	139	2732	338	122	161	313	63	48	107
User 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
PHF 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
PHF Volume:	87	857	263	139	2732	0	122	161	313	63	48	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	87	857	263	139	2732	0	122	161	313	63	48	107
PCE 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
MLF 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
Final Volume:	87	857	263	139	2732	0	122	161	313	63	48	107

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.27	0.73	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4283	1314	1750	5700	1750	1750	1900	1750	1750	1900	1750

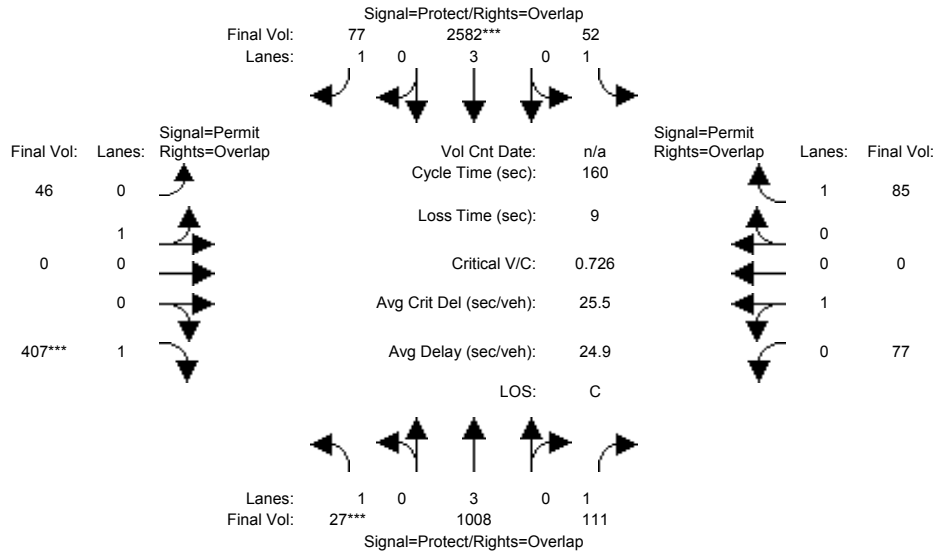
Capacity Analysis Module:												
Vol/Sat:	0.05	0.20	0.20	0.08	0.48	0.00	0.07	0.08	0.18	0.04	0.03	0.06
Crit Moves:	****			****			****	****				
Green Time:	10.6	80.7	80.7	32.1	102	0.0	18.6	27.5	38.1	7.7	16.6	48.7
Volume/Cap:	0.75	0.40	0.40	0.40	0.75	0.00	0.60	0.49	0.75	0.75	0.24	0.20
Delay/Veh:	97.0	24.6	24.6	56.3	21.0	0.0	72.1	61.1	64.0	106.1	66.5	41.4
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:	97.0	24.6	24.6	56.3	21.0	0.0	72.1	61.1	64.0	106.1	66.5	41.4
LOS by Move:	F	C	C	E+	C+	A	E	E	E	F	E	D
Design Queue:	199	442	442	274	837	0	265	303	604	146	96	183

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	27	1008	111	52	2582	77	46	0	407	77	0	85
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:	27	1008	111	52	2582	77	46	0	407	77	0	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	1008	111	52	2582	77	46	0	407	77	0	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1008	111	52	2582	77	46	0	407	77	0	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	1008	111	52	2582	77	46	0	407	77	0	85

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750

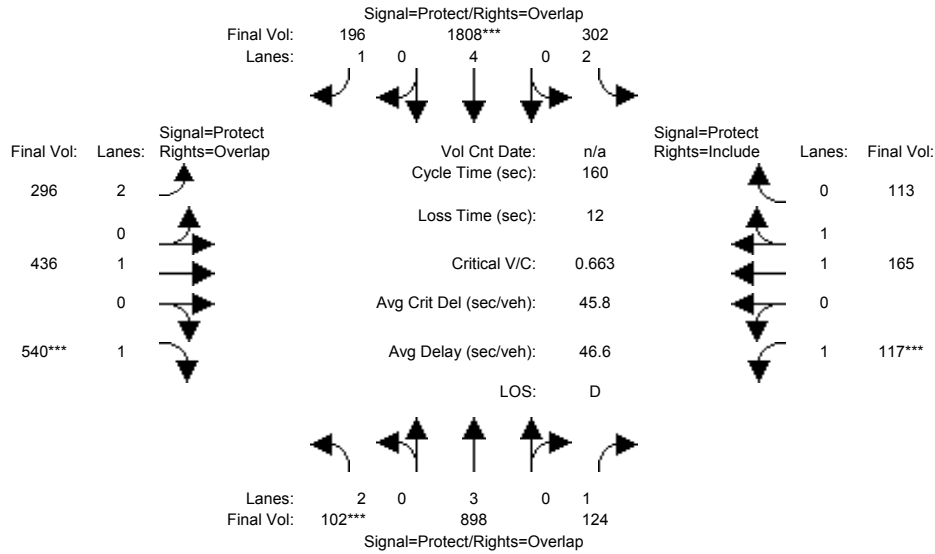
Capacity Analysis Module:												
Vol/Sat:	0.02	0.18	0.06	0.03	0.45	0.04	0.03	0.00	0.23	0.04	0.00	0.05
Crit Moves:	****				****				****			
Green Time:	7.0	87.1	87.1	21.5	102	101.6	42.4	0.0	49.4	42.4	0.0	63.9
Volume/Cap:	0.35	0.32	0.12	0.22	0.71	0.07	0.10	0.00	0.75	0.16	0.00	0.12
Delay/Veh:	77.1	20.2	17.8	62.2	20.1	11.2	44.5	0.0	55.8	45.3	0.0	30.4
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:	77.1	20.2	17.8	62.2	20.1	11.2	44.5	0.0	55.8	45.3	0.0	30.4
LOS by Move:	E-	C+	B	E	C+	B+	D	A	E+	D	A	C
Design Queue:	63	357	124	109	792	69	80	0	723	134	0	125

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	102	898	124	302	1808	196	296	436	540	117	165	113
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:	102	898	124	302	1808	196	296	436	540	117	165	113
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	102	898	124	302	1808	196	296	436	540	117	165	113
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	898	124	302	1808	196	296	436	540	117	165	113
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	102	898	124	302	1808	196	296	436	540	117	165	113

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.16	0.84
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2195	1503

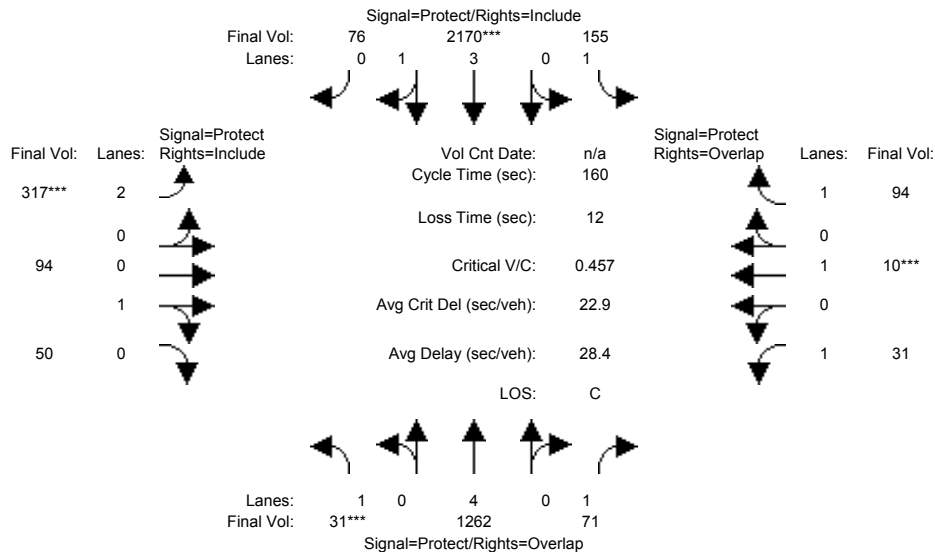
Capacity Analysis Module:												
Vol/Sat:	0.03	0.16	0.07	0.10	0.24	0.11	0.09	0.23	0.31	0.07	0.08	0.08
Crit Moves:	****				****				****	****		
Green Time:	7.8	40.5	56.7	24.7	57.4	101.9	44.5	63.9	71.7	16.1	35.6	35.6
Volume/Cap:	0.66	0.62	0.20	0.62	0.66	0.18	0.34	0.57	0.69	0.66	0.34	0.34
Delay/Veh:	85.2	53.8	36.1	65.8	43.8	12.0	46.3	38.5	37.8	78.4	52.6	52.6
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:	85.2	53.8	36.1	65.8	43.8	12.0	46.3	38.5	37.8	78.4	52.6	52.6
LOS by Move:	F	D-	D+	E	D	B+	D	D+	D+	E-	D-	D-
DesignQueue:	131	518	197	351	687	177	294	619	783	258	252	252

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Existing PM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	1262	71	155	2170	76	317	94	50	31	10	94
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:	31	1262	71	155	2170	76	317	94	50	31	10	94
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	1262	71	155	2170	76	317	94	50	31	10	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	1262	71	155	2170	76	317	94	50	31	10	94
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	1262	71	155	2170	76	317	94	50	31	10	94

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.86	0.14	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7246	254	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.17	0.04	0.09	0.30	0.30	0.10	0.08	0.08	0.02	0.01	0.05
Crit Moves:	****				****		****			****		
Green Time:	7.0	68.5	83.7	36.5	98.1	98.1	32.9	27.8	27.8	15.2	10.0	46.5
Volume/Cap:	0.40	0.39	0.08	0.39	0.49	0.49	0.49	0.46	0.46	0.19	0.08	0.18
Delay/Veh:	77.9	31.4	19.0	52.9	17.2	17.2	56.7	60.5	60.5	67.3	71.0	42.7
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:	77.9	31.4	19.0	52.9	17.2	17.2	56.7	60.5	60.5	67.3	71.0	42.7
LOS by Move:	E-	C	B-	D-	B	B	E+	E	E	E	E	D
DesignQueue:	72	419	83	295	532	532	347	285	285	68	21	163

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Existing PM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	39	129	125	4	71	59	980	323	190	1695	54
Future Volume (vph)	70	39	129	125	4	71	59	980	323	190	1695	54
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5317		1304	3727	
Flt Permitted	0.76	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	1002	1373	1167	1304	5317		1304	3727	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	40	132	128	4	72	60	1000	330	194	1730	55
RTOR Reduction (vph)	0	0	93	0	0	51	0	55	0	0	3	0
Lane Group Flow (vph)	71	40	39	128	4	21	60	1275	0	194	1782	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	45.1		40.6	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	45.1		40.6	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.32		0.29	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	293	402	341	176	1712		378	1775	
v/s Ratio Prot		0.03			0.00		0.05	c0.24		0.15	c0.48	
v/s Ratio Perm	0.07		0.03	c0.13		0.02						
v/c Ratio	0.23	0.10	0.11	0.44	0.01	0.06	0.34	0.74		0.51	1.00	
Uniform Delay, d1	37.6	36.1	36.2	40.1	35.1	35.6	54.8	42.3		41.5	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.43		0.72	0.68	
Incremental Delay, d2	1.8	0.5	0.7	4.7	0.0	0.3	5.0	1.8		0.8	18.7	
Delay (s)	39.4	36.5	36.9	44.8	35.2	36.0	60.5	62.4		30.8	43.5	
Level of Service	D	D	D	D	D	D	E	E		C	D	
Approach Delay (s)		37.6			41.5			62.3			42.3	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	0	135	0	0	0	0	480	641	347	1804	0
Future Volume (vph)	130	0	135	0	0	0	0	480	641	347	1804	0
Ideal Flow (vphp)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.86						1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1457						5559	1129	1304	3747	
Flt Permitted	0.95	1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1457						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	0	144	0	0	0	0	511	682	369	1919	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	357	0	0	0
Lane Group Flow (vph)	124	99	0	0	0	0	0	511	325	369	1919	0
Confl. Peds. (#/hr)									6			
Confl. Bikes (#/hr)									5			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	313						2171	441	341	2614	
v/s Ratio Prot	0.04	c0.07						0.09		c0.28	c0.51	
v/s Ratio Perm									0.29			
v/c Ratio	0.18	0.32						0.24	0.74	1.08	0.73	
Uniform Delay, d1	44.9	46.3						28.6	36.5	51.6	13.1	
Progression Factor	1.00	1.00						1.22	5.92	1.03	0.81	
Incremental Delay, d2	0.6	2.6						0.1	5.7	59.1	0.6	
Delay (s)	45.4	48.9						35.0	221.8	112.3	11.2	
Level of Service	D	D						C	F	F	B	
Approach Delay (s)		47.4			0.0			141.8			27.5	
Approach LOS		D			A			F			C	

Intersection Summary

HCM 2000 Control Delay	65.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	137.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖	↑↑↑			↑↑↑	↗
Traffic Volume (vph)	0	0	0	541	31	39	86	524	0	0	1610	558
Future Volume (vph)	0	0	0	541	31	39	86	524	0	0	1610	558
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1248	1167	1304	4722			4539	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1248	1167	1304	4722			4539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	569	33	41	91	552	0	0	1695	587
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	44	0
Lane Group Flow (vph)	0	0	0	302	300	8	91	552	0	0	2238	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2583	
v/s Ratio Prot				c0.24	0.24		c0.07	0.12			c0.49	
v/s Ratio Perm						0.01						
v/c Ratio				1.26	1.24	0.04	0.55	0.16			0.87	
Uniform Delay, d1				56.5	56.5	45.8	57.4	5.6			25.6	
Progression Factor				1.00	1.00	1.00	1.17	0.53			0.65	
Incremental Delay, d2				147.6	140.0	0.3	12.7	0.1			1.5	
Delay (s)				204.1	196.5	46.1	79.7	3.1			18.1	
Level of Service				F	F	D	E	A			B	
Approach Delay (s)		0.0			190.5			13.9			18.1	
Approach LOS		A			F			B			B	

Intersection Summary

HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	137.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	238	373	354	153	8	137	218	173	37	1441	65
Future Volume (vph)	65	238	373	354	153	8	137	218	173	37	1441	65
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1361		2530	3453		1304	4689	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1361		2530	3453		1304	4689	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	262	410	389	168	9	151	240	190	41	1584	71
RTOR Reduction (vph)	0	0	84	0	1	0	0	98	0	0	5	0
Lane Group Flow (vph)	71	262	326	389	176	0	151	332	0	41	1650	0
Confl. Peds. (#/hr)							2			3		
Confl. Bikes (#/hr)			2				2			2		
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Effective Green, g (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Actuated g/C Ratio	0.08	0.24	0.31	0.22	0.38		0.07	0.29		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	107	332	360	560	519		177	1008		149	1577	
v/s Ratio Prot	0.05	0.19	c0.06	c0.15	0.13		0.06	0.10		0.03	c0.35	
v/s Ratio Perm			0.22									
v/c Ratio	0.66	0.79	0.91	0.69	0.34		0.85	0.33		0.28	1.05	
Uniform Delay, d1	62.4	49.7	46.2	50.1	30.8		64.4	38.8		56.7	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.48	1.87		1.00	1.00	
Incremental Delay, d2	14.4	17.2	28.7	7.0	0.4		37.5	0.9		1.0	35.9	
Delay (s)	76.8	66.9	74.9	57.1	31.1		68.5	73.3		57.7	82.4	
Level of Service	E	E	E	E	C		E	E		E	F	
Approach Delay (s)		72.2			49.0			72.0			81.8	
Approach LOS		E			D			E			F	

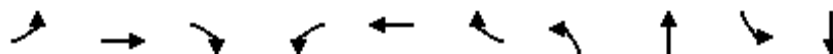
Intersection Summary

HCM 2000 Control Delay	73.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	40	132	128	4	72	60	1330	194	1785
v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.75	0.51	1.00
Control Delay	40.2	37.1	7.8	45.8	35.2	5.2	61.4	59.2	35.3	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24.7
Total Delay	40.2	37.1	7.8	45.8	35.2	5.2	61.4	59.3	35.3	69.0
Queue Length 50th (ft)	49	27	0	95	3	0	47	255	148	-621
Queue Length 95th (ft)	94	58	51	161	12	26	m75	247	m230	#713
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	430	293	402	405	176	2576	378	1777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	115
Spillback Cap Reductn	0	0	0	0	0	4	0	266	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.58	0.51	1.07

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	158	511	682	369	1919
v/c Ratio	0.18	0.42	0.24	0.85	1.08	0.73
Control Delay	45.7	28.4	35.3	44.3	108.2	11.5
Queue Delay	0.0	0.1	0.0	49.4	9.7	18.9
Total Delay	45.7	28.4	35.3	93.7	117.9	30.3
Queue Length 50th (ft)	51	70	112	464	-354	269
Queue Length 95th (ft)	82	149	140	#621	m#448	m220
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	372	2171	798	341	2614
Starvation Cap Reductn	0	0	0	183	78	747
Spillback Cap Reductn	0	10	0	0	0	570
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	0.24	1.11	1.40	1.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



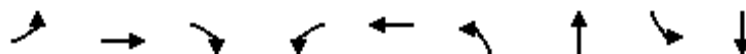
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	302	300	41	91	552	2282
v/c Ratio	1.26	1.24	0.15	0.55	0.16	0.87
Control Delay	192.7	185.7	6.6	80.8	3.1	17.6
Queue Delay	0.0	0.0	0.0	0.9	0.4	46.7
Total Delay	192.7	185.7	6.6	81.7	3.5	64.3
Queue Length 50th (ft)	~362	~356	0	89	37	548
Queue Length 95th (ft)	#561	#555	20	150	45	m578
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	273	164	3463	2627
Starvation Cap Reductn	0	0	0	10	2315	772
Spillback Cap Reductn	0	0	1	0	123	277
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.26	1.24	0.15	0.59	0.48	1.23

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	262	410	389	177	151	430	41	1655
v/c Ratio	0.58	0.81	0.93	0.69	0.34	0.93	0.38	0.26	1.01
Control Delay	78.5	70.3	56.1	57.6	34.9	89.1	51.0	57.8	70.0
Queue Delay	0.0	0.0	15.3	0.0	0.0	0.0	0.6	0.0	34.4
Total Delay	78.5	70.3	71.3	57.6	34.9	89.1	51.6	57.8	104.4
Queue Length 50th (ft)	63	227	200	169	116	22	118	34	~446
Queue Length 95th (ft)	113	#368	#395	228	196	#124	158	72	#536
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	519	162	1145	186	1636
Starvation Cap Reductn	0	0	0	0	0	0	382	0	0
Spillback Cap Reductn	0	0	34	0	0	0	0	0	459
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.81	1.01	0.69	0.34	0.93	0.56	0.22	1.41

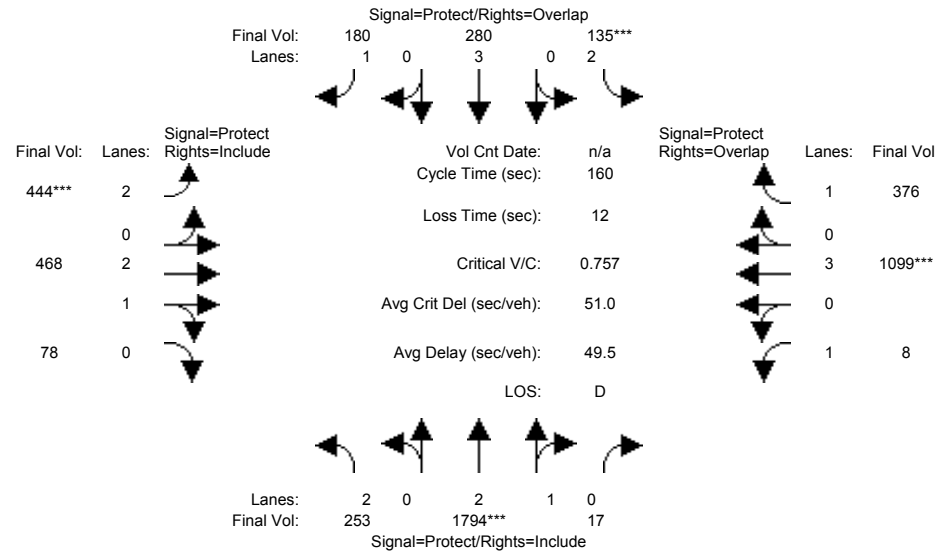
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	253	1793	17	132	277	178	443	468	78	8	1099	375
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:	253	1793	17	132	277	178	443	468	78	8	1099	375
Added Vol:	0	1	0	3	3	2	1	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	253	1794	17	135	280	180	444	468	78	8	1099	376
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	253	1794	17	135	280	180	444	468	78	8	1099	376
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	1794	17	135	280	180	444	468	78	8	1099	376
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	253	1794	17	135	280	180	444	468	78	8	1099	376

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.56	0.44	1.00	3.00	1.00
Final Sat.:	3150	5547	53	3150	5700	1750	3150	4799	800	1750	5700	1750

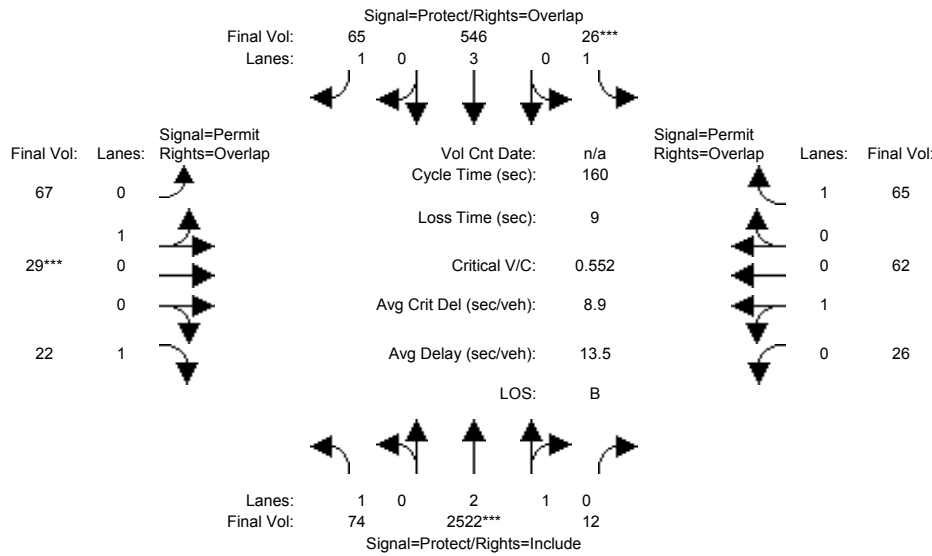
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.08	0.32	0.32	0.04	0.05	0.10	0.14	0.10	0.10	0.00	0.19	0.21
Crit Moves:	****			****			****			****		
Green Time:	43.5	68.4	68.4	9.1	33.9	63.7	29.8	48.7	48.7	21.9	40.8	49.8
Volume/Cap:	0.30	0.76	0.76	0.76	0.23	0.26	0.76	0.32	0.32	0.03	0.76	0.69
Delay/Veh:	46.3	40.2	40.2	91.2	52.4	32.5	67.3	43.0	43.0	60.0	57.4	52.1
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:	46.3	40.2	40.2	91.2	52.4	32.5	67.3	43.0	43.0	60.0	57.4	52.1
LOS by Move:	D	D	D	F	D-	C-	E	D	D	E+	E+	D-
DesignQueue:	252	855	855	173	166	269	503	294	294	17	639	662

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	74	2520	12	26	538	65	67	29	22	26	62	65
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:	74	2520	12	26	538	65	67	29	22	26	62	65
Added Vol:	0	2	0	0	8	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	74	2522	12	26	546	65	67	29	22	26	62	65
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	74	2522	12	26	546	65	67	29	22	26	62	65
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	2522	12	26	546	65	67	29	22	26	62	65
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	74	2522	12	26	546	65	67	29	22	26	62	65

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.70	0.30	1.00	0.30	0.70	1.00
Final Sat.:	1750	5573	27	1750	5700	1750	1256	544	1750	532	1268	1750

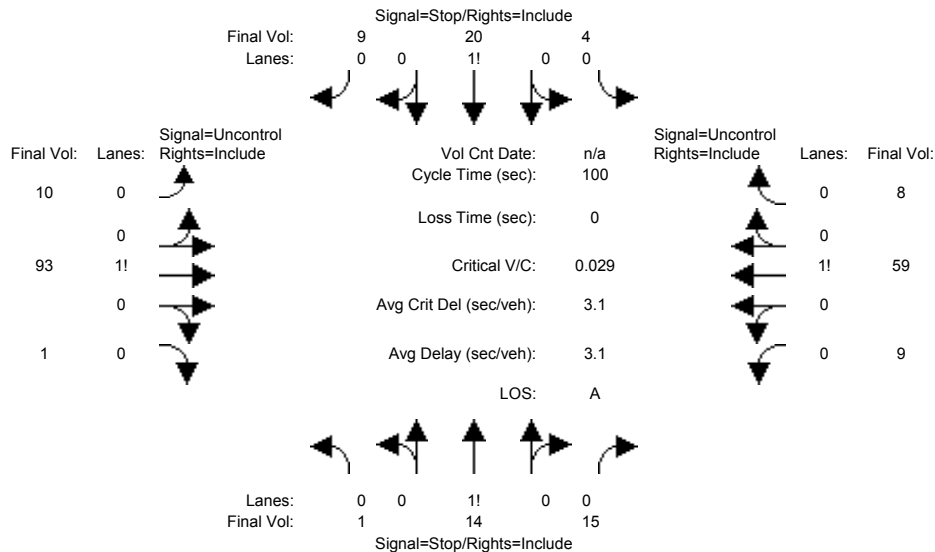
Capacity Analysis Module:												
Vol/Sat:	0.04	0.45	0.45	0.01	0.10	0.04	0.05	0.05	0.01	0.05	0.05	0.04
Crit Moves:	****			****			****			****		
Green Time:	42.6	129	128.8	7.0	93.2	93.2	15.2	15.2	57.8	15.2	15.2	22.2
Volume/Cap:	0.16	0.56	0.56	0.34	0.16	0.06	0.56	0.56	0.03	0.52	0.52	0.27
Delay/Veh:	45.1	5.7	5.7	76.9	15.4	14.5	73.5	73.5	33.1	71.6	71.6	62.2
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:	45.1	5.7	5.7	76.9	15.4	14.5	73.5	73.5	33.1	71.6	71.6	62.2
LOS by Move:	D	A	A	E-	B	B	E	E	C-	E	E	E
DesignQueue:	133	423	423	60	173	66	207	207	34	189	189	136

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	14	15	4	20	8	10	93	1	9	58	7
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:	1	14	15	4	20	8	10	93	1	9	58	7
Added Vol:	0	0	0	0	0	1	0	0	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	14	15	4	20	9	10	93	1	9	59	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	14	15	4	20	9	10	93	1	9	59	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	14	15	4	20	9	10	93	1	9	59	8
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	209	199	94	209	195	63	67	xxxx	xxxxxx	94	xxxx	xxxxxx
Potent Cap.:	753	701	969	753	704	1007	1547	xxxx	xxxxxx	1513	xxxx	xxxxxx
Move Cap.:	723	692	969	723	695	1007	1547	xxxx	xxxxxx	1513	xxxx	xxxxxx
Volume/Cap:	0.00	0.02	0.02	0.01	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.5	xxxx	xxxxxx	0.4	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.3	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	809	xxxxxx	xxxx	763	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.6	xxxxxx	xxxxxx	9.9	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*
ApproachDel:		9.6			9.9		xxxxxxx		xxxxxxx			
ApproachLOS:		A			A		*		*	*		*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 14 15	4 20 9	10 93 1	9 59 8
ApproachDel:	9.6	9.9	xxxxxx	xxxxxx

```

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=30]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=243]
    FAIL - Total volume less than 650 for intersection
        with less than four approaches.
    
```

```

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=33]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=243]
    FAIL - Total volume less than 650 for intersection
        with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 14 15	4 20 9	10 93 1	9 59 8
Major Street Volume:	180			
Minor Approach Volume:	33			
Minor Approach Volume Threshold:	677			

SIGNAL WARRANT DISCLAIMER

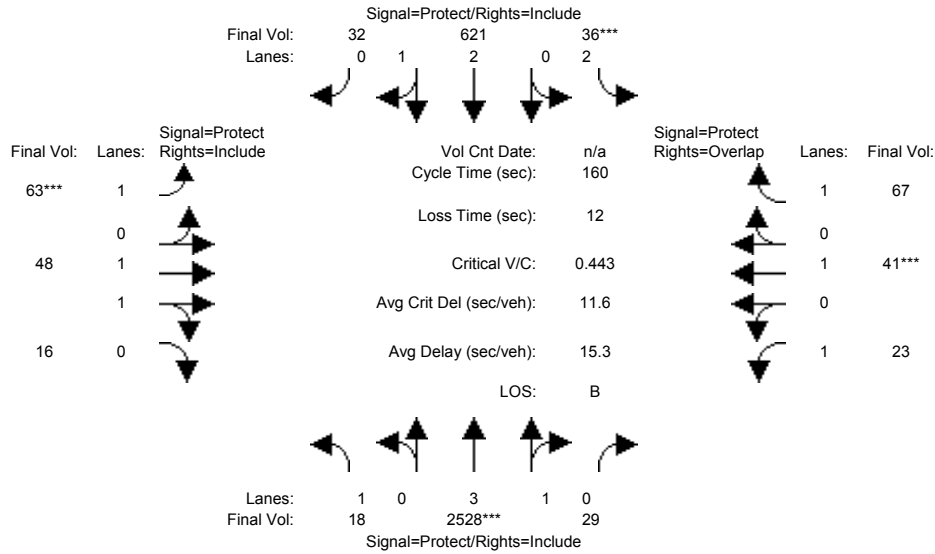
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	18	2526	29	27	613	31	63	48	16	23	41	67
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	2526	29	27	613	31	63	48	16	23	41	67
Added Vol:	0	2	0	9	8	1	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	2528	29	36	621	32	63	48	16	23	41	67
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	2528	29	36	621	32	63	48	16	23	41	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2528	29	36	621	32	63	48	16	23	41	67
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	18	2528	29	36	621	32	63	48	16	23	41	67

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.98	0.95	0.92	1.00	0.92
Lanes:	1.00	3.95	0.05	2.00	2.85	0.15	1.00	1.49	0.51	1.00	1.00	1.00
Final Sat.:	1750	7415	85	3150	5325	274	1750	2774	925	1750	1900	1750

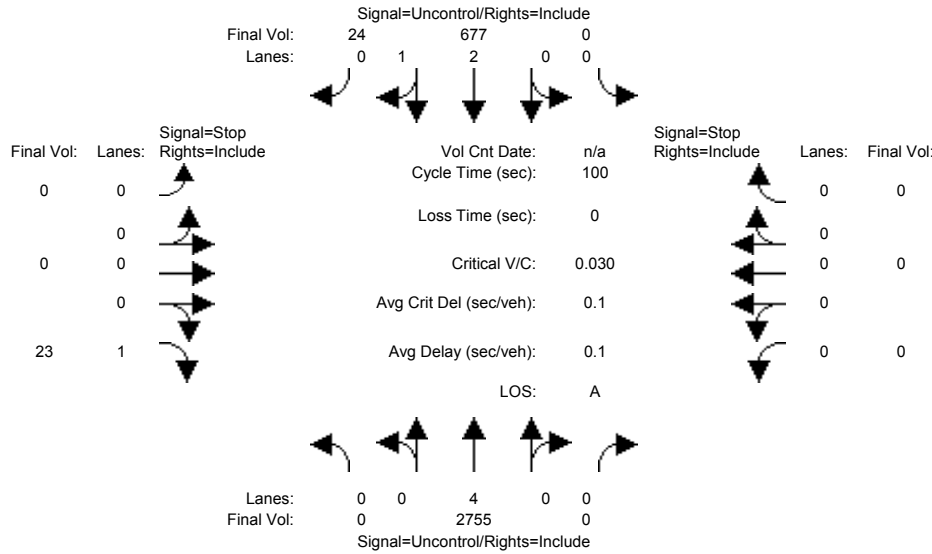
Capacity Analysis Module:												
Vol/Sat:	0.01	0.34	0.34	0.01	0.12	0.12	0.04	0.02	0.02	0.01	0.02	0.04
Crit Moves:	****			****			****			****		
Green Time:	34.2	118	118.5	7.0	91.3	91.3	12.5	13.2	13.2	9.3	10.0	17.0
Volume/Cap:	0.05	0.46	0.46	0.26	0.20	0.20	0.46	0.21	0.21	0.23	0.35	0.36
Delay/Veh:	50.0	8.2	8.2	75.0	16.8	16.8	73.0	68.8	68.8	73.1	73.6	67.6
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:	50.0	8.2	8.2	75.0	16.8	16.8	73.0	68.8	68.8	73.1	73.6	67.6
LOS by Move:	D	A	A	E-	B	B	E	E	E	E	E	E
DesignQueue:	34	410	410	46	218	218	141	67	67	52	86	146

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave						Project Dwy (Restaurant)					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	2745	0	0	671	17	0	0	10	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:	0	2745	0	0	671	17	0	0	10	0	0	0
Added Vol:	0	10	0	0	6	7	0	0	13	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	2755	0	0	677	24	0	0	23	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	2755	0	0	677	24	0	0	23	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	2755	0	0	677	24	0	0	23	0	0	0

Critical Gap Module:	North Bound			South Bound			East Bound			West Bound		
Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:	North Bound			South Bound			East Bound			West Bound		
Cnflict Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	238	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	770	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	770	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx

Level Of Service Module:	North Bound			South Bound			East Bound			West Bound					
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	2.3	xxxx	xxxx	xxxxxx			
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	9.8	xxxxxx	xxxx	xxxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	A	*	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	xxxxxxx			xxxxxxx					9.8	xxxxxxx					
ApproachLOS:	*			*					A	*					

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 2755 0	0 677 24	0 0 23	0 0 0
ApproachDel:	xxxxxxx	xxxxxxx	9.8	xxxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=23]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3479]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 2755 0	0 677 24	0 0 23	0 0 0

Major Street Volume: 3456

Minor Approach Volume: 23

Minor Approach Volume Threshold: -142 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

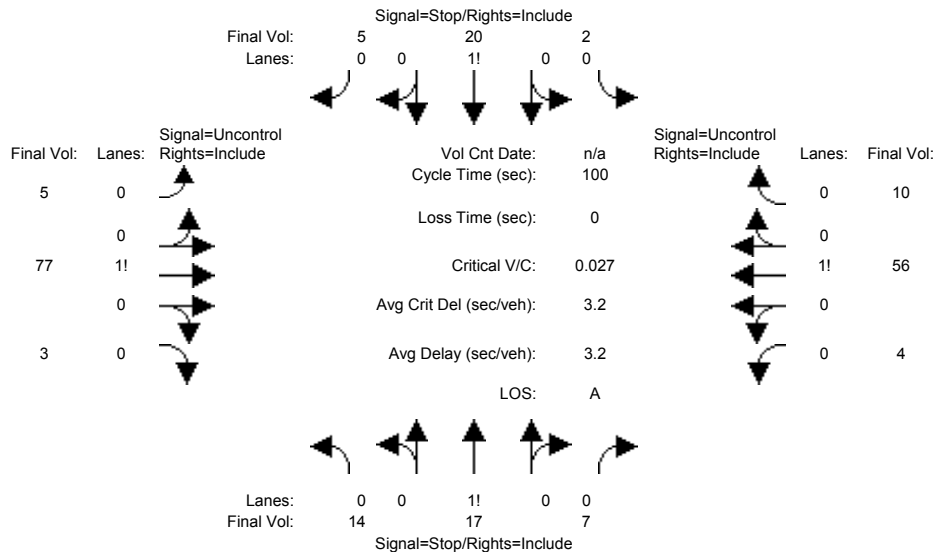
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	13	17	7	2	20	5	5	76	3	3	55	10
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:	13	17	7	2	20	5	5	76	3	3	55	10
Added Vol:	1	0	0	0	0	0	0	1	0	1	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	14	17	7	2	20	5	5	77	3	4	56	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	14	17	7	2	20	5	5	77	3	4	56	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	14	17	7	2	20	5	5	77	3	4	56	10
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	170	163	79	170	159	61	66	xxxx	xxxxx	80	xxxx	xxxxx
Potent Cap.:	798	734	988	799	737	1010	1549	xxxx	xxxxx	1531	xxxx	xxxxx
Move Cap.:	774	729	988	775	733	1010	1549	xxxx	xxxxx	1531	xxxx	xxxxx
Volume/Cap:	0.02	0.02	0.01	0.00	0.03	0.00	0.00	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	784	xxxxx	xxxx	775	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	9.8	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	A	*	*	*	*	*	*	*
ApproachDel:	9.8			9.8			xxxxxxx			xxxxxxx		
ApproachLOS:	A			A			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	14 17 7	2 20 5	5 77 3	4 56 10
ApproachDel:	9.8	9.8	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=38]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=220]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=27]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=220]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	14 17 7	2 20 5	5 77 3	4 56 10

Major Street Volume: 155
 Minor Approach Volume: 38
 Minor Approach Volume Threshold: 717

SIGNAL WARRANT DISCLAIMER

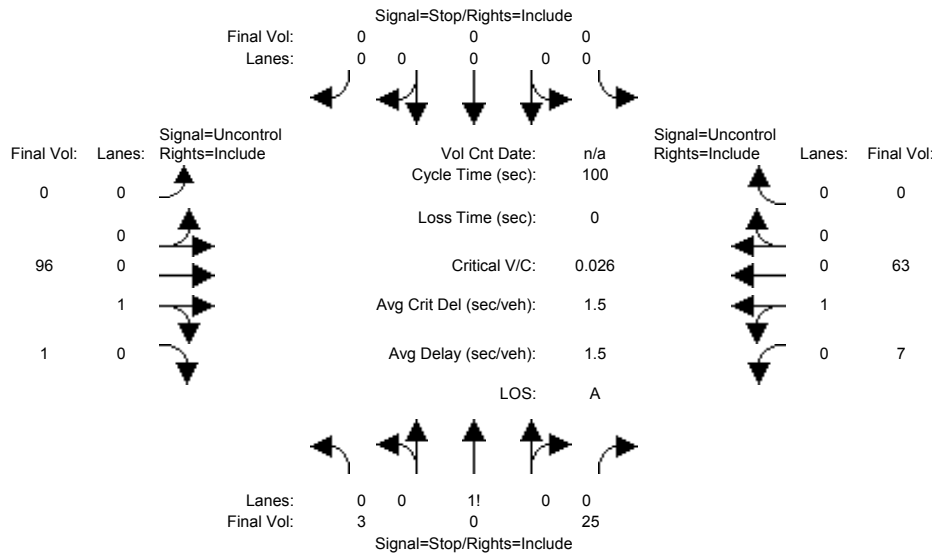
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	1	0	9	0	0	0	0	95	1	5	63	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:	1	0	9	0	0	0	0	95	1	5	63	0
Added Vol:	2	0	16	0	0	0	0	1	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	0	25	0	0	0	0	96	1	7	63	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	0	25	0	0	0	0	96	1	7	63	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	0	25	0	0	0	0	96	1	7	63	0

Critical Gap Module:	North Bound			South Bound			East Bound			West Bound		
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:	North Bound			South Bound			East Bound			West Bound		
Cnflct Vol:	174	174	97	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	97	xxxxx	xxxxx
Potent Cap.:	821	723	965	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1509	xxxxx	xxxxx
Move Cap.:	818	720	965	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1509	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.03	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.00	xxxxx	xxxxx

Level Of Service Module:	North Bound			South Bound			East Bound			West Bound		
2Way95thQ:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.3	xxxxx	xxxxx
Control Del:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	7.4	xxxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxxx	947	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.0	xxxxx	xxxxx
Shrd ConDel:	xxxxx	8.9	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	7.4	xxxxx	xxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	8.9			xxxxxxx			xxxxxxx			xxxxxxx		
ApproachLOS:	A			*			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 25	0 0 0	0 96 1	7 63 0
ApproachDel:	8.9	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=28]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=195]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 25	0 0 0	0 96 1	7 63 0

Major Street Volume: 167
 Minor Approach Volume: 28
 Minor Approach Volume Threshold: 697

SIGNAL WARRANT DISCLAIMER

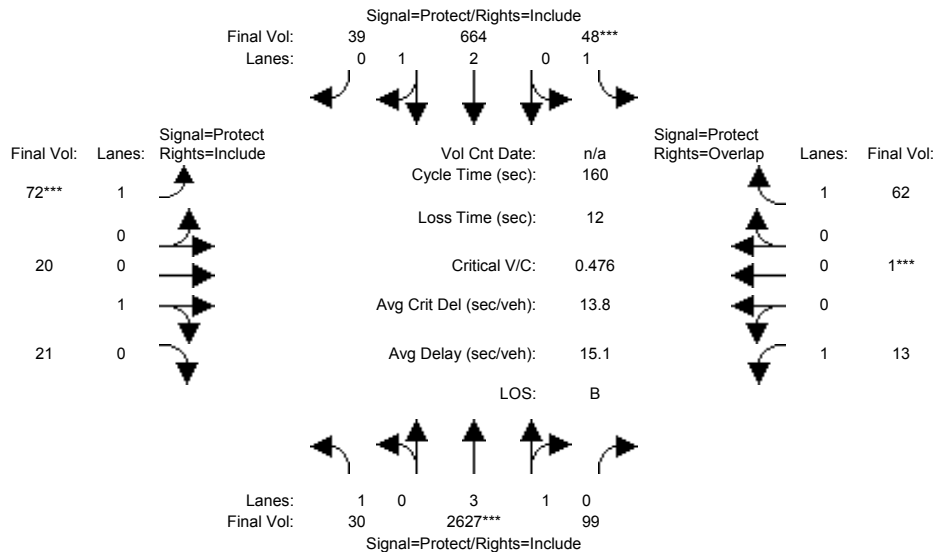
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The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	27	2619	99	48	660	38	61	20	15	13	1	62
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:	27	2619	99	48	660	38	61	20	15	13	1	62
Added Vol:	3	8	0	0	4	1	11	0	6	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	2627	99	48	664	39	72	20	21	13	1	62
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	30	2627	99	48	664	39	72	20	21	13	1	62
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	2627	99	48	664	39	72	20	21	13	1	62
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	30	2627	99	48	664	39	72	20	21	13	1	62

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Lanes:	1.00	3.85	0.15	1.00	2.83	0.17	1.00	0.49	0.51	0.93	0.07	1.00
Final Sat.:	1750	7227	272	1750	5289	311	1750	878	922	1671	129	1800

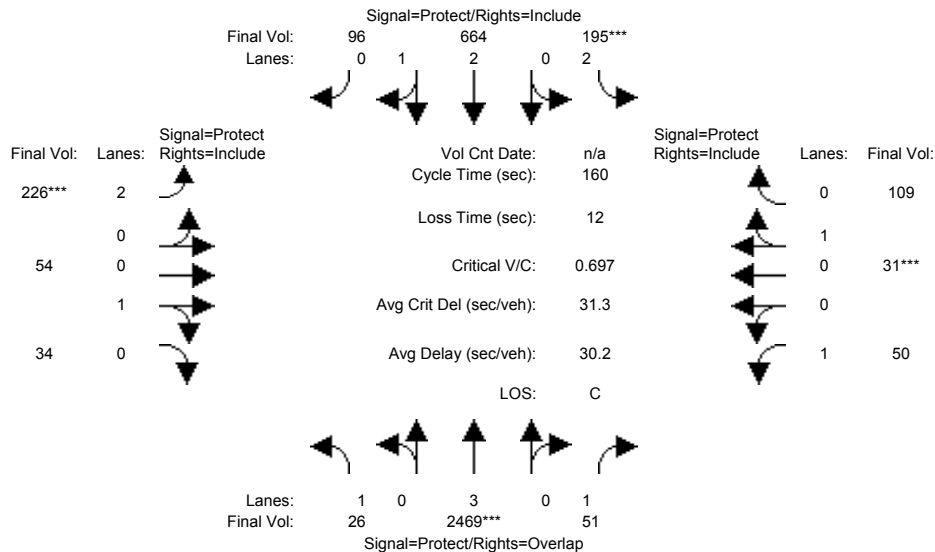
Capacity Analysis Module:												
Vol/Sat:	0.02	0.36	0.36	0.03	0.13	0.13	0.04	0.02	0.02	0.01	0.01	0.03
Crit Moves:	****			****			****			****		
Green Time:	32.3	116	116.1	8.8	92.6	92.6	13.1	13.6	13.6	9.5	10.0	18.8
Volume/Cap:	0.09	0.50	0.50	0.50	0.22	0.22	0.50	0.27	0.27	0.13	0.12	0.29
Delay/Veh:	52.0	9.5	9.5	77.6	16.3	16.3	73.0	69.5	69.5	71.4	71.0	65.2
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:	52.0	9.5	9.5	77.6	16.3	16.3	73.0	69.5	69.5	71.4	71.0	65.2
LOS by Move:	D-	A	A	E-	B	B	E	E	E	E	E	E
DesignQueue:	58	466	466	110	231	231	161	89	89	31	31	130

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	26	2452	50	195	659	96	226	54	34	50	31	109
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:	26	2452	50	195	659	96	226	54	34	50	31	109
Added Vol:	0	17	1	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	2469	51	195	664	96	226	54	34	50	31	109
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	2469	51	195	664	96	226	54	34	50	31	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2469	51	195	664	96	226	54	34	50	31	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	26	2469	51	195	664	96	226	54	34	50	31	109

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.99	0.95	0.83	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	2.00	2.61	0.39	2.00	0.61	0.39	1.00	0.22	0.78
Final Sat.:	1750	5700	1750	3150	4892	707	3150	1105	695	1750	399	1401

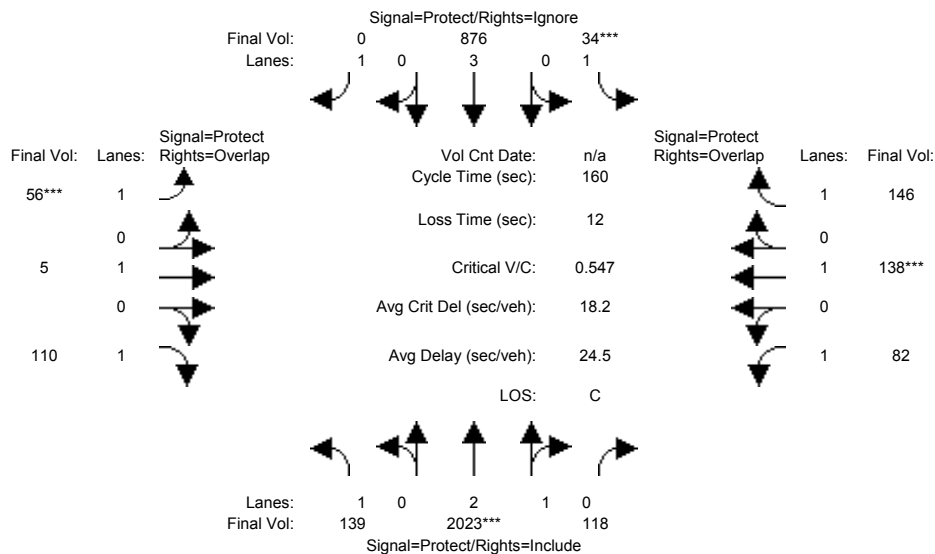
Capacity Analysis Module:												
Vol/Sat:	0.01	0.43	0.03	0.06	0.14	0.14	0.07	0.05	0.05	0.03	0.08	0.08
Crit Moves:	****			****			****			****		
Green Time:	27.7	99.5	113.6	14.2	86.0	86.0	16.5	20.2	20.2	14.1	17.9	17.9
Volume/Cap:	0.09	0.70	0.04	0.70	0.25	0.25	0.70	0.39	0.39	0.32	0.70	0.70
Delay/Veh:	55.6	20.8	6.9	78.3	19.9	19.9	75.9	65.3	65.3	69.7	78.7	78.7
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:	55.6	20.8	6.9	78.3	19.9	19.9	75.9	65.3	65.3	69.7	78.7	78.7
LOS by Move:	E+	C+	A	E-	B-	B-	E-	E	E	E	E-	E-
DesignQueue:	52	781	36	242	275	275	277	183	183	111	298	298

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	2009			2023***			2009			2023***		
Base Vol:	139	2009	115	34	872	234	56	5	109	82	138	146
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:	139	2009	115	34	872	234	56	5	109	82	138	146
Added Vol:	0	14	3	0	4	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	139	2023	118	34	876	234	56	5	110	82	138	146
User 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
PHF 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
PHF Volume:	139	2023	118	34	876	0	56	5	110	82	138	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	139	2023	118	34	876	0	56	5	110	82	138	146
PCE 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
MLF 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
Final Volume:	139	2023	118	34	876	0	56	5	110	82	138	146

Saturation Flow Module:	2009			2023***			2009			2023***		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5291	309	1750	5700	1750	1750	1900	1750	1750	1900	1750

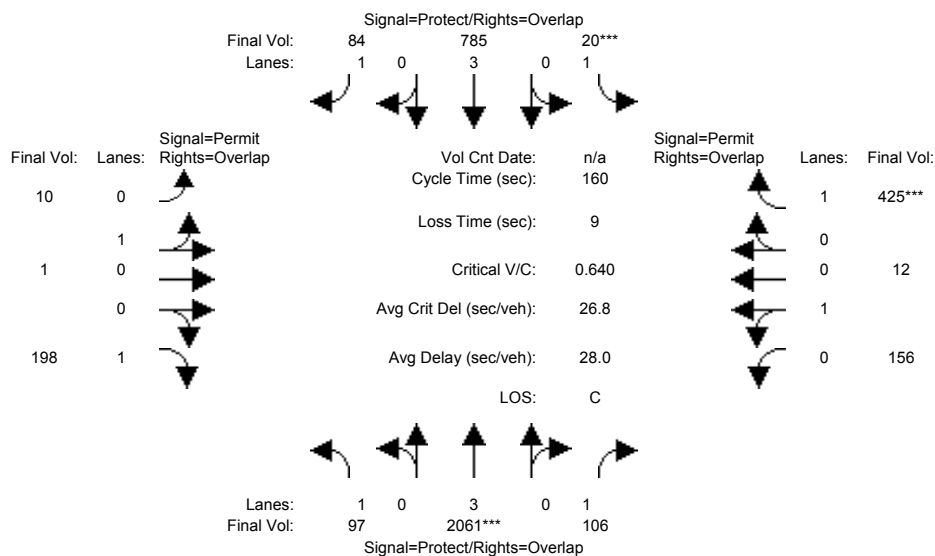
Capacity Analysis Module:	2009			2023***			2009			2023***		
Vol/Sat:	0.08	0.38	0.38	0.02	0.15	0.00	0.03	0.00	0.06	0.05	0.07	0.08
Crit Moves:	****			****			****			****		
Green Time:	40.1	111	110.7	7.0	77.6	0.0	9.3	17.3	57.4	13.0	21.0	28.0
Volume/Cap:	0.32	0.55	0.55	0.44	0.32	0.00	0.55	0.02	0.18	0.58	0.55	0.48
Delay/Veh:	49.2	12.5	12.5	78.7	25.1	0.0	79.8	63.8	35.2	76.7	67.8	60.5
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:	49.2	12.5	12.5	78.7	25.1	0.0	79.8	63.8	35.2	76.7	67.8	60.5
LOS by Move:	D	B	B	E-	C	A	E-	E	D+	E-	E	E
DesignQueue:	257	553	553	79	348	0	128	10	173	184	272	297

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	97	2050	103	20	782	84	10	1	197	156	12	425
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:	97	2050	103	20	782	84	10	1	197	156	12	425
Added Vol:	0	11	3	0	3	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	2061	106	20	785	84	10	1	198	156	12	425
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	2061	106	20	785	84	10	1	198	156	12	425
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2061	106	20	785	84	10	1	198	156	12	425
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	97	2061	106	20	785	84	10	1	198	156	12	425

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.91	0.09	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1636	164	1750	1671	129	1750

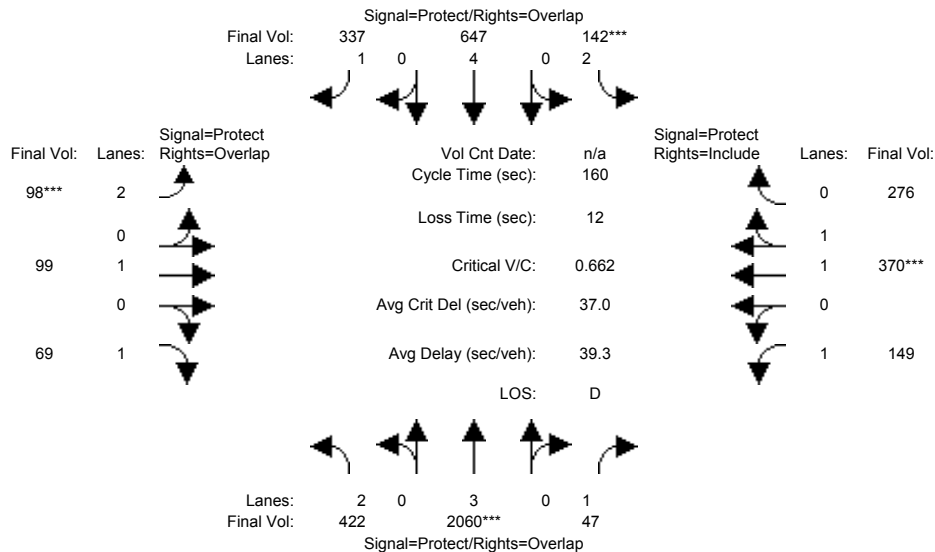
Capacity Analysis Module:												
Vol/Sat:	0.06	0.36	0.06	0.01	0.14	0.05	0.01	0.01	0.11	0.09	0.09	0.24
Crit Moves:	****			****						****		
Green Time:	28.7	92.9	92.9	7.0	71.2	71.2	51.1	51.1	79.8	51.1	51.1	58.1
Volume/Cap:	0.31	0.62	0.10	0.26	0.31	0.11	0.02	0.02	0.23	0.29	0.29	0.67
Delay/Veh:	57.6	22.4	15.0	75.8	28.6	25.9	37.3	37.3	22.8	41.1	41.1	45.6
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:	57.6	22.4	15.0	75.8	28.6	25.9	37.3	37.3	22.8	41.1	41.1	45.6
LOS by Move:	E+	C+	B	E-	C	C	D+	D+	C+	D	D	D
DesignQueue:	195	708	109	46	335	114	18	18	247	275	275	698

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	421	2050	47	142	644	337	98	99	69	149	370	276
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:	421	2050	47	142	644	337	98	99	69	149	370	276
Added Vol:	1	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	422	2060	47	142	647	337	98	99	69	149	370	276
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	422	2060	47	142	647	337	98	99	69	149	370	276
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	422	2060	47	142	647	337	98	99	69	149	370	276
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	422	2060	47	142	647	337	98	99	69	149	370	276

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.12	0.88
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2118	1580

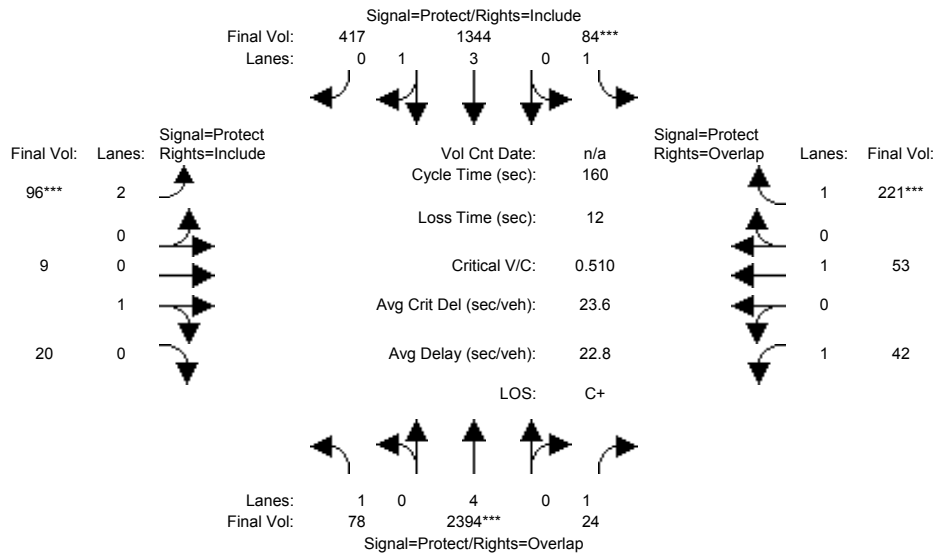
Capacity Analysis Module:												
Vol/Sat:	0.13	0.36	0.03	0.05	0.09	0.19	0.03	0.05	0.04	0.09	0.17	0.17
Crit Moves:	****			****			****			****		
Green Time:	44.6	87.4	116.0	10.9	53.7	61.2	7.5	21.1	65.6	28.7	42.2	42.2
Volume/Cap:	0.48	0.66	0.04	0.66	0.25	0.50	0.66	0.40	0.10	0.47	0.66	0.66
Delay/Veh:	48.5	26.4	6.2	80.3	38.7	38.4	85.6	64.7	29.0	60.0	54.2	54.2
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:	48.5	26.4	6.2	80.3	38.7	38.4	85.6	64.7	29.0	60.0	54.2	54.2
LOS by Move:	D	C	A	F	D+	D+	F	E	C	E	D-	D-
DesignQueue:	423	766	31	180	244	529	126	194	99	302	569	569

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	78	2384	24	84	1341	417	96	9	20	42	53	221
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:	78	2384	24	84	1341	417	96	9	20	42	53	221
Added Vol:	0	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	78	2394	24	84	1344	417	96	9	20	42	53	221
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	2394	24	84	1344	417	96	9	20	42	53	221
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	2394	24	84	1344	417	96	9	20	42	53	221
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	78	2394	24	84	1344	417	96	9	20	42	53	221

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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.01	0.99	2.00	0.31	0.69	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	5721	1775	3150	559	1241	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.04	0.32	0.01	0.05	0.23	0.23	0.03	0.02	0.02	0.02	0.03	0.13
Crit Moves:	****			****			****			****		
Green Time:	18.2	98.8	112.9	15.1	95.7	95.7	9.6	20.1	20.1	14.0	24.6	39.6
Volume/Cap:	0.39	0.51	0.02	0.51	0.39	0.39	0.51	0.13	0.13	0.27	0.18	0.51
Delay/Veh:	67.1	17.2	7.0	71.6	16.9	16.9	75.3	62.4	62.4	69.2	59.3	52.8
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:	67.1	17.2	7.0	71.6	16.9	16.9	75.3	62.4	62.4	69.2	59.3	52.8
LOS by Move:	E	B	A	E	B	B	E-	E	E	E	E+	D-
DesignQueue:	169	555	17	186	425	425	122	60	60	93	100	415

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	3	39	185	31	185	115	2156	79	27	690	96
Future Volume (vph)	26	3	39	185	31	185	115	2156	79	27	690	96
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5522		1304	3669	
Flt Permitted	0.74	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1010	1373	1144	1029	1373	1167	1304	5522		1304	3669	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	3	41	195	33	195	121	2269	83	28	726	101
RTOR Reduction (vph)	0	0	32	0	0	150	0	3	0	0	13	0
Lane Group Flow (vph)	27	3	9	195	33	45	121	2349	0	28	814	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.5		5.7	64.8	
Effective Green, g (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.5		5.7	64.8	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.12	0.61		0.05	0.54	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	314	262	235	314	267	156	3382		61	1981	
v/s Ratio Prot		0.00			0.02		c0.09	c0.43		0.02	c0.22	
v/s Ratio Perm	0.03		0.01	c0.19		0.04						
v/c Ratio	0.12	0.01	0.04	0.83	0.11	0.17	0.78	0.69		0.46	0.41	
Uniform Delay, d1	36.6	35.7	35.9	44.0	36.5	37.1	51.2	15.7		55.6	16.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	0.56		0.49	0.30	
Incremental Delay, d2	0.2	0.0	0.1	20.9	0.1	0.3	16.1	1.1		5.1	0.1	
Delay (s)	36.9	35.7	36.0	64.9	36.7	37.4	71.3	9.9		32.4	5.0	
Level of Service	D	D	D	E	D	D	E	A		C	A	
Approach Delay (s)		36.3			50.0			12.9			5.9	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	845	0	72	0	0	0	0	1633	734	45	741	0
Future Volume (vph)	845	0	72	0	0	0	0	1633	734	45	741	0
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.96						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2373	1160						5559	1148	1304	3747	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2373	1160						5559	1148	1304	3747	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	880	0	75	0	0	0	0	1701	765	47	772	0
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	395	0	0	0
Lane Group Flow (vph)	642	253	0	0	0	0	0	1701	370	47	772	0
Confl. Bikes (#/hr)									9			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	36.7	36.7						58.0	58.0	6.8	71.1	
Effective Green, g (s)	36.7	36.7						58.0	58.0	6.8	71.1	
Actuated g/C Ratio	0.31	0.31						0.48	0.48	0.06	0.59	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	725	354						2686	554	73	2220	
v/s Ratio Prot	c0.27	0.22						0.31		c0.04	0.21	
v/s Ratio Perm									c0.32			
v/c Ratio	0.89	0.71						0.63	0.67	0.64	0.35	
Uniform Delay, d1	39.7	37.0						23.1	23.6	55.4	12.5	
Progression Factor	1.00	1.00						0.39	6.83	0.65	0.30	
Incremental Delay, d2	12.5	6.7						0.9	4.8	17.7	0.1	
Delay (s)	52.1	43.7						9.9	166.2	53.9	3.9	
Level of Service	D	D						A	F	D	A	
Approach Delay (s)		49.4			0.0			58.4			6.7	
Approach LOS		D			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			46.4		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				18.5			
Intersection Capacity Utilization			121.3%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	532	36	273	134	2344	0	0	254	99
Future Volume (vph)	0	0	0	532	36	273	134	2344	0	0	254	99
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1696	1583	1304	4722			4523	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1696	1583	1304	4722			4523	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	572	39	294	144	2520	0	0	273	106
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	95	0
Lane Group Flow (vph)	0	0	0	303	308	239	144	2520	0	0	284	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	66.5	84.7			12.9	
Effective Green, g (s)				25.1	25.1	25.1	66.5	84.7			12.9	
Actuated g/C Ratio				0.21	0.21	0.21	0.55	0.71			0.11	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	354	331	722	3332			486	
v/s Ratio Prot				0.18	c0.18		0.11	c0.53			0.06	
v/s Ratio Perm						0.15						
v/c Ratio				0.86	0.87	0.72	0.20	0.76			0.59	
Uniform Delay, d1				45.8	45.9	44.2	13.4	11.1			51.0	
Progression Factor				1.00	1.00	1.00	1.46	0.91			1.05	
Incremental Delay, d2				23.4	24.1	12.9	0.1	1.3			1.7	
Delay (s)				69.2	70.0	57.1	19.7	11.4			55.4	
Level of Service				E	E	E	B	B			E	
Approach Delay (s)		0.0			65.5			11.8			55.4	
Approach LOS		A			E			B			E	

Intersection Summary

HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	121.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



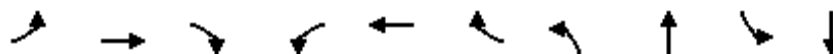
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	26	84	86	119	4	782	1497	387	5	203	85
Future Volume (vph)	15	26	84	86	119	4	782	1497	387	5	203	85
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3613		1304	4467	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3613		1304	4467	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	16	28	90	92	128	4	841	1610	416	5	218	91
RTOR Reduction (vph)	0	0	34	0	1	0	0	23	0	0	65	0
Lane Group Flow (vph)	16	28	56	92	131	0	841	2003	0	5	244	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.6	74.6	15.5	17.9		69.0	79.5		1.2	11.7	
Effective Green, g (s)	3.2	5.6	74.6	15.5	17.9		69.0	79.5		1.2	11.7	
Actuated g/C Ratio	0.03	0.05	0.62	0.13	0.15		0.58	0.66		0.01	0.10	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	64	763	326	203		1454	2393		13	435	
v/s Ratio Prot	0.01	c0.02	0.04	0.04	c0.10		c0.33	c0.55		0.00	0.05	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.44	0.07	0.28	0.65		0.58	0.84		0.38	0.56	
Uniform Delay, d1	57.6	55.7	9.0	47.2	48.1		16.2	15.3		59.0	51.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.89	0.84		1.00	1.00	
Incremental Delay, d2	9.9	4.7	0.0	0.5	6.9		1.1	2.5		17.9	1.7	
Delay (s)	67.5	60.4	9.0	47.7	55.0		15.5	15.3		76.9	53.4	
Level of Service	E	E	A	D	D		B	B		E	D	
Approach Delay (s)		26.8			52.0			15.4			53.7	
Approach LOS		C			D			B			D	

Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	3	41	195	33	195	121	2352	28	827
v/c Ratio	0.12	0.01	0.12	0.83	0.11	0.47	0.78	0.68	0.32	0.41
Control Delay	34.3	31.0	0.7	70.3	33.9	8.4	78.9	10.8	34.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.3	31.0	0.7	70.3	33.9	8.4	78.9	10.8	34.6	5.9
Queue Length 50th (ft)	17	2	0	143	20	0	74	344	19	40
Queue Length 95th (ft)	39	9	0	218	44	57	m113	99	m47	52
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	411	416	308	411	486	173	3458	173	1994
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	272
Spillback Cap Reductn	4	0	0	0	0	9	0	80	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.10	0.63	0.08	0.41	0.70	0.70	0.16	0.48

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	642	313	1701	765	47	772
v/c Ratio	0.88	0.75	0.62	0.80	0.55	0.35
Control Delay	54.4	38.9	10.0	19.2	58.8	4.3
Queue Delay	0.0	0.6	0.2	32.2	0.0	0.3
Total Delay	54.4	39.5	10.3	51.3	58.8	4.6
Queue Length 50th (ft)	251	171	108	580	11	10
Queue Length 95th (ft)	#340	298	87	309	38	m30
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	436	2744	953	94	2219
Starvation Cap Reductn	0	0	316	227	0	818
Spillback Cap Reductn	0	16	361	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.75	0.71	1.05	0.50	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



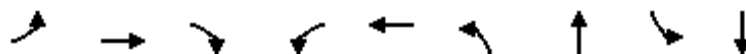
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	303	308	294	144	2520	379
v/c Ratio	0.86	0.87	0.76	0.20	0.76	0.65
Control Delay	70.0	70.7	48.0	21.5	11.6	43.7
Queue Delay	0.0	0.0	0.4	2.0	13.5	0.0
Total Delay	70.0	70.7	48.4	23.5	25.1	43.7
Queue Length 50th (ft)	240	244	167	56	206	45
Queue Length 95th (ft)	#404	#410	#294	97	225	72
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	354	385	722	3332	2303
Starvation Cap Reductn	0	0	0	449	850	13
Spillback Cap Reductn	0	0	6	0	468	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.87	0.78	0.53	1.02	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 South Mathilda Avenue Tia
Existing + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	28	90	92	132	841	2026	5	309
v/c Ratio	0.19	0.28	0.11	0.29	0.65	0.56	0.78	0.08	0.62
Control Delay	58.3	59.3	2.4	48.9	61.6	16.8	14.0	57.2	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	7.7	2.3	0.0	0.0
Total Delay	58.3	59.3	2.4	48.9	61.6	24.4	16.3	57.2	44.9
Queue Length 50th (ft)	12	21	0	35	93	217	342	4	51
Queue Length 95th (ft)	36	51	22	56	156	389	#685	18	76
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	785	506	388	1506	2581	65	611
Starvation Cap Reductn	0	0	0	0	0	618	403	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.11	0.18	0.34	0.95	0.93	0.08	0.51

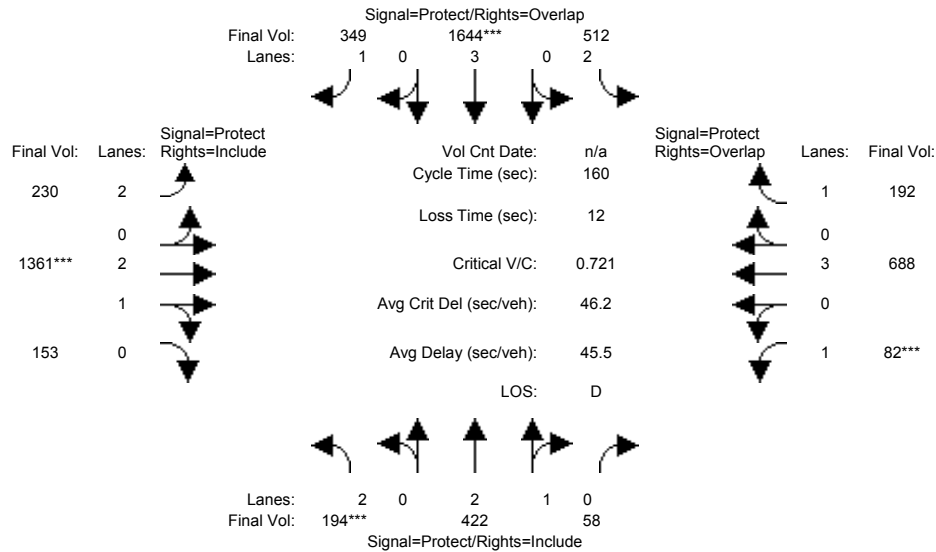
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	194	418	58	510	1642	348	227	1361	153	82	688	188
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:	194	418	58	510	1642	348	227	1361	153	82	688	188
Added Vol:	0	4	0	2	2	1	3	0	0	0	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	194	422	58	512	1644	349	230	1361	153	82	688	192
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	194	422	58	512	1644	349	230	1361	153	82	688	192
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	194	422	58	512	1644	349	230	1361	153	82	688	192
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	194	422	58	512	1644	349	230	1361	153	82	688	192

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.62	0.38	2.00	3.00	1.00	2.00	2.69	0.31	1.00	3.00	1.00
Final Sat.:	3150	4922	677	3150	5700	1750	3150	5033	566	1750	5700	1750

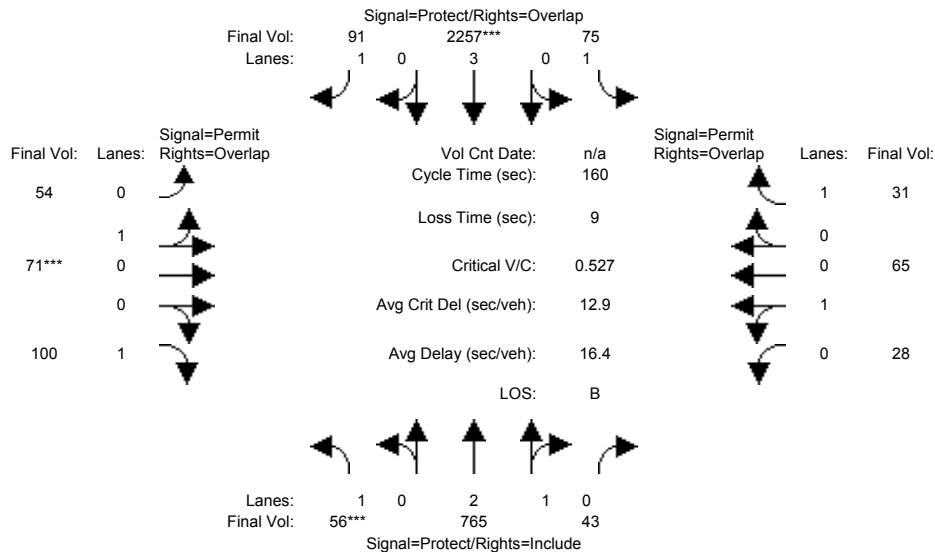
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.06	0.09	0.09	0.16	0.29	0.20	0.07	0.27	0.27	0.05	0.12	0.11
Crit Moves:	****			****			****			****		
Green Time:	13.7	26.8	26.8	50.8	64.0	90.5	26.5	60.0	60.0	10.4	43.8	94.7
Volume/Cap:	0.72	0.51	0.51	0.51	0.72	0.35	0.44	0.72	0.72	0.72	0.44	0.19
Delay/Veh:	80.5	61.1	61.1	44.9	41.7	19.1	60.7	44.1	44.1	93.5	48.1	15.1
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:	80.5	61.1	61.1	44.9	41.7	19.1	60.7	44.1	44.1	93.5	48.1	15.1
LOS by Move:	F	E	E	D	D	B-	E	D	D	F	D	B
DesignQueue:	242	308	308	489	791	386	262	769	769	187	382	195

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	56	755	43	75	2252	91	54	71	100	28	65	31
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:	56	755	43	75	2252	91	54	71	100	28	65	31
Added Vol:	0	10	0	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	56	765	43	75	2257	91	54	71	100	28	65	31
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	765	43	75	2257	91	54	71	100	28	65	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	765	43	75	2257	91	54	71	100	28	65	31
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	56	765	43	75	2257	91	54	71	100	28	65	31

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	0.43	0.57	1.00	0.30	0.70	1.00
Final Sat.:	1750	5302	298	1750	5700	1750	778	1022	1750	542	1258	1750

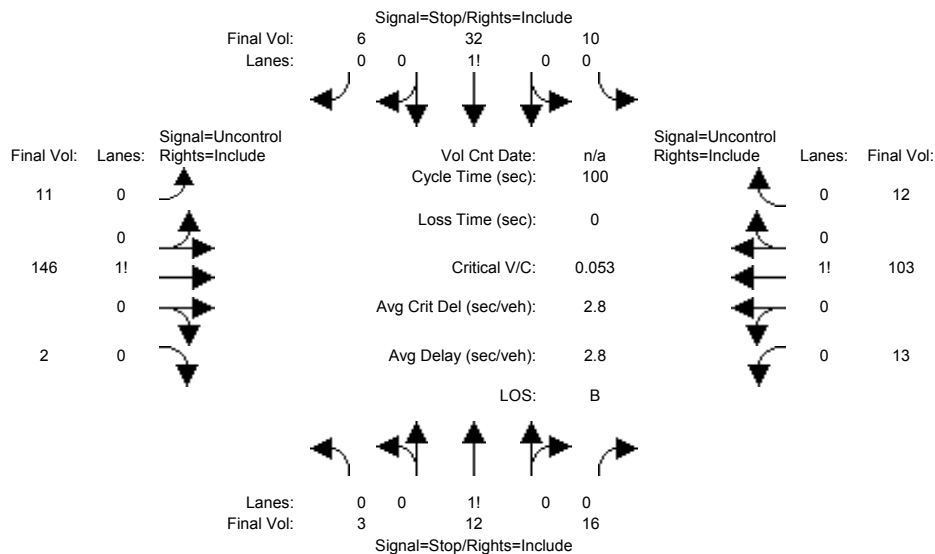
Capacity Analysis Module:												
Vol/Sat:	0.03	0.14	0.14	0.04	0.40	0.05	0.07	0.07	0.06	0.05	0.05	0.02
Crit Moves:	***			****			****					
Green Time:	9.7	99.7	99.7	30.2	120	120.2	21.1	21.1	30.8	21.1	21.1	51.3
Volume/Cap:	0.53	0.23	0.23	0.23	0.53	0.07	0.53	0.53	0.30	0.39	0.39	0.06
Delay/Veh:	77.8	13.3	13.3	55.3	8.3	5.2	67.0	67.0	55.8	64.7	64.7	37.6
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:	77.8	13.3	13.3	55.3	8.3	5.2	67.0	67.0	55.8	64.7	64.7	37.6
LOS by Move:	E-	B	B	E+	A	A	E	E	E+	E	E	D+
DesignQueue:	128	239	239	148	464	55	259	259	198	192	192	51

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	3	12	16	10	32	6	10	146	2	13	102	12
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	12	16	10	32	6	10	146	2	13	102	12
Added Vol:	0	0	0	0	0	0	1	0	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	12	16	10	32	6	11	146	2	13	103	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	12	16	10	32	6	11	146	2	13	103	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	12	16	10	32	6	11	146	2	13	103	12
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	323	310	147	318	305	109	115	xxxx	xxxxx	148	xxxx	xxxxx
Potent Cap.:	634	608	905	639	612	950	1487	xxxx	xxxxx	1446	xxxx	xxxxx
Move Cap.:	597	598	905	610	602	950	1487	xxxx	xxxxx	1446	xxxx	xxxxx
Volume/Cap:	0.01	0.02	0.02	0.02	0.05	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.6	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	725	xxxxx	xxxx	633	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.2	xxxxx	xxxxx	11.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.2			11.2			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 12 16	10 32 6	11 146 2	13 103 12
ApproachDel:	10.2	11.2	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=31]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=366]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=48]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=366]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 12 16	10 32 6	11 146 2	13 103 12

Major Street Volume: 287
 Minor Approach Volume: 48
 Minor Approach Volume Threshold: 552

SIGNAL WARRANT DISCLAIMER

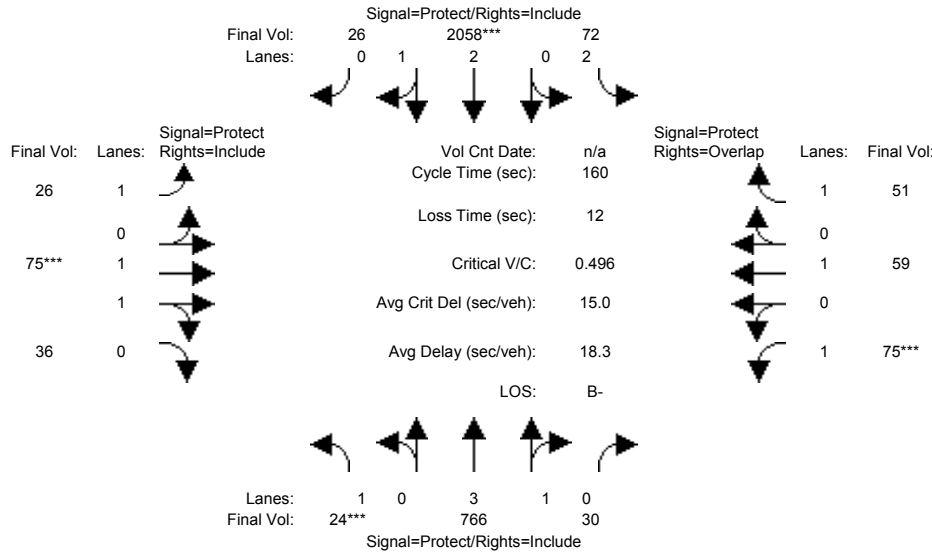
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	24	756	30	66	2053	25	26	75	36	75	59	50
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:	24	756	30	66	2053	25	26	75	36	75	59	50
Added Vol:	0	10	0	6	5	1	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	766	30	72	2058	26	26	75	36	75	59	51
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	24	766	30	72	2058	26	26	75	36	75	59	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	766	30	72	2058	26	26	75	36	75	59	51
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	24	766	30	72	2058	26	26	75	36	75	59	51

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.99	0.95	0.92	1.00	0.92
Lanes:	1.00	3.84	0.16	2.00	2.96	0.04	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1750	7217	283	3150	5530	70	1750	2499	1200	1750	1900	1750

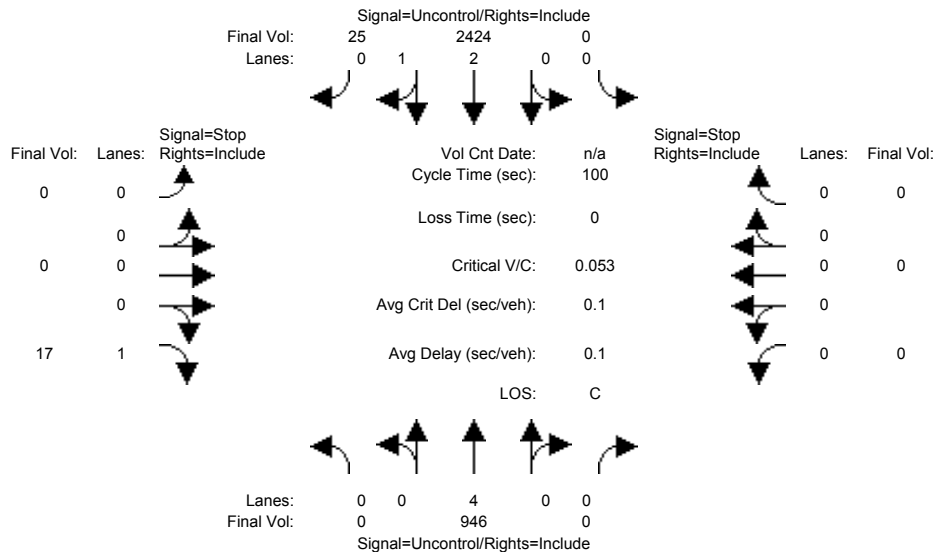
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.01	0.11	0.11	0.02	0.37	0.37	0.01	0.03	0.03	0.04	0.03	0.03
Crit Moves:	***			****			****			****		
Green Time:	7.0	88.1	88.1	36.3	117	117.5	9.7	10.0	10.0	13.5	13.8	50.2
Volume/Cap:	0.31	0.19	0.19	0.10	0.51	0.51	0.25	0.48	0.48	0.51	0.36	0.09
Delay/Veh:	76.5	18.1	18.1	49.0	9.1	9.1	72.9	74.1	74.1	72.9	70.2	38.9
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:	76.5	18.1	18.1	49.0	9.1	9.1	72.9	74.1	74.1	72.9	70.2	38.9
LOS by Move:	E-	B-	B-	D	A	A	E	E	E	E	E	D+
DesignQueue:	56	207	207	75	463	463	59	120	120	168	121	85

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave				Project Dwy (Restaurant)							
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:												
Base Vol:	0	929	0	0	2421	12	0	0	8	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:	0	929	0	0	2421	12	0	0	8	0	0	0
Added Vol:	0	17	0	0	3	13	0	0	9	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	946	0	0	2424	25	0	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	946	0	0	2424	25	0	0	17	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	946	0	0	2424	25	0	0	17	0	0	0

Critical Gap Module:												
Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	821	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	322	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	322	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.05	xxxx	xxxx	xxxx

Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	4.2	xxxx	xxxx	xxxxxx			
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	16.8	xxxxxx	xxxx	xxxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	xxxxxxx			xxxxxxx					16.8	xxxxxxx					
ApproachLOS:	*			*					C	*					

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 946 0	0 2424 25	0 0 17	0 0 0
ApproachDel:	xxxxxxx	xxxxxxx	16.8	xxxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=17]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=3412]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 946 0	0 2424 25	0 0 17	0 0 0

Major Street Volume: 3395

Minor Approach Volume: 17

Minor Approach Volume Threshold: -136 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

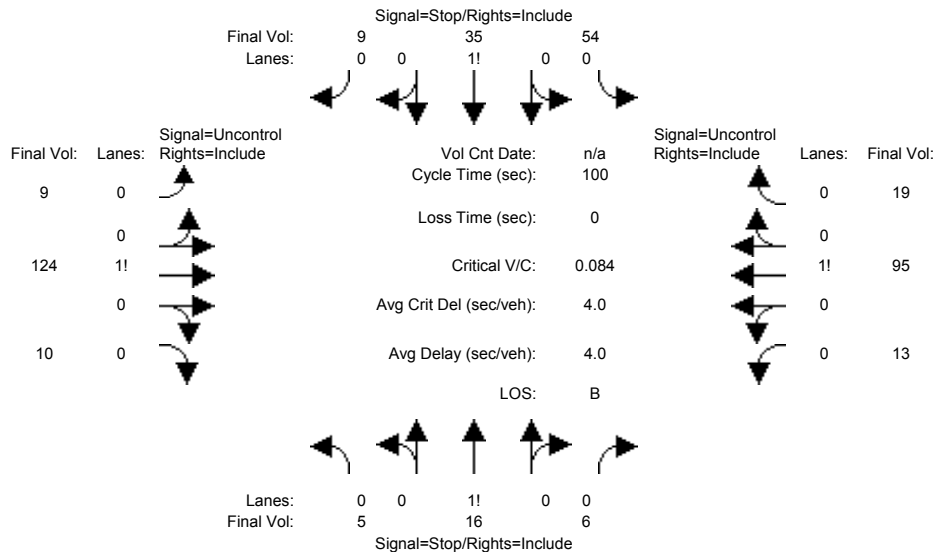
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	5	16	5	54	35	9	9	122	10	13	94	19
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	16	5	54	35	9	9	122	10	13	94	19
Added Vol:	0	0	1	0	0	0	0	2	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	16	6	54	35	9	9	124	10	13	95	19
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	5	16	6	54	35	9	9	124	10	13	95	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	16	6	54	35	9	9	124	10	13	95	19
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	300	287	129	289	283	105	114	xxxx	xxxxx	134	xxxx	xxxxx
Potent Cap.:	657	626	926	668	630	956	1488	xxxx	xxxxx	1463	xxxx	xxxxx
Move Cap.:	615	617	926	643	620	956	1488	xxxx	xxxxx	1463	xxxx	xxxxx
Volume/Cap:	0.01	0.03	0.01	0.08	0.06	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	666	xxxxx	xxxx	654	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.6	xxxxx	xxxxx	11.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.6			11.5			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	5 16 6	54 35 9	9 124 10	13 95 19
ApproachDel:	10.6	11.5	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=27]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=395]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=98]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=395]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	5 16 6	54 35 9	9 124 10	13 95 19

Major Street Volume: 270
 Minor Approach Volume: 98
 Minor Approach Volume Threshold: 569

SIGNAL WARRANT DISCLAIMER

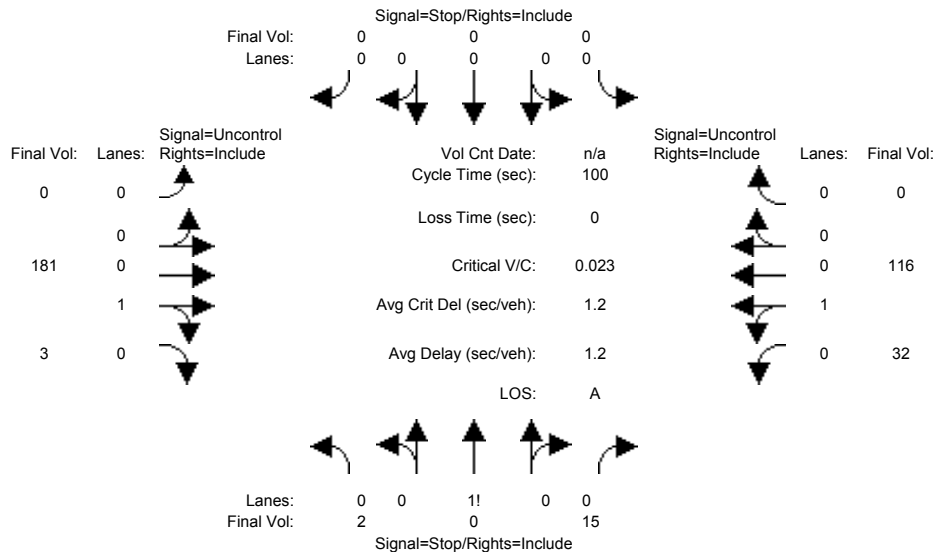
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	7	0	0	0	0	180	1	10	116	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:	1	0	7	0	0	0	0	180	1	10	116	0
Added Vol:	1	0	8	0	0	0	0	1	2	22	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	0	15	0	0	0	0	181	3	32	116	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	0	15	0	0	0	0	181	3	32	116	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	0	15	0	0	0	0	181	3	32	116	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	363	363	183	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	184	xxxxx	xxxxx
Potent Cap.:	641	568	865	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1403	xxxxx	xxxxx
Move Cap.:	629	555	865	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1403	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.02	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.02	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1.7	xxxxx	xxxxx
Control Del:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.6	xxxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	829	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.1	xxxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.4	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.6	xxxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.4			xxxxxxx			xxxxxxx		xxxxxxx			
ApproachLOS:	A			*			*		*			*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 15	0 0 0	0 181 3	32 116 0
ApproachDel:	9.4	xxxxxxx	xxxxxxx	xxxxxxx

```

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=17]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=349]
    FAIL - Total volume less than 650 for intersection
        with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 15	0 0 0	0 181 3	32 116 0

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Major Street Volume:      332
Minor Approach Volume:    17
Minor Approach Volume Threshold: 513
    
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SIGNAL WARRANT DISCLAIMER

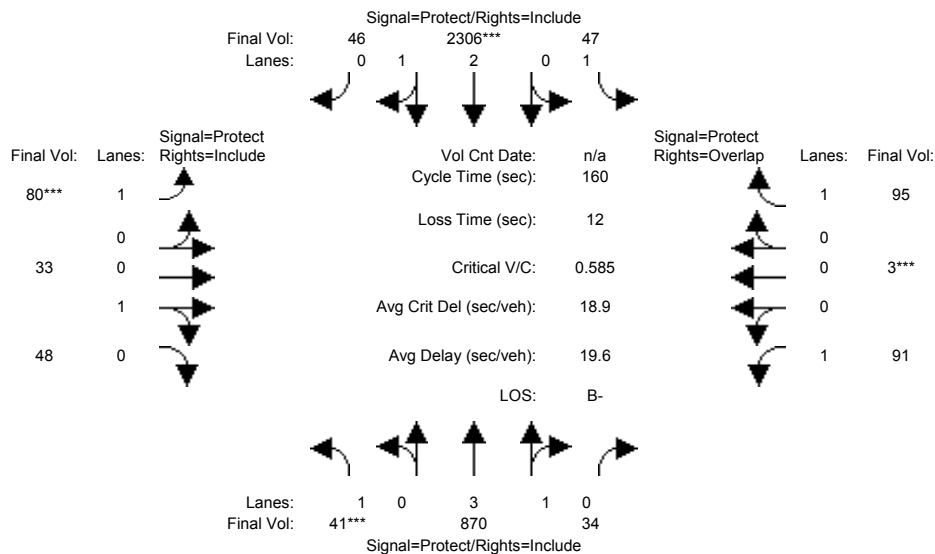
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	30	865	34	47	2298	32	75	33	44	91	3	95
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:	30	865	34	47	2298	32	75	33	44	91	3	95
Added Vol:	11	5	0	0	8	14	5	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	41	870	34	47	2306	46	80	33	48	91	3	95
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	41	870	34	47	2306	46	80	33	48	91	3	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	41	870	34	47	2306	46	80	33	48	91	3	95
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	41	870	34	47	2306	46	80	33	48	91	3	95

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.95	0.95	0.95
Lanes:	1.00	3.84	0.16	1.00	2.94	0.06	1.00	0.41	0.59	0.97	0.03	1.00
Final Sat.:	1750	7217	282	1750	5490	110	1750	733	1067	1743	57	1800

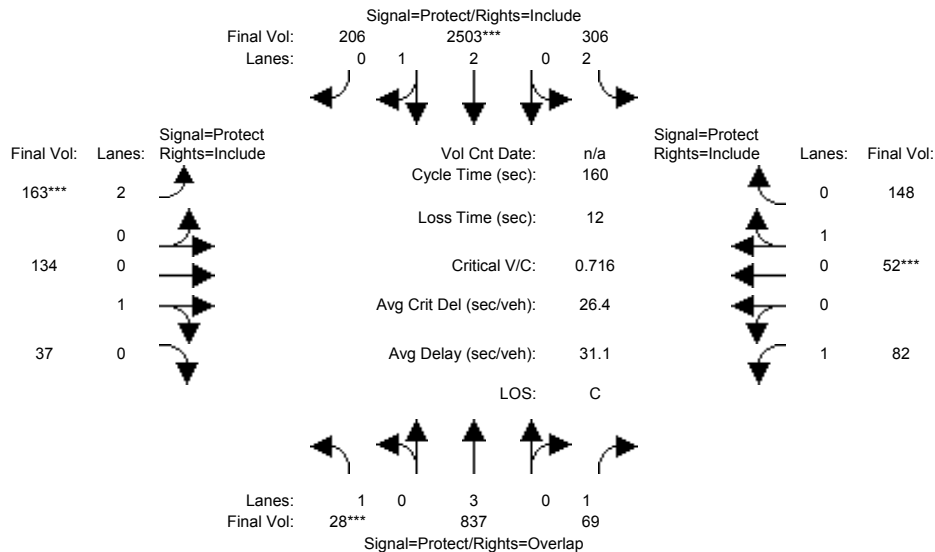
Capacity Analysis Module:												
Vol/Sat:	0.02	0.12	0.12	0.03	0.42	0.42	0.05	0.05	0.05	0.05	0.05	0.05
Crit Moves:	***			****			****			****		
Green Time:	7.0	89.0	89.0	32.3	114	114.3	12.4	14.5	14.5	12.1	14.2	46.5
Volume/Cap:	0.54	0.22	0.22	0.13	0.59	0.59	0.59	0.50	0.50	0.69	0.59	0.18
Delay/Veh:	82.2	17.9	17.9	52.5	11.5	11.5	77.9	71.6	71.6	79.3	72.9	42.6
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:	82.2	17.9	17.9	52.5	11.5	11.5	77.9	71.6	71.6	79.3	72.9	42.6
LOS by Move:	F	B	B	D-	B+	B+	E-	E	E	E-	E	D
DesignQueue:	95	233	233	91	569	569	180	175	175	207	204	160

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	28	827	68	306	2483	206	163	134	37	81	52	148
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:	28	827	68	306	2483	206	163	134	37	81	52	148
Added Vol:	0	10	1	0	20	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	28	837	69	306	2503	206	163	134	37	82	52	148
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	28	837	69	306	2503	206	163	134	37	82	52	148
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	837	69	306	2503	206	163	134	37	82	52	148
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	28	837	69	306	2503	206	163	134	37	82	52	148

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.99	0.95	0.83	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	2.00	2.76	0.24	2.00	0.78	0.22	1.00	0.26	0.74
Final Sat.:	1750	5700	1750	3150	5174	426	3150	1411	389	1750	468	1332

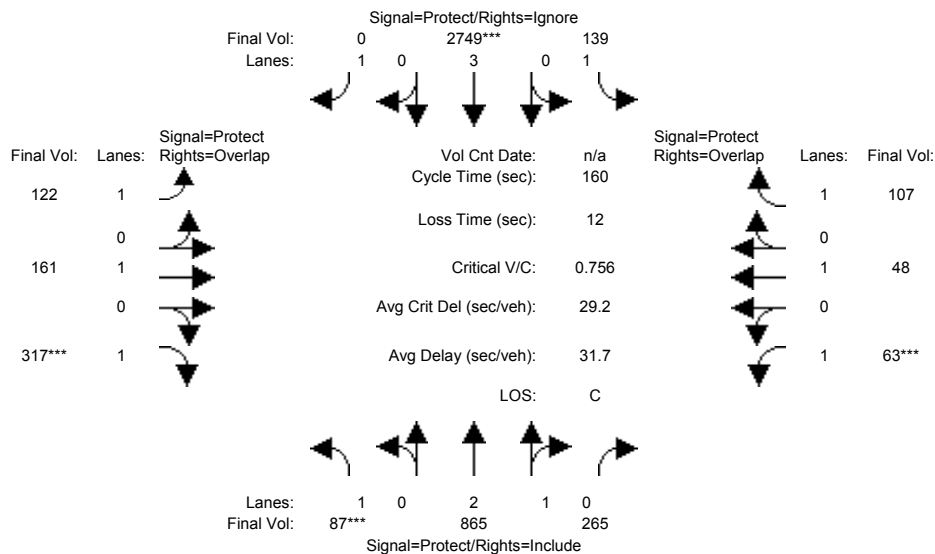
Capacity Analysis Module:												
Vol/Sat:	0.02	0.15	0.04	0.10	0.48	0.48	0.05	0.10	0.10	0.05	0.11	0.11
Crit Moves:	***			****			****			****		
Green Time:	7.0	67.7	79.4	44.8	105	105.5	11.3	23.8	23.8	11.7	24.2	24.2
Volume/Cap:	0.37	0.35	0.08	0.35	0.73	0.73	0.73	0.64	0.64	0.64	0.73	0.73
Delay/Veh:	77.3	31.3	21.2	46.2	18.8	18.8	84.8	69.2	69.2	82.4	74.7	74.7
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:	77.3	31.3	21.2	46.2	18.8	18.8	84.8	69.2	69.2	82.4	74.7	74.7
LOS by Move:	E-	C	C+	D	B-	B-	F	E	E	F	E	E
DesignQueue:	65	372	85	303	798	798	206	350	350	186	410	410

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	87	857	263	139	2732	338	122	161	313	63	48	107
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:	87	857	263	139	2732	338	122	161	313	63	48	107
Added Vol:	0	8	2	0	17	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	87	865	265	139	2749	338	122	161	317	63	48	107
User 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
PHF 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
PHF Volume:	87	865	265	139	2749	0	122	161	317	63	48	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	87	865	265	139	2749	0	122	161	317	63	48	107
PCE 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
MLF 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
Final Volume:	87	865	265	139	2749	0	122	161	317	63	48	107

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.27	0.73	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4285	1313	1750	5700	1750	1750	1900	1750	1750	1900	1750

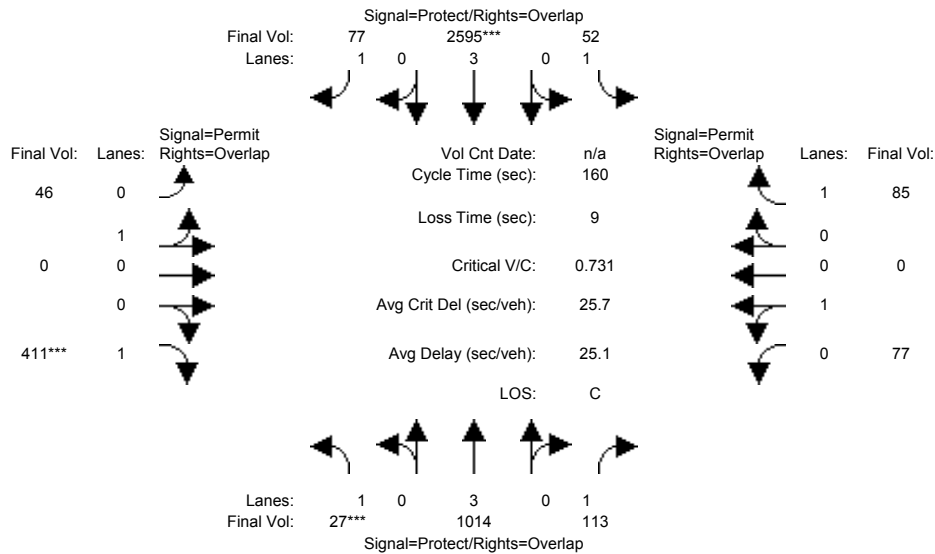
Capacity Analysis Module:												
Vol/Sat:	0.05	0.20	0.20	0.08	0.48	0.00	0.07	0.08	0.18	0.04	0.03	0.06
Crit Moves:	***			****			****	****		****	****	
Green Time:	10.5	80.8	80.8	31.8	102	0.0	18.7	27.8	38.3	7.6	16.7	48.5
Volume/Cap:	0.76	0.40	0.40	0.40	0.76	0.00	0.60	0.49	0.76	0.76	0.24	0.20
Delay/Veh:	98.0	24.7	24.7	56.6	21.2	0.0	71.9	60.8	64.2	107.3	66.4	41.5
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:	98.0	24.7	24.7	56.6	21.2	0.0	71.9	60.8	64.2	107.3	66.4	41.5
LOS by Move:	F	C	C	E+	C+	A	E	E	E	F	E	D
DesignQueue:	199	446	446	274	845	0	265	302	611	146	96	183

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	27	1008	111	52	2582	77	46	0	407	77	0	85
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:	27	1008	111	52	2582	77	46	0	407	77	0	85
Added Vol:	0	6	2	0	13	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	1014	113	52	2595	77	46	0	411	77	0	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	1014	113	52	2595	77	46	0	411	77	0	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1014	113	52	2595	77	46	0	411	77	0	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	1014	113	52	2595	77	46	0	411	77	0	85

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750

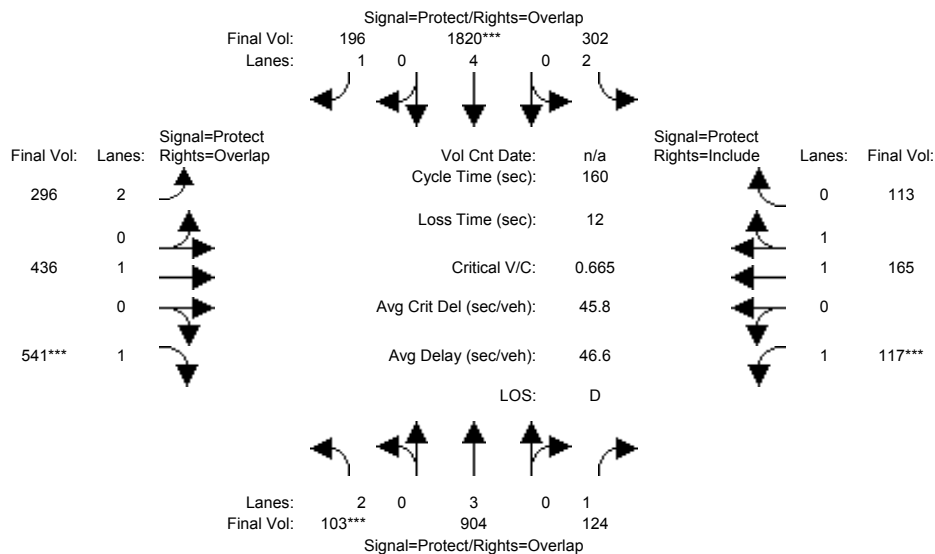
Capacity Analysis Module:												
Vol/Sat:	0.02	0.18	0.06	0.03	0.46	0.04	0.03	0.00	0.23	0.04	0.00	0.05
Crit Moves:	***			***			***		***	***		
Green Time:	7.0	87.0	87.0	21.4	101	101.4	42.6	0.0	49.6	42.6	0.0	64.0
Volume/Cap:	0.35	0.33	0.12	0.22	0.72	0.07	0.10	0.00	0.76	0.16	0.00	0.12
Delay/Veh:	77.1	20.3	17.8	62.4	20.4	11.2	44.3	0.0	55.9	45.2	0.0	30.4
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:	77.1	20.3	17.8	62.4	20.4	11.2	44.3	0.0	55.9	45.2	0.0	30.4
LOS by Move:	E-	C+	B	E	C+	B+	D	A	E+	D	A	C
DesignQueue:	63	359	127	110	800	69	80	0	730	134	0	125

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	102	898	124	302	1808	196	296	436	540	117	165	113
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:	102	898	124	302	1808	196	296	436	540	117	165	113
Added Vol:	1	6	0	0	12	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	103	904	124	302	1820	196	296	436	541	117	165	113
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	103	904	124	302	1820	196	296	436	541	117	165	113
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	103	904	124	302	1820	196	296	436	541	117	165	113
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	103	904	124	302	1820	196	296	436	541	117	165	113

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.16	0.84
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2195	1503

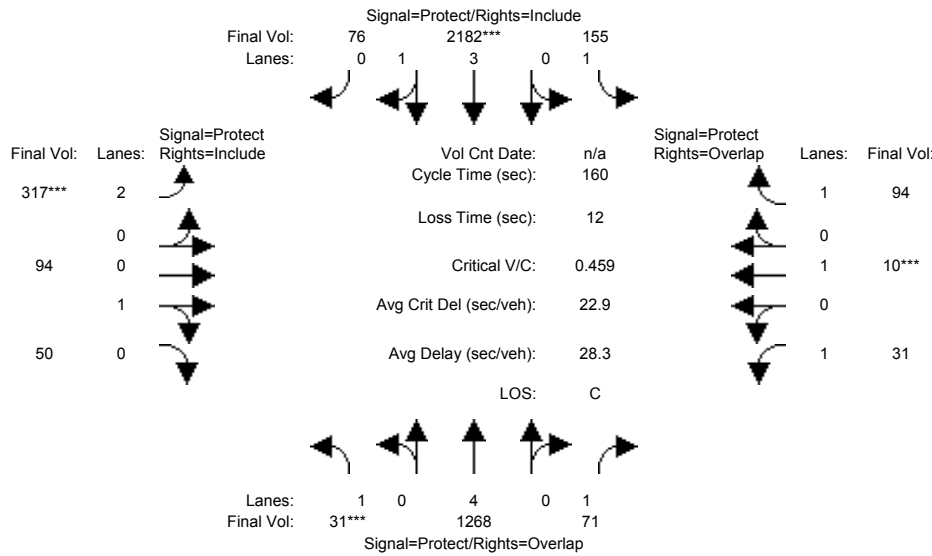
Capacity Analysis Module:												
Vol/Sat:	0.03	0.16	0.07	0.10	0.24	0.11	0.09	0.23	0.31	0.07	0.08	0.08
Crit Moves:	***			***			***		***	***		
Green Time:	7.9	40.8	56.9	24.7	57.6	102.0	44.4	63.8	71.7	16.1	35.5	35.5
Volume/Cap:	0.67	0.62	0.20	0.62	0.67	0.18	0.34	0.58	0.69	0.67	0.34	0.34
Delay/Veh:	85.3	53.6	35.9	65.8	43.7	11.9	46.3	38.6	37.9	78.7	52.6	52.6
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:	85.3	53.6	35.9	65.8	43.7	11.9	46.3	38.6	37.9	78.7	52.6	52.6
LOS by Move:	F	D-	D+	E	D	B+	D	D+	D+	E-	D-	D-
DesignQueue:	132	521	197	351	691	177	294	620	785	258	252	252

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	1262	71	155	2170	76	317	94	50	31	10	94
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:	31	1262	71	155	2170	76	317	94	50	31	10	94
Added Vol:	0	6	0	0	12	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	1268	71	155	2182	76	317	94	50	31	10	94
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	1268	71	155	2182	76	317	94	50	31	10	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	1268	71	155	2182	76	317	94	50	31	10	94
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	1268	71	155	2182	76	317	94	50	31	10	94

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.86	0.14	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7247	252	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.17	0.04	0.09	0.30	0.30	0.10	0.08	0.08	0.02	0.01	0.05
Crit Moves:	***			****			****			****		
Green Time:	7.0	68.7	83.8	36.5	98.2	98.2	32.8	27.7	27.7	15.1	10.0	46.5
Volume/Cap:	0.40	0.39	0.08	0.39	0.49	0.49	0.49	0.46	0.46	0.19	0.08	0.18
Delay/Veh:	77.9	31.3	18.9	52.9	17.2	17.2	56.8	60.6	60.6	67.3	71.0	42.7
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:	77.9	31.3	18.9	52.9	17.2	17.2	56.8	60.6	60.6	67.3	71.0	42.7
LOS by Move:	E-	C	B-	D-	B	B	E+	E	E	E	E	D
DesignQueue:	72	420	82	296	534	534	347	285	285	68	21	163

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	39	129	125	4	71	59	982	323	190	1699	54
Future Volume (vph)	70	39	129	125	4	71	59	982	323	190	1699	54
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5317		1304	3727	
Flt Permitted	0.76	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	1002	1373	1167	1304	5317		1304	3727	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	40	132	128	4	72	60	1002	330	194	1734	55
RTOR Reduction (vph)	0	0	93	0	0	51	0	55	0	0	3	0
Lane Group Flow (vph)	71	40	39	128	4	21	60	1277	0	194	1786	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	45.1		40.6	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	45.1		40.6	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.32		0.29	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	293	402	341	176	1712		378	1775	
v/s Ratio Prot		0.03			0.00		0.05	c0.24		0.15	c0.48	
v/s Ratio Perm	0.07		0.03	c0.13		0.02						
v/c Ratio	0.23	0.10	0.11	0.44	0.01	0.06	0.34	0.75		0.51	1.01	
Uniform Delay, d1	37.6	36.1	36.2	40.1	35.1	35.6	54.8	42.3		41.5	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.43		0.72	0.68	
Incremental Delay, d2	1.8	0.5	0.7	4.7	0.0	0.3	5.0	1.8		0.8	19.2	
Delay (s)	39.4	36.5	36.9	44.8	35.2	36.0	60.4	62.4		30.7	44.0	
Level of Service	D	D	D	D	D	D	E	E		C	D	
Approach Delay (s)		37.6			41.5			62.4			42.7	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	0	135	0	0	0	0	481	642	347	1808	0
Future Volume (vph)	130	0	135	0	0	0	0	481	642	347	1808	0
Ideal Flow (vphpl)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.86						1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1457						5559	1129	1304	3747	
Flt Permitted	0.95	1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1457						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	0	144	0	0	0	0	512	683	369	1923	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	357	0	0	0
Lane Group Flow (vph)	124	99	0	0	0	0	0	512	326	369	1923	0
Confl. Peds. (#/hr)									6			
Confl. Bikes (#/hr)									5			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	313						2171	441	341	2614	
v/s Ratio Prot	0.04	c0.07						0.09		c0.28	c0.51	
v/s Ratio Perm									0.29			
v/c Ratio	0.18	0.32						0.24	0.74	1.08	0.74	
Uniform Delay, d1	44.9	46.3						28.6	36.5	51.6	13.1	
Progression Factor	1.00	1.00						1.22	5.89	1.03	0.82	
Incremental Delay, d2	0.6	2.6						0.1	5.8	59.0	0.5	
Delay (s)	45.4	48.9						35.0	221.1	112.3	11.3	
Level of Service	D	D						C	F	F	B	
Approach Delay (s)		47.4			0.0			141.4			27.6	
Approach LOS		D			A			F			C	

Intersection Summary

HCM 2000 Control Delay	65.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	138.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	544	31	39	86	525	0	0	1612	558
Future Volume (vph)	0	0	0	544	31	39	86	525	0	0	1612	558
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1248	1167	1304	4722			4540	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1248	1167	1304	4722			4540	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	573	33	41	91	553	0	0	1697	587
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	44	0
Lane Group Flow (vph)	0	0	0	304	302	8	91	553	0	0	2240	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2584	
v/s Ratio Prot				c0.25	0.24		c0.07	0.12			c0.49	
v/s Ratio Perm						0.01						
v/c Ratio				1.27	1.25	0.04	0.55	0.16			0.87	
Uniform Delay, d1				56.5	56.5	45.8	57.4	5.6			25.6	
Progression Factor				1.00	1.00	1.00	1.17	0.53			0.65	
Incremental Delay, d2				150.9	143.3	0.3	12.7	0.1			1.5	
Delay (s)				207.4	199.7	46.1	79.7	3.1			18.1	
Level of Service				F	F	D	E	A			B	
Approach Delay (s)		0.0			193.6			13.9			18.1	
Approach LOS		A			F			B			B	

Intersection Summary

HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	138.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	238	373	354	153	8	137	219	173	37	1443	65
Future Volume (vph)	65	238	373	354	153	8	137	219	173	37	1443	65
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1361		2530	3453		1304	4689	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1361		2530	3453		1304	4689	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	262	410	389	168	9	151	241	190	41	1586	71
RTOR Reduction (vph)	0	0	84	0	1	0	0	98	0	0	5	0
Lane Group Flow (vph)	71	262	326	389	176	0	151	333	0	41	1652	0
Confl. Peds. (#/hr)							2			3		
Confl. Bikes (#/hr)			2				2			2		
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Effective Green, g (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Actuated g/C Ratio	0.08	0.24	0.31	0.22	0.38		0.07	0.29		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	107	332	360	560	519		177	1008		149	1577	
v/s Ratio Prot	0.05	0.19	c0.06	c0.15	0.13		0.06	0.10		0.03	c0.35	
v/s Ratio Perm			0.22									
v/c Ratio	0.66	0.79	0.91	0.69	0.34		0.85	0.33		0.28	1.05	
Uniform Delay, d1	62.4	49.7	46.2	50.1	30.8		64.4	38.8		56.7	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.48	1.87		1.00	1.00	
Incremental Delay, d2	14.4	17.2	28.7	7.0	0.4		37.5	0.9		1.0	36.3	
Delay (s)	76.8	66.9	74.9	57.1	31.1		68.5	73.4		57.7	82.8	
Level of Service	E	E	E	E	C		E	E		E	F	
Approach Delay (s)		72.2			49.0			72.1			82.2	
Approach LOS		E			D			E			F	

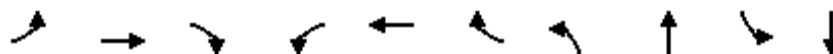
Intersection Summary

HCM 2000 Control Delay	73.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	40	132	128	4	72	60	1332	194	1789
v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.75	0.51	1.01
Control Delay	40.2	37.1	7.8	45.8	35.2	5.2	61.3	59.3	35.3	44.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	25.1
Total Delay	40.2	37.1	7.8	45.8	35.2	5.2	61.3	59.4	35.3	69.9
Queue Length 50th (ft)	49	27	0	95	3	0	46	255	148	-625
Queue Length 95th (ft)	94	58	51	161	12	26	m76	247	m229	#717
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	430	293	402	405	176	2576	378	1777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	115
Spillback Cap Reductn	0	0	0	0	0	4	0	267	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.58	0.51	1.08

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	158	512	683	369	1923
v/c Ratio	0.18	0.42	0.24	0.86	1.08	0.74
Control Delay	45.7	28.4	35.3	44.4	108.2	11.5
Queue Delay	0.0	0.1	0.0	49.4	9.7	19.4
Total Delay	45.7	28.4	35.3	93.8	117.9	30.9
Queue Length 50th (ft)	51	70	112	465	-354	272
Queue Length 95th (ft)	82	149	140	#625	m#448	m221
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	372	2171	798	341	2614
Starvation Cap Reductn	0	0	0	184	78	746
Spillback Cap Reductn	0	10	0	0	0	571
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	0.24	1.11	1.40	1.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



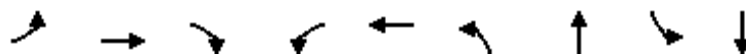
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	304	302	41	91	553	2284
v/c Ratio	1.27	1.25	0.15	0.55	0.16	0.87
Control Delay	195.7	188.7	6.6	80.8	3.1	17.6
Queue Delay	0.1	0.1	0.0	0.9	0.4	46.7
Total Delay	195.8	188.8	6.6	81.7	3.5	64.3
Queue Length 50th (ft)	~366	~360	0	88	37	548
Queue Length 95th (ft)	#565	#558	20	150	45	m578
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	273	164	3463	2627
Starvation Cap Reductn	0	0	0	10	2314	772
Spillback Cap Reductn	1	1	1	0	123	279
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.28	1.26	0.15	0.59	0.48	1.23

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Existing + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	262	410	389	177	151	431	41	1657
v/c Ratio	0.58	0.81	0.93	0.69	0.34	0.93	0.38	0.26	1.01
Control Delay	78.5	70.3	56.1	57.6	34.9	89.1	51.1	57.8	70.3
Queue Delay	0.0	0.0	15.3	0.0	0.0	0.0	0.6	0.0	34.1
Total Delay	78.5	70.3	71.3	57.6	34.9	89.1	51.7	57.8	104.4
Queue Length 50th (ft)	63	227	200	169	116	22	118	34	~448
Queue Length 95th (ft)	113	#368	#395	228	196	#124	158	72	#537
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	519	162	1145	186	1636
Starvation Cap Reductn	0	0	0	0	0	0	381	0	0
Spillback Cap Reductn	0	0	34	0	0	0	0	0	459
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.81	1.01	0.69	0.34	0.93	0.56	0.22	1.41

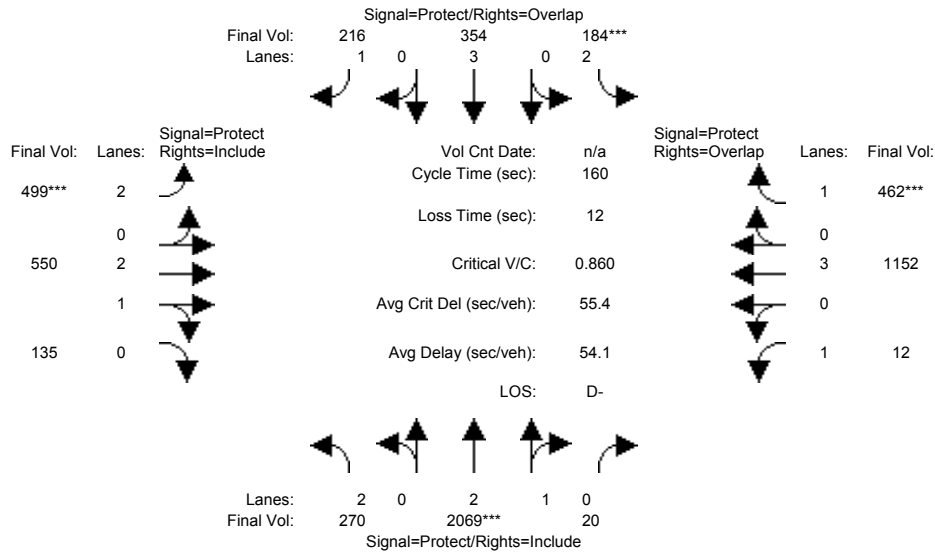
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	270	2069	20	184	354	216	499	550	135	12	1152	462
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:	270	2069	20	184	354	216	499	550	135	12	1152	462
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	270	2069	20	184	354	216	499	550	135	12	1152	462
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	270	2069	20	184	354	216	499	550	135	12	1152	462
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	270	2069	20	184	354	216	499	550	135	12	1152	462

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.39	0.61	1.00	3.00	1.00
Final Sat.:	3150	5546	54	3150	5700	1750	3150	4495	1103	1750	5700	1750

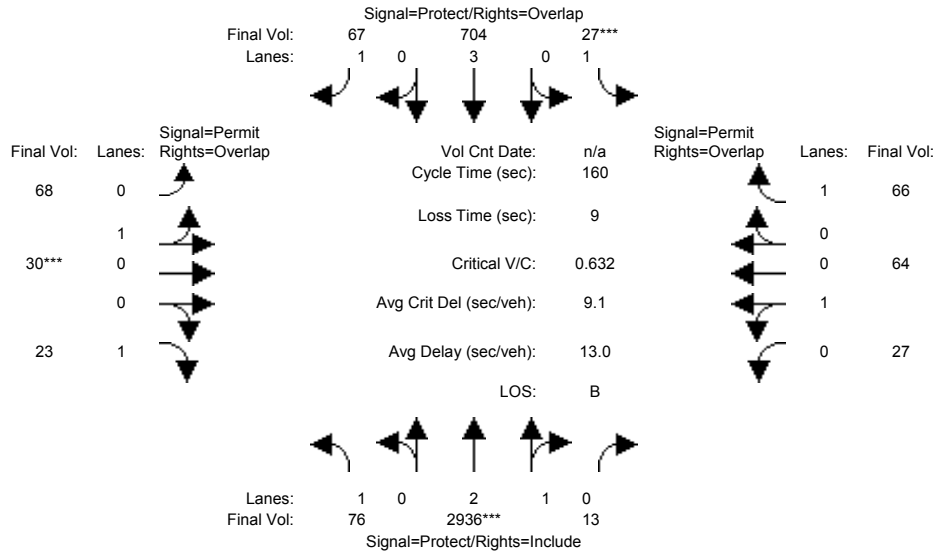
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.09	0.37	0.37	0.06	0.06	0.12	0.16	0.12	0.12	0.01	0.20	0.26
Crit Moves:	****			****			****			****		
Green Time:	46.4	69.4	69.4	10.9	33.9	63.3	29.5	49.9	49.9	17.8	38.3	49.1
Volume/Cap:	0.30	0.86	0.86	0.86	0.29	0.31	0.86	0.39	0.39	0.06	0.85	0.86
Delay/Veh:	44.3	44.3	44.3	101.6	53.2	33.6	75.6	43.3	43.3	63.7	63.1	65.4
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:	44.3	44.3	44.3	101.6	53.2	33.6	75.6	43.3	43.3	63.7	63.1	65.4
LOS by Move:	D	D	D	F	D-	C-	E-	D	D	E	E	E
DesignQueue:	263	989	989	233	210	325	569	367	367	26	686	830

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	76	2936	13	27	704	67	68	30	23	27	64	66
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:	76	2936	13	27	704	67	68	30	23	27	64	66
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	76	2936	13	27	704	67	68	30	23	27	64	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	76	2936	13	27	704	67	68	30	23	27	64	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	76	2936	13	27	704	67	68	30	23	27	64	66

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.69	0.31	1.00	0.30	0.70	1.00
Final Sat.:	1750	5575	25	1750	5700	1750	1249	551	1750	534	1266	1750

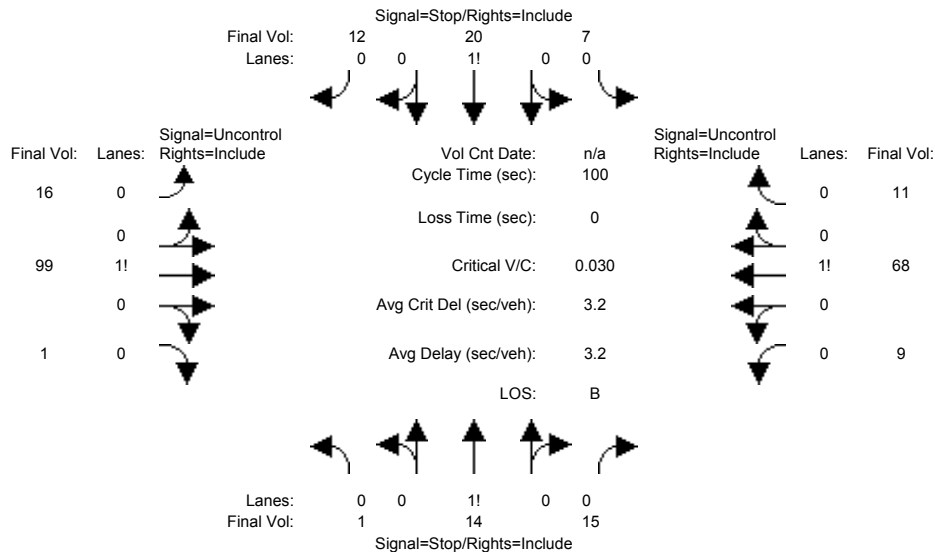
Capacity Analysis Module:												
Vol/Sat:	0.04	0.53	0.53	0.02	0.12	0.04	0.05	0.05	0.01	0.05	0.05	0.04
Crit Moves:	****			****			****					
Green Time:	36.0	131	130.5	7.0	102	101.5	13.5	13.5	49.5	13.5	13.5	20.5
Volume/Cap:	0.19	0.65	0.65	0.35	0.19	0.06	0.65	0.65	0.04	0.60	0.60	0.29
Delay/Veh:	50.5	6.1	6.1	77.1	12.2	11.1	80.2	80.2	38.7	77.1	77.1	63.9
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:	50.5	6.1	6.1	77.1	12.2	11.1	80.2	80.2	38.7	77.1	77.1	63.9
LOS by Move:	D	A	A	E-	B	B+	F	F	D+	E-	E-	E
DesignQueue:	144	476	476	63	197	60	214	214	38	198	198	140

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	14	15	7	20	12	16	99	1	9	68	11
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:	1	14	15	7	20	12	16	99	1	9	68	11
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	14	15	7	20	12	16	99	1	9	68	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	1	14	15	7	20	12	16	99	1	9	68	11
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	239	229	100	238	224	74	79	xxxx	xxxxx	100	xxxx	xxxxx
Potent Cap.:	719	675	962	721	679	994	1532	xxxx	xxxxx	1505	xxxx	xxxxx
Move Cap.:	686	663	962	690	668	994	1532	xxxx	xxxxx	1505	xxxx	xxxxx
Volume/Cap:	0.00	0.02	0.02	0.01	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	786	xxxxx	xxxx	747	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	9.8	xxxxx	xxxxx	10.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	B	*	*	*	*	*	*	*
ApproachDel:		9.8			10.1		xxxxxxx		xxxxxxx			
ApproachLOS:		A			B		*		*	*		*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	1	14	15		7	20	12		16	99	1		9	68	11				
ApproachDel:	9.8				10.1				xxxxxx				xxxxxx						

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=30]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=273]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=39]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=273]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	1	14	15		7	20	12		16	99	1		9	68	11					
Major Street Volume:					204															
Minor Approach Volume:					39															
Minor Approach Volume Threshold:					643															

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER

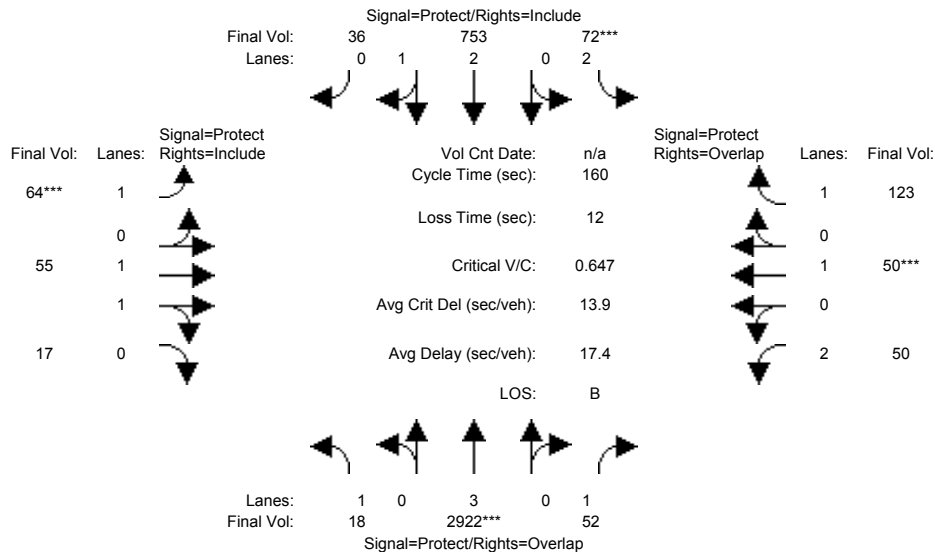
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	18	2922	52	72	753	36	64	55	17	50	50	123
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	2922	52	72	753	36	64	55	17	50	50	123
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	2922	52	72	753	36	64	55	17	50	50	123
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2922	52	72	753	36	64	55	17	50	50	123
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	18	2922	52	72	753	36	64	55	17	50	50	123

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.86	0.14	1.00	1.51	0.49	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5344	255	1750	2826	873	3150	1900	1750

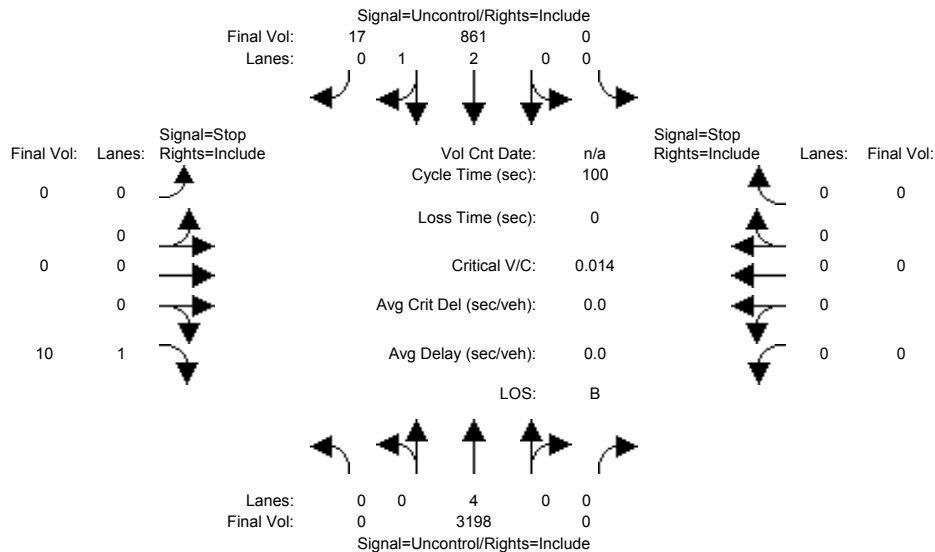
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.01	0.51	0.03	0.02	0.14	0.14	0.04	0.02	0.02	0.02	0.03	0.07
Crit Moves:	****			****			****			****		
Green Time:	30.6	122	130.0	7.0	98.6	98.6	8.7	11.0	11.0	7.7	10.0	17.0
Volume/Cap:	0.05	0.67	0.04	0.52	0.23	0.23	0.67	0.28	0.28	0.33	0.42	0.66
Delay/Veh:	52.9	9.5	2.9	78.5	13.7	13.7	91.2	71.4	71.4	74.9	74.6	77.3
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:	52.9	9.5	2.9	78.5	13.7	13.7	91.2	71.4	71.4	74.9	74.6	77.3
LOS by Move:	D-	A	A	E-	B	B	F	E	E	E	E	E-
DesignQueue:	35	590	24	93	237	237	147	77	77	64	105	270

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave			Project Dwy (Restaurant)								
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	3198	0	0	861	17	0	0	10	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:	0	3198	0	0	861	17	0	0	10	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	3198	0	0	861	17	0	0	10	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	0	3198	0	0	861	17	0	0	10	0	0	0

Critical Gap Module:	North Bound			South Bound			East Bound			West Bound		
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx

Capacity Module:	North Bound			South Bound			East Bound			West Bound		
Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	296	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	707	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	707	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx

Level Of Service Module:	North Bound			South Bound			East Bound			West Bound		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.2	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	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:	xxxxxxx			xxxxxxx					10.2	xxxxxxx		
ApproachLOS:	*			*					B	*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3198 0	0 861 17	0 0 10	0 0 0
ApproachDel:	xxxxxx	xxxxxx	10.2	xxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=10]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=4086]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3198 0	0 861 17	0 0 10	0 0 0

Major Street Volume: 4076
 Minor Approach Volume: 10
 Minor Approach Volume Threshold: -199 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

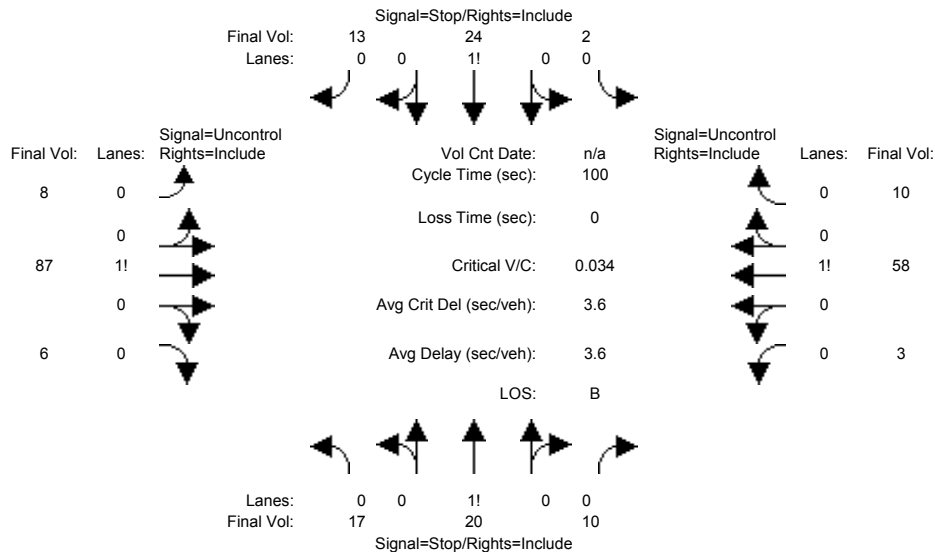
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	17	20	10	2	24	13	8	87	6	3	58	10
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:	17	20	10	2	24	13	8	87	6	3	58	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	20	10	2	24	13	8	87	6	3	58	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	20	10	2	24	13	8	87	6	3	58	10
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	194	180	90	190	178	63	68	xxxx	xxxxxx	93	xxxx	xxxxxx
Potent Cap.:	770	717	973	774	719	1007	1546	xxxx	xxxxxx	1514	xxxx	xxxxxx
Move Cap.:	737	712	973	746	714	1007	1546	xxxx	xxxxxx	1514	xxxx	xxxxxx
Volume/Cap:	0.02	0.03	0.01	0.00	0.03	0.01	0.01	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.4	xxxx	xxxxxx	0.1	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.3	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	765	xxxxxx	xxxx	793	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.0	xxxxxx	xxxxxx	9.8	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	A	*	*	*	*	*	*	*
ApproachDel:	10.0			9.8			xxxxxxx			xxxxxxx		
ApproachLOS:		B			A			*			*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled								
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	17	20	10		2	24	13		8	87	6		3	58	10					
ApproachDel:	10.0				9.8				xxxxxx			xxxxxx								

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=47]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=258]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=39]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=258]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled								
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	17	20	10		2	24	13		8	87	6		3	58	10					
Major Street Volume:					172															
Minor Approach Volume:					47															
Minor Approach Volume Threshold:					689															

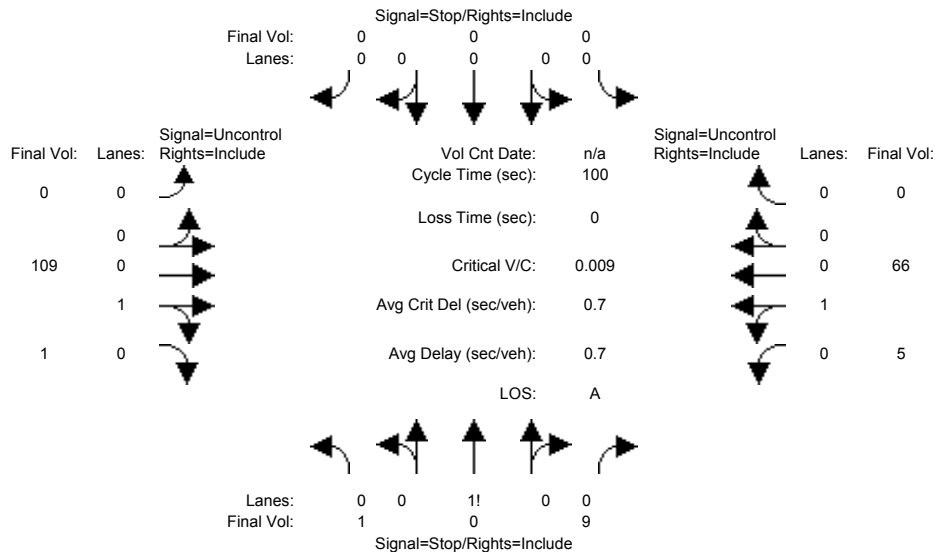
-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	9	0	0	0	0	109	1	5	66	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:	1	0	9	0	0	0	0	109	1	5	66	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	9	0	0	0	0	109	1	5	66	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	0	9	0	0	0	0	109	1	5	66	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	186	186	110	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	110	xxxxx	xxxxx
Potent Cap.:	808	712	950	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1493	xxxxx	xxxxx
Move Cap.:	806	710	950	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1493	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.00	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.3	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.4	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	933	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	8.9	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.4	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	8.9			xxxxxxx			xxxxxxx		xxxxxxx		xxxxxxx	
ApproachLOS:	A			*			*		*		*	

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 9	0 0 0	0 109 1	5 66 0
ApproachDel:	8.9	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=10]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=191]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 9	0 0 0	0 109 1	5 66 0

Major Street Volume: 181
 Minor Approach Volume: 10
 Minor Approach Volume Threshold: 675

SIGNAL WARRANT DISCLAIMER

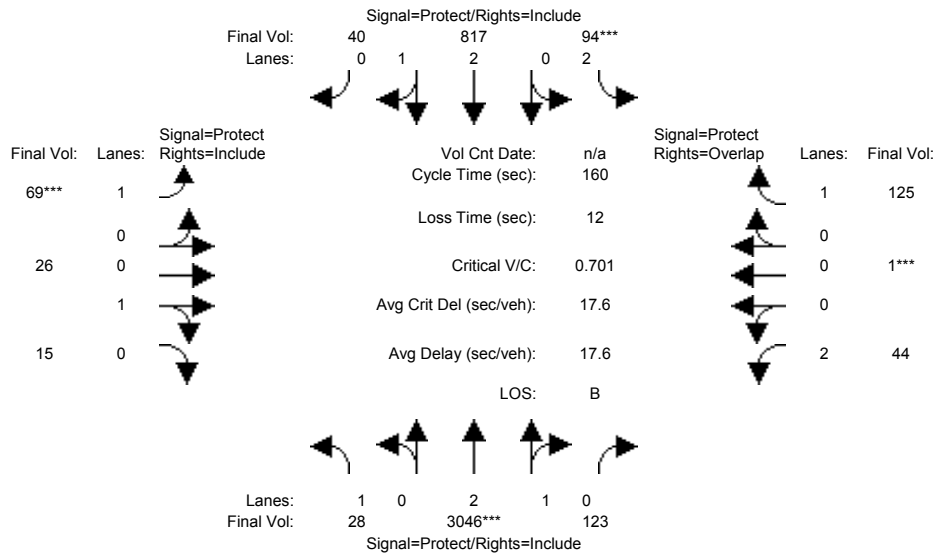
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	28	3046	123	94	817	40	69	26	15	44	1	125
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:	28	3046	123	94	817	40	69	26	15	44	1	125
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	28	3046	123	94	817	40	69	26	15	44	1	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	3046	123	94	817	40	69	26	15	44	1	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	28	3046	123	94	817	40	69	26	15	44	1	125

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	2.88	0.12	2.00	2.85	0.15	1.00	0.63	0.37	1.96	0.04	1.00
Final Sat.:	1750	5382	217	3150	5338	261	1750	1141	659	3428	78	1750

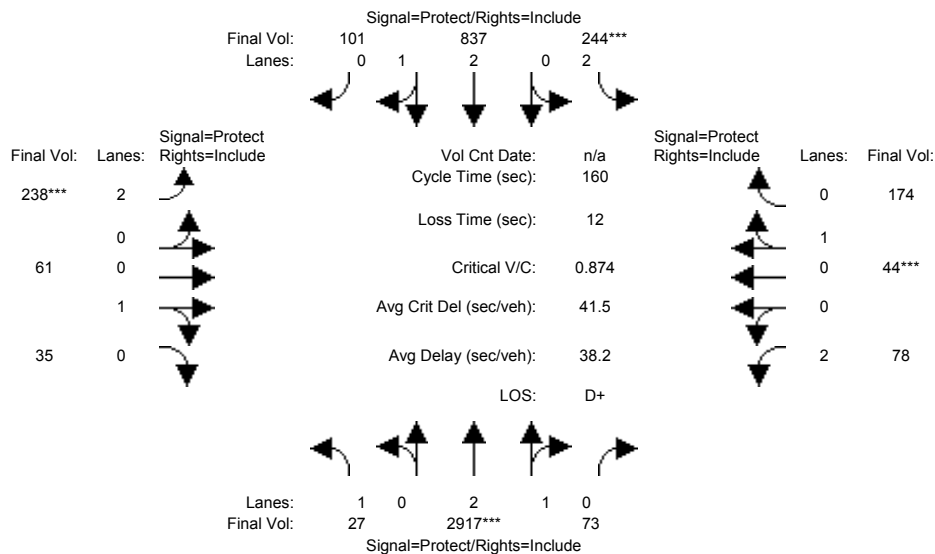
Capacity Analysis Module:												
Vol/Sat:	0.02	0.57	0.57	0.03	0.15	0.15	0.04	0.02	0.02	0.01	0.01	0.07
Crit Moves:	****			****			****			****		
Green Time:	28.8	122	122.5	7.0	101	100.7	8.5	10.9	10.9	7.6	10.0	17.0
Volume/Cap:	0.09	0.74	0.74	0.68	0.24	0.24	0.74	0.33	0.33	0.27	0.21	0.67
Delay/Veh:	54.8	10.8	10.8	88.5	13.0	13.0	101.2	72.7	72.7	73.7	71.4	75.7
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:	54.8	10.8	10.8	88.5	13.0	13.0	101.2	72.7	72.7	73.7	71.4	75.7
LOS by Move:	D-	B+	B+	F	B	B	F	E	E	E	E	E-
DesignQueue:	56	659	659	121	250	250	159	90	90	52	51	275

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	27	2917	73	244	837	101	238	61	35	78	44	174
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:	27	2917	73	244	837	101	238	61	35	78	44	174
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	2917	73	244	837	101	238	61	35	78	44	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	2917	73	244	837	101	238	61	35	78	44	174
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	2917	73	244	837	101	238	61	35	78	44	174

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.92	0.08	2.00	2.67	0.33	2.00	0.64	0.36	2.00	0.20	0.80
Final Sat.:	1750	5463	137	3150	4996	603	3150	1144	656	3150	363	1437

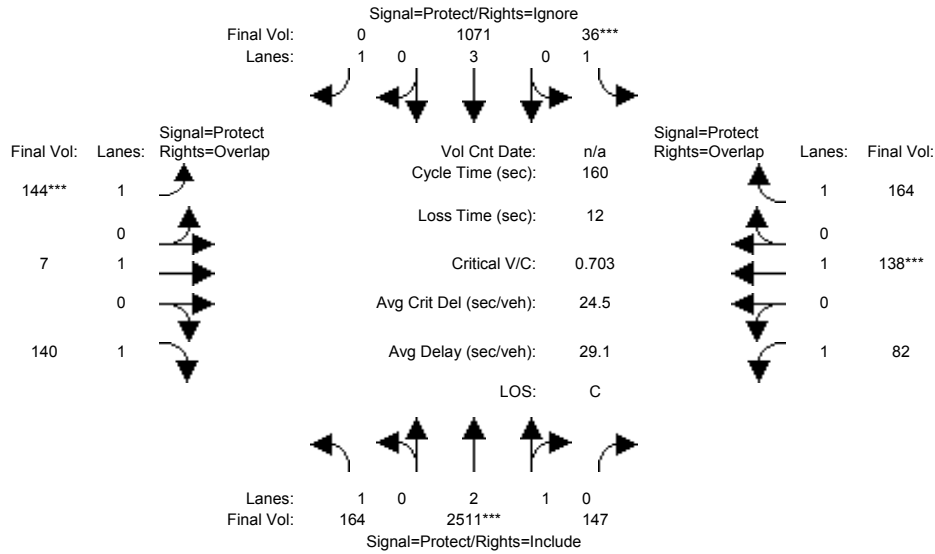
Capacity Analysis Module:												
Vol/Sat:	0.02	0.53	0.53	0.08	0.17	0.17	0.08	0.05	0.05	0.02	0.12	0.12
Crit Moves:	****			****			****			****		
Green Time:	23.2	97.8	97.8	14.2	88.8	88.8	13.8	21.2	21.2	14.8	22.2	22.2
Volume/Cap:	0.11	0.87	0.87	0.87	0.30	0.30	0.87	0.40	0.40	0.27	0.87	0.87
Delay/Veh:	59.6	28.7	28.7	96.8	19.1	19.1	97.4	64.7	64.7	68.0	94.5	94.5
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:	59.6	28.7	28.7	96.8	19.1	19.1	97.4	64.7	64.7	68.0	94.5	94.5
LOS by Move:	E+	C	C	F	B-	B-	F	E	E	E	F	F
Design Queue:	56	1020	1020	304	329	329	297	198	198	95	455	455

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	164	2511	147	36	1071	330	144	7	140	82	138	164
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:	164	2511	147	36	1071	330	144	7	140	82	138	164
User 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
PHF 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
PHF Volume:	164	2511	147	36	1071	0	144	7	140	82	138	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	164	2511	147	36	1071	0	144	7	140	82	138	164
PCE 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
MLF 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
Final Volume:	164	2511	147	36	1071	0	144	7	140	82	138	164

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5290	310	1750	5700	1750	1750	1900	1750	1750	1900	1750

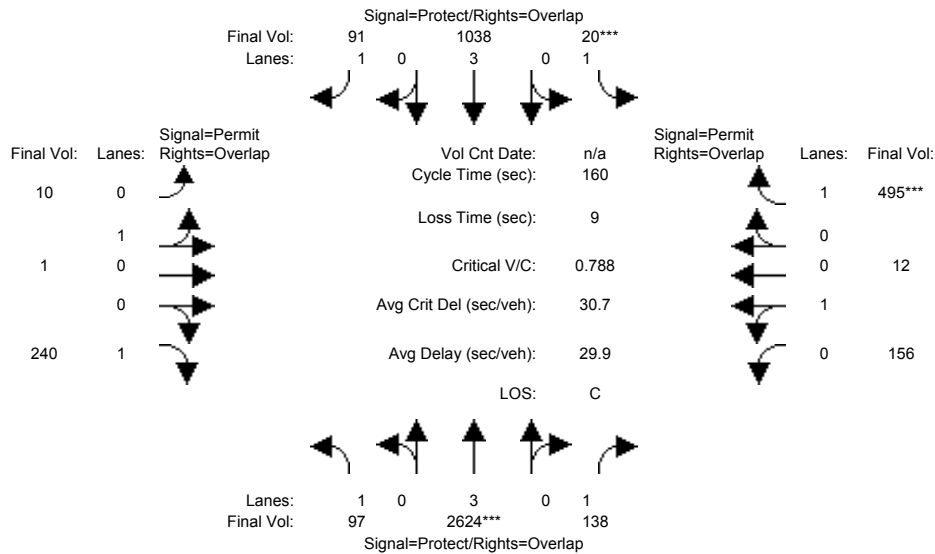
Capacity Analysis Module:												
Vol/Sat:	0.09	0.47	0.47	0.02	0.19	0.00	0.08	0.00	0.08	0.05	0.07	0.09
Crit Moves:	****			****			****			****		
Green Time:	37.7	106	106.3	7.0	75.6	0.0	18.4	19.8	57.5	14.9	16.3	23.3
Volume/Cap:	0.40	0.71	0.71	0.47	0.40	0.00	0.71	0.03	0.22	0.50	0.71	0.64
Delay/Veh:	52.2	17.8	17.8	79.2	27.5	0.0	79.7	61.7	35.8	71.6	81.6	70.1
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:	52.2	17.8	17.8	79.2	27.5	0.0	79.7	61.7	35.8	71.6	81.6	70.1
LOS by Move:	D-	B	B	E-	C	A	E-	E	D+	E	F	E
Design Queue:	310	769	769	84	440	0	314	14	221	182	281	347

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
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Intersection #11: N Mathilda Ave / Indio Ave



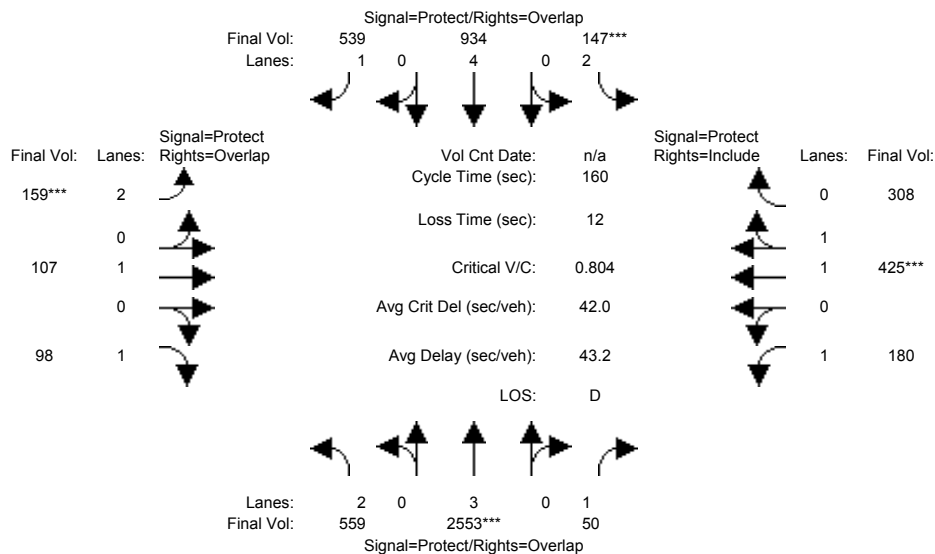
Street Name:	N Mathilda Ave						Indio Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	97	2624	138	20	1038	91	10	1	240	156	12	495
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:	97	2624	138	20	1038	91	10	1	240	156	12	495
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	2624	138	20	1038	91	10	1	240	156	12	495
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2624	138	20	1038	91	10	1	240	156	12	495
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	97	2624	138	20	1038	91	10	1	240	156	12	495
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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.91	0.09	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1636	164	1750	1671	129	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.46	0.08	0.01	0.18	0.05	0.01	0.01	0.14	0.09	0.09	0.28
Crit Moves:	****			****						****		
Green Time:	23.7	94.8	94.8	7.0	78.0	78.0	49.2	49.2	73.0	49.2	49.2	56.2
Volume/Cap:	0.37	0.78	0.13	0.26	0.37	0.11	0.02	0.02	0.30	0.30	0.30	0.80
Delay/Veh:	62.3	25.8	14.5	75.8	25.8	22.2	38.6	38.6	27.6	42.6	42.6	54.6
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:	62.3	25.8	14.5	75.8	25.8	22.2	38.6	38.6	27.6	42.6	42.6	54.6
LOS by Move:	E	C	B	E-	C	C+	D+	D+	C	D	D	D-
Design Queue:	202	902	139	46	414	114	18	18	327	280	280	837

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Intersection #12: N Mathilda Ave / W Maude Ave



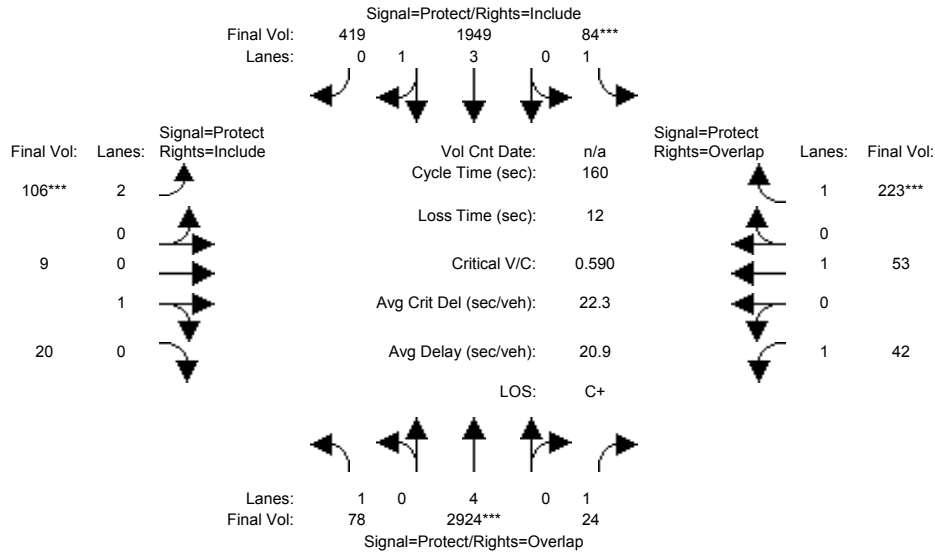
Street Name:	N Mathilda Ave						W Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	559	2553	50	147	934	539	159	107	98	180	425	308
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:	559	2553	50	147	934	539	159	107	98	180	425	308
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	559	2553	50	147	934	539	159	107	98	180	425	308
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	559	2553	50	147	934	539	159	107	98	180	425	308
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	559	2553	50	147	934	539	159	107	98	180	425	308
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.14	0.86
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2144	1554
Capacity Analysis Module:												
Vol/Sat:	0.18	0.45	0.03	0.05	0.12	0.31	0.05	0.06	0.06	0.10	0.20	0.20
Crit Moves:	****			****			****			****		
Green Time:	40.2	89.2	120.0	9.3	58.3	68.4	10.1	18.7	58.9	30.8	39.5	39.5
Volume/Cap:	0.71	0.80	0.04	0.80	0.34	0.72	0.80	0.48	0.15	0.53	0.80	0.80
Delay/Veh:	57.5	29.9	5.2	96.5	36.9	41.4	94.7	67.7	34.0	59.8	61.8	61.8
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:	57.5	29.9	5.2	96.5	36.9	41.4	94.7	67.7	34.0	59.8	61.8	61.8
LOS by Move:	E+	C	A	F	D+	D	F	E	C-	E+	E	E
Design Queue:	589	949	30	188	341	811	202	213	152	360	665	665

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Background AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	78	2924	24	84	1949	419	106	9	20	42	53	223
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:	78	2924	24	84	1949	419	106	9	20	42	53	223
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	2924	24	84	1949	419	106	9	20	42	53	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	2924	24	84	1949	419	106	9	20	42	53	223
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	78	2924	24	84	1949	419	106	9	20	42	53	223

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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.26	0.74	2.00	0.31	0.69	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	6171	1327	3150	559	1241	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.04	0.38	0.01	0.05	0.32	0.32	0.03	0.02	0.02	0.02	0.03	0.13
Crit Moves:	****			****			****			****		
Green Time:	14.5	104	116.9	13.0	103	102.8	9.1	18.0	18.0	12.6	21.5	34.6
Volume/Cap:	0.49	0.59	0.02	0.59	0.49	0.49	0.59	0.14	0.14	0.30	0.21	0.59
Delay/Veh:	71.6	15.9	5.9	77.3	15.0	15.0	78.7	64.3	64.3	70.8	62.0	58.8
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:	71.6	15.9	5.9	77.3	15.0	15.0	78.7	64.3	64.3	70.8	62.0	58.8
LOS by Move:	E	B	A	E-	B	B	E-	E	E	E	E	E+
DesignQueue:	173	629	16	189	520	520	135	61	61	94	103	437

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Background AM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	3	39	185	31	185	115	3032	79	27	984	96
Future Volume (vph)	26	3	39	185	31	185	115	3032	79	27	984	96
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5532		1304	3690	
Flt Permitted	0.74	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1010	1373	1144	1029	1373	1167	1304	5532		1304	3690	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	3	41	195	33	195	121	3192	83	28	1036	101
RTOR Reduction (vph)	0	0	32	0	0	150	0	2	0	0	8	0
Lane Group Flow (vph)	27	3	9	195	33	45	121	3273	0	28	1129	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.3		5.9	64.8	
Effective Green, g (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.3		5.9	64.8	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.12	0.61		0.05	0.54	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	314	262	235	314	267	156	3379		64	1992	
v/s Ratio Prot		0.00			0.02		0.09	c0.59		0.02	c0.31	
v/s Ratio Perm	0.03		0.01	c0.19		0.04						
v/c Ratio	0.12	0.01	0.04	0.83	0.11	0.17	0.78	0.97		0.44	0.57	
Uniform Delay, d1	36.6	35.7	35.9	44.0	36.5	37.1	51.2	22.3		55.4	18.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.11	0.63		0.54	0.30	
Incremental Delay, d2	0.2	0.0	0.1	20.9	0.1	0.3	19.2	9.3		4.0	0.3	
Delay (s)	36.9	35.7	36.0	64.9	36.7	37.4	76.3	23.2		33.7	5.8	
Level of Service	D	D	D	E	D	D	E	C		C	A	
Approach Delay (s)		36.3			50.0			25.1			6.4	
Approach LOS		D			D			C			A	

Intersection Summary

HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔						↑↑↑↑	↔	↔	↑↑↑↑	
Traffic Volume (vph)	1598	0	72	0	0	0	0	2471	772	80	1035	0
Future Volume (vph)	1598	0	72	0	0	0	0	2471	772	80	1035	0
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.98						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2373	1174						5559	1147	1304	3747	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2373	1174						5559	1147	1304	3747	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1665	0	75	0	0	0	0	2574	804	83	1078	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	417	0	0	0
Lane Group Flow (vph)	1165	516	0	0	0	0	0	2574	387	83	1078	0
Confl. Bikes (#/hr)									9			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Effective Green, g (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Actuated g/C Ratio	0.33	0.33						0.45	0.45	0.07	0.57	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	773	382						2487	513	94	2145	
v/s Ratio Prot	c0.49	0.44						c0.46		c0.06	0.29	
v/s Ratio Perm									0.34			
v/c Ratio	1.51	1.35						1.03	0.75	0.88	0.50	
Uniform Delay, d1	40.5	40.5						33.1	27.6	55.1	15.4	
Progression Factor	1.00	1.00						0.54	5.53	1.12	0.55	
Incremental Delay, d2	234.9	174.7						21.9	4.1	55.4	0.1	
Delay (s)	275.4	215.1						39.8	157.1	117.1	8.6	
Level of Service	F	F						D	F	F	A	
Approach Delay (s)		255.5			0.0			67.7			16.4	
Approach LOS		F			A			E			B	

Intersection Summary

HCM 2000 Control Delay	110.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	164.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
Background AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	688	36	525	134	3934	0	0	428	176
Future Volume (vph)	0	0	0	688	36	525	134	3934	0	0	428	176
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1693	1583	1304	4722			4515	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1693	1583	1304	4722			4515	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	740	39	565	144	4230	0	0	460	189
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	101	0
Lane Group Flow (vph)	0	0	0	392	387	510	144	4230	0	0	548	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	58.3	84.7			21.1	
Effective Green, g (s)				25.1	25.1	25.1	58.3	84.7			21.1	
Actuated g/C Ratio				0.21	0.21	0.21	0.49	0.71			0.18	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	354	331	633	3332			793	
v/s Ratio Prot				0.23	0.23		0.11	c0.90			0.12	
v/s Ratio Perm						c0.32						
v/c Ratio				1.12	1.09	1.54	0.23	1.27			0.69	
Uniform Delay, d1				47.5	47.5	47.5	17.8	17.6			46.4	
Progression Factor				1.00	1.00	1.00	1.67	0.99			1.00	
Incremental Delay, d2				83.4	75.2	258.5	0.1	121.5			2.3	
Delay (s)				130.9	122.7	306.0	29.8	139.1			48.5	
Level of Service				F	F	F	C	F			D	
Approach Delay (s)		0.0			202.1			135.5			48.5	
Approach LOS		A			F			F			D	

Intersection Summary

HCM 2000 Control Delay	140.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	164.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



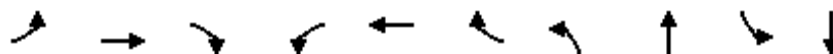
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	26	137	140	119	4	1317	2540	652	5	347	85
Future Volume (vph)	15	26	137	140	119	4	1317	2540	652	5	347	85
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3613		1304	4555	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3613		1304	4555	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	16	28	147	151	128	4	1416	2731	701	5	373	91
RTOR Reduction (vph)	0	0	59	0	1	0	0	23	0	0	37	0
Lane Group Flow (vph)	16	28	88	151	131	0	1416	3409	0	5	427	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.6	71.5	16.0	18.4		65.9	79.0		1.2	14.3	
Effective Green, g (s)	3.2	5.6	71.5	16.0	18.4		65.9	79.0		1.2	14.3	
Actuated g/C Ratio	0.03	0.05	0.60	0.13	0.15		0.55	0.66		0.01	0.12	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	64	732	337	209		1389	2378		13	542	
v/s Ratio Prot	0.01	c0.02	0.07	0.06	c0.10		c0.56	c0.94		0.00	0.09	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.44	0.12	0.45	0.63		1.02	1.43		0.38	0.79	
Uniform Delay, d1	57.6	55.7	10.6	47.9	47.6		27.0	20.5		59.0	51.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.85	0.89		1.00	1.00	
Incremental Delay, d2	9.9	4.7	0.1	1.0	5.8		12.9	195.3		17.9	7.5	
Delay (s)	67.5	60.4	10.6	48.9	53.4		35.8	213.5		76.9	58.8	
Level of Service	E	E	B	D	D		D	F		E	E	
Approach Delay (s)		22.7			51.0			161.6			59.0	
Approach LOS		C			D			F			E	

Intersection Summary

HCM 2000 Control Delay	143.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	118.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
Background AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	3	41	195	33	195	121	3275	28	1137
v/c Ratio	0.12	0.01	0.12	0.83	0.11	0.47	0.78	0.95	0.31	0.57
Control Delay	34.3	31.0	0.7	70.3	33.9	8.4	85.0	20.8	35.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.6	0.0	0.0
Total Delay	34.3	31.0	0.7	70.3	33.9	8.4	85.0	39.4	35.3	6.9
Queue Length 50th (ft)	17	2	0	143	20	0	66	458	20	88
Queue Length 95th (ft)	39	9	0	218	44	57	m71	277	m39	m99
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	411	416	308	411	486	173	3452	173	2001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	26
Spillback Cap Reductn	0	0	0	0	0	10	0	299	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.10	0.63	0.08	0.41	0.70	1.04	0.16	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Background AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1165	575	2574	804	83	1078
v/c Ratio	1.51	1.31	1.03	0.86	0.88	0.50
Control Delay	266.1	183.5	41.3	20.0	125.0	9.1
Queue Delay	0.0	0.5	27.5	49.0	0.0	1.4
Total Delay	266.1	184.0	68.8	69.0	125.0	10.5
Queue Length 50th (ft)	~689	~578	~532	624	40	56
Queue Length 95th (ft)	#831	#825	m#569	m262	#142	m67
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	440	2487	930	94	2145
Starvation Cap Reductn	0	0	236	256	0	812
Spillback Cap Reductn	0	22	725	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.51	1.38	1.46	1.19	0.88	0.81

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Background AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



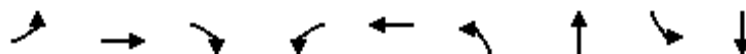
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	392	387	565	144	4230	649
v/c Ratio	1.12	1.09	1.47	0.23	1.27	0.73
Control Delay	127.3	119.8	255.3	32.6	141.6	41.4
Queue Delay	0.0	0.0	0.5	2.4	0.5	0.0
Total Delay	127.3	119.8	255.8	35.0	142.1	41.4
Queue Length 50th (ft)	~367	~355	~559	74	~1138	84
Queue Length 95th (ft)	#572	#561	#782	m71	m#818	134
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	354	385	633	3332	2307
Starvation Cap Reductn	0	0	0	377	775	201
Spillback Cap Reductn	0	0	20	0	687	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.12	1.09	1.55	0.56	1.65	0.31

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Background AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	28	147	151	132	1416	3432	5	464
v/c Ratio	0.19	0.28	0.19	0.46	0.63	0.98	1.34	0.08	0.80
Control Delay	58.3	59.3	2.3	52.2	59.6	28.3	171.8	57.2	58.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	41.4	0.4	0.0	0.0
Total Delay	58.3	59.3	2.3	52.3	59.6	69.7	172.2	57.2	58.0
Queue Length 50th (ft)	12	21	0	58	90	600	~1256	4	93
Queue Length 95th (ft)	36	51	27	86	156	m469	m#980	18	126
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	778	506	388	1440	2564	65	595
Starvation Cap Reductn	0	0	0	0	0	579	397	0	0
Spillback Cap Reductn	0	0	2	41	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.19	0.32	0.34	1.64	1.58	0.08	0.78

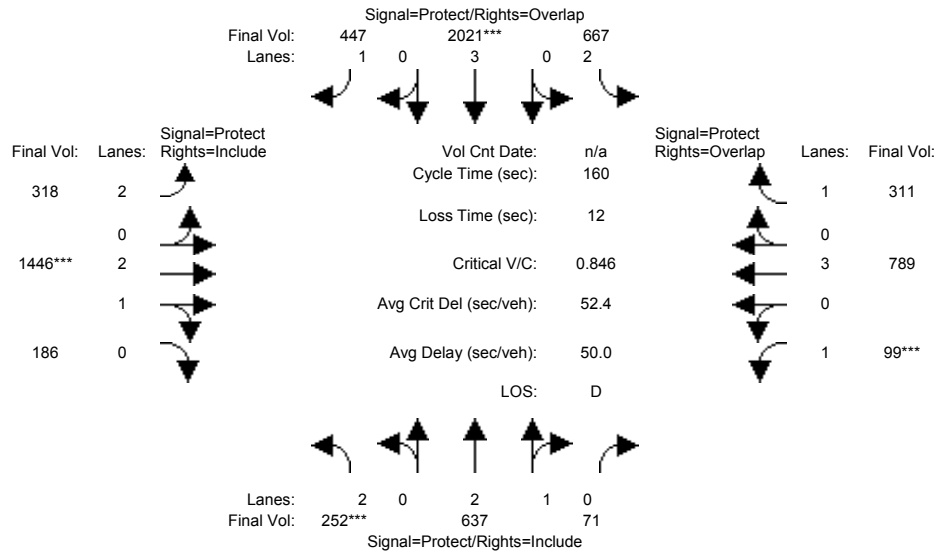
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	252	637	71	667	2021	447	318	1446	186	99	789	311
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:	252	637	71	667	2021	447	318	1446	186	99	789	311
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	252	637	71	667	2021	447	318	1446	186	99	789	311
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	252	637	71	667	2021	447	318	1446	186	99	789	311
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	252	637	71	667	2021	447	318	1446	186	99	789	311

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.69	0.31	2.00	3.00	1.00	2.00	2.65	0.35	1.00	3.00	1.00
Final Sat.:	3150	5038	561	3150	5700	1750	3150	4961	638	1750	5700	1750

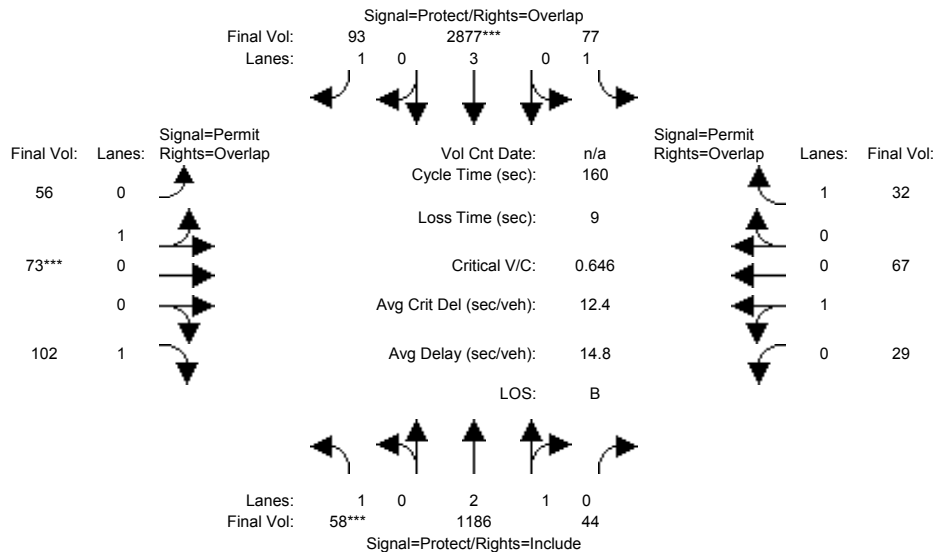
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.08	0.13	0.13	0.21	0.35	0.26	0.10	0.29	0.29	0.06	0.14	0.18
Crit Moves:	****			****			****			****		
Green Time:	15.1	30.7	30.7	51.5	67.1	94.8	27.8	55.1	55.1	10.7	38.1	89.5
Volume/Cap:	0.85	0.66	0.66	0.66	0.85	0.43	0.58	0.85	0.85	0.85	0.58	0.32
Delay/Veh:	90.8	61.3	61.3	48.3	44.8	18.1	62.4	52.2	52.2	114.1	54.6	19.1
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:	90.8	61.3	61.3	48.3	44.8	18.1	62.4	52.2	52.2	114.1	54.6	19.1
LOS by Move:	F	E	E	D	D	B-	E	D-	D-	F	D-	B-
DesignQueue:	312	446	446	642	959	471	362	874	874	226	462	347

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	58	1186	44	77	2877	93	56	73	102	29	67	32
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:	58	1186	44	77	2877	93	56	73	102	29	67	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	1186	44	77	2877	93	56	73	102	29	67	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	1186	44	77	2877	93	56	73	102	29	67	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	58	1186	44	77	2877	93	56	73	102	29	67	32

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.89	0.11	1.00	3.00	1.00	0.43	0.57	1.00	0.30	0.70	1.00
Final Sat.:	1750	5399	200	1750	5700	1750	781	1019	1750	544	1256	1750

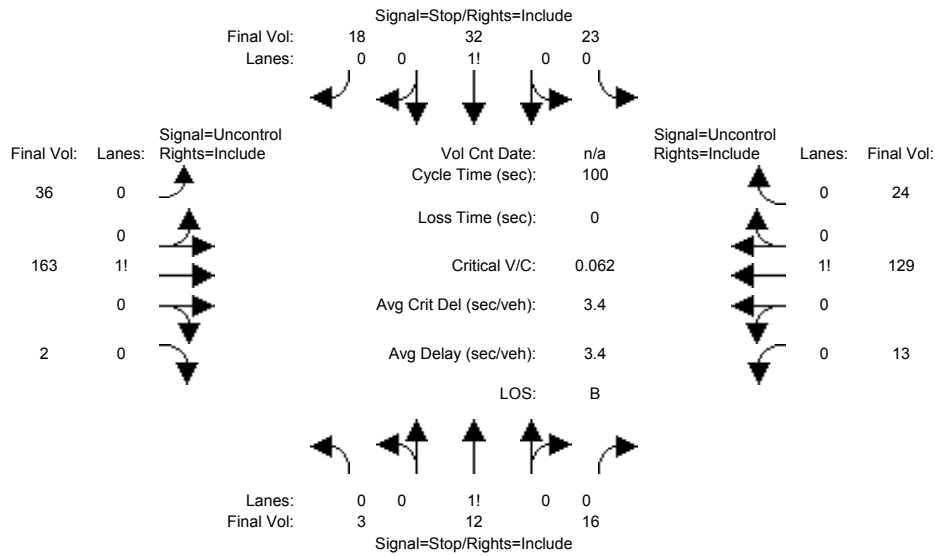
Capacity Analysis Module:												
Vol/Sat:	0.03	0.22	0.22	0.04	0.50	0.05	0.07	0.07	0.06	0.05	0.05	0.02
Crit Moves:	****				****		****					
Green Time:	8.2	111	111.0	22.2	125	125.0	17.8	17.8	26.0	17.8	17.8	40.0
Volume/Cap:	0.65	0.32	0.32	0.32	0.65	0.07	0.65	0.65	0.36	0.48	0.48	0.07
Delay/Veh:	89.6	9.7	9.7	62.8	8.0	4.1	75.2	75.2	60.4	68.6	68.6	45.9
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:	89.6	9.7	9.7	62.8	8.0	4.1	75.2	75.2	60.4	68.6	68.6	45.9
LOS by Move:	F	A	A	E	A	A	E-	E-	E	E	E	D
DesignQueue:	134	301	301	162	537	50	274	274	209	203	203	58

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name: Charles St W Iowa Ave

Approach: North Bound South Bound East Bound West Bound

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

Volume Module:

Base Vol:	3	12	16	23	32	18	36	163	2	13	129	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	12	16	23	32	18	36	163	2	13	129	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	12	16	23	32	18	36	163	2	13	129	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	12	16	23	32	18	36	163	2	13	129	24

Critical Gap Module:

Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	428	415	164	417	404	141	153	xxxx	xxxxxx	165	xxxx	xxxxxx
Potent Cap.:	541	531	886	550	539	912	1440	xxxx	xxxxxx	1426	xxxx	xxxxxx
Move Cap.:	492	513	886	516	520	912	1440	xxxx	xxxxxx	1426	xxxx	xxxxxx
Volume/Cap:	0.01	0.02	0.02	0.04	0.06	0.02	0.03	xxxx	xxxx	0.01	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1.9	xxxx	xxxxxx	0.7	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.6	xxxx	xxxxxx	7.5	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	652	xxxxxx	xxxx	580	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.4	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.8	xxxxxx	xxxxxx	12.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.8			12.1			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound

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

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	3	12	16	23	32	18	36	163	2	13	129	24								
ApproachDel:	10.8				12.1				xxxxxx				xxxxxx							

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=31]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=471]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=73]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=471]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER
 This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	3	12	16	23	32	18	36	163	2	13	129	24								
Major Street Volume:	367																			
Minor Approach Volume:	73																			
Minor Approach Volume Threshold:	487																			

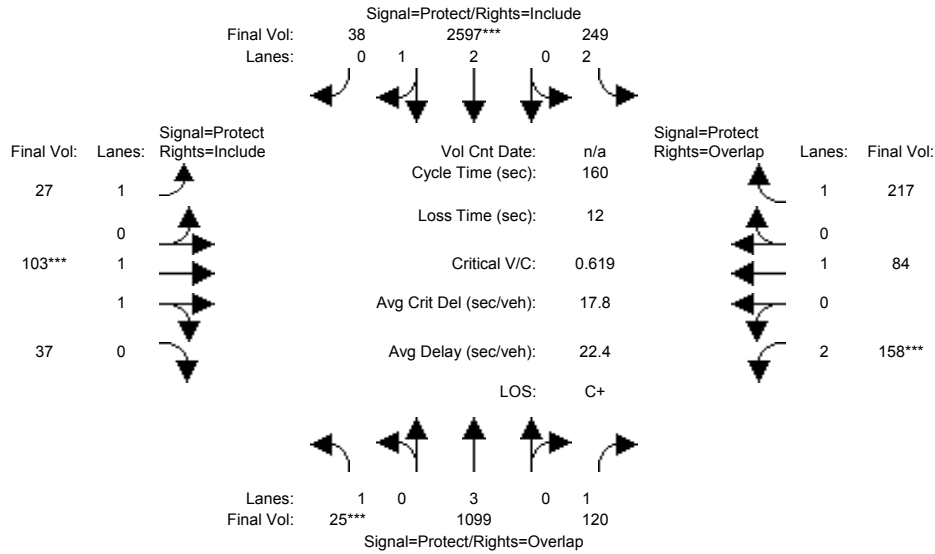
SIGNAL WARRANT DISCLAIMER
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	25	1099	120	249	2597	38	27	103	37	158	84	217
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:	25	1099	120	249	2597	38	27	103	37	158	84	217
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	25	1099	120	249	2597	38	27	103	37	158	84	217
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	1099	120	249	2597	38	27	103	37	158	84	217
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	25	1099	120	249	2597	38	27	103	37	158	84	217

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.96	0.04	1.00	1.46	0.54	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5519	81	1750	2721	978	3150	1900	1750

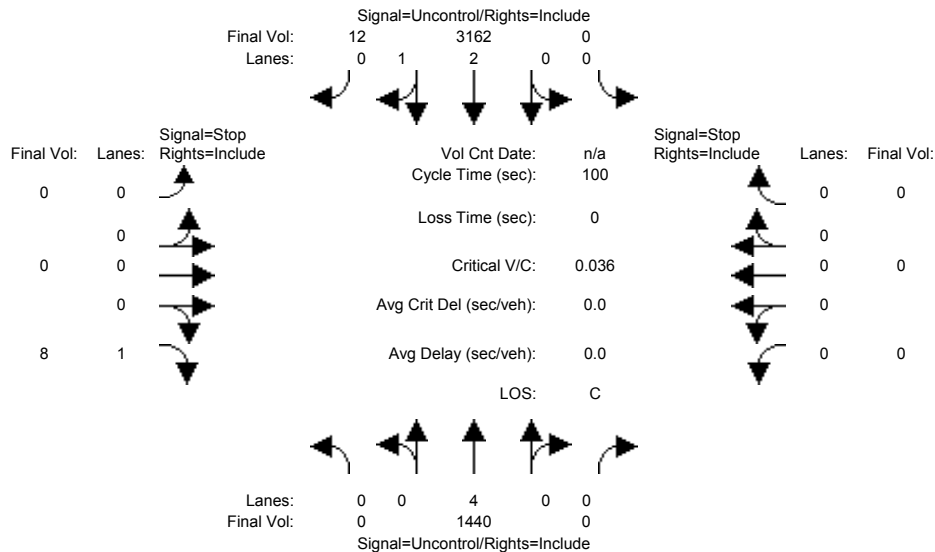
Capacity Analysis Module:												
Vol/Sat:	0.01	0.19	0.07	0.08	0.47	0.47	0.02	0.04	0.04	0.05	0.04	0.12
Crit Moves:	***				***			***			***	
Green Time:	7.0	88.9	101.5	36.5	118	118.4	9.3	10.0	10.0	12.6	13.3	49.8
Volume/Cap:	0.33	0.35	0.11	0.35	0.64	0.64	0.27	0.61	0.61	0.64	0.53	0.40
Delay/Veh:	76.7	19.6	11.5	52.1	10.6	10.6	73.5	77.6	77.6	76.8	73.8	43.8
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:	76.7	19.6	11.5	52.1	10.6	10.6	73.5	77.6	77.6	76.8	73.8	43.8
LOS by Move:	E-	B-	B+	D-	B+	B+	E	E-	E-	E-	E	D
DesignQueue:	58	381	108	263	590	590	62	151	151	198	173	373

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave			Project Dwy (Restaurant)								
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:												
Base Vol:	0	1440	0	0	3162	12	0	0	8	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:	0	1440	0	0	3162	12	0	0	8	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1440	0	0	3162	12	0	0	8	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	1440	0	0	3162	12	0	0	8	0	0	0

Critical Gap Module:												
Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:												
Cnflct Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	1060	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	224	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	224	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	xxxx	xxxx	xxxx

Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	2.8	xxxx	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	21.7	xxxxxx	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxxx			xxxxxxx					21.7	xxxxxxx		
ApproachLOS:	*			*					C	*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1440 0	0 3162 12	0 0 8	0 0 0
ApproachDel:	xxxxxx	xxxxxx	21.7	xxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=8]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=4622]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1440 0	0 3162 12	0 0 8	0 0 0

Major Street Volume: 4614
 Minor Approach Volume: 8
 Minor Approach Volume Threshold: -242 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

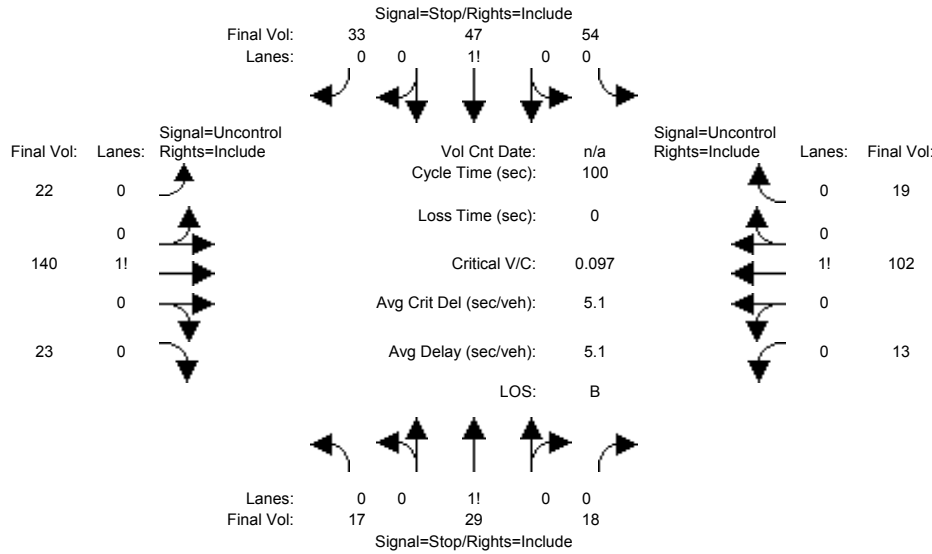
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	17	29	18	54	47	33	22	140	23	13	102	19
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:	17	29	18	54	47	33	22	140	23	13	102	19
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	29	18	54	47	33	22	140	23	13	102	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	17	29	18	54	47	33	22	140	23	13	102	19
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	373	343	152	357	345	112	121	xxxx	xxxxx	163	xxxx	xxxxx
Potent Cap.:	588	583	900	603	582	947	1479	xxxx	xxxxx	1428	xxxx	xxxxx
Move Cap.:	522	569	900	557	568	947	1479	xxxx	xxxxx	1428	xxxx	xxxxx
Volume/Cap:	0.03	0.05	0.02	0.10	0.08	0.03	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	0.7	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	618	xxxxx	xxxx	624	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	0.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	11.5	xxxxx	xxxxx	12.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	11.5			12.3			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	17	29	18	54	47	33	22	140	23	13	102	19							
ApproachDel:	11.5				12.3				xxxxxx				xxxxxx						

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=64]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=517]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.5]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=134]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=517]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	17	29	18	54	47	33	22	140	23	13	102	19								
Major Street Volume:					319															
Minor Approach Volume:					134															
Minor Approach Volume Threshold:					524															

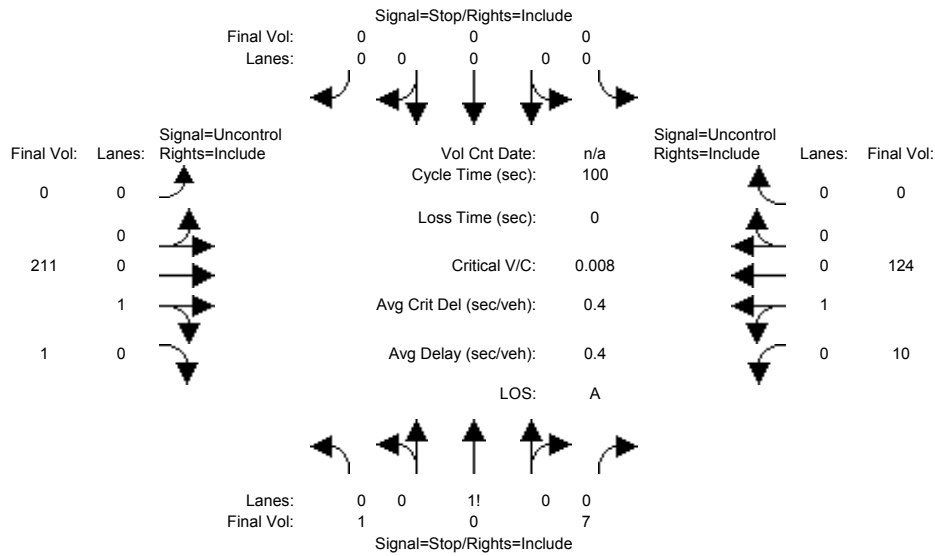
-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Background PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	7	0	0	0	0	211	1	10	124	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:	1	0	7	0	0	0	0	211	1	10	124	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	7	0	0	0	0	211	1	10	124	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	0	7	0	0	0	0	211	1	10	124	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	356	356	212	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	212	xxxxx	xxxxx
Potent Cap.:	647	573	834	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1370	xxxxx	xxxxx
Move Cap.:	643	569	834	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1370	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.01	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.6	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.6	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT			
Shared Cap.:	xxxxx	804	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.5	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.6	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.5			xxxxxxx			xxxxxxx		xxxxxxx			
ApproachLOS:	A			*			*		*			*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 7	0 0 0	0 211 1	10 124 0
ApproachDel:	9.5	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=8]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=354]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 7	0 0 0	0 211 1	10 124 0

Major Street Volume: 346
 Minor Approach Volume: 8
 Minor Approach Volume Threshold: 502

SIGNAL WARRANT DISCLAIMER

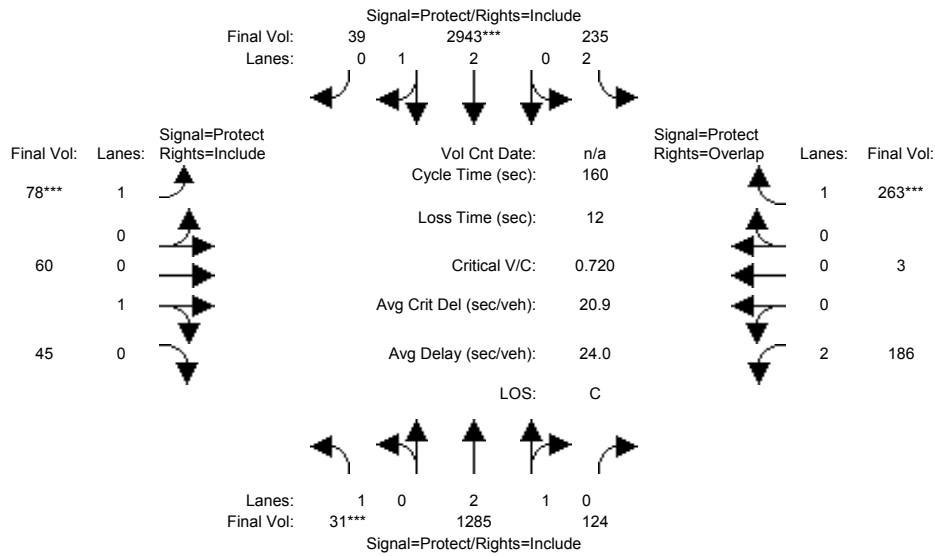
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	1285	124	235	2943	39	78	60	45	186	3	263
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:	31	1285	124	235	2943	39	78	60	45	186	3	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	1285	124	235	2943	39	78	60	45	186	3	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	1285	124	235	2943	39	78	60	45	186	3	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	1285	124	235	2943	39	78	60	45	186	3	263

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.93	0.95	0.95
Lanes:	1.00	2.73	0.27	2.00	2.96	0.04	1.00	0.57	0.43	1.97	0.03	1.00
Final Sat.:	1750	5107	493	3150	5527	73	1750	1029	771	3464	56	1800

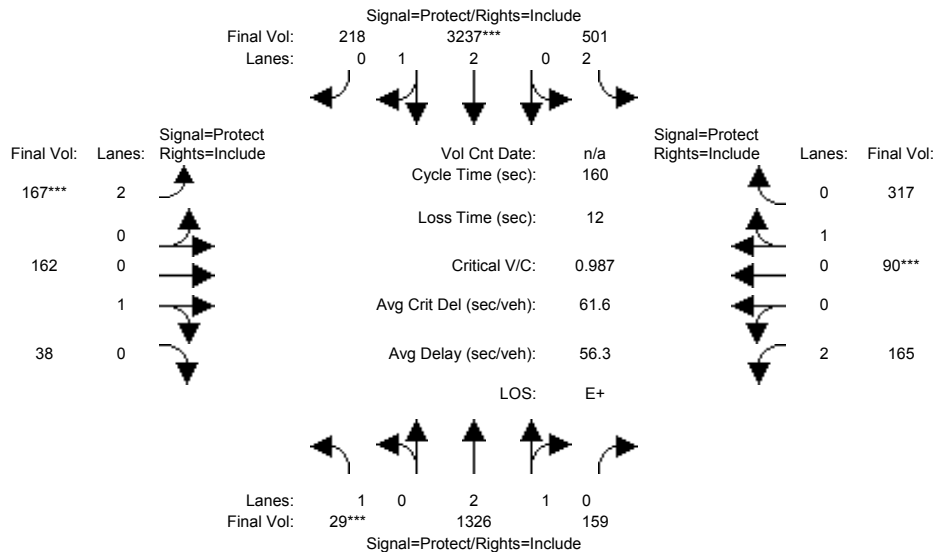
Capacity Analysis Module:												
Vol/Sat:	0.02	0.25	0.25	0.07	0.53	0.53	0.04	0.06	0.06	0.05	0.05	0.15
Crit Moves:	****			****			****			****		
Green Time:	7.0	94.7	94.7	28.1	116	115.8	9.7	13.6	13.6	11.7	15.5	43.6
Volume/Cap:	0.40	0.43	0.43	0.43	0.74	0.74	0.74	0.69	0.69	0.74	0.55	0.54
Delay/Veh:	77.9	17.9	17.9	59.3	13.8	13.8	97.3	83.6	83.6	77.3	69.7	50.3
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:	77.9	17.9	17.9	59.3	13.8	13.8	97.3	83.6	83.6	77.3	69.7	50.3
LOS by Move:	E-	B	B	E+	B	B	F	F	F	E-	E	D
DesignQueue:	72	465	465	265	723	723	179	229	229	213	208	467

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	29	1326	159	501	3237	218	167	162	38	165	90	317
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	1326	159	501	3237	218	167	162	38	165	90	317
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	29	1326	159	501	3237	218	167	162	38	165	90	317
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	1326	159	501	3237	218	167	162	38	165	90	317
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	29	1326	159	501	3237	218	167	162	38	165	90	317

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.67	0.33	2.00	2.80	0.20	2.00	0.81	0.19	2.00	0.22	0.78
Final Sat.:	1750	5000	600	3150	5246	353	3150	1458	342	3150	398	1402

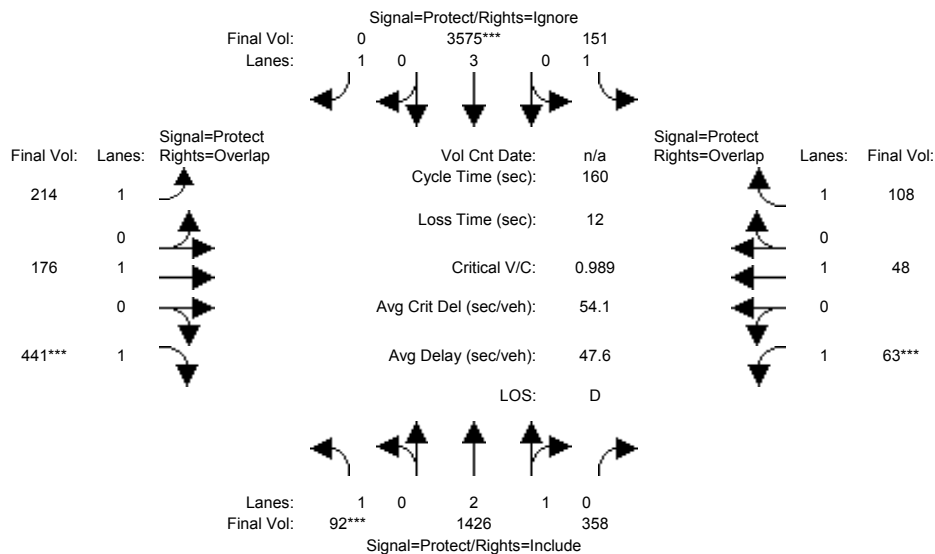
Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.27	0.16	0.62	0.62	0.05	0.11	0.11	0.05	0.23	0.23
Crit Moves:	****				****		****				****	
Green Time:	7.0	65.1	65.1	39.0	97.1	97.1	8.3	29.8	29.8	14.1	35.6	35.6
Volume/Cap:	0.38	0.65	0.65	0.65	1.02	1.02	1.02	0.60	0.60	0.60	1.02	1.02
Delay/Veh:	77.5	39.0	39.0	56.4	51.3	51.3	150.6	62.5	62.5	73.7	112	111.5
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:	77.5	39.0	39.0	56.4	51.3	51.3	150.6	62.5	62.5	73.7	112	111.5
LOS by Move:	E-	D	D	E+	D-	D-	F	E	E	E	F	F
DesignQueue:	67	714	714	530	1224	1224	215	393	393	205	790	790

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	N Mathilda Ave			W California Ave			W California Ave			W California Ave		
Base Vol:	92	1426	358	151	3575	398	214	176	441	63	48	108
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:	92	1426	358	151	3575	398	214	176	441	63	48	108
User 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
PHF 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
PHF Volume:	92	1426	358	151	3575	0	214	176	441	63	48	108
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	1426	358	151	3575	0	214	176	441	63	48	108
PCE 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
MLF 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
Final Volume:	92	1426	358	151	3575	0	214	176	441	63	48	108

Saturation Flow Module:	N Mathilda Ave			W California Ave			W California Ave			W California Ave		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.38	0.62	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4475	1123	1750	5700	1750	1750	1900	1750	1750	1900	1750

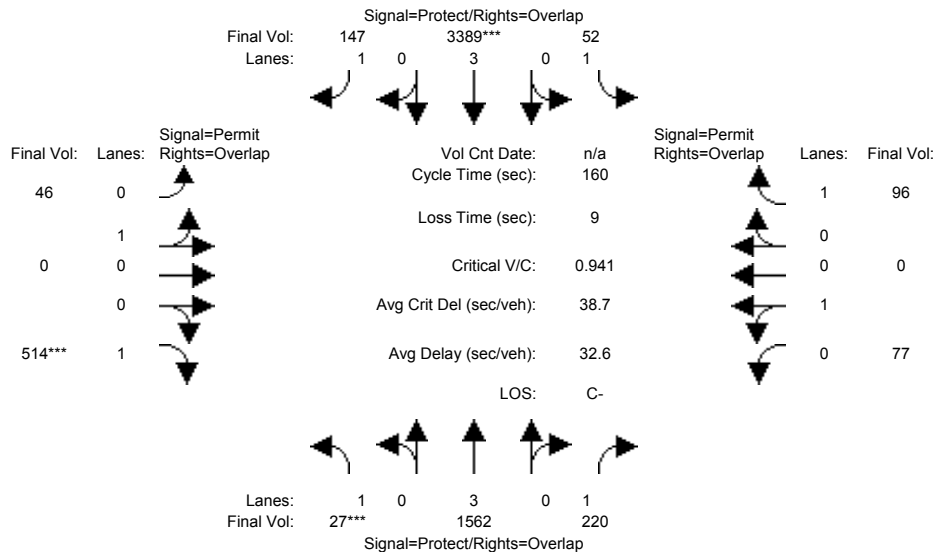
Capacity Analysis Module:	N Mathilda Ave			W California Ave			W California Ave			W California Ave		
Vol/Sat:	0.05	0.32	0.32	0.09	0.63	0.00	0.12	0.09	0.25	0.04	0.03	0.06
Crit Moves:	****			****			****	****		****	****	
Green Time:	8.4	85.8	85.8	23.2	101	0.0	25.8	32.0	40.4	7.0	13.2	36.4
Volume/Cap:	1.00	0.59	0.59	0.59	1.00	0.00	0.76	0.46	1.00	0.82	0.31	0.27
Delay/Veh:	168.7	25.6	25.6	67.8	44.1	0.0	75.4	57.3	101.9	124.5	70.2	51.2
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:	168.7	25.6	25.6	67.8	44.1	0.0	75.4	57.3	101.9	124.5	70.2	51.2
LOS by Move:	F	C	C	E	D	A	E-	E+	F	F	E	D-
DesignQueue:	213	681	681	319	1178	0	448	321	852	147	99	205

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	27	1562	220	52	3389	147	46	0	514	77	0	96
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:	27	1562	220	52	3389	147	46	0	514	77	0	96
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	1562	220	52	3389	147	46	0	514	77	0	96
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1562	220	52	3389	147	46	0	514	77	0	96
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	1562	220	52	3389	147	46	0	514	77	0	96

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750

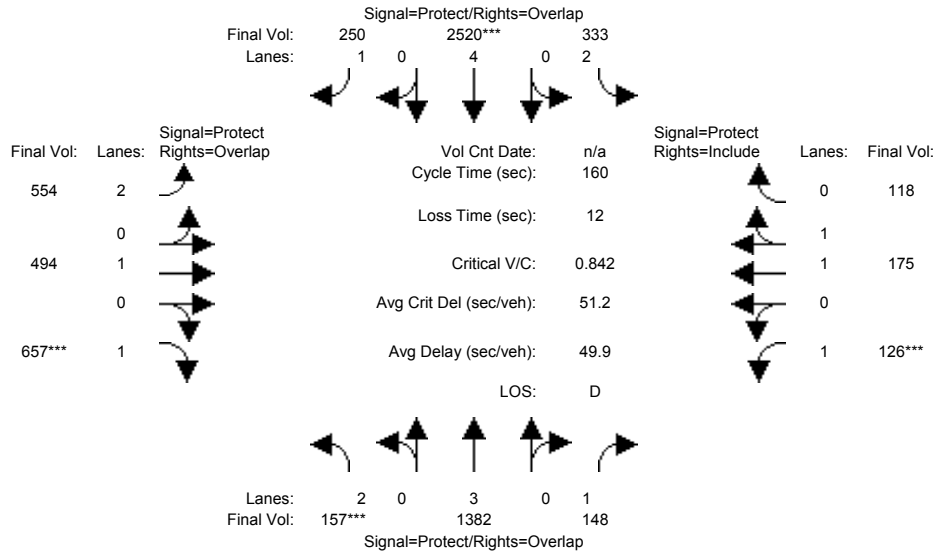
Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.13	0.03	0.59	0.08	0.03	0.00	0.29	0.04	0.00	0.05
Crit Moves:	***				***				***			
Green Time:	7.0	93.5	93.5	14.9	101	101.4	42.6	0.0	49.6	42.6	0.0	57.5
Volume/Cap:	0.35	0.47	0.22	0.32	0.94	0.13	0.10	0.00	0.95	0.16	0.00	0.15
Delay/Veh:	77.1	19.2	15.9	68.9	32.2	11.8	44.3	0.0	79.9	45.1	0.0	34.8
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:	77.1	19.2	15.9	68.9	32.2	11.8	44.3	0.0	79.9	45.1	0.0	34.8
LOS by Move:	E-	B-	B	E	C-	B+	D	A	E-	D	A	C-
DesignQueue:	63	519	228	115	1091	133	80	0	927	134	0	150

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	157	1382	148	333	2520	250	554	494	657	126	175	118
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:	157	1382	148	333	2520	250	554	494	657	126	175	118
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	157	1382	148	333	2520	250	554	494	657	126	175	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	157	1382	148	333	2520	250	554	494	657	126	175	118
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	157	1382	148	333	2520	250	554	494	657	126	175	118

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.17	0.83
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2209	1489

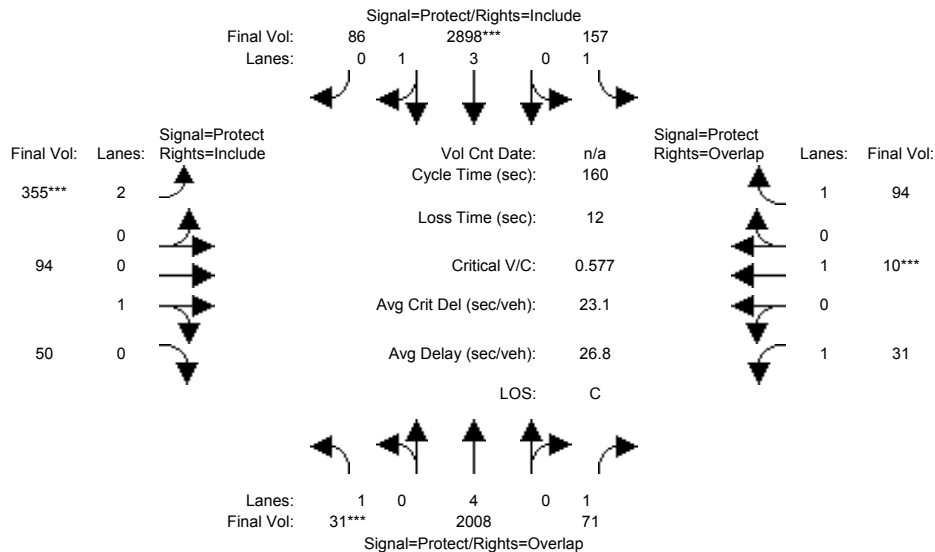
Capacity Analysis Module:												
Vol/Sat:	0.05	0.24	0.08	0.11	0.33	0.14	0.18	0.26	0.38	0.07	0.08	0.08
Crit Moves:	****				****				****	****		
Green Time:	9.5	50.5	64.1	22.0	63.0	115.1	52.1	61.9	71.3	13.7	23.5	23.5
Volume/Cap:	0.84	0.77	0.21	0.77	0.84	0.20	0.54	0.67	0.84	0.84	0.54	0.54
Delay/Veh:	102.2	51.6	31.5	74.7	46.3	7.4	44.8	43.1	47.6	104.9	64.4	64.4
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:	102.2	51.6	31.5	74.7	46.3	7.4	44.8	43.1	47.6	104.9	64.4	64.4
LOS by Move:	F	D-	C	E	D	A	D	D	D	F	E	E
DesignQueue:	201	749	219	396	930	176	525	723	975	283	292	292

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Background PM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	2008	71	157	2898	86	355	94	50	31	10	94
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:	31	2008	71	157	2898	86	355	94	50	31	10	94
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	2008	71	157	2898	86	355	94	50	31	10	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	2008	71	157	2898	86	355	94	50	31	10	94
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	2008	71	157	2898	86	355	94	50	31	10	94

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.88	0.12	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7283	216	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.26	0.04	0.09	0.40	0.40	0.11	0.08	0.08	0.02	0.01	0.05
Crit Moves:	****			****			****			****		
Green Time:	7.0	81.4	95.2	27.7	102	102.1	28.9	25.2	25.2	13.8	10.0	37.7
Volume/Cap:	0.40	0.52	0.07	0.52	0.62	0.62	0.62	0.51	0.51	0.21	0.08	0.23
Delay/Veh:	77.9	26.3	13.7	61.7	17.7	17.7	62.7	63.3	63.3	68.7	71.0	49.7
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:	77.9	26.3	13.7	61.7	17.7	17.7	62.7	63.3	63.3	68.7	71.0	49.7
LOS by Move:	E-	C	B	E	B	B	E	E	E	E	E	D
DesignQueue:	72	589	70	321	679	679	402	291	291	69	21	176

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Background PM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	39	129	125	4	71	59	1382	323	190	2502	54
Future Volume (vph)	70	39	129	125	4	71	59	1382	323	190	2502	54
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5374		1304	3734	
Flt Permitted	0.76	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	1002	1373	1167	1304	5374		1304	3734	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	40	132	128	4	72	60	1410	330	194	2553	55
RTOR Reduction (vph)	0	0	93	0	0	51	0	33	0	0	2	0
Lane Group Flow (vph)	71	40	39	128	4	21	60	1707	0	194	2606	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	58.3		27.4	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	58.3		27.4	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.42		0.20	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	293	402	341	176	2237		255	1778	
v/s Ratio Prot		0.03			0.00		0.05	c0.32		0.15	c0.70	
v/s Ratio Perm	0.07		0.03	c0.13		0.02						
v/c Ratio	0.23	0.10	0.11	0.44	0.01	0.06	0.34	0.76		0.76	1.47	
Uniform Delay, d1	37.6	36.1	36.2	40.1	35.1	35.6	54.8	34.9		53.2	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10		0.78	0.67	
Incremental Delay, d2	1.8	0.5	0.7	4.7	0.0	0.3	5.1	1.6		1.2	210.0	
Delay (s)	39.4	36.5	36.9	44.8	35.2	36.0	59.9	40.0		42.9	234.6	
Level of Service	D	D	D	D	D	D	E	D		D	F	
Approach Delay (s)		37.6			41.5			40.6			221.3	
Approach LOS		D			D			D			F	

Intersection Summary

HCM 2000 Control Delay	140.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	117.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	0	135	0	0	0	0	699	824	546	2611	0
Future Volume (vph)	281	0	135	0	0	0	0	699	824	546	2611	0
Ideal Flow (vphpl)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.88						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1472						5559	1129	1304	3747	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1472						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	299	0	144	0	0	0	0	744	877	581	2778	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	318	0	0	0
Lane Group Flow (vph)	269	115	0	0	0	0	0	744	559	581	2778	0
Confl. Peds. (#/hr)									6			
Confl. Bikes (#/hr)									5			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	316						2171	441	341	2614	
v/s Ratio Prot	c0.08	0.08						0.13		c0.45	0.74	
v/s Ratio Perm									c0.50			
v/c Ratio	0.39	0.36						0.34	1.27	1.70	1.06	
Uniform Delay, d1	47.1	46.8						30.0	42.6	51.6	21.1	
Progression Factor	1.00	1.00						1.09	3.12	1.11	0.69	
Incremental Delay, d2	1.6	3.2						0.1	134.2	317.9	29.2	
Delay (s)	48.7	50.0						32.9	267.4	375.2	43.8	
Level of Service	D	D						C	F	F	D	
Approach Delay (s)		49.2			0.0			159.8			101.1	
Approach LOS		D			A			F			F	

Intersection Summary

HCM 2000 Control Delay	114.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	187.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖	↑↑↑			↑↑↑	↗
Traffic Volume (vph)	0	0	0	642	31	91	86	894	0	0	2512	999
Future Volume (vph)	0	0	0	642	31	91	86	894	0	0	2512	999
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1247	1167	1304	4722			4520	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1247	1167	1304	4722			4520	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	676	33	96	91	941	0	0	2644	1052
RTOR Reduction (vph)	0	0	0	0	0	77	0	0	0	0	51	0
Lane Group Flow (vph)	0	0	0	352	357	19	91	941	0	0	3645	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2573	
v/s Ratio Prot				0.28	c0.29		c0.07	0.20			c0.81	
v/s Ratio Perm						0.02						
v/c Ratio				1.47	1.48	0.08	0.55	0.27			1.45dr	
Uniform Delay, d1				56.5	56.5	46.3	57.4	6.2			30.1	
Progression Factor				1.00	1.00	1.00	1.13	0.54			0.80	
Incremental Delay, d2				234.1	237.6	0.7	12.3	0.2			187.7	
Delay (s)				290.5	294.0	47.0	77.2	3.6			211.6	
Level of Service				F	F	D	E	A			F	
Approach Delay (s)		0.0			263.0			10.1			211.6	
Approach LOS		A			F			B			F	

Intersection Summary

HCM 2000 Control Delay	181.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	187.5%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

311 South Mathilda Avenue TIA
Background PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	238	594	563	153	8	232	424	294	37	2354	65
Future Volume (vph)	65	238	594	563	153	8	232	424	294	37	2354	65
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1361		2530	3474		1304	4701	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1361		2530	3474		1304	4701	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	262	653	619	168	9	255	466	323	41	2587	71
RTOR Reduction (vph)	0	0	84	0	1	0	0	86	0	0	3	0
Lane Group Flow (vph)	71	262	569	619	176	0	255	703	0	41	2655	0
Confl. Peds. (#/hr)							2			3		
Confl. Bikes (#/hr)			2				2			2		
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Effective Green, g (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Actuated g/C Ratio	0.08	0.24	0.31	0.22	0.38		0.07	0.29		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	107	332	360	560	519		177	1014		149	1581	
v/s Ratio Prot	0.05	0.19	c0.11	c0.24	0.13		0.10	0.20		0.03	c0.56	
v/s Ratio Perm			0.38									
v/c Ratio	0.66	0.79	1.58	1.11	0.34		1.44	0.69		0.28	1.68	
Uniform Delay, d1	62.4	49.7	48.1	54.5	30.8		65.1	44.0		56.7	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.83	1.46		1.00	1.00	
Incremental Delay, d2	14.4	17.2	274.3	70.2	0.4		226.7	3.8		1.0	308.6	
Delay (s)	76.8	66.9	322.5	124.7	31.1		280.5	68.1		57.7	355.0	
Level of Service	E	E	F	F	C		F	E		E	F	
Approach Delay (s)		236.9			103.9			120.0			350.5	
Approach LOS		F			F			F			F	

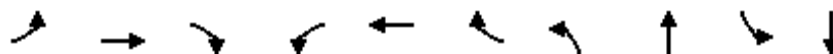
Intersection Summary

HCM 2000 Control Delay	251.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	130.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	40	132	128	4	72	60	1740	194	2608
v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.77	0.76	1.47
Control Delay	40.2	37.1	7.8	45.8	35.2	5.2	60.8	39.2	46.3	234.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2
Total Delay	40.2	37.1	7.8	45.8	35.2	5.2	60.8	39.4	46.3	234.2
Queue Length 50th (ft)	49	27	0	95	3	0	40	232	160	~1187
Queue Length 95th (ft)	94	58	51	161	12	26	m53	m190	m#186	m#1090
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	430	293	402	405	176	2591	254	1780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	91
Spillback Cap Reductn	0	0	0	0	0	4	0	260	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.75	0.76	1.54

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Background PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	269	174	744	877	581	2778
v/c Ratio	0.39	0.46	0.34	1.16	1.70	1.06
Control Delay	49.0	31.2	33.3	118.3	352.1	45.3
Queue Delay	0.0	0.2	0.0	1.8	3.4	16.9
Total Delay	49.0	31.4	33.3	120.1	355.5	62.2
Queue Length 50th (ft)	116	84	162	~709	~752	~990
Queue Length 95th (ft)	163	169	181	#898	m#432	m179
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	375	2171	759	341	2614
Starvation Cap Reductn	0	0	0	179	83	793
Spillback Cap Reductn	0	17	0	0	0	927
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.49	0.34	1.51	2.25	1.65

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Background PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



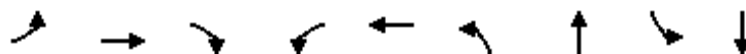
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	352	357	96	91	941	3696
v/c Ratio	1.47	1.48	0.32	0.55	0.27	1.45dr
Control Delay	273.1	276.4	11.7	78.3	3.6	208.2
Queue Delay	0.7	0.7	0.7	0.9	0.6	0.8
Total Delay	273.8	277.1	12.4	79.2	4.2	209.0
Queue Length 50th (ft)	~462	~469	0	88	77	~1313
Queue Length 95th (ft)	#672	#683	50	150	79	m644
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	303	164	3463	2623
Starvation Cap Reductn	0	0	0	10	2015	749
Spillback Cap Reductn	11	11	64	0	541	327
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.54	1.55	0.40	0.59	0.65	1.97

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

311 South Mathilda Avenue TIA
Background PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	262	653	619	177	255	789	41	2658
v/c Ratio	0.58	0.81	1.49	1.11	0.34	1.57	0.69	0.26	1.62
Control Delay	78.5	70.3	257.6	119.7	34.9	321.0	58.4	57.8	315.0
Queue Delay	0.0	0.0	7.6	0.0	0.0	0.0	3.3	0.0	1.3
Total Delay	78.5	70.3	265.2	119.7	34.9	321.0	61.7	57.8	316.3
Queue Length 50th (ft)	63	227	~776	~329	116	~153	243	34	~1017
Queue Length 95th (ft)	113	#368	#1017	#452	196	#240	291	72	#1084
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	519	162	1139	186	1637
Starvation Cap Reductn	0	0	0	0	0	0	249	0	0
Spillback Cap Reductn	0	0	212	0	0	0	0	0	494
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.81	2.88	1.11	0.34	1.57	0.89	0.22	2.33

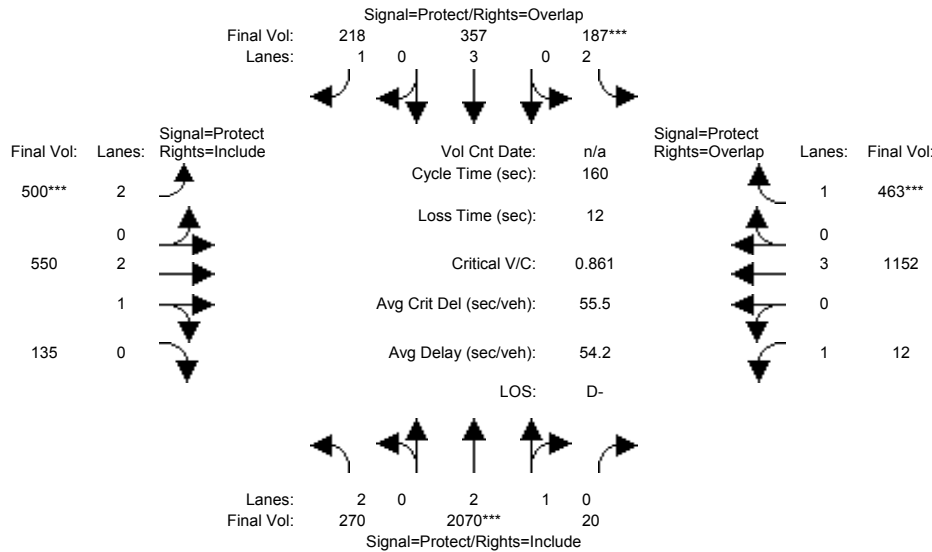
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	270	2069	20	184	354	216	499	550	135	12	1152	462
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:	270	2069	20	184	354	216	499	550	135	12	1152	462
Added Vol:	0	1	0	3	3	2	1	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	270	2070	20	187	357	218	500	550	135	12	1152	463
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	270	2070	20	187	357	218	500	550	135	12	1152	463
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	270	2070	20	187	357	218	500	550	135	12	1152	463
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	270	2070	20	187	357	218	500	550	135	12	1152	463

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.39	0.61	1.00	3.00	1.00
Final Sat.:	3150	5546	54	3150	5700	1750	3150	4495	1103	1750	5700	1750

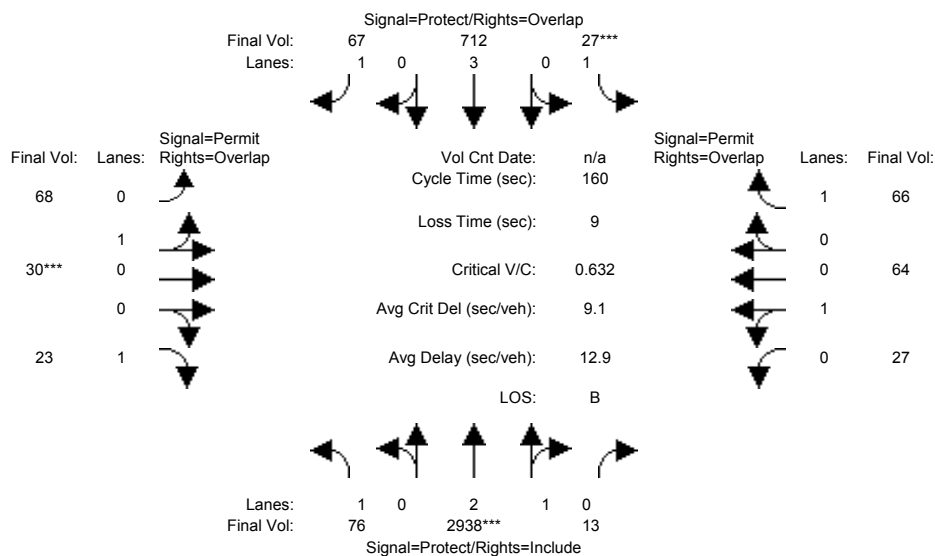
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.09	0.37	0.37	0.06	0.06	0.12	0.16	0.12	0.12	0.01	0.20	0.26
Crit Moves:	****			****			****			****		
Green Time:	46.4	69.3	69.3	11.0	33.9	63.4	29.5	49.8	49.8	17.8	38.1	49.2
Volume/Cap:	0.30	0.86	0.86	0.86	0.30	0.31	0.86	0.39	0.39	0.06	0.85	0.86
Delay/Veh:	44.3	44.4	44.4	101.4	53.1	33.6	75.7	43.4	43.4	63.8	63.4	65.5
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:	44.3	44.4	44.4	101.4	53.1	33.6	75.7	43.4	43.4	63.8	63.4	65.5
LOS by Move:	D	D	D	F	D-	C-	E-	D	D	E	E	E
DesignQueue:	263	990	990	237	212	328	571	368	368	26	687	832

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	76	2936	13	27	704	67	68	30	23	27	64	66
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:	76	2936	13	27	704	67	68	30	23	27	64	66
Added Vol:	0	2	0	0	8	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	76	2938	13	27	712	67	68	30	23	27	64	66
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	76	2938	13	27	712	67	68	30	23	27	64	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	76	2938	13	27	712	67	68	30	23	27	64	66
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	76	2938	13	27	712	67	68	30	23	27	64	66

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.69	0.31	1.00	0.30	0.70	1.00
Final Sat.:	1750	5575	25	1750	5700	1750	1249	551	1750	534	1266	1750

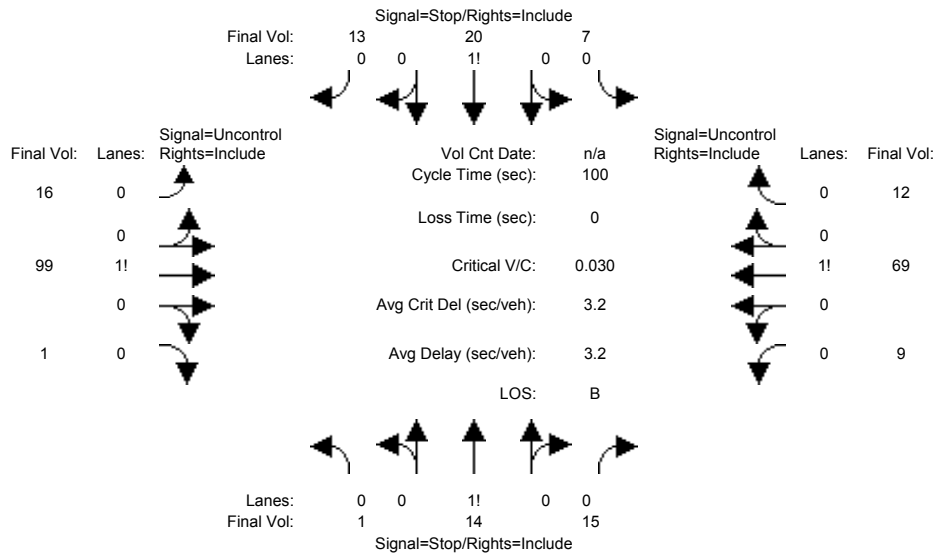
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.04	0.53	0.53	0.02	0.12	0.04	0.05	0.05	0.01	0.05	0.05	0.04
Crit Moves:	****			****			****			****		
Green Time:	35.7	131	130.5	7.0	102	101.8	13.5	13.5	49.2	13.5	13.5	20.5
Volume/Cap:	0.19	0.65	0.65	0.35	0.20	0.06	0.65	0.65	0.04	0.60	0.60	0.29
Delay/Veh:	50.7	6.1	6.1	77.1	12.1	11.0	80.2	80.2	38.9	77.2	77.2	63.9
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:	50.7	6.1	6.1	77.1	12.1	11.0	80.2	80.2	38.9	77.2	77.2	63.9
LOS by Move:	D	A	A	E-	B	B+	F	F	D+	E-	E-	E
DesignQueue:	144	476	476	63	198	59	214	214	39	198	198	140

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	14	15	7	20	12	16	99	1	9	68	11
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:	1	14	15	7	20	12	16	99	1	9	68	11
Added Vol:	0	0	0	0	0	1	0	0	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	14	15	7	20	13	16	99	1	9	69	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	14	15	7	20	13	16	99	1	9	69	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	14	15	7	20	13	16	99	1	9	69	12
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	241	231	100	239	225	75	81	xxxx	xxxxxx	100	xxxx	xxxxxx
Potent Cap.:	717	673	962	719	678	992	1529	xxxx	xxxxxx	1505	xxxx	xxxxxx
Move Cap.:	683	662	962	688	666	992	1529	xxxx	xxxxxx	1505	xxxx	xxxxxx
Volume/Cap:	0.00	0.02	0.02	0.01	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.8	xxxx	xxxxxx	0.5	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	785	xxxxxx	xxxx	751	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.8	xxxxxx	xxxxxx	10.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	A	*	*	B	*	*	*	*	*	*	*
ApproachDel:	9.8			10.1			xxxxxxx			xxxxxxx		
ApproachLOS:	A			B			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 14 15	7 20 13	16 99 1	9 69 12
ApproachDel:	9.8	10.1	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=30]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=276]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=40]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=276]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 14 15	7 20 13	16 99 1	9 69 12

Major Street Volume: 206
 Minor Approach Volume: 40
 Minor Approach Volume Threshold: 641

SIGNAL WARRANT DISCLAIMER

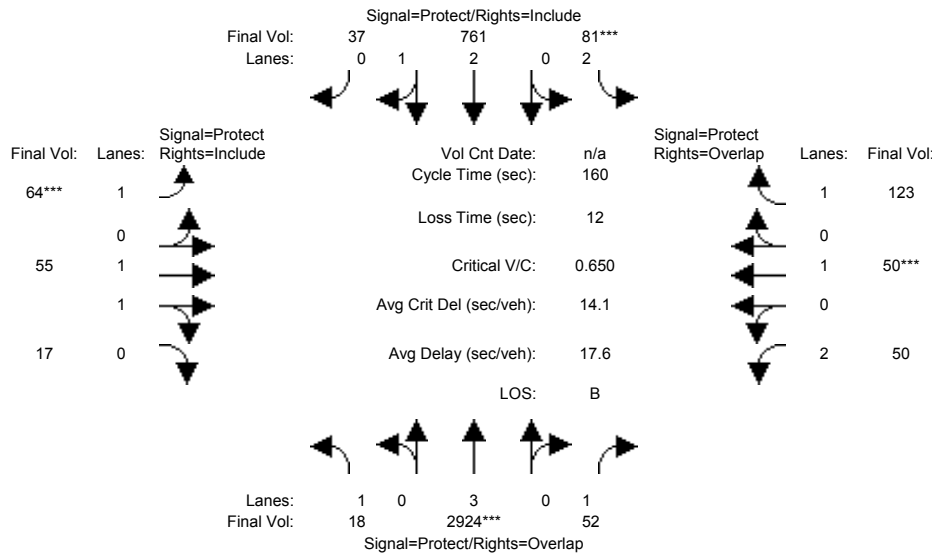
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	18	2922	52	72	753	36	64	55	17	50	50	123
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	2922	52	72	753	36	64	55	17	50	50	123
Added Vol:	0	2	0	9	8	1	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	2924	52	81	761	37	64	55	17	50	50	123
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	2924	52	81	761	37	64	55	17	50	50	123
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2924	52	81	761	37	64	55	17	50	50	123
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	18	2924	52	81	761	37	64	55	17	50	50	123

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.86	0.14	1.00	1.51	0.49	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5340	260	1750	2826	873	3150	1900	1750

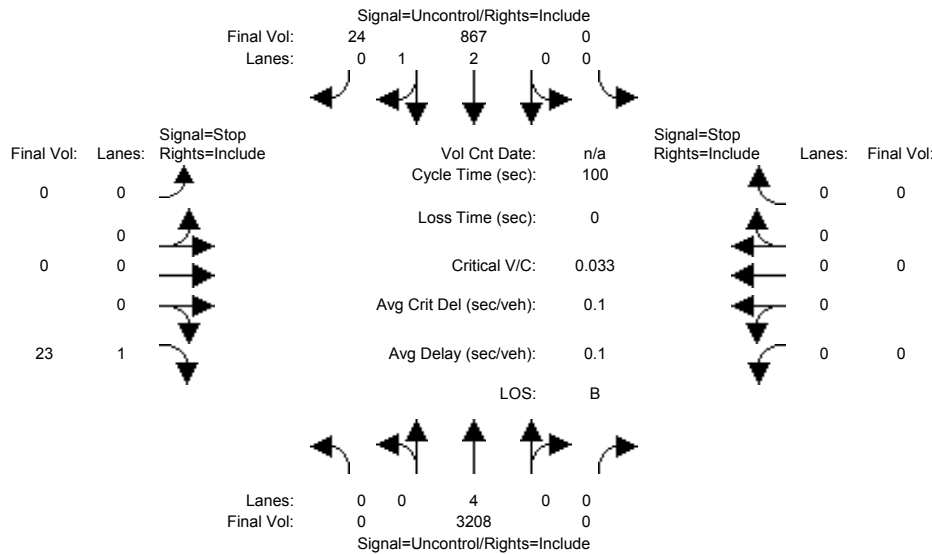
Capacity Analysis Module:												
Vol/Sat:	0.01	0.51	0.03	0.03	0.14	0.14	0.04	0.02	0.02	0.02	0.03	0.07
Crit Moves:	****			****			****			****		
Green Time:	30.4	122	130.0	7.0	98.9	98.9	8.7	11.0	11.0	7.7	10.0	17.0
Volume/Cap:	0.05	0.67	0.04	0.59	0.23	0.23	0.67	0.28	0.28	0.33	0.42	0.66
Delay/Veh:	53.1	9.5	2.9	81.6	13.6	13.6	91.3	71.4	71.4	74.9	74.6	77.3
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:	53.1	9.5	2.9	81.6	13.6	13.6	91.3	71.4	71.4	74.9	74.6	77.3
LOS by Move:	D-	A	A	F	B	B	F	E	E	E	E	E-
DesignQueue:	35	591	24	105	239	239	147	77	77	64	105	270

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave						Project Dwy (Restaurant)					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	3198	0	0	861	17	0	0	10	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:	0	3198	0	0	861	17	0	0	10	0	0	0
Added Vol:	0	10	0	0	6	7	0	0	13	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	3208	0	0	867	24	0	0	23	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	3208	0	0	867	24	0	0	23	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	3208	0	0	867	24	0	0	23	0	0	0

Critical Gap Module:	North Bound			South Bound			East Bound			West Bound		
Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:	North Bound			South Bound			East Bound			West Bound		
Cnflict Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	301	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	701	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	701	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx

Level Of Service Module:	North Bound			South Bound			East Bound			West Bound					
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	2.5	xxxx	xxxx	xxxxxx			
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	10.3	xxxxxx	xxxx	xxxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	xxxxxxx			xxxxxxx					10.3	xxxxxxx					
ApproachLOS:	*			*					B	*					

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3208 0	0 867 24	0 0 23	0 0 0
ApproachDel:	xxxxxx	xxxxxx	10.3	xxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=23]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=4122]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3208 0	0 867 24	0 0 23	0 0 0

Major Street Volume: 4099
 Minor Approach Volume: 23
 Minor Approach Volume Threshold: -201 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

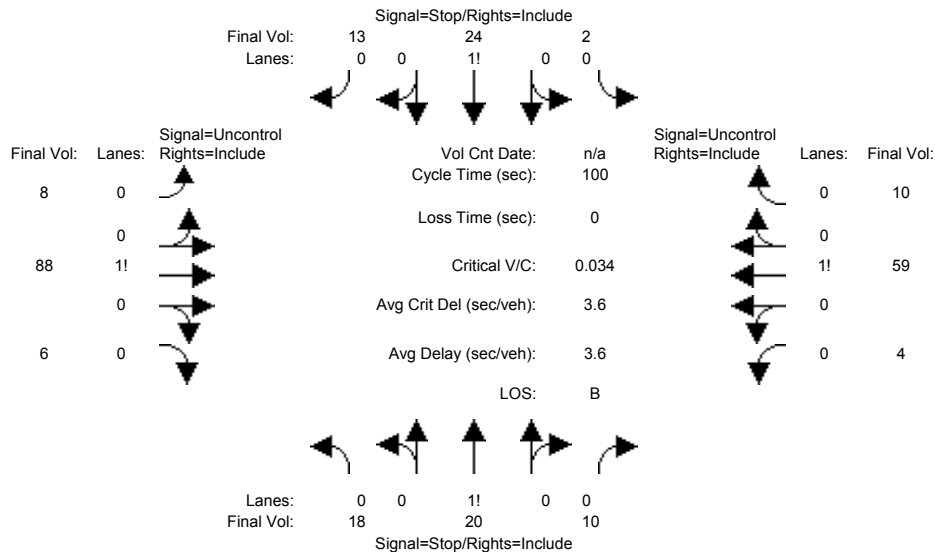
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	17	20	10	2	24	13	8	87	6	3	58	10
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:	17	20	10	2	24	13	8	87	6	3	58	10
Added Vol:	1	0	0	0	0	0	0	1	0	1	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	20	10	2	24	13	8	88	6	4	59	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	20	10	2	24	13	8	88	6	4	59	10
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	18	20	10	2	24	13	8	88	6	4	59	10
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	198	184	91	194	182	64	69	xxxx	xxxxx	94	xxxx	xxxxx
Potent Cap.:	766	714	972	770	716	1006	1545	xxxx	xxxxx	1513	xxxx	xxxxx
Move Cap.:	732	708	972	741	710	1006	1545	xxxx	xxxxx	1513	xxxx	xxxxx
Volume/Cap:	0.02	0.03	0.01	0.00	0.03	0.01	0.01	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	0.2	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	7.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	761	xxxxx	xxxx	789	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.1	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	A	*	*	*	*	*	*	*
ApproachDel:	10.1			9.8			xxxxxxx			xxxxxxx		
ApproachLOS:	B			A			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	18 20 10	2 24 13	8 88 6	4 59 10
ApproachDel:	10.1	9.8	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=48]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=262]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=39]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=262]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	18 20 10	2 24 13	8 88 6	4 59 10

Major Street Volume: 175
 Minor Approach Volume: 48
 Minor Approach Volume Threshold: 684

SIGNAL WARRANT DISCLAIMER

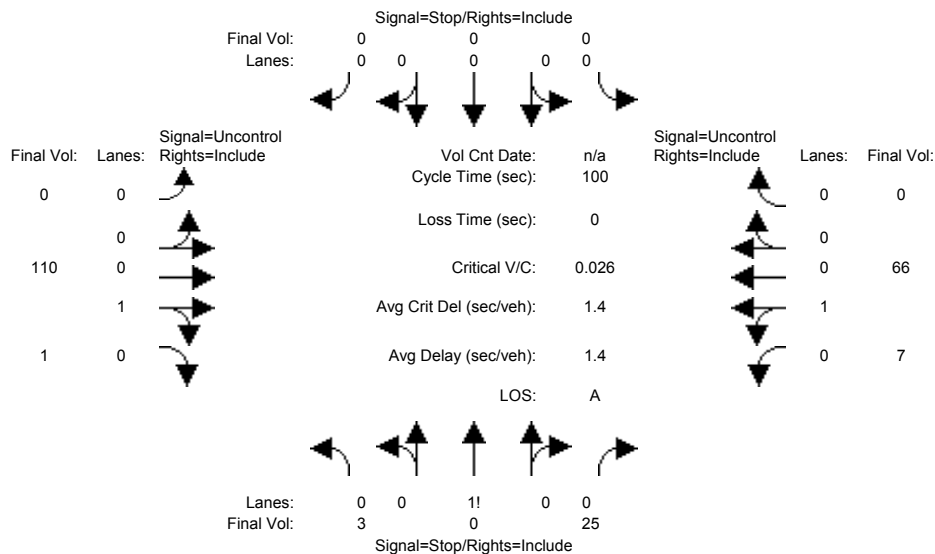
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	0	9	0	0	0	0	109	1	5	66	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:	1	0	9	0	0	0	0	109	1	5	66	0
Added Vol:	2	0	16	0	0	0	0	1	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	0	25	0	0	0	0	110	1	7	66	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	0	25	0	0	0	0	110	1	7	66	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	0	25	0	0	0	0	110	1	7	66	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	191	191	111	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	111	xxxx	xxxxxx
Potent Cap.:	803	708	948	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1492	xxxx	xxxxxx
Move Cap.:	800	705	948	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1492	xxxx	xxxxxx
Volume/Cap:	0.00	0.00	0.03	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.00	xxxx	xxxxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.4	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	930	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	0.0	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.0	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.0			xxxxxxx			xxxxxxx			xxxxxxx		
ApproachLOS:	A			*			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 25	0 0 0	0 110 1	7 66 0
ApproachDel:	9.0	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=28]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=212]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 25	0 0 0	0 110 1	7 66 0

Major Street Volume: 184
 Minor Approach Volume: 28
 Minor Approach Volume Threshold: 671

SIGNAL WARRANT DISCLAIMER

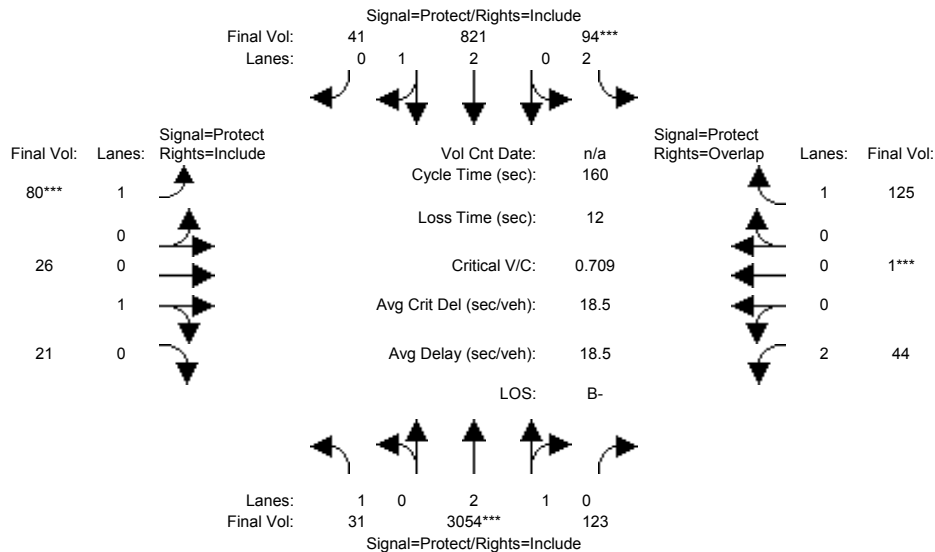
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	28	3046	123	94	817	40	69	26	15	44	1	125
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:	28	3046	123	94	817	40	69	26	15	44	1	125
Added Vol:	3	8	0	0	4	1	11	0	6	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	3054	123	94	821	41	80	26	21	44	1	125
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	3054	123	94	821	41	80	26	21	44	1	125
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	3054	123	94	821	41	80	26	21	44	1	125
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	3054	123	94	821	41	80	26	21	44	1	125

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	2.88	0.12	2.00	2.85	0.15	1.00	0.55	0.45	1.96	0.04	1.00
Final Sat.:	1750	5383	217	3150	5333	266	1750	996	804	3428	78	1750

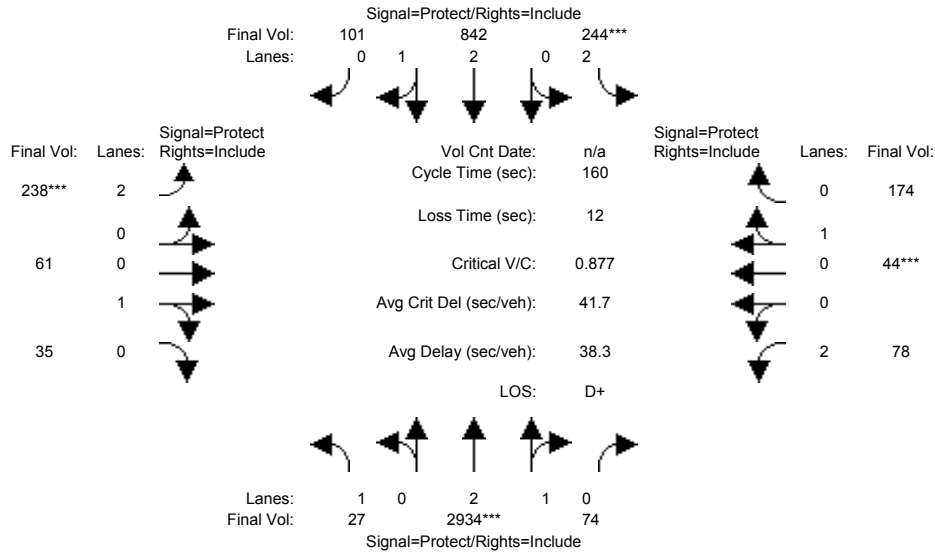
Capacity Analysis Module:												
Vol/Sat:	0.02	0.57	0.57	0.03	0.15	0.15	0.05	0.03	0.03	0.01	0.01	0.07
Crit Moves:	****			****			****			****		
Green Time:	28.4	121	121.2	7.0	99.9	99.9	9.8	11.6	11.6	8.1	10.0	17.0
Volume/Cap:	0.10	0.75	0.75	0.68	0.25	0.25	0.75	0.36	0.36	0.25	0.21	0.67
Delay/Veh:	55.3	11.6	11.6	88.5	13.4	13.4	98.9	72.3	72.3	73.2	71.4	75.7
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:	55.3	11.6	11.6	88.5	13.4	13.4	98.9	72.3	72.3	73.2	71.4	75.7
LOS by Move:	E+	B+	B+	F	B	B	F	E	E	E	E	E-
DesignQueue:	62	683	683	121	255	255	183	103	103	52	51	275

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	27	2917	73	244	837	101	238	61	35	78	44	174
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:	27	2917	73	244	837	101	238	61	35	78	44	174
Added Vol:	0	17	1	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	2934	74	244	842	101	238	61	35	78	44	174
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	2934	74	244	842	101	238	61	35	78	44	174
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	2934	74	244	842	101	238	61	35	78	44	174
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	2934	74	244	842	101	238	61	35	78	44	174

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.92	0.08	2.00	2.67	0.33	2.00	0.64	0.36	2.00	0.20	0.80
Final Sat.:	1750	5462	138	3150	4999	600	3150	1144	656	3150	363	1437

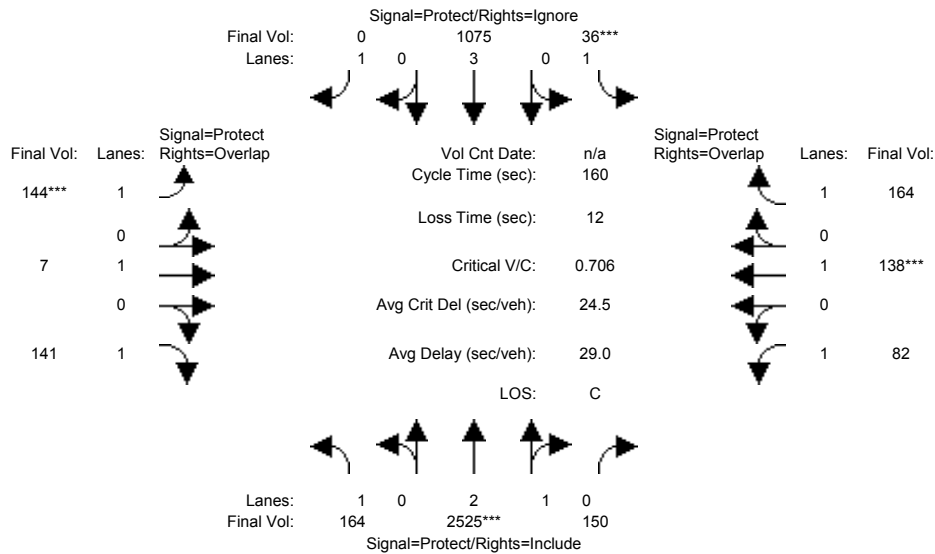
Capacity Analysis Module:												
Vol/Sat:	0.02	0.54	0.54	0.08	0.17	0.17	0.08	0.05	0.05	0.02	0.12	0.12
Crit Moves:	****			****			****			****		
Green Time:	23.1	98.0	98.0	14.1	89.0	89.0	13.8	21.1	21.1	14.8	22.1	22.1
Volume/Cap:	0.11	0.88	0.88	0.88	0.30	0.30	0.88	0.40	0.40	0.27	0.88	0.88
Delay/Veh:	59.7	28.8	28.8	97.5	19.0	19.0	98.2	64.8	64.8	68.1	95.3	95.3
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:	59.7	28.8	28.8	97.5	19.0	19.0	98.2	64.8	64.8	68.1	95.3	95.3
LOS by Move:	E+	C	C	F	B-	B-	F	E	E	E	F	F
DesignQueue:	56	1024	1024	304	330	330	297	198	198	96	455	455

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	164	2511	147	36	1071	330	144	7	140	82	138	164
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:	164	2511	147	36	1071	330	144	7	140	82	138	164
Added Vol:	0	14	3	0	4	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	164	2525	150	36	1075	330	144	7	141	82	138	164
User 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
PHF 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
PHF Volume:	164	2525	150	36	1075	0	144	7	141	82	138	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	164	2525	150	36	1075	0	144	7	141	82	138	164
PCE 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
MLF 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
Final Volume:	164	2525	150	36	1075	0	144	7	141	82	138	164

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5286	314	1750	5700	1750	1750	1900	1750	1750	1900	1750

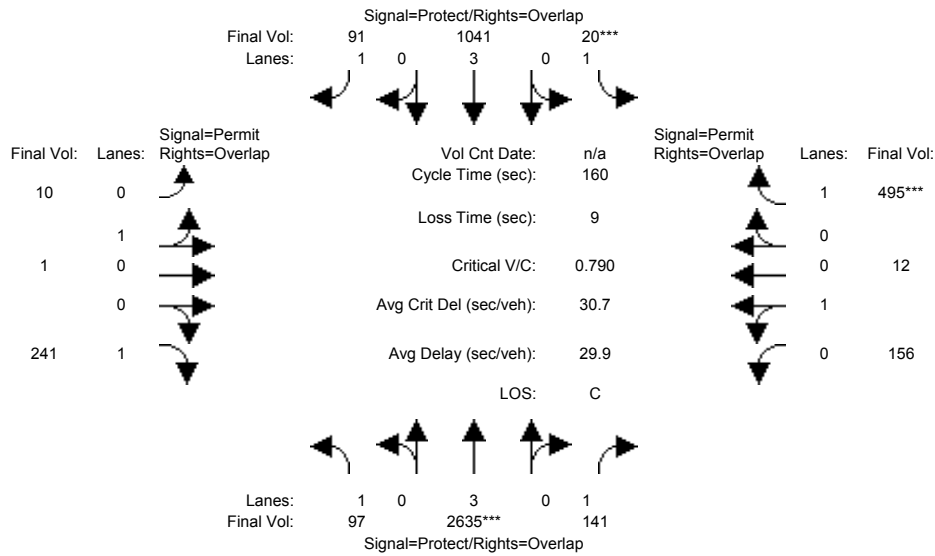
Capacity Analysis Module:												
Vol/Sat:	0.09	0.48	0.48	0.02	0.19	0.00	0.08	0.00	0.08	0.05	0.07	0.09
Crit Moves:	****			****			****			****		
Green Time:	37.7	106	106.5	7.0	75.8	0.0	18.3	19.7	57.4	14.8	16.2	23.2
Volume/Cap:	0.40	0.72	0.72	0.47	0.40	0.00	0.72	0.03	0.22	0.51	0.72	0.65
Delay/Veh:	52.2	17.8	17.8	79.2	27.4	0.0	80.1	61.8	36.0	71.7	82.0	70.2
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:	52.2	17.8	17.8	79.2	27.4	0.0	80.1	61.8	36.0	71.7	82.0	70.2
LOS by Move:	D-	B	B	E-	C	A	F	E	D+	E	F	E
DesignQueue:	310	772	772	84	441	0	314	14	223	182	281	347

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Background AM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	97	2624	138	20	1038	91	10	1	240	156	12	495
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:	97	2624	138	20	1038	91	10	1	240	156	12	495
Added Vol:	0	11	3	0	3	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	2635	141	20	1041	91	10	1	241	156	12	495
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	97	2635	141	20	1041	91	10	1	241	156	12	495
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2635	141	20	1041	91	10	1	241	156	12	495
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	97	2635	141	20	1041	91	10	1	241	156	12	495

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.91	0.09	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1636	164	1750	1671	129	1750

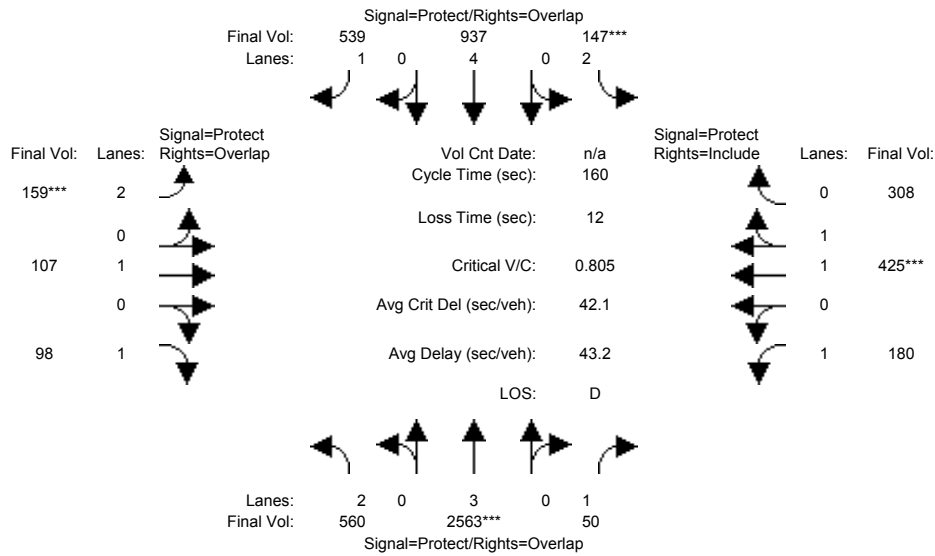
Capacity Analysis Module:												
Vol/Sat:	0.06	0.46	0.08	0.01	0.18	0.05	0.01	0.01	0.14	0.09	0.09	0.28
Crit Moves:	****			****						****		
Green Time:	23.7	94.9	94.9	7.0	78.2	78.2	49.1	49.1	72.8	49.1	49.1	56.1
Volume/Cap:	0.37	0.78	0.14	0.26	0.37	0.11	0.02	0.02	0.30	0.30	0.30	0.81
Delay/Veh:	62.3	25.8	14.5	75.8	25.7	22.1	38.7	38.7	27.8	42.7	42.7	54.8
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:	62.3	25.8	14.5	75.8	25.7	22.1	38.7	38.7	27.8	42.7	42.7	54.8
LOS by Move:	E	C	B	E-	C	C+	D+	D+	C	D	D	D-
DesignQueue:	202	904	141	46	414	114	18	18	329	280	280	838

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
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Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	559	2553	50	147	934	539	159	107	98	180	425	308
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:	559	2553	50	147	934	539	159	107	98	180	425	308
Added Vol:	1	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	560	2563	50	147	937	539	159	107	98	180	425	308
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	560	2563	50	147	937	539	159	107	98	180	425	308
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	560	2563	50	147	937	539	159	107	98	180	425	308
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	560	2563	50	147	937	539	159	107	98	180	425	308

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.14	0.86
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2144	1554

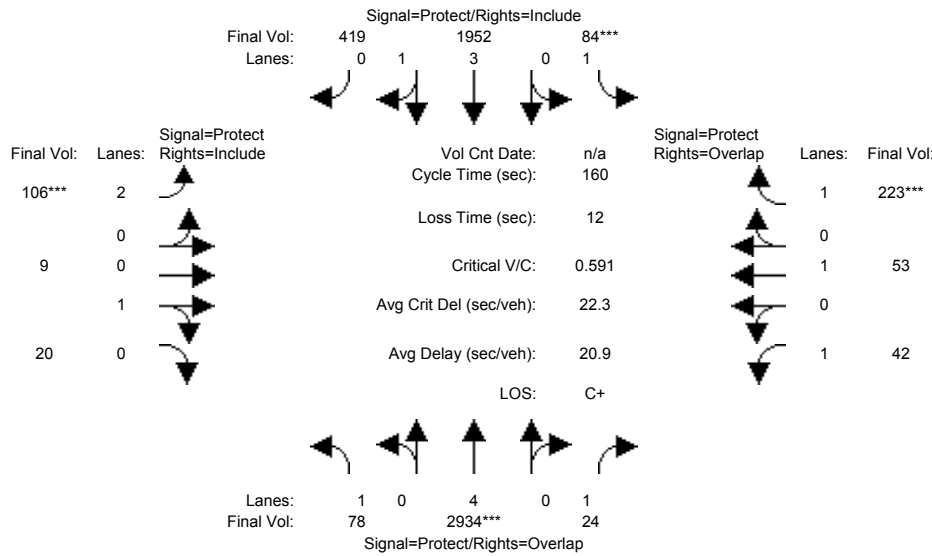
Capacity Analysis Module:												
Vol/Sat:	0.18	0.45	0.03	0.05	0.12	0.31	0.05	0.06	0.06	0.10	0.20	0.20
Crit Moves:	****			****			****			****		
Green Time:	40.3	89.3	120.1	9.3	58.3	68.4	10.0	18.7	58.9	30.7	39.4	39.4
Volume/Cap:	0.71	0.81	0.04	0.81	0.34	0.72	0.81	0.48	0.15	0.54	0.81	0.81
Delay/Veh:	57.4	29.9	5.1	96.9	36.9	41.4	95.0	67.8	33.9	59.9	62.0	62.0
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:	57.4	29.9	5.1	96.9	36.9	41.4	95.0	67.8	33.9	59.9	62.0	62.0
LOS by Move:	E+	C	A	F	D+	D	F	E	C-	E+	E	E
DesignQueue:	589	952	30	188	342	811	202	213	152	361	666	666

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Background AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	78	2924	24	84	1949	419	106	9	20	42	53	223
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:	78	2924	24	84	1949	419	106	9	20	42	53	223
Added Vol:	0	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	78	2934	24	84	1952	419	106	9	20	42	53	223
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	78	2934	24	84	1952	419	106	9	20	42	53	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	78	2934	24	84	1952	419	106	9	20	42	53	223
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	78	2934	24	84	1952	419	106	9	20	42	53	223

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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.26	0.74	2.00	0.31	0.69	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	6172	1325	3150	559	1241	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.04	0.39	0.01	0.05	0.32	0.32	0.03	0.02	0.02	0.02	0.03	0.13
Crit Moves:	****			****			****			****		
Green Time:	14.5	104	117.0	13.0	103	102.9	9.1	18.0	18.0	12.6	21.5	34.5
Volume/Cap:	0.49	0.59	0.02	0.59	0.49	0.49	0.59	0.14	0.14	0.30	0.21	0.59
Delay/Veh:	71.6	15.9	5.9	77.4	15.0	15.0	78.8	64.4	64.4	70.8	62.1	58.9
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:	71.6	15.9	5.9	77.4	15.0	15.0	78.8	64.4	64.4	70.8	62.1	58.9
LOS by Move:	E	B	A	E-	B	B	E-	E	E	E	E	E+
DesignQueue:	173	630	16	189	520	520	135	61	61	94	103	437

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	3	39	185	31	185	115	3036	79	27	985	96
Future Volume (vph)	26	3	39	185	31	185	115	3036	79	27	985	96
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5532		1304	3690	
Flt Permitted	0.74	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1010	1373	1144	1029	1373	1167	1304	5532		1304	3690	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	3	41	195	33	195	121	3196	83	28	1037	101
RTOR Reduction (vph)	0	0	32	0	0	150	0	2	0	0	8	0
Lane Group Flow (vph)	27	3	9	195	33	45	121	3277	0	28	1130	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1		6
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.2		6.0	64.8	
Effective Green, g (s)	27.5	27.5	27.5	27.5	27.5	27.5	14.4	73.2		6.0	64.8	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.12	0.61		0.05	0.54	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	314	262	235	314	267	156	3374		65	1992	
v/s Ratio Prot		0.00			0.02		0.09	c0.59		0.02	c0.31	
v/s Ratio Perm	0.03		0.01	c0.19		0.04						
v/c Ratio	0.12	0.01	0.04	0.83	0.11	0.17	0.78	0.97		0.43	0.57	
Uniform Delay, d1	36.6	35.7	35.9	44.0	36.5	37.1	51.2	22.4		55.3	18.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.12	0.63		0.54	0.30	
Incremental Delay, d2	0.2	0.0	0.1	20.9	0.1	0.3	19.2	9.6		3.8	0.3	
Delay (s)	36.9	35.7	36.0	64.9	36.7	37.4	76.4	23.7		33.5	5.8	
Level of Service	D	D	D	E	D	D	E	C		C	A	
Approach Delay (s)		36.3			50.0			25.5			6.4	
Approach LOS		D			D			C			A	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1598	0	72	0	0	0	0	2473	774	80	1036	0
Future Volume (vph)	1598	0	72	0	0	0	0	2473	774	80	1036	0
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.98						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2373	1174						5559	1147	1304	3747	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2373	1174						5559	1147	1304	3747	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1665	0	75	0	0	0	0	2576	806	83	1079	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	418	0	0	0
Lane Group Flow (vph)	1165	516	0	0	0	0	0	2576	388	83	1079	0
Confl. Bikes (#/hr)									9			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Effective Green, g (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Actuated g/C Ratio	0.33	0.33						0.45	0.45	0.07	0.57	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	773	382						2487	513	94	2145	
v/s Ratio Prot	c0.49	0.44						c0.46		c0.06	0.29	
v/s Ratio Perm									0.34			
v/c Ratio	1.51	1.35						1.04	0.76	0.88	0.50	
Uniform Delay, d1	40.5	40.5						33.1	27.7	55.1	15.4	
Progression Factor	1.00	1.00						0.54	5.58	1.12	0.55	
Incremental Delay, d2	234.9	174.7						22.1	4.1	55.4	0.1	
Delay (s)	275.4	215.1						40.1	158.5	117.1	8.6	
Level of Service	F	F						D	F	F	A	
Approach Delay (s)		255.5			0.0			68.3			16.4	
Approach LOS		F			A			E			B	

Intersection Summary

HCM 2000 Control Delay	110.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	164.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	689	36	525	134	3936	0	0	428	176
Future Volume (vph)	0	0	0	689	36	525	134	3936	0	0	428	176
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1693	1583	1304	4722			4515	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1693	1583	1304	4722			4515	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	741	39	565	144	4232	0	0	460	189
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	101	0
Lane Group Flow (vph)	0	0	0	393	387	510	144	4232	0	0	548	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	58.3	84.7			21.1	
Effective Green, g (s)				25.1	25.1	25.1	58.3	84.7			21.1	
Actuated g/C Ratio				0.21	0.21	0.21	0.49	0.71			0.18	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	354	331	633	3332			793	
v/s Ratio Prot				0.23	0.23		0.11	c0.90			0.12	
v/s Ratio Perm						c0.32						
v/c Ratio				1.12	1.09	1.54	0.23	1.27			0.69	
Uniform Delay, d1				47.5	47.5	47.5	17.8	17.6			46.4	
Progression Factor				1.00	1.00	1.00	1.67	0.99			1.00	
Incremental Delay, d2				84.4	75.2	258.5	0.1	121.8			2.3	
Delay (s)				131.9	122.7	306.0	29.8	139.3			48.5	
Level of Service				F	F	F	C	F			D	
Approach Delay (s)		0.0			202.4			135.7			48.5	
Approach LOS		A			F			F			D	

Intersection Summary

HCM 2000 Control Delay	140.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	164.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



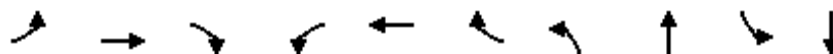
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	26	137	140	119	4	1317	2542	652	5	347	85
Future Volume (vph)	15	26	137	140	119	4	1317	2542	652	5	347	85
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3613		1304	4555	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3613		1304	4555	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	16	28	147	151	128	4	1416	2733	701	5	373	91
RTOR Reduction (vph)	0	0	59	0	1	0	0	23	0	0	37	0
Lane Group Flow (vph)	16	28	88	151	131	0	1416	3411	0	5	427	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.6	71.5	16.0	18.4		65.9	79.0		1.2	14.3	
Effective Green, g (s)	3.2	5.6	71.5	16.0	18.4		65.9	79.0		1.2	14.3	
Actuated g/C Ratio	0.03	0.05	0.60	0.13	0.15		0.55	0.66		0.01	0.12	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	64	732	337	209		1389	2378		13	542	
v/s Ratio Prot	0.01	c0.02	0.07	0.06	c0.10		c0.56	c0.94		0.00	0.09	
v/s Ratio Perm			0.01									
v/c Ratio	0.47	0.44	0.12	0.45	0.63		1.02	1.43		0.38	0.79	
Uniform Delay, d1	57.6	55.7	10.6	47.9	47.6		27.0	20.5		59.0	51.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.85	0.89		1.00	1.00	
Incremental Delay, d2	9.9	4.7	0.1	1.0	5.8		12.9	195.7		17.9	7.5	
Delay (s)	67.5	60.4	10.6	48.9	53.4		35.8	213.9		76.9	58.8	
Level of Service	E	E	B	D	D		D	F		E	E	
Approach Delay (s)		22.7			51.0			161.9			59.0	
Approach LOS		C			D			F			E	

Intersection Summary

HCM 2000 Control Delay	143.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	118.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	27	3	41	195	33	195	121	3279	28	1138
v/c Ratio	0.12	0.01	0.12	0.83	0.11	0.47	0.78	0.95	0.31	0.57
Control Delay	34.3	31.0	0.7	70.3	33.9	8.4	85.1	20.9	35.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1	0.0	0.0
Total Delay	34.3	31.0	0.7	70.3	33.9	8.4	85.1	40.1	35.3	6.9
Queue Length 50th (ft)	17	2	0	143	20	0	66	458	20	88
Queue Length 95th (ft)	39	9	0	218	44	57	m71	286	m39	m99
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	411	416	308	411	486	173	3451	173	2001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	27
Spillback Cap Reductn	0	0	0	0	0	10	0	299	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.01	0.10	0.63	0.08	0.41	0.70	1.04	0.16	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Background + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1165	575	2576	806	83	1079
v/c Ratio	1.51	1.31	1.04	0.87	0.88	0.50
Control Delay	266.1	183.5	41.6	20.1	125.0	9.1
Queue Delay	0.0	0.5	27.2	49.0	0.0	1.4
Total Delay	266.1	184.0	68.8	69.1	125.0	10.5
Queue Length 50th (ft)	~689	~578	~532	626	40	56
Queue Length 95th (ft)	#831	#825	m#568	m264	#142	m67
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	440	2487	931	94	2145
Starvation Cap Reductn	0	0	237	257	0	812
Spillback Cap Reductn	0	22	725	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.51	1.38	1.46	1.20	0.88	0.81

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Background + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



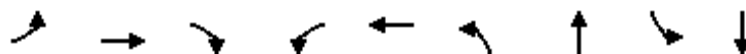
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	393	387	565	144	4232	649
v/c Ratio	1.12	1.09	1.47	0.23	1.27	0.73
Control Delay	128.2	119.8	255.3	32.6	141.9	41.4
Queue Delay	0.0	0.0	0.5	2.5	0.5	0.0
Total Delay	128.2	119.8	255.8	35.0	142.4	41.4
Queue Length 50th (ft)	~368	~355	~559	74	~1138	84
Queue Length 95th (ft)	#575	#561	#782	m71	m#818	134
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	354	385	633	3332	2307
Starvation Cap Reductn	0	0	0	378	775	201
Spillback Cap Reductn	0	0	20	0	687	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.12	1.09	1.55	0.56	1.66	0.31

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Background + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	28	147	151	132	1416	3434	5	464
v/c Ratio	0.19	0.28	0.19	0.46	0.63	0.98	1.34	0.08	0.80
Control Delay	58.3	59.3	2.3	52.2	59.6	28.3	172.2	57.2	58.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	41.4	0.4	0.0	0.0
Total Delay	58.3	59.3	2.3	52.3	59.6	69.7	172.5	57.2	58.0
Queue Length 50th (ft)	12	21	0	58	90	600	~1257	4	93
Queue Length 95th (ft)	36	51	27	86	156	m469	m#980	18	126
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	778	506	388	1440	2564	65	595
Starvation Cap Reductn	0	0	0	0	0	579	397	0	0
Spillback Cap Reductn	0	0	2	41	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.19	0.32	0.34	1.64	1.58	0.08	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

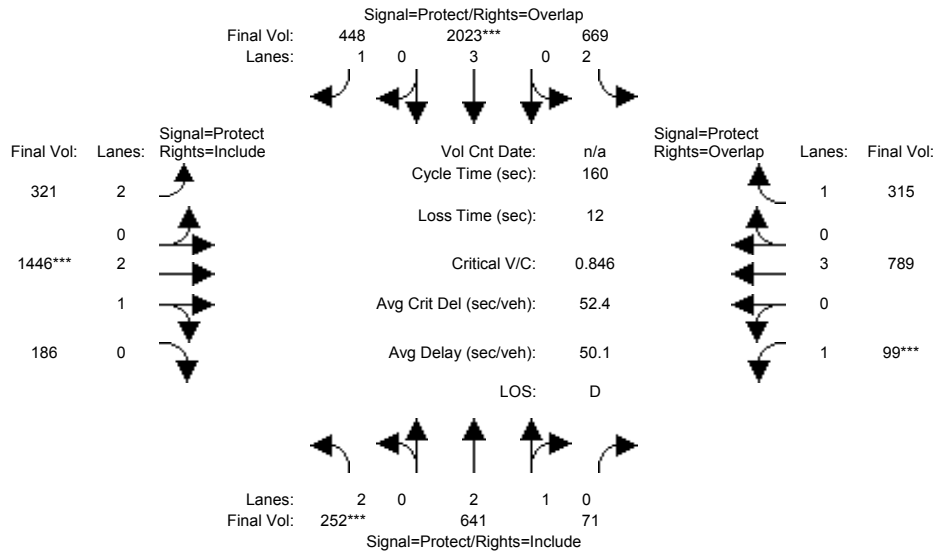
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	252	637	71	667	2021	447	318	1446	186	99	789	311
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:	252	637	71	667	2021	447	318	1446	186	99	789	311
Added Vol:	0	4	0	2	2	1	3	0	0	0	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	252	641	71	669	2023	448	321	1446	186	99	789	315
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	252	641	71	669	2023	448	321	1446	186	99	789	315
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	252	641	71	669	2023	448	321	1446	186	99	789	315
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	252	641	71	669	2023	448	321	1446	186	99	789	315

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.69	0.31	2.00	3.00	1.00	2.00	2.65	0.35	1.00	3.00	1.00
Final Sat.:	3150	5041	558	3150	5700	1750	3150	4961	638	1750	5700	1750

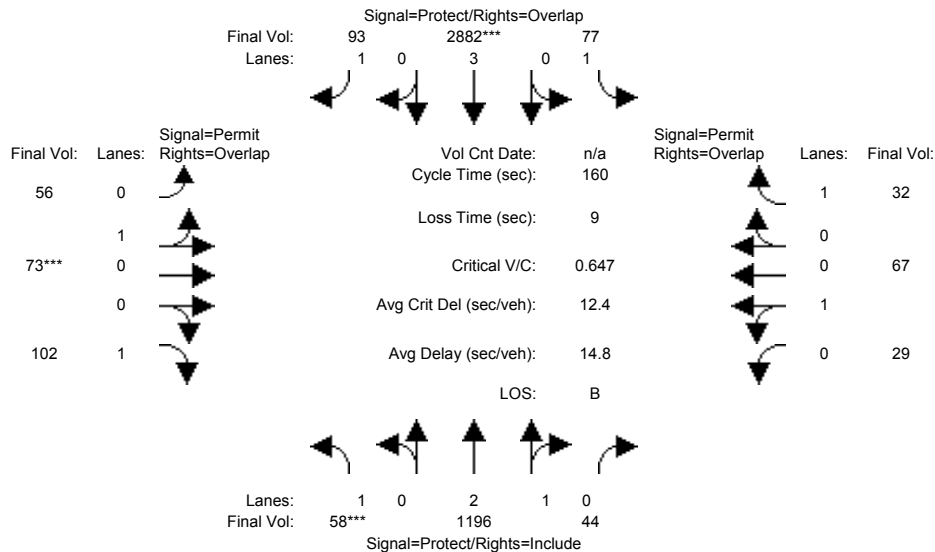
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.08	0.13	0.13	0.21	0.35	0.26	0.10	0.29	0.29	0.06	0.14	0.18
Crit Moves:	****			****			****			****		
Green Time:	15.1	30.8	30.8	51.4	67.1	95.0	27.9	55.1	55.1	10.7	37.9	89.3
Volume/Cap:	0.85	0.66	0.66	0.66	0.85	0.43	0.58	0.85	0.85	0.85	0.58	0.32
Delay/Veh:	90.9	61.3	61.3	48.4	44.8	18.0	62.3	52.2	52.2	114.2	54.7	19.2
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:	90.9	61.3	61.3	48.4	44.8	18.0	62.3	52.2	52.2	114.2	54.7	19.2
LOS by Move:	F	E	E	D	D	B-	E	D-	D-	F	D-	B-
DesignQueue:	312	449	449	645	960	471	365	874	874	226	463	352

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	58	1186	44	77	2877	93	56	73	102	29	67	32
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:	58	1186	44	77	2877	93	56	73	102	29	67	32
Added Vol:	0	10	0	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	58	1196	44	77	2882	93	56	73	102	29	67	32
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	58	1196	44	77	2882	93	56	73	102	29	67	32
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	58	1196	44	77	2882	93	56	73	102	29	67	32
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	58	1196	44	77	2882	93	56	73	102	29	67	32

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.89	0.11	1.00	3.00	1.00	0.43	0.57	1.00	0.30	0.70	1.00
Final Sat.:	1750	5401	199	1750	5700	1750	781	1019	1750	544	1256	1750

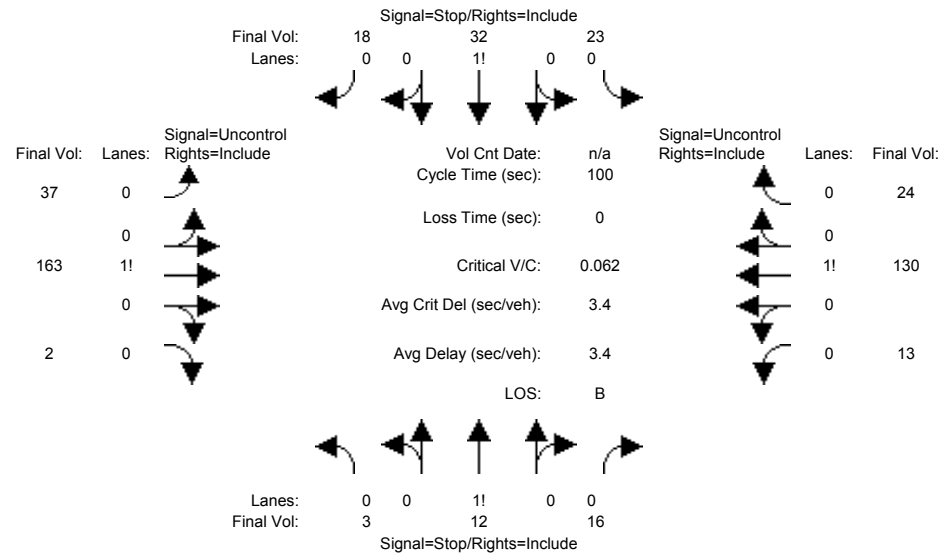
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.03	0.22	0.22	0.04	0.51	0.05	0.07	0.07	0.06	0.05	0.05	0.02
Crit Moves:	***			****			***					
Green Time:	8.2	111	111.2	22.1	125	125.1	17.7	17.7	25.9	17.7	17.7	39.8
Volume/Cap:	0.65	0.32	0.32	0.32	0.65	0.07	0.65	0.65	0.36	0.48	0.48	0.07
Delay/Veh:	89.7	9.6	9.6	62.9	8.0	4.0	75.3	75.3	60.4	68.6	68.6	46.0
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:	89.7	9.6	9.6	62.9	8.0	4.0	75.3	75.3	60.4	68.6	68.6	46.0
LOS by Move:	F	A	A	E	A	A	E-	E-	E	E	E	D
DesignQueue:	134	303	303	162	538	50	274	274	209	203	203	58

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name: Charles St W Iowa Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	3	12	16	23	32	18	36	163	2	13	129	24
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	12	16	23	32	18	36	163	2	13	129	24
Added Vol:	0	0	0	0	0	0	1	0	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	12	16	23	32	18	37	163	2	13	130	24
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	12	16	23	32	18	37	163	2	13	130	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	12	16	23	32	18	37	163	2	13	130	24

Critical Gap Module:

Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	431	418	164	420	407	142	154	xxxx	xxxxxx	165	xxxx	xxxxxx
Potent Cap.:	538	529	886	547	537	911	1439	xxxx	xxxxxx	1426	xxxx	xxxxxx
Move Cap.:	489	510	886	514	518	911	1439	xxxx	xxxxxx	1426	xxxx	xxxxxx
Volume/Cap:	0.01	0.02	0.02	0.04	0.06	0.02	0.03	xxxx	xxxx	0.01	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	2.0	xxxx	xxxxxx	0.7	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.6	xxxx	xxxxxx	7.5	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	650	xxxxxx	xxxx	578	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.4	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.8	xxxxxx	xxxxxx	12.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.8			12.1			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 12 16	23 32 18	37 163 2	13 130 24
ApproachDel:	10.8	12.1	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=31]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=473]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=73]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=473]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 12 16	23 32 18	37 163 2	13 130 24

Major Street Volume: 369
 Minor Approach Volume: 73
 Minor Approach Volume Threshold: 485

SIGNAL WARRANT DISCLAIMER

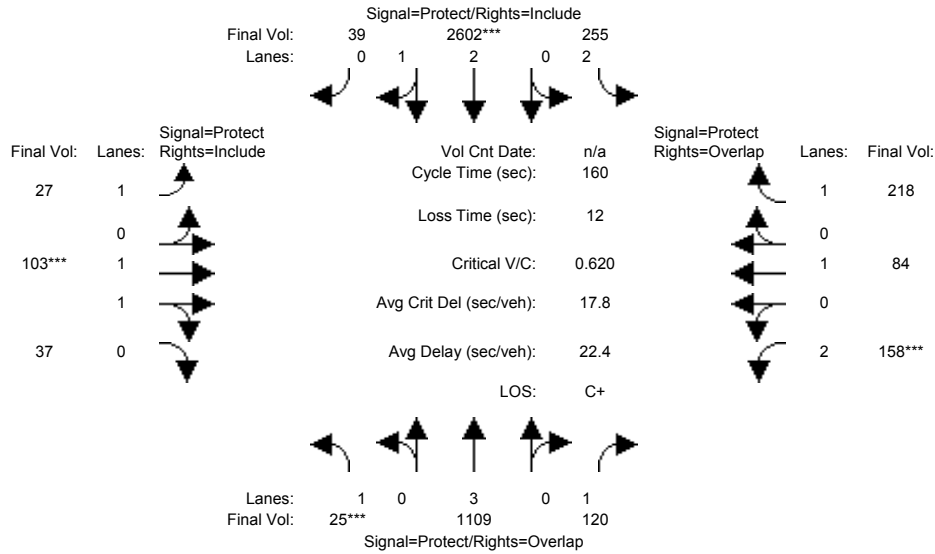
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	25	1099	120	249	2597	38	27	103	37	158	84	217
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:	25	1099	120	249	2597	38	27	103	37	158	84	217
Added Vol:	0	10	0	6	5	1	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	25	1109	120	255	2602	39	27	103	37	158	84	218
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	25	1109	120	255	2602	39	27	103	37	158	84	218
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	25	1109	120	255	2602	39	27	103	37	158	84	218
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	25	1109	120	255	2602	39	27	103	37	158	84	218

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.95	0.05	1.00	1.46	0.54	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5517	83	1750	2721	978	3150	1900	1750

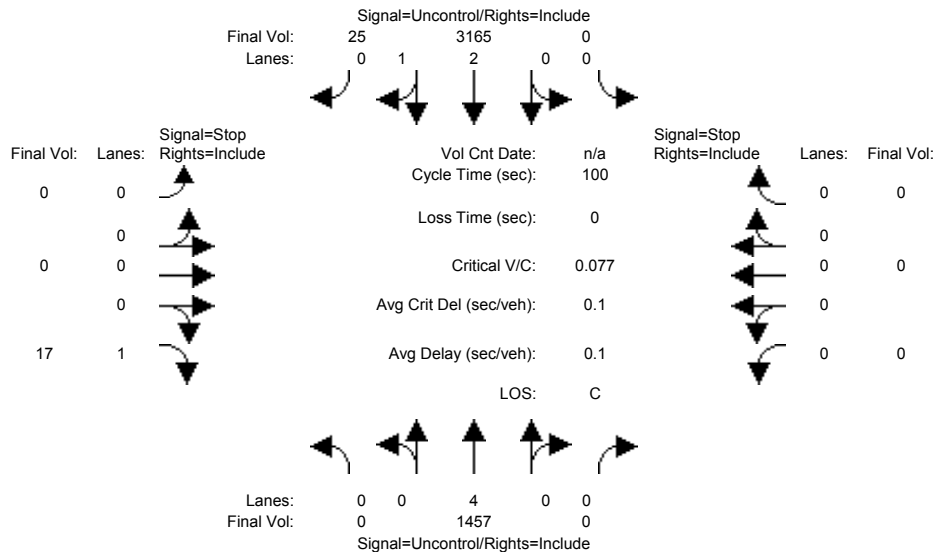
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.01	0.19	0.07	0.08	0.47	0.47	0.02	0.04	0.04	0.05	0.04	0.12
Crit Moves:	***			****			****			****		
Green Time:	7.0	88.6	101.2	36.8	118	118.4	9.3	10.0	10.0	12.6	13.3	50.1
Volume/Cap:	0.33	0.35	0.11	0.35	0.64	0.64	0.27	0.61	0.61	0.64	0.53	0.40
Delay/Veh:	76.7	19.9	11.7	51.9	10.6	10.6	73.5	77.6	77.6	76.9	73.8	43.6
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:	76.7	19.9	11.7	51.9	10.6	10.6	73.5	77.6	77.6	76.9	73.8	43.6
LOS by Move:	E-	B-	B+	D-	B+	B+	E	E-	E-	E-	E	D
DesignQueue:	58	387	108	269	591	591	62	151	151	198	173	373

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave				Project Dwy (Restaurant)							
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:												
Base Vol:	0	1440	0	0	3162	12	0	0	8	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:	0	1440	0	0	3162	12	0	0	8	0	0	0
Added Vol:	0	17	0	0	3	13	0	0	9	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1457	0	0	3165	25	0	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1457	0	0	3165	25	0	0	17	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	1457	0	0	3165	25	0	0	17	0	0	0

Critical Gap Module:												
Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:												
Cnflct Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	1068	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	221	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	221	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.08	xxxx	xxxx	xxxx

Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	6.2	xxxx	xxxx	xxxxxx			
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	22.6	xxxxxx	xxxx	xxxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx			
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*			
ApproachDel:	xxxxxxx			xxxxxxx					22.6	xxxxxxx					
ApproachLOS:	*			*					C	*					

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1457 0	0 3165 25	0 0 0 17	0 0 0 0
ApproachDel:	xxxxxxx	xxxxxxx	22.6	xxxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=17]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=4664]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1457 0	0 3165 25	0 0 0 17	0 0 0 0

Major Street Volume: 4647

Minor Approach Volume: 17

Minor Approach Volume Threshold: -244 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

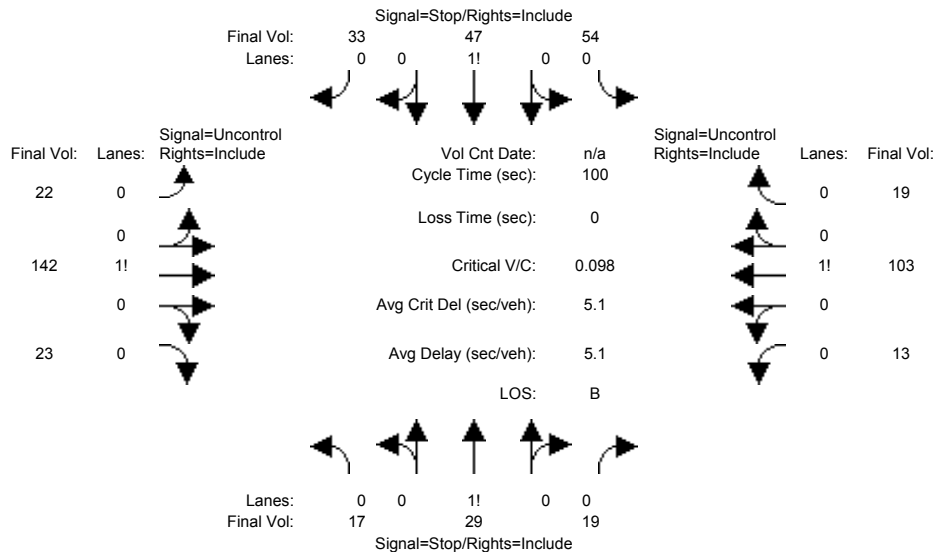
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Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Volume Module:															
Base Vol:	17	29	18	54	47	33	22	140	23	13	102	19			
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:	17	29	18	54	47	33	22	140	23	13	102	19			
Added Vol:	0	0	1	0	0	0	0	2	0	0	1	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	17	29	19	54	47	33	22	142	23	13	103	19			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	17	29	19	54	47	33	22	142	23	13	103	19			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	17	29	19	54	47	33	22	142	23	13	103	19			
Critical Gap Module:															
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx			
Capacity Module:															
Cnflct Vol:	376	346	154	360	348	113	122	xxxx	xxxxx	165	xxxx	xxxxx			
Potent Cap.:	585	581	898	599	579	946	1478	xxxx	xxxxx	1426	xxxx	xxxxx			
Move Cap.:	519	567	898	553	565	946	1478	xxxx	xxxxx	1426	xxxx	xxxxx			
Volume/Cap:	0.03	0.05	0.02	0.10	0.08	0.03	0.01	xxxx	xxxx	0.01	xxxx	xxxx			
Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.1	xxxx	xxxxx	0.7	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.5	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	619	xxxxx	xxxx	622	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	0.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	11.5	xxxxx	xxxxx	12.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*			
ApproachDel:	11.5			12.4			xxxxxxx			xxxxxxx					
ApproachLOS:	B			B			*			*					

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	17 29 19	54 47 33	22 142 23	13 103 19
ApproachDel:	11.5	12.4	xxxxxxx	xxxxxxx

```

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=65]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=521]
    FAIL - Total volume less than 650 for intersection
        with less than four approaches.
    
```

```

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=134]
    SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=521]
    FAIL - Total volume less than 650 for intersection
        with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	17 29 19	54 47 33	22 142 23	13 103 19
Major Street Volume:	322			
Minor Approach Volume:	134			
Minor Approach Volume Threshold:	522			

SIGNAL WARRANT DISCLAIMER

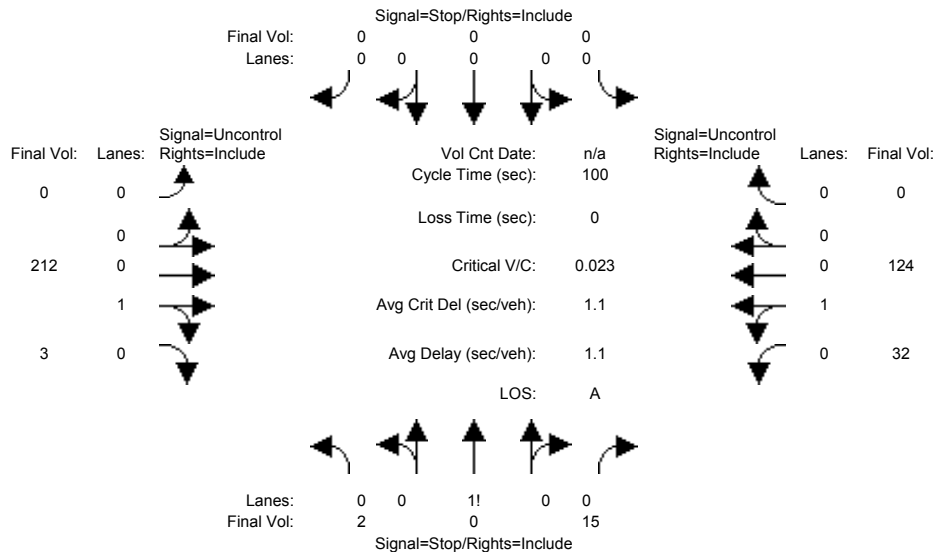
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Background PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	L	T	R	L	T	R	L	T	R	L	T	R
Base Vol:	1	0	7	0	0	0	0	211	1	10	124	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:	1	0	7	0	0	0	0	211	1	10	124	0
Added Vol:	1	0	8	0	0	0	0	1	2	22	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	0	15	0	0	0	0	212	3	32	124	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	0	15	0	0	0	0	212	3	32	124	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	0	15	0	0	0	0	212	3	32	124	0

Critical Gap Module:	L	T	R	L	T	R	L	T	R	L	T	R
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:	L	T	R	L	T	R	L	T	R	L	T	R
Cnflct Vol:	402	402	214	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	215	xxxx	xxxxxx
Potent Cap.:	608	540	832	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1367	xxxx	xxxxxx
Move Cap.:	597	527	832	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1367	xxxx	xxxxxx
Volume/Cap:	0.00	0.00	0.02	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.02	xxxx	xxxxxx

Level Of Service Module:	L	T	R	L	T	R	L	T	R	L	T	R
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1.8	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.7	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	795	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	0.1	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.6	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.7	xxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.6			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	A			*			*			*		

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 15	0 0 0	0 212 3	32 124 0
ApproachDel:	9.6	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=17]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=388]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 15	0 0 0	0 212 3	32 124 0

Major Street Volume: 371
 Minor Approach Volume: 17
 Minor Approach Volume Threshold: 484

SIGNAL WARRANT DISCLAIMER

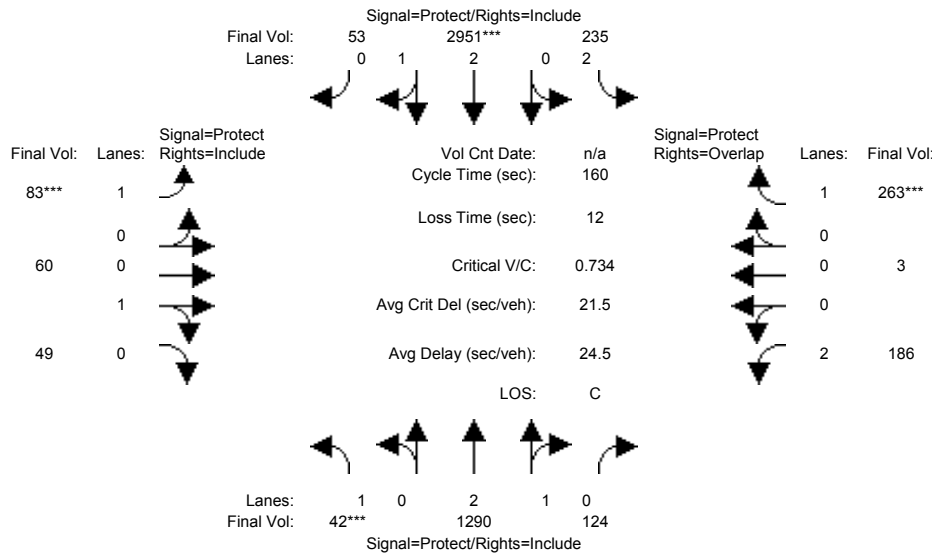
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	1285	124	235	2943	39	78	60	45	186	3	263
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:	31	1285	124	235	2943	39	78	60	45	186	3	263
Added Vol:	11	5	0	0	8	14	5	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	1290	124	235	2951	53	83	60	49	186	3	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	42	1290	124	235	2951	53	83	60	49	186	3	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	1290	124	235	2951	53	83	60	49	186	3	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	42	1290	124	235	2951	53	83	60	49	186	3	263

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.93	0.95	0.95
Lanes:	1.00	2.73	0.27	2.00	2.95	0.05	1.00	0.55	0.45	1.97	0.03	1.00
Final Sat.:	1750	5108	491	3150	5501	99	1750	991	809	3464	56	1800

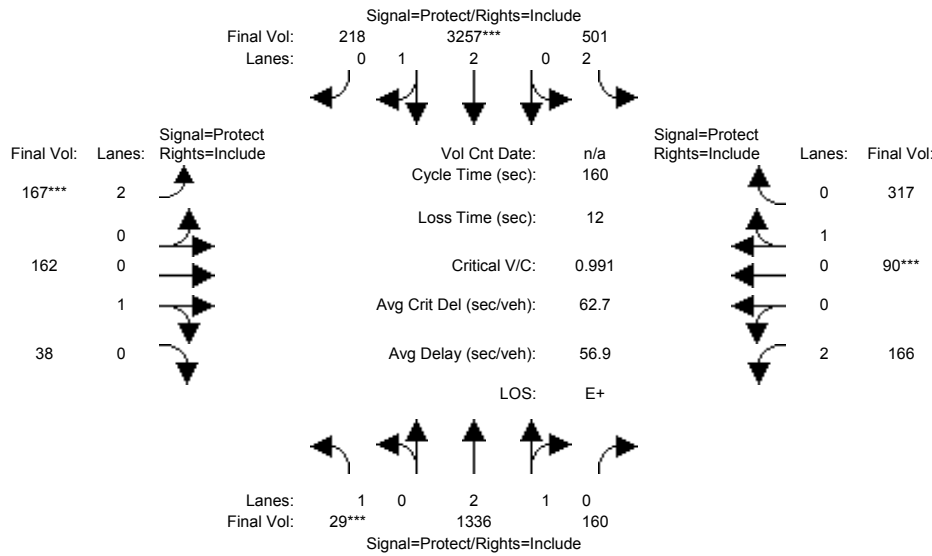
Capacity Analysis Module:												
Vol/Sat:	0.02	0.25	0.25	0.07	0.54	0.54	0.05	0.06	0.06	0.05	0.05	0.15
Crit Moves:	***			****			****					****
Green Time:	7.0	94.5	94.5	27.9	115	115.4	10.2	13.8	13.8	11.8	15.4	43.3
Volume/Cap:	0.55	0.43	0.43	0.43	0.74	0.74	0.74	0.70	0.70	0.73	0.56	0.54
Delay/Veh:	83.1	18.0	18.0	59.5	14.2	14.2	97.0	84.8	84.8	76.8	69.9	50.6
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:	83.1	18.0	18.0	59.5	14.2	14.2	97.0	84.8	84.8	76.8	69.9	50.6
LOS by Move:	F	B-	B-	E+	B	B	F	F	F	E-	E	D
DesignQueue:	98	468	468	265	735	735	190	237	237	213	208	468

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	S Mathilda Ave NB			S Mathilda Ave SB			W Washington Ave EB			W Washington Ave WB		
Base Vol:	29	1326	159	501	3237	218	167	162	38	165	90	317
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	1326	159	501	3237	218	167	162	38	165	90	317
Added Vol:	0	10	1	0	20	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	1336	160	501	3257	218	167	162	38	166	90	317
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	29	1336	160	501	3257	218	167	162	38	166	90	317
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	1336	160	501	3257	218	167	162	38	166	90	317
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	29	1336	160	501	3257	218	167	162	38	166	90	317

Saturation Flow Module:	S Mathilda Ave NB			S Mathilda Ave SB			W Washington Ave EB			W Washington Ave WB		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.67	0.33	2.00	2.80	0.20	2.00	0.81	0.19	2.00	0.22	0.78
Final Sat.:	1750	5000	599	3150	5248	351	3150	1458	342	3150	398	1402

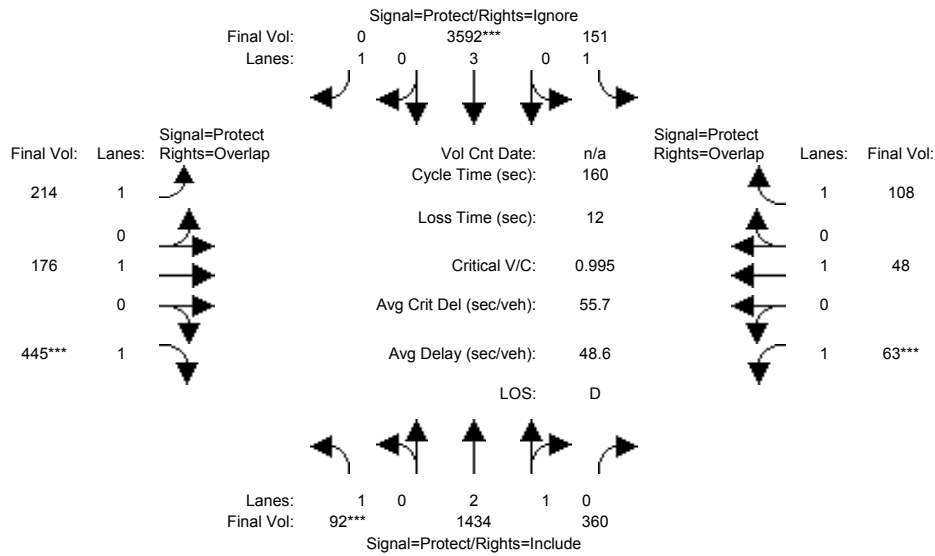
Capacity Analysis Module:	S Mathilda Ave NB			S Mathilda Ave SB			W Washington Ave EB			W Washington Ave WB		
Vol/Sat:	0.02	0.27	0.27	0.16	0.62	0.62	0.05	0.11	0.11	0.05	0.23	0.23
Crit Moves:	***			****			****			****		
Green Time:	7.0	65.4	65.4	38.9	97.3	97.3	8.3	29.7	29.7	14.1	35.4	35.4
Volume/Cap:	0.38	0.65	0.65	0.65	1.02	1.02	1.02	0.60	0.60	0.60	1.02	1.02
Delay/Veh:	77.5	38.9	38.9	56.5	52.4	52.4	151.8	62.7	62.7	73.9	113	112.8
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:	77.5	38.9	38.9	56.5	52.4	52.4	151.8	62.7	62.7	73.9	113	112.8
LOS by Move:	E-	D+	D+	E+	D-	D-	F	E	E	E	F	F
DesignQueue:	67	718	718	531	1229	1229	215	394	394	206	790	790

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	92	1426	358	151	3575	398	214	176	441	63	48	108
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:	92	1426	358	151	3575	398	214	176	441	63	48	108
Added Vol:	0	8	2	0	17	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	92	1434	360	151	3592	398	214	176	445	63	48	108
User 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
PHF 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
PHF Volume:	92	1434	360	151	3592	0	214	176	445	63	48	108
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	1434	360	151	3592	0	214	176	445	63	48	108
PCE 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
MLF 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
Final Volume:	92	1434	360	151	3592	0	214	176	445	63	48	108

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.38	0.62	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4475	1123	1750	5700	1750	1750	1900	1750	1750	1900	1750

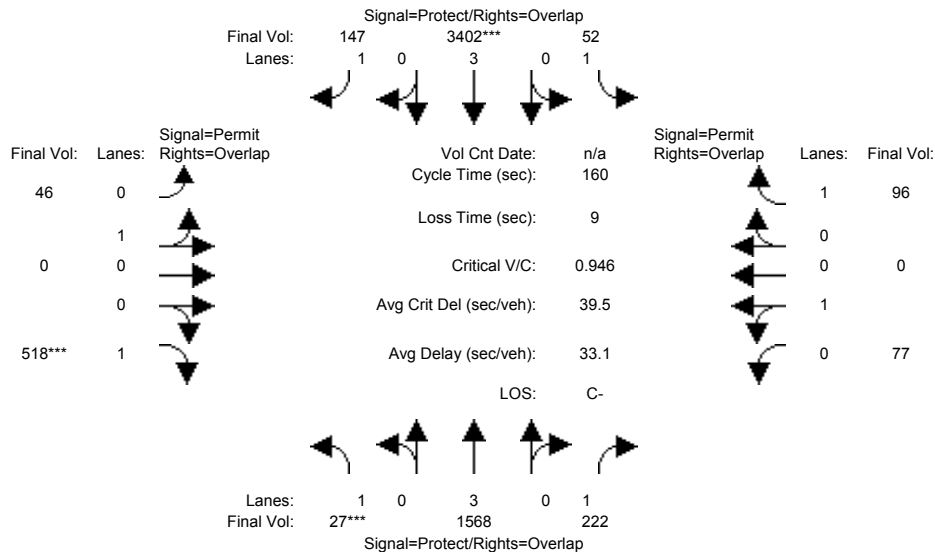
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.05	0.32	0.32	0.09	0.63	0.00	0.12	0.09	0.25	0.04	0.03	0.06
Crit Moves:	***			****			****			****		
Green Time:	8.4	85.8	85.8	23.1	100	0.0	25.9	32.2	40.5	7.0	13.2	36.3
Volume/Cap:	1.00	0.60	0.60	0.60	1.00	0.00	0.76	0.46	1.00	0.82	0.31	0.27
Delay/Veh:	170.8	25.7	25.7	68.0	45.7	0.0	75.0	57.2	103.4	124.5	70.2	51.3
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:	170.8	25.7	25.7	68.0	45.7	0.0	75.0	57.2	103.4	124.5	70.2	51.3
LOS by Move:	F	C	C	E	D	A	E	E+	F	F	E	D-
DesignQueue:	213	686	686	319	1188	0	447	320	859	147	98	205

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	27	1562	220	52	3389	147	46	0	514	77	0	96
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:	27	1562	220	52	3389	147	46	0	514	77	0	96
Added Vol:	0	6	2	0	13	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	1568	222	52	3402	147	46	0	518	77	0	96
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	27	1568	222	52	3402	147	46	0	518	77	0	96
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1568	222	52	3402	147	46	0	518	77	0	96
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	27	1568	222	52	3402	147	46	0	518	77	0	96

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750

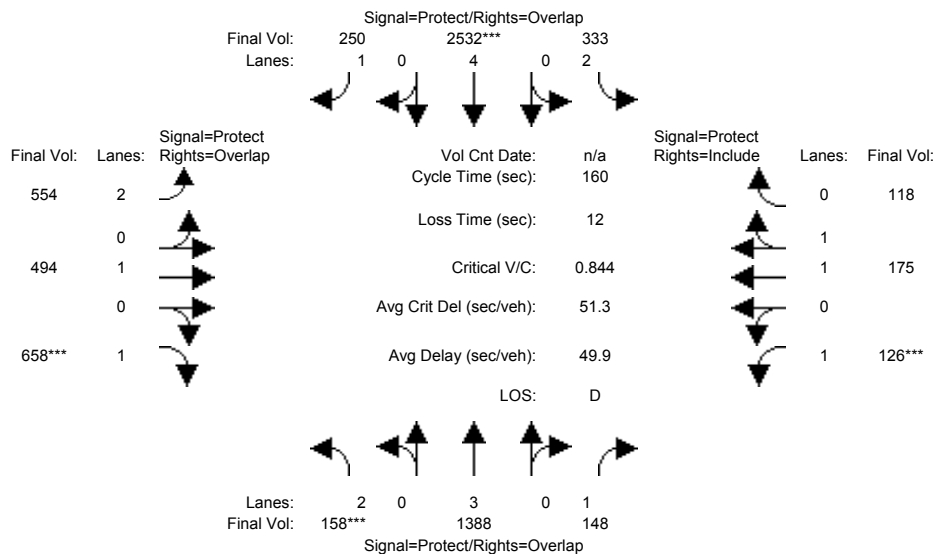
Capacity Analysis Module:												
Vol/Sat:	0.02	0.28	0.13	0.03	0.60	0.08	0.03	0.00	0.30	0.04	0.00	0.05
Crit Moves:	***			***			***			***		
Green Time:	7.0	93.4	93.4	14.8	101	101.2	42.8	0.0	49.8	42.8	0.0	57.6
Volume/Cap:	0.35	0.47	0.22	0.32	0.94	0.13	0.10	0.00	0.95	0.16	0.00	0.15
Delay/Veh:	77.1	19.2	16.0	69.0	32.9	11.8	44.2	0.0	80.7	45.0	0.0	34.8
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:	77.1	19.2	16.0	69.0	32.9	11.8	44.2	0.0	80.7	45.0	0.0	34.8
LOS by Move:	E-	B-	B	E	C-	B+	D	A	F	D	A	C-
DesignQueue:	63	522	231	115	1099	133	80	0	934	134	0	150

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	157	1382	148	333	2520	250	554	494	657	126	175	118
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:	157	1382	148	333	2520	250	554	494	657	126	175	118
Added Vol:	1	6	0	0	12	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	158	1388	148	333	2532	250	554	494	658	126	175	118
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	158	1388	148	333	2532	250	554	494	658	126	175	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	158	1388	148	333	2532	250	554	494	658	126	175	118
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	158	1388	148	333	2532	250	554	494	658	126	175	118

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.17	0.83
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2209	1489

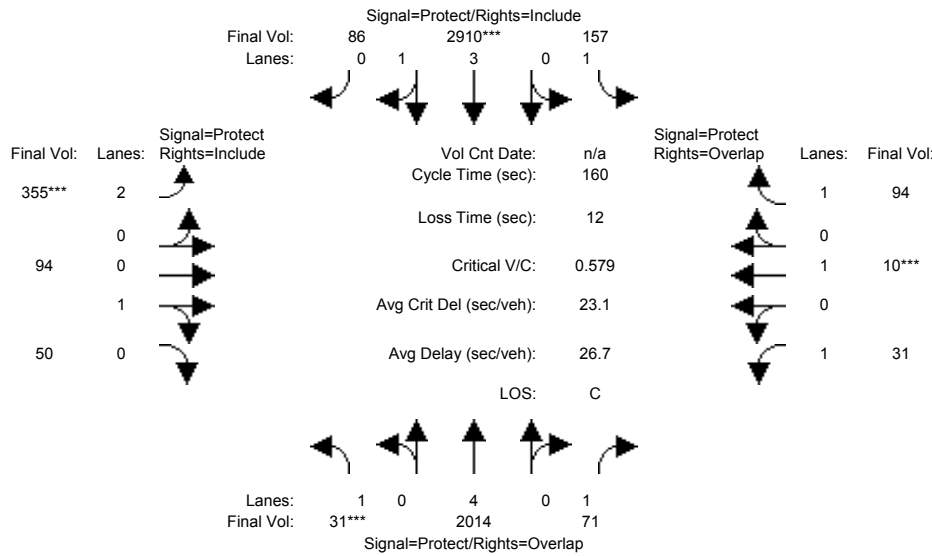
Capacity Analysis Module:												
Vol/Sat:	0.05	0.24	0.08	0.11	0.33	0.14	0.18	0.26	0.38	0.07	0.08	0.08
Crit Moves:	***			****					****	****		
Green Time:	9.5	50.6	64.3	22.0	63.1	115.1	52.0	61.7	71.2	13.6	23.4	23.4
Volume/Cap:	0.84	0.77	0.21	0.77	0.84	0.20	0.54	0.67	0.84	0.84	0.54	0.54
Delay/Veh:	102.5	51.5	31.4	74.8	46.4	7.4	44.8	43.3	47.9	105.5	64.4	64.4
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:	102.5	51.5	31.4	74.8	46.4	7.4	44.8	43.3	47.9	105.5	64.4	64.4
LOS by Move:	F	D-	C	E	D	A	D	D	D	F	E	E
DesignQueue:	202	751	218	396	934	176	526	724	978	283	292	292

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	2008	71	157	2898	86	355	94	50	31	10	94
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:	31	2008	71	157	2898	86	355	94	50	31	10	94
Added Vol:	0	6	0	0	12	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	2014	71	157	2910	86	355	94	50	31	10	94
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	2014	71	157	2910	86	355	94	50	31	10	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	2014	71	157	2910	86	355	94	50	31	10	94
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	2014	71	157	2910	86	355	94	50	31	10	94

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.88	0.12	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7284	215	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.27	0.04	0.09	0.40	0.40	0.11	0.08	0.08	0.02	0.01	0.05
Crit Moves:	***			****			****			****		
Green Time:	7.0	81.6	95.3	27.6	102	102.2	28.8	25.1	25.1	13.7	10.0	37.6
Volume/Cap:	0.40	0.52	0.07	0.52	0.63	0.63	0.63	0.51	0.51	0.21	0.08	0.23
Delay/Veh:	77.9	26.3	13.7	61.8	17.7	17.7	62.8	63.4	63.4	68.8	71.0	49.8
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:	77.9	26.3	13.7	61.8	17.7	17.7	62.8	63.4	63.4	68.8	71.0	49.8
LOS by Move:	E-	C	B	E	B	B	E	E	E	E	E	D
DesignQueue:	72	590	70	321	681	681	402	291	291	69	21	176

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	39	129	125	4	71	59	1384	323	190	2506	54
Future Volume (vph)	70	39	129	125	4	71	59	1384	323	190	2506	54
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5374		1304	3734	
Flt Permitted	0.76	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	1002	1373	1167	1304	5374		1304	3734	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	40	132	128	4	72	60	1412	330	194	2557	55
RTOR Reduction (vph)	0	0	93	0	0	51	0	33	0	0	2	0
Lane Group Flow (vph)	71	40	39	128	4	21	60	1709	0	194	2610	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	58.3		27.4	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	58.3		27.4	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.42		0.20	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	293	402	341	176	2237		255	1778	
v/s Ratio Prot		0.03			0.00		0.05	c0.32		0.15	c0.70	
v/s Ratio Perm	0.07		0.03	c0.13		0.02						
v/c Ratio	0.23	0.10	0.11	0.44	0.01	0.06	0.34	0.76		0.76	1.47	
Uniform Delay, d1	37.6	36.1	36.2	40.1	35.1	35.6	54.8	35.0		53.2	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10		0.78	0.67	
Incremental Delay, d2	1.8	0.5	0.7	4.7	0.0	0.3	5.1	1.6		1.2	211.0	
Delay (s)	39.4	36.5	36.9	44.8	35.2	36.0	60.0	40.0		43.0	235.6	
Level of Service	D	D	D	D	D	D	E	D		D	F	
Approach Delay (s)		37.6			41.5			40.7			222.3	
Approach LOS		D			D			D			F	

Intersection Summary

HCM 2000 Control Delay	141.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	117.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	0	135	0	0	0	0	700	825	546	2615	0
Future Volume (vph)	281	0	135	0	0	0	0	700	825	546	2615	0
Ideal Flow (vphp)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.88						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1472						5559	1129	1304	3747	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1472						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	299	0	144	0	0	0	0	745	878	581	2782	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	318	0	0	0
Lane Group Flow (vph)	269	115	0	0	0	0	0	745	560	581	2782	0
Confl. Peds. (#/hr)									6			
Confl. Bikes (#/hr)									5			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	316						2171	441	341	2614	
v/s Ratio Prot	c0.08	0.08						0.13		c0.45	0.74	
v/s Ratio Perm									c0.50			
v/c Ratio	0.39	0.36						0.34	1.27	1.70	1.06	
Uniform Delay, d1	47.1	46.8						30.0	42.6	51.6	21.1	
Progression Factor	1.00	1.00						1.09	3.12	1.11	0.69	
Incremental Delay, d2	1.6	3.2						0.1	135.2	317.9	29.9	
Delay (s)	48.7	50.0						32.9	268.4	375.2	44.5	
Level of Service	D	D						C	F	F	D	
Approach Delay (s)		49.2			0.0			160.3			101.7	
Approach LOS		D			A			F			F	

Intersection Summary

HCM 2000 Control Delay	114.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	187.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↑↑↑			↑↑↑	↷
Traffic Volume (vph)	0	0	0	645	31	91	86	895	0	0	2514	999
Future Volume (vph)	0	0	0	645	31	91	86	895	0	0	2514	999
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1247	1167	1304	4722			4520	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1247	1167	1304	4722			4520	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	679	33	96	91	942	0	0	2646	1052
RTOR Reduction (vph)	0	0	0	0	0	77	0	0	0	0	51	0
Lane Group Flow (vph)	0	0	0	353	359	19	91	942	0	0	3647	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2573	
v/s Ratio Prot				0.28	c0.29		c0.07	0.20			c0.81	
v/s Ratio Perm						0.02						
v/c Ratio				1.48	1.49	0.08	0.55	0.27			1.45dr	
Uniform Delay, d1				56.5	56.5	46.3	57.4	6.2			30.1	
Progression Factor				1.00	1.00	1.00	1.13	0.54			0.80	
Incremental Delay, d2				235.9	241.1	0.7	12.3	0.2			188.0	
Delay (s)				292.3	297.5	47.0	77.2	3.6			212.0	
Level of Service				F	F	D	E	A			F	
Approach Delay (s)		0.0			265.5			10.1			212.0	
Approach LOS		A			F			B			F	

Intersection Summary

HCM 2000 Control Delay	182.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	187.8%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	238	594	563	153	8	232	425	294	37	2356	65
Future Volume (vph)	65	238	594	563	153	8	232	425	294	37	2356	65
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1361		2530	3474		1304	4701	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1361		2530	3474		1304	4701	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	262	653	619	168	9	255	467	323	41	2589	71
RTOR Reduction (vph)	0	0	84	0	1	0	0	86	0	0	3	0
Lane Group Flow (vph)	71	262	569	619	176	0	255	704	0	41	2657	0
Confl. Peds. (#/hr)						2			3			
Confl. Bikes (#/hr)			2			2			2			2
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Effective Green, g (s)	11.5	33.9	43.7	31.0	53.4		9.8	40.9		16.0	47.1	
Actuated g/C Ratio	0.08	0.24	0.31	0.22	0.38		0.07	0.29		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	107	332	360	560	519		177	1014		149	1581	
v/s Ratio Prot	0.05	0.19	c0.11	c0.24	0.13		0.10	0.20		0.03	c0.57	
v/s Ratio Perm			0.38									
v/c Ratio	0.66	0.79	1.58	1.11	0.34		1.44	0.69		0.28	1.68	
Uniform Delay, d1	62.4	49.7	48.1	54.5	30.8		65.1	44.0		56.7	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.83	1.46		1.00	1.00	
Incremental Delay, d2	14.4	17.2	274.3	70.2	0.4		226.7	3.8		1.0	309.1	
Delay (s)	76.8	66.9	322.5	124.7	31.1		280.5	68.1		57.7	355.6	
Level of Service	E	E	F	F	C		F	E		E	F	
Approach Delay (s)		236.9			103.9			119.9			351.1	
Approach LOS		F			F			F			F	

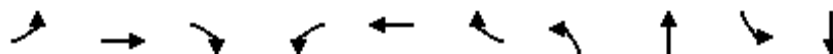
Intersection Summary

HCM 2000 Control Delay	251.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	130.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	40	132	128	4	72	60	1742	194	2612
v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.77	0.76	1.47
Control Delay	40.2	37.1	7.8	45.8	35.2	5.2	60.9	39.2	46.4	235.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2
Total Delay	40.2	37.1	7.8	45.8	35.2	5.2	60.9	39.4	46.4	235.2
Queue Length 50th (ft)	49	27	0	95	3	0	40	232	160	~1190
Queue Length 95th (ft)	94	58	51	161	12	26	m53	m190	m#184	m#1090
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	430	293	402	405	176	2591	254	1780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	91
Spillback Cap Reductn	0	0	0	0	0	4	0	260	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.31	0.44	0.01	0.18	0.34	0.75	0.76	1.55

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Background + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	269	174	745	878	581	2782
v/c Ratio	0.39	0.46	0.34	1.16	1.70	1.06
Control Delay	49.0	31.2	33.3	118.8	352.1	46.1
Queue Delay	0.0	0.2	0.0	1.8	3.4	16.3
Total Delay	49.0	31.4	33.3	120.6	355.5	62.3
Queue Length 50th (ft)	116	84	163	~710	~753	~994
Queue Length 95th (ft)	163	169	181	#900	m#432	m180
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	375	2171	759	341	2614
Starvation Cap Reductn	0	0	0	179	83	793
Spillback Cap Reductn	0	17	0	0	0	927
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.49	0.34	1.51	2.25	1.65

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



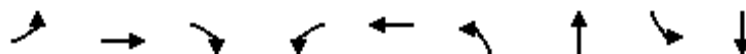
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	353	359	96	91	942	3698
v/c Ratio	1.48	1.49	0.32	0.55	0.27	1.45dr
Control Delay	274.8	279.7	11.7	78.3	3.6	208.5
Queue Delay	0.7	0.7	0.7	0.9	0.6	0.8
Total Delay	275.5	280.5	12.4	79.2	4.2	209.3
Queue Length 50th (ft)	~463	~473	0	88	77	~1314
Queue Length 95th (ft)	#674	#684	50	150	79	m644
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	303	164	3463	2623
Starvation Cap Reductn	0	0	0	10	2013	749
Spillback Cap Reductn	11	12	64	0	542	327
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.55	1.57	0.40	0.59	0.65	1.97

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

311 South Mathilda Avenue TIA
Background + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	71	262	653	619	177	255	790	41	2660
v/c Ratio	0.58	0.81	1.49	1.11	0.34	1.57	0.69	0.26	1.62
Control Delay	78.5	70.3	257.6	119.7	34.9	321.0	58.4	57.8	315.5
Queue Delay	0.0	0.0	7.6	0.0	0.0	0.0	3.3	0.0	1.3
Total Delay	78.5	70.3	265.2	119.7	34.9	321.0	61.7	57.8	316.8
Queue Length 50th (ft)	63	227	~776	~329	116	~153	243	34	~1018
Queue Length 95th (ft)	113	#368	#1017	#452	196	#240	291	72	#1086
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	519	162	1139	186	1637
Starvation Cap Reductn	0	0	0	0	0	0	248	0	0
Spillback Cap Reductn	0	0	212	0	0	0	0	0	494
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.81	2.88	1.11	0.34	1.57	0.89	0.22	2.33

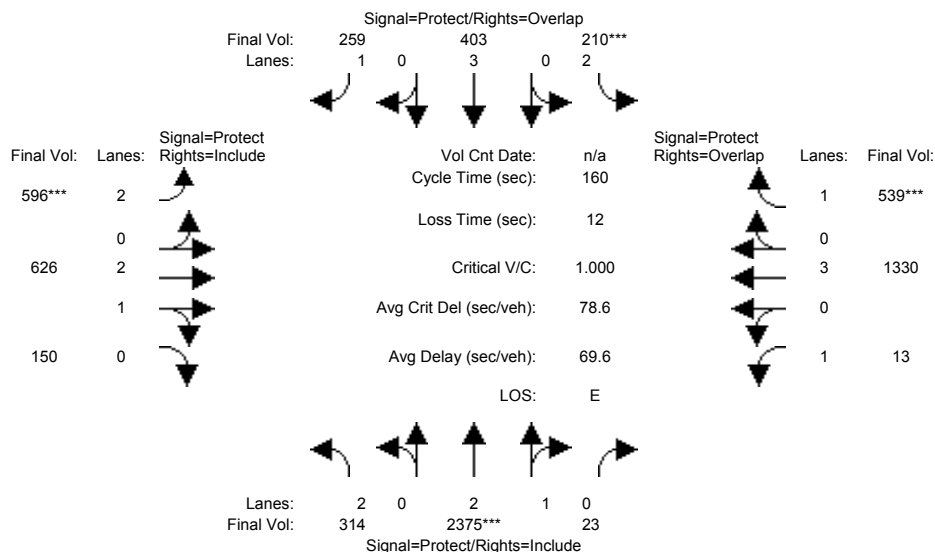
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	S Mathilda Ave			S Mathilda Ave			El Camino Real			El Camino Real		
Base Vol:	314	2375	23	210	403	259	596	626	150	13	1330	539
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:	314	2375	23	210	403	259	596	626	150	13	1330	539
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	314	2375	23	210	403	259	596	626	150	13	1330	539
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	314	2375	23	210	403	259	596	626	150	13	1330	539
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	314	2375	23	210	403	259	596	626	150	13	1330	539

Saturation Flow Module:	S Mathilda Ave			S Mathilda Ave			El Camino Real			El Camino Real		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.40	0.60	1.00	3.00	1.00
Final Sat.:	3150	5546	54	3150	5700	1750	3150	4516	1082	1750	5700	1750

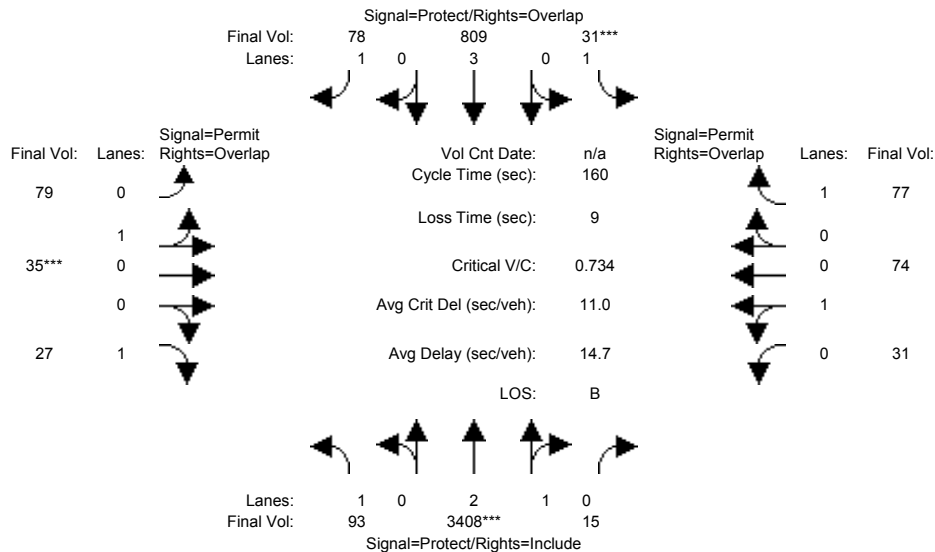
Capacity Analysis Module:	S Mathilda Ave			S Mathilda Ave			El Camino Real			El Camino Real		
Vol/Sat:	0.10	0.43	0.43	0.07	0.07	0.15	0.19	0.14	0.14	0.01	0.23	0.31
Crit Moves:	****			****			****			****		
Green Time:	46.3	68.5	68.5	10.7	32.8	63.1	30.3	52.3	52.3	16.5	38.6	49.3
Volume/Cap:	0.34	1.00	1.00	1.00	0.34	0.38	1.00	0.42	0.42	0.07	0.97	1.00
Delay/Veh:	45.1	64.2	64.2	136.9	54.6	34.8	101.9	42.2	42.2	65.0	77.1	94.3
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:	45.1	64.2	64.2	136.9	54.6	34.8	101.9	42.2	42.2	65.0	77.1	94.3
LOS by Move:	D	E	E	F	D-	C-	F	D	D	E	E-	F
DesignQueue:	307	1166	1166	267	242	394	682	409	409	28	797	980

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	93	3408	15	31	809	78	79	35	27	31	74	77
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:	93	3408	15	31	809	78	79	35	27	31	74	77
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	93	3408	15	31	809	78	79	35	27	31	74	77
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	93	3408	15	31	809	78	79	35	27	31	74	77
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	93	3408	15	31	809	78	79	35	27	31	74	77

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.69	0.31	1.00	0.30	0.70	1.00
Final Sat.:	1750	5575	25	1750	5700	1750	1247	553	1750	531	1269	1750

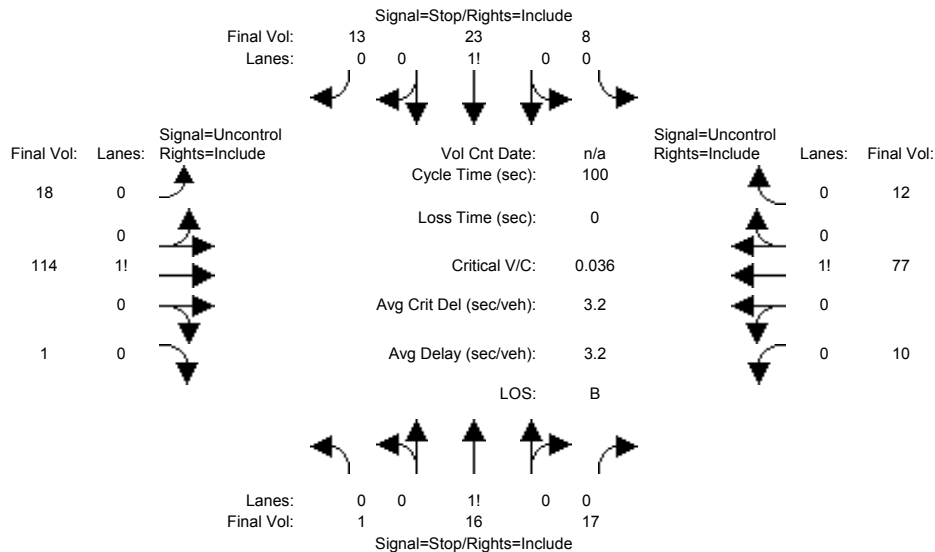
Capacity Analysis Module:												
Vol/Sat:	0.05	0.61	0.61	0.02	0.14	0.04	0.06	0.06	0.02	0.06	0.06	0.04
Crit Moves:	****			****			****					
Green Time:	37.5	130	130.5	7.0	100	100.0	13.5	13.5	51.0	13.5	13.5	20.5
Volume/Cap:	0.23	0.75	0.75	0.40	0.23	0.07	0.75	0.75	0.05	0.69	0.69	0.34
Delay/Veh:	49.8	7.7	7.7	77.9	13.1	11.8	90.1	90.1	37.8	83.9	83.9	64.5
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:	49.8	7.7	7.7	77.9	13.1	11.8	90.1	90.1	37.8	83.9	83.9	64.5
LOS by Move:	D	A	A	E-	B	B+	F	F	D+	F	F	E
DesignQueue:	174	568	568	72	233	71	249	249	45	229	229	164

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	16	17	8	23	13	18	114	1	10	77	12
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:	1	16	17	8	23	13	18	114	1	10	77	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	16	17	8	23	13	18	114	1	10	77	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	1	16	17	8	23	13	18	114	1	10	77	12
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	272	260	115	270	254	83	89	xxxx	xxxxxx	115	xxxx	xxxxxx
Potent Cap.:	685	648	943	687	653	982	1519	xxxx	xxxxxx	1487	xxxx	xxxxxx
Move Cap.:	648	636	943	652	641	982	1519	xxxx	xxxxxx	1487	xxxx	xxxxxx
Volume/Cap:	0.00	0.03	0.02	0.01	0.04	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.9	xxxx	xxxxxx	0.5	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	
Shared Cap.:	xxxx	761	xxxxxx	xxxx	717	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.0	xxxxxx	xxxxxx	10.4	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	A	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.0			10.4			xxxxxxx			xxxxxxx		
ApproachLOS:		A			B			*			*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	1	16	17		8	23	13		18	114	1		10	77	12				
ApproachDel:	10.0				10.4				xxxxxx				xxxxxx						

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=34]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=310]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=44]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=310]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	1	16	17		8	23	13		18	114	1		10	77	12					
Major Street Volume:					232															
Minor Approach Volume:					44															
Minor Approach Volume Threshold:					609															

SIGNAL WARRANT DISCLAIMER

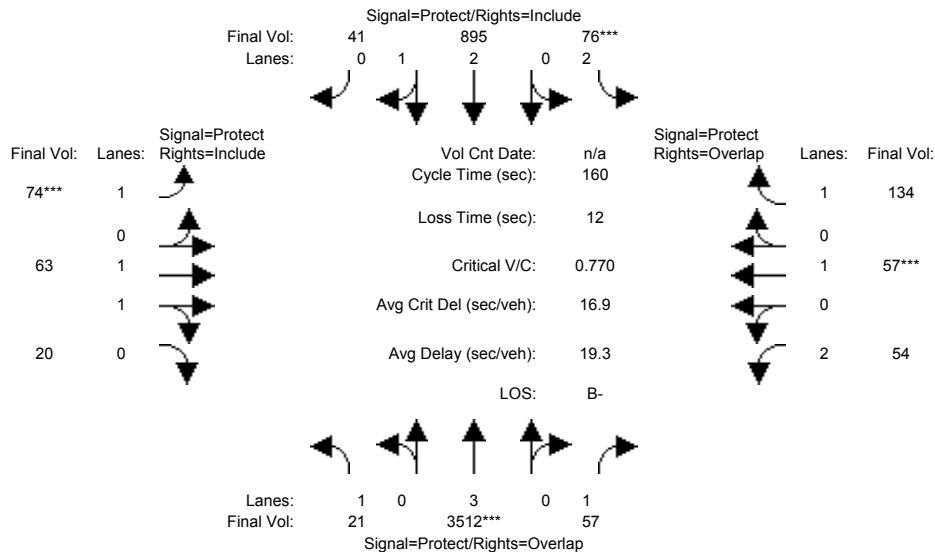
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	21	3512	57	76	895	41	74	63	20	54	57	134
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:	21	3512	57	76	895	41	74	63	20	54	57	134
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	21	3512	57	76	895	41	74	63	20	54	57	134
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	3512	57	76	895	41	74	63	20	54	57	134
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	21	3512	57	76	895	41	74	63	20	54	57	134

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.86	0.14	1.00	1.50	0.50	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5354	245	1750	2808	891	3150	1900	1750

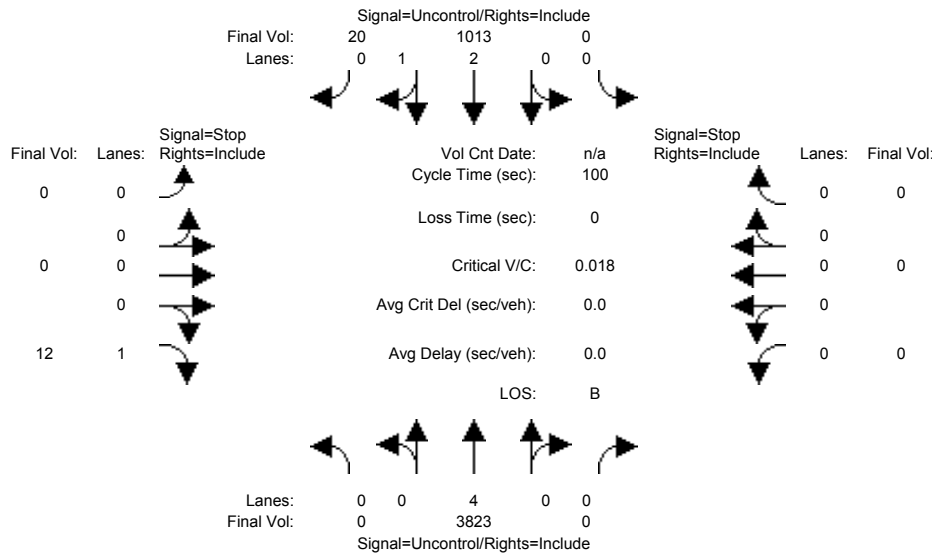
Capacity Analysis Module:												
Vol/Sat:	0.01	0.62	0.03	0.02	0.17	0.17	0.04	0.02	0.02	0.02	0.03	0.08
Crit Moves:	****			****			****			****		
Green Time:	26.9	123	130.2	7.0	103	102.7	8.4	10.8	10.8	7.6	10.0	17.0
Volume/Cap:	0.07	0.80	0.04	0.55	0.26	0.26	0.80	0.33	0.33	0.36	0.48	0.72
Delay/Veh:	56.2	12.5	2.9	79.7	12.4	12.4	113.4	71.9	71.9	75.4	75.5	82.1
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:	56.2	12.5	2.9	79.7	12.4	12.4	113.4	71.9	71.9	75.4	75.5	82.1
LOS by Move:	E+	B	A	E-	B	B	F	E	E	E-	E-	F
DesignQueue:	42	726	26	98	264	264	171	89	89	69	120	295

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave				Project Dwy (Restaurant)				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound		South Bound		East Bound		West Bound					
Base Vol:	0	3823	0	0	1013	20	0	0	12	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:	0	3823	0	0	1013	20	0	0	12	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	3823	0	0	1013	20	0	0	12	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	0	3823	0	0	1013	20	0	0	12	0	0	0

Critical Gap Module:	North Bound		South Bound		East Bound		West Bound					
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx

Capacity Module:	North Bound		South Bound		East Bound		West Bound					
Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	348	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	654	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	654	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx

Level Of Service Module:	North Bound		South Bound		East Bound		West Bound					
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.4	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.6	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	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:	xxxxxxx			xxxxxxx					10.6	xxxxxxx		
ApproachLOS:	*			*					B	*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R

```

-----|-----|-----|-----|-----|
Control:      Uncontrolled      Uncontrolled      Stop Sign      Stop Sign
Lanes:        0 0 4 0 0      0 0 2 1 0      0 0 0 0 1      0 0 0 0 0
Initial Vol:   0 3823      0      0 1013      20      0 0 12      0 0 0 0
ApproachDel:   xxxxxx      xxxxxx      10.6      xxxxxx
-----|-----|-----|-----|
Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.0]
    FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=12]
    FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=4868]
    SUCCEED - Total volume greater than or equal to 650 for intersection
                with less than four approaches.
    
```

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

```

-----|-----|-----|-----|
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
Lanes:         0 0 4 0 0      0 0 2 1 0      0 0 0 0 1      0 0 0 0 0
Initial Vol:    0 3823      0      0 1013      20      0 0 12      0 0 0 0
-----|-----|-----|-----|
Major Street Volume:      4856
Minor Approach Volume:    12
Minor Approach Volume Threshold: -260 [less than minimum of 100]
    
```

SIGNAL WARRANT DISCLAIMER

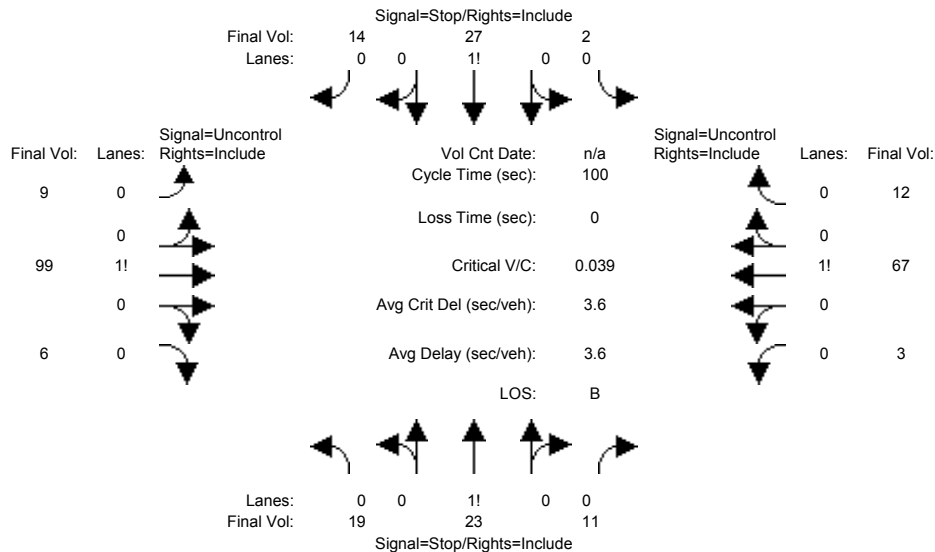
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	19	23	11	2	27	14	9	99	6	3	67	12
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:	19	23	11	2	27	14	9	99	6	3	67	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	19	23	11	2	27	14	9	99	6	3	67	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	19	23	11	2	27	14	9	99	6	3	67	12
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	220	205	102	216	202	73	79	xxxx	xxxxxx	105	xxxx	xxxxxx
Potent Cap.:	741	695	959	745	698	995	1532	xxxx	xxxxxx	1499	xxxx	xxxxxx
Move Cap.:	704	690	959	713	692	995	1532	xxxx	xxxxxx	1499	xxxx	xxxxxx
Volume/Cap:	0.03	0.03	0.01	0.00	0.04	0.01	0.01	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.4	xxxx	xxxxxx	0.2	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	738	xxxxxx	xxxx	769	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
Shared Queue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.3	xxxxxx	xxxxxx	10.0	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	A	*	*	*	*	*	*	*
ApproachDel:		10.3			10.0		xxxxxxx		xxxxxxx			
ApproachLOS:		B			A			*			*	

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #6 Charles St / W McKinley Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met
 Approach: North Bound South Bound East Bound West Bound
 Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	19	23	11		2	27	14		9	99	6		3	67	12				
ApproachDel:	10.3				10.0				xxxxxx				xxxxxx						

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=53]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=292]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=43]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=292]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	1!	0	0	
Initial Vol:	19	23	11		2	27	14		9	99	6		3	67	12					
Major Street Volume:					196															
Minor Approach Volume:					53															
Minor Approach Volume Threshold:					654															

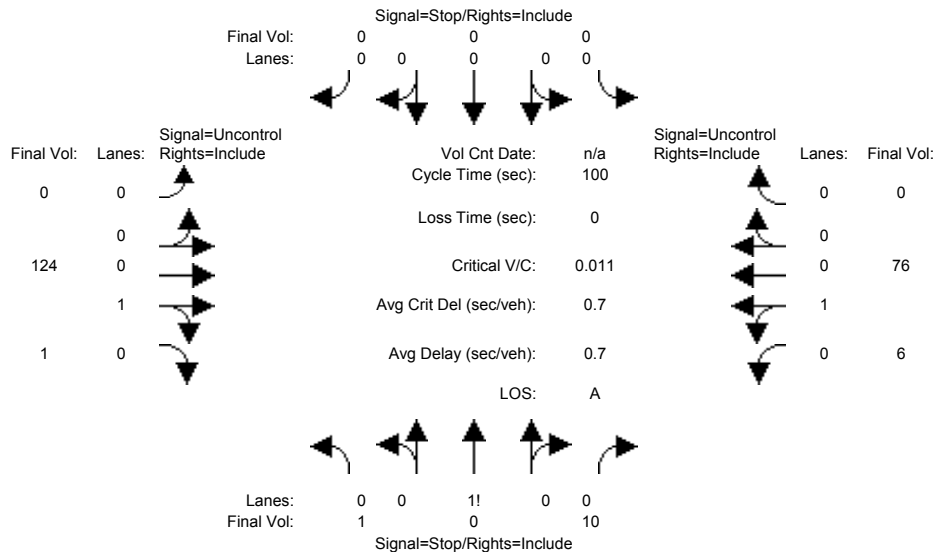
-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
 This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	10	0	0	0	0	124	1	6	76	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:	1	0	10	0	0	0	0	124	1	6	76	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	10	0	0	0	0	124	1	6	76	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	1	0	10	0	0	0	0	124	1	6	76	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	213	213	125	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	125	xxxxx	xxxxx
Potent Cap.:	780	688	932	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1474	xxxxx	xxxxx
Move Cap.:	778	686	932	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1474	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.00	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.3	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.5	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	915	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.5	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.0			xxxxxxx			xxxxxxx		xxxxxxx		xxxxxxx	
ApproachLOS:	A			*			*		*		*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 10	0 0 0	0 124 1	6 76 0
ApproachDel:	9.0	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=11]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=218]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	1 0 10	0 0 0	0 124 1	6 76 0

Major Street Volume: 207
 Minor Approach Volume: 11
 Minor Approach Volume Threshold: 639

SIGNAL WARRANT DISCLAIMER

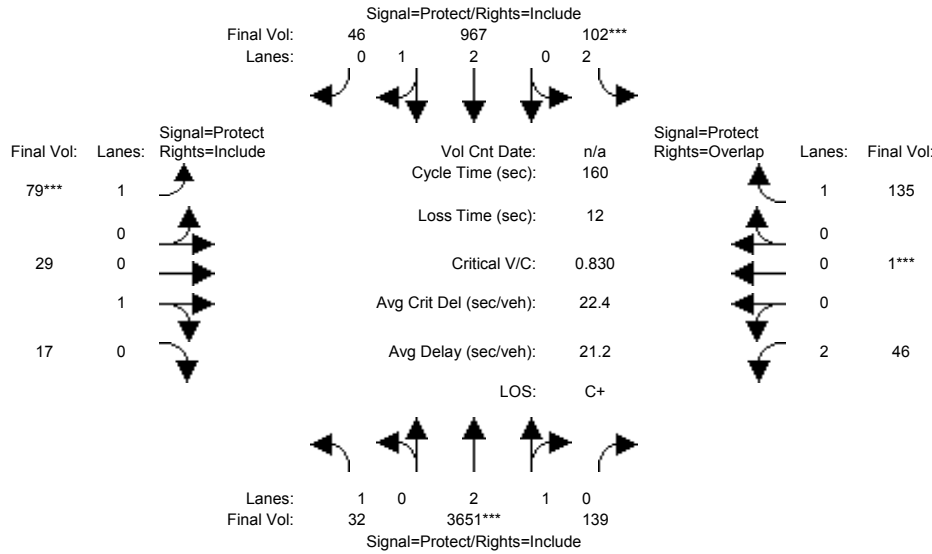
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	32	3651	139	102	967	46	79	29	17	46	1	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	3651	139	102	967	46	79	29	17	46	1	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	32	3651	139	102	967	46	79	29	17	46	1	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	3651	139	102	967	46	79	29	17	46	1	135
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	32	3651	139	102	967	46	79	29	17	46	1	135

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	2.89	0.11	2.00	2.86	0.14	1.00	0.63	0.37	1.96	0.04	1.00
Final Sat.:	1750	5394	205	3150	5345	254	1750	1135	665	3431	75	1750

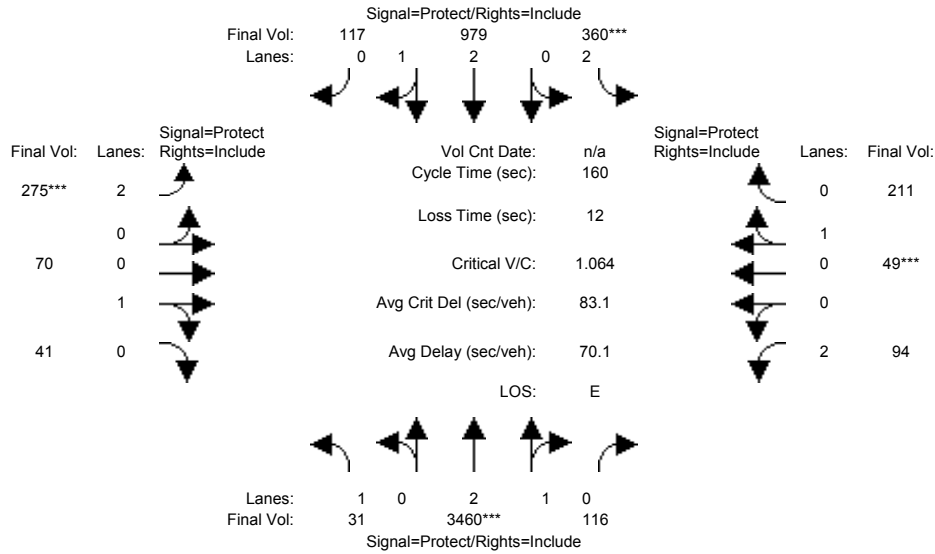
Capacity Analysis Module:												
Vol/Sat:	0.02	0.68	0.68	0.03	0.18	0.18	0.05	0.03	0.03	0.01	0.01	0.08
Crit Moves:	****			****			****			****		
Green Time:	25.3	123	122.8	7.0	105	104.5	8.2	10.7	10.7	7.5	10.0	17.0
Volume/Cap:	0.12	0.88	0.88	0.74	0.28	0.28	0.88	0.38	0.38	0.29	0.21	0.73
Delay/Veh:	58.0	15.8	15.8	94.7	11.8	11.8	133.5	73.5	73.5	73.9	71.4	79.4
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:	58.0	15.8	15.8	94.7	11.8	11.8	133.5	73.5	73.5	73.9	71.4	79.4
LOS by Move:	E+	B	B	F	B+	B+	F	E	E	E	E	E-
DesignQueue:	65	809	809	132	278	278	183	101	101	54	53	297

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	31	3460	116	360	979	117	275	70	41	94	49	211
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:	31	3460	116	360	979	117	275	70	41	94	49	211
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	3460	116	360	979	117	275	70	41	94	49	211
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	3460	116	360	979	117	275	70	41	94	49	211
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	3460	116	360	979	117	275	70	41	94	49	211

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.90	0.10	2.00	2.67	0.33	2.00	0.63	0.37	2.00	0.19	0.81
Final Sat.:	1750	5418	182	3150	5001	598	3150	1135	665	3150	339	1461

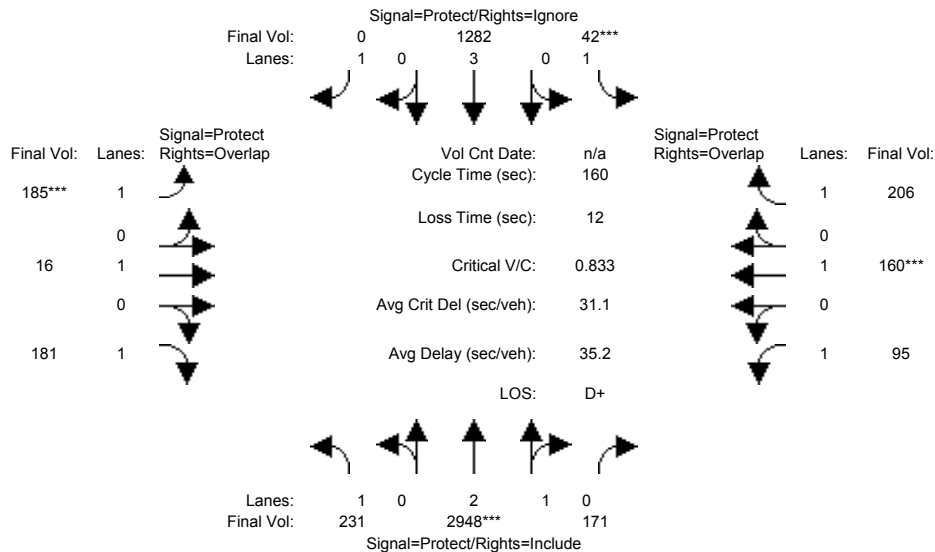
Capacity Analysis Module:												
Vol/Sat:	0.02	0.64	0.64	0.11	0.20	0.20	0.09	0.06	0.06	0.03	0.14	0.14
Crit Moves:	****			****			****			****		
Green Time:	20.7	96.0	96.0	17.2	92.5	92.5	13.1	20.5	20.5	14.3	21.7	21.7
Volume/Cap:	0.14	1.06	1.06	1.06	0.34	0.34	1.06	0.48	0.48	0.33	1.06	1.06
Delay/Veh:	62.0	68.1	68.1	138.5	17.8	17.8	147.5	66.4	66.4	69.0	145	144.8
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:	62.0	68.1	68.1	138.5	17.8	17.8	147.5	66.4	66.4	69.0	145	144.8
LOS by Move:	E	E	E	F	B	B	F	E	E	E	F	F
DesignQueue:	65	1297	1297	444	368	368	346	231	231	116	548	548

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	231	2948	171	42	1282	561	185	16	181	95	160	206
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:	231	2948	171	42	1282	561	185	16	181	95	160	206
User 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
PHF 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
PHF Volume:	231	2948	171	42	1282	0	185	16	181	95	160	206
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	231	2948	171	42	1282	0	185	16	181	95	160	206
PCE 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
MLF 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
Final Volume:	231	2948	171	42	1282	0	185	16	181	95	160	206

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5293	307	1750	5700	1750	1750	1900	1750	1750	1900	1750

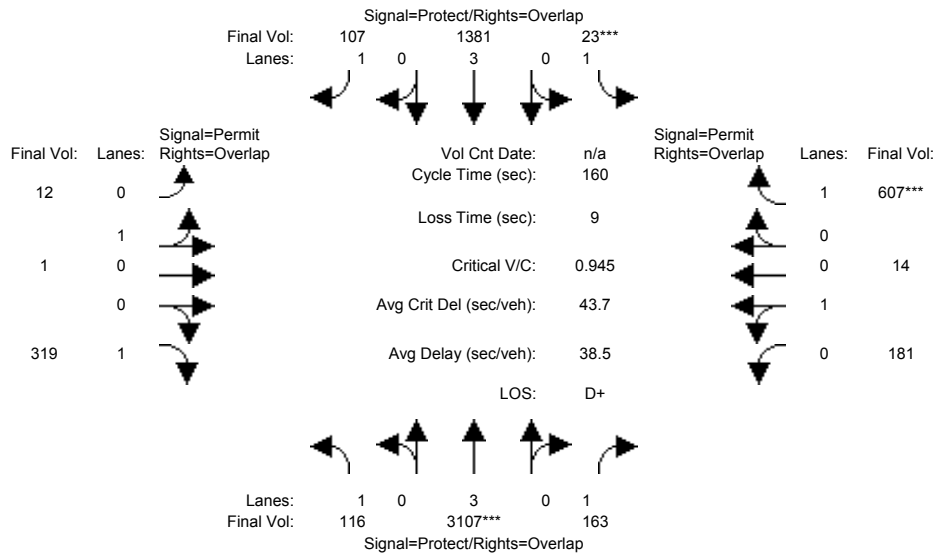
Capacity Analysis Module:												
Vol/Sat:	0.13	0.56	0.56	0.02	0.22	0.00	0.11	0.01	0.10	0.05	0.08	0.12
Crit Moves:	****			****			****			****		
Green Time:	41.5	105	105.1	7.0	70.7	0.0	20.0	19.2	60.7	16.7	15.9	22.9
Volume/Cap:	0.51	0.85	0.85	0.55	0.51	0.00	0.85	0.07	0.27	0.52	0.85	0.82
Delay/Veh:	51.5	23.2	23.2	83.1	32.3	0.0	93.9	62.6	34.6	70.6	99.2	85.8
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:	51.5	23.2	23.2	83.1	32.3	0.0	93.9	62.6	34.6	70.6	99.2	85.8
LOS by Move:	D-	C	C	F	C-	A	F	E	C-	E	F	F
Design Queue:	428	945	945	98	564	0	402	31	279	208	328	440

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	116	3107	163	23	1381	107	12	1	319	181	14	607
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:	116	3107	163	23	1381	107	12	1	319	181	14	607
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	116	3107	163	23	1381	107	12	1	319	181	14	607
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	116	3107	163	23	1381	107	12	1	319	181	14	607
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	116	3107	163	23	1381	107	12	1	319	181	14	607

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.92	0.08	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1662	138	1750	1671	129	1750

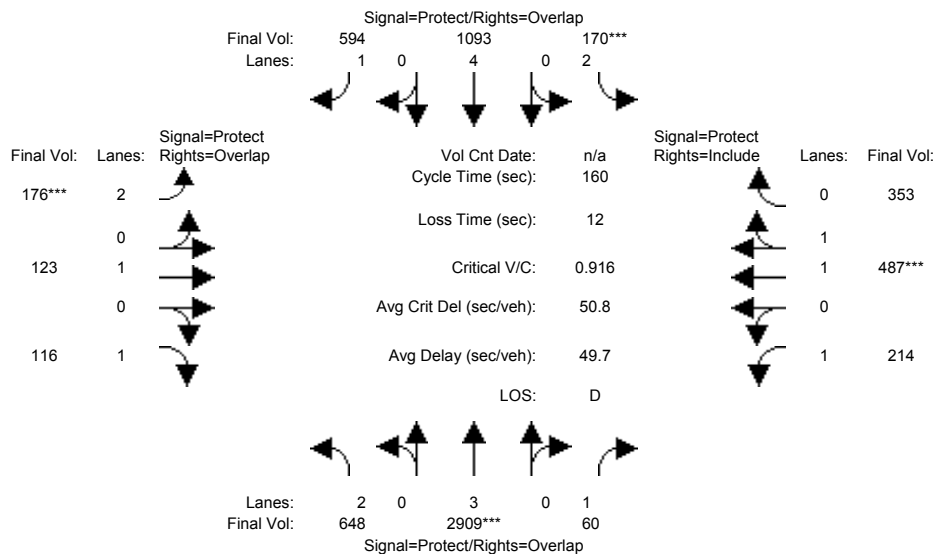
Capacity Analysis Module:												
Vol/Sat:	0.07	0.55	0.09	0.01	0.24	0.06	0.01	0.01	0.18	0.11	0.11	0.35
Crit Moves:	****			****						****		
Green Time:	21.4	92.5	92.5	7.0	78.2	78.2	51.5	51.5	72.8	51.5	51.5	58.5
Volume/Cap:	0.50	0.94	0.16	0.30	0.50	0.13	0.02	0.02	0.40	0.34	0.34	0.95
Delay/Veh:	66.0	37.8	15.8	76.3	27.8	22.4	37.1	37.1	29.4	41.6	41.6	73.1
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:	66.0	37.8	15.8	76.3	27.8	22.4	37.1	37.1	29.4	41.6	41.6	73.1
LOS by Move:	E	D+	B	E-	C	C+	D+	D+	C	D	D	E
Design Queue:	247	1133	170	53	559	134	21	21	440	319	319	1023

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



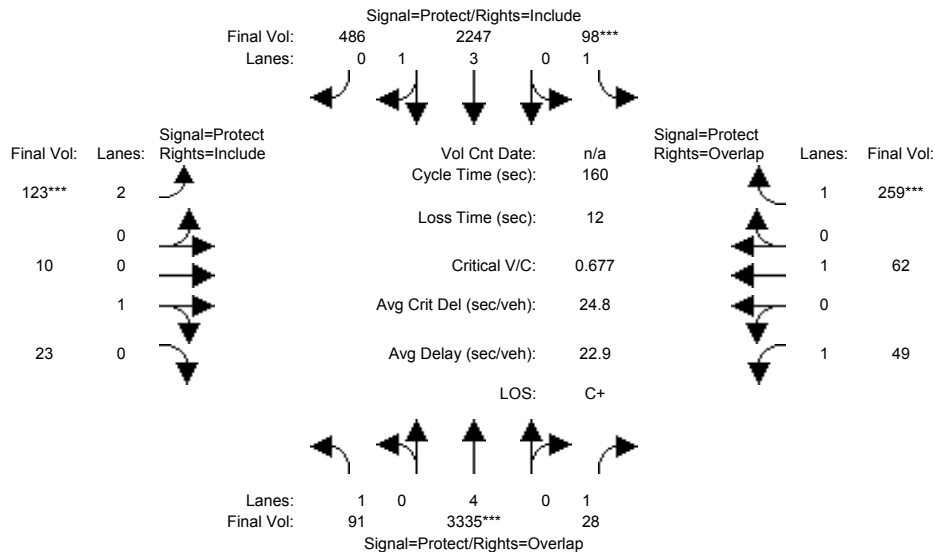
Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	648	2909	60	170	1093	594	176	123	116	214	487	353
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:	648	2909	60	170	1093	594	176	123	116	214	487	353
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	648	2909	60	170	1093	594	176	123	116	214	487	353
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	648	2909	60	170	1093	594	176	123	116	214	487	353
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	648	2909	60	170	1093	594	176	123	116	214	487	353
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.14	0.86
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2144	1554
Capacity Analysis Module:												
Vol/Sat:	0.21	0.51	0.03	0.05	0.14	0.34	0.06	0.06	0.07	0.12	0.23	0.23
Crit Moves:	****			****			****			****		
Green Time:	41.4	89.1	121.5	9.4	57.1	66.9	9.8	17.1	58.6	32.3	39.7	39.7
Volume/Cap:	0.79	0.92	0.05	0.92	0.40	0.81	0.92	0.61	0.18	0.61	0.92	0.92
Delay/Veh:	60.7	36.8	4.8	117.8	38.7	47.9	116.7	73.4	34.6	61.0	72.2	72.2
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:	60.7	36.8	4.8	117.8	38.7	47.9	116.7	73.4	34.6	61.0	72.2	72.2
LOS by Move:	E	D+	A	F	D+	D	F	E	C-	E	E	E
Design Queue:	681	1103	35	218	406	916	225	248	181	426	767	767

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	91	3335	28	98	2247	486	123	10	23	49	62	259
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:	91	3335	28	98	2247	486	123	10	23	49	62	259
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	91	3335	28	98	2247	486	123	10	23	49	62	259
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	91	3335	28	98	2247	486	123	10	23	49	62	259
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	91	3335	28	98	2247	486	123	10	23	49	62	259

























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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.26	0.74	2.00	0.30	0.70	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	6164	1333	3150	545	1255	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.05	0.44	0.02	0.06	0.36	0.36	0.04	0.02	0.02	0.03	0.03	0.15
Crit Moves:	****			****			****			****		
Green Time:	14.6	104	116.5	13.2	102	102.4	9.2	18.2	18.2	12.8	21.8	35.0
Volume/Cap:	0.57	0.68	0.02	0.68	0.57	0.57	0.68	0.16	0.16	0.35	0.24	0.68
Delay/Veh:	74.5	18.0	6.0	83.4	16.5	16.5	83.7	64.4	64.4	71.2	62.2	62.1
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:	74.5	18.0	6.0	83.4	16.5	16.5	83.7	64.4	64.4	71.2	62.2	62.1
LOS by Move:	E	B	A	F	B	B	F	E	E	E	E	E
Design Queue:	202	736	18	220	613	613	157	69	69	110	120	508

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Cumulative AM Peak Hour

14: Mathilda Ave & Ross Dr

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	3	45	215	36	215	134	3410	92	31	1229	112
Future Volume (vph)	30	3	45	215	36	215	134	3410	92	31	1229	112
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5531		1304	3693	
Flt Permitted	0.73	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1005	1373	1144	1029	1373	1167	1304	5531		1304	3693	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	3	47	226	38	226	141	3589	97	33	1294	118
RTOR Reduction (vph)	0	0	35	0	0	169	0	3	0	0	8	0
Lane Group Flow (vph)	32	3	12	226	38	57	141	3683	0	33	1404	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	30.5	30.5	30.5	30.5	30.5	30.5	15.3	67.3		8.9	60.9	
Effective Green, g (s)	30.5	30.5	30.5	30.5	30.5	30.5	15.3	67.3		8.9	60.9	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.13	0.56		0.07	0.51	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	255	348	290	261	348	296	166	3101		96	1874	
v/s Ratio Prot		0.00			0.03		0.11	c0.67		0.03	c0.38	
v/s Ratio Perm	0.03		0.01	c0.22		0.05						
v/c Ratio	0.13	0.01	0.04	0.87	0.11	0.19	0.85	1.19		0.34	0.75	
Uniform Delay, d1	34.5	33.4	33.7	42.8	34.3	35.1	51.2	26.4		52.8	23.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.74		0.56	0.32	
Incremental Delay, d2	0.2	0.0	0.1	24.6	0.1	0.3	29.5	87.8		1.6	1.2	
Delay (s)	34.7	33.5	33.8	67.4	34.5	35.4	82.9	107.3		31.0	8.9	
Level of Service	C	C	C	E	C	D	F	F		C	A	
Approach Delay (s)		34.1			50.1			106.4			9.4	
Approach LOS		C			D			F			A	
Intersection Summary												
HCM 2000 Control Delay			76.7									E
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			120.0							13.3		
Intersection Capacity Utilization			92.6%									F
Analysis Period (min)			15									
c Critical Lane Group												

311 South Mathilda Avenue TIA
Cumulative AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1735	0	84	0	0	0	0	2740	915	87	1288	0	
Future Volume (vph)	1735	0	84	0	0	0	0	2740	915	87	1288	0	
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3		
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91		
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00		
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00		
Frt	1.00	0.98						1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00		
Satd. Flow (prot)	2373	1172						5559	1147	1304	3747		
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00		
Satd. Flow (perm)	2373	1172						5559	1147	1304	3747		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	1807	0	88	0	0	0	0	2854	953	91	1342	0	
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	446	0	0	0	
Lane Group Flow (vph)	1265	571	0	0	0	0	0	2854	507	91	1342	0	
Confl. Bikes (#/hr)									9				
Turn Type	Split	NA						NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases									2				
Actuated Green, G (s)	39.1	39.1						53.7	53.7	8.7	68.7		
Effective Green, g (s)	39.1	39.1						53.7	53.7	8.7	68.7		
Actuated g/C Ratio	0.33	0.33						0.45	0.45	0.07	0.57		
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3		
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	773	381						2487	513	94	2145		
v/s Ratio Prot	c0.53	0.49						c0.51		c0.07	0.36		
v/s Ratio Perm									0.44				
v/c Ratio	1.64	1.50						1.15	0.99	0.97	0.63		
Uniform Delay, d1	40.5	40.5						33.1	32.8	55.5	17.1		
Progression Factor	1.00	1.00						0.54	5.76	1.16	0.66		
Incremental Delay, d2	292.3	238.2						66.9	9.6	80.0	0.1		
Delay (s)	332.7	278.7						85.0	198.8	144.7	11.4		
Level of Service	F	F						F	F	F	B		
Approach Delay (s)		314.8			0.0			113.5			19.9		
Approach LOS		F			A			F			B		
Intersection Summary													
HCM 2000 Control Delay			148.1									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.32										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	18.5
Intersection Capacity Utilization			184.0%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

311 South Mathilda Avenue TIA
 Cumulative AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	899	42	569	156	4318	0	0	477	192
Future Volume (vph)	0	0	0	899	42	569	156	4318	0	0	477	192
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1692	1583	1304	4722			4519	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1692	1583	1304	4722			4519	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	967	45	612	168	4643	0	0	513	206
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	98	0
Lane Group Flow (vph)	0	0	0	503	509	557	168	4643	0	0	621	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	56.1	84.7			23.3	
Effective Green, g (s)				25.1	25.1	25.1	56.1	84.7			23.3	
Actuated g/C Ratio				0.21	0.21	0.21	0.47	0.71			0.19	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	353	331	609	3332			877	
v/s Ratio Prot				0.30	0.30		0.13	c0.98			0.14	
v/s Ratio Perm						c0.35						
v/c Ratio				1.43	1.44	1.68	0.28	1.39			0.71	
Uniform Delay, d1				47.5	47.5	47.5	19.5	17.6			45.2	
Progression Factor				1.00	1.00	1.00	1.61	1.00			0.99	
Incremental Delay, d2				210.6	214.3	320.7	0.0	177.2			2.2	
Delay (s)				258.0	261.8	368.1	31.5	194.8			47.1	
Level of Service				F	F	F	C	F			D	
Approach Delay (s)		0.0			300.7			189.1			47.1	
Approach LOS		A			F			F			D	

Intersection Summary

HCM 2000 Control Delay	200.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	184.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Cumulative AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



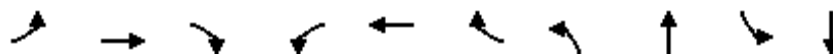
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	30	151	154	138	5	1444	2787	715	6	388	99
Future Volume (vph)	17	30	151	154	138	5	1444	2787	715	6	388	99
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3613		1304	4550	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3613		1304	4550	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	18	32	162	166	148	5	1553	2997	769	6	417	106
RTOR Reduction (vph)	0	0	68	0	1	0	0	24	0	0	39	0
Lane Group Flow (vph)	18	32	94	166	152	0	1553	3742	0	6	484	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.9	69.8	17.4	20.1		63.9	77.3		1.2	14.6	
Effective Green, g (s)	3.2	5.9	69.8	17.4	20.1		63.9	77.3		1.2	14.6	
Actuated g/C Ratio	0.03	0.05	0.58	0.14	0.17		0.53	0.64		0.01	0.12	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	67	716	366	228		1347	2327		13	553	
v/s Ratio Prot	0.01	c0.02	0.07	0.07	c0.11		c0.61	c1.04		0.00	0.11	
v/s Ratio Perm			0.01									
v/c Ratio	0.53	0.48	0.13	0.45	0.67		1.15	1.61		0.46	0.88	
Uniform Delay, d1	57.7	55.5	11.4	46.9	46.8		28.1	21.4		59.1	51.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.87	0.90		1.00	1.00	
Incremental Delay, d2	14.1	5.3	0.1	0.9	7.2		69.7	273.8		23.8	14.5	
Delay (s)	71.7	60.8	11.5	47.8	54.0		94.0	293.0		82.9	66.3	
Level of Service	E	E	B	D	D		F	F		F	E	
Approach Delay (s)		24.0			50.8			234.9			66.4	
Approach LOS		C			D			F			E	

Intersection Summary

HCM 2000 Control Delay	204.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	129.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA Cumulative AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	3	47	226	38	226	141	3686	33	1412
v/c Ratio	0.13	0.01	0.13	0.87	0.11	0.49	0.85	1.16	0.27	0.75
Control Delay	33.1	30.0	0.7	72.2	32.4	7.9	91.0	93.6	30.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3
Total Delay	33.1	30.0	0.7	72.2	32.4	8.0	91.0	93.8	30.8	10.5
Queue Length 50th (ft)	19	2	0	163	22	0	76	~616	21	93
Queue Length 95th (ft)	44	9	0	#275	49	61	m70	m425	m34	m149
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	301	411	416	308	411	508	173	3178	173	1883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	110
Spillback Cap Reductn	0	0	0	0	0	22	0	345	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.01	0.11	0.73	0.09	0.47	0.82	1.30	0.19	0.80

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Cumulative AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1265	630	2854	953	91	1342
v/c Ratio	1.64	1.43	1.15	0.99	0.97	0.63
Control Delay	321.6	235.5	87.3	30.5	146.3	11.6
Queue Delay	0.0	0.5	1.0	38.1	0.0	13.0
Total Delay	321.6	236.0	88.3	68.5	146.3	24.7
Queue Length 50th (ft)	~778	~678	~626	322	48	69
Queue Length 95th (ft)	#921	#929	m#124	m271	#160	m67
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	440	2487	959	94	2145
Starvation Cap Reductn	0	0	244	289	0	803
Spillback Cap Reductn	0	22	779	0	0	55
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.64	1.51	1.67	1.42	0.97	1.00

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Cumulative AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



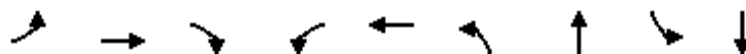
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	503	509	612	168	4643	719
v/c Ratio	1.43	1.44	1.59	0.28	1.39	0.74
Control Delay	246.3	249.9	306.8	34.3	197.8	40.9
Queue Delay	0.0	0.0	0.7	3.5	0.5	0.0
Total Delay	246.3	249.9	307.4	37.8	198.3	40.9
Queue Length 50th (ft)	~554	~563	~636	86	~1328	95
Queue Length 95th (ft)	#778	#787	#866	m75	m#820	m146
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	353	385	609	3332	2309
Starvation Cap Reductn	0	0	0	352	772	245
Spillback Cap Reductn	0	0	24	0	738	27
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.43	1.44	1.70	0.65	1.81	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	32	162	166	153	1553	3766	6	523
v/c Ratio	0.21	0.31	0.21	0.46	0.67	1.11	1.50	0.10	0.88
Control Delay	59.1	60.0	2.4	50.9	60.1	76.2	243.7	57.8	64.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	2.4	0.4	0.0	0.1
Total Delay	59.1	60.0	2.4	51.1	60.1	78.6	244.1	57.8	64.8
Queue Length 50th (ft)	13	24	0	63	105	~719	~1461	5	107
Queue Length 95th (ft)	38	56	29	92	175	m467	m#1004	19	#158
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	770	506	388	1397	2516	65	596
Starvation Cap Reductn	0	0	0	0	0	568	389	0	0
Spillback Cap Reductn	0	0	4	63	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.15	0.21	0.37	0.39	1.87	1.77	0.09	0.88

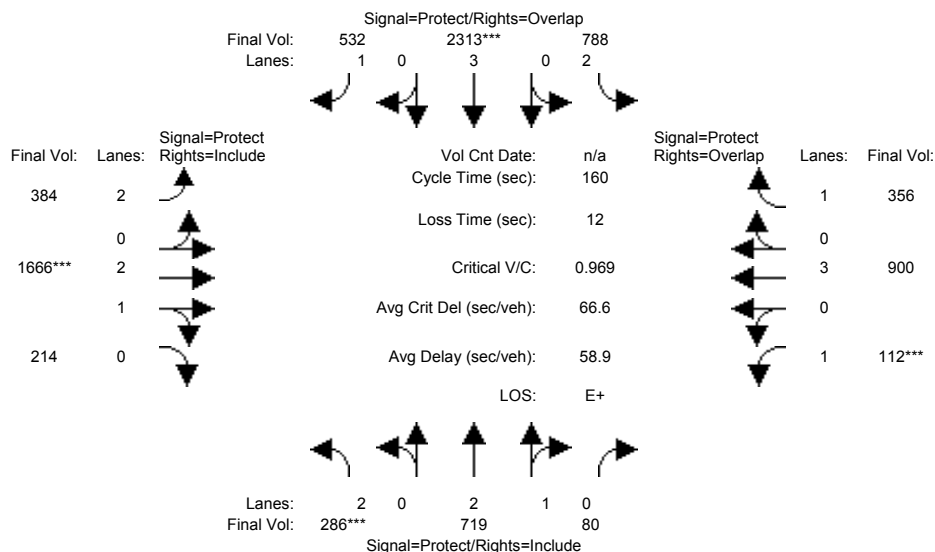
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	286	719	80	788	2313	532	384	1666	214	112	900	356
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:	286	719	80	788	2313	532	384	1666	214	112	900	356
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	286	719	80	788	2313	532	384	1666	214	112	900	356
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	286	719	80	788	2313	532	384	1666	214	112	900	356
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	286	719	80	788	2313	532	384	1666	214	112	900	356

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.69	0.31	2.00	3.00	1.00	2.00	2.65	0.35	1.00	3.00	1.00
Final Sat.:	3150	5039	561	3150	5700	1750	3150	4962	637	1750	5700	1750

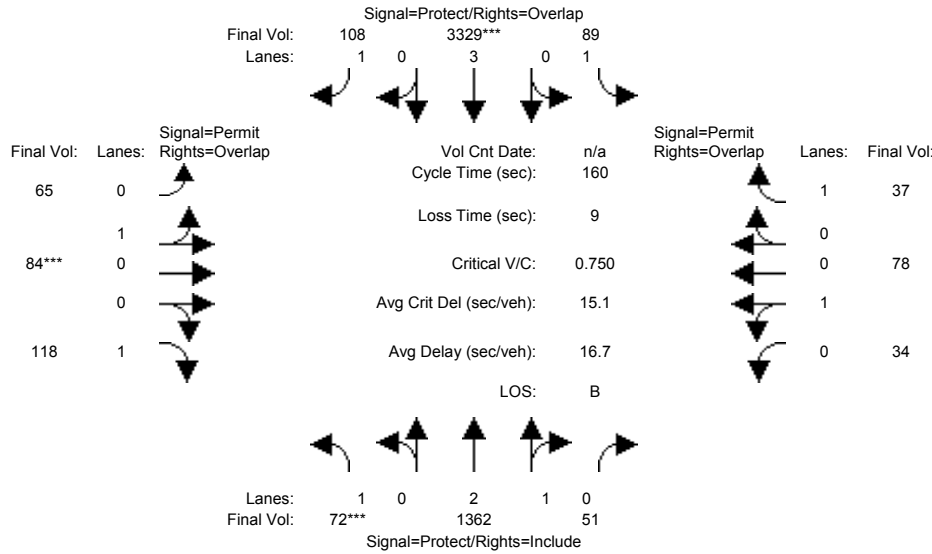
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.09	0.14	0.14	0.25	0.41	0.30	0.12	0.34	0.34	0.06	0.16	0.20
Crit Moves:	****			****			****			****		
Green Time:	15.0	29.8	29.8	52.2	67.0	95.8	28.8	55.4	55.4	10.6	37.2	89.5
Volume/Cap:	0.97	0.77	0.77	0.77	0.97	0.51	0.68	0.97	0.97	0.97	0.68	0.36
Delay/Veh:	116.1	65.3	65.3	51.9	57.5	18.9	64.6	65.3	65.3	148.2	57.3	19.8
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:	116.1	65.3	65.3	51.9	57.5	18.9	64.6	65.3	65.3	148.2	57.3	19.8
LOS by Move:	F	E	E	D-	E+	B-	E	E	E	F	E+	B-
DesignQueue:	356	510	510	762	1115	560	436	1017	1017	257	534	400

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	72	1362	51	89	3329	108	65	84	118	34	78	37
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:	72	1362	51	89	3329	108	65	84	118	34	78	37
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	1362	51	89	3329	108	65	84	118	34	78	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	1362	51	89	3329	108	65	84	118	34	78	37
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	72	1362	51	89	3329	108	65	84	118	34	78	37

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.89	0.11	1.00	3.00	1.00	0.44	0.56	1.00	0.30	0.70	1.00
Final Sat.:	1750	5398	202	1750	5700	1750	785	1015	1750	546	1254	1750

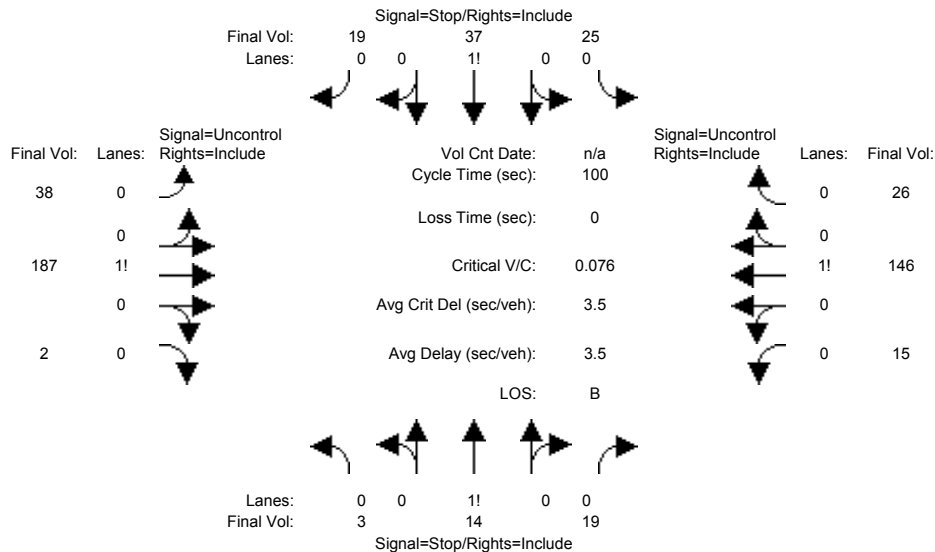
Capacity Analysis Module:												
Vol/Sat:	0.04	0.25	0.25	0.05	0.58	0.06	0.08	0.08	0.07	0.06	0.06	0.02
Crit Moves:	****				****		****					
Green Time:	8.8	111	111.0	22.4	125	124.6	17.7	17.7	26.4	17.7	17.7	40.0
Volume/Cap:	0.75	0.36	0.36	0.36	0.75	0.08	0.75	0.75	0.41	0.56	0.56	0.08
Delay/Veh:	102.1	10.1	10.1	63.3	10.2	4.2	83.7	83.7	60.7	71.2	71.2	46.0
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:	102.1	10.1	10.1	63.3	10.2	4.2	83.7	83.7	60.7	71.2	71.2	46.0
LOS by Move:	F	B+	B+	E	B+	A	F	F	E	E	E	D
DesignQueue:	166	350	350	187	646	59	318	318	242	238	238	67

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	3	14	19	25	37	19	38	187	2	15	146	26
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	14	19	25	37	19	38	187	2	15	146	26
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	14	19	25	37	19	38	187	2	15	146	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	14	19	25	37	19	38	187	2	15	146	26
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	481	466	188	470	454	159	172	xxxx	xxxxxx	189	xxxx	xxxxxx
Potent Cap.:	499	497	859	508	505	892	1417	xxxx	xxxxxx	1397	xxxx	xxxxxx
Move Cap.:	446	478	859	471	486	892	1417	xxxx	xxxxxx	1397	xxxx	xxxxxx
Volume/Cap:	0.01	0.03	0.02	0.05	0.08	0.02	0.03	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	2.1	xxxx	xxxxxx	0.8	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.6	xxxx	xxxxxx	7.6	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	620	xxxxxx	xxxx	538	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.5	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	11.2	xxxxxx	xxxxxx	12.9	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	11.2			12.9			xxxxxxx			xxxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #3 Charles St / W Iowa Ave

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	3	14	19	25	37	19	38	187	2	15	146	26							
ApproachDel:	11.2				12.9				xxxxxx				xxxxxx						

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=36]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=531]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=81]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=531]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #3 Charles St / W Iowa Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	1!	0	0	0	0	1!	0	0
Initial Vol:	3	14	19	25	37	19	38	187	2	15	146	26								
Major Street Volume:					414															
Minor Approach Volume:					81															
Minor Approach Volume Threshold:					455															

SIGNAL WARRANT DISCLAIMER

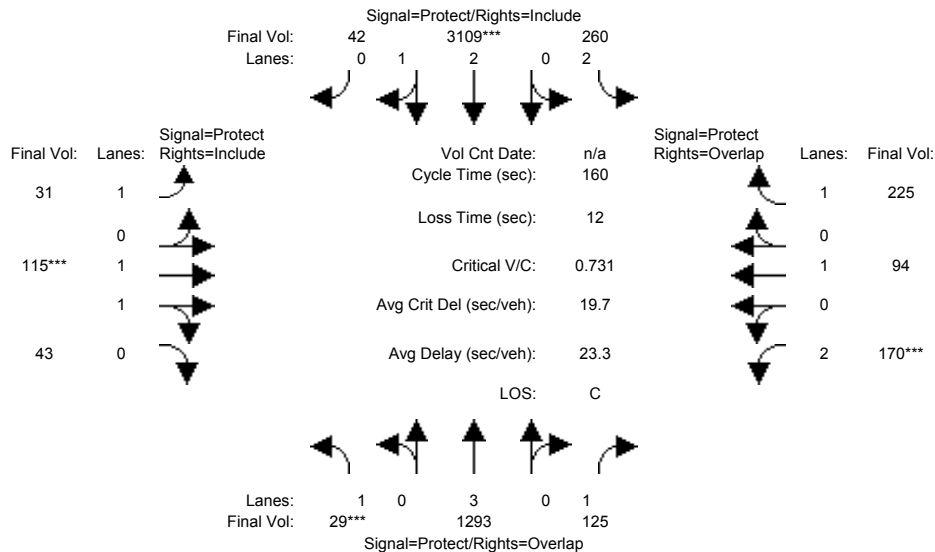
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	29	1293	125	260	3109	42	31	115	43	170	94	225
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	1293	125	260	3109	42	31	115	43	170	94	225
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	29	1293	125	260	3109	42	31	115	43	170	94	225
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	1293	125	260	3109	42	31	115	43	170	94	225
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	29	1293	125	260	3109	42	31	115	43	170	94	225

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.96	0.04	1.00	1.44	0.56	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5525	75	1750	2692	1007	3150	1900	1750

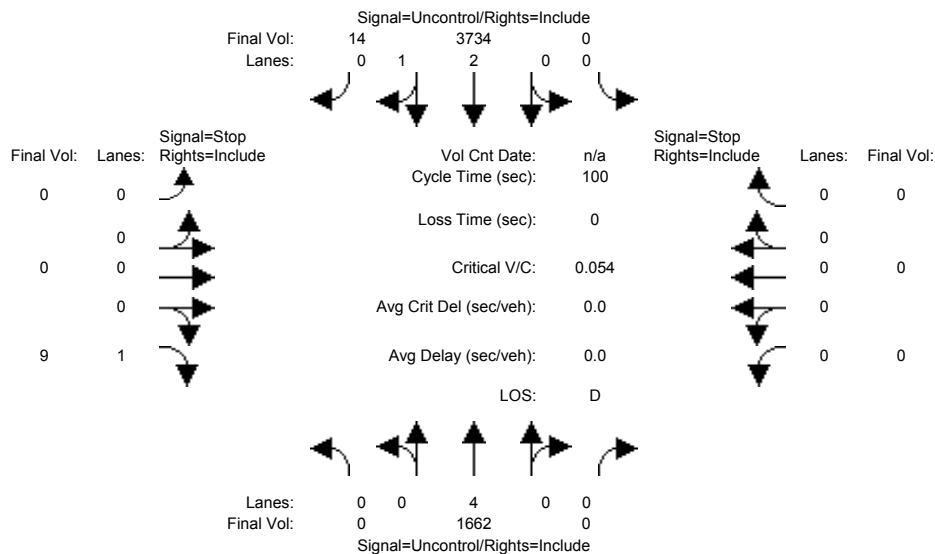
Capacity Analysis Module:												
Vol/Sat:	0.02	0.23	0.07	0.08	0.56	0.56	0.02	0.04	0.04	0.05	0.05	0.13
Crit Moves:	****				****		****			****		
Green Time:	7.0	92.8	104.2	33.8	120	119.5	8.8	10.0	10.0	11.5	12.6	46.4
Volume/Cap:	0.38	0.39	0.11	0.39	0.75	0.75	0.32	0.68	0.68	0.75	0.63	0.44
Delay/Veh:	77.5	18.3	10.5	54.7	12.5	12.5	74.6	81.6	81.6	86.2	79.5	46.9
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:	77.5	18.3	10.5	54.7	12.5	12.5	74.6	81.6	81.6	86.2	79.5	46.9
LOS by Move:	E-	B-	B+	D-	B	B	E	F	F	F	E-	D
DesignQueue:	67	428	107	281	706	706	71	171	171	215	195	399

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave			Project Dwy (Restaurant)								
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	1662	0	0	3734	14	0	0	9	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:	0	1662	0	0	3734	14	0	0	9	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1662	0	0	3734	14	0	0	9	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	0	1662	0	0	3734	14	0	0	9	0	0	0

Critical Gap Module:	North Bound			South Bound			East Bound			West Bound		
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx

Capacity Module:	North Bound			South Bound			East Bound			West Bound		
Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1252	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	167	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	167	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.05	xxxx	xxxx	xxxx

Level Of Service Module:	North Bound			South Bound			East Bound			West Bound		
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	4.2	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	27.8	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	D	*	*	*
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:	xxxxxxx			xxxxxxx			27.8			xxxxxxx		
ApproachLOS:	*			*			D			*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1662 0	0 3734 14	0 0 9	0 0 0
ApproachDel:	xxxxxx	xxxxxx	27.8	xxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=9]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=5419]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Base Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1662 0	0 3734 14	0 0 9	0 0 0

Major Street Volume: 5410
 Minor Approach Volume: 9
 Minor Approach Volume Threshold: -297 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

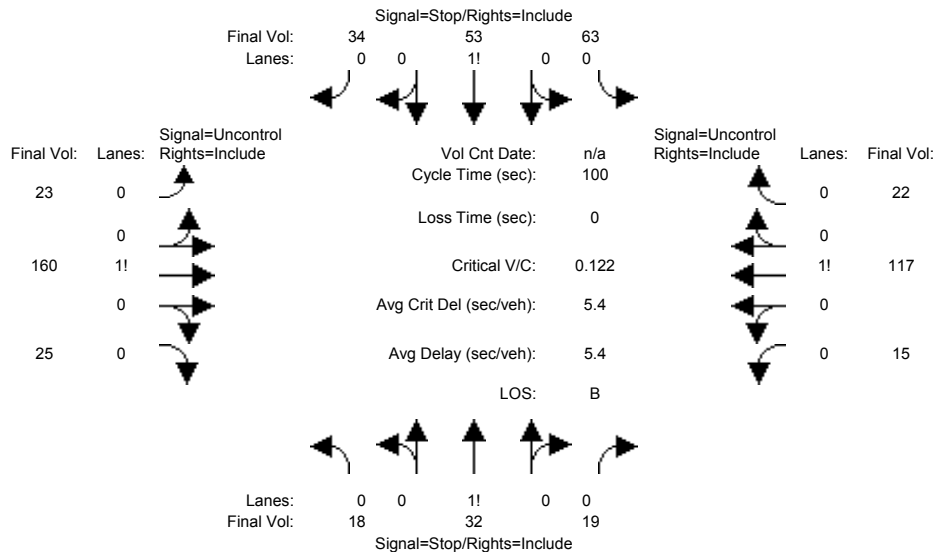
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	18	32	19	63	53	34	23	160	25	15	117	22
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	32	19	63	53	34	23	160	25	15	117	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	32	19	63	53	34	23	160	25	15	117	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	18	32	19	63	53	34	23	160	25	15	117	22
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	420	388	173	402	389	128	139	xxxx	xxxxx	185	xxxx	xxxxx
Potent Cap.:	547	550	876	562	549	927	1457	xxxx	xxxxx	1402	xxxx	xxxxx
Move Cap.:	477	536	876	514	535	927	1457	xxxx	xxxxx	1402	xxxx	xxxxx
Volume/Cap:	0.04	0.06	0.02	0.12	0.10	0.04	0.02	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.2	xxxx	xxxxx	0.8	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	579	xxxxx	xxxx	581	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	1.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	12.1	xxxxx	xxxxx	13.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	12.1			13.3			xxxxxxx			xxxxxxx		
ApproachLOS:		B			B			*			*	

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled						
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	0	0	0	0	0	1!	0	0
Initial Vol:	18	32	19		63	53	34		23	160	25		15	117	22				
ApproachDel:	12.1				13.3				xxxxxx				xxxxxx						

-----|-----|-----|-----|-----|
 Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=69]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=581]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.6]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=150]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=581]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

 Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled							
Lanes:	0	0	1!	0	0	0	1!	0	0	0	0	1!	0	0	0	0	0	1!	0	0
Initial Vol:	18	32	19		63	53	34		23	160	25		15	117	22					
Major Street Volume:					362															
Minor Approach Volume:					150															
Minor Approach Volume Threshold:					490															

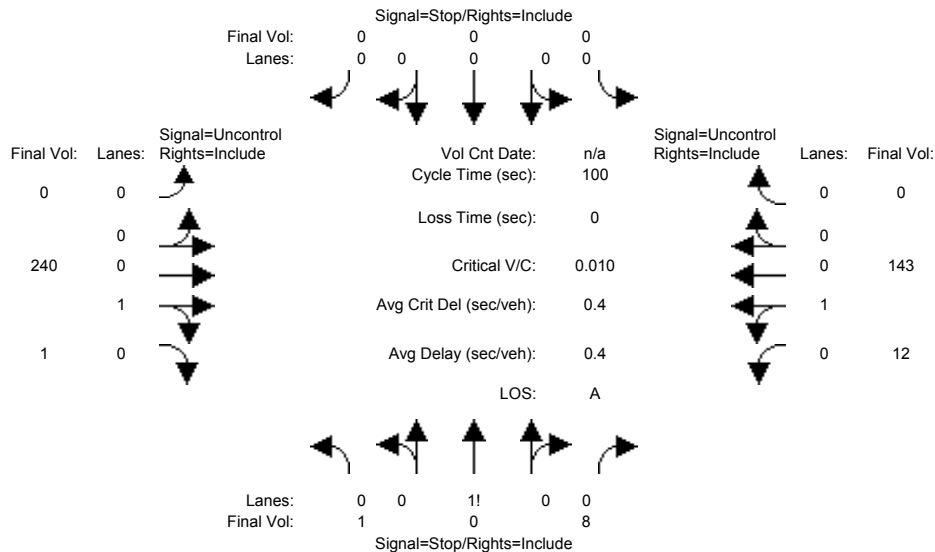
-----|-----|-----|-----|-----|
 SIGNAL WARRANT DISCLAIMER
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	8	0	0	0	0	240	1	12	143	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:	1	0	8	0	0	0	0	240	1	12	143	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	0	8	0	0	0	0	240	1	12	143	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	1	0	8	0	0	0	0	240	1	12	143	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	408	408	241	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	241	xxxxx	xxxxx
Potent Cap.:	604	536	803	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1337	xxxxx	xxxxx
Move Cap.:	600	531	803	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1337	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.01	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.01	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	0.7	xxxxx	xxxxxx
Control Del:	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.7	xxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	774	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	0.0	xxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.7	xxxxxx	xxxxxx	xxxxx	xxxxxx	xxxxxx	xxxxx	xxxxxx	7.7	xxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.7			xxxxxxx			xxxxxxx		xxxxxxx			
ApproachLOS:	A			*			*		*			*

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R

Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled							
Lanes:	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Initial Vol:	1	0	8		0	0	0	0	0	240	1	12	143	0					
ApproachDel:	9.7				xxxxxx				xxxxxx			xxxxxx							

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=9]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=405]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Base Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound				South Bound				East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign				Stop Sign				Uncontrolled			Uncontrolled								
Lanes:	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
Initial Vol:	1	0	8		0	0	0	0	0	240	1	12	143	0						

Major Street Volume: 396
 Minor Approach Volume: 9
 Minor Approach Volume Threshold: 466

SIGNAL WARRANT DISCLAIMER

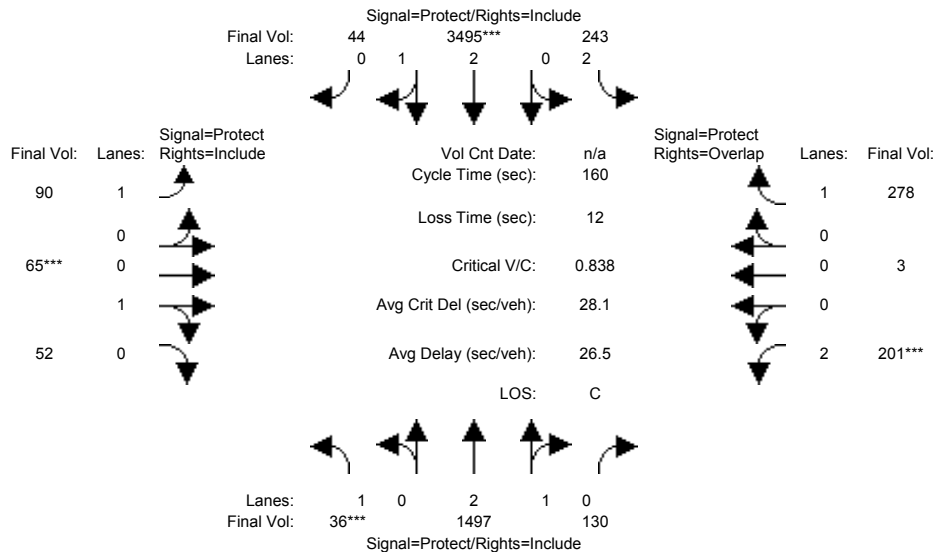
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	36	1497	130	243	3495	44	90	65	52	201	3	278
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:	36	1497	130	243	3495	44	90	65	52	201	3	278
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	36	1497	130	243	3495	44	90	65	52	201	3	278
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	1497	130	243	3495	44	90	65	52	201	3	278
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	36	1497	130	243	3495	44	90	65	52	201	3	278

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.93	0.95	0.95
Lanes:	1.00	2.75	0.25	2.00	2.96	0.04	1.00	0.56	0.44	1.97	0.03	1.00
Final Sat.:	1750	5152	447	3150	5530	70	1750	1000	800	3469	52	1800

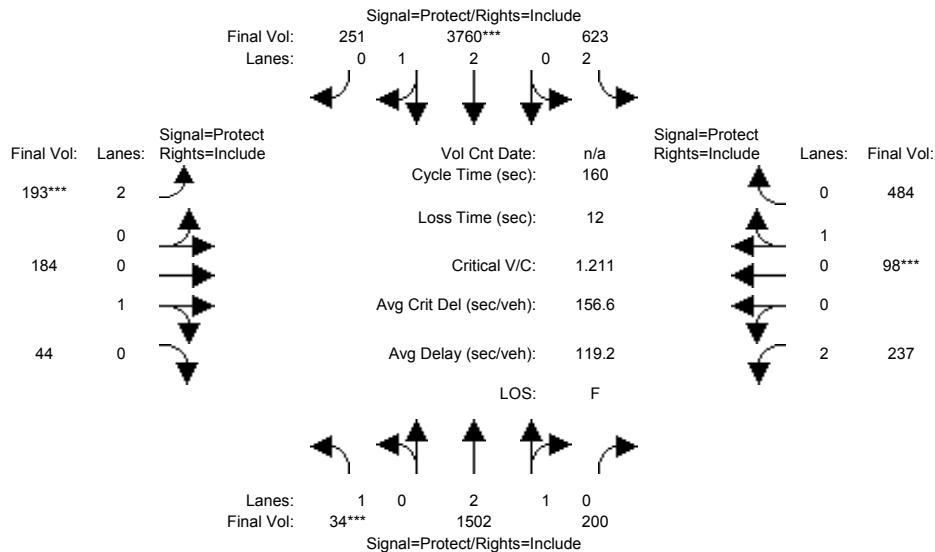
Capacity Analysis Module:												
Vol/Sat:	0.02	0.29	0.29	0.08	0.63	0.63	0.05	0.07	0.07	0.06	0.06	0.15
Crit Moves:	***			***			***			***		
Green Time:	7.0	98.8	98.8	26.2	118	118.0	9.2	12.1	12.1	10.8	13.8	40.0
Volume/Cap:	0.47	0.47	0.47	0.47	0.86	0.86	0.90	0.86	0.86	0.86	0.67	0.62
Delay/Veh:	79.2	16.6	16.6	61.3	16.9	16.9	132.9	111	111.2	86.2	73.4	54.7
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:	79.2	16.6	16.6	61.3	16.9	16.9	132.9	111	111.2	86.2	73.4	54.7
LOS by Move:	E-	B	B	E	B	B	F	F	F	F	E	D-
DesignQueue:	84	508	508	278	840	840	208	258	258	232	227	510

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	34	1502	200	623	3760	251	193	184	44	237	98	484
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:	34	1502	200	623	3760	251	193	184	44	237	98	484
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	34	1502	200	623	3760	251	193	184	44	237	98	484
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	1502	200	623	3760	251	193	184	44	237	98	484
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	34	1502	200	623	3760	251	193	184	44	237	98	484

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.63	0.37	2.00	2.81	0.19	2.00	0.81	0.19	2.00	0.17	0.83
Final Sat.:	1750	4941	658	3150	5249	350	3150	1453	347	3150	303	1497

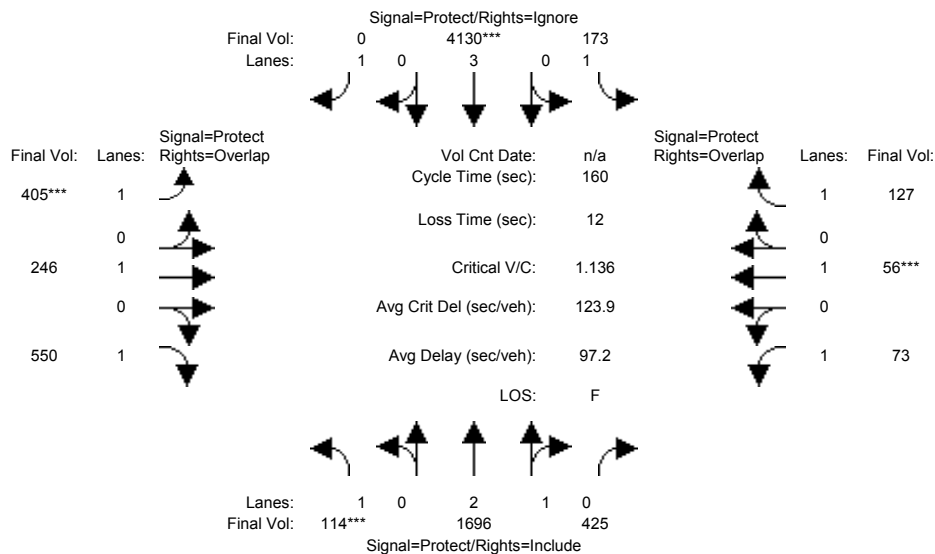
Capacity Analysis Module:												
Vol/Sat:	0.02	0.30	0.30	0.20	0.72	0.72	0.06	0.13	0.13	0.08	0.32	0.32
Crit Moves:	****			****			****			****		
Green Time:	7.0	59.8	59.8	38.9	91.7	91.7	7.8	30.9	30.9	18.4	41.4	41.4
Volume/Cap:	0.44	0.81	0.81	0.81	1.25	1.25	1.25	0.66	0.66	0.66	1.25	1.25
Delay/Veh:	78.7	47.6	47.6	63.7	149	149.0	230.6	64.1	64.1	72.1	188	188.3
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:	78.7	47.6	47.6	63.7	149	149.0	230.6	64.1	64.1	72.1	188	188.3
LOS by Move:	E-	D	D	E	F	F	F	E	E	E	F	F
DesignQueue:	79	874	874	667	1591	1591	250	446	446	287	1106	1106

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Cumulative PM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	114	1696	425	173	4130	523	405	246	550	73	56	127
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:	114	1696	425	173	4130	523	405	246	550	73	56	127
User 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
PHF 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
PHF Volume:	114	1696	425	173	4130	0	405	246	550	73	56	127
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	1696	425	173	4130	0	405	246	550	73	56	127
PCE 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
MLF 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
Final Volume:	114	1696	425	173	4130	0	405	246	550	73	56	127

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.38	0.62	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4476	1122	1750	5700	1750	1750	1900	1750	1750	1900	1750

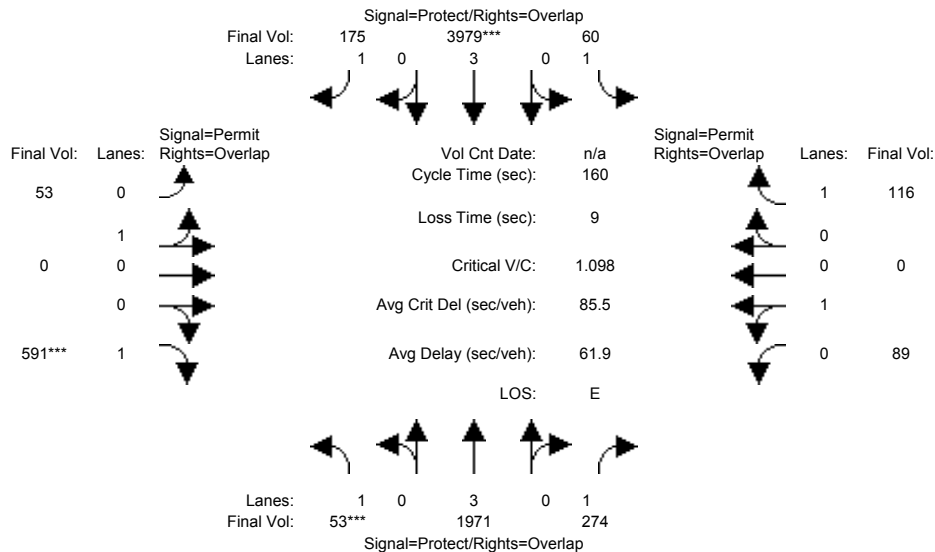
Capacity Analysis Module:												
Vol/Sat:	0.07	0.38	0.38	0.10	0.72	0.00	0.23	0.13	0.31	0.04	0.03	0.07
Crit Moves:	****			****			****			****		
Green Time:	8.8	84.6	84.6	22.1	97.9	0.0	31.3	34.3	43.1	7.0	10.0	32.1
Volume/Cap:	1.18	0.72	0.72	0.72	1.18	0.00	1.18	0.60	1.17	0.95	0.47	0.36
Delay/Veh:	225.0	29.4	29.4	75.8	117	0.0	172.9	59.3	154.6	163.1	75.4	55.8
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:	225.0	29.4	29.4	75.8	117	0.0	172.9	59.3	154.6	163.1	75.4	55.8
LOS by Move:	F	C	C	E-	F	A	F	E+	F	F	E-	E+
DesignQueue:	264	837	837	369	1468	0	837	445	1057	170	118	250

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Base Volume Alternative)
Cumulative PM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



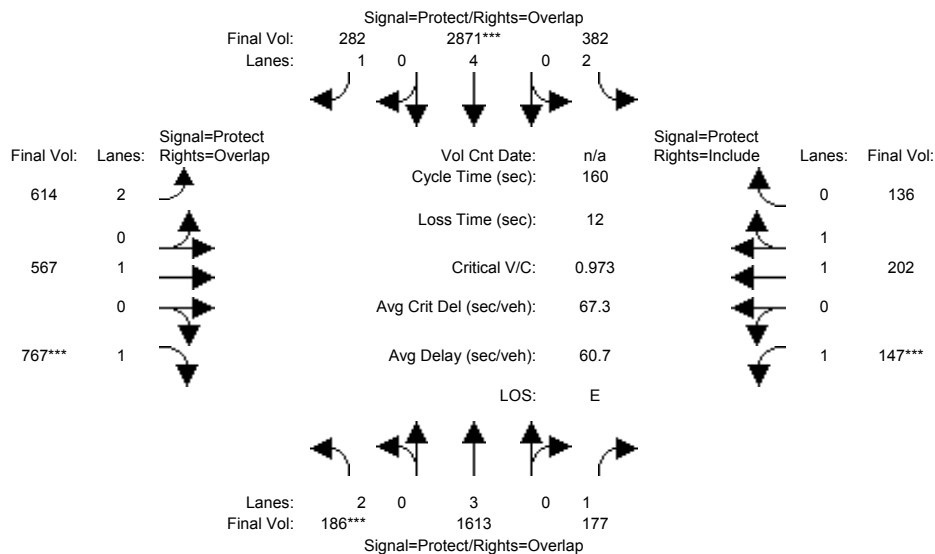
Street Name:	N Mathilda Ave						Indio Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	53	1971	274	60	3979	175	53	0	591	89	0	116
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:	53	1971	274	60	3979	175	53	0	591	89	0	116
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	53	1971	274	60	3979	175	53	0	591	89	0	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	1971	274	60	3979	175	53	0	591	89	0	116
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	53	1971	274	60	3979	175	53	0	591	89	0	116
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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.35	0.16	0.03	0.70	0.10	0.03	0.00	0.34	0.05	0.00	0.07
Crit Moves:	***			***			***			***		
Green Time:	7.0	96.2	96.2	12.2	101	101.3	42.7	0.0	49.7	42.7	0.0	54.8
Volume/Cap:	0.69	0.58	0.26	0.45	1.10	0.16	0.11	0.00	1.09	0.19	0.00	0.19
Delay/Veh:	99.2	19.7	15.2	73.1	80.2	12.0	44.4	0.0	119.8	45.4	0.0	37.2
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:	99.2	19.7	15.2	73.1	80.2	12.0	44.4	0.0	119.8	45.4	0.0	37.2
LOS by Move:	F	B-	B	E	F	B	D	A	F	D	A	D+
Design Queue:	123	641	275	135	1325	159	92	0	1079	155	0	187

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report
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Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	186	1613	177	382	2871	282	614	567	767	147	202	136
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:	186	1613	177	382	2871	282	614	567	767	147	202	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	186	1613	177	382	2871	282	614	567	767	147	202	136
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	1613	177	382	2871	282	614	567	767	147	202	136
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	186	1613	177	382	2871	282	614	567	767	147	202	136

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.17	0.83
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2210	1488

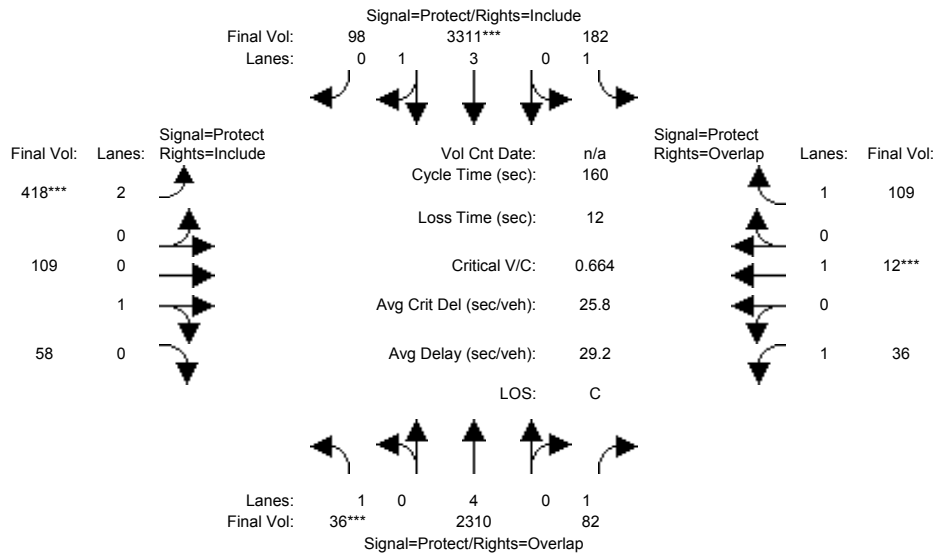
Capacity Analysis Module:												
Vol/Sat:	0.06	0.28	0.10	0.12	0.38	0.16	0.19	0.30	0.44	0.08	0.09	0.09
Crit Moves:	****				****				****	****		
Green Time:	9.7	50.3	64.1	21.5	62.1	114.0	51.9	62.4	72.1	13.8	24.3	24.3
Volume/Cap:	0.97	0.90	0.25	0.90	0.97	0.23	0.60	0.77	0.97	0.97	0.60	0.60
Delay/Veh:	132.0	59.1	32.2	89.9	59.1	8.0	46.4	47.3	68.5	137.8	65.1	65.1
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:	132.0	59.1	32.2	89.9	59.1	8.0	46.4	47.3	68.5	137.8	65.1	65.1
LOS by Move:	F	E+	C-	F	E+	A	D	D	E	F	E	E
DesignQueue:	238	885	263	458	1084	204	586	835	1150	331	335	335

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
8642.003

Level Of Service Computation Report
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Cumulative PM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	36	2310	82	182	3311	98	418	109	58	36	12	109
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:	36	2310	82	182	3311	98	418	109	58	36	12	109
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	36	2310	82	182	3311	98	418	109	58	36	12	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	2310	82	182	3311	98	418	109	58	36	12	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	36	2310	82	182	3311	98	418	109	58	36	12	109

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.88	0.12	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7284	216	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.30	0.05	0.10	0.45	0.45	0.13	0.09	0.09	0.02	0.01	0.06
Crit Moves:	****			****			****			****		
Green Time:	7.0	80.8	93.5	27.6	101	101.4	29.6	26.9	26.9	12.7	10.0	37.6
Volume/Cap:	0.47	0.60	0.08	0.60	0.72	0.72	0.72	0.55	0.55	0.26	0.10	0.26
Delay/Veh:	79.2	28.5	14.6	64.5	20.2	20.2	65.5	63.2	63.2	70.2	71.1	50.2
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:	79.2	28.5	14.6	64.5	20.2	20.2	65.5	63.2	63.2	70.2	71.1	50.2
LOS by Move:	E-	C	B	E	C+	C+	E	E	E	E	E	D
DesignQueue:	84	691	83	374	799	799	473	334	334	80	25	204

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
Cumulative PM Peak Hour

14: Mathilda Ave & Ross Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	45	150	145	5	82	69	1693	375	221	2816	63
Future Volume (vph)	81	45	150	145	5	82	69	1693	375	221	2816	63
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5382		1304	3733	
Flt Permitted	0.75	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	997	1373	1167	1304	5382		1304	3733	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	83	46	153	148	5	84	70	1728	383	226	2873	64
RTOR Reduction (vph)	0	0	108	0	0	59	0	29	0	0	2	0
Lane Group Flow (vph)	83	46	45	148	5	25	70	2082	0	226	2935	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	65.3		20.4	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	65.3		20.4	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.47		0.15	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	291	402	341	176	2510		190	1778	
v/s Ratio Prot		0.03			0.00		0.05	c0.39		0.17	c0.79	
v/s Ratio Perm	0.08		0.04	c0.15		0.02						
v/c Ratio	0.27	0.11	0.13	0.51	0.01	0.07	0.40	0.83		1.19	1.65	
Uniform Delay, d1	38.1	36.2	36.4	41.1	35.1	35.8	55.3	32.5		59.8	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.99		0.81	0.71	
Incremental Delay, d2	2.2	0.6	0.8	6.2	0.1	0.4	6.5	2.4		90.3	293.2	
Delay (s)	40.3	36.8	37.2	47.4	35.2	36.2	60.6	34.5		138.9	319.1	
Level of Service	D	D	D	D	D	D	E	C		F	F	
Approach Delay (s)		38.1			43.1			35.3			306.2	
Approach LOS		D			D			D			F	
Intersection Summary												
HCM 2000 Control Delay			181.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			13.3			
Intersection Capacity Utilization			127.7%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

311 South Mathilda Avenue TIA
Cumulative PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	0	157	0	0	0	0	803	1054	602	2943	0
Future Volume (vph)	302	0	157	0	0	0	0	803	1054	602	2943	0
Ideal Flow (vphp)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.87						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1470						5559	1129	1304	3747	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1470						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	321	0	167	0	0	0	0	854	1121	640	3131	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	313	0	0	0
Lane Group Flow (vph)	289	140	0	0	0	0	0	854	808	640	3131	0
Confl. Peds. (#/hr)										6		
Confl. Bikes (#/hr)										5		
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	316						2171	441	341	2614	
v/s Ratio Prot	0.09	c0.10						0.15		c0.49	0.84	
v/s Ratio Perm									c0.72			
v/c Ratio	0.42	0.44						0.39	1.83	1.88	1.20	
Uniform Delay, d1	47.4	47.7						30.7	42.6	51.6	21.1	
Progression Factor	1.00	1.00						1.03	2.77	1.11	0.72	
Incremental Delay, d2	1.9	4.5						0.1	380.2	395.6	89.4	
Delay (s)	49.2	52.1						31.7	498.5	453.0	104.7	
Level of Service	D	D						C	F	F	F	
Approach Delay (s)		50.4			0.0			296.7			163.8	
Approach LOS		D			A			F			F	

Intersection Summary

HCM 2000 Control Delay	197.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	219.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Cumulative PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	761	36	97	100	1005	0	0	2782	1089
Future Volume (vph)	0	0	0	761	36	97	100	1005	0	0	2782	1089
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1247	1167	1304	4722			4522	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1247	1167	1304	4722			4522	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	801	38	102	105	1058	0	0	2928	1146
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	0	0	50	0
Lane Group Flow (vph)	0	0	0	417	422	20	105	1058	0	0	4024	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2574	
v/s Ratio Prot				0.34	c0.34		c0.08	0.22			c0.89	
v/s Ratio Perm						0.02						
v/c Ratio				1.74	1.75	0.09	0.64	0.31			1.58dr	
Uniform Delay, d1				56.5	56.5	46.3	58.1	6.4			30.1	
Progression Factor				1.00	1.00	1.00	1.11	0.50			0.80	
Incremental Delay, d2				351.9	354.6	0.8	16.6	0.2			253.6	
Delay (s)				408.4	411.0	47.1	81.1	3.4			277.8	
Level of Service				F	F	D	F	A			F	
Approach Delay (s)		0.0			370.4			10.5			277.8	
Approach LOS		A			F			B			F	

Intersection Summary

HCM 2000 Control Delay	241.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	219.7%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

311 South Mathilda Avenue TIA
Cumulative PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	277	654	620	178	9	254	485	322	43	2596	76
Future Volume (vph)	76	277	654	620	178	9	254	485	322	43	2596	76
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1362		2530	3481		1304	4700	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1362		2530	3481		1304	4700	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	84	304	719	681	196	10	279	533	354	47	2853	84
RTOR Reduction (vph)	0	0	85	0	1	0	0	83	0	0	3	0
Lane Group Flow (vph)	84	304	634	681	205	0	279	804	0	47	2934	0
Confl. Peds. (#/hr)							2			3		
Confl. Bikes (#/hr)			2				2			2		2
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.3	33.1	42.9	31.0	49.8		9.8	41.7		16.0	47.9	
Effective Green, g (s)	14.3	33.1	42.9	31.0	49.8		9.8	41.7		16.0	47.9	
Actuated g/C Ratio	0.10	0.24	0.31	0.22	0.36		0.07	0.30		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	324	353	560	484		177	1036		149	1608	
v/s Ratio Prot	0.06	0.22	c0.13	c0.27	0.15		0.11	0.23		0.04	c0.62	
v/s Ratio Perm			0.42									
v/c Ratio	0.63	0.94	1.80	1.22	0.42		1.58	0.78		0.32	1.82	
Uniform Delay, d1	60.3	52.4	48.5	54.5	34.2		65.1	44.9		57.0	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.46		1.00	1.00	
Incremental Delay, d2	9.4	36.5	369.9	112.8	0.6		283.9	5.5		1.2	373.6	
Delay (s)	69.7	88.9	418.4	167.3	34.8		344.4	71.1		58.2	419.7	
Level of Service	E	F	F	F	C		F	E		E	F	
Approach Delay (s)		301.5			136.5			136.5			414.0	
Approach LOS		F			F			F			F	

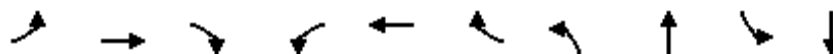
Intersection Summary

HCM 2000 Control Delay	301.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	142.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
Cumulative PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	83	46	153	148	5	84	70	2111	226	2937
v/c Ratio	0.27	0.11	0.34	0.51	0.01	0.21	0.40	0.83	1.20	1.65
Control Delay	41.1	37.3	7.6	48.4	35.4	7.4	61.5	34.6	135.3	316.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.2
Total Delay	41.1	37.3	7.6	48.4	35.4	7.4	61.5	36.0	135.3	316.7
Queue Length 50th (ft)	58	31	0	112	3	0	45	255	~259	~1417
Queue Length 95th (ft)	107	64	54	187	14	37	m56	m213	m#200	m#1100
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	445	291	402	405	176	2593	189	1780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	92
Spillback Cap Reductn	0	0	0	0	0	5	0	276	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.11	0.34	0.51	0.01	0.21	0.40	0.91	1.20	1.74

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Cumulative PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	289	199	854	1121	640	3131
v/c Ratio	0.42	0.53	0.39	1.49	1.88	1.20
Control Delay	49.6	35.6	32.1	254.0	426.8	108.0
Queue Delay	0.0	1.2	0.0	1.7	3.3	1.3
Total Delay	49.6	36.8	32.1	255.7	430.1	109.3
Queue Length 50th (ft)	125	109	178	~1412	~863	~1233
Queue Length 95th (ft)	174	202	216	#1653	m#436	m196
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	374	2171	754	341	2614
Starvation Cap Reductn	0	0	0	166	82	783
Spillback Cap Reductn	0	56	82	0	0	1014
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.63	0.41	1.91	2.47	1.96

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



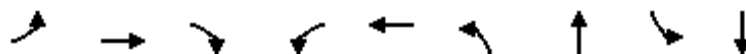
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	417	422	102	105	1058	4074
v/c Ratio	1.74	1.75	0.33	0.64	0.31	1.58dr
Control Delay	385.1	387.7	11.6	81.9	3.5	271.9
Queue Delay	1.8	1.8	0.8	1.5	0.6	0.8
Total Delay	386.9	389.5	12.4	83.4	4.1	272.7
Queue Length 50th (ft)	~590	~598	0	102	84	~1524
Queue Length 95th (ft)	#811	#822	51	#172	79	m643
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	308	164	3463	2625
Starvation Cap Reductn	0	0	0	10	1895	750
Spillback Cap Reductn	28	29	68	0	621	343
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.98	1.99	0.42	0.68	0.67	2.17

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

311 South Mathilda Avenue TIA
 Cumulative PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	84	304	719	681	206	279	887	47	2937
v/c Ratio	0.63	0.94	1.64	1.22	0.42	1.72	0.78	0.30	1.79
Control Delay	79.9	88.9	322.3	158.3	38.5	384.0	63.1	59.0	388.8
Queue Delay	0.0	0.0	9.5	0.0	0.0	0.0	6.9	0.0	1.3
Total Delay	79.9	88.9	331.7	158.3	38.5	384.0	69.9	59.0	390.1
Queue Length 50th (ft)	75	274	~902	~390	140	~179	280	39	~1172
Queue Length 95th (ft)	128	#457	#1152	#514	233	#272	331	80	#1236
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	485	162	1138	186	1637
Starvation Cap Reductn	0	0	0	0	0	0	208	0	0
Spillback Cap Reductn	0	0	238	0	0	0	0	0	494
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.94	3.58	1.22	0.42	1.72	0.95	0.25	2.57

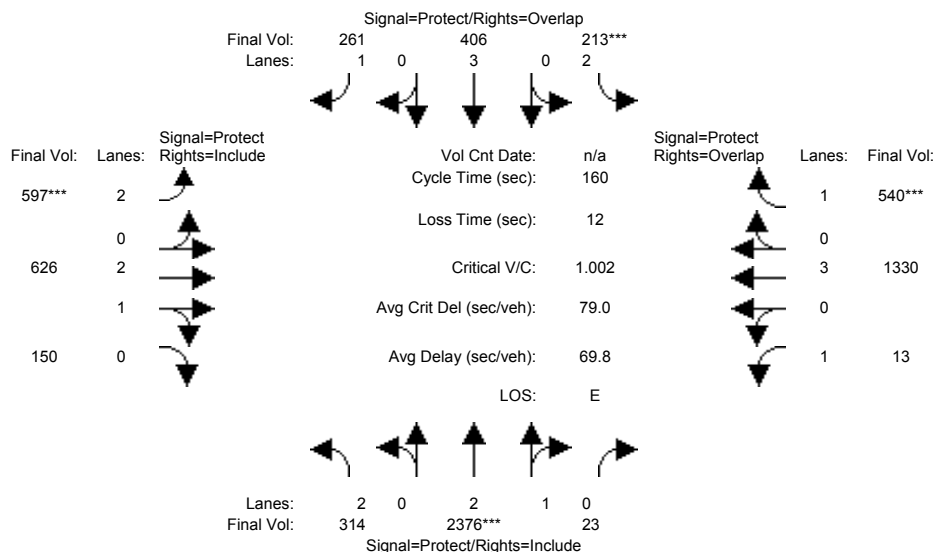
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	314	2375	23	210	403	259	596	626	150	13	1330	539
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:	314	2375	23	210	403	259	596	626	150	13	1330	539
Added Vol:	0	1	0	3	3	2	1	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	314	2376	23	213	406	261	597	626	150	13	1330	540
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	314	2376	23	213	406	261	597	626	150	13	1330	540
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	314	2376	23	213	406	261	597	626	150	13	1330	540
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	314	2376	23	213	406	261	597	626	150	13	1330	540

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.97	0.03	2.00	3.00	1.00	2.00	2.40	0.60	1.00	3.00	1.00
Final Sat.:	3150	5546	54	3150	5700	1750	3150	4516	1082	1750	5700	1750

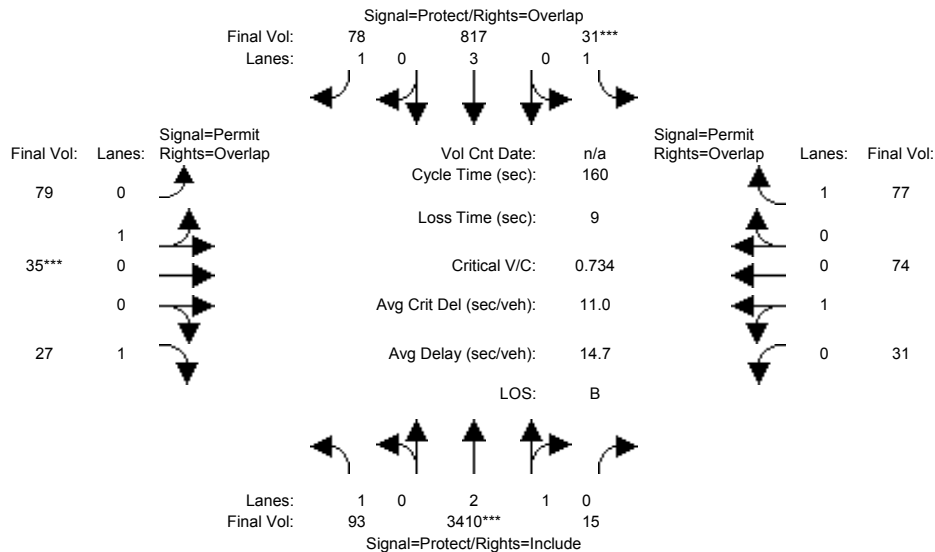
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.10	0.43	0.43	0.07	0.07	0.15	0.19	0.14	0.14	0.01	0.23	0.31
Crit Moves:	****			****			****			****		
Green Time:	46.2	68.4	68.4	10.8	33.0	63.3	30.3	52.3	52.3	16.5	38.5	49.3
Volume/Cap:	0.35	1.00	1.00	1.00	0.35	0.38	1.00	0.42	0.42	0.07	0.97	1.00
Delay/Veh:	45.2	64.6	64.6	136.7	54.4	34.7	102.1	42.3	42.3	65.0	77.7	94.5
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:	45.2	64.6	64.6	136.7	54.4	34.7	102.1	42.3	42.3	65.0	77.7	94.5
LOS by Move:	D	E	E	F	D-	C-	F	D	D	E	E-	F
DesignQueue:	307	1167	1167	271	243	396	683	409	409	28	797	981

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	93	3408	15	31	809	78	79	35	27	31	74	77
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:	93	3408	15	31	809	78	79	35	27	31	74	77
Added Vol:	0	2	0	0	8	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	93	3410	15	31	817	78	79	35	27	31	74	77
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	93	3410	15	31	817	78	79	35	27	31	74	77
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	93	3410	15	31	817	78	79	35	27	31	74	77
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	93	3410	15	31	817	78	79	35	27	31	74	77

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.99	0.01	1.00	3.00	1.00	0.69	0.31	1.00	0.30	0.70	1.00
Final Sat.:	1750	5575	25	1750	5700	1750	1247	553	1750	531	1269	1750

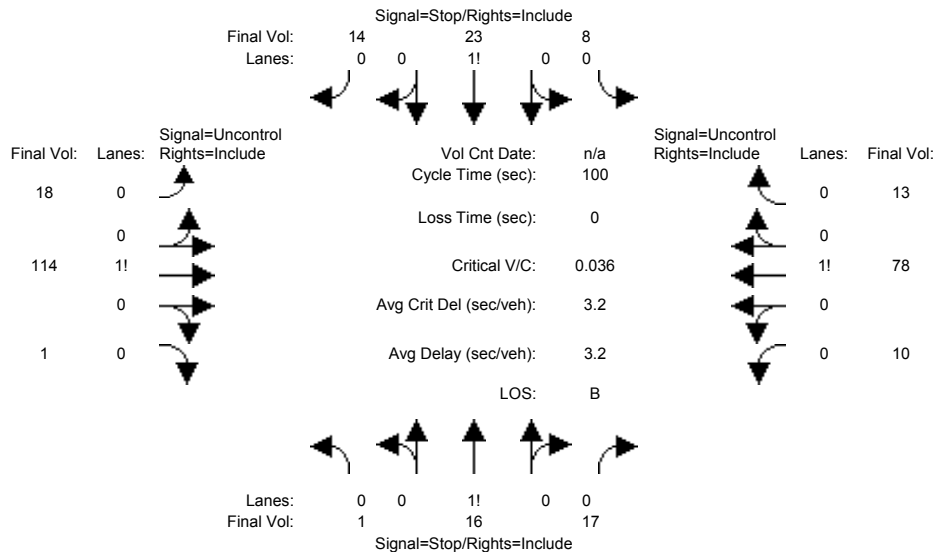
Capacity Analysis Module:												
Vol/Sat:	0.05	0.61	0.61	0.02	0.14	0.04	0.06	0.06	0.02	0.06	0.06	0.04
Crit Moves:	****			****			****			****		
Green Time:	37.2	130	130.5	7.0	100	100.3	13.5	13.5	50.7	13.5	13.5	20.5
Volume/Cap:	0.23	0.75	0.75	0.40	0.23	0.07	0.75	0.75	0.05	0.69	0.69	0.34
Delay/Veh:	50.1	7.7	7.7	77.9	13.0	11.7	90.2	90.2	38.0	83.9	83.9	64.5
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:	50.1	7.7	7.7	77.9	13.0	11.7	90.2	90.2	38.0	83.9	83.9	64.5
LOS by Move:	D	A	A	E-	B	B+	F	F	D+	F	F	E
DesignQueue:	175	568	568	72	235	71	249	249	45	229	229	164

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name:	Charles St						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	1	16	17	8	23	13	18	114	1	10	77	12
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:	1	16	17	8	23	13	18	114	1	10	77	12
Added Vol:	0	0	0	0	0	1	0	0	0	0	1	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	16	17	8	23	14	18	114	1	10	78	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	16	17	8	23	14	18	114	1	10	78	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	1	16	17	8	23	14	18	114	1	10	78	13
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	274	262	115	272	256	85	91	xxxx	xxxxxx	115	xxxx	xxxxxx
Potent Cap.:	683	647	943	685	652	980	1517	xxxx	xxxxxx	1487	xxxx	xxxxxx
Move Cap.:	646	635	943	650	640	980	1517	xxxx	xxxxxx	1487	xxxx	xxxxxx
Volume/Cap:	0.00	0.03	0.02	0.01	0.04	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.9	xxxx	xxxxxx	0.5	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	759	xxxxxx	xxxx	719	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.0	xxxxxx	xxxxxx	10.3	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	A	*	*	B	*	*	*	*	*	*	*
ApproachDel:	10.0			10.3			xxxxxxx			xxxxxxx		
ApproachLOS:	A			B			*			*		

Note: Queue reported is the distance per lane in feet.
 Peak Hour Delay Signal Warrant Report

 Intersection #3 Charles St / W Iowa Ave

 Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 16 17	8 23 14	18 114 1	10 78 13
ApproachDel:	10.0	10.3	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=34]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=313]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=45]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=313]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	1 16 17	8 23 14	18 114 1	10 78 13

Major Street Volume: 234
 Minor Approach Volume: 45
 Minor Approach Volume Threshold: 607

SIGNAL WARRANT DISCLAIMER

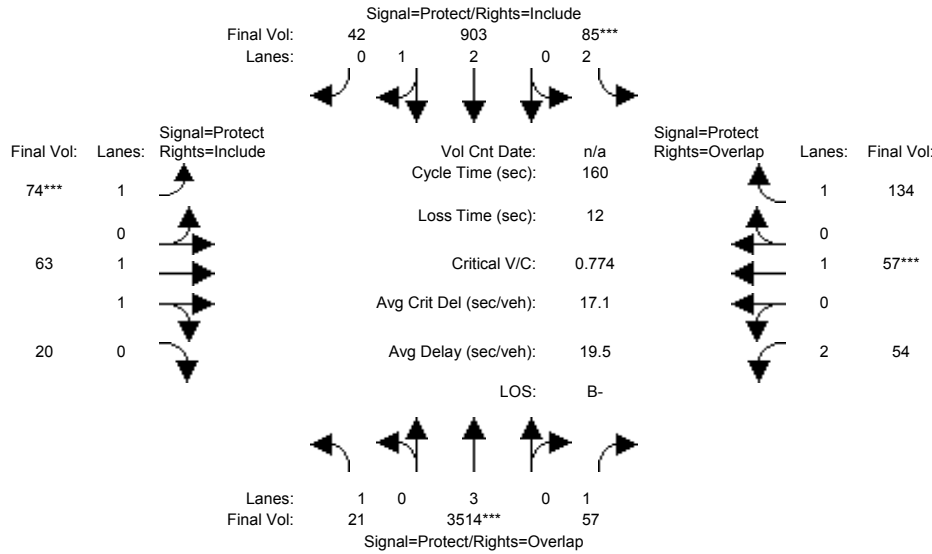
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	21	3512	57	76	895	41	74	63	20	54	57	134
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:	21	3512	57	76	895	41	74	63	20	54	57	134
Added Vol:	0	2	0	9	8	1	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	3514	57	85	903	42	74	63	20	54	57	134
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	21	3514	57	85	903	42	74	63	20	54	57	134
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	3514	57	85	903	42	74	63	20	54	57	134
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	21	3514	57	85	903	42	74	63	20	54	57	134

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.86	0.14	1.00	1.50	0.50	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5351	249	1750	2808	891	3150	1900	1750

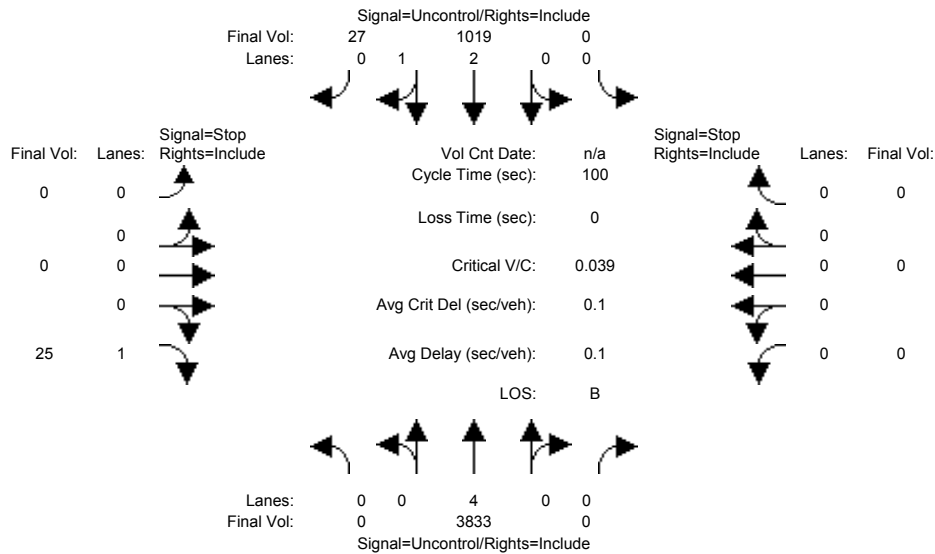
Capacity Analysis Module:												
Vol/Sat:	0.01	0.62	0.03	0.03	0.17	0.17	0.04	0.02	0.02	0.02	0.03	0.08
Crit Moves:	****			****			****			****		
Green Time:	26.7	123	130.2	7.0	103	102.9	8.4	10.8	10.8	7.6	10.0	17.0
Volume/Cap:	0.07	0.80	0.04	0.62	0.26	0.26	0.80	0.33	0.33	0.36	0.48	0.72
Delay/Veh:	56.3	12.6	2.9	83.3	12.3	12.3	113.5	71.9	71.9	75.4	75.5	82.1
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:	56.3	12.6	2.9	83.3	12.3	12.3	113.5	71.9	71.9	75.4	75.5	82.1
LOS by Move:	E+	B	A	F	B	B	F	E	E	E-	E-	F
DesignQueue:	42	727	26	110	266	266	171	89	89	69	120	295

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name:	S Mathilda Ave			Project Dwy (Restaurant)								
Approach:	North Bound		South Bound		East Bound		West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:												
Base Vol:	0	3823	0	0	1013	20	0	0	12	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:	0	3823	0	0	1013	20	0	0	12	0	0	0
Added Vol:	0	10	0	0	6	7	0	0	13	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	3833	0	0	1019	27	0	0	25	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	3833	0	0	1019	27	0	0	25	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	3833	0	0	1019	27	0	0	25	0	0	0

Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx

Capacity Module:												
Cnflct Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	353	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	649	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	649	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	xxxx	xxxx	xxxx

Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	3.0	xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	10.8	xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*			
Movement:	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:	xxxxxxx			xxxxxxx					10.8	xxxxxxx					
ApproachLOS:	*			*					B	*					

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

 Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3833 0	0 1019 27	0 0 25	0 0 0
ApproachDel:	xxxxxxx	xxxxxxx	10.8	xxxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=25]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=4904]

SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 3833 0	0 1019 27	0 0 25	0 0 0

Major Street Volume:

4879

Minor Approach Volume:

25

Minor Approach Volume Threshold: -261 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

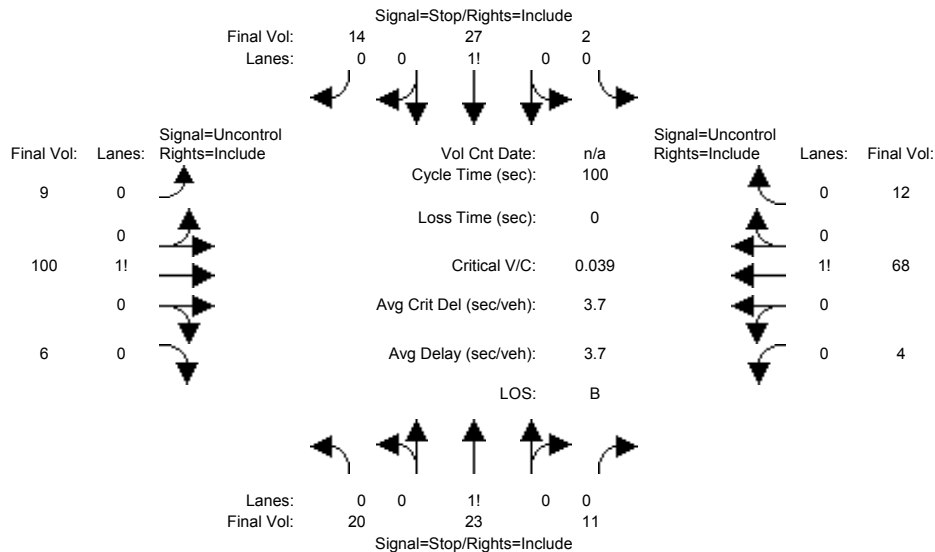
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name: Charles St W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	19	23	11	2	27	14	9	99	6	3	67	12
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:	19	23	11	2	27	14	9	99	6	3	67	12
Added Vol:	1	0	0	0	0	0	0	1	0	1	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	23	11	2	27	14	9	100	6	4	68	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	20	23	11	2	27	14	9	100	6	4	68	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	20	23	11	2	27	14	9	100	6	4	68	12

Critical Gap Module:

Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	224	209	103	220	206	74	80	xxxx	xxxxxx	106	xxxx	xxxxxx
Potent Cap.:	736	692	957	740	694	993	1531	xxxx	xxxxxx	1498	xxxx	xxxxxx
Move Cap.:	700	686	957	708	688	993	1531	xxxx	xxxxxx	1498	xxxx	xxxxxx
Volume/Cap:	0.03	0.03	0.01	0.00	0.04	0.01	0.01	xxxx	xxxx	0.00	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.4	xxxx	xxxxxx	0.2	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.4	xxxx	xxxxxx	7.4	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	734	xxxxxx	xxxx	766	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.2	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	10.3	xxxxxx	xxxxxx	10.0	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	A	*	*	*	*	*	*	*
ApproachDel:	10.3			10.0			xxxxxxx			xxxxxxx		
ApproachLOS:	B			A			*			*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	20 23 11	2 27 14	9 100 6	4 68 12
ApproachDel:	10.3	10.0	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=54]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=296]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=43]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=296]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	20 23 11	2 27 14	9 100 6	4 68 12

Major Street Volume: 199
 Minor Approach Volume: 54
 Minor Approach Volume Threshold: 650

SIGNAL WARRANT DISCLAIMER

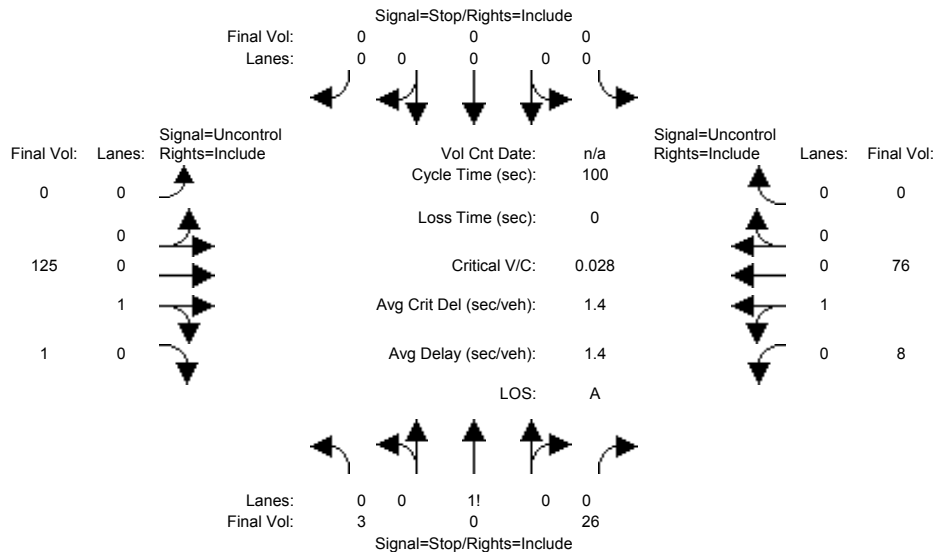
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name: Project Dwy (Residential) W McKinley Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	1	0	10	0	0	0	0	124	1	6	76	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:	1	0	10	0	0	0	0	124	1	6	76	0
Added Vol:	2	0	16	0	0	0	0	1	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	0	26	0	0	0	0	125	1	8	76	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	0	26	0	0	0	0	125	1	8	76	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	0	26	0	0	0	0	125	1	8	76	0

Critical Gap Module:

Critical Gp:	6.4	6.5	6.2	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	4.1	xxxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	2.2	xxxxx	xxxxx

Capacity Module:

Cnflct Vol:	218	218	126	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	126	xxxxx	xxxxx
Potent Cap.:	775	684	930	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1473	xxxxx	xxxxx
Move Cap.:	772	680	930	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	1473	xxxxx	xxxxx
Volume/Cap:	0.00	0.00	0.03	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.01	xxxxx	xxxxx

Level Of Service Module:

2Way95thQ:	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	0.4	xxxxx	xxxxx
Control Del:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.5	xxxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxx	911	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxx	xxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.0	xxxxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.5	xxxxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.1		xxxxxxx			xxxxxxx			xxxxxxx			
ApproachLOS:	A		*			*			*			*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 26	0 0 0	0 125 1	8 76 0
ApproachDel:	9.1	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=29]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=239]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	3 0 26	0 0 0	0 125 1	8 76 0

Major Street Volume: 210
 Minor Approach Volume: 29
 Minor Approach Volume Threshold: 636

SIGNAL WARRANT DISCLAIMER

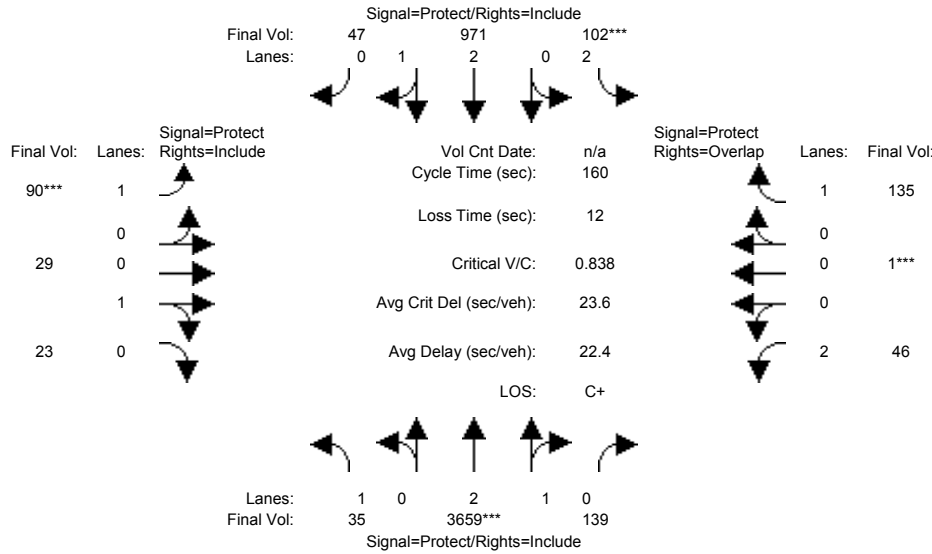
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	32	3651	139	102	967	46	79	29	17	46	1	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	3651	139	102	967	46	79	29	17	46	1	135
Added Vol:	3	8	0	0	4	1	11	0	6	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	35	3659	139	102	971	47	90	29	23	46	1	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	35	3659	139	102	971	47	90	29	23	46	1	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	35	3659	139	102	971	47	90	29	23	46	1	135
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	35	3659	139	102	971	47	90	29	23	46	1	135

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	2.89	0.11	2.00	2.86	0.14	1.00	0.56	0.44	1.96	0.04	1.00
Final Sat.:	1750	5395	205	3150	5341	259	1750	1004	796	3431	75	1750

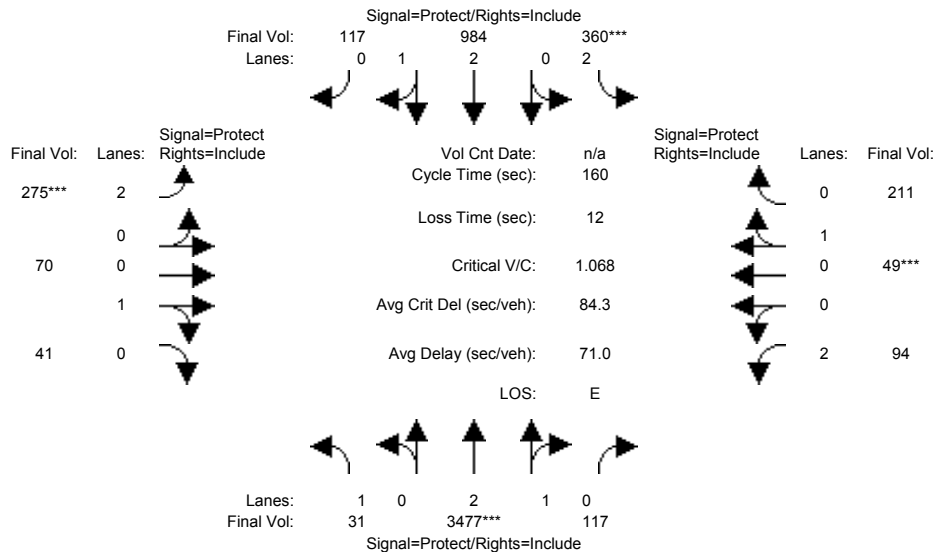
Capacity Analysis Module:												
Vol/Sat:	0.02	0.68	0.68	0.03	0.18	0.18	0.05	0.03	0.03	0.01	0.01	0.08
Crit Moves:	****			****			****			****		
Green Time:	25.0	122	121.8	7.0	104	103.8	9.2	11.3	11.3	7.9	10.0	17.0
Volume/Cap:	0.13	0.89	0.89	0.74	0.28	0.28	0.89	0.41	0.41	0.27	0.21	0.73
Delay/Veh:	58.3	16.9	16.9	94.7	12.1	12.1	131.0	73.3	73.3	73.5	71.4	79.4
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:	58.3	16.9	16.9	94.7	12.1	12.1	131.0	73.3	73.3	73.5	71.4	79.4
LOS by Move:	E+	B	B	F	B	B	F	E	E	E	E	E-
DesignQueue:	72	833	833	132	283	283	207	114	114	54	53	297

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #9: S Mathilda Ave / W Washington Ave



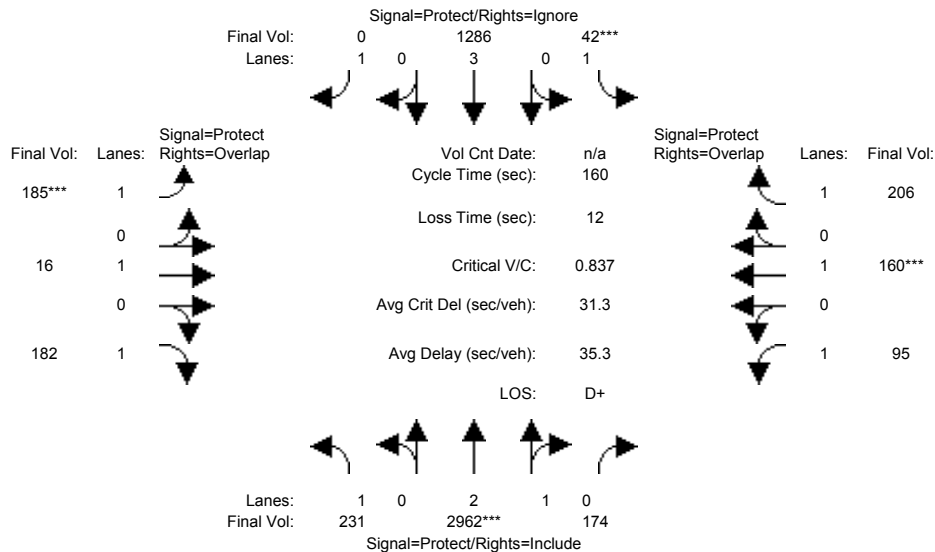
Street Name:	S Mathilda Ave						W Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	31	3460	116	360	979	117	275	70	41	94	49	211
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:	31	3460	116	360	979	117	275	70	41	94	49	211
Added Vol:	0	17	1	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	3477	117	360	984	117	275	70	41	94	49	211
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	3477	117	360	984	117	275	70	41	94	49	211
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	3477	117	360	984	117	275	70	41	94	49	211
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	31	3477	117	360	984	117	275	70	41	94	49	211
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.83	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.90	0.10	2.00	2.67	0.33	2.00	0.63	0.37	2.00	0.19	0.81
Final Sat.:	1750	5417	182	3150	5004	595	3150	1135	665	3150	339	1461
Capacity Analysis Module:												
Vol/Sat:	0.02	0.64	0.64	0.11	0.20	0.20	0.09	0.06	0.06	0.03	0.14	0.14
Crit Moves:	****			****			****			****		
Green Time:	20.6	96.2	96.2	17.1	92.7	92.7	13.1	20.4	20.4	14.3	21.6	21.6
Volume/Cap:	0.14	1.07	1.07	1.07	0.34	0.34	1.07	0.48	0.48	0.33	1.07	1.07
Delay/Veh:	62.1	69.4	69.4	139.6	17.7	17.7	148.7	66.5	66.5	69.1	146	146.0
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:	62.1	69.4	69.4	139.6	17.7	17.7	148.7	66.5	66.5	69.1	146	146.0
LOS by Move:	E	E	E	F	B	B	F	E	E	E	F	F
DesignQueue:	65	1302	1302	444	369	369	346	231	231	116	548	548

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	231	2948	171	42	1282	561	185	16	181	95	160	206
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:	231	2948	171	42	1282	561	185	16	181	95	160	206
Added Vol:	0	14	3	0	4	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	2962	174	42	1286	561	185	16	182	95	160	206
User 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
PHF 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
PHF Volume:	231	2962	174	42	1286	0	185	16	182	95	160	206
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	231	2962	174	42	1286	0	185	16	182	95	160	206
PCE 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
MLF 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
Final Volume:	231	2962	174	42	1286	0	185	16	182	95	160	206

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.83	0.17	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5289	311	1750	5700	1750	1750	1900	1750	1750	1900	1750

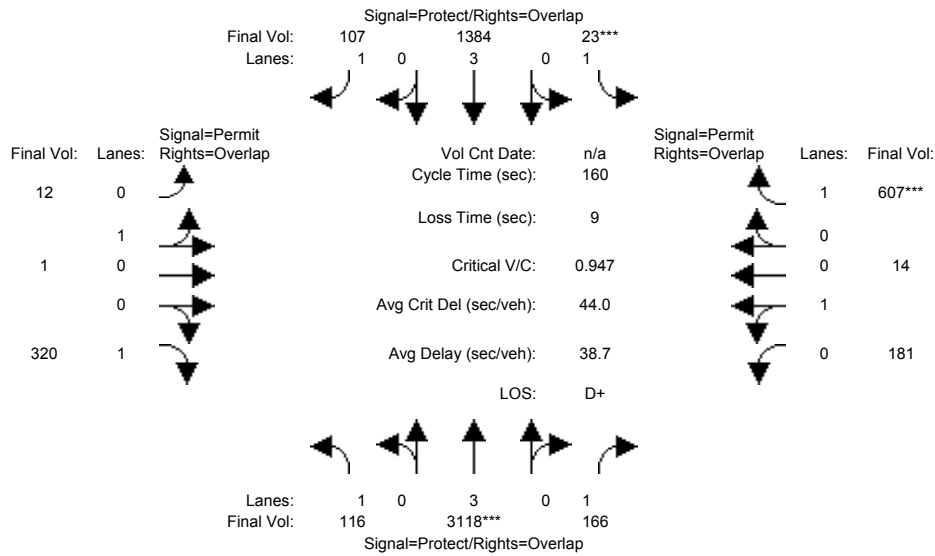
Capacity Analysis Module:												
Vol/Sat:	0.13	0.56	0.56	0.02	0.23	0.00	0.11	0.01	0.10	0.05	0.08	0.12
Crit Moves:	****			****			****			****		
Green Time:	41.4	105	105.3	7.0	70.8	0.0	19.9	19.1	60.6	16.6	15.8	22.8
Volume/Cap:	0.51	0.85	0.85	0.55	0.51	0.00	0.85	0.07	0.27	0.52	0.85	0.82
Delay/Veh:	51.6	23.3	23.3	83.1	32.3	0.0	94.6	62.7	34.7	70.7	xxxx	86.2
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:	51.6	23.3	23.3	83.1	32.3	0.0	94.6	62.7	34.7	70.7	xxxx	86.2
LOS by Move:	D-	C	C	F	C-	A	F	E	C-	E	F	F
DesignQueue:	428	949	949	98	564	0	402	31	281	208	328	440

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	116	3107	163	23	1381	107	12	1	319	181	14	607
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:	116	3107	163	23	1381	107	12	1	319	181	14	607
Added Vol:	0	11	3	0	3	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	116	3118	166	23	1384	107	12	1	320	181	14	607
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	116	3118	166	23	1384	107	12	1	320	181	14	607
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	116	3118	166	23	1384	107	12	1	320	181	14	607
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	116	3118	166	23	1384	107	12	1	320	181	14	607

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	0.92	0.08	1.00	0.93	0.07	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1662	138	1750	1671	129	1750

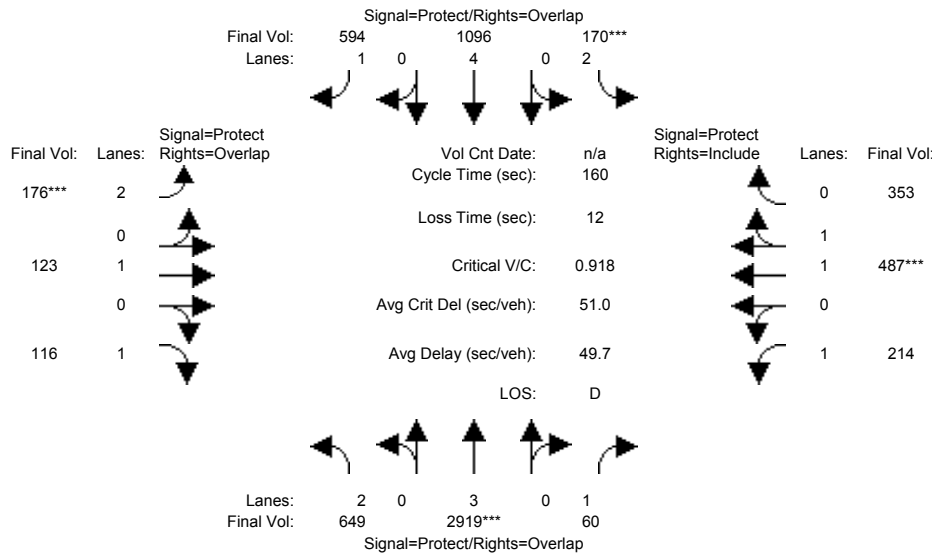
Capacity Analysis Module:												
Vol/Sat:	0.07	0.55	0.09	0.01	0.24	0.06	0.01	0.01	0.18	0.11	0.11	0.35
Crit Moves:	****		****									
Green Time:	21.4	92.7	92.7	7.0	78.3	78.3	51.3	51.3	72.7	51.3	51.3	58.3
Volume/Cap:	0.50	0.94	0.16	0.30	0.50	0.12	0.02	0.02	0.40	0.34	0.34	0.95
Delay/Veh:	66.0	38.0	15.7	76.3	27.7	22.3	37.2	37.2	29.5	41.7	41.7	73.6
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:	66.0	38.0	15.7	76.3	27.7	22.3	37.2	37.2	29.5	41.7	41.7	73.6
LOS by Move:	E	D+	B	E-	C	C+	D+	D+	C	D	D	E
DesignQueue:	247	1136	173	53	559	134	21	21	443	320	320	1024

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Movement:												
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	648	2909	60	170	1093	594	176	123	116	214	487	353
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:	648	2909	60	170	1093	594	176	123	116	214	487	353
Added Vol:	1	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	649	2919	60	170	1096	594	176	123	116	214	487	353
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	649	2919	60	170	1096	594	176	123	116	214	487	353
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	649	2919	60	170	1096	594	176	123	116	214	487	353
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	649	2919	60	170	1096	594	176	123	116	214	487	353

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.14	0.86
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2144	1554

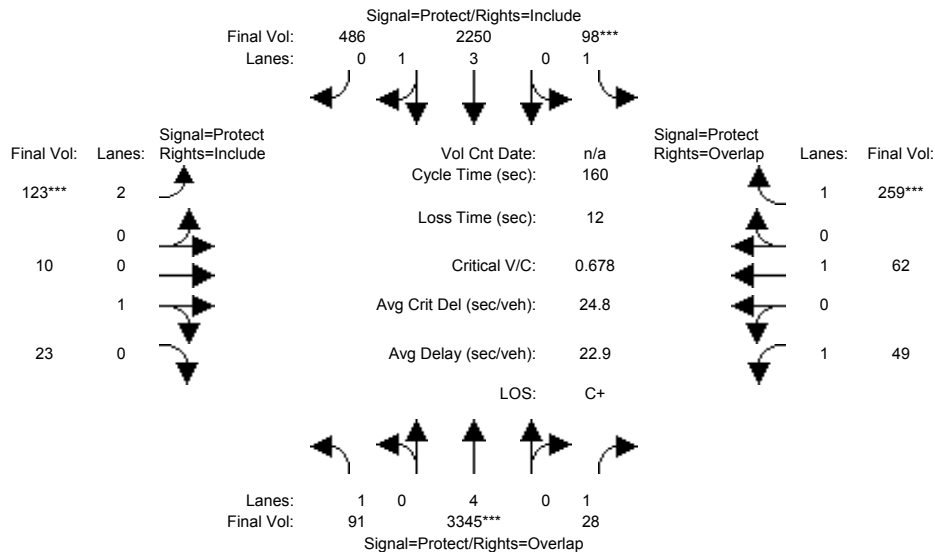
Capacity Analysis Module:												
Vol/Sat:	0.21	0.51	0.03	0.05	0.14	0.34	0.06	0.06	0.07	0.12	0.23	0.23
Crit Moves:	****		****				****			****		
Green Time:	41.5	89.3	121.5	9.4	57.1	66.9	9.7	17.1	58.6	32.3	39.6	39.6
Volume/Cap:	0.79	0.92	0.05	0.92	0.40	0.81	0.92	0.61	0.18	0.61	0.92	0.92
Delay/Veh:	60.6	36.9	4.8	118.3	38.7	47.9	117.2	73.4	34.5	61.1	72.5	72.5
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:	60.6	36.9	4.8	118.3	38.7	47.9	117.2	73.4	34.5	61.1	72.5	72.5
LOS by Move:	E	D+	A	F	D+	D	F	E	C-	E	E	E
DesignQueue:	681	1105	35	218	407	916	225	248	181	426	768	768

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative AM Pk Hr

Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	91	3335	28	98	2247	486	123	10	23	49	62	259
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:	91	3335	28	98	2247	486	123	10	23	49	62	259
Added Vol:	0	10	0	0	3	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	91	3345	28	98	2250	486	123	10	23	49	62	259
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	91	3345	28	98	2250	486	123	10	23	49	62	259
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	91	3345	28	98	2250	486	123	10	23	49	62	259
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	91	3345	28	98	2250	486	123	10	23	49	62	259

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	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.26	0.74	2.00	0.30	0.70	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	6166	1332	3150	545	1255	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.05	0.44	0.02	0.06	0.36	0.36	0.04	0.02	0.02	0.03	0.03	0.15
Crit Moves:	****			****			****			****		
Green Time:	14.6	104	116.6	13.2	102	102.5	9.2	18.2	18.2	12.7	21.7	34.9
Volume/Cap:	0.57	0.68	0.02	0.68	0.57	0.57	0.68	0.16	0.16	0.35	0.24	0.68
Delay/Veh:	74.5	18.0	6.0	83.5	16.4	16.4	83.8	64.4	64.4	71.3	62.3	62.2
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:	74.5	18.0	6.0	83.5	16.4	16.4	83.8	64.4	64.4	71.3	62.3	62.2
LOS by Move:	E	B	A	F	B	B	F	E	E	E	E	E
DesignQueue:	202	738	18	220	613	613	157	69	69	110	120	508

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	3	45	215	36	215	134	3420	92	31	1236	112
Future Volume (vph)	30	3	45	215	36	215	134	3420	92	31	1236	112
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1144	1294	1373	1167	1304	5531		1304	3694	
Flt Permitted	0.73	1.00	1.00	0.76	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1005	1373	1144	1029	1373	1167	1304	5531		1304	3694	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	3	47	226	38	226	141	3600	97	33	1301	118
RTOR Reduction (vph)	0	0	35	0	0	169	0	3	0	0	8	0
Lane Group Flow (vph)	32	3	12	226	38	57	141	3694	0	33	1411	0
Confl. Peds. (#/hr)			8	8					8			
Confl. Bikes (#/hr)									3			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	30.5	30.5	30.5	30.5	30.5	30.5	15.3	67.2		9.0	60.9	
Effective Green, g (s)	30.5	30.5	30.5	30.5	30.5	30.5	15.3	67.2		9.0	60.9	
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.25	0.13	0.56		0.08	0.51	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	255	348	290	261	348	296	166	3097		97	1874	
v/s Ratio Prot		0.00			0.03		0.11	c0.67		0.03	c0.38	
v/s Ratio Perm	0.03		0.01	c0.22		0.05						
v/c Ratio	0.13	0.01	0.04	0.87	0.11	0.19	0.85	1.19		0.34	0.75	
Uniform Delay, d1	34.5	33.4	33.7	42.8	34.3	35.1	51.2	26.4		52.7	23.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.04	0.74		0.56	0.33	
Incremental Delay, d2	0.2	0.0	0.1	24.6	0.1	0.3	29.4	90.0		1.5	1.3	
Delay (s)	34.7	33.5	33.8	67.4	34.5	35.4	82.8	109.5		31.0	9.0	
Level of Service	C	C	C	E	C	D	F	F		C	A	
Approach Delay (s)		34.1			50.1			108.5			9.5	
Approach LOS		C			D			F			A	

Intersection Summary

HCM 2000 Control Delay	78.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1735	0	84	0	0	0	0	2745	921	87	1295	0
Future Volume (vph)	1735	0	84	0	0	0	0	2745	921	87	1295	0
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.98						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2373	1172						5559	1147	1304	3747	
Flt Permitted	0.95	0.96						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2373	1172						5559	1147	1304	3747	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1807	0	88	0	0	0	0	2859	959	91	1349	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	448	0	0	0
Lane Group Flow (vph)	1265	571	0	0	0	0	0	2859	511	91	1349	0
Confl. Bikes (#/hr)									9			
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Effective Green, g (s)	39.1	39.1						53.7	53.7	8.7	68.7	
Actuated g/C Ratio	0.33	0.33						0.45	0.45	0.07	0.57	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	773	381						2487	513	94	2145	
v/s Ratio Prot	c0.53	0.49						c0.51		c0.07	0.36	
v/s Ratio Perm									0.45			
v/c Ratio	1.64	1.50						1.15	1.00	0.97	0.63	
Uniform Delay, d1	40.5	40.5						33.1	33.0	55.5	17.1	
Progression Factor	1.00	1.00						0.54	5.82	1.17	0.67	
Incremental Delay, d2	292.3	238.2						67.8	11.0	80.0	0.1	
Delay (s)	332.7	278.7						85.8	203.4	144.7	11.6	
Level of Service	F	F						F	F	F	B	
Approach Delay (s)		314.8			0.0			115.4			20.0	
Approach LOS		F			A			F			B	

Intersection Summary

HCM 2000 Control Delay	149.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	184.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	903	42	569	156	4323	0	0	479	192
Future Volume (vph)	0	0	0	903	42	569	156	4323	0	0	479	192
Ideal Flow (vphpl)	1400	1400	1400	1900	1900	1900	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1692	1583	1304	4722			4519	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1692	1583	1304	4722			4519	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	971	45	612	168	4648	0	0	515	206
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	96	0
Lane Group Flow (vph)	0	0	0	505	511	557	168	4648	0	0	625	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				25.1	25.1	25.1	55.9	84.7			23.5	
Effective Green, g (s)				25.1	25.1	25.1	55.9	84.7			23.5	
Actuated g/C Ratio				0.21	0.21	0.21	0.47	0.71			0.20	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				351	353	331	607	3332			884	
v/s Ratio Prot				0.30	0.30		0.13	c0.98			0.14	
v/s Ratio Perm						c0.35						
v/c Ratio				1.44	1.45	1.68	0.28	1.39			0.71	
Uniform Delay, d1				47.5	47.5	47.5	19.7	17.6			45.0	
Progression Factor				1.00	1.00	1.00	1.61	1.00			0.99	
Incremental Delay, d2				213.0	216.7	320.7	0.0	177.9			2.2	
Delay (s)				260.5	264.2	368.1	31.6	195.5			46.8	
Level of Service				F	F	F	C	F			D	
Approach Delay (s)		0.0			302.1			189.8			46.8	
Approach LOS		A			F			F			D	

Intersection Summary

HCM 2000 Control Delay	200.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	184.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



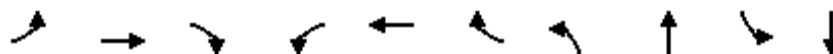
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	30	151	154	138	5	1444	2792	715	6	390	99
Future Volume (vph)	17	30	151	154	138	5	1444	2792	715	6	390	99
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1165	2530	1365		2530	3613		1304	4551	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1165	2530	1365		2530	3613		1304	4551	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	18	32	162	166	148	5	1553	3002	769	6	419	106
RTOR Reduction (vph)	0	0	68	0	1	0	0	24	0	0	39	0
Lane Group Flow (vph)	18	32	94	166	152	0	1553	3747	0	6	486	0
Confl. Bikes (#/hr)			10			10			10			10
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	3.2	5.9	69.7	17.4	20.1		63.8	77.3		1.2	14.7	
Effective Green, g (s)	3.2	5.9	69.7	17.4	20.1		63.8	77.3		1.2	14.7	
Actuated g/C Ratio	0.03	0.05	0.58	0.14	0.17		0.53	0.64		0.01	0.12	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	34	67	715	366	228		1345	2327		13	557	
v/s Ratio Prot	0.01	c0.02	0.07	0.07	c0.11		c0.61	c1.04		0.00	0.11	
v/s Ratio Perm			0.01									
v/c Ratio	0.53	0.48	0.13	0.45	0.67		1.15	1.61		0.46	0.87	
Uniform Delay, d1	57.7	55.5	11.4	46.9	46.8		28.1	21.4		59.1	51.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.87	0.90		1.00	1.00	
Incremental Delay, d2	14.1	5.3	0.1	0.9	7.2		70.5	274.7		23.8	14.1	
Delay (s)	71.7	60.8	11.5	47.8	54.0		94.8	293.9		82.9	65.9	
Level of Service	E	E	B	D	D		F	F		F	E	
Approach Delay (s)		24.1			50.8			235.8			66.1	
Approach LOS		C			D			F			E	

Intersection Summary

HCM 2000 Control Delay	205.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	129.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	32	3	47	226	38	226	141	3697	33	1419
v/c Ratio	0.13	0.01	0.13	0.87	0.11	0.49	0.85	1.16	0.27	0.75
Control Delay	33.1	30.0	0.7	72.2	32.4	7.9	90.9	95.5	30.8	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.4
Total Delay	33.1	30.0	0.7	72.2	32.4	8.0	90.9	95.7	30.8	10.7
Queue Length 50th (ft)	19	2	0	163	22	0	76	~621	20	94
Queue Length 95th (ft)	44	9	0	#275	49	61	m70	m420	m34	m150
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	301	411	416	308	411	508	173	3176	173	1885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	115
Spillback Cap Reductn	0	0	0	0	0	22	0	343	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.01	0.11	0.73	0.09	0.47	0.82	1.30	0.19	0.80

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA Cumulative + Project AM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1265	630	2859	959	91	1349
v/c Ratio	1.64	1.43	1.15	1.00	0.97	0.63
Control Delay	321.6	235.5	88.2	31.5	146.4	11.8
Queue Delay	0.0	0.5	1.0	37.2	0.0	14.1
Total Delay	321.6	236.0	89.2	68.7	146.4	25.9
Queue Length 50th (ft)	~778	~678	~628	330	48	69
Queue Length 95th (ft)	#921	#929	m#124	m272	#159	m67
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	773	440	2487	961	94	2145
Starvation Cap Reductn	0	0	245	291	0	802
Spillback Cap Reductn	0	22	780	0	0	57
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.64	1.51	1.67	1.43	0.97	1.00

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



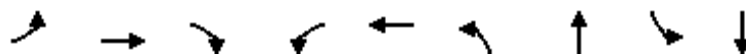
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	505	511	612	168	4648	721
v/c Ratio	1.44	1.45	1.59	0.28	1.39	0.74
Control Delay	248.6	252.2	306.8	34.3	198.5	40.9
Queue Delay	0.0	0.0	0.7	3.6	0.5	0.0
Total Delay	248.6	252.2	307.4	37.9	199.0	40.9
Queue Length 50th (ft)	~558	~566	~636	86	~1330	95
Queue Length 95th (ft)	#781	#792	#866	m75	m#820	m145
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	351	353	385	607	3332	2308
Starvation Cap Reductn	0	0	0	351	772	248
Spillback Cap Reductn	0	0	24	0	738	30
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.44	1.45	1.70	0.66	1.82	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative + Project AM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	32	162	166	153	1553	3771	6	525
v/c Ratio	0.21	0.31	0.21	0.46	0.67	1.11	1.50	0.10	0.88
Control Delay	59.1	60.0	2.4	50.9	60.1	76.3	244.6	57.8	64.9
Queue Delay	0.0	0.0	0.0	0.2	0.0	2.4	0.4	0.0	0.1
Total Delay	59.1	60.0	2.4	51.1	60.1	78.7	245.0	57.8	65.0
Queue Length 50th (ft)	13	24	0	63	105	~719	~1464	5	108
Queue Length 95th (ft)	38	56	29	92	175	m467	m#1005	19	#159
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	86	207	769	506	388	1397	2516	65	596
Starvation Cap Reductn	0	0	0	0	0	569	389	0	0
Spillback Cap Reductn	0	0	4	64	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.15	0.21	0.38	0.39	1.88	1.77	0.09	0.88

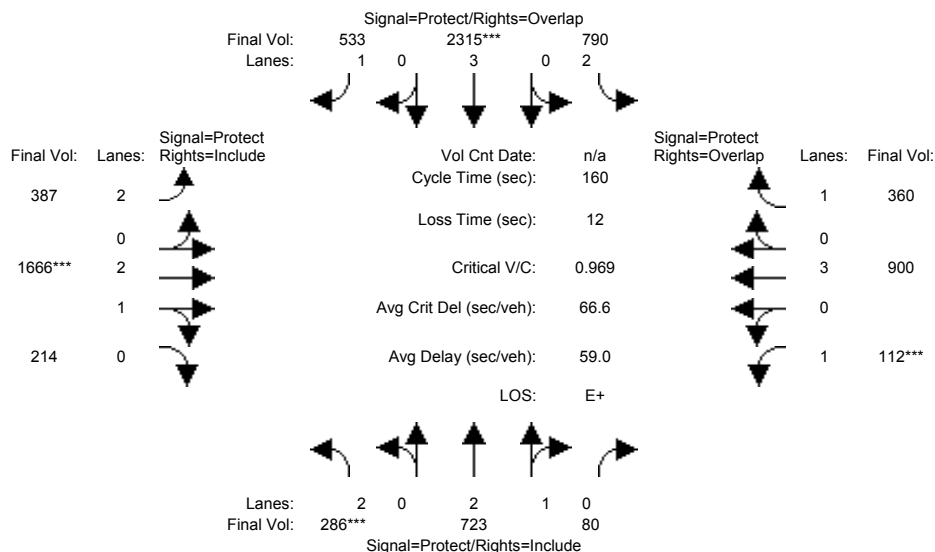
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #1: S Mathilda Ave / El Camino Real



Street Name:	S Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	286	719	80	788	2313	532	384	1666	214	112	900	356
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:	286	719	80	788	2313	532	384	1666	214	112	900	356
Added Vol:	0	4	0	2	2	1	3	0	0	0	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	286	723	80	790	2315	533	387	1666	214	112	900	360
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	286	723	80	790	2315	533	387	1666	214	112	900	360
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	286	723	80	790	2315	533	387	1666	214	112	900	360
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	286	723	80	790	2315	533	387	1666	214	112	900	360

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95	0.92	1.00	0.92
Lanes:	2.00	2.69	0.31	2.00	3.00	1.00	2.00	2.65	0.35	1.00	3.00	1.00
Final Sat.:	3150	5041	558	3150	5700	1750	3150	4962	637	1750	5700	1750

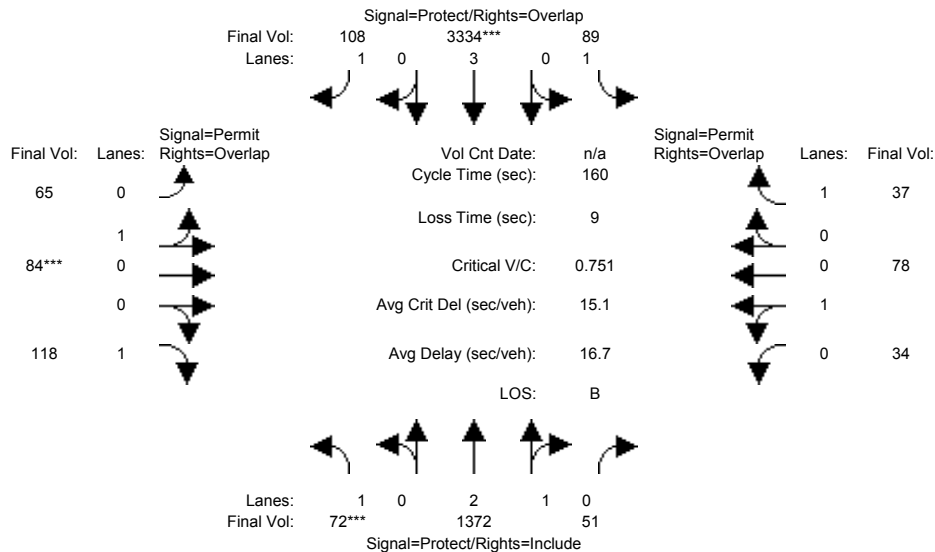
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.09	0.14	0.14	0.25	0.41	0.30	0.12	0.34	0.34	0.06	0.16	0.21
Crit Moves:	****			****			****			****		
Green Time:	15.0	29.8	29.8	52.2	67.0	95.9	28.9	55.4	55.4	10.6	37.1	89.3
Volume/Cap:	0.97	0.77	0.77	0.77	0.97	0.51	0.68	0.97	0.97	0.97	0.68	0.37
Delay/Veh:	116.2	65.3	65.3	52.1	57.6	18.9	64.6	65.4	65.4	148.4	57.5	19.9
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:	116.2	65.3	65.3	52.1	57.6	18.9	64.6	65.4	65.4	148.4	57.5	19.9
LOS by Move:	F	E	E	D-	E+	B-	E	E	E	F	E+	B-
DesignQueue:	356	512	512	764	1116	560	439	1017	1017	257	534	406

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #2: S Mathilda Ave / W Olive Ave



Street Name:	S Mathilda Ave						W Olive Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	72	1362	51	89	3329	108	65	84	118	34	78	37
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:	72	1362	51	89	3329	108	65	84	118	34	78	37
Added Vol:	0	10	0	0	5	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	1372	51	89	3334	108	65	84	118	34	78	37
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	72	1372	51	89	3334	108	65	84	118	34	78	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	1372	51	89	3334	108	65	84	118	34	78	37
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	72	1372	51	89	3334	108	65	84	118	34	78	37

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.98	0.95	0.92	1.00	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.89	0.11	1.00	3.00	1.00	0.44	0.56	1.00	0.30	0.70	1.00
Final Sat.:	1750	5399	201	1750	5700	1750	785	1015	1750	546	1254	1750

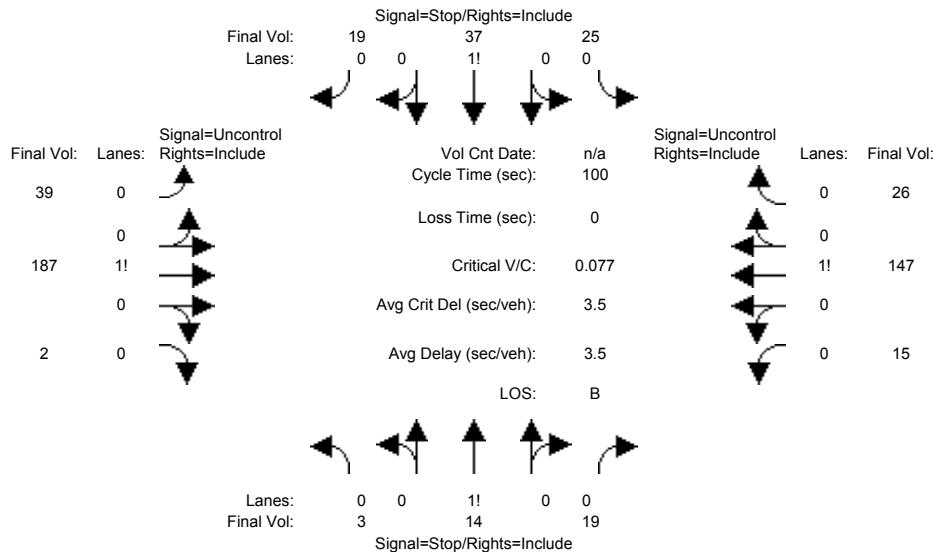
Capacity Analysis Module:												
Vol/Sat:	0.04	0.25	0.25	0.05	0.58	0.06	0.08	0.08	0.07	0.06	0.06	0.02
Crit Moves:	***			****			****					
Green Time:	8.8	111	111.1	22.2	125	124.6	17.6	17.6	26.4	17.6	17.6	39.9
Volume/Cap:	0.75	0.37	0.37	0.37	0.75	0.08	0.75	0.75	0.41	0.56	0.56	0.08
Delay/Veh:	102.3	10.1	10.1	63.4	10.2	4.2	83.8	83.8	60.8	71.3	71.3	46.2
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:	102.3	10.1	10.1	63.4	10.2	4.2	83.8	83.8	60.8	71.3	71.3	46.2
LOS by Move:	F	B+	B+	E	B+	A	F	F	E	E	E	D
DesignQueue:	166	351	351	187	646	59	318	318	242	238	238	67

Note: Queue reported is the distance per lane in feet.

311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #3: Charles St / W Iowa Ave



Street Name: Charles St W Iowa Ave
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	3	14	19	25	37	19	38	187	2	15	146	26
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	14	19	25	37	19	38	187	2	15	146	26
Added Vol:	0	0	0	0	0	0	1	0	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	14	19	25	37	19	39	187	2	15	147	26
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	3	14	19	25	37	19	39	187	2	15	147	26
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	14	19	25	37	19	39	187	2	15	147	26

Critical Gap Module:

Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	484	469	188	473	457	160	173	xxxx	xxxxxx	189	xxxx	xxxxxx
Potent Cap.:	496	495	859	505	503	890	1416	xxxx	xxxxxx	1397	xxxx	xxxxxx
Move Cap.:	444	476	859	469	483	890	1416	xxxx	xxxxxx	1397	xxxx	xxxxxx
Volume/Cap:	0.01	0.03	0.02	0.05	0.08	0.02	0.03	xxxx	xxxx	0.01	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	2.1	xxxx	xxxxxx	0.8	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.6	xxxx	xxxxxx	7.6	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	618	xxxxxx	xxxx	536	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.2	xxxxxx	xxxxxx	0.5	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	11.2	xxxxxx	xxxxxx	12.9	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:	11.2			12.9			xxxxxx		xxxxxx			
ApproachLOS:	B			B			*		*		*	

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 14 19	25 37 19	39 187 2	15 147 26
ApproachDel:	11.2	12.9	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=36]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=533]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.3]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=81]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=533]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #3 Charles St / W Iowa Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	3 14 19	25 37 19	39 187 2	15 147 26

Major Street Volume: 416
 Minor Approach Volume: 81
 Minor Approach Volume Threshold: 453

SIGNAL WARRANT DISCLAIMER

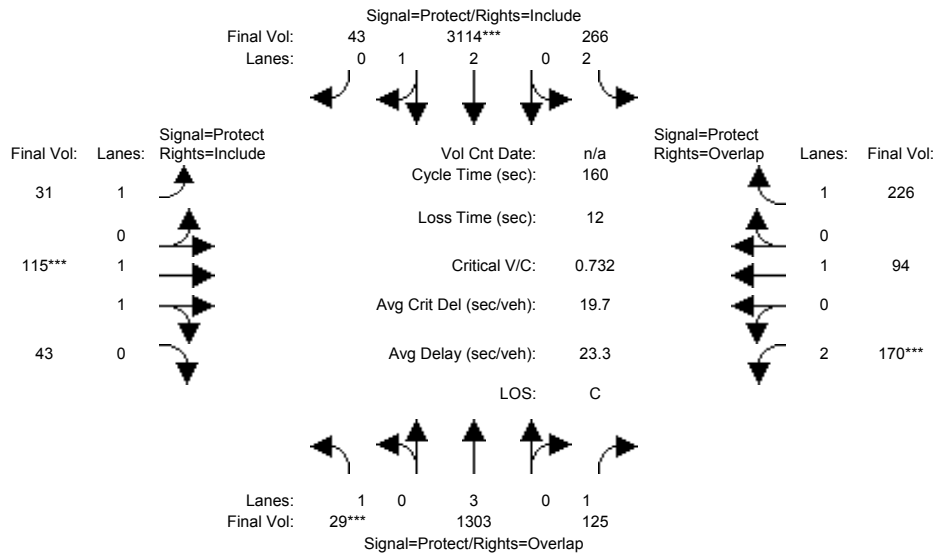
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #4: S Mathilda Ave / W Iowa St



Street Name:	S Mathilda Ave						W Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	29	1293	125	260	3109	42	31	115	43	170	94	225
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	1293	125	260	3109	42	31	115	43	170	94	225
Added Vol:	0	10	0	6	5	1	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	1303	125	266	3114	43	31	115	43	170	94	226
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	29	1303	125	266	3114	43	31	115	43	170	94	226
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	1303	125	266	3114	43	31	115	43	170	94	226
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	29	1303	125	266	3114	43	31	115	43	170	94	226

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.83	0.98	0.95	0.92	0.98	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.96	0.04	1.00	1.44	0.56	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5524	76	1750	2692	1007	3150	1900	1750

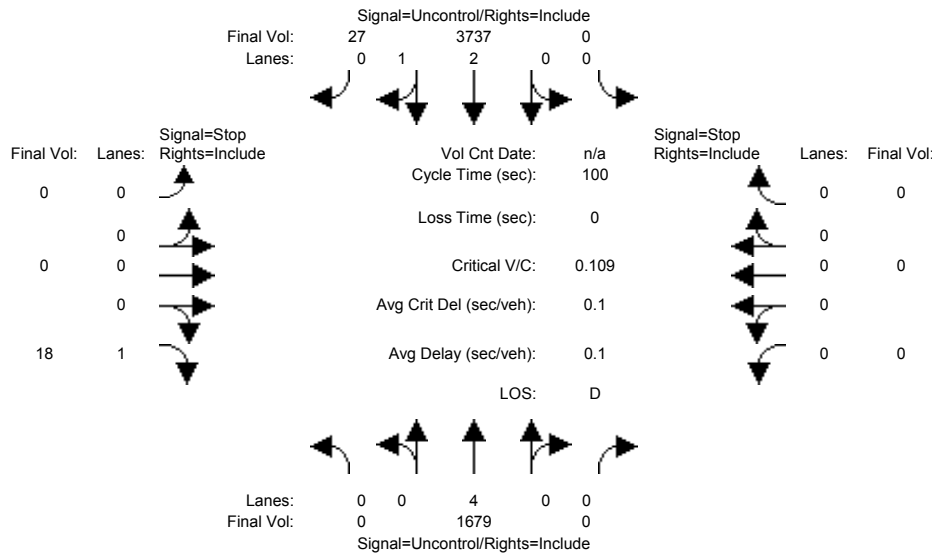
Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.02	0.23	0.07	0.08	0.56	0.56	0.02	0.04	0.04	0.05	0.05	0.13
Crit Moves:	***			****			****			****		
Green Time:	7.0	92.4	103.9	34.1	120	119.6	8.8	10.0	10.0	11.4	12.6	46.8
Volume/Cap:	0.38	0.40	0.11	0.40	0.75	0.75	0.32	0.68	0.68	0.75	0.63	0.44
Delay/Veh:	77.5	18.6	10.6	54.5	12.5	12.5	74.6	81.6	81.6	86.4	79.6	46.6
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:	77.5	18.6	10.6	54.5	12.5	12.5	74.6	81.6	81.6	86.4	79.6	46.6
LOS by Move:	E-	B-	B+	D-	B	B	E	F	F	F	E-	D
DesignQueue:	67	434	108	287	707	707	71	171	171	215	195	400

Note: Queue reported is the distance per lane in feet.

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Sunnyvale, CA
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Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #5: S Mathilda Ave / Project Dwy (Restaurant)



Street Name: S Mathilda Ave Project Dwy (Restaurant)
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module:

Base Vol:	0	1662	0	0	3734	14	0	0	9	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:	0	1662	0	0	3734	14	0	0	9	0	0	0
Added Vol:	0	17	0	0	3	13	0	0	9	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1679	0	0	3737	27	0	0	18	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1679	0	0	3737	27	0	0	18	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	1679	0	0	3737	27	0	0	18	0	0	0

Critical Gap Module:

Critical Gp:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	6.9	xxxxxx	xxxx	xxxxxx
FollowUpTim:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	3.3	xxxxxx	xxxx	xxxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	1259	xxxx	xxxx	xxxxxx
Potent Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	165	xxxx	xxxx	xxxxxx
Move Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	165	xxxx	xxxx	xxxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.11	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	9.0	xxxx	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	29.5	xxxxxx	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	D	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT		LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxxx		xxxxxxx						29.5	xxxxxxx		xxxxxxx
ApproachLOS:	*		*						D	*		*

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1679 0	0 3737 27	0 0 0 18	0 0 0 0
ApproachDel:	xxxxxxx	xxxxxxx	29.5	xxxxxxx

Approach[eastbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.1]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=18]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=5461]
 SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #5 S Mathilda Ave / Project Dwy (Restaurant)

Future Volume Alternative: Peak Hour Warrant NOT Met

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
Lanes:	0 0 4 0 0	0 0 2 1 0	0 0 0 0 1	0 0 0 0 0
Initial Vol:	0 1679 0	0 3737 27	0 0 0 18	0 0 0 0

Major Street Volume: 5443
 Minor Approach Volume: 18
 Minor Approach Volume Threshold: -299 [less than minimum of 100]

SIGNAL WARRANT DISCLAIMER

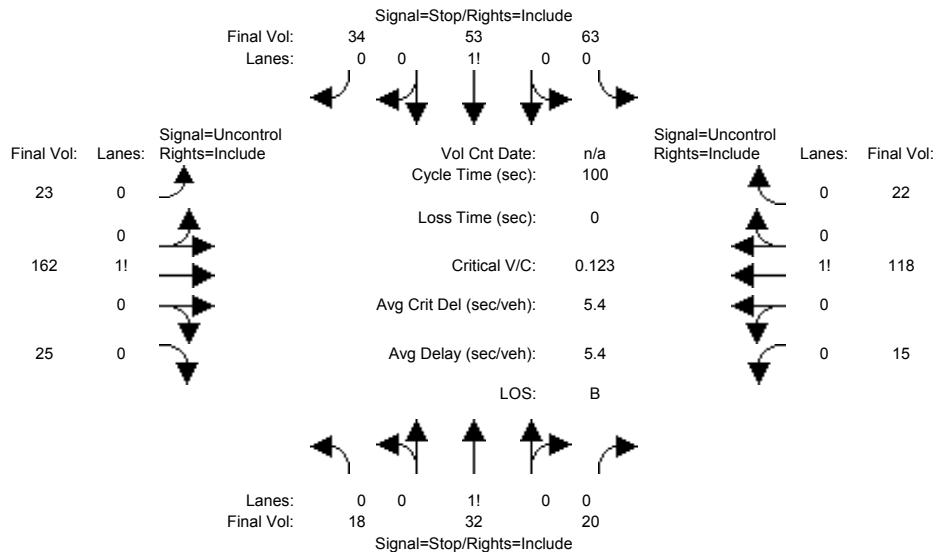
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #6: Charles St / W McKinley Ave



Street Name:	Charles St						W McKinley Ave								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Volume Module:															
Base Vol:	18	32	19	63	53	34	23	160	25	15	117	22			
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	32	19	63	53	34	23	160	25	15	117	22			
Added Vol:	0	0	1	0	0	0	0	2	0	0	1	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	18	32	20	63	53	34	23	162	25	15	118	22			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	18	32	20	63	53	34	23	162	25	15	118	22			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	18	32	20	63	53	34	23	162	25	15	118	22			
Critical Gap Module:															
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx			
Capacity Module:															
Cnflct Vol:	423	391	175	406	392	129	140	xxxx	xxxxx	187	xxxx	xxxxx			
Potent Cap.:	545	548	874	559	547	926	1456	xxxx	xxxxx	1399	xxxx	xxxxx			
Move Cap.:	475	533	874	511	532	926	1456	xxxx	xxxxx	1399	xxxx	xxxxx			
Volume/Cap:	0.04	0.06	0.02	0.12	0.10	0.04	0.02	xxxx	xxxx	0.01	xxxx	xxxx			
Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1.2	xxxx	xxxxx	0.8	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.6	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	580	xxxxx	xxxx	578	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	1.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	12.1	xxxxx	xxxxx	13.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*			
ApproachDel:	12.1			13.4			xxxxxxx			xxxxxxx					
ApproachLOS:	B			B			*			*					

Note: Queue reported is the distance per lane in feet.

Peak Hour Delay Signal Warrant Report

Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	18 32 20	63 53 34	23 162 25	15 118 22
ApproachDel:	12.1	13.4	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.2]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=70]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=585]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

Approach[southbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.6]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=150]
 SUCCEED - Approach volume greater than or equal to 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=4][total volume=585]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #6 Charles St / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0	0 0 1! 0 0
Initial Vol:	18 32 20	63 53 34	23 162 25	15 118 22

Major Street Volume: 365
 Minor Approach Volume: 150
 Minor Approach Volume Threshold: 488

SIGNAL WARRANT DISCLAIMER

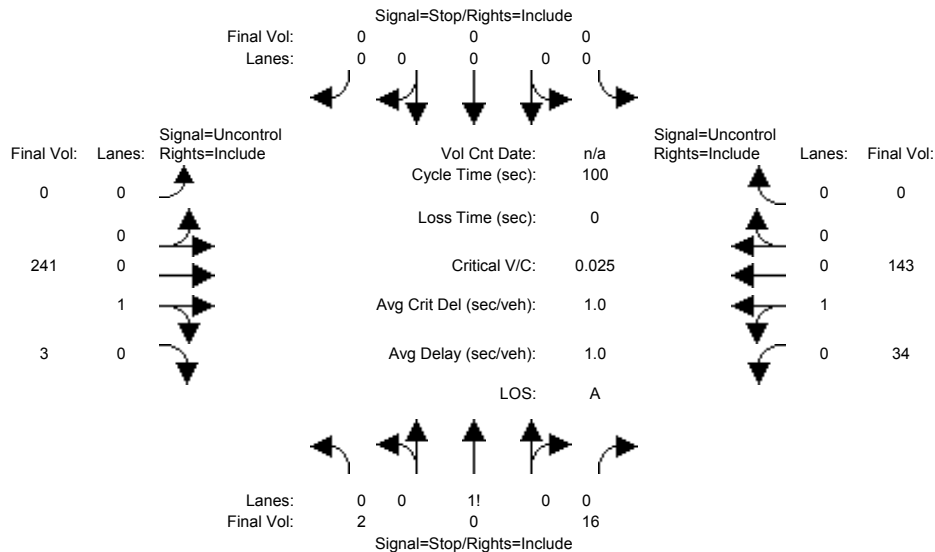
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311 S. Mathilda Avenue TIA
Sunnyvale, CA
8642.003

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative PM Pk Hr

Intersection #7: Project Dwy (Residential) / W McKinley Ave



Street Name:	Project Dwy (Residential)						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R

Volume Module:	L	T	R	L	T	R	L	T	R	L	T	R
Base Vol:	1	0	8	0	0	0	0	240	1	12	143	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:	1	0	8	0	0	0	0	240	1	12	143	0
Added Vol:	1	0	8	0	0	0	0	1	2	22	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	0	16	0	0	0	0	241	3	34	143	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:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	0	16	0	0	0	0	241	3	34	143	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	0	16	0	0	0	0	241	3	34	143	0

Critical Gap Module:	L	T	R	L	T	R	L	T	R	L	T	R
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	4.1	xxxx	xxxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	2.2	xxxx	xxxxxx

Capacity Module:	L	T	R	L	T	R	L	T	R	L	T	R
Cnflct Vol:	454	454	243	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	244	xxxx	xxxxxx
Potent Cap.:	568	505	801	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1334	xxxx	xxxxxx
Move Cap.:	557	492	801	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	1334	xxxx	xxxxxx
Volume/Cap:	0.00	0.00	0.02	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	0.03	xxxx	xxxxxx

Level Of Service Module:	L	T	R	L	T	R	L	T	R	L	T	R
2Way95thQ:	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	2.0	xxxx	xxxxxx
Control Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.8	xxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	764	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx
SharedQueue:	xxxxxx	0.1	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	0.1	xxxx	xxxxxx
Shrd ConDel:	xxxxxx	9.8	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	7.8	xxxx	xxxxxx
Shared LOS:	*	A	*	*	*	*	*	*	*	A	*	*
ApproachDel:	9.8			xxxxxxx			xxxxxxx			xxxxxxx		
ApproachLOS:	A			*			*			*		

Note: Queue reported is the distance per lane in feet.
Peak Hour Delay Signal Warrant Report

Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 16	0 0 0	0 241 3	34 143 0
ApproachDel:	9.8	xxxxxxx	xxxxxxx	xxxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
 Signal Warrant Rule #1: [vehicle-hours=0.0]
 FAIL - Vehicle-hours less than 4 for one lane approach.
 Signal Warrant Rule #2: [approach volume=18]
 FAIL - Approach volume less than 100 for one lane approach.
 Signal Warrant Rule #3: [approach count=3][total volume=439]
 FAIL - Total volume less than 650 for intersection
 with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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Peak Hour Volume Signal Warrant Report [Urban]

 Intersection #7 Project Dwy (Residential) / W McKinley Ave

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 0 1 0	0 1 0 0 0
Initial Vol:	2 0 16	0 0 0	0 241 3	34 143 0

Major Street Volume: 421
 Minor Approach Volume: 18
 Minor Approach Volume Threshold: 450

SIGNAL WARRANT DISCLAIMER

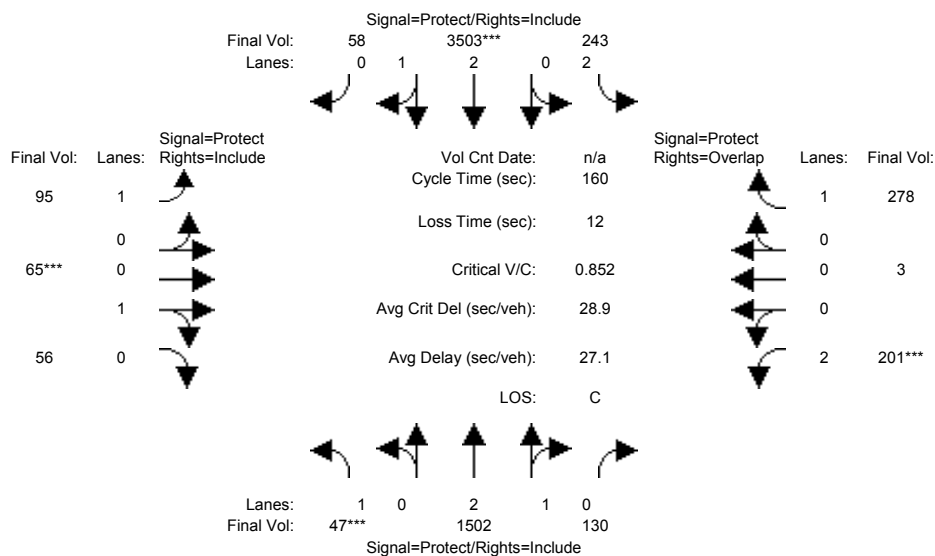
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

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Intersection #8: S Mathilda Ave / W McKinley Ave



Street Name:	S Mathilda Ave						W McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	36	1497	130	243	3495	44	90	65	52	201	3	278
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:	36	1497	130	243	3495	44	90	65	52	201	3	278
Added Vol:	11	5	0	0	8	14	5	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	47	1502	130	243	3503	58	95	65	56	201	3	278
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	47	1502	130	243	3503	58	95	65	56	201	3	278
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	47	1502	130	243	3503	58	95	65	56	201	3	278
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	47	1502	130	243	3503	58	95	65	56	201	3	278

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.92	0.95	0.95	0.93	0.95	0.95
Lanes:	1.00	2.75	0.25	2.00	2.95	0.05	1.00	0.54	0.46	1.97	0.03	1.00
Final Sat.:	1750	5153	446	3150	5509	91	1750	967	833	3469	52	1800

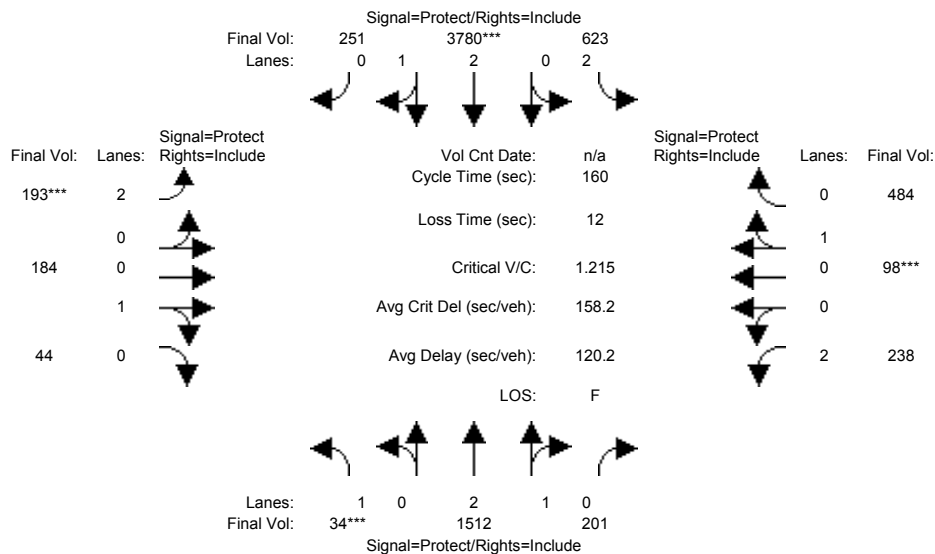
Capacity Analysis Module:												
Vol/Sat:	0.03	0.29	0.29	0.08	0.64	0.64	0.05	0.07	0.07	0.06	0.06	0.15
Crit Moves:	***			****			****			****		
Green Time:	7.0	98.7	98.7	26.1	118	117.8	9.6	12.5	12.5	10.7	13.6	39.7
Volume/Cap:	0.61	0.47	0.47	0.47	0.86	0.86	0.91	0.86	0.86	0.86	0.68	0.62
Delay/Veh:	89.1	16.7	16.7	61.4	17.4	17.4	134.2	112	111.9	87.1	73.8	55.0
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:	89.1	16.7	16.7	61.4	17.4	17.4	134.2	112	111.9	87.1	73.8	55.0
LOS by Move:	F	B	B	E	B	B	F	F	F	F	E	E+
DesignQueue:	109	511	511	278	851	851	219	266	266	232	227	511

Note: Queue reported is the distance per lane in feet.

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Intersection #9: S Mathilda Ave / W Washington Ave



Street Name:	S Mathilda Ave						W Washington Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	34	1502	200	623	3760	251	193	184	44	237	98	484
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:	34	1502	200	623	3760	251	193	184	44	237	98	484
Added Vol:	0	10	1	0	20	0	0	0	0	1	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	34	1512	201	623	3780	251	193	184	44	238	98	484
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	34	1512	201	623	3780	251	193	184	44	238	98	484
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	1512	201	623	3780	251	193	184	44	238	98	484
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	34	1512	201	623	3780	251	193	184	44	238	98	484

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.83	0.98	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.64	0.36	2.00	2.81	0.19	2.00	0.81	0.19	2.00	0.17	0.83
Final Sat.:	1750	4942	657	3150	5251	349	3150	1453	347	3150	303	1497

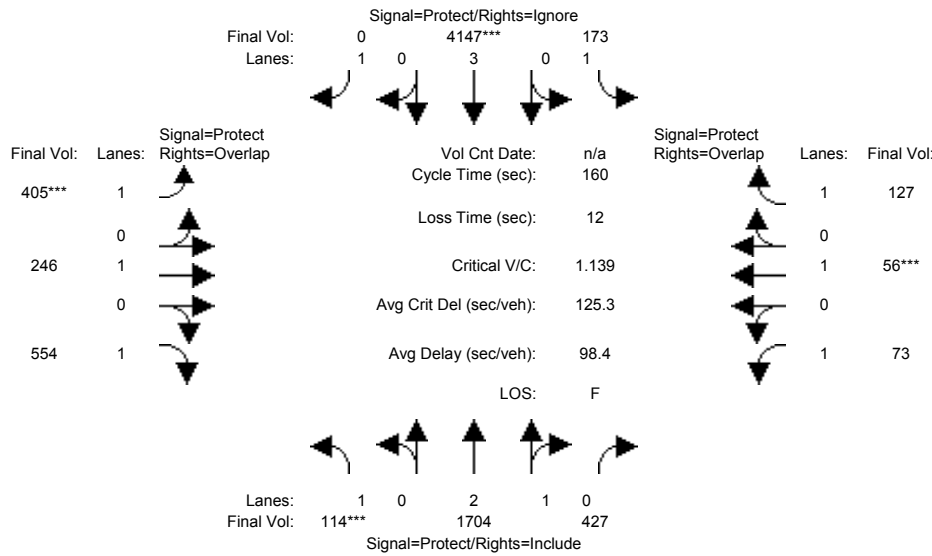
Capacity Analysis Module:												
Vol/Sat:	0.02	0.31	0.31	0.20	0.72	0.72	0.06	0.13	0.13	0.08	0.32	0.32
Crit Moves:	***			****			****			****		
Green Time:	7.0	60.1	60.1	38.8	91.9	91.9	7.8	30.8	30.8	18.3	41.3	41.3
Volume/Cap:	0.44	0.81	0.81	0.81	1.25	1.25	1.25	0.66	0.66	0.66	1.25	1.25
Delay/Veh:	78.7	47.5	47.5	63.9	151	150.7	232.3	64.4	64.4	72.3	190	190.1
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:	78.7	47.5	47.5	63.9	151	150.7	232.3	64.4	64.4	72.3	190	190.1
LOS by Move:	E-	D	D	E	F	F	F	E	E	E	F	F
DesignQueue:	79	878	878	667	1597	1597	250	447	447	288	1107	1107

Note: Queue reported is the distance per lane in feet.

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Intersection #10: N Mathilda Ave / W California Ave



Street Name:	N Mathilda Ave						W California Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	114	1696	425	173	4130	523	405	246	550	73	56	127
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:	114	1696	425	173	4130	523	405	246	550	73	56	127
Added Vol:	0	8	2	0	17	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	114	1704	427	173	4147	523	405	246	554	73	56	127
User 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
PHF 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
PHF Volume:	114	1704	427	173	4147	0	405	246	554	73	56	127
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	114	1704	427	173	4147	0	405	246	554	73	56	127
PCE 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
MLF 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
Final Volume:	114	1704	427	173	4147	0	405	246	554	73	56	127

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.92
Lanes:	1.00	2.38	0.62	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4476	1122	1750	5700	1750	1750	1900	1750	1750	1900	1750

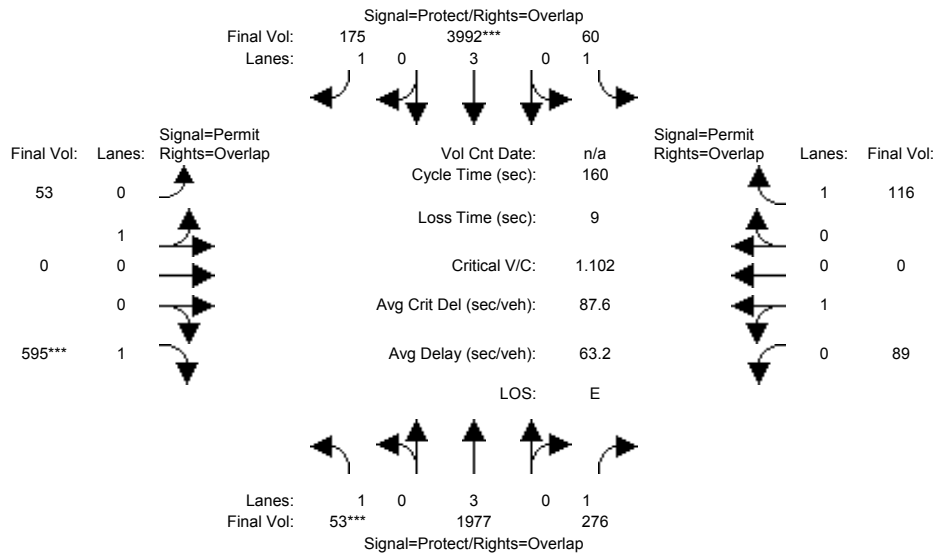
Capacity Analysis Module:												
Vol/Sat:	0.07	0.38	0.38	0.10	0.73	0.00	0.23	0.13	0.32	0.04	0.03	0.07
Crit Moves:	***			****			****			****		
Green Time:	8.8	84.8	84.8	22.0	98.0	0.0	31.2	34.2	43.0	7.0	10.0	32.0
Volume/Cap:	1.19	0.72	0.72	0.72	1.19	0.00	1.19	0.61	1.18	0.95	0.47	0.36
Delay/Veh:	226.4	29.4	29.4	76.0	118	0.0	174.4	59.4	159.2	163.1	75.4	55.8
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:	226.4	29.4	29.4	76.0	118	0.0	174.4	59.4	159.2	163.1	75.4	55.8
LOS by Move:	F	C	C	E-	F	A	F	E+	F	F	E-	E+
DesignQueue:	265	840	840	370	1472	0	838	445	1067	170	118	250

Note: Queue reported is the distance per lane in feet.

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Intersection #11: N Mathilda Ave / Indio Ave



Street Name:	N Mathilda Ave						Indio Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:												
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
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

Volume Module:												
Base Vol:	53	1971	274	60	3979	175	53	0	591	89	0	116
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:	53	1971	274	60	3979	175	53	0	591	89	0	116
Added Vol:	0	6	2	0	13	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	53	1977	276	60	3992	175	53	0	595	89	0	116
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	53	1977	276	60	3992	175	53	0	595	89	0	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	53	1977	276	60	3992	175	53	0	595	89	0	116
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	53	1977	276	60	3992	175	53	0	595	89	0	116

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	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Final Sat.:	1750	5700	1750	1750	5700	1750	1800	0	1750	1800	0	1750

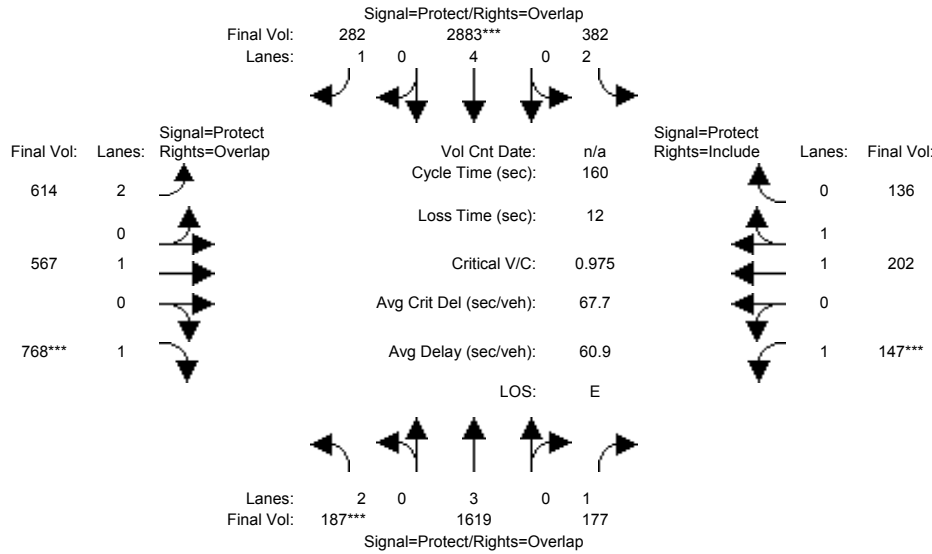
Capacity Analysis Module:												
Vol/Sat:	0.03	0.35	0.16	0.03	0.70	0.10	0.03	0.00	0.34	0.05	0.00	0.07
Crit Moves:	***			***			***			***		
Green Time:	7.0	96.1	96.1	12.1	101	101.2	42.8	0.0	49.8	42.8	0.0	54.9
Volume/Cap:	0.69	0.58	0.26	0.45	1.11	0.16	0.11	0.00	1.09	0.18	0.00	0.19
Delay/Veh:	99.2	19.8	15.3	73.2	82.4	12.1	44.3	0.0	121.2	45.3	0.0	37.1
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:	99.2	19.8	15.3	73.2	82.4	12.1	44.3	0.0	121.2	45.3	0.0	37.1
LOS by Move:	F	B-	B	E	F	B	D	A	F	D	A	D+
DesignQueue:	123	644	278	135	1333	159	92	0	1086	155	0	187

Note: Queue reported is the distance per lane in feet.

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Intersection #12: N Mathilda Ave / W Maude Ave



Street Name:	N Mathilda Ave						W Maude Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	186	1613	177	382	2871	282	614	567	767	147	202	136
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:	186	1613	177	382	2871	282	614	567	767	147	202	136
Added Vol:	1	6	0	0	12	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	187	1619	177	382	2883	282	614	567	768	147	202	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	187	1619	177	382	2883	282	614	567	768	147	202	136
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	187	1619	177	382	2883	282	614	567	768	147	202	136
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	187	1619	177	382	2883	282	614	567	768	147	202	136

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.92	0.83	1.00	0.92	0.92	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	4.00	1.00	2.00	1.00	1.00	1.00	1.17	0.83
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2210	1488

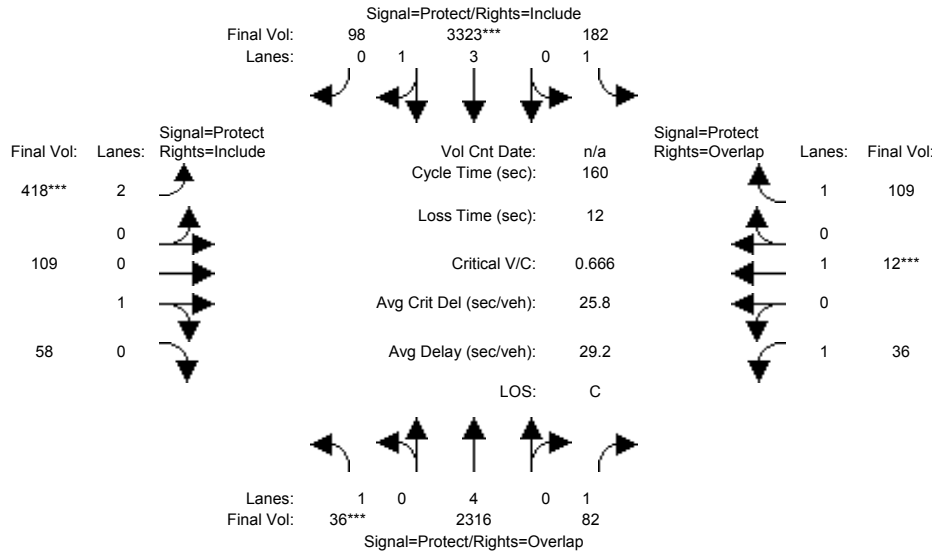
Capacity Analysis Module:												
Vol/Sat:	0.06	0.28	0.10	0.12	0.38	0.16	0.19	0.30	0.44	0.08	0.09	0.09
Crit Moves:	***			***			***		***	***		
Green Time:	9.7	50.4	64.2	21.5	62.2	114.0	51.8	62.3	72.0	13.8	24.3	24.3
Volume/Cap:	0.98	0.90	0.25	0.90	0.98	0.23	0.60	0.77	0.98	0.98	0.60	0.60
Delay/Veh:	132.6	59.1	32.1	90.0	59.5	8.0	46.5	47.4	69.1	138.6	65.2	65.2
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:	132.6	59.1	32.1	90.0	59.5	8.0	46.5	47.4	69.1	138.6	65.2	65.2
LOS by Move:	F	E+	C-	F	E+	A	D	D	E	F	E	E
DesignQueue:	239	888	263	458	1088	204	587	836	1153	331	335	335

Note: Queue reported is the distance per lane in feet.

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Intersection #13: N Mathilda Ave / Almanor Ave



Street Name:	N Mathilda Ave						Almanor Ave					
	North Bound			South Bound			East Bound			West Bound		
Approach:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	7	10	10	7	10	10	7	10	10	7	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

Volume Module:												
Base Vol:	36	2310	82	182	3311	98	418	109	58	36	12	109
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:	36	2310	82	182	3311	98	418	109	58	36	12	109
Added Vol:	0	6	0	0	12	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	36	2316	82	182	3323	98	418	109	58	36	12	109
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	36	2316	82	182	3323	98	418	109	58	36	12	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	2316	82	182	3323	98	418	109	58	36	12	109
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	36	2316	82	182	3323	98	418	109	58	36	12	109

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	0.99	0.95	0.83	0.95	0.95	0.92	1.00	0.92
Lanes:	1.00	4.00	1.00	1.00	3.88	0.12	2.00	0.65	0.35	1.00	1.00	1.00
Final Sat.:	1750	7600	1750	1750	7285	215	3150	1175	625	1750	1900	1750

Capacity Analysis Module:												
Vol/Sat:	0.02	0.30	0.05	0.10	0.46	0.46	0.13	0.09	0.09	0.02	0.01	0.06
Crit Moves:	***				****		****				****	
Green Time:	7.0	80.9	93.5	27.6	101	101.5	29.5	26.9	26.9	12.7	10.0	37.6
Volume/Cap:	0.47	0.60	0.08	0.60	0.72	0.72	0.72	0.55	0.55	0.26	0.10	0.27
Delay/Veh:	79.2	28.4	14.5	64.6	20.2	20.2	65.7	63.3	63.3	70.3	71.1	50.3
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:	79.2	28.4	14.5	64.6	20.2	20.2	65.7	63.3	63.3	70.3	71.1	50.3
LOS by Move:	E-	C	B	E	C+	C+	E	E	E	E	E	D
DesignQueue:	84	692	83	374	801	801	473	334	334	80	25	205

Note: Queue reported is the distance per lane in feet.

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	45	150	145	5	82	69	1700	375	221	2825	63
Future Volume (vph)	81	45	150	145	5	82	69	1700	375	221	2825	63
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81		1.00	0.91	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1151	1302	1373	1167	1304	5383		1304	3733	
Flt Permitted	0.75	1.00	1.00	0.73	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1036	1373	1151	997	1373	1167	1304	5383		1304	3733	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	83	46	153	148	5	84	70	1735	383	226	2883	64
RTOR Reduction (vph)	0	0	108	0	0	59	0	29	0	0	2	0
Lane Group Flow (vph)	83	46	45	148	5	25	70	2089	0	226	2945	0
Confl. Peds. (#/hr)			1	1					2			
Confl. Bikes (#/hr)									1			2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	65.5		20.2	66.7	
Effective Green, g (s)	41.0	41.0	41.0	41.0	41.0	41.0	19.0	65.5		20.2	66.7	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.47		0.14	0.48	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	402	337	291	402	341	176	2518		188	1778	
v/s Ratio Prot		0.03			0.00		0.05	c0.39		0.17	c0.79	
v/s Ratio Perm	0.08		0.04	c0.15		0.02						
v/c Ratio	0.27	0.11	0.13	0.51	0.01	0.07	0.40	0.83		1.20	1.66	
Uniform Delay, d1	38.1	36.2	36.4	41.1	35.1	35.8	55.3	32.4		59.9	36.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.99		0.81	0.71	
Incremental Delay, d2	2.2	0.6	0.8	6.2	0.1	0.4	6.5	2.4		95.8	295.7	
Delay (s)	40.3	36.8	37.2	47.4	35.2	36.2	60.5	34.4		144.6	321.6	
Level of Service	D	D	D	D	D	D	E	C		F	F	
Approach Delay (s)		38.1			43.1			35.2			309.0	
Approach LOS		D			D			D			F	

Intersection Summary

HCM 2000 Control Delay	183.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	128.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	0	157	0	0	0	0	806	1058	602	2952	0
Future Volume (vph)	302	0	157	0	0	0	0	806	1058	602	2952	0
Ideal Flow (vphpl)	1900	1900	1900	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lane Util. Factor	0.91	0.91						0.81	1.00	1.00	0.91	
Frbp, ped/bikes	1.00	1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00						1.00	1.00	1.00	1.00	
Frt	1.00	0.87						1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3221	1470						5559	1129	1304	3747	
Flt Permitted	0.95	0.99						1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3221	1470						5559	1129	1304	3747	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	321	0	167	0	0	0	0	857	1126	640	3140	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	0	313	0	0	0
Lane Group Flow (vph)	289	140	0	0	0	0	0	857	813	640	3140	0
Confl. Peds. (#/hr)										6		
Confl. Bikes (#/hr)										5		
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Effective Green, g (s)	30.1	30.1						54.7	54.7	36.7	97.7	
Actuated g/C Ratio	0.22	0.22						0.39	0.39	0.26	0.70	
Clearance Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	692	316						2171	441	341	2614	
v/s Ratio Prot	0.09	c0.10						0.15		c0.49	0.84	
v/s Ratio Perm									c0.72			
v/c Ratio	0.42	0.44						0.39	1.84	1.88	1.20	
Uniform Delay, d1	47.4	47.7						30.7	42.6	51.6	21.1	
Progression Factor	1.00	1.00						1.03	2.77	1.11	0.73	
Incremental Delay, d2	1.9	4.5						0.1	385.2	395.6	90.9	
Delay (s)	49.2	52.1						31.7	503.5	453.0	106.3	
Level of Service	D	D						C	F	F	F	
Approach Delay (s)		50.4			0.0			299.6			165.0	
Approach LOS		D			A			F			F	

Intersection Summary

HCM 2000 Control Delay	198.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	220.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↖	↗	↘	↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	767	36	97	100	1008	0	0	2786	1089
Future Volume (vph)	0	0	0	767	36	97	100	1008	0	0	2786	1089
Ideal Flow (vphpl)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frt				1.00	1.00	0.85	1.00	1.00			0.96	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1239	1247	1167	1304	4722			4523	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1239	1247	1167	1304	4722			4523	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	807	38	102	105	1061	0	0	2933	1146
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	0	0	50	0
Lane Group Flow (vph)	0	0	0	420	425	20	105	1061	0	0	4029	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Actuated Green, G (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Effective Green, g (s)				27.1	27.1	27.1	17.7	102.7			79.7	
Actuated g/C Ratio				0.19	0.19	0.19	0.13	0.73			0.57	
Clearance Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				239	241	225	164	3463			2574	
v/s Ratio Prot				0.34	c0.34		c0.08	0.22			c0.89	
v/s Ratio Perm						0.02						
v/c Ratio				1.76	1.76	0.09	0.64	0.31			1.58dr	
Uniform Delay, d1				56.5	56.5	46.3	58.1	6.4			30.1	
Progression Factor				1.00	1.00	1.00	1.11	0.50			0.80	
Incremental Delay, d2				357.5	360.0	0.8	16.6	0.2			254.5	
Delay (s)				413.9	416.5	47.1	81.0	3.4			278.6	
Level of Service				F	F	D	F	A			F	
Approach Delay (s)		0.0			375.6			10.4			278.6	
Approach LOS		A			F			B			F	

Intersection Summary

HCM 2000 Control Delay	242.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	220.3%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	277	654	620	178	9	254	488	322	43	2600	76
Future Volume (vph)	76	277	654	620	178	9	254	488	322	43	2600	76
Ideal Flow (vphp)	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Total Lost time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00		0.97	0.91		1.00	0.86	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1304	1373	1155	2530	1362		2530	3482		1304	4700	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1304	1373	1155	2530	1362		2530	3482		1304	4700	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	84	304	719	681	196	10	279	536	354	47	2857	84
RTOR Reduction (vph)	0	0	85	0	1	0	0	81	0	0	3	0
Lane Group Flow (vph)	84	304	634	681	205	0	279	809	0	47	2938	0
Confl. Peds. (#/hr)							2			3		
Confl. Bikes (#/hr)			2				2			2		2
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.3	33.1	42.9	31.0	49.8		9.8	41.7		16.0	47.9	
Effective Green, g (s)	14.3	33.1	42.9	31.0	49.8		9.8	41.7		16.0	47.9	
Actuated g/C Ratio	0.10	0.24	0.31	0.22	0.36		0.07	0.30		0.11	0.34	
Clearance Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	324	353	560	484		177	1037		149	1608	
v/s Ratio Prot	0.06	0.22	c0.13	c0.27	0.15		0.11	0.23		0.04	c0.63	
v/s Ratio Perm			0.42									
v/c Ratio	0.63	0.94	1.80	1.22	0.42		1.58	0.78		0.32	1.83	
Uniform Delay, d1	60.3	52.4	48.5	54.5	34.2		65.1	44.9		57.0	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.46		1.00	1.00	
Incremental Delay, d2	9.4	36.5	369.9	112.8	0.6		283.9	5.6		1.2	374.8	
Delay (s)	69.7	88.9	418.4	167.3	34.8		344.6	71.3		58.2	420.8	
Level of Service	E	F	F	F	C		F	E		E	F	
Approach Delay (s)		301.5			136.5			136.5			415.1	
Approach LOS		F			F			F			F	

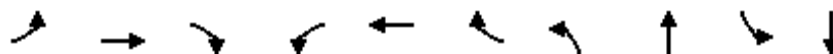
Intersection Summary

HCM 2000 Control Delay	301.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	142.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

14: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	83	46	153	148	5	84	70	2118	226	2947
v/c Ratio	0.27	0.11	0.34	0.51	0.01	0.21	0.40	0.83	1.20	1.66
Control Delay	41.1	37.3	7.6	48.4	35.4	7.4	61.4	34.6	138.9	319.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.2
Total Delay	41.1	37.3	7.6	48.4	35.4	7.4	61.4	36.0	138.9	319.2
Queue Length 50th (ft)	58	31	0	112	3	0	45	257	~259	~1424
Queue Length 95th (ft)	107	64	54	187	14	37	m56	m214	m#200	m#1102
Internal Link Dist (ft)		616			2836			407		261
Turn Bay Length (ft)	80		30	30		60	130		100	
Base Capacity (vph)	303	402	445	291	402	405	176	2592	188	1780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	91
Spillback Cap Reductn	0	0	0	0	0	5	0	277	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.11	0.34	0.51	0.01	0.21	0.40	0.91	1.20	1.74

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

15: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	289	199	857	1126	640	3140
v/c Ratio	0.42	0.53	0.39	1.49	1.88	1.20
Control Delay	49.6	35.6	32.1	256.8	426.8	109.6
Queue Delay	0.0	1.2	0.0	1.7	3.3	1.3
Total Delay	49.6	36.8	32.1	258.5	430.1	110.9
Queue Length 50th (ft)	125	109	179	~1424	-864	~1241
Queue Length 95th (ft)	174	202	217	#1667	m#436	m198
Internal Link Dist (ft)		1066	261			174
Turn Bay Length (ft)	440					
Base Capacity (vph)	692	374	2171	754	341	2614
Starvation Cap Reductn	0	0	0	166	82	782
Spillback Cap Reductn	0	57	82	0	0	1015
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.63	0.41	1.91	2.47	1.96

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

16: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



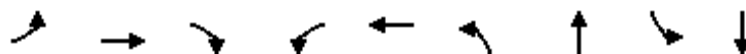
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	420	425	102	105	1061	4079
v/c Ratio	1.76	1.76	0.33	0.64	0.31	1.58dr
Control Delay	390.4	392.9	11.6	81.8	3.5	272.8
Queue Delay	1.9	1.8	0.8	1.5	0.6	0.8
Total Delay	392.3	394.7	12.4	83.3	4.1	273.6
Queue Length 50th (ft)	~596	~605	0	102	83	~1527
Queue Length 95th (ft)	#820	#828	51	#172	79	m644
Internal Link Dist (ft)		1061			174	134
Turn Bay Length (ft)	310		310			
Base Capacity (vph)	239	241	308	164	3463	2625
Starvation Cap Reductn	0	0	0	10	1891	750
Spillback Cap Reductn	29	29	68	0	626	343
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.00	2.00	0.42	0.68	0.67	2.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

311 South Mathilda Avenue TIA
 Cumulative + Project PM Peak Hour

17: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	84	304	719	681	206	279	890	47	2941
v/c Ratio	0.63	0.94	1.64	1.22	0.42	1.72	0.78	0.30	1.80
Control Delay	79.9	88.9	322.3	158.3	38.5	384.1	63.4	59.0	389.8
Queue Delay	0.0	0.0	9.5	0.0	0.0	0.0	7.2	0.0	1.3
Total Delay	79.9	88.9	331.7	158.3	38.5	384.1	70.6	59.0	391.2
Queue Length 50th (ft)	75	274	~902	~390	140	~179	281	39	~1175
Queue Length 95th (ft)	128	#457	#1152	#514	233	#272	333	80	#1238
Internal Link Dist (ft)		185			645		134		1050
Turn Bay Length (ft)	263			280		90		150	
Base Capacity (vph)	232	324	439	560	485	162	1136	186	1637
Starvation Cap Reductn	0	0	0	0	0	0	206	0	0
Spillback Cap Reductn	0	0	238	0	0	0	0	0	494
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.94	3.58	1.22	0.42	1.72	0.96	0.25	2.57

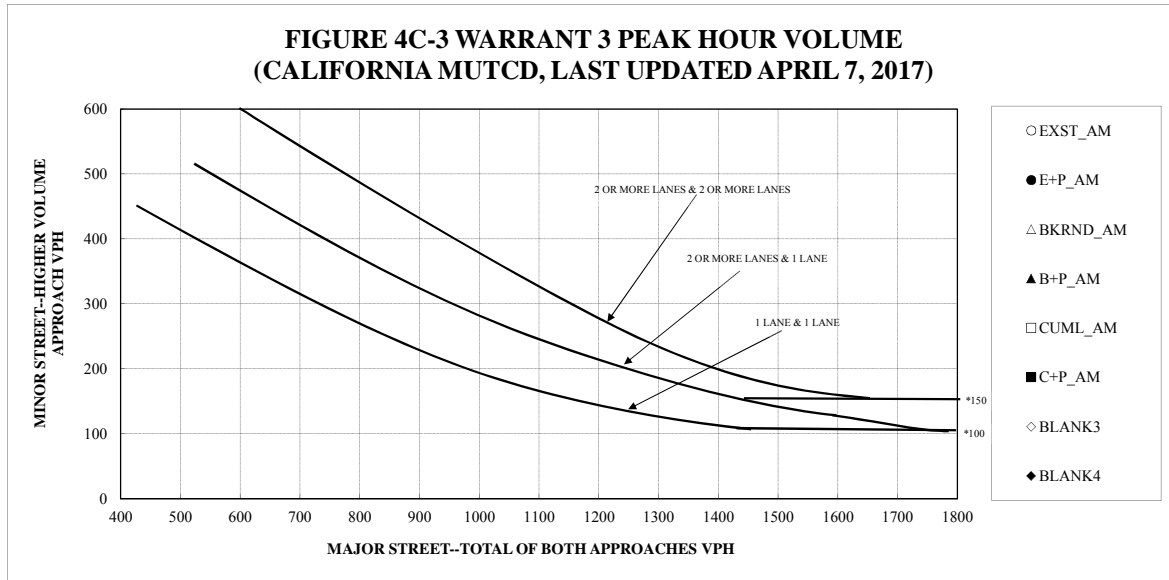
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Appendix C
California MUTCD Signal Warrant Worksheets

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	178	32	NO
E+P_AM	180	33	NO
BKRND_AM	204	39	NO
B+P_AM	206	40	NO
CUML_AM	232	44	NO
C+P_AM	241	48	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017

Intersection No.: 3

Intersection: Charles Street / Iowa Avenue

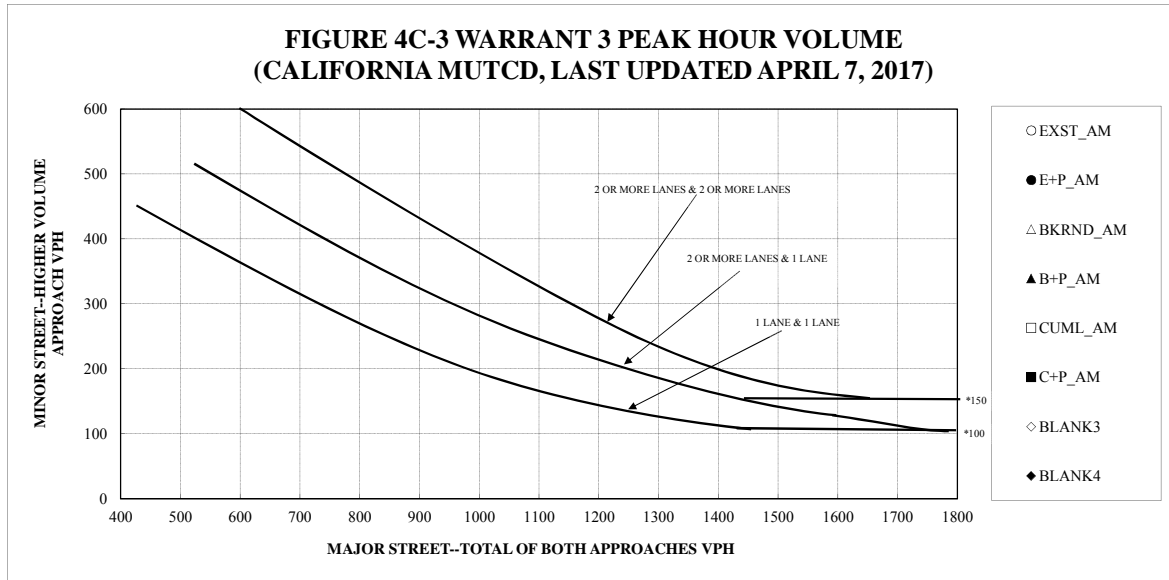
Number of lanes on MAJOR street: 1

Number of lanes on MINOR street: 1



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	3433	10	NO
E+P_AM	3456	23	NO
BKRND_AM	4076	10	NO
B+P_AM	4099	23	NO
CUML_AM	4856	12	NO
C+P_AM	4937	25	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017

Intersection No.: 5

Intersection: Mathilda Avenue / Project Driveway (Restaurant Parking Access)

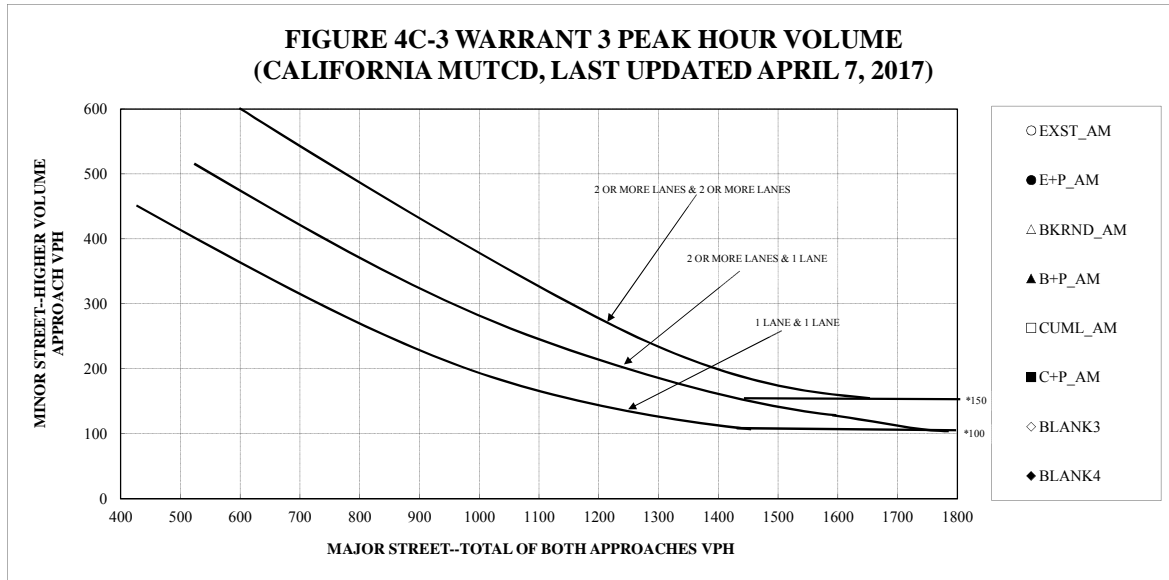
Number of lanes on MAJOR street: 3

Number of lanes on MINOR street: 1



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	152	37	NO
E+P_AM	153	38	NO
BKRND_AM	172	47	NO
B+P_AM	173	48	NO
CUML_AM	196	53	NO
C+P_AM	200	57	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017 Intersection No.: **6**

Intersection: Charles Street / McKinley Avenue

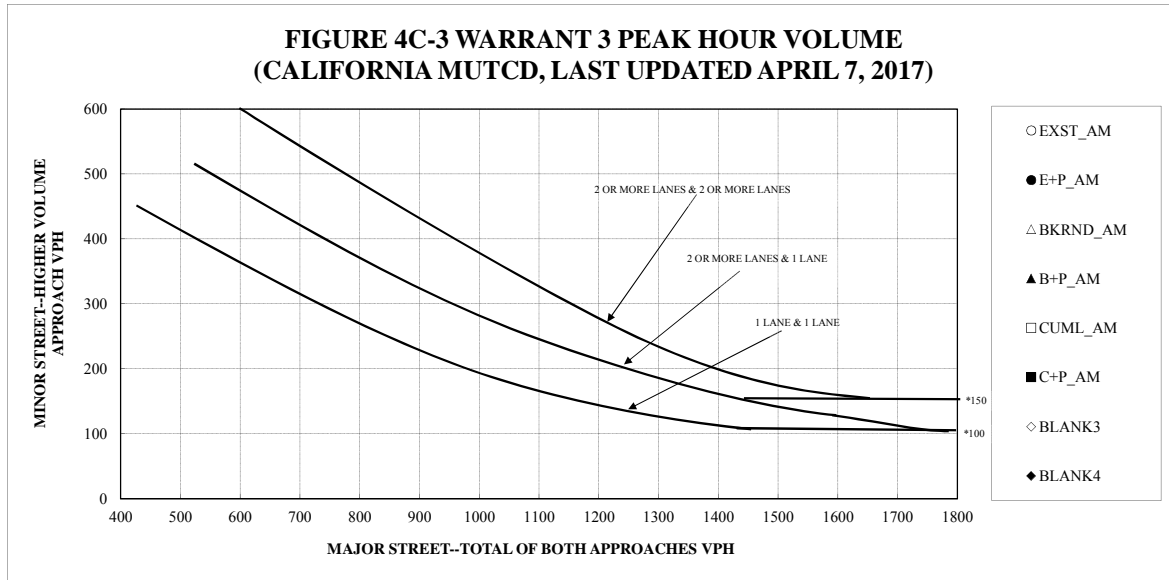
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	164	10	NO
E+P_AM	166	26	NO
BKRND_AM	181	10	NO
B+P_AM	183	26	NO
CUML_AM	207	11	NO
C+P_AM	209	27	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **November 17, 2017**

Intersection No.: 7

Intersection: **Project Driveway (Residential Parking Access) / McKinley Avenue**

Number of lanes on MAJOR street: 1

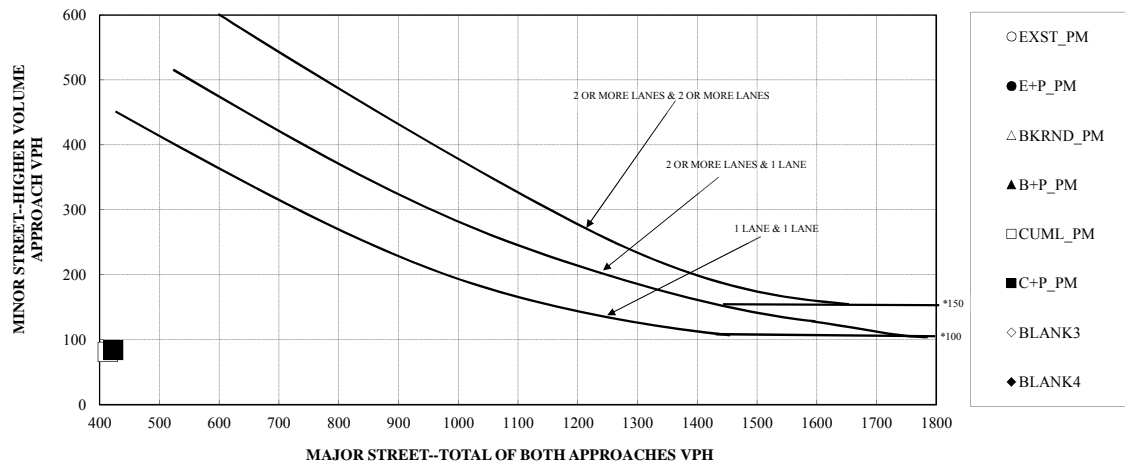
Number of lanes on MINOR street: 1



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "PM PEAK HOUR" CONDITIONS

FIGURE 4C-3 WARRANT 3 PEAK HOUR VOLUME
(CALIFORNIA MUTCD, LAST UPDATED APRIL 7, 2017)



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_PM	285	48	NO
E+P_PM	287	48	NO
BKRND_PM	367	73	NO
B+P_PM	369	73	NO
CUML_PM	414	81	NO
C+P_PM	423	84	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017

Intersection No.: 3

Intersection: Charles Street / Iowa Avenue

Number of lanes on MAJOR street: 1

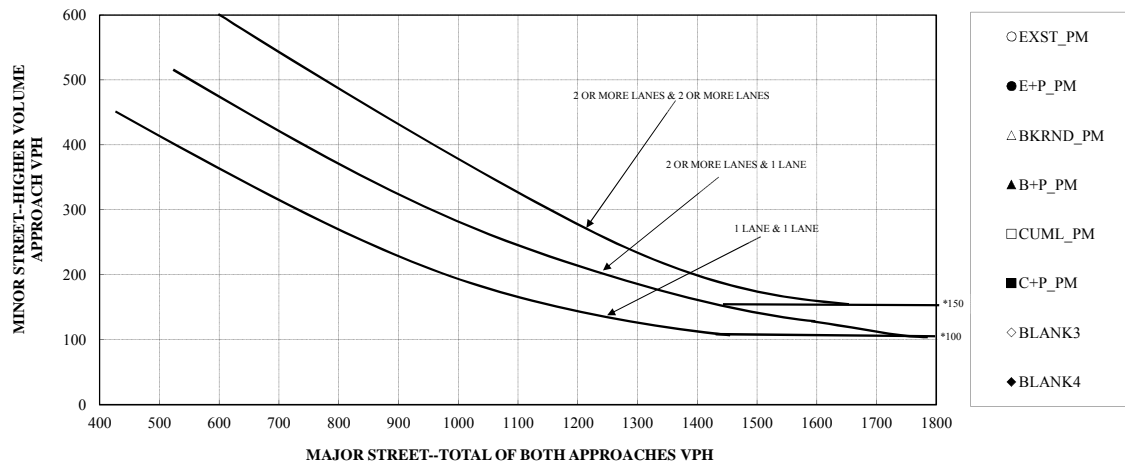
Number of lanes on MINOR street: 1



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "PM PEAK HOUR" CONDITIONS

**FIGURE 4C-3 WARRANT 3 PEAK HOUR VOLUME
(CALIFORNIA MUTCD, LAST UPDATED APRIL 7, 2017)**



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_PM	3362	8	NO
E+P_PM	3395	17	NO
BKRND_PM	4614	8	NO
B+P_PM	4647	17	NO
CUML_PM	5410	9	NO
C+P_PM	5495	18	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017

Intersection No.: 5

Intersection: Mathilda Avenue / Project Driveway (Restaurant Parking Access)

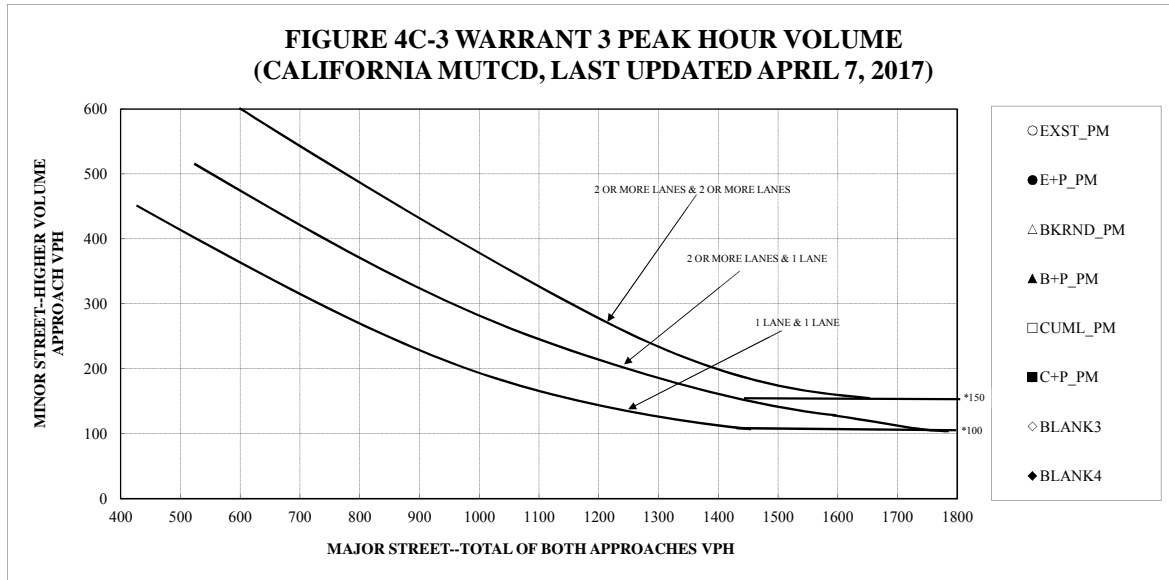
Number of lanes on MAJOR street: 3

Number of lanes on MINOR street: 1



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "PM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_PM	267	98	NO
E+P_PM	268	98	NO
BKRND_PM	319	134	NO
B+P_PM	320	134	NO
CUML_PM	362	150	NO
C+P_PM	366	150	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017 Intersection No.: **6**

Intersection: Charles Street / McKinley Avenue

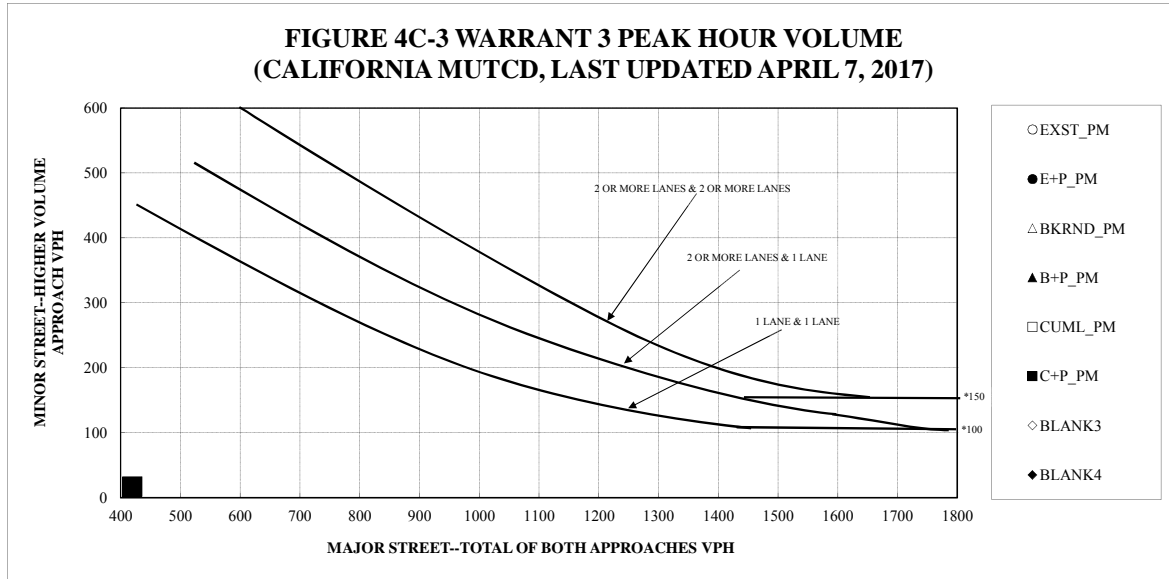
Number of lanes on MAJOR street: **1**

Number of lanes on MINOR street: **1**



CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "PM PEAK HOUR" CONDITIONS



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_PM	307	8	NO
E+P_PM	331	16	NO
BKRND_PM	346	8	NO
B+P_PM	370	16	NO
CUML_PM	396	9	NO
C+P_PM	420	17	NO
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: November 17, 2017

Intersection No.: 7

Intersection: Project Driveway (Residential Parking Access) / McKinley Avenue

Number of lanes on MAJOR street: 1

Number of lanes on MINOR street: 1



Appendix D
List of Approved Background Projects

311 South Mathilda Avenue TIA						
Appendix D: Approved Projects Within One-Mile Radius of Project Site (For Background Conditions Analysis)						
No.	Project	Existing Land Uses	Proposed Land Uses	Status	Planning Notes	General Notes
1	725 S. Fair Oaks Avenue	7,782 sqft Restaurant [already demolished]	182 Room Hotel	Approved	Under Construction	
2	777 Sunnyvale-Saratoga Road	6,800 sqft Retail	11,600 sqft Grocery Store	Approved		
3	221 N Mathilda Avenue	4.3 Ac. Nursery [closed]	145,516 sqft Office	Comments Provided [Approved]	Approved by planning commision 12/12/16	PPSP ¹ trip reduction goal applied
4	615 N Mathilda Avenue	109,305 sqft Light Industrial, Resuarant w/ Drive-thru, R&D	316,168 sqft Office/R&D, 13,724 sqft Amenities Bldg.	Approved		PPSP trip reduction goal applied
5	684 W. Maude Avenue	198,818 sqft Industrial	620,000 sqft Office/R&D	Approved		PPSP trip reduction goal applied
6	845 W. Maude Ave	19,998 sqft Industrial	39,233 sqft Office	Approved		PPSP trip reduction goal applied
7	2502 Town Center Lane	350,008 sqft Retail, 315,00 sqft Office, 292 Apartments [to remain]	79,094 sqft (1800 seat) Cinema, 200 Room Hotel, 649,992 sqft Retail	Approved		VTA trip reductions applied
8	701-729/711 E. Evelyn Avenue	155,600 sqft R&D, 4,000 sqft Industrial, 9,600 sqft Warehouse [already demolished]	215 Townhomes	Approved		VTA trip reductions applied
9	755 E. Evelyn Avenue	32,168 sqft Industrial [already demolished]	42 Townhomes	Approved		VTA trip reductions applied
10	803 W. El Camino Real	24,858 sqft Commercial	40 Apartments, 9 Single Family Homes, 5,662 sqft Comercial, 51 Room Hotel expansion	Approved		Assume no net new trips
11	388-394 E. Evelyn Avenue	3,900 sqft Retail, 2 Residential, 34 SROs [already demolished]	67 Apartments	Approved		Part of Peery Park TIA Background Conditions
12	457-475 E. Evelyn Avenue	31,000 sqft Office [already demolished]	117 Apartments	Approved		Part of Peery Park TIA Background Conditions
13	698 E. Taylor Avenue	23,408 sqft Industrial	48 Townhome/condominiums	Approved		Part of Peery Park TIA Background Conditions

¹ PPSP = Peery Park Specific Plan

Appendix E
Approved Background Projects Trip Generation

Appendix E: Approved Background Projects Trip Generation

Table 1 - 725 S Fair Oaks Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Hotel	ITE	310	Rooms	6.90	0.53	59%	41%	0.60	51%	49%

Table 2 - 725 S Fair Oaks Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
Hotel	Rooms	182	1,256	96	57	39	109	56	53	
Project Trip Generation			1,256	96	57	39	109	56	53	

Appendix E: Approved Background Projects Trip Generation

Table 1 - 777 Sunnyvale-Saratoga Rd										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Supermarket	ITE	850	ksf	186.90	3.40	62%	38%	13.62	51%	49%
Notes: 1. ksf = 1000 sqft floor area										

Table 2 - 777 Sunnyvale-Saratoga Rd										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
Supermarket	ksf	11.6	2,168	39	24	15	158	81	77	
Project Trip Generation			2,168	39	24	15	158	81	77	
Notes: 1. ksf = 1000 sqft floor area										

Appendix E: Approved Background Projects Trip Generation

Table 1 - 221 N Mathilda Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	12.00	1.77	88%	12%	1.66	17%	83%
Notes: 1. ksf = 1000 sqft floor area										

Table 2 - 221 N Mathilda Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
General Office Building	ksf	145.5	1,746	258	227	31	241	41	200	
Project Trip Generation			1,746	258	227	31	241	41	200	
<i>Peery Park Specific Plan Reduction Goal - 25%</i>		25%		-65	-57	-8	-60	-10	-50	
Net Project Trip Generation			0	194	170	23	181	31	150	
Notes: 1. ksf = 1000 sqft floor area										

Appendix E: Approved Background Projects Trip Generation

Table 1 - 615 N Mathilda Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	9.86	1.51	88%	12%	1.36	17%	83%
Research and Development Center	ITE	760	ksf	11.20	1.41	83%	17%	1.46	15%	85%
General Light Industrial	ITE	110	ksf	5.53	0.92	88%	12%	0.97	12%	88%
Fast-Food restaurant with Drive-Through Window	ITE	934	ksf	496.12	45.42	51%	49%	32.65	52%	48%
Notes: 1. ksf =1000 sqft Floor Area										

Table 2 - 615 N Mathilda Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
General Office Building	ksf	329.9	3,252	497	437	60	448	76	372	
Existing Research and Development Center	ksf	52.6	-589	-74	-61	-13	-77	-12	-65	
Existing General Light Industrial	ksf	52.6	-291	-48	-42	-6	-51	-6	-45	
Existing Fast-Food restaurant with Drive-Through Window	ksf	4.10	-2,034	-186	-95	-91	-134	-70	-64	
<i>Project Trip Generation</i>			338	189	239	-50	186	-12	198	
Peery Park Specific Plan Reduction Goal - 30%		30%		57	72	-15	56	-4	59	
Net Project Trip Generation				246	311	-65	242	-16	258	
Notes: 1. ksf =1000 sqft Floor Area										

Appendix E: Approved Background Projects Trip Generation

Table 1 - 684 W Maude Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	10.01	1.53	88%	12%	1.37	17%	83%
Research and Development Center	ITE	760	ksf	7.72	1.12	83%	17%	1.09	15%	85%
Industrial Park	ITE	130	ksf	-8.40	-0.82	82%	18%	-0.94	21%	79%

Notes: 1. ksf =1000 sqft Floor Area

Table 2 - 684 W Maude Ave									
Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
General Office Building	ksf	310.0	3,102	473	416	57	426	72	354
Research and Development Center	ksf	310.0	2,393	348	289	59	337	51	286
Existing Industrial Park	ksf	198.82	-1,670	-163	-134	-29	-186	-39	-147
Project Trip Generation			3,825	658	571	87	577	84	493
Peery Park Specific Plan Reduction Goal - 30%		30%		-197	-171	-26	-173	-25	-148
Net project trip Generation				461	400	61	404	59	345

Notes: 1. ksf =1000 sqft Floor Area

Appendix E: Approved Background Projects Trip Generation

Table 1 - 845 W Maude Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	16.44	2.32	88%	12%	3.11	17%	83%
Industrial Park	ITE	130	ksf	-38.90	-1.30	82%	18%	-2.30	21%	79%

Notes: 1. ksf =1000 sqft Floor Area

Table 2 - 845 W Maude Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
General Office Building	ksf	39.2	645	91	80	11	122	21	101	
Existing Industrial Park	ksf	20.00	-778	-26	-23	-3	-46	-8	-38	
Project Trip Generation			-133	65	57	8	76	13	63	
<i>Peery Park Specific Plan Reduction Goal - 20%</i>		<i>20%</i>		<i>-13</i>	<i>-11</i>	<i>-2</i>	<i>-15</i>	<i>-3</i>	<i>-13</i>	
Net project trip Generation				52	46	6	61	10	50	

Notes: 1. ksf =1000 sqft Floor Area

Appendix E: Approved Background Projects Trip Generation

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Hotel	ITE	310	Rooms	7.09	0.53	59%	41%	0.60	51%	49%
Shopping Center	ITE	820	ksf	36.78	0.79	62%	38%	3.36	48%	52%
Multiplex Movie Theater	ITE	445	ksf	n/a ²	0.00	0%	0%	4.91	62%	38%
Apartment	ITE	220	DU	6.48	0.50	20%	80%	0.61	65%	35%

Notes: 1. DU = Dwelling Unit, ksf - 1000 sqft Floor Area

Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Hotel	ksf	200	1,417	106	21	85	120	78	42
Shopping Center	ksf	576.5	21,206	454	281	173	1,938	930	1,008
	15% Internal Match w/ Apartment	-15%	-3,181	-68	-42	-26	-291	-140	-151
Multiplex Movie Theater	ksf	79.09	n/a ²	0	0	0	388	241	147
Apartment	DU	292	1,893	147	29	118	178	116	62
	15% Internal Match w/ Shopping Center	-15%	-3,181	-68	-26	-42	-291	-151	-140
	Project Trip Generation		21,335	571	263	308	2,042	1,074	968
	VTA TIA Guidelines Trip Reduction-Proximity to Clatrain Station	6%		-34	-16	-18	-123	-64	-58
	Net Project Trip Generation			537	247	290	1,919	1,010	910

Notes: 1. DU = Dwelling Unit, ksf - 1000 sqft Floor Area
2. Daily Trip Rate not given for Multiplex Movie Theater land use.

Appendix E: Approved Background Projects Trip Generation

Table 1 - 701-729 E Evelyn Avenue										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Residential Condominium/Townhouse	ITE	230	DU	5.82	0.44	17%	83%	0.53	67%	33%
Notes: 1. DU = Dwelling Unit										

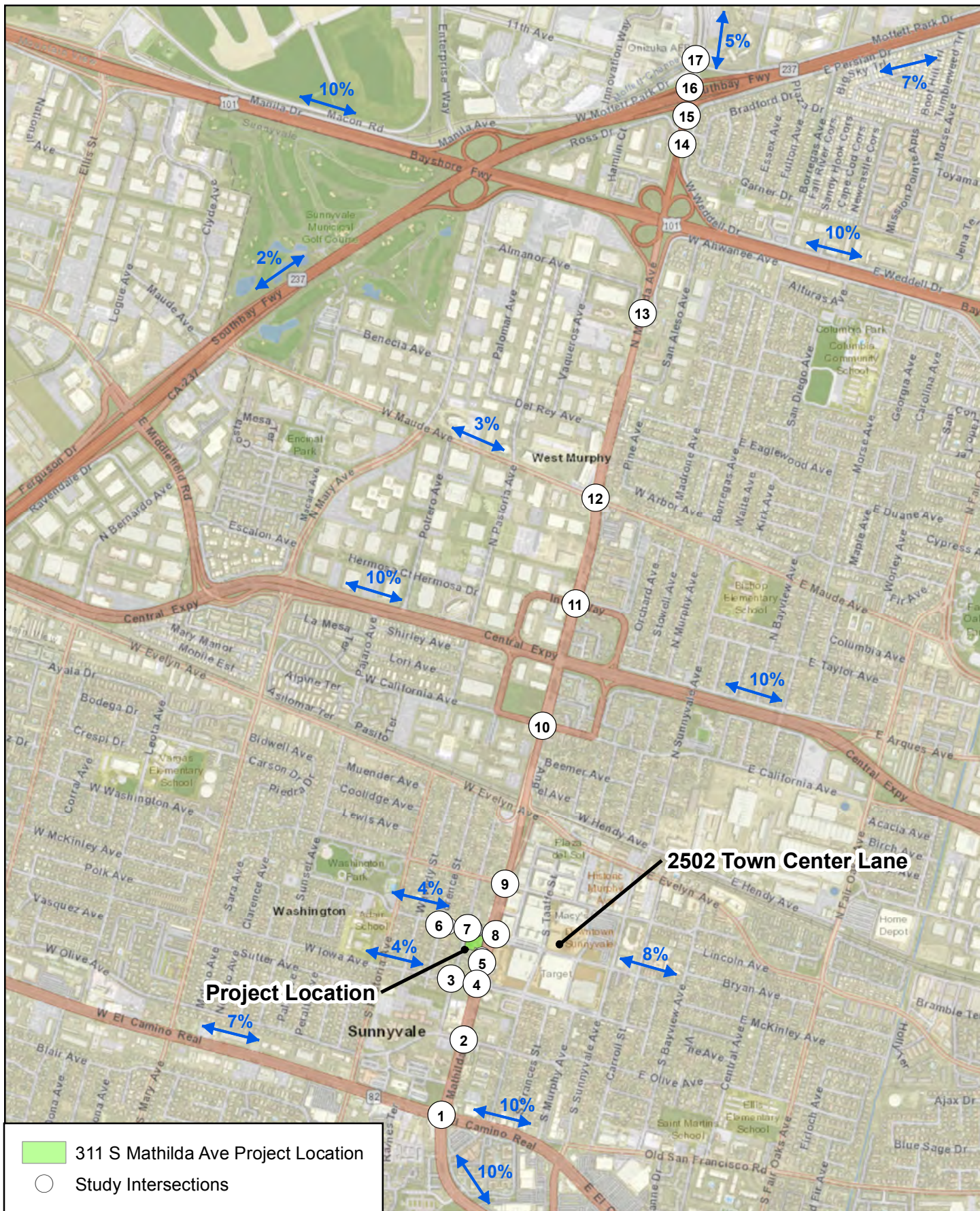
Table 2 -701-729 E Evelyn Avenue									
Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Residential Condominium/Townhouse	DU	215	1,252	95	16	79	113	76	37
VTA Reduction (Major Bus Stop) - 2%		2%	-25	-2	0	-2	-2	-2	-1
Project Trip Generation			1,227	93	16	77	111	74	36
Notes: 1. DU = Dwelling Unit									

Appendix E: Approved Background Projects Trip Generation

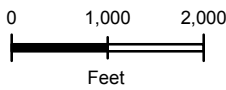
Table 1 - 755 E Evelyn Avenue										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Residential Condominium/Townhouse	ITE	230	DU	7.19	0.62	17%	83%	0.71	67%	33%
Notes: 1. DU = Dwelling Unit										

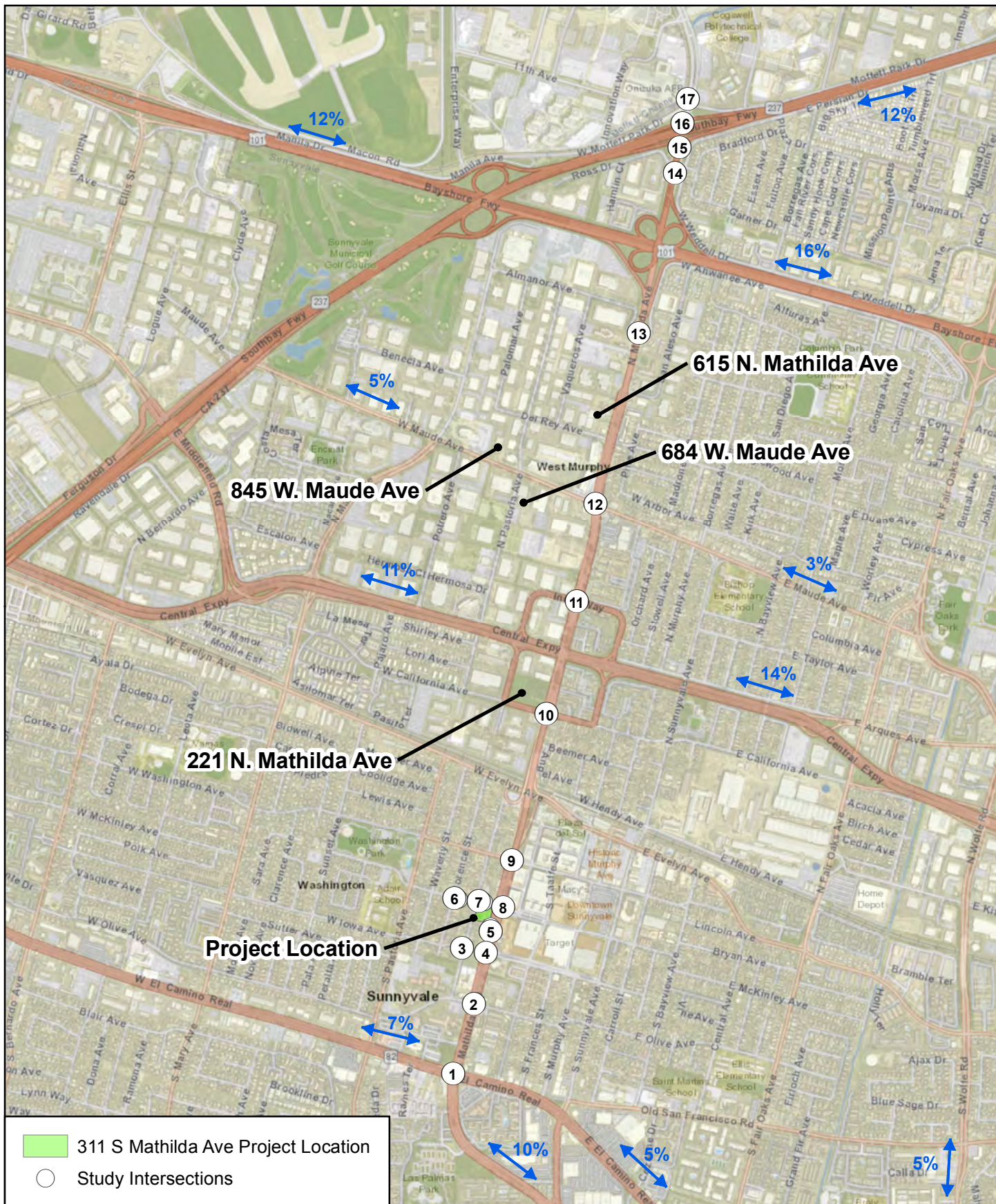
Table 2 -755 E Evelyn Avenue									
Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Residential Condominium/Townhouse	DU	42	302	26	4	22	30	20	10
VTA Reduction (Major Bus Stop) - 2%		2%	-6	-1	0	0	-1	0	0
Project Trip Generation			296	25	4	22	29	20	10
Notes: 1. DU = Dwelling Unit									

Appendix F
Approved Background Projects Trip Distribution

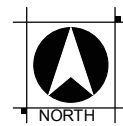
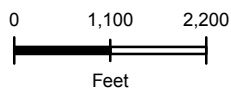


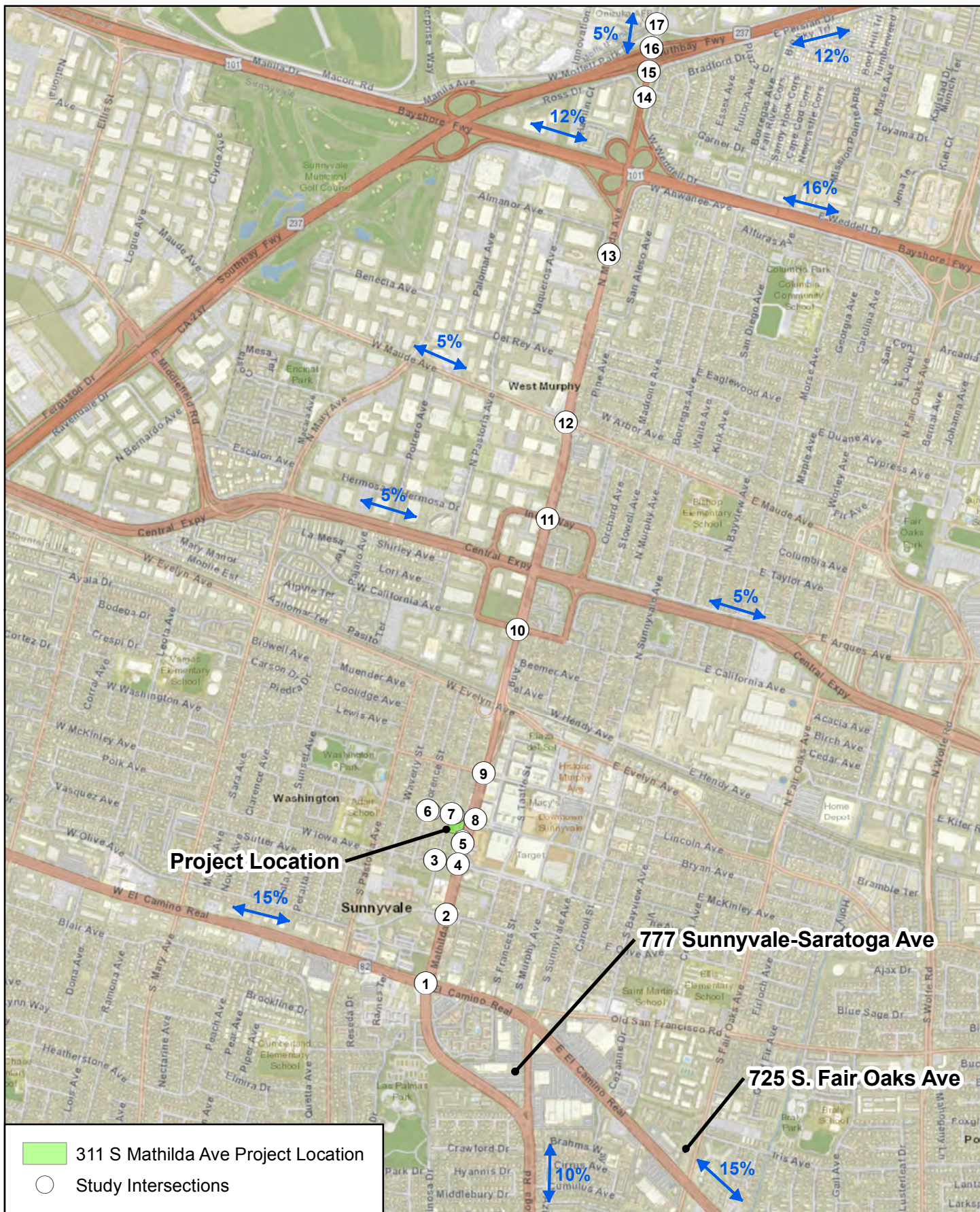
Appendix F - Approved Background Projects Trips Distribution #1
 2502 Town Center Lane
 Sunnyvale, CA
 May 2018



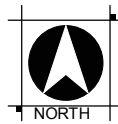
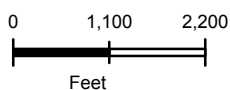


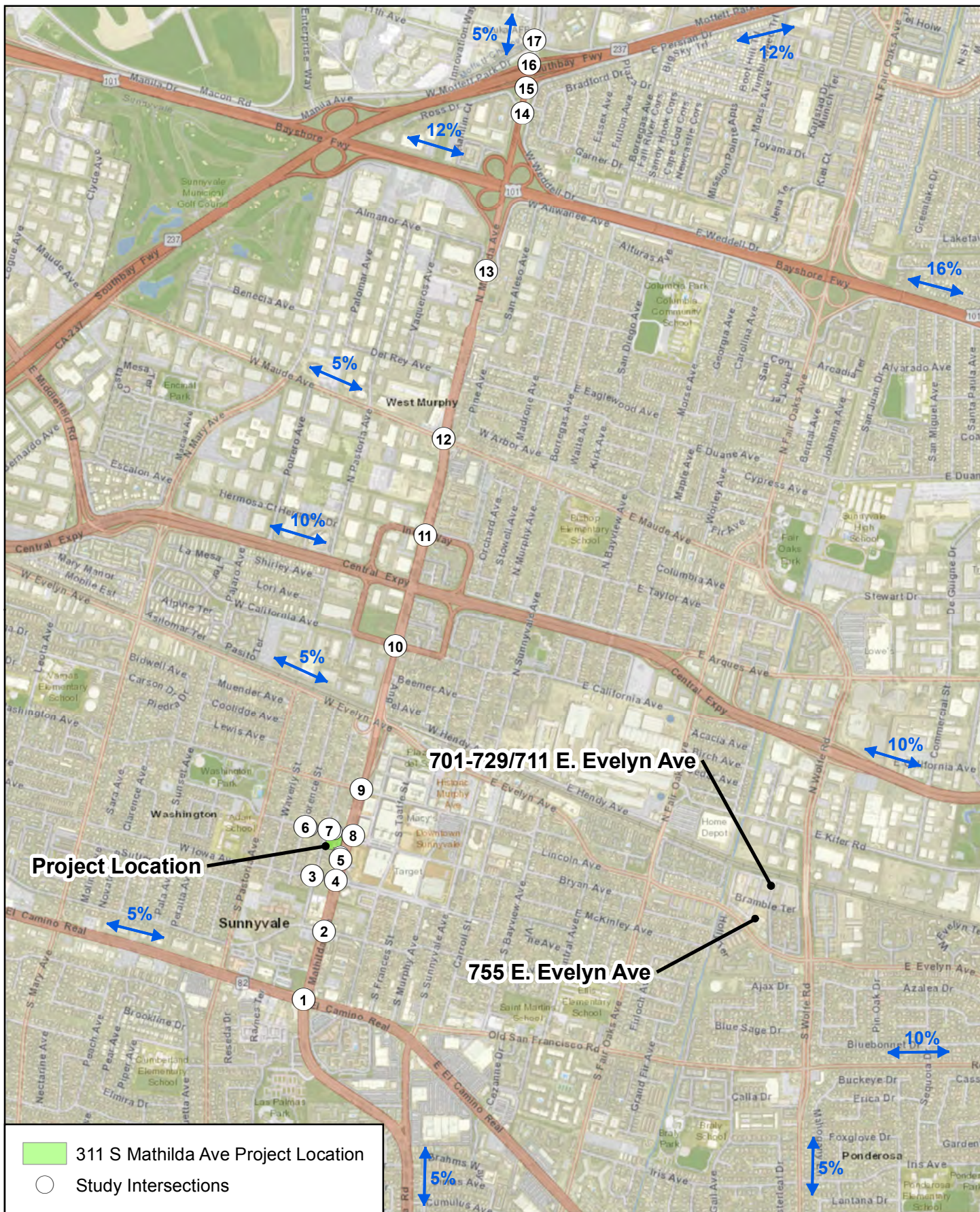
Appendix F - Approved Background Projects Trips Distribution #2
 221 N. Mathilda Ave, 615 N. Mathilda Ave, 684 W. Maude Ave,
 845 W. Maude Ave
 Sunnyvale, CA
 May 2018



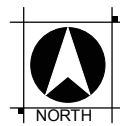
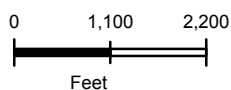


Appendix F - Approved Background Projects Trips Distribution #3
 725 S. Fair Oaks Avenue, 777 Sunnyvale-Saratoga Road
 Sunnyvale, CA
 May 2018

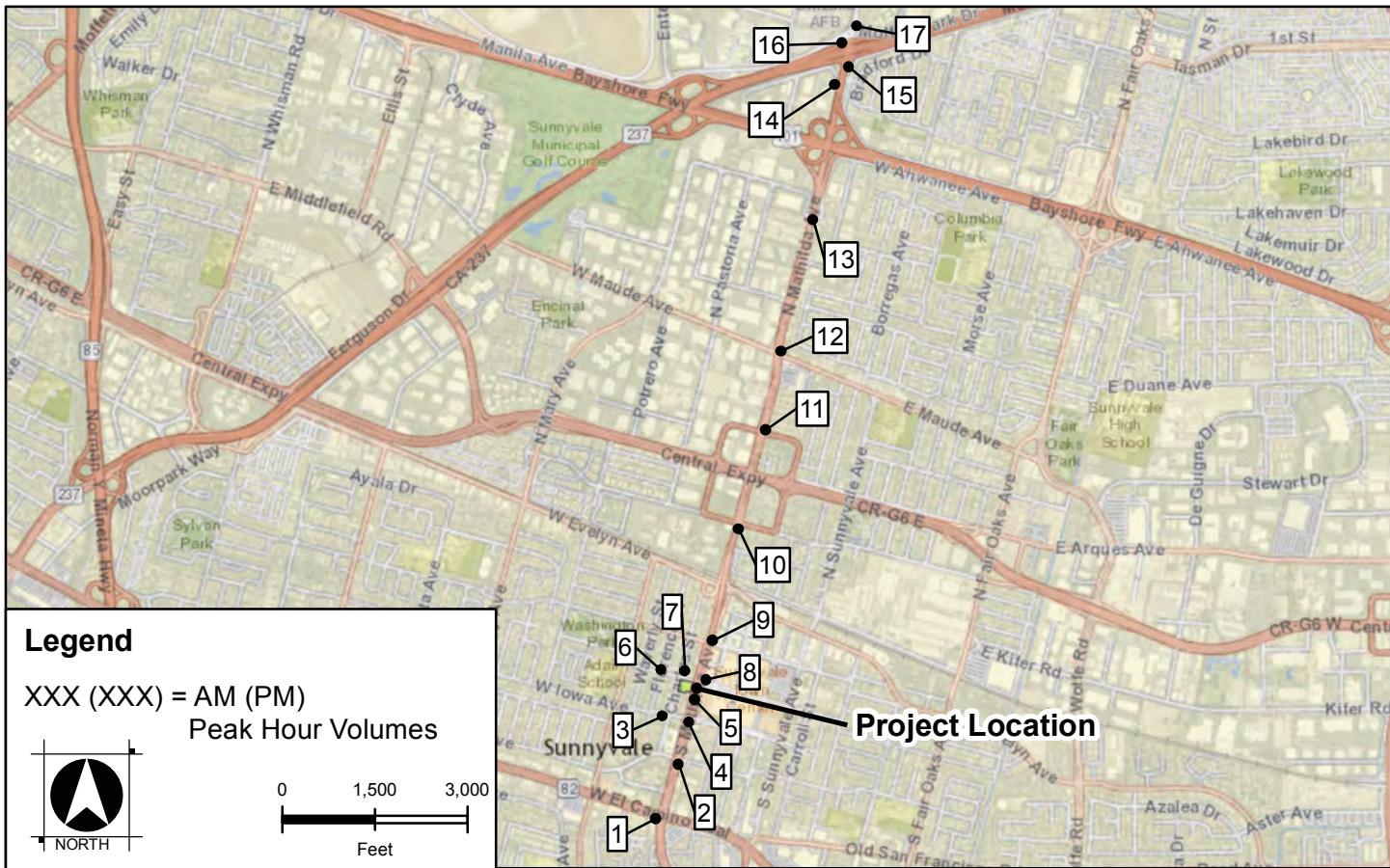




Appendix F - Approved Background Projects Trips Distribution #4
 701-729/711 E. Evelyn Ave, 755 E. Evelyn Ave
 Sunnyvale, CA
 May 2018



Appendix G
Approved Background Projects Volumes



1	Mathilda Ave / El Camino Real
38 (99) 77 (379) 52 (157)	87 (123) 53 (101) 4 (17)
El Camino Real	El Camino Real
56 (91) 82 (85) 57 (33)	17 (58) 276 (219) 3 (13)
Mathilda Ave	Mathilda Ave

2	Mathilda Ave / Olive Ave
2 (2) 166 (625) 1 (2)	1 (1) 2 (2) 1 (1)
Olive Ave	Olive Ave
1 (2) 1 (2) 1 (2)	2 (2) 416 (431) 1 (1)
Mathilda Ave	Mathilda Ave

3	Charles St / Iowa Ave
4 (12) 3 (13)	4 (12) 10 (27)
Iowa Ave	Iowa Ave
6 (26) 6 (17)	Charles St

4	Mathilda Ave / Iowa St
5 (13) 140 (544) 45 (183)	56 (167) 9 (25) 27 (83)
Iowa Ave	Iowa Ave
1 (1) 7 (28) 1 (1)	0 (1) 396 (343) 23 (90)
Mathilda Ave	Mathilda Ave

5	Mathilda Ave / Project Dwy (Restaurant)
190 (741)	453 (511)
Project Dwy	Mathilda Ave

6	Charles St / McKinley Ave
8 (24) 4 (12)	3 (8)
McKinley Ave	McKinley Ave
3 (13) 11 (18) 3 (13)	4 (12) 3 (13) 3 (13)
Charles St	Charles St

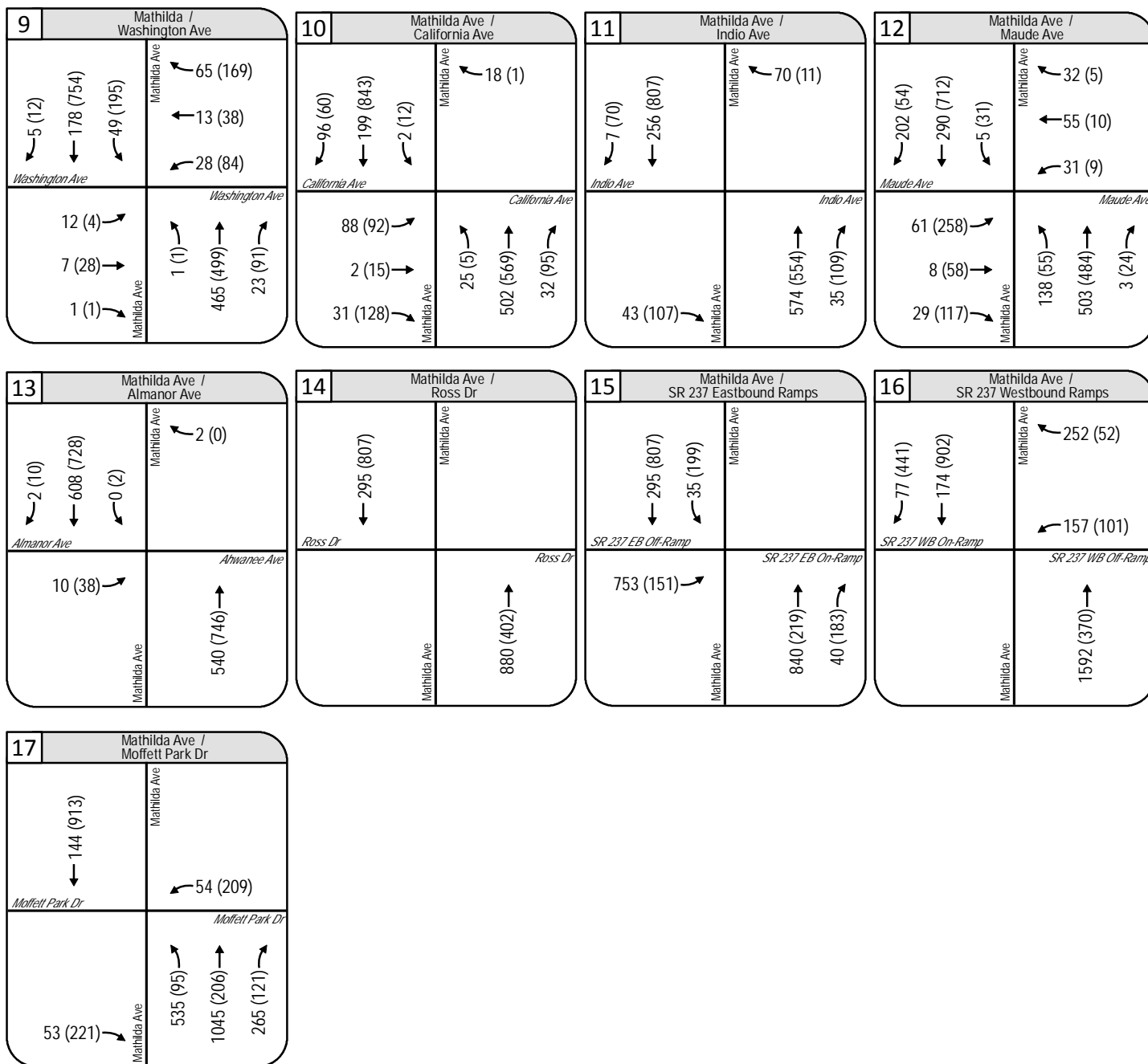
7	Project Dwy (Residential) / McKinley Ave
14 (31)	3 (8)
McKinley Ave	McKinley Ave

8	Mathilda / McKinley Ave
2 (7) 157 (645) 46 (188)	63 (168) 31 (95)
McKinley Ave	McKinley Ave
8 (3) 6 (27) 0 (1)	1 (1) 427 (420) 24 (90)
Mathilda Ave	Mathilda Ave

Approved Background Projects Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Appendix G

WOOD RODGERS
 BUILDING RELATIONSHIPS ONE PROJECT AT A TIME



Appendix H
List of Pending Cumulative Projects

311 South Mathilda Avenue TIA						
Appendix H: Pending Projects Within One-Mile Radius of Project Site (For Cumulative Conditions Analysis)						
No.	Project	Existing Land Uses	Proposed Land Uses	Status	Planning Notes	General Notes
1	160 Aires Way	18,448 sqft Commercial, 20 Apartments	104,440 sqft Office/Retail	Pending Review		Downtown Specific Plan
2	590 W. El Camino Real	2,000 sqft auto repair and sales facility	85 room Hotel	Comments Provided	Tenatively scheduled for Planning Commission meeting	Auto Repair building is abandoned
3	265 Sobrante Way	45,558 sqft Industrial	120,740 sqft Office / R&D	Comments Provided	Revision 4 submitted	PPSP ¹ trip reduction goal applied
4	445 N. Mary Ave.		171,734 sqft Office	Comments Provided	Comments provided PRC on 8/17/16	PPSP trip reduction goal applied
5	610 N. Mary Ave.	768,665 sqft Office/Industrial	1,471,400 sqft Office 40,000 sqft Amenity Buildings	Comments Provided	Called for review by City Council	PPSP trip reduction goal applied
6	623 Pastoria Ave.	23,520 sqft Industrial	56,817 sqft Office	Comments Provided	Comments provided	PPSP trip reduction goal applied
7	840 W. California Ave.	623,456 sqft Industrial (R&D)	1,039,834 sqft Industrial (R&D) (416,378 sqft net new)	Comments Provided	Application on hold	PPSP trip reduction goal applied
8	528 S. Mathilda Ave.	8 Apartments	38 Apartments	Comments Provided	Comments provided at 1/18/17 PRC	VTA trip reductions applied
9	603 Old San Francisco Rd.	1,600 sqft Auto Repair	0.74 acre High Density Residential	Pending Review	Scheduled for Planning Commission on 7/24/2017 and City Council on 8/8/2017	No quantity of proposed apartments given
10	617 E. Evelyn Ave.	54 Mobile Homes	62 Townhomes	Pending Review	PRC comments provided on 4/19/2017	Only 8 net new DUs - assume no new trips

¹ PPSP = Peery Park Specific Plan

Appendix I
Pending Cumulative Projects Trip Generation

Appendix I: Pending Cumulative Projects Trip Generation

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	15.34	2.18	88%	12%	2.62	17%	83%
Shopping Center	ITE	820	ksf	85.25	2.01	62%	38%	7.43	48%	52%
Apartment	ITE	220	DU	12.25	0.70	20%	80%	1.45	65%	35%

Notes: 1. DU = Dwelling Unit, ksf - 1000 sqft Floor Area

Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
General Office Building	ksf	52.220	801	114	100	14	137	23	114	
3% Internal Match w/ Shopping Center		-3%	-24	-3	-3	-1	-4	-1	-3	
Shopping Center	ksf	52.220	4,452	105	65	40	388	186	202	
3% Internal Match w/ Office		-3%	801	-3	-3	-1	-4	-3	-1	
Existing Shopping Center	ksf	18.448	-1,573	-37	-23	-14	-137	-66	-71	
Existing Apartment	DU	20	-245	-14	-3	-11	-29	-19	-10	
Project Trip Generation			4,212	162	133	27	351	120	231	
VTA TIA Guidelines Trip Reduction-Proximity to Clatrain Station			6%		-10	-8	-2	-21	-7	-14
Net Project Trip Generation				152	125	25	330	113	217	

Notes: 1. DU = Dwelling Unit, ksf - 1000 sqft Floor Area

Appendix I: Pending Cumulative Projects Trip Generation

Table 1 - 590 W El Camino Real Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Hotel	ITE	310	Rooms	4.56	0.53	59%	41%	0.60	51%	49%

Table 2 - 590 W El Camino Real Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Hotel	Rooms	85	388	45	27	18	51	26	25
Net Project Trip Generation				45	27	18	51	26	25

Appendix I: Pending Cumulative Projects Trip Generation

Table 1 - 265 Sobrante Way Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	14.83	2.12	88%	12%	2.42	17%	83%
Research and Development Center	ITE	760	ksf	10.95	1.39	83%	17%	1.44	15%	85%
Industrial Park	ITE	130	ksf	19.89	1.12	82%	18%	1.45	21%	79%
Notes: 1. ksf=1000 sqft Floor Area										

Table 2 - 265 Sobrante Way Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
General Office Building	ksf	60.370	895	128	113	15	146	25	121
Research and Development Center	ksf	60.370	661	84	70	14	87	13	74
Existing Industrial Park	ksf	45.558	-906	-51	-42	-9	-66	-14	-52
Project Trip Generation			650	161	141	20	167	24	143
Peery Park Specific Plan Reduction Goal - 25%		25%		-40	-35	-5	-42	-6	-36
Net Project Trip Generation				121	106	15	125	18	107
Notes: 1. ksf=1000 sqft Floor Area									

Appendix I: Pending Cumulative Projects Trip Generation

Table 1 - 445 & 455 N Mary Avenue Development										
Average Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	KSF ¹	11.53	1.72	88%	12%	1.58	17%	83%
Notes: 1. KSF = 1,000 sq. feet gross floor area										

Table 2 - 445 & 455 N Mary Avenue Development									
Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
445 N Mary Avenue	KSF ¹	171.734	1,980	295	260	35	271	46	225
25% TDM Trip Reduction Goal			-495	-74	-65	-9	-68	-12	-56
Total External Trips			1,485	221	195	26	203	34	169
Notes: 1. KSF = 1,000 sq. feet gross floor area									

Appendix I: Pending Cumulative Projects Trip Generation

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
					General Office Building	ITE	710	ksf	8.08	1.28
Research and Development Center	ITE	760	ksf	7.12	1.00	83%	17%	0.94	15%	85%
Industrial Park	ITE	130	ksf	6.75	0.71	82%	18%	0.86	21%	79%

Notes: 1. KSF = 1,000 sq. feet gross floor area

Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
				General Office Building	ksf	755.700	6,106	965	849
Research and Development Center	ksf	755.700	5,383	754	626	128	707	106	601
Existing Office Building	ksf	384.333	-3,105	-491	-432	-59	-470	-80	-390
Existing Industrial Park	ksf	384.333	-2,596	-274	-225	-49	-330	-69	-261
Project Trip Generation			5,788	954	818	136	832	114	718
Peery Park Specific Plan Reduction Goal - 35%		35%		-334	-286	-48	-291	-40	-251
Net Project Trip Generation				620	532	88	541	74	467

Notes: 1. KSF = 1,000 sq. feet gross floor area

Appendix I: Pending Cumulative Projects Trip Generation

Table 1 - 623 Pastoria Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
General Office Building	ITE	710	ksf	15.03	2.15	88%	12%	2.50	17%	83%
Industrial Park	ITE	130	ksf	33.84	1.28	82%	18%	2.08	21%	79%

Notes: 1. KSF = 1,000 sq. feet gross floor area

Table 2 - 623 Pastoria Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
General Office Building	ksf	56.817	854	122	107	15	142	24	118	
Existing Industrial Park	ksf	23.520	-796	-30	-25	-5	-49	-10	-39	
Project Trip Generation			58	92	82	10	93	14	79	
Peery Park Specific Plan Reduction Goal - 20%		20%		-18	-16	-2	-19	-3	-16	
Net Project Trip Generation				74	66	8	74	11	63	

Notes: 1. KSF = 1,000 sq. feet gross floor area

Appendix I: Pending Cumulative Projects Trip Generation

Table 1 - 840 W California Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Research and Development Center	ITE	760	ksf	6.75	0.96	83%	17%	0.89	15%	85%
Notes: 1. KSF = 1,000 sq. feet gross floor area										

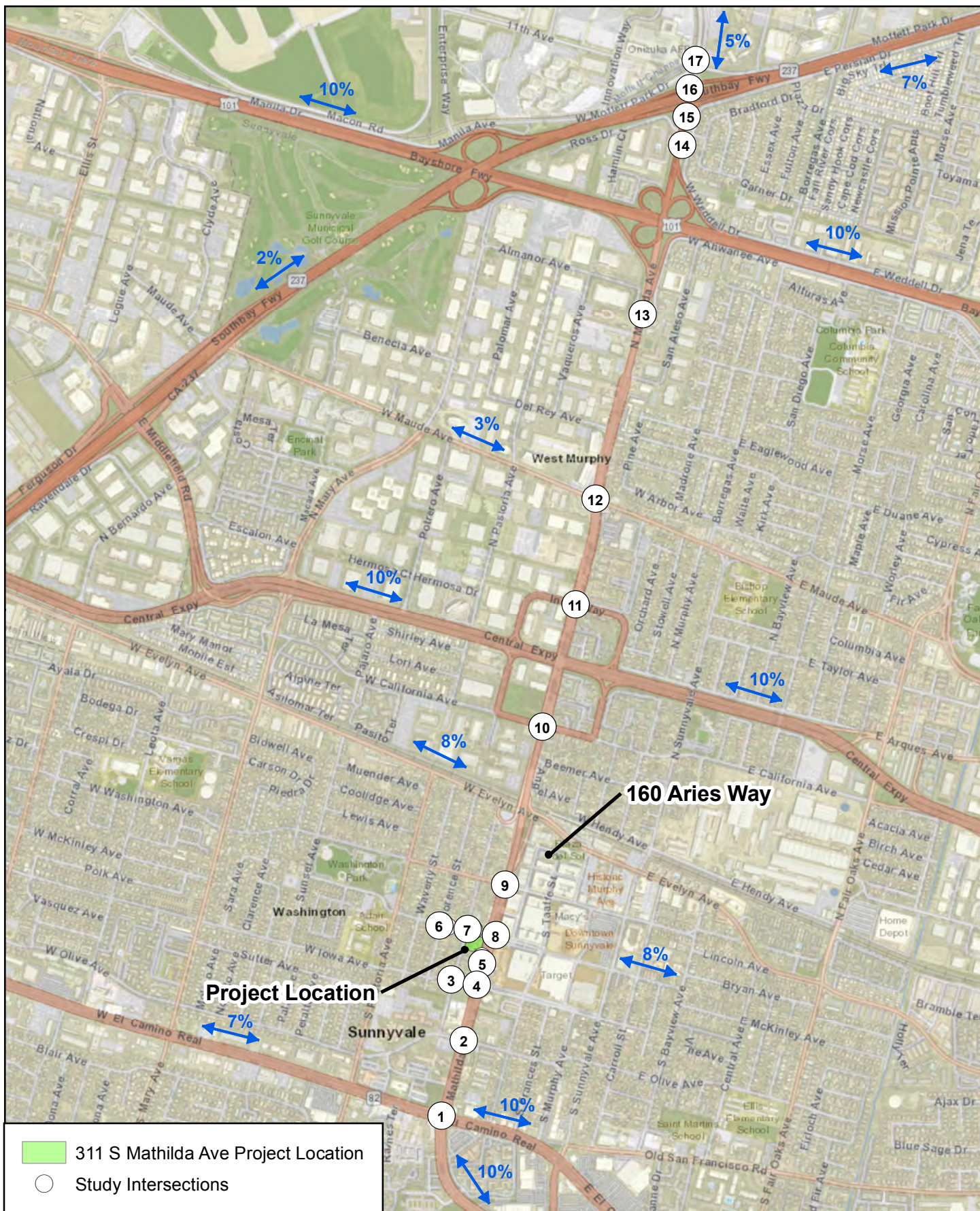
Table 2 - 840 W California Ave									
Trip Generation Volumes									
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Research and Development Center	ksf	1,039.834	7,015	996	827	169	921	138	783
Existing Research and Development Center	ksf	623.456	-4,206	-597	-496	-101	-552	-83	-469
Project Trip Generation			2,809	399	331	68	369	55	314
Peery Park Specific Plan Reduction Goal - 35%		35%		-140	-116	-24	-129	-19	-110
Net Project Trip Generation				259	215	44	240	36	204
Notes: 1. KSF = 1,000 sq. feet gross floor area									

Appendix I: Pending Cumulative Projects Trip Generation

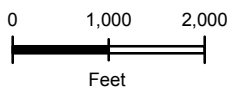
Table 1 - 528 S Mathilda Ave										
Trip Generation Rates										
Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Apartment	ITE	220	DU	9.32	0.58	20%	80%	1.03	65%	35%
Notes: 1. DU = Dwelling Unit										

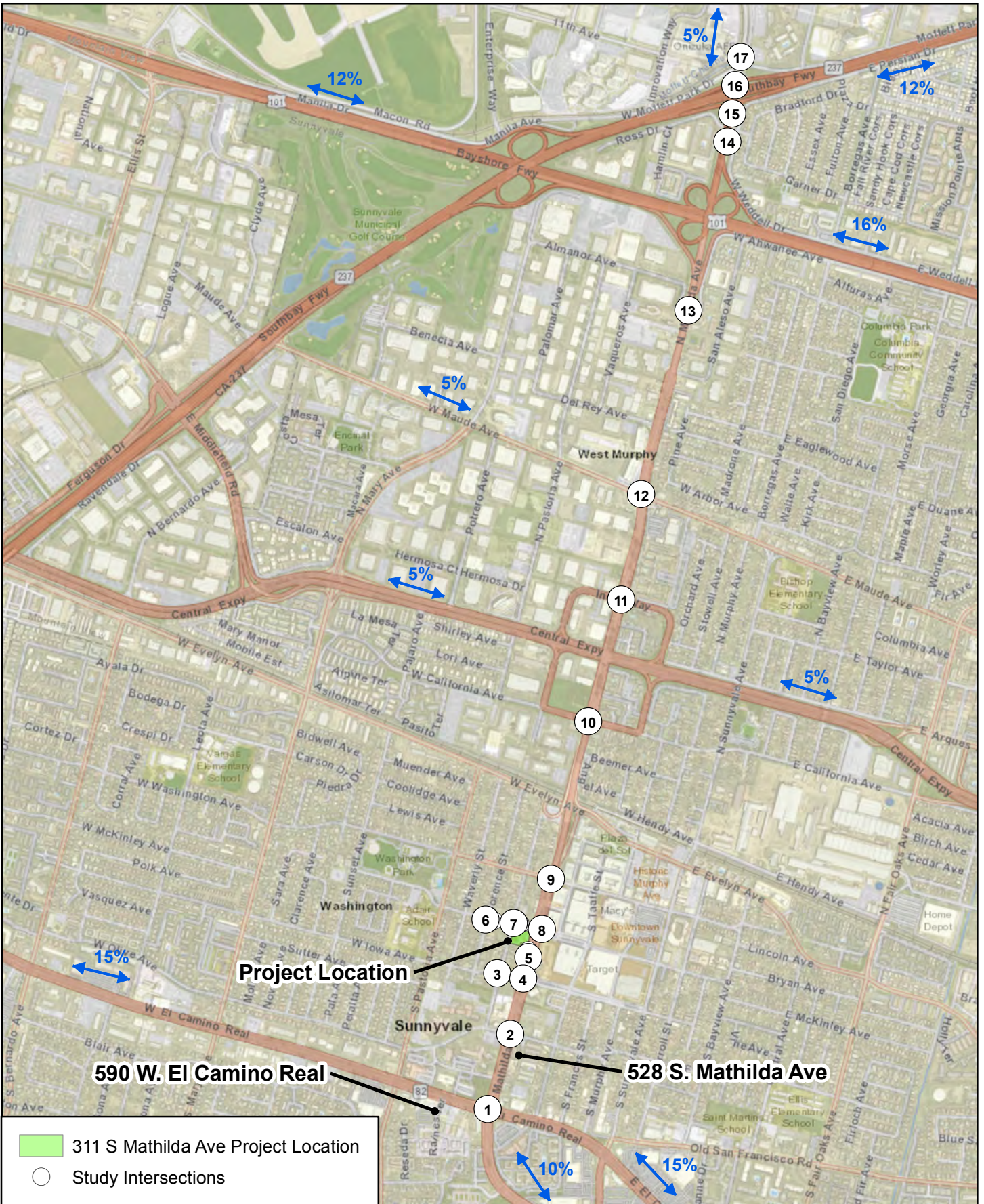
Table 2 - 528 S Mathilda Ave										
Trip Generation Volumes										
Land Use Category	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips			
				Total	In	Out	Total	In	Out	
Apartment	DU	38	354	22	4	18	39	25	14	
Existing Apartment	DU	8	-75	-5	-1	-4	-8	-5	-3	
Project Trip Generation			279	17	3	14	31	20	11	
VTA TIA Guidelines Trip Reduction-Proximity to Major Bus Stop		2%		0	0	0	-1	-1	0	
Net Project Trip Generation				17	3	14	30	19	11	
Notes: 1. DU = Dwelling Unit										

Appendix J
Pending Cumulative Projects Trip Distribution

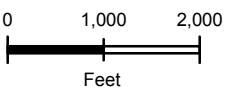


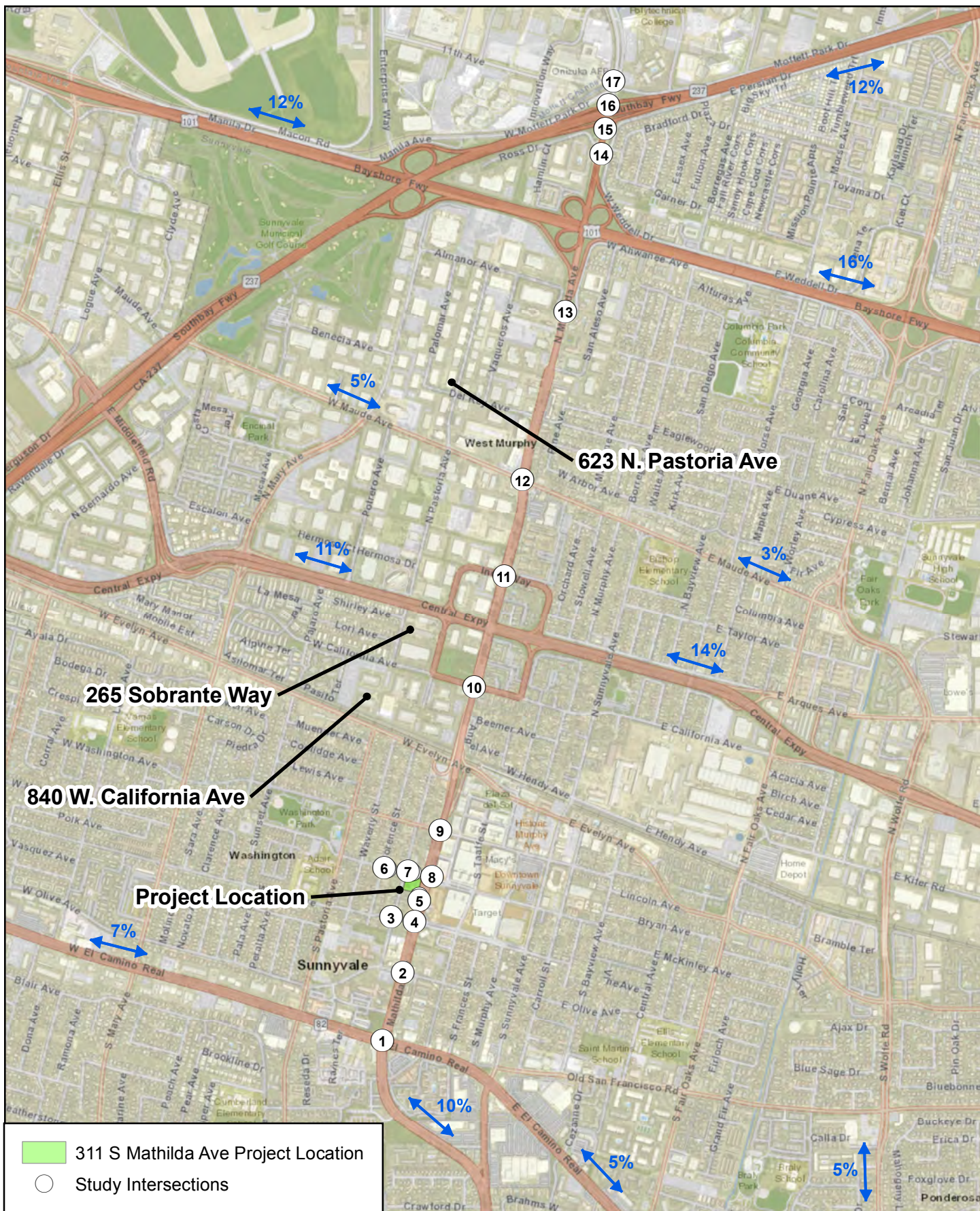
Appendix J - Pending Cumulative Projects Trips Distribution #1
 160 Aries Way
 Sunnyvale, CA
 May 2018



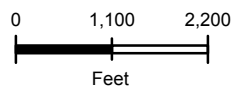


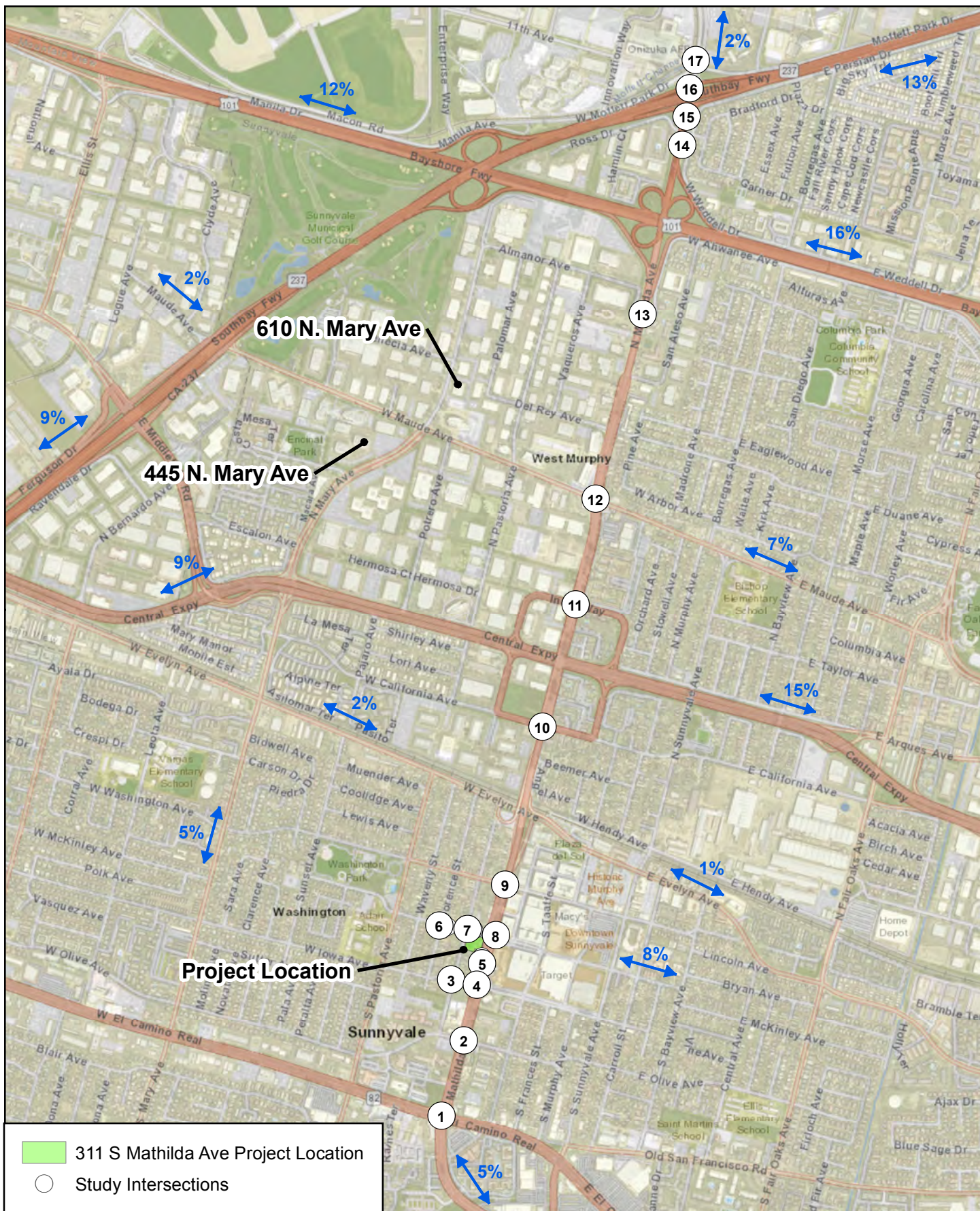
Appendix J - Pending Cumulative Projects Trips Distribution #2
 528 S. Mathilda Ave, 590 W. El Camino Real
 Sunnyvale, CA
 May 2018



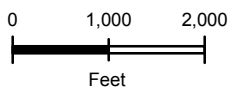


Appendix J - Pending Cumulative Projects Trips Distribution #3
 623 N. Pastoria Ave, 265 Sobrante Way, 840 W. California Ave
 Sunnyvale, CA
 May 2018

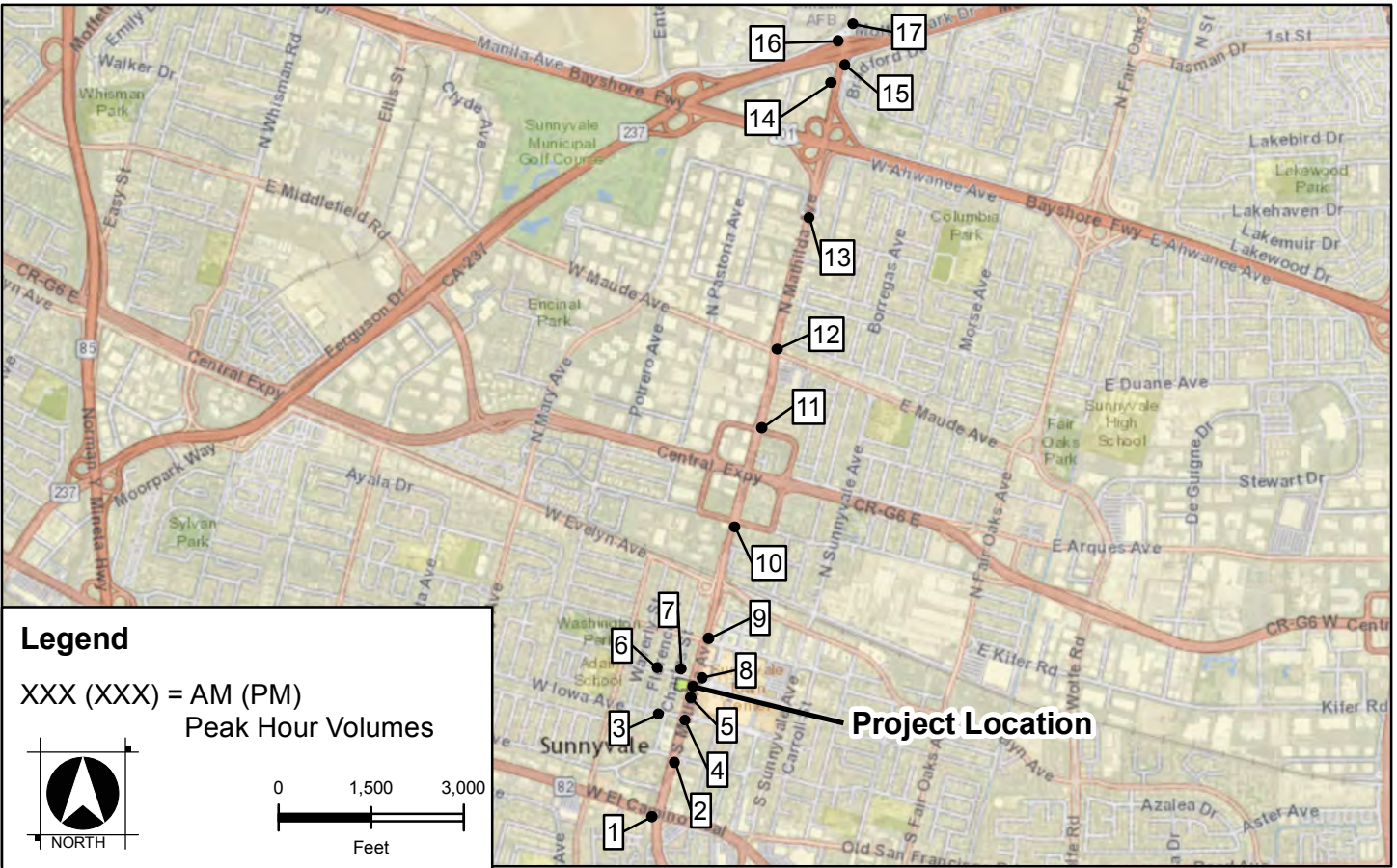




Appendix J - Pending Cumulative Projects Trips Distribution #4
 610 N. Mary Ave, 445 N. Mary Ave
 Sunnyvale, CA
 May 2018



Appendix K
Pending Cumulative Projects Volumes



1	Mathilda Ave / El Camino Real

2	Mathilda Ave / Olive Ave

3	Charles St / Iowa Ave

4	Mathilda Ave / Iowa St

5	Mathilda Ave / Project Dwy (Restaurant)

6	Charles St / McKinley Ave

7	Project Dwy (Residential) / McKinley Ave

8	Mathilda / McKinley Ave

Pending Cumulative Projects Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018





Pending Cumulative Projects Volumes
 311 South Mathilda Avenue TIA
 Sunnyvale, CA
 May 2018

Appendix K-2



Appendix L
Cumulative Fair-Share Percentage Estimates for Study
Intersections

APPENDIX ATTACHMENT L-1 311 South Mathilda Avenue Traffic Impact Analysis PROJECT FAIR-SHARE PERCENTAGE ESTIMATES FOR STUDY INTERSECTIONS					
#	Intersection	Volumes			Cumulative Fair Share Percentage
		Project Only Volumes (T)	Cumulative Volumes (T _B)	Existing Volumes (T _E)	
1	Mathilda Ave / El Camino Real	16	8,389	5,869	0.6%
2	Mathilda Ave / Olive Ave	15	5,465	3,621	0.8%
3	Charles St / Iowa Ave	2	544	364	1.1%
4	Mathilda Ave / Iowa St	23	5,638	3,275	1.0%
5	Mathilda Ave / Project Dwy (Restaurant)	42	5,511	3,370	100.0%
6	Charles St / McKinley Ave	2	591	391	1.0%
7	Project Dwy (Residential) / McKinley Ave	32	439	315	100.0%
8	Mathilda / McKinley Ave	47	6,233	3,647	1.8%
9	Mathilda / Washington Ave	32	7,693	4,533	1.0%
10	Mathilda Ave / California Ave	31	8,596	5,230	0.9%
11	Mathilda Ave / Indio Ave	25	7,425	4,472	0.8%
12	Mathilda Ave / Maude Ave	20	7,992	5,097	0.7%
13	Mathilda Ave / Almanor Ave	18	6,805	4,361	0.7%
14	Mathilda Ave / Ross Dr	6	5,761	3,739	0.3%
15	Mathilda Ave / SR 237 Eastbound Ramps	6	5,876	3,537	0.3%
16	Mathilda Ave / SR 237 Westbound Ramps	6	5,882	3,389	0.2%
17	Mathilda Ave / Moffett Park Dr	3	5,597	3,262	0.1%

Notes: Caltrans Fair-Share Formula: Project Fair Share = $[T / (T_B - T_E)] * 100 \%$
T = Project only (311 South Mathilda Ave Development), T_B = "Cumulative Base plus Project" Volumes, T_E = "Existing" Volumes
PM Peak Hour Volumes were used for fair-share computation purposes.
Project Impact significance determined based on agency significance thresholds policies

Draft

APPENDIX ATTACHMENT L-2
Affordable Housing Development
PROJECT FAIR-SHARE PERCENTAGE ESTIMATES FOR STUDY INTERSECTIONS

Draft

#	Intersection	Volumes			Cumulative Fair Share Percentage
		Project Only Volumes (T)	Cumulative Volumes (T _B)	Existing Volumes (T _E)	
1	Mathilda Ave / El Camino Real	24	8,390	5,869	1.0%
2	Mathilda Ave / Olive Ave	24	5,466	3,621	1.3%
3	Charles St / Iowa Ave	10	543	364	5.6%
4	Mathilda Ave / Iowa St	80	5,639	3,275	3.4%
5	Mathilda Ave / Project Dwy (Restaurant)	52	5,513	3,370	2.4%
6	Charles St / McKinley Ave	6	589	391	3.0%
7	Project Dwy (Residential) / McKinley Ave	0	437	315	0.0%
8	Mathilda / McKinley Ave	52	6,233	3,647	2.0%
9	Mathilda / Washington Ave	53	7,695	4,533	1.7%
10	Mathilda Ave / California Ave	48	8,597	5,230	1.4%
11	Mathilda Ave / Indio Ave	40	7,426	4,472	1.4%
12	Mathilda Ave / Maude Ave	30	7,994	5,097	1.0%
13	Mathilda Ave / Almanor Ave	28	6,807	4,361	1.1%
14	Mathilda Ave / Ross Dr	10	5,761	3,739	0.5%
15	Mathilda Ave / SR 237 Eastbound Ramps	10	5,877	3,537	0.4%
16	Mathilda Ave / SR 237 Westbound Ramps	7	5,883	3,389	0.3%
17	Mathilda Ave / Moffett Park Dr	4	5,597	3,262	0.2%

Notes: Caltrans Fair-Share Formula: Project Fair Share = $[T / (T_B - T_E)] * 100 \%$

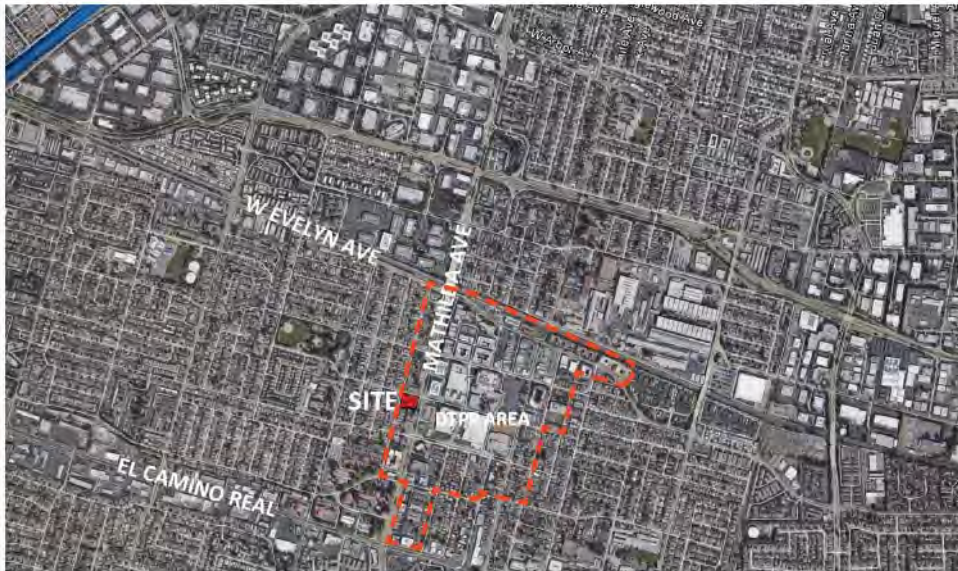
T = Project only (Assisted Living Ave Development), T_B = "Cumulative Base plus Project" Volumes, T_E = "Existing" Volumes

PM Peak Hour Volumes were used for fair-share computation purposes.

Project Impact significance determined based on agency significance thresholds policies

Appendix M
Project Site Plan

VICINITY MAP:



PROPERTY INFORMATION:

Site Address: 311 S Mathilda Avenue, Sunnyvale, CA 94086
 APN: 165-13-050
 Site Area: 1.01
 Existing Use: Commercial
 Proposed Use: Commercial, Multi-family Residential
 Density: 54 du/acre
 Proposed Density: 75 du/acre
 (54 x 0.05 Green Building Bonus = +2 units)
 (2+54 x 1.35 SDB = 75 units allowed)

PROJECT TEAM:

APPLICANT:
 LANE PARTNERS
 644 Menlo Avenue 2nd Floor
 Menlo Park, CA 94025
 Contact: MARCUS GILMOUR
 Phone: 650.838.0100

APPLICANT:
 BAY WEST DEVELOPMENT
 1725 S. Bascom Ave, Suite 1050
 Campbell, CA 95008
 Contact: PETE BERITZHOFF
 Phone: 408.680.4938

ARCHITECT/PLANNER:
 STUDIO T-SQ, INC.
 304 12th Street, Suite 2A
 Oakland, CA 94607
 Contact: DOUGLAS OLIVER
 Phone: 510.451.2850

CIVIL ENGINEER:
 BKF ENGINEERS
 4670 Willow Rd, Suite 250
 Pleasanton, CA 94588
 Contact: ALEXIS MATUSEK
 Phone: 925.396.7700

LANDSCAPE:
 SAW // SPIEGEL AIHARA WORKSHOP
 2325 3rd ST, Suite 216
 San Francisco, CA 94107
 Contact: MEGUMI AIHARA
 Phone: 415.890.4725

TRASH MANAGEMENT
 AMERICAN TRASH MANAGEMENT
 1900 Powell Street, STE 890
 Emeryville, CA 94608
 Contact: Scott Brown
 Phone: 415.292.5401

PROJECT DESCRIPTION:

311 Mathilda is a mixed-use project located on the corner of McKinley and S Mathilda in Sunnyvale. The project comprises of 5,000 square foot of commercial frontage along Mathilda that will replace the existing Denny's restaurant. The residential component will be made up of 75 units with some allotted for below market rate. On Charles Street side, four townhouse type units line the frontage to reduce the scale towards the single family neighborhood. A central podium courtyard provides open space for the residents. This layout provides a small-scale appearance along Charles Street.

UTILITY ENGINEER:
 GIACALONE DESIGN SERVICES, INC.
 5820 Stoneridge Mall Rd Ste 345,
 Pleasanton, CA 94588
 Contact: ANDREW CUMMINS
 Phone: 925.467.1740

MEP ENGINEERS:
 ALFA TECH
 1321 Ridder Park Drive, No. 50
 San Jose, CA 95131
 Contact: Saied Nazeri
 Phone: 408.487.1200

STRUCTURAL ENGINEER
 HOHBACH-LEWIN, INC
 260 Sheridan Ave, Suite 150
 Palo Alto, CA 94306
 Contact: Dan Lewin
 Phone: 650.617.5930

SHEET INDEX:

G1.0 Project Summary	L1.0 Landscape Concept Plan
SP1.0 Vicinity Map and Existing Site Photos	L4.0 Landscape Planting Plan
SP1.1 Illustrative Site Plan	L5.0 Landscape Hydrozone Plan
SP1.2 Circulation Diagram	C0.0 Civil Cover Sheet
SP1.3 Fire Access Plan	C1.0 Existing Conditions Plan
SP1.4 Open Space Calculation	C2.0 Proposed Civil Site Plan
SP1.5 Shadow Study	C3.0 Preliminary Grading Plan
A2.0 Basement Level Plan	C4.0 Preliminary Utility Plan
A2.1 Street Level Plan	C5.0 Preliminary Stormwater Control Plan
A2.2 Podium Level Plan	INT1 Joint Trench Intent Title Sheet
A2.3 Third Level Plan	INT2 Joint Trench Intent Plan
A2.4 Fourth Level Plan	T0.1 Residential Trash Collection Plan
A2.5 Fifth Level Plan	T0.2 Restaurant Trash Collection Plan
A2.6 Roof Level Plan	T1.1 Restaurant Bin Movement Plan
A3.0 Building Elevation and Perspective	T1.2 Path of Travel Plan
A3.1 Building Elevation and Perspective	T2.0 Chute Details
A3.2 Building Elevation and Perspective	
A3.3 Building Elevation and Perspective	
A3.4 Color and Material Board	
A4.0 Building Sections	
A4.1 Building Sections	
A4.2 Schematic Detail	
A4.3 Schematic Detail	
A5.0 Unit Plans	
A5.1 Unit Plans	
A5.2 Unit Plans	
A5.3 GreenPoint Rated Check List	

BUILDING PROGRAM:

UNITS	Quan.	N.S.F.	Mix	Rentable S.F.	Parking Provided
Studios Total	8	596	10.7%	4,765	8
1BR Units Total	41	764	54.7%	31,338	41
2BR Units Total	26	1376	34.7%	35,777	26
ALL UNITS -TOTAL	75	958	100.0%	71,880	75

RESIDENTIAL	
Residential Parking Required (.5 per bedroom)	51
Guest Parking Provided	7
Total Residential Parking Provided (3 Accessible)	82
Residential Bike Parking Required (1 per 4 units)	19
Residential Bike Parking Provided	54

COMMERCIAL	
Existing Commercial	4,057 SF
Proposed Commercial	4860
Commercial Parking Required (1 per 110 SF)	44
Commercial Parking Provided (2 Accessible Stalls)	47

STORAGE REQUIRED (200 cu ft per S/1 BD, 300 cu ft per 2+ BD)		
# of storage per level	200 cu ft	17,600
Level B1	22	18
Level 1	0	0
Level 2	5	2
Level 3	7	2
Level 4	5	2
Level 5	10	2
Total	49	26

STORAGE PROVIDED (Partially on decks / remainder in garage)	17,600
COMMON OPEN SPACE REQUIRED: (50 square feet required per unit)	3,750
COMMON OPEN SPACE PROVIDED: (roof deck and courtyard)	5,035

OPEN AREA	
Site Area SF	44111
Building Coverage SF	31910
Courtyard SF	4285
Roof Deck	750
Private Balcony	3465
OPEN AREA PROVIDED	8509

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PROJECT SUMMARY

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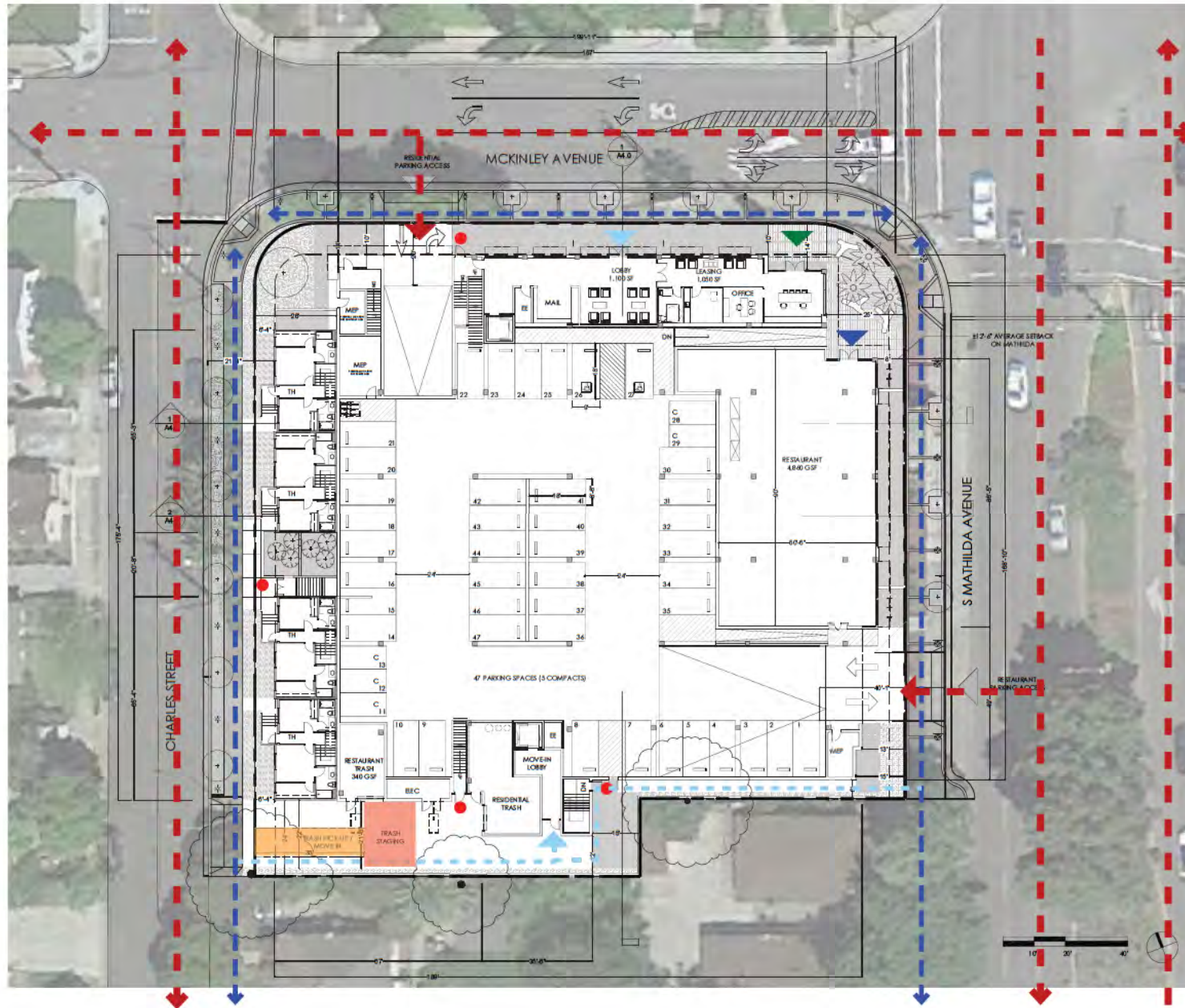
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ILLUSTRATIVE SITE PLAN

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Sheet No:
SP1.1



- PUBLIC PEDESTRIAN CIRCULATION
- PRIVATE PEDESTRIAN CIRCULATION
- VEHICULAR CIRCULATION
- TRASH STAGING AREA
- MOVE IN / TRASH PICK-UP
- ▲ RESIDENTIAL PEDESTRIAN ACCESS
- ▲ VEHICULAR ACCESS
- ▲ VISITOR PEDESTRIAN ACCESS
- ▲ COMMERCIAL PEDESTRIAN ACCESS
- EMERGENCY EXIT ONLY



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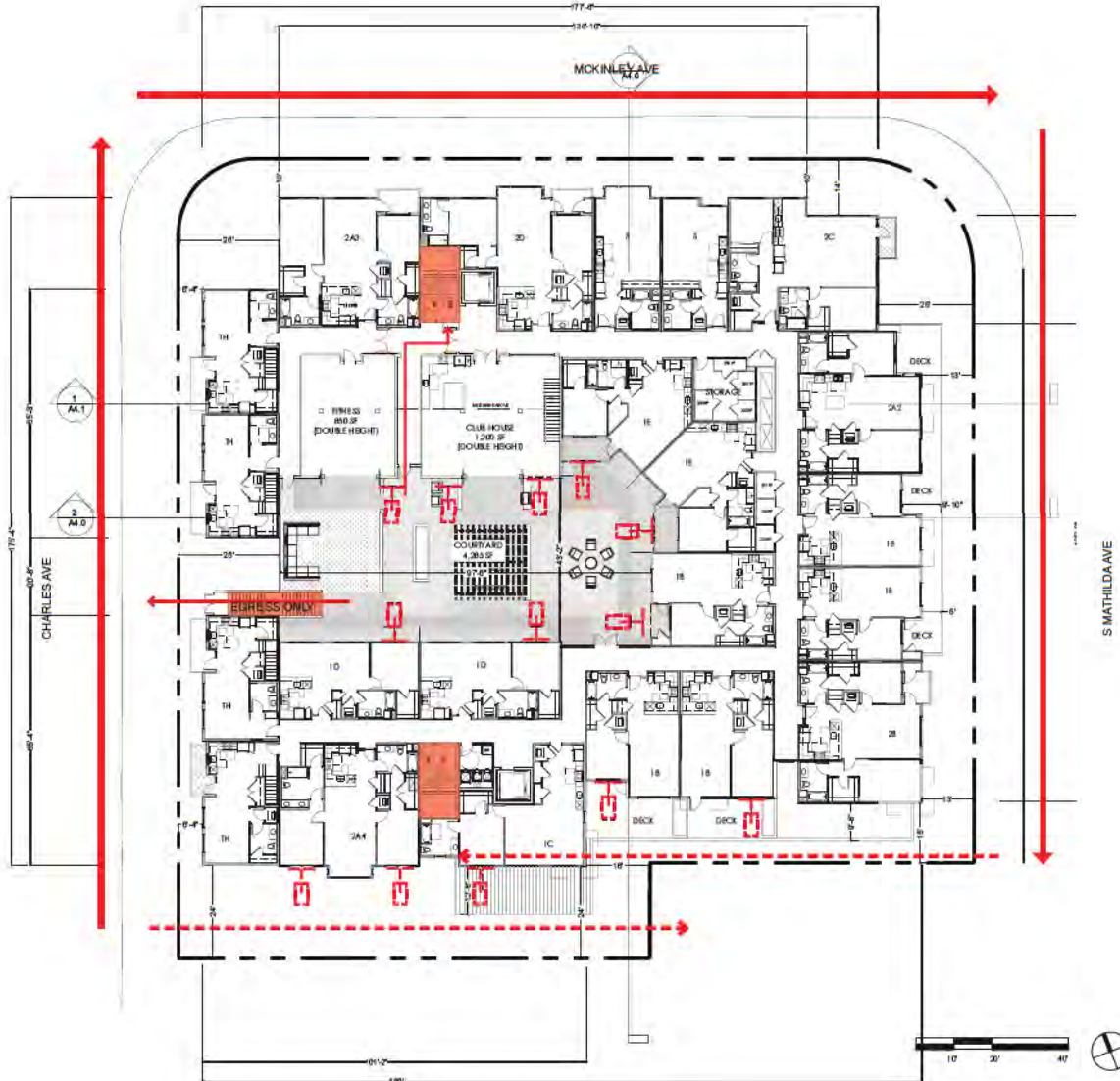
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CIRCULATION DIAGRAM

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- 150' FIRE HOSE REACH
- COURTYARD EGRESS
- FIRE TRUCK CIRCULATION
- FIRE LADDER PAD



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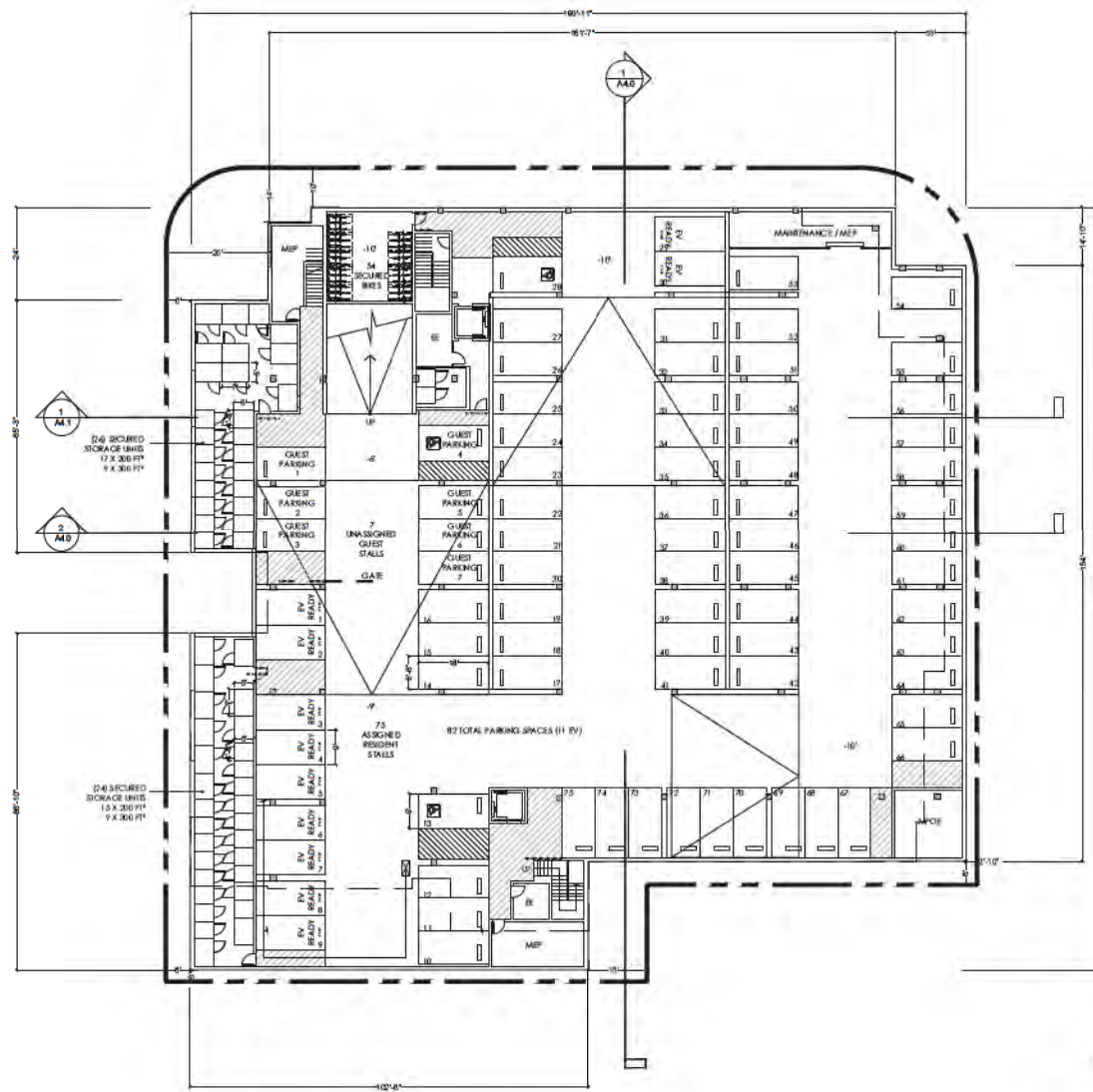
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
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FIRE ACCESS PLAN

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STORAGE		
STORAGE TYPE	CUB FT	QUANTITY
	200 FT ³	32
	200 FT ³	17
	300 FT ³	28



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Sheet Title:
BASEMENT LEVEL PLAN

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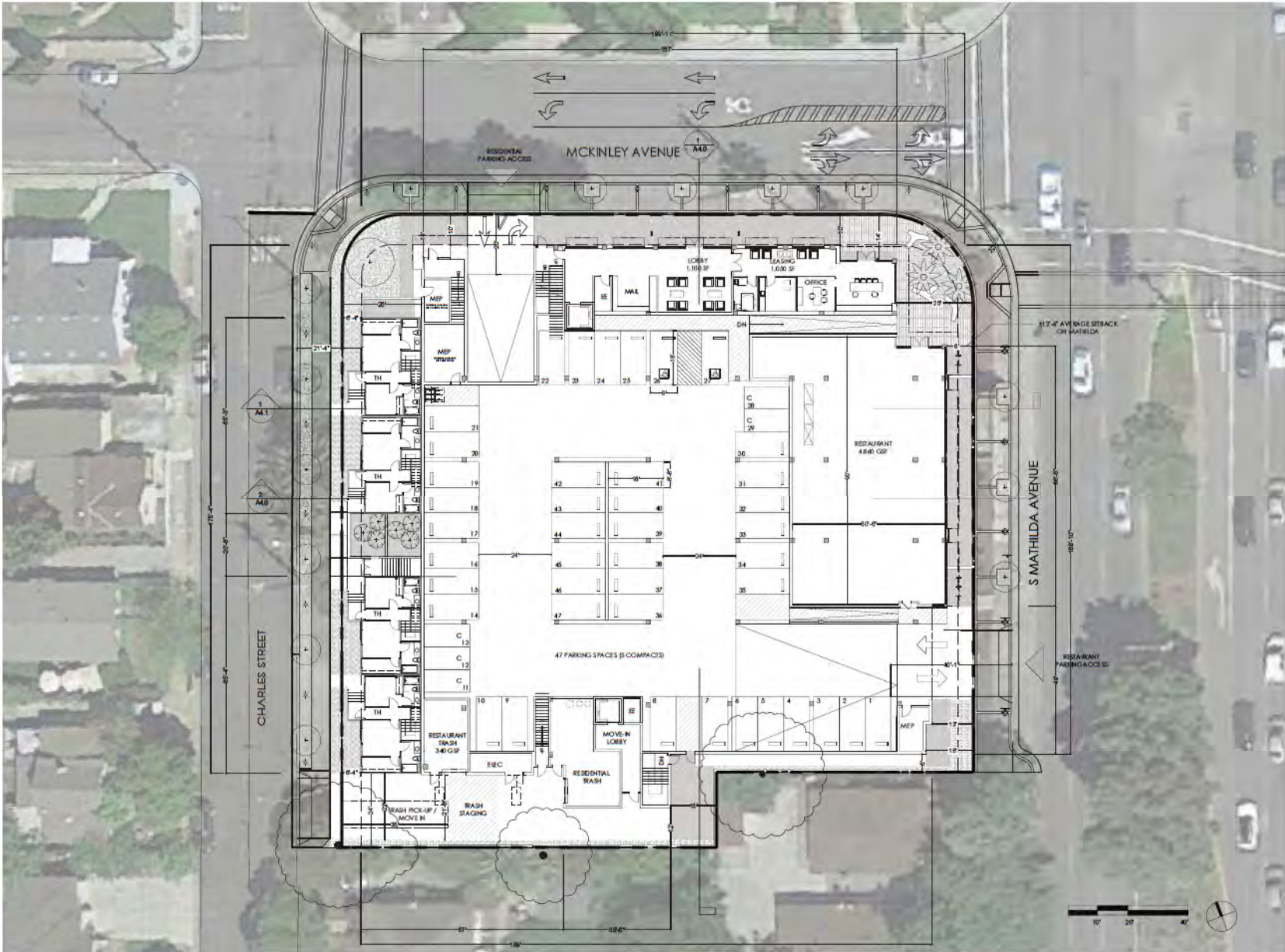
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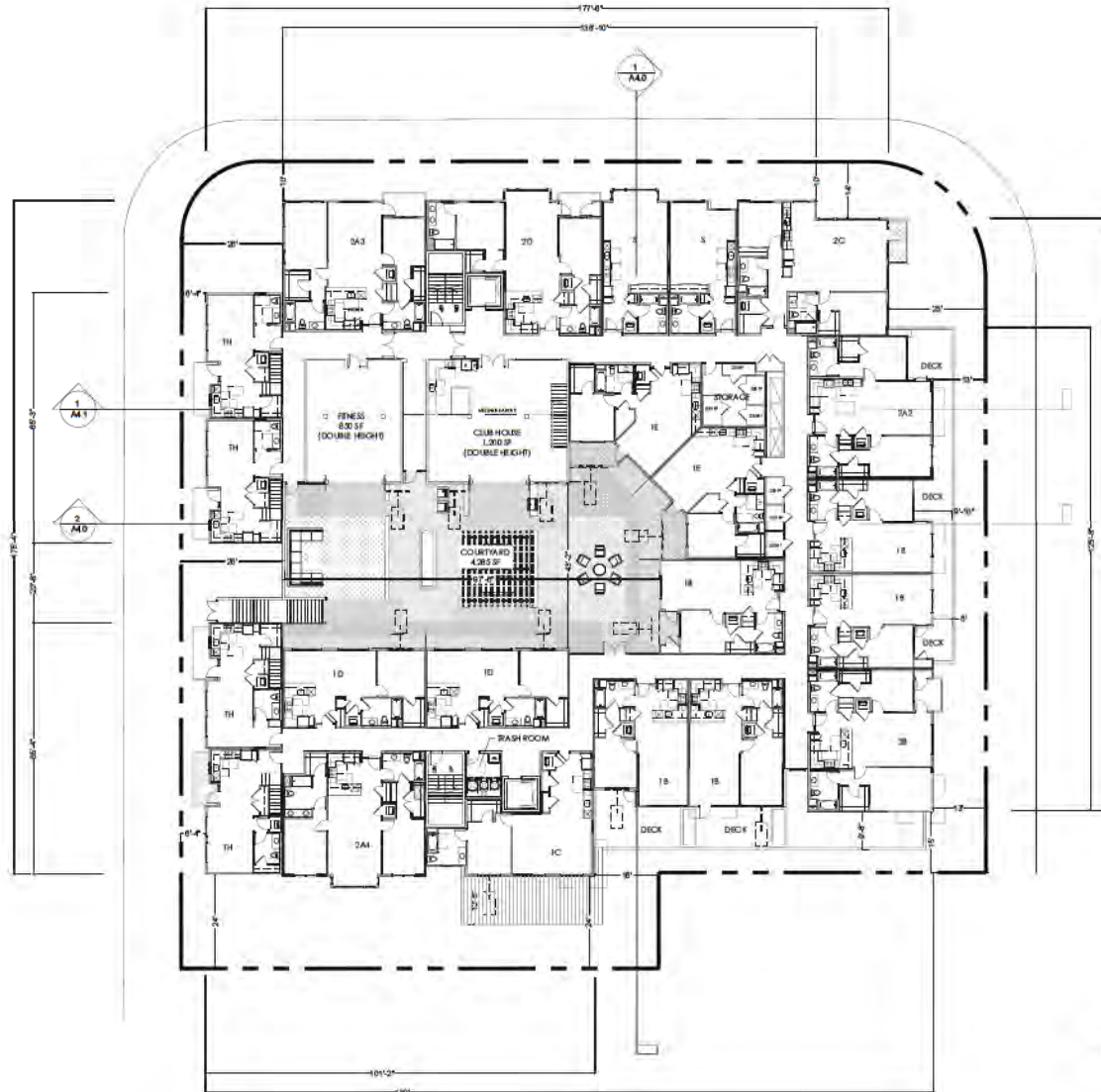
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**STREET LEVEL
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*MATHILDA AVERAGE SETBACK = (25 x 17.8% + 8 x 52.6% + 13' x 29.6%) / 164' (TOTAL FRONTAGE) = ±12'-6" AVERAGE



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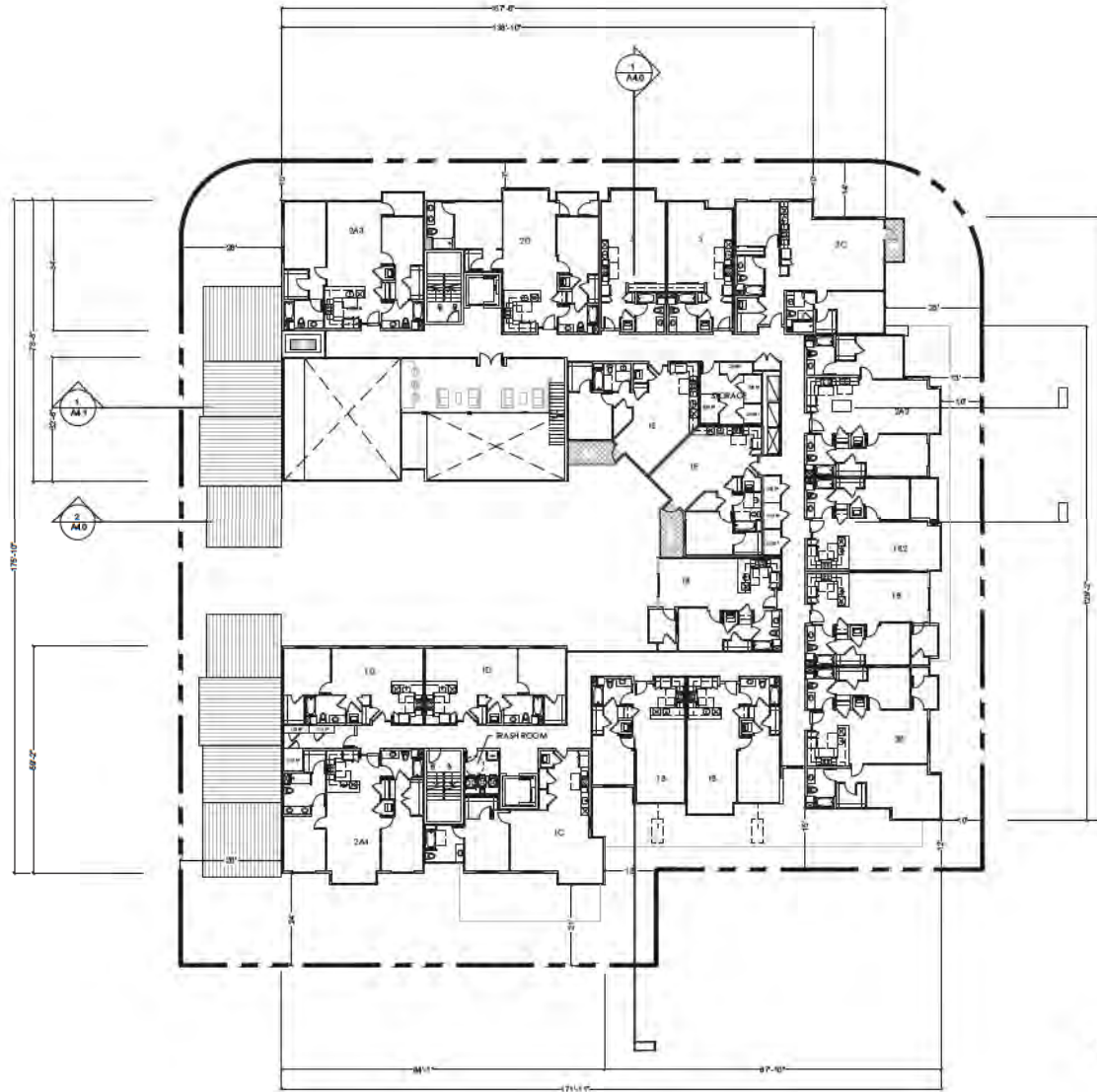
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**PODIUM LEVEL
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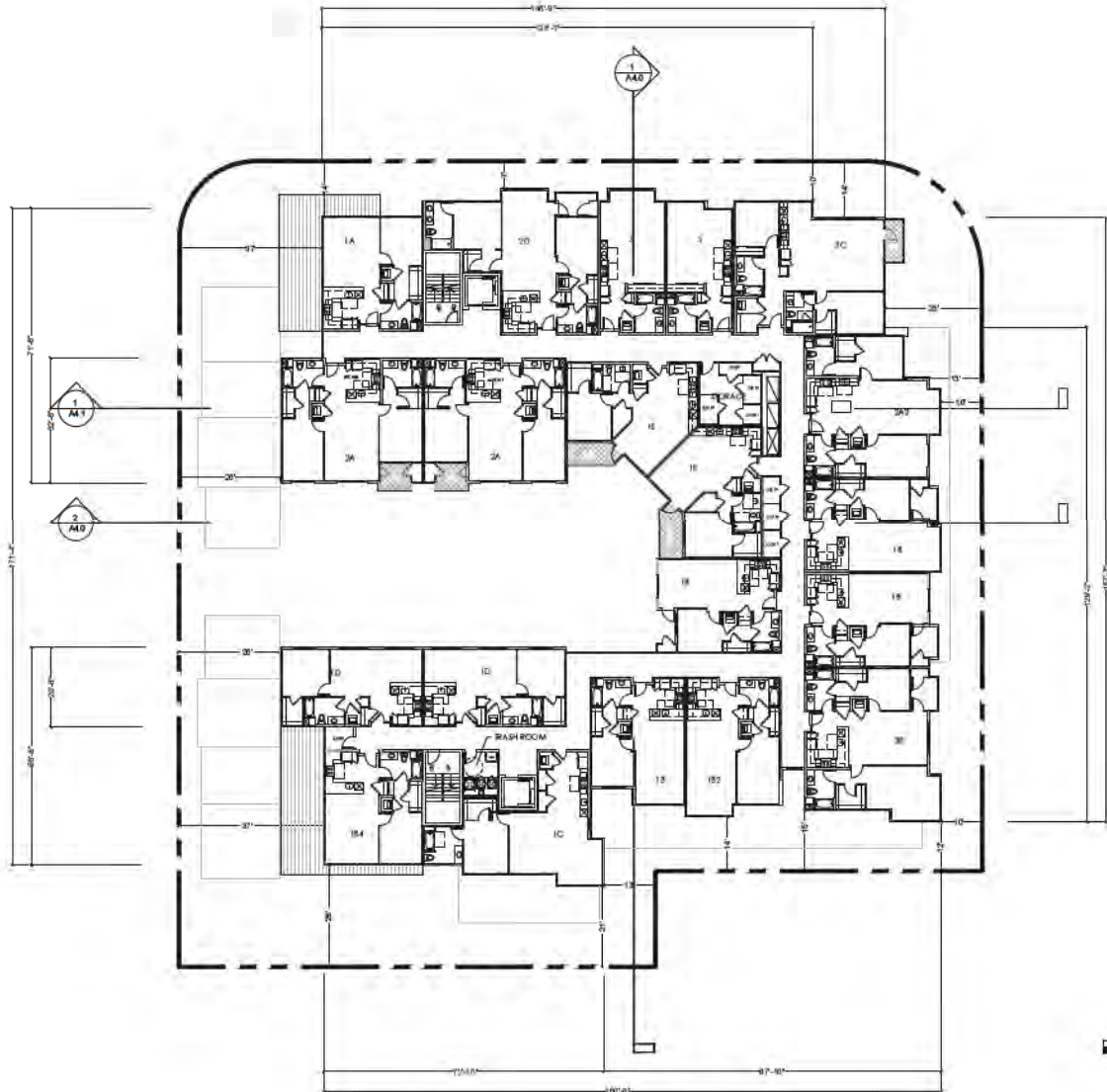
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THIRD LEVEL PLAN

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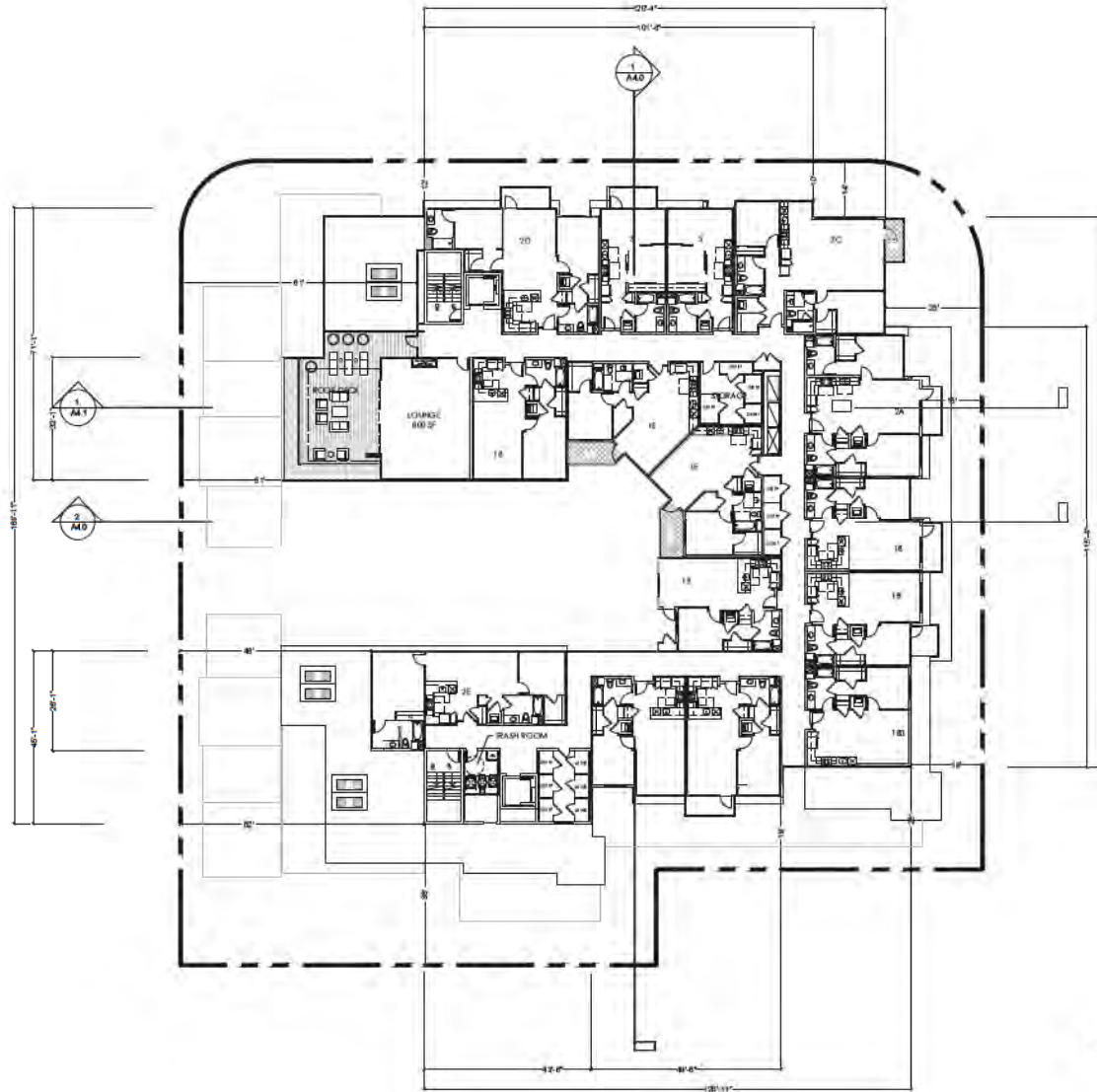
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Sheet Title:
**FOURTH LEVEL
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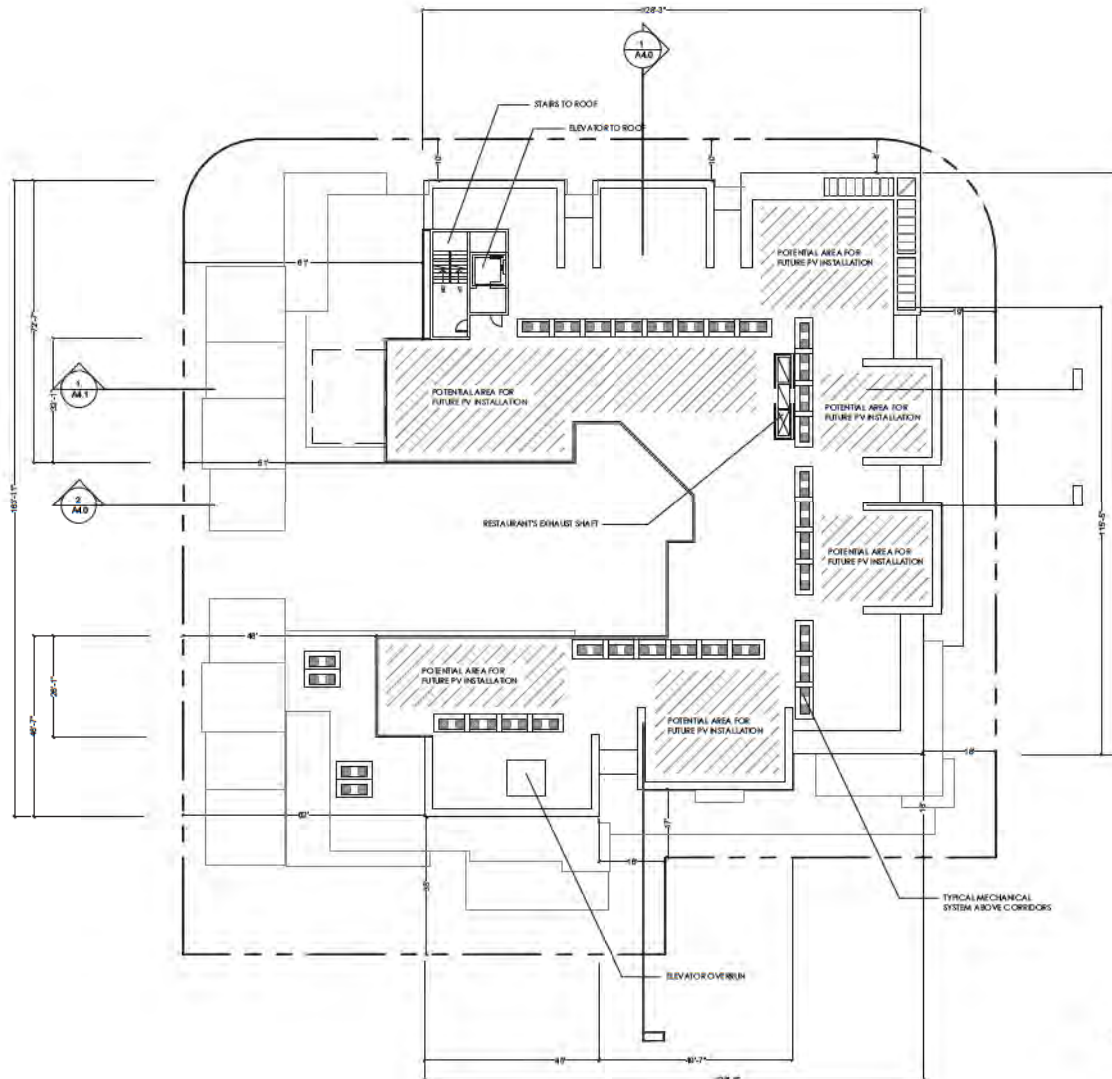
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FIFTH LEVEL PLAN

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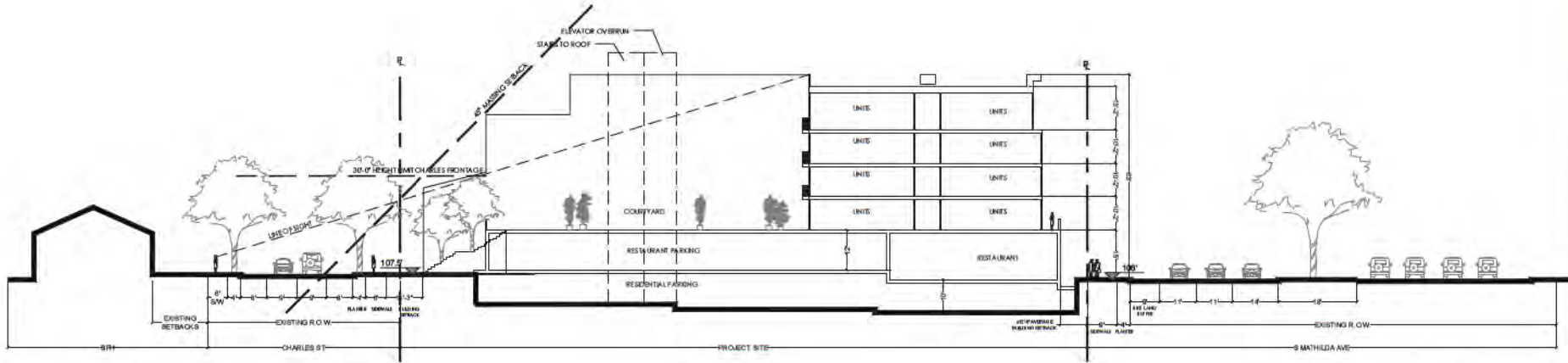
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Sheet Title:
ROOF LEVEL PLAN

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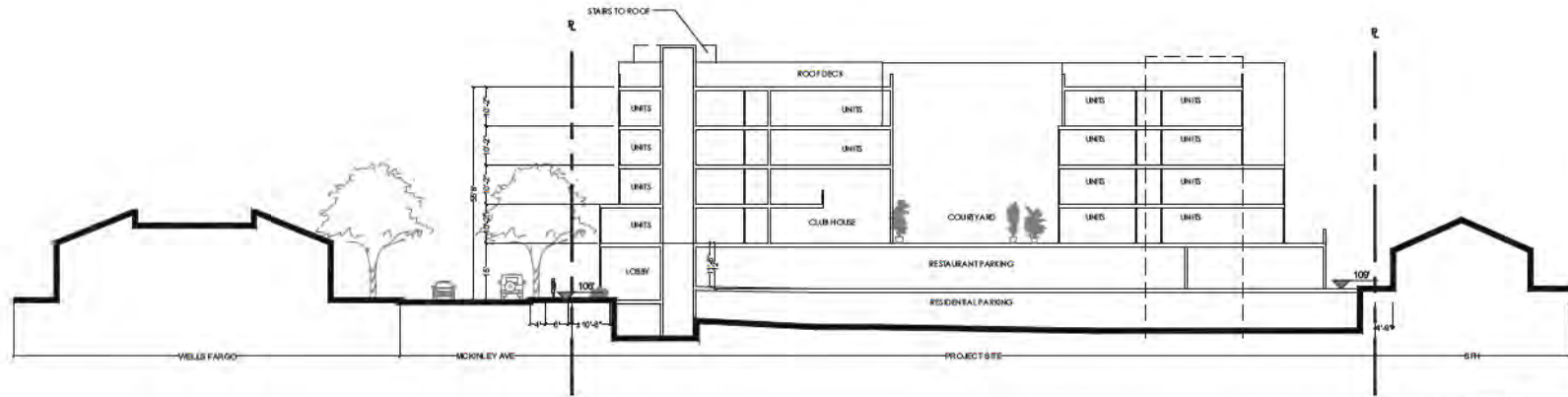
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10' 20' 40'

SECTION 2

SCALE: 1/16" = 1'-0"



10' 20' 40'

SECTION 1

SCALE: 1/16" = 1'-0"



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Sheet Title:
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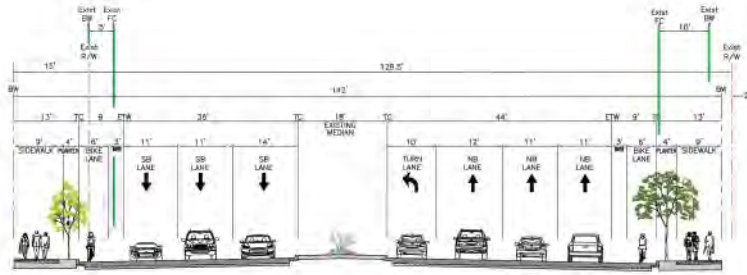


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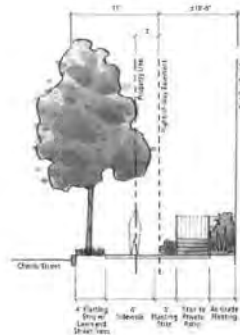
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DTTP-MATHILDA AVENUE SECTION

3

N.T.S.

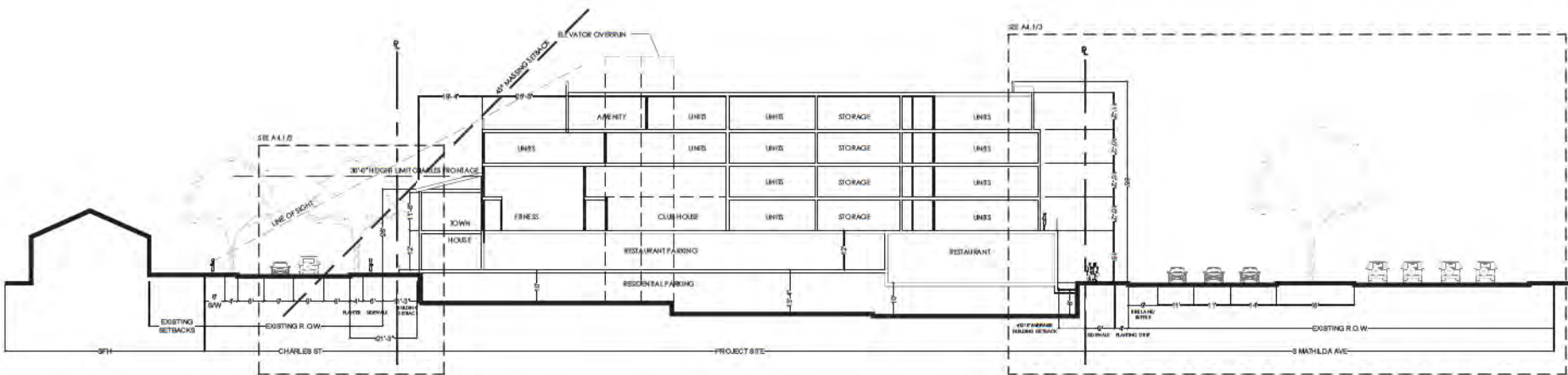


481 MATHILDA PROPOSED CHARLES AVENUE SECTION

DTTP-CHARLES AVENUE SECTION

2

N.T.S.



10' 20' 40'

SECTION 1

1

SCALE: 1/16" = 1' - 0"

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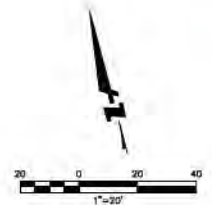
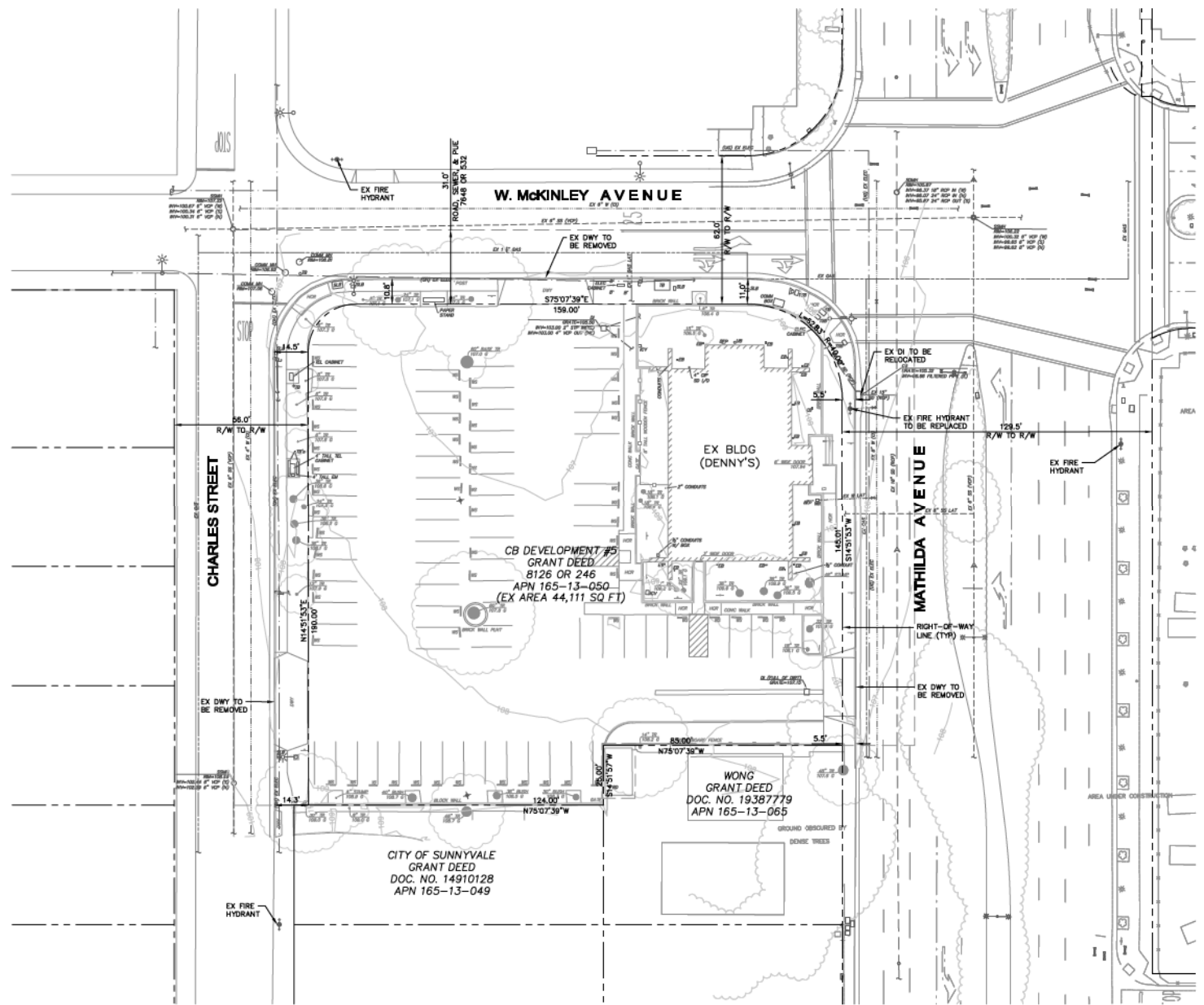
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Sheet Title:
BUILDING SECTIONS

Job No: 18064
Date: 3/2/2018
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DRAWING NAME: N:\SUNNYVALE\170000_311_S_Mathilda\DWG\PLANNING\SHEETS\01_MAPLX.dwg
PLOT DATE: 03-10-18 PLOTTED BY: GMS



- LEGEND:**
- PROPERTY LINE
 - - - EXISTING CONTOUR
 - AREA/YARD LIGHT
 - ⊕ ELECTRODER
 - ⊙ FIRE HYDRANT
 - ⊙ SIGN
 - ⊙ STREET LIGHT
 - ⊙ GUY WIRE
 - ⊙ JOINT POLE/POWER POLE
 - ⊙ WATER VALVE
 - ⊙ SIGNAL LIGHT

- NOTES:**
1. LOT LINES AND TOPOGRAPHY BASED ON TOPOGRAPHIC SURVEY BY BKF ENGINEERS ON 02/01/17.
 2. ALL DIMENSIONS ARE TO FACE OF CURB OR PROPERTY LINE UNLESS NOTED OTHERWISE.

- ABBREVIATIONS:**
- B BOLLARD
 - BFP BACKFLOW PREVENTER
 - BLDG COR BUILDING CORNER
 - BW BACK OF WALK
 - CB CATCH BASIN
 - CCP CONCRETE PAD
 - CP CAST IRON PIPE
 - COMM COMMUNICATION
 - CONC CONCRETE
 - D DROP INLET
 - EB ELECTRICAL BOX
 - EP EDGE OF PAVEMENT
 - HCR HANDICAP RAMP
 - ICV IRRIGATION CONTROL VALVE
 - MANH MANHOLE
 - SD STORM DRAIN
 - SD I/O STORM DRAIN INLET/OUTLET
 - SDMH STORM DRAIN MANHOLE
 - SLB STREET LIGHTING BOX
 - SSMH SANITARY SEWER MANHOLE
 - TB TELEPHONE BOX
 - TLL TELEPHONE
 - TSSB TRAFFIC SIGNAL BOX
 - UB UTILITY BOX
 - WM WATER METER
 - WS WHEEL STOP



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311 Mathilda
311 S Mathilda Ave. Sunnyvale, CA 94088

Lane Partners / Bay West Development
Lane Partners, 644 Menlo Ave, 2nd Floor, Menlo Park, CA 94025
Bay West: 1725 S. Bascom Ave, Suite 1050, Campbell, CA 95008

Sheet Title:
EXISTING CONDITIONS PLAN

Job No. 20177004
Date: 03/21/2018
Scale: PER PLAN
Drawn By: KA

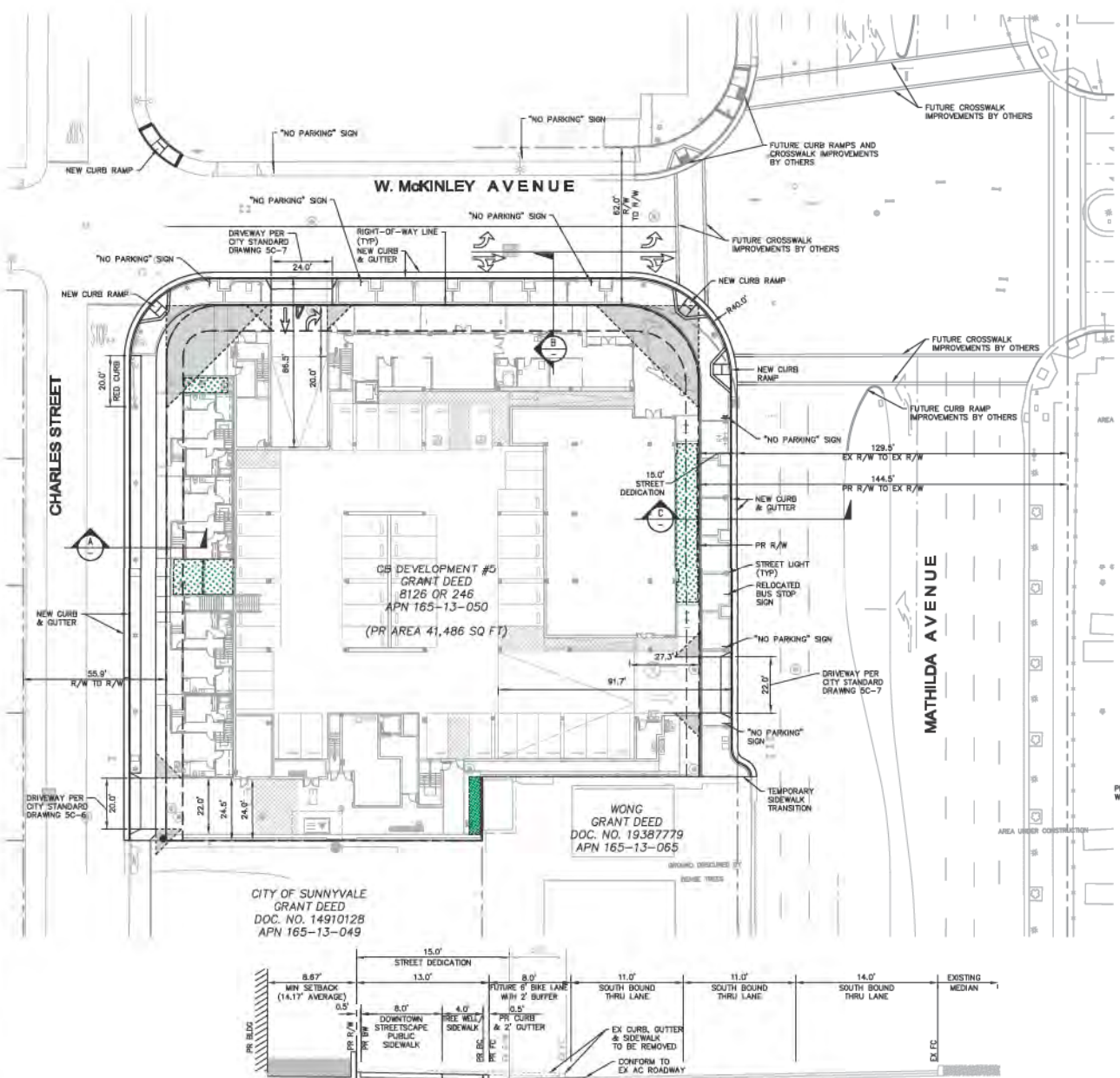
Sheet No:
C1.0

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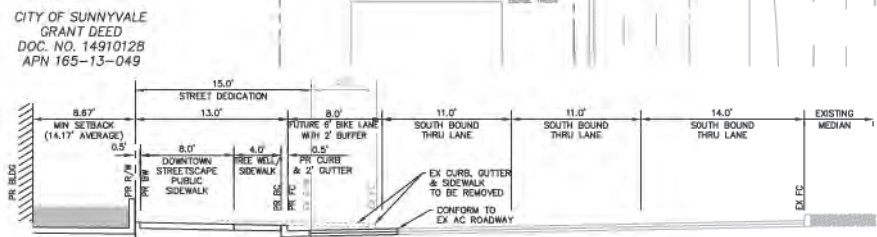
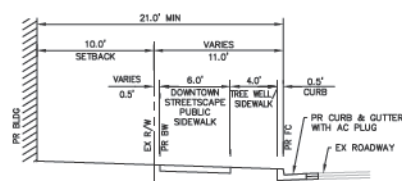
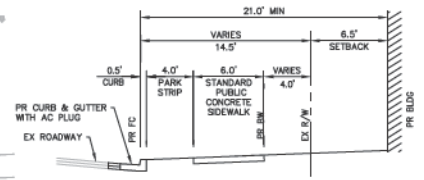
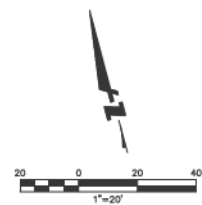
311 Mathilda
311 S Mathilda Ave, Sunnyvale, CA 94088

Lane Partners / Bay West Development
Lane Partners 644 Menlo Ave, 2nd Floor, Menlo Park, CA 94025
Bay West: 1726 S. Bascom Ave, Suite 1050, Campbell, CA 95008

Sheet Title:
PROPOSED CIVIL SITE PLAN
Job No. 20177004
Date: 03/21/2018
Scale: PER PLAN
Drawn By: KA
Sheet No.:
C2.0



- LEGEND:**
- PROPERTY LINE
 - [Pattern] FLOW-THRU PLANTER (SEE DETAIL 2/C5.0)
 - [Pattern] BIORETENTION AREA (SEE DETAIL 1/C5.0)
 - [Symbol] VISION TRIANGLE
- NOTES:**
1. LOT LINES AND TOPOGRAPHY BASED ON TOPOGRAPHIC SURVEY BY BKF ENGINEERS ON 02/01/17.
 2. ALL DIMENSIONS ARE TO THE FACE OF CURB OR PROPERTY LINE UNLESS NOTED OTHERWISE.

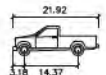


DRAWING NAME: N:\Projects\77004_311_S_Sunnyvale\GIS\PLANNING\PROJECTS\C2_MAP_LP.dwg
 PLOT DATE: 03-13-18 PLOTTED BY: SDC

Appendix N
Charles Street / McKinley Avenue Turning Exhibit

LEGEND:

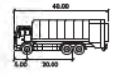
Vehicle Body Envelope
 Ford Super Duty F-450, SEE DETAIL 1 ON THIS SHEET FOR VEHICLE DIMENSIONS
 Heavy Garbage Truck, SEE DETAIL 2 ON THIS SHEET FOR DIMENSIONS



Ford Super Duty F-450

Width	: 6.66
Track	: 6.33
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

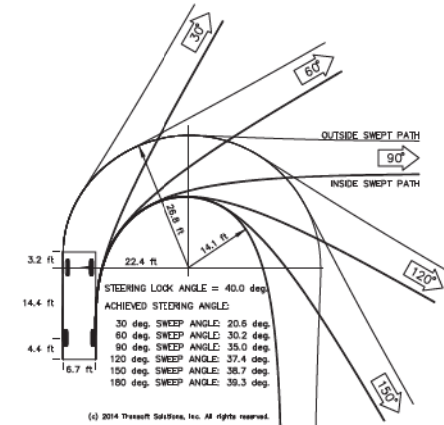
1 FORD SUPER DUTY F-450 MCKINLEY AVE DWY
NTS



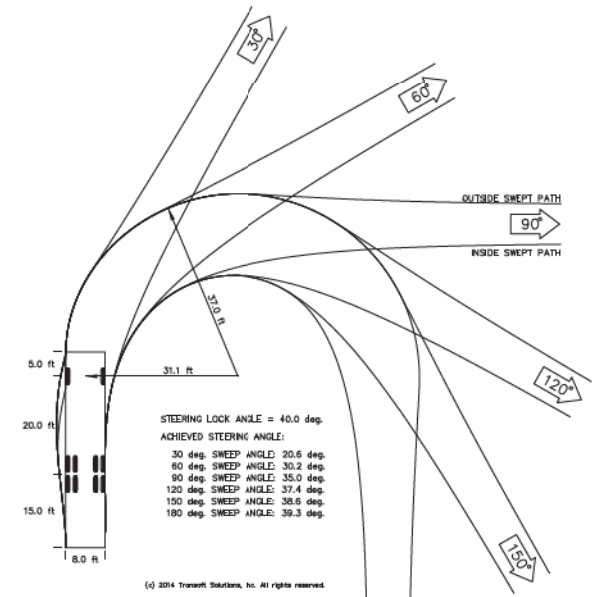
Heavy garbage truck

Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

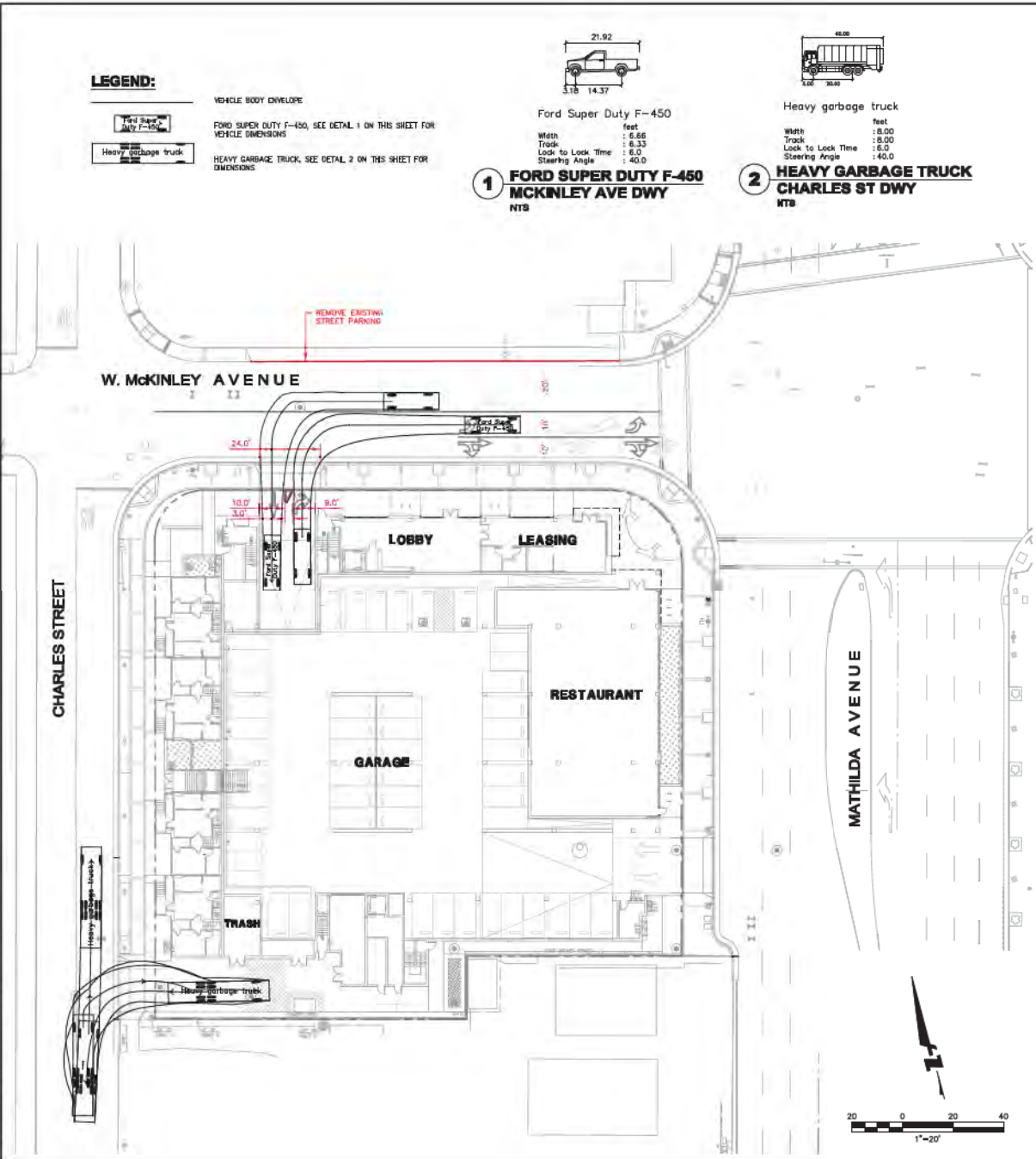
2 HEAVY GARBAGE TRUCK CHARLES ST DWY
NTS



3 FORD SUPER DUTY F-450 TURNING TEMPLATE
NTS



4 HEAVY GARBAGE TRUCK TURNING TEMPLATE
NTS



DRAWING NAME: \\bkt\1\2017\7204_31-Mathilda\Drawings\Exhibit\Truck\Turning\MAINTRUCK.dwg
 PLOT DATE: 08-31-17 PLOTTED BY: dhw

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311 MATHILDA W. MCKINLEY AVE & CHARLES ST ENTRANCES TURNING EXHIBIT
 SANTA CLARA COUNTY SUNNYVALE

Date	08/31/2017
Scale	AS SHOWN
Design	AM
Drawn	BA
Approved	
Job No.	2017204
Drawing Number	

Appendix O

Tabulated Analysis Volumes

311 South Mathilda TIA													
Appendix O-1: Tabulated Analysis Volumes													
"Existing AM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	253	1793	17	132	277	178	443	468	78	8	1099	375
2	Mathilda Ave / Olive Ave	74	2520	12	26	538	65	67	29	22	26	62	65
3	Charles St / Iowa Ave	1	14	15	4	20	8	10	93	1	9	58	7
4	Mathilda Ave / Iowa St	18	2526	29	27	613	31	63	48	16	23	41	67
5	Mathilda Ave / Project Dwy (Restaurant)	0	2745	0	0	671	17	0	0	10	0	0	0
6	Charles St / McKinley Ave	13	17	7	2	20	5	5	76	3	3	55	10
7	Project Dwy (Residential) / McKinley Ave	1	0	9	0	0	0	0	95	1	5	63	0
8	Mathilda / McKinley Ave	27	2619	99	48	660	38	61	20	15	13	1	62
9	Mathilda / Washington Ave	26	2452	50	195	659	96	226	54	34	50	31	109
10	Mathilda Ave / California Ave	139	2009	115	34	872	234	56	5	109	82	138	146
11	Mathilda Ave / Indio Ave	97	2050	103	20	782	84	10	1	197	156	12	425
12	Mathilda Ave / Maude Ave	421	2050	47	142	644	337	98	99	69	149	370	276
13	Mathilda Ave / Almanor Ave	78	2384	24	84	1341	417	96	9	20	42	53	221
14	Mathilda Ave / Ross Dr	115	2152	79	27	689	96	26	3	39	185	31	185
15	Mathilda Ave / SR 237 Eastbound Ramps	0	1631	732	45	740	0	845	0	72	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	134	2342	0	0	254	99	0	0	0	531	36	273
17	Mathilda Ave / Moffett Park Dr	782	1495	387	5	203	85	15	26	84	86	119	4

311 South Mathilda TIA													
Appendix O-2: Tabulated Analysis Volumes													
"Existing PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	194	418	58	510	1642	348	227	1361	153	82	688	188
2	Mathilda Ave / Olive Ave	56	755	43	75	2252	91	54	71	100	28	65	31
3	Charles St / Iowa Ave	3	12	16	10	32	6	10	146	2	13	102	12
4	Mathilda Ave / Iowa St	24	756	30	66	2053	25	26	75	36	75	59	50
5	Mathilda Ave / Project Dwy (Restaurant)	0	929	0	0	2421	12	0	0	8	0	0	0
6	Charles St / McKinley Ave	5	16	5	54	35	9	9	122	10	13	94	19
7	Project Dwy (Residential) / McKinley Ave	1	0	7	0	0	0	0	180	1	10	116	0
8	Mathilda / McKinley Ave	30	865	34	47	2298	32	75	33	44	91	3	95
9	Mathilda / Washington Ave	28	827	68	306	2483	206	163	134	37	81	52	148
10	Mathilda Ave / California Ave	87	857	263	139	2732	338	122	161	313	63	48	107
11	Mathilda Ave / Indio Ave	27	1008	111	52	2582	77	46	0	407	77	0	85
12	Mathilda Ave / Maude Ave	102	898	124	302	1808	196	296	436	540	117	165	113
13	Mathilda Ave / Almanor Ave	31	1262	71	155	2170	76	317	94	50	31	10	94
14	Mathilda Ave / Ross Dr	59	980	323	190	1695	54	70	39	129	125	4	71
15	Mathilda Ave / SR 237 Eastbound Ramps	0	480	641	347	1804	0	130	0	135	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	86	524	0	0	1610	558	0	0	0	541	31	39
17	Mathilda Ave / Moffett Park Dr	137	218	173	37	1441	65	65	238	373	354	153	8

311 South Mathilda TIA
Appendix O-3: Tabulated Analysis Volumes
"Project-Only AM Peak Hour" Conditions

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	0	1	0	3	3	2	1	0	0	0	0	1
2	Mathilda Ave / Olive Ave	0	2	0	0	8	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	0	0	0	0	0	0	0	2	1
4	Mathilda Ave / Iowa St	0	2	0	9	8	3	0	0	0	0	0	0
5	Mathilda Ave / Project Dwy (Restaurant)	0	10	0	0	7	6	0	0	13	0	0	0
6	Charles St / McKinley Ave	1	0	0	0	0	0	0	0	0	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	18	0	0	0	0	1	0	2	0	0
8	Mathilda / McKinley Ave	2	8	0	0	4	1	11	0	8	0	0	0
9	Mathilda / Washington Ave	0	17	1	0	4	0	0	0	0	0	0	0
10	Mathilda Ave / California Ave	0	14	3	0	4	0	0	0	1	0	0	0
11	Mathilda Ave / Indio Ave	0	11	3	0	3	0	0	0	1	0	0	0
12	Mathilda Ave / Maude Ave	1	10	0	0	3	0	0	0	0	0	0	0
13	Mathilda Ave / Almanor Ave	0	10	0	0	3	0	0	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	4	0	0	1	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	2	2	0	1	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	2	0	0	0	0	0	0	0	1	0	0
17	Mathilda Ave / Moffett Park Dr	0	2	0	0	0	0	0	0	0	0	0	0

311 South Mathilda TIA													
Appendix O-4: Tabulated Analysis Volumes													
"Project-Only PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	0	4	0	2	2	1	2	0	0	0	0	4
2	Mathilda Ave / Olive Ave	0	9	0	0	5	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	0	0	0	1	0	0	0	1	1
4	Mathilda Ave / Iowa St	0	9	0	5	5	2	0	0	0	0	0	1
5	Mathilda Ave / Project Dwy (Restaurant)	0	16	0	0	4	12	0	0	8	0	0	0
6	Charles St / McKinley Ave	1	0	1	0	0	0	0	2	0	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	9	0	0	0	0	1	2	21	0	0
8	Mathilda / McKinley Ave	11	5	0	0	7	14	5	0	5	0	0	0
9	Mathilda / Washington Ave	0	9	1	0	19	0	0	0	0	1	0	0
10	Mathilda Ave / California Ave	0	8	2	0	16	0	0	0	4	0	0	0
11	Mathilda Ave / Indio Ave	0	6	2	0	12	0	0	0	4	0	0	0
12	Mathilda Ave / Maude Ave	1	5	0	0	11	0	0	0	1	0	0	0
13	Mathilda Ave / Almanor Ave	0	5	0	0	11	0	0	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	2	0	0	4	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	1	1	0	4	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	1	0	0	2	0	0	0	0	2	0	0
17	Mathilda Ave / Moffett Park Dr	0	1	0	0	2	0	0	0	0	0	0	0

311 South Mathilda TIA
Appendix O-5: Tabulated Analysis Volumes
"Background AM Peak Hour" Conditions

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	270	2069	20	184	354	216	499	550	135	12	1152	462
2	Mathilda Ave / Olive Ave	76	2936	13	27	704	67	68	30	23	27	64	66
3	Charles St / Iowa Ave	1	14	15	7	20	12	16	99	1	9	68	11
4	Mathilda Ave / Iowa St	18	2922	52	72	753	36	64	55	17	50	50	123
5	Mathilda Ave / Project Dwy (Restaurant)	0	3198	0	0	861	17	0	0	10	0	0	0
6	Charles St / McKinley Ave	17	20	10	2	24	13	8	87	6	3	58	10
7	Project Dwy (Residential) / McKinley Ave	1	0	9	0	0	0	0	109	1	5	66	0
8	Mathilda / McKinley Ave	28	3046	123	94	817	40	69	26	15	44	1	125
9	Mathilda / Washington Ave	27	2917	73	244	837	101	238	61	35	78	44	174
10	Mathilda Ave / California Ave	164	2511	147	36	1071	330	144	7	140	82	138	164
11	Mathilda Ave / Indio Ave	97	2624	138	20	1038	91	10	1	240	156	12	495
12	Mathilda Ave / Maude Ave	559	2553	50	147	934	539	159	107	98	180	425	308
13	Mathilda Ave / Almanor Ave	78	2924	24	84	1949	419	106	9	20	42	53	223
14	Mathilda Ave / Ross Dr	115	3032	79	27	984	96	26	3	39	185	31	185
15	Mathilda Ave / SR 237 Eastbound Ramps	0	2471	772	80	1035	0	1598	0	72	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	134	3934	0	0	428	176	0	0	0	688	36	525
17	Mathilda Ave / Moffett Park Dr	1317	2540	652	5	347	85	15	26	137	140	119	4

311 South Mathilda TIA													
Appendix O-6: Tabulated Analysis Volumes													
"Background PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	252	637	71	667	2021	447	318	1446	186	99	789	311
2	Mathilda Ave / Olive Ave	58	1186	44	77	2877	93	56	73	102	29	67	32
3	Charles St / Iowa Ave	3	12	16	23	32	18	36	163	2	13	129	24
4	Mathilda Ave / Iowa St	25	1099	120	249	2597	38	27	103	37	158	84	217
5	Mathilda Ave / Project Dwy (Restaurant)	0	1440	0	0	3162	12	0	0	8	0	0	0
6	Charles St / McKinley Ave	17	29	18	54	47	33	22	140	23	13	102	19
7	Project Dwy (Residential) / McKinley Ave	1	0	7	0	0	0	0	211	1	10	124	0
8	Mathilda / McKinley Ave	31	1285	124	235	2943	39	78	60	45	186	3	263
9	Mathilda / Washington Ave	29	1326	159	501	3237	218	167	162	38	165	90	317
10	Mathilda Ave / California Ave	92	1426	358	151	3575	398	214	176	441	63	48	108
11	Mathilda Ave / Indio Ave	27	1562	220	52	3389	147	46	0	514	77	0	96
12	Mathilda Ave / Maude Ave	157	1382	148	333	2520	250	554	494	657	126	175	118
13	Mathilda Ave / Almanor Ave	31	2008	71	157	2898	86	355	94	50	31	10	94
14	Mathilda Ave / Ross Dr	59	1382	323	190	2502	54	70	39	129	125	4	71
15	Mathilda Ave / SR 237 Eastbound Ramps	0	699	824	546	2611	0	281	0	135	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	86	894	0	0	2512	999	0	0	0	642	31	91
17	Mathilda Ave / Moffett Park Dr	232	424	294	37	2354	65	65	238	594	563	153	8

311 South Mathilda TIA
Appendix O-7: Tabulated Analysis Volumes
"Cumulative AM Peak Hour" Conditions

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	314	2375	23	210	403	259	596	626	150	13	1330	539
2	Mathilda Ave / Olive Ave	93	3408	15	31	809	78	79	35	27	31	74	77
3	Charles St / Iowa Ave	1	16	17	8	23	13	18	114	1	10	77	12
4	Mathilda Ave / Iowa St	21	3512	57	76	895	41	74	63	20	54	57	134
5	Mathilda Ave / Project Dwy (Restaurant)	0	3823	0	0	1013	20	0	0	12	0	0	0
6	Charles St / McKinley Ave	19	23	11	2	27	14	9	99	6	3	67	12
7	Project Dwy (Residential) / McKinley Ave	1	0	10	0	0	0	0	124	1	6	76	0
8	Mathilda / McKinley Ave	32	3651	139	102	967	46	79	29	17	46	1	135
9	Mathilda / Washington Ave	31	3460	116	360	979	117	275	70	41	94	49	211
10	Mathilda Ave / California Ave	231	2948	171	42	1282	561	185	16	181	95	160	206
11	Mathilda Ave / Indio Ave	116	3107	163	23	1381	107	12	1	319	181	14	607
12	Mathilda Ave / Maude Ave	648	2909	60	170	1093	594	176	123	116	214	487	353
13	Mathilda Ave / Almanor Ave	91	3335	28	98	2247	486	123	10	23	49	62	259
14	Mathilda Ave / Ross Dr	134	3410	92	31	1229	112	30	3	45	215	36	215
15	Mathilda Ave / SR 237 Eastbound Ramps	0	2740	915	87	1288	0	1735	0	84	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	156	4318	0	0	477	192	0	0	0	899	42	569
17	Mathilda Ave / Moffett Park Dr	1444	2787	715	6	388	99	17	30	151	154	138	5

311 South Mathilda TIA													
Appendix O-8: Tabulated Analysis Volumes													
"Cumulative PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	286	719	80	788	2313	532	384	1666	214	112	900	356
2	Mathilda Ave / Olive Ave	72	1362	51	89	3329	108	65	84	118	34	78	37
3	Charles St / Iowa Ave	3	14	19	25	37	19	38	187	2	15	146	26
4	Mathilda Ave / Iowa St	29	1293	125	260	3109	42	31	115	43	170	94	225
5	Mathilda Ave / Project Dwy (Restaurant)	0	1662	0	0	3734	14	0	0	9	0	0	0
6	Charles St / McKinley Ave	18	32	19	63	53	34	23	160	25	15	117	22
7	Project Dwy (Residential) / McKinley Ave	1	0	8	0	0	0	0	240	1	12	143	0
8	Mathilda / McKinley Ave	36	1497	130	243	3495	44	90	65	52	201	3	278
9	Mathilda / Washington Ave	34	1502	200	623	3760	251	193	184	44	237	98	484
10	Mathilda Ave / California Ave	114	1696	425	173	4130	523	405	246	550	73	56	127
11	Mathilda Ave / Indio Ave	53	1971	274	60	3979	175	53	0	591	89	0	116
12	Mathilda Ave / Maude Ave	186	1613	177	382	2871	282	614	567	767	147	202	136
13	Mathilda Ave / Almanor Ave	36	2310	82	182	3311	98	418	109	58	36	12	109
14	Mathilda Ave / Ross Dr	69	1693	375	221	2816	63	81	45	150	145	5	82
15	Mathilda Ave / SR 237 Eastbound Ramps	0	803	1054	602	2943	0	302	0	157	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	100	1005	0	0	2782	1089	0	0	0	761	36	97
17	Mathilda Ave / Moffett Park Dr	254	485	322	43	2596	76	76	277	654	620	178	9

311 South Mathilda TIA													
Appendix O-9: Tabulated Analysis Volumes													
"Affordable Housing Development-Only AM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	0	5	0	5	5	4	3	0	0	0	0	5
2	Mathilda Ave / Olive Ave	0	13	0	0	14	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	3	0	0	0	2	0	0	2	3
4	Mathilda Ave / Iowa St	13	0	0	0	0	28	30	2	14	0	2	0
5	Mathilda Ave / Project Dwy (Restaurant)	0	30	0	0	28	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	3	0	0	0	0	0	0	0	3	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
8	Mathilda / McKinley Ave	0	30	0	0	28	0	0	0	0	0	0	0
9	Mathilda / Washington Ave	0	28	2	0	26	0	0	0	0	2	0	0
10	Mathilda Ave / California Ave	0	23	5	0	21	0	0	0	5	0	0	0
11	Mathilda Ave / Indio Ave	0	18	5	0	16	0	0	0	5	0	0	0
12	Mathilda Ave / Maude Ave	2	16	0	0	15	0	0	0	1	0	0	0
13	Mathilda Ave / Almanor Ave	0	16	0	0	15	0	0	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	6	0	0	6	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	3	4	0	6	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	3	0	0	2	0	0	0	0	3	0	0
17	Mathilda Ave / Moffett Park Dr	0	3	0	0	2	0	0	0	0	0	0	0

311 South Mathilda TIA													
Appendix O-10: Tabulated Analysis Volumes													
"Affordable Housing Development-Only PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	0	4	0	5	5	3	3	0	0	0	0	4
2	Mathilda Ave / Olive Ave	0	12	0	0	12	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	3	0	0	0	2	0	0	2	3
4	Mathilda Ave / Iowa St	12	0	0	0	0	25	27	2	12	0	2	0
5	Mathilda Ave / Project Dwy (Restaurant)	0	27	0	0	25	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	3	0	0	0	0	0	0	0	3	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
8	Mathilda / McKinley Ave	0	27	0	0	25	0	0	0	0	0	0	0
9	Mathilda / Washington Ave	0	25	2	0	24	0	0	0	0	2	0	0
10	Mathilda Ave / California Ave	0	20	5	0	19	0	0	0	4	0	0	0
11	Mathilda Ave / Indio Ave	0	16	5	0	15	0	0	0	4	0	0	0
12	Mathilda Ave / Maude Ave	1	14	0	0	14	0	0	0	1	0	0	0
13	Mathilda Ave / Almanor Ave	0	14	0	0	14	0	0	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	5	0	0	5	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	2	3	0	5	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	2	0	0	2	0	0	0	0	3	0	0
17	Mathilda Ave / Moffett Park Dr	0	2	0	0	2	0	0	0	0	0	0	0

311 South Mathilda TIA

Appendix O-11: Tabulated Analysis Volumes
"Approved Background Projects AM Peak Hour" Conditions

No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	17	276	3	52	77	38	56	82	57	4	53	87
2	Mathilda Ave / Olive Ave	2	416	1	1	166	2	1	1	1	1	2	1
3	Charles St / Iowa Ave	0	0	0	3	0	4	6	6	0	0	10	4
4	Mathilda Ave / Iowa St	0	396	23	45	140	5	1	7	1	27	9	56
5	Mathilda Ave / Project Dwy (Restaurant)	0	453	0	0	190	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	4	3	3	0	4	8	3	11	3	0	3	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	14	0	0	3	0
8	Mathilda / McKinley Ave	1	427	24	46	157	2	8	6	0	31	0	63
9	Mathilda / Washington Ave	1	465	23	49	178	5	12	7	1	28	13	65
10	Mathilda Ave / California Ave	25	502	32	2	199	96	88	2	31	0	0	18
11	Mathilda Ave / Indio Ave	0	574	35	0	256	7	0	0	43	0	0	70
12	Mathilda Ave / Maude Ave	138	503	3	5	290	202	61	8	29	31	55	32
13	Mathilda Ave / Almanor Ave	0	540	0	0	608	2	10	0	0	0	0	2
14	Mathilda Ave / Ross Dr	0	880	0	0	295	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	840	40	35	295	0	753	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	1592	0	0	174	77	0	0	0	157	0	252
17	Mathilda Ave / Moffett Park Dr	535	1045	265	0	144	0	0	0	53	54	0	0

311 South Mathilda TIA													
Appendix O-12: Tabulated Analysis Volumes													
"Approved Background Projects PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	58	219	13	157	379	99	91	85	33	17	101	123
2	Mathilda Ave / Olive Ave	2	431	1	2	625	2	2	2	2	1	2	1
3	Charles St / Iowa Ave	0	0	0	13	0	12	26	17	0	0	27	12
4	Mathilda Ave / Iowa St	1	343	90	183	544	13	1	28	1	83	25	167
5	Mathilda Ave / Project Dwy (Restaurant)	0	511	0	0	741	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	12	13	13	0	12	24	13	18	13	0	8	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	31	0	0	8	0
8	Mathilda / McKinley Ave	1	420	90	188	645	7	3	27	1	95	0	168
9	Mathilda / Washington Ave	1	499	91	195	754	12	4	28	1	84	38	169
10	Mathilda Ave / California Ave	5	569	95	12	843	60	92	15	128	0	0	1
11	Mathilda Ave / Indio Ave	0	554	109	0	807	70	0	0	107	0	0	11
12	Mathilda Ave / Maude Ave	55	484	24	31	712	54	258	58	117	9	10	5
13	Mathilda Ave / Almanor Ave	0	746	0	2	728	10	38	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	402	0	0	807	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	219	183	199	807	0	151	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	370	0	0	902	441	0	0	0	101	0	52
17	Mathilda Ave / Moffett Park Dr	95	206	121	0	913	0	0	0	221	209	0	0

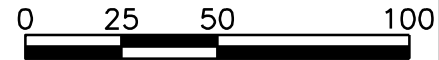
311 South Mathilda TIA													
Appendix O-13: Tabulated Analysis Volumes													
"Pending Cumulative Projects AM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	3	16	0	5	4	14	25	0	2	0	0	16
2	Mathilda Ave / Olive Ave	5	64	0	0	18	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	0	0	0	0	0	0	0	0	0
4	Mathilda Ave / Iowa St	0	181	0	0	43	0	0	0	0	0	0	0
5	Mathilda Ave / Project Dwy (Restaurant)	0	181	0	0	43	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
8	Mathilda / McKinley Ave	0	181	0	0	43	0	0	0	0	0	0	0
9	Mathilda / Washington Ave	0	146	35	84	35	0	0	0	0	8	0	19
10	Mathilda Ave / California Ave	45	112	5	0	70	193	32	8	23	0	0	18
11	Mathilda Ave / Indio Ave	3	151	8	0	216	2	0	0	47	0	0	43
12	Mathilda Ave / Maude Ave	21	24	2	0	55	0	1	0	7	10	2	0
13	Mathilda Ave / Almanor Ave	0	25	0	0	81	0	1	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	30	0	0	133	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	5	25	0	133	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	5	0	0	8	0	0	0	0	125	0	0
17	Mathilda Ave / Moffett Park Dr	0	5	0	0	8	0	0	0	0	0	0	0

311 South Mathilda TIA													
Appendix O-14: Tabulated Analysis Volumes													
"Pending Cumulative Project PM Peak Hour" Conditions													
No.	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Mathilda Ave / El Camino Real	3	14	0	38	26	29	29	0	3	0	0	15
2	Mathilda Ave / Olive Ave	5	54	0	0	88	0	0	0	0	0	0	0
3	Charles St / Iowa Ave	0	0	0	0	0	0	0	0	0	0	0	0
4	Mathilda Ave / Iowa St	0	72	0	0	180	0	0	0	0	0	0	0
5	Mathilda Ave / Project Dwy (Restaurant)	0	72	0	0	180	0	0	0	0	0	0	0
6	Charles St / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
7	Project Dwy (Residential) / McKinley Ave	0	0	0	0	0	0	0	0	0	0	0	0
8	Mathilda / McKinley Ave	0	72	0	0	180	0	0	0	0	0	0	0
9	Mathilda / Washington Ave	0	42	30	72	121	0	0	0	0	59	0	143
10	Mathilda Ave / California Ave	8	131	24	0	113	70	171	44	58	0	0	2
11	Mathilda Ave / Indio Ave	22	246	36	0	172	16	0	0	11	0	0	6
12	Mathilda Ave / Maude Ave	12	86	9	0	58	0	12	2	23	2	0	0
13	Mathilda Ave / Almanor Ave	0	98	0	0	62	0	12	0	0	0	0	0
14	Mathilda Ave / Ross Dr	0	152	0	0	40	0	0	0	0	0	0	0
15	Mathilda Ave / SR 237 Eastbound Ramps	0	26	126	0	40	0	0	0	0	0	0	0
16	Mathilda Ave / SR 237 Westbound Ramps	0	26	0	0	9	0	0	0	0	31	0	0
17	Mathilda Ave / Moffett Park Dr	0	26	0	0	9	0	0	0	0	0	0	0

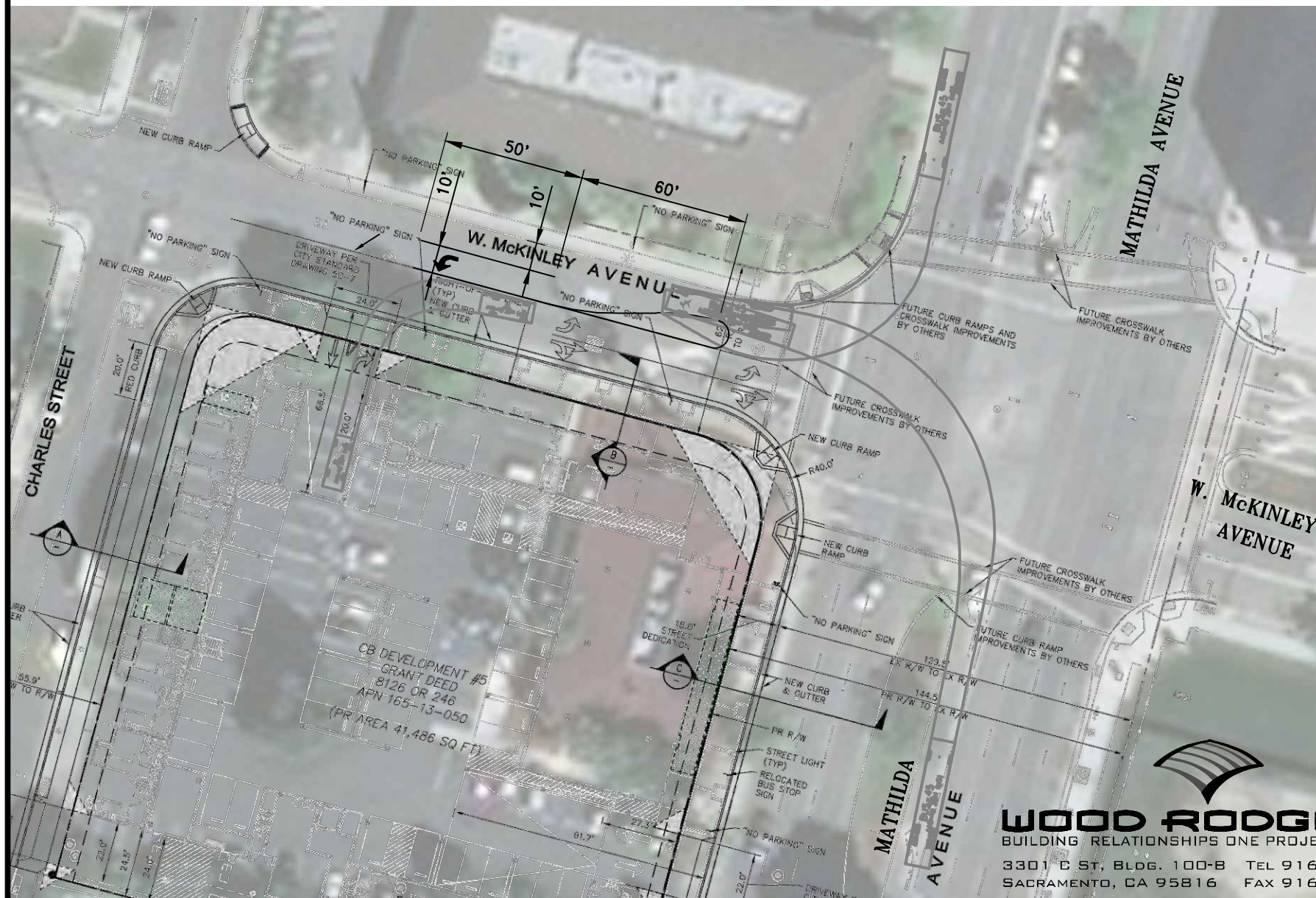
Appendix P
McKinley Avenue Turn Pocket Analysis

APPENDIX P: MCKINLEY AVENUE TURN POCKET ANALYSIS 311 S. MATHILDA AVENUE

CITY OF SUNNYVALE
SUNNYVALE CALIFORNIA
MAY, 2018



SCALE: 1" = 50'



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