City of Sunnyvale

Civic Center Modernization Master Plan Addendum to the Program EIR

April 2020

Prepared for:
City of Sunnyvale
456 West Olive Avenue
Sunnyvale, CA 94086

Prepared by:
Panorama Environmental, Inc.
717 Market Street, Suite 650
San Francisco, CA 94103
650-373-1200
tania.treis@panoramaenv.com

Table of Contents

List of Tables

List of Figures

List of Appendices

This page is intentionally left blank.

1 Civic Center Modernization Master Plan

1.1 Background

The City of Sunnyvale (City) proposes to implement the Civic Center Modernization Master Plan (Master Plan) to modernize and expand its 24.5-acre Civic Center Campus, located near the geographic center of the City. The City would implement the Master Plan in several phases over several decades. The first phase, the Phase I project, would involve: (1) construction of a new, four-story, City Hall, (2) construction of a stand-alone, Emergency Operations Center (EOC), and (3) demolition of the existing City Hall, City Hall Annex, City Hall South Annex, and Sunnyvale Office Complex buildings. Future phases of the Master Plan would involve construction of a new two-story, up to 120,000-square foot (sf) library and a two-story, up to 65,000-sf Public Safety Headquarters. The existing Public Safety Headquarters and library would be demolished, and the existing City Hall fuel dock may be removed. Alternatively, the existing library would be renovated instead of demolished, and up to 59,000 sf of additional space would be added to the building, resulting in a total of 120,000-sf of space. The Public Safety Headquarters would still be replaced under this alternative.

The Sunnyvale Civic Center Modernization Master Plan Program Environmental Impact Report (Program EIR) was prepared in accordance with the California Environmental Quality Act (CEQA) to assess the environmental effects of the Master Plan, including the Phase I project. The Program EIR (State Clearinghouse Number 2017092075) prepared for the Master Plan was certified and the Master Plan (and Phase I) was approved by the City Council on September 25, 2018 (referred to as "approved Phase I project" and "approved Master Plan"). The mitigation measures adopted as part of the Program EIR are presented in Appendix A. The Notice of Determination for the Program EIR was filed on September 28, 2018.

As the City finalized the Phase I project design, several aspects of the Phase I project and one small aspect of the Master Plan were revised from what was analyzed in the Program EIR. This Addendum details the changes to the Phase I project (referred to as the "revised Phase I project") as well as the overall Master Plan (referred to as the "revised Master Plan"), and determines whether the revisions would result in new significant impacts or substantially increase the severity of previously identified significant impacts (CEQA Guidelines Section 15162). The Addendum identifies any changes to the analysis in accordance with the Appendix G resource questions analyzed in the Program EIR. Section 2: Evaluation (below), determines if the scope of the certified Program EIR is adequate or if further CEQA documentation is needed.

1.2 Project Revisions

The Phase I design revisions range from reducing the quantity of new underground parking to increasing the size of the new City Hall and EOC. The site plan for the revised Phase I project is shown in Figure 1. Figure 2 and Figure 3 show the approved design for City Hall and the EOC, respectively. Table 1-1 presents a comparison of changes between the revised Phase I project and the approved Phase I project originally analyzed under the certified Program EIR. Future phases of the Master Plan are assumed to remain the same as analyzed in the Program EIR, except the transit and transportation demand management (TDM) reduction identified in the table below and discussed in further detail in Section 2.15.

Table 1-1 Comparison of Project Revisions

Component	Approved Project	Revised Project
Phase I		
Construction Schedule	*Active Construction and Demolition:* 18 months *Timeframe:* fall or winter 2019/early 2020 to mid-2021	*Active Construction and Demolition:* 30 months *Timeframe:* October 2020 to December 2022; commissioning February 2023
Parking	110 parking stalls constructed beneath new City Hall	89 parking stalls constructed beneath new City Hall
	Access from All America Way to the new City Hall underground parking garage	Access from West Olive Avenue to the new City Hall underground parking garage
	969 total parking spaces on Civic Center	922 total parking spaces on Civic Center
Transit and Transportation Demand Management	Not applicable	11 percent reduction
Existing Trees	725 total trees 408 protected trees	735 total trees [a, b] 402 protected trees [b]
Trees on Civic Center After Phase I	Total After Phase I: 775 to 800 trees • Preserved: 650 trees • Maximum Removed: 75 total trees; 34 protected trees • Transplant: 0 trees • Plant: 125-150 trees	Total After Phase I: 820 trees • Preserved: 645 trees • Removed: 96 total trees; 42 protected trees • Transplant: 12 trees • Plant: 175 trees
Sustainability and Utilities	All new buildings constructed to LEED Platinum certification	The new City Hall constructed to LEED Platinum certification The new EOC designed to meet LEED Gold but will not seek certification

Component	Approved Project	Revised Project
	Two diesel-powered emergency generators installed within concrete enclosures • City Hall: one 440-kilowatt (kW) generator • EOC: one 222-kW generator	Three diesel-powered emergency generators installed within concrete enclosures • City Hall: one 1,000-kW generator • EOC: two 200-kW generators (only one generator would operate at any one time)
	Energy needs of new buildings met by electricity; no natural gas use	Energy needs of new buildings met by electricity; no natural gas use
	New buildings powered by 100% renewable energy sources	City Hall powered by 100% renewable energy sources
	Photovoltaic arrays installed to provide power to the new buildings	Photovoltaic arrays installed on City Hall to provide power to the new City Hall
City Hall	Modern design 4-story building	Modern design 4-story building
	Levels 1-4: Up to 109,000 sf	Levels 1-4: 120,214 sf Roof: 1,816 sf
Emergency Operations Center	Stand-alone building Up to 12,000 sf	Stand-alone building 12,946 sf
Future Phases		
Transit and Transportation Demand Management	Not applicable	11 percent reduction

Note:

[a] The City planted 16 new trees since the 2017 tree assessment.

[b] The City removed 6 protected trees that had died since the 2017 tree assessment. Other regular maintenance activities may have occurred that are not accounted for.

Source: (SmithGroupJJR, 2020c)

Figure 1 Revised Phase I Project

Source: (SmithGroupJJR, 2019b)

Figure 2 City Hall Design

Source: (SmithGroupJJR, 2020a)

Figure 3 Emergency Operations Center Design

Source: (SmithGroupJJR, 2020b)

2 Evaluation

2.1 Aesthetics

The revised Phase I project would involve construction of a new City Hall and EOC, shown in Figure 2 and Figure 3, similar to the approved Phase I project. Construction techniques and equipment used would be the same as those analyzed in the Program EIR. General massing and appearance of the buildings would be similar to the approved Phase I project. The proposed design of the City Hall would be modern but includes more glass exterior walls than the conceptual City Hall design. The design includes intermittent vertical features that would avoid large expanses of highly reflective surfaces and mirror glass exterior walls, in accordance with the City's design guidelines. The approved mitigation measure (MM Aesthetics-1) would be implemented for the revised Phase I project to reduce impacts from construction night lighting. The revised Phase I project would not result in new or substantially more severe significant impacts on aesthetics than those analyzed in the Program EIR.

2.2 Agriculture and Forestry Resources

No change to conditions would occur that could result in an impact on agriculture or forestry resources. The revised Phase I project would not result in new or substantially more severe significant impacts on agriculture or forestry resources than those analyzed in the Program EIR.

2.3 Air Quality and Greenhouse Gas Emissions

2.3.1 Criteria Air Pollutants

Construction

The revised Phase I project would involve construction of a larger City Hall and EOC as shown in Table 1-1. The larger size of the buildings would correlate to an increase in the construction activities required and total emissions associated with construction, due to the increase in the number of or duration of equipment use, number of workers, and number of truck trips. If construction of the larger buildings occurred over the same duration of the approved Phase I project, higher average daily emissions would be generated. However, the revised Phase I project would be constructed over 30 months, rather than 18 months, resulting in an increase in duration of approximately 167 percent.

To provide a conservative estimate of the change in construction emissions associated with construction of larger buildings, the emissions presented in the Program EIR were scaled

proportionally to the increase in square footage of the new buildings and associated spaces. For the purposes of this conservative analysis, construction of the revised Phase I project is assumed to occur for the same duration as analyzed in the Program EIR. As shown in Table 2-1, the estimated construction emissions for the revised Phase I project would not exceed the Bay Area Air Quality Management District's (BAAQMD) significance thresholds. The approved mitigation measure (MM Air Quality-1) would be implemented for the revised Phase I project to reduce impacts from fugitive dust. The revised Phase I project would not result in new or substantially more severe significant impacts on air quality from construction emissions than those analyzed in the Program EIR.

Table 2-1 Estimated Unmitigated Revised Phase I Project Construction Emissions

	Estimated Average Daily Pollutant Emissions (pounds/day)					
Year	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2020 [a]	2.62	28.14	19.97	0.04	1.22	1.14
2021 [a]	22.95	20.99	18.45	0.04	0.95	0.89
BAAQMD Emissions Threshold	54	54	-	-	82 (exhaust only)	54 (exhaust only)
Threshold Exceeded?	No	No	-	-	No	No

Note:

[a] Average daily pollutant emissions reported in the Program EIR were multiplied by 1.12 to account for construction of the larger buildings.

Operation

The majority of operational emissions associated with the approved Phase I project were associated with mobile (e.g., vehicle traffic) and area (e.g., landscaping equipment, use of solvents) sources. The net operational emissions associated with the approved Phase I project and Master Plan were substantially smaller than the BAAQMD significance thresholds. The larger City Hall and EOC would accommodate more employees and visitors, and result in an increase in the number of vehicle trips to and from the Civic Center, as well as increased use of products and equipment emitting pollutants. The generators, a stationary source of emissions, would be larger than previously analyzed as well, resulting in an increase in emissions associated with operation during annual maintenance. The revised Phase I project would increase average daily emissions due to the larger size of the buildings, greater number of employees, and larger generators.

To provide an estimate of the change in operational emissions associated with larger buildings and generators, the emissions presented in the Program EIR were scaled proportionally to the increase in square footage of the new buildings and associated spaces, as well as the generators. For the purposes of this analysis, 2022 was maintained as the first year of operation, as analyzed in the Program EIR. As shown in Table 2-2, the operational emissions from the revised Phase I project would not exceed BAAQMD significance thresholds. The changes associated with the revised Phase I project would have a proportionately less effect on average daily emissions in

future phases. The revised Phase I project would not result in new or substantially more severe significant impacts on air quality from operational emissions than those analyzed in the Program EIR.

Table 2-2 Estimated Unmitigated Revised Phase I Project Operational Emissions

	Estimated Average Daily Pollutant Emissions (pounds/day)					
Year	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2022 [a]	7.34	14.77	34.28	0.12	10.60	2.96
Net Emissions [b]	0.44	-3.60	-11.56	0.01	1.89	0.47
BAAQMD Emissions Threshold	54	54	-	-	82	54
Threshold Exceeded?	No	No	-	-	No	No

Notes:

[a] Average daily pollutant emissions associated with area, mobile, waste, and water sources reported in the Program EIR were multiplied by 1.12 to account for the overall increase in building area. Average daily pollutant emissions associated with stationary sources reported in the Program EIR were multiplied by 2.11 to account for the increase in generator size.

[b] Emissions associated with existing City Hall buildings and Sunnyvale Office Complex uses (refer to Table 4.2-9 in the Program EIR) were netted out of the total emissions associated with the new City Hall and EOC following construction of the revised Phase I project.

2.3.2 Health Risk

The higher construction emissions from construction of larger buildings could expose adjacent sensitive receptors to greater health risks. To provide a conservative estimate of the change in health risks associated with construction of larger buildings, the health risks presented in the Program EIR were scaled proportionally to the increase in square footage of the new buildings and associated spaces. For the purposes of this analysis, construction was assumed to occur for the same duration as analyzed in the Program EIR. As shown in Table 2-3, unmitigated annual $PM_{2.5}$ from construction activities would exceed the BAAQMD threshold at the nearest residential receptor and Little Tree Montessori International School of Sunnyvale. Cumulative unmitigated annual $PM_{2.5}$ from construction activities would exceed the BAAQMD threshold, as shown in Table 2-4. The approved mitigation measures (MM Air Quality-1 and MM Air Quality-2) would be implemented for the revised Phase I project to reduce the individual and cumulative health risk contribution on sensitive receptors from fugitive dust and exhaust emissions. The mitigated individual and cumulative health risks associated with construction would be lower than the BAAQMD thresholds as shown in Table 2-3 and Table 2-4.

Table 2-3 Estimated Maximum Health Risk Impacts at the Nearest Sensitive Receptors from Construction of the Revised Phase I Project

Receptor	Year	Cancer Risk (cases per million people) [a]	Hazard Index [a]	Max. Annual $PM_{2.5}$ Concentration ($\mu g/m^3$) [a]
Unmitigated				
Residential [b]	2020	3.39	0.09	**0.44**
	2021	1.38	0.03	0.18
Little Tree Montessori International School of Sunnyvale	2020	6.37 [c]	0.06	0.30
	2021	2.09 [c]	0.02	0.10
BAAQMD Individual Project Significance Threshold		**>10.0**	**>1.0**	**>0.3**
Threshold Exceeded?		No	No	**Yes**
Mitigated				
Residential [b]	2020	0.40	0.01	0.06
	2021	0.21	0.01	0.02
Little Tree Montessori International School of Sunnyvale	2020	0.91 [d]	0.01	0.03
	2021	0.39 [d]	0.01	0.01
BAAQMD Individual Project Significance Threshold		**>10.0**	**>1.0**	**>0.3**
Threshold Exceeded?		No	No	No

Note:

[a] Health risk results reported in the Program EIR were multiplied by 1.12 to account for construction of the larger buildings.

[b] The unmitigated cancer risk, hazard index, and $PM_{2.5}$ concentration from project construction are estimated at the nearest residential receptor to the new City Hall construction site facing and east of South Mathilda Avenue.

[c] The total cancer risk from all phases of construction with the revised Phase I project would exceed 10.0 cases per million people without mitigation.

[d] The total cancer risk from all phases of construction with the revised Phase I project would not exceed 10.0 cases per million people with mitigation.

Table 2-4 Estimated Maximum Cumulative Health Risk Impacts on Sensitive Receptors Within 1,000 Feet of the Project Site During Construction of the Revised Phase I Project

Source	Cancer Risk (cases per million people)	Hazard Index	Max. Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Permitted Stationary Sources [a]			
Emergency Generators [b]	1.67	0.0013	0.0029
Fuel Dock [c]	3.017	0.005	-
Major Roadways			
El Camino Real [d]	3.565	0.004	0.041
Mathilda Avenue [e]	26.42	-	0.624
Unmitigated Project Construction			
Maximum Construction Year (2020) [f]	3.39	0.09	**0.44**
Total Unmitigated	38.06	0.10	**1.10**
BAAQMD Individual Project Significance Threshold	**100**	**10**	**0.8**
Threshold Exceeded?	No	No	**Yes**
Mitigated Project Construction			
Maximum Construction Year (2020) [f]	0.40	0.01	0.06
Total Mitigated	35.07	0.02	0.72
BAAQMD Individual Project Significance Threshold	**100**	**10**	**0.8**
Threshold Exceeded?	No	No	No

Note:

Bold: Exceeds the BAAQMD significance threshold.

[a] The BAAQMD stationary source cancer risks, hazard indexes, and $PM_{2.5}$ concentrations represent maximum toxic air contaminant impacts at locations close to the sources. At the locations of the near-site residential sensitive receptors modeled, risks, hazards and concentrations due to each stationary source and the roadway would be substantially reduced from the tabulated values (BAAQMD, 2012).

[b] Permitted source numbers 15486 and 15529 (BAAQMD, 2012; Kirk, 2018).

[c] Permitted source number G6769 (BAAQMD, 2012; Kirk, 2018).

[d] As estimated at the maximum exposed residential receptor just across Mathilda Avenue about 400 feet north of the nearest El Camino Real travel lane.

[e] As estimated at the maximum exposed residential receptor just across Mathilda Avenue about 25 feet east of the nearest Mathilda Avenue travel lane.

[f] Health risk results reported in the Program EIR were multiplied by 1.12 to account for construction of the larger buildings.

The larger generators would emit higher levels of air pollutants. The City would acquire a permit from BAAQMD and comply with permit conditions for the new generators, which could include application of best available control technology and not exceeding 50 hours of testing a year (BAAQMD, 2007; BAAQMD, 2017). The revised Phase I project would not result in new or substantially more severe significant impacts on sensitive receptors than those analyzed in the Program EIR.

2.3.3 Greenhouse Gases

Greenhouse gas emissions generated during construction and operation would increase with the larger buildings. To provide an estimate of the change in greenhouse gas emissions associated with construction of larger buildings, the emissions presented in the Program EIR were scaled proportionally to the increase in square footage of the new buildings and associated spaces. Operational emissions reported in the Program EIR were scaled accounting for the larger size of the buildings, greater number of employees, and larger generators. As shown in Table 2-5, greenhouse gas emissions would not exceed BAAQMD significance thresholds. The revised Phase I project would not result in new or substantially more severe significant impacts on greenhouse gas emissions than those analyzed in the Program EIR.

Table 2-5 Estimated Unmitigated Revised Phase I Project GHG Emissions

Project Phase	GHG Emissions (MT CO_2e)
Total Construction Emissions [a]	955
Amortized Construction Emissions (30 years)	*32*
Site-Wide Annual Operational Emissions [b]	2,357
Net Annual Operational Emissions [c]	*145*
Total Annual Phase I Emissions [d]	**177**
BAAQMD Annual Emissions Threshold	1,100

Project Phase	GHG Emissions (MT CO_2e)
Threshold Exceeded?	No

Note:

[a] Construction GHG emissions reported in the Program EIR were multiplied by 1.12 to account for the overall increase in building area.

[b] GHG emissions associated with area, mobile, waste, and water sources reported in the Program EIR were multiplied by 1.12 to account for the overall increase in building area. GHG emissions associated with stationary sources reported in the Program EIR were multiplied by 2.11 to account for the increase in generator size.

[c] Emissions associated with existing City Hall buildings and Sunnyvale Office Complex uses (refer to Table 4.2-9 in the Program EIR) were netted out of the total emissions associated with the new City Hall and EOC following construction of the revised Phase I project.

[d] Includes amortized construction emissions and net annual operational emissions.

2.4 Biological Resources

The revised Phase I project would involve removal of more trees, as summarized in Table 1-1; however, more trees would be planted on the Civic Center than analyzed in the Program EIR. The revised Phase I project would remove an additional eight protected trees compared to the approved Phase I project. None of the protected redwood trees between the existing City Hall and City Hall Annex would be removed. Several mature trees would be transplanted rather than removed. Protected trees that are removed would be replaced in accordance with the City of Sunnyvale Community Development Department Tree Replacement Standards. Overall, the total number of trees on the Civic Center would be greater following construction of the revised Phase I project.

Tree removal, night lighting, and construction noise could disturb nesting birds, as analyzed in the Program EIR. The City Hall design shown in Figure 2 would not involve large, uninterrupted sheet glass that could pose a hazard to birds. The revised Phase I project would comply with the City's Bird Safe Building Design Guidelines. Impacts on nesting birds during construction and operation would be similar to the approved Phase I project. The approved mitigation measures (MM Biology-1 through MM Biology-3) would be implemented for the revised Phase I project to reduce impacts on nesting birds and conflict with tree preservation policies. The revised Phase I project would not result in new or substantially more severe significant impacts on biological resources than those analyzed in the Program EIR.

2.5 Cultural and Tribal Cultural Resources

The revised Phase I project would involve demolition of the Sunnyvale Office Complex and City Hall, as well as alteration to existing landscaping. Impacts on eligible historic resources would remain the same as those analyzed in the Program EIR. Similar ground-disturbing activities would occur that could disturb previously undiscovered archaeological resources and

unique paleontological resources as those analyzed in the Program EIR. The approved mitigation measures (MM Cultural-1 through MM Cultural-8) would be implemented for the revised Phase I project to reduce impacts on cultural and historic resources. The revised Phase I project would not result in new or substantially more severe significant impacts on cultural and historic resources than those analyzed in the Program EIR.

2.6 Geology and Soils

Although the building sizes would be larger with the revised Phase I project, the building footprints would be similar to the approved Phase I project. The quantity of excavation and areas of ground-disturbing activities associated with construction of the revised Phase I project would be similar and comparable to the approved Phase I project. Similar to the approved Phase I project, the revised Phase I project would be required to comply with the National Pollutant Discharge Elimination Service (NPDES) General Permit (NPDES No. CAS000002) that requires preparation of a Storm Water Pollution Prevention Program (SWPPP) to minimize erosion. The approved mitigation measure (MM Geology-1) would be implemented for the revised Phase I project to reduce impacts from unstable soils. The revised Phase I project would not result in new or substantially more severe significant geology and soils impacts than those analyzed in the Program EIR.

2.7 Hazards and Hazardous Materials

Construction activities for the revised Phase I project would involve demolition, ground-disturbing activities, construction, and use of equipment and vehicles similar to the approved Phase I project. Demolition of existing buildings that may have been built with asbestos-containing materials and lead-based paints would occur, as analyzed in the Program EIR. Excavation and ground-disturbing activities could encounter contaminated soils or buried underground storage tanks, as analyzed in the Program EIR. The approved mitigation measures (MM Hazards-1 through MM Hazards-4) would be implemented for the revised Phase I project to reduce impacts from spills during construction and contaminated buildings and soils. Furthermore, the revised Phase I project would involve construction of an appropriately sized EOC, which would facilitate more efficient and effective emergency response and evacuation procedures. The revised Phase I project would not interfere with but would rather improve the City's response during emergencies that necessitate evacuations. The revised Phase I project would not result in new or substantially more severe significant impacts from hazards and hazardous materials or interference with emergency response than those analyzed in the Program EIR.

2.8 Hydrology and Water Quality

Groundwater is anticipated to be below the depth of the proposed excavations (SmithGroupJJR, 2019a). Dewatering is not anticipated, as analyzed in the Program EIR. Impervious surfaces on

the Civic Center following construction of the revised Phase I project would decrease from 18.1 acres to 15 acres, same as the approved Phase I project. The revised Phase I project would be required to comply with the NPDES General Permit that requires preparation of a SWPPP to minimize sedimentation of stormwater runoff. The approved mitigation measures (MM Hazards-2 through MM Hazards-4, and MM Hydrology-1) would be implemented for the revised Phase I project to reduce the impacts on water quality. The revised Phase I project would not result in new or substantially more severe significant impacts on hydrology and water quality than those analyzed in the Program EIR.

2.9 Land Use and Planning

No changes to the zoning or land use would occur as part of the revised Phase I project. The revised Phase I project would not result in new or substantially more severe significant impacts on land use and planning than those analyzed in the Program EIR.

2.10 Mineral Resources

No change to conditions would occur that could result in an impact on mineral resources. The revised Phase I project would not result in new or substantially more severe significant impacts on mineral resources than those analyzed in the Program EIR.

2.11 Noise

Since certification of the Program EIR, the noise environment on the Civic Center has not measurably changed and the 2018 ambient noise measurements are considered to still be valid. Equipment used during construction and the types of construction activities for the revised Phase I project would not be significantly different than those analyzed for the approved Phase I project.

The new City Hall would be located closer to the nearest sensitive receptor, a residential complex to the north, as compared to existing conditions, decreasing the distance between rooftop mechanical equipment and the receptors from 270 feet to 200 feet. Assuming no shielding or noise decrease from intervening vegetation or buildings, mechanical equipment would attenuate at 6 A-weighted decibels (dBA) per doubling of distance, resulting in less than 1 dBA increase above existing ambient noise levels (refer to Table 2-6). The ambient noise level from the closer City Hall rooftop equipment would not exceed the permanent noise-level threshold of 3 dBA day-night average sound levels (L_{dn}) over the existing ambient noise levels. The resultant noise from the mechanical equipment would also be less than the 60 dBA acceptable noise-level for residential uses during the day and less than the 50 dBA acceptable noise-level at night, as specified by the municipal code.

Table 2-6 Noise Level Increases from the Revised Phase I Project

Source	Noise Level at Source (dBA L_{eq})	Distance and Direction to Nearest Receptor (feet)	Operational Noise Level at Receptor (dBA L_{eq})	Existing Ambient Noise Level [e]	Operational Ambient Noise Level	Threshold	Exceeds Threshold?
Permanent							
Rooftop Mechanical Equipment [a]	70	200 to the north	47.5	68.6 dBA L_{dn}	68.6 dBA L_{dn}	3 dBA Above Ambient Noise Level L_{dn}/City Municipal Code	No
Periodic							
200 kW generator [b, c]	68	130 to the northwest	53.0	63.6 dBA L_{eq}	64.0 dBA L_{eq}	10 dBA Above Ambient Noise Level	No
1000 kW generator [d]	80	270 to the east	58.6	70.6 dBA L_{eq}	70.9 dBA L_{eq}	10 dBA Above Ambient Noise Level	No

Notes:

[a] Assumes highest noise level from the HVAC systems of 70 dBA at 15 feet (Illingworth and Rodkin, 2015).

[b] Assumes highest noise level of 68 dBA at 23 feet (Hardy Diesel, 2019).

[c] Only one 200-kW generator would operate at any one time. The second 200-kW generator is a backup for the first 200-kW generator (O'Brien, Principal at SmithGroupJJR, 2019a).

[d] Assumes highest noise level of 80 dBA at 23 feet (Generac, 2012).

[e] Ambient noise levels identified from Table 4.9-1 of the Program EIR.

Source: (Panorama, 2020)

The revised Phase I project would involve installation of three diesel-powered emergency generators within concrete enclosures—one 1,000-kW generator at City Hall and two 200-kW generators at the EOC. The City Hall generator would be located to the south of the new City Hall and the EOC generators would be located on the southeast corner of West Olive Avenue and South Pastoria Avenue. The nearest receptors to both of the generators are residences; the distances are shown in Table 2-6.

The Sunnyvale Municipal Code exempts noise from construction activities under emergency conditions and is assumed to also apply to use of emergency generators during emergency conditions (Section 16.08.030). Periodic testing and maintenance of emergency generators would generate noise levels as shown in Table 2-6 without any shrouding or noise dampening from an enclosure or intervening trees. As shown, the resultant noise level from the generators would not exceed thresholds at the nearest receptor. The emergency generators would be housed in a concrete enclosure, which would further reduce noise levels by up to 10 dBA equivalent continuous sound level (L_{eq}) (FHWA, 2000). The ambient noise level from operation of the emergency generators during periodic testing and maintenance would not exceed the temporary or periodic noise level threshold of 10 dBA L_{eq} over the existing ambient noise levels.

Average daily traffic is projected to be a total 6,563 trips (a net increase of 1,669 trips) to and from the Civic Center after buildout of the revised Master Plan with the revised Phase I project, with the 11 percent TDM reduction (Huie, 2020). Implementation of the revised Master Plan would result in a reduction of 499 daily trips compared to implementation of the approved Master Plan. As such, traffic noise associated with the revised Master Plan and consequently the revised Phase I project as well would be less than analyzed in the Program EIR and would not result in an increase in ambient noise levels.

The approved mitigation measures (MM Noise-1 through MM Noise-4) would be implemented for the revised Phase I project to reduce the impacts related to construction and operational noise. The revised Phase I project would not result in new or substantially more severe significant impacts from noise than those analyzed in the Program EIR.

2.12 Population and Housing

The larger City Hall proposed as part of the revised Phase I project would accommodate more employees than existing conditions or the approved Phase I project (O'Brien, 2019b; O'Brien, 2020). The additional employees are anticipated to be sourced from the existing and projected population in the County of Santa Clara. The larger City Hall and EOC would not directly or indirectly induce population growth but would rather provide jobs and services to accommodate the City's planned growth. No housing is present or proposed for the Civic Center. The revised Phase I project would not displace any housing or people. The revised Phase I project would not result in new or substantially more severe significant impacts on population and housing than those analyzed in the Program EIR.

2.13 Public Services

Lane and road closures may still be necessary during construction of the revised Phase I project, but no new emergency service facilities would be required for short-term closures. The larger City Hall and EOC would not induce population growth, as analyzed above, and would not necessitate more public services, but would rather provide services to meet the demands of a larger population from projected growth. The revised Phase I project would not result in new or substantially more severe significant impacts on public services than those analyzed in the Program EIR.

2.14 Recreation

Amenities for the public would be installed as part of the revised Phase I project, including walking paths and benches. The revised Phase I project would not include the construction of housing or features that would induce population growth resulting in an increased demand for recreational facilities. The revised Phase I project would not result in new or substantially more severe significant impacts on population and housing than those analyzed in the Program EIR.

2.15 Transportation

2.15.1 Construction

Construction of the revised Phase I project would occur over a longer duration than the approved Phase I project. As such, although the City Hall and EOC would be larger and would require more vehicle trips associated with workers, material delivery, and hauling, the average daily number of worker and truck trips is anticipated to be similar to those analyzed in the Program EIR. Lane and road closures may still be necessary during construction of the revised Phase I project. The Santa Clara VTA bus Route 54 (Route 54) that traverses West Olive Avenue through the project site would still be disrupted by any temporary closures. Construction-related vehicle trips and activities would impact roadways and alternative transportation facilities for a longer duration, but the intensity of impacts would remain the same. The approved mitigation measures (MM Traffic-1 and MM Traffic-3) would be implemented for the revised Phase I project to reduce the impacts related to construction traffic. The revised Phase I project would not result in new or substantially more severe significant impacts on traffic during construction than those analyzed in the Program EIR.

2.15.2 Operation

The revised Phase I project involves operation of a larger City Hall and EOC, which would result in a greater number of vehicle trips associated with employees and visitors. The April 2018 Transportation Impact Analysis (2018 TIA) conducted by Kimley-Horn for the Program EIR analyzed full buildout of the Master Plan (Kimley Horn, 2018). The revised Phase I project was not individually modeled, but rather an update to the 2018 TIA was prepared to quantitatively analyze the increase in trips associated with the revised Master Plan, consistent

with the 2018 TIA approach. This update accounted for the larger City Hall and incorporation of 11 percent TDM[1] reductions. Refer to Appendix A for the methodology and results of the update to the 2018 TIA (Kimley Horn, 2020).The TDM reduction is based on the allowable trip reduction percentages per the Valley Transportation Authority (VTA) Transportation Impact Analysis Guidelines. The 11 percent TDM is a combination of a six percent reduction due to the Civic Center's proximity to a bus rapid transit stop and a five percent reduction for the provision of financial incentives to employees aimed at reducing vehicle trips as part of the City's TDM program. With the 11 percent TDM reductions incorporated, the City Hall and other buildings proposed as part of the revised Master Plan would generate fewer peak hour trips than the approved Master Plan (refer to Table 1 of Appendix A). The AM and PM peak hour intersection level of service (LOS) that would occur with the addition of traffic from employees and public accessing the Civic Center following buildout of the revised Master Plan is shown in Table 2 of Appendix A (refer to Figure 4.11-1 of the Program EIR for a figure showing the locations of the intersections). Traffic from full buildout of the revised Master Plan would not degrade intersection operations to below significance thresholds for any intersection operating at acceptable levels under existing conditions. The increase in vehicle trips to and from the Civic Center following construction of the revised Phase I project would be less than full buildout of the revised Master Plan and would consequently not result in degradation of any intersections currently operating at acceptable levels.

The intersection operations during the AM and PM peak hours under background conditions following buildout of approved projects in the City and with vehicle trips from employees and public accessing the Civic Center following construction of the revised Master Plan is shown in Table 4 of Appendix A. Operation following construction of the revised Phase I project would result in less traffic and associated delay than the revised Master Plan and would have even fewer effects on intersection operations. No intersection operations would degrade to below significance thresholds for any intersection operating at acceptable levels under background conditions.

Traffic on Congestion Management Plan (CMP) freeways would increase following construction of the revised Master Plan. Trips associated with the revised Master Plan would not cause any freeway segment to deteriorate to below LOS E. Freeway segments operating poorly under existing conditions would not experience an increase in vehicle trips in excess of 1 percent of the capacity, as shown in Table 3 of Appendix A (refer to Figure 4.11-3 of the Program EIR for a figure showing the locations of the freeway segments). The revised Phase I project would result in even less of an effect on freeway segments.

[1] TDM is the general term for a combination of strategies that strive to decrease the use of single occupant vehicle travel and encourage people to use other modes of transportation including transit, walking, biking, and carpooling.

Cumulative projects would decrease operations at nine intersections to below acceptable levels Table 5 of Appendix A. Buildout of the revised Master Plan would further increase delays at these intersections but less so than the approved Master Plan and would not decrease the LOS at any intersection operating at acceptable levels. Traffic associated with buildout of the revised Master Plan would exceed the volume-demand-to-capacity ratio (v/c) and critical delay at Mary Avenue/West Olive Avenue, but would not cause the intersection or any other intersection to meet the peak hour signal warrant.

The driveway to the new underground garage would be from West Olive Avenue per the revised Phase I project, instead of All America Way. Changes to access points within and the increased number of vehicle trips to and from the Civic Center could result in new traffic conflicts, as analyzed in the Program EIR. The approved mitigation measure (MM Traffic-2) would be implemented for the revised Phase I project and revised Master Plan to reduce the impacts related to traffic hazards. The revised Phase I project and revised Master Plan would not result in new or substantially more severe significant impacts on traffic during operation than those analyzed in the Program EIR.

2.16 Utilities and Service Systems

Demand for wastewater treatment facilities, water, and disposal facilities during operation of the larger City Hall and EOC would increase compared to the approved Phase I project. The buildings would be designed with water efficient features to meet LEED Platinum or Gold standards. Total indoor water use would decrease by approximately 15 to 19 percent compared to the existing conditions (a reduction of approximately 1 to 5 percent compared to the approved Phase I project depending on the level of water efficiency). Although the quantity of water used would increase due to the larger buildings, the newer buildings would be substantially more water efficient than the existing structures. The increased demand for water and associated generation of wastewater compared to the approved Phase I project could be accommodated by municipal supplies and facilities, respectively, and would still be less than existing conditions.

The permitted daily capacity of the Sunnyvale Materials Recovery and Transfer Station (SMaRT) Station and Kirby Canyon Landfill has not changed since certification of the Program EIR, and the remaining capacity for Kirby Canyon Landfill is still approximately 16.2 million cubic yards (CalRecycle, 2019). The larger City Hall and EOC would increase waste compared to the approved Phase I project, but the total increase would be nominal and would be accommodated by the permitted capacity of SMaRT Station and Kirby Canyon Landfill. The approved mitigation measures (MM Hydrology-1, MM Hazards-1, and MM Hazards-3) would be implemented for the revised Phase I project to reduce the impacts related to utilities. The revised Phase I project would not result in new or substantially more severe significant impacts on utilities and service systems than those analyzed in the Program EIR.

2.17 Energy Resources

The revised Phase I project would require an increase in energy usage during construction and operation due to the larger size of the City Hall and EOC. Fuel use during construction would be consistent with typical construction and manufacturing practices and would not require excessive or wasteful use of energy. Energy use, although higher than the approved Phase I project, is anticipated to decrease compared to existing conditions and would be met by 100 percent renewable energy sources and on-site generation of energy from solar photovoltaic arrays. The increased employment opportunities associated with construction and operation of the revised Phase I project would likely be met by residents of the County of Santa Clara and would not increase the distance between jobs and housing. The revised Phase I project would not result in new or substantially more severe significant impacts on energy resources than those analyzed in the Program EIR.

2.18 Other CEQA Topics

2.18.1 Changes in Land Use that Commit Future Generations

The revised Phase I project would not result in a change to the zoning or land use designations of the Civic Center. The revised Phase I project would not commit future generations to significant changes in land use.

2.18.2 Consumption of Non-Renewable Resources

Non-renewable resources include mineral resources, fossil fuels, and groundwater. As discussed above, the revised Phase I project would require an increase in fuel use and materials used during construction to construct the larger City Hall and EOC. No natural gas would be used for heating of water or air conditioning, and photovoltaic arrays would be installed to supply energy to the new buildings. The revised Phase I project would still result in operation of a more efficient City Hall than existing conditions, reducing use of water and energy in the long-term, and would not consume significant quantities of non-renewable resources.

2.18.3 Irreversible Damage from Environmental Accidents

Construction and operation of the revised Phase I project would involve use of equipment and vehicles, which could result in the accidental spill of hazardous materials such as diesel and gasoline, similar to the approved Phase I project. Demolition and ground-disturbing activities could disturb asbestos-containing materials, lead-based paint, and other sources of contamination on the Civic Center, as previously analyzed. The revised Phase I project would not result in a new potential for irreversible damage as a result of an environmental accident. The potential would remain low.

2.18.4 Growth-Inducing Impacts

Implementation of the revised Phase I project would involve construction of a larger City Hall and EOC, which could require a greater number of construction workers and would increase

the number of employees on the Civic Center during operation. The workers and employees would be sourced from the existing and projected population in the County of Santa Clara, as analyzed above. The revised Phase I project is designed to provide services to accommodate the City's planned growth and would not result in direct or indirect impacts on population growth. The revised Phase I project would not result in new or substantially more severe significant impacts on the environment than those analyzed in the Program EIR.

3 Determination

No new or substantially more severe significant impacts would occur as a result of the revised Phase I project. No new substantial changes would occur with respect to the circumstances under which the revised Phase I project would be undertaken. The mitigation measures and determination of significance for impacts included in the adopted Program EIR would continue to be valid. None of the conditions described in CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR or CEQA Guidelines Section 15163 requiring preparation of a supplemental EIR have occurred. This addendum to the adopted Program EIR is the appropriate level of environmental review for the project revisions, as identified in CEQA Guidelines Section 15164.

4 References

BAAQMD. (2007, July 25). Regulation 9 Inorganic Gaseous Pollutants Rule 8 Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines.

BAAQMD. (2012, May 30). Stationary Source Screening Analysis Tool. Retrieved from http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools

BAAQMD. (2017, December 6). Regulation 2 Permits Rule 2 New Source Review.

CalRecycle. (2019, November 11). SWIS Facility Detail.

FHWA. (2000, February). FHWA Highway Noise Barrier Design Handbook.

Generac. (2012). *Industrial Diesel Generator Set MD1000GEM*.

Hardy Diesel. (2019). *WhisperWatt DCA250SSI Diesel generator*. Retrieved from https://www.hardydiesel.com/multiquip-diesel-generator/dca-250-ssi.html

Huie, B. (2020, March 19). P.E. Kimley Horn. (C. Gilleran, Interviewer)

Illingworth and Rodkin. (2015, May 29). Cannery Park Project Environmental Noise Assessment San Jose, California.

Kimley Horn. (2018, April). Transportation Impact Analysis Civic Center Modernization.

Kimley Horn. (2020, March 17). Update to the Sunnyvale Civic Center - Transportation Impact Analysis.

Kirk, A. (2018, February 19). Stationary Source Inquiry Form and BAAQMD Risk and Hazards Emissions Screening Calculator (Beta Version) for Sunnyvale Civic Center.

O'Brien, M. (2019a, October 15). Principal at SmithGroupJJR. (C. Gilleran, Interviewer)

O'Brien, M. (2019b, November 4). Principal at SmithGroupJJR. (C. Gilleran, Interviewer)

O'Brien, M. (2020, February 24). Principal at SmithGroupJJR. (C. Gilleran, Interviewer)

Panorama. (2020, February). Noise Calculations .

SmithGroupJJR. (2019a). 100% Schematic Design.

SmithGroupJJR. (2019b, October 4). Sunnyvale Civic Center - Phase I Site Improvement.

SmithGroupJJR. (2020a, January). Design Figures City Hall.

SmithGroupJJR. (2020b, January). Design Figures Emergency Operations Center.

SmithGroupJJR. (2020c, February). Phase I Data.

APPENDIX A

Program EIR Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program

Introduction

When approving projects with mitigation measures that if implemented would avoid or lessen significant impacts, CEQA requires public agencies to adopt monitoring and reporting programs or conditions of project approval to mitigate or avoid the identified significant effects (Public Resources Code Section 21081.6(a)(1)). A public agency adopting measures to mitigate or avoid the significant impacts of a proposed project is required to ensure that the measures are fully enforceable, through permit conditions, agreements, or other means (Public Resources Code Section 21081.6(b)). The mitigation measures required by a public agency to reduce or avoid significant project impacts not incorporated into the design or program for the project may be made conditions of project approval as set forth in a Mitigation Monitoring and Reporting Program (MMRP), detailed in Table 1. The program must be designed to ensure project compliance with mitigation measures during project implementation.

Format

This MMRP is organized in a table format, keyed to each significant impact and mitigation measure. Only mitigation measures adopted to address significant impacts are included in this program. Each mitigation measure is set out in full, followed by a tabular summary of monitoring requirements. The column headings in the tables are defined as follows:

- **Mitigation Measure:** This column presents the significant impact and full mitigation measure.
- **Implementation Responsibility:** This column assigns the party responsible for implementation of the measures
- **Monitoring Responsibility:** This column assigns the party responsible for monitoring implementation.
- **Timing and Performance Standards:** Identifies at which stage of the project, mitigation must be completed. Performance standards are identified that must occur during the specified stage of project implementation to determine that the objectives of the mitigation are met.

Enforcement

This MMRP will be incorporated as a condition of project approval. All mitigation measures must be carried out to fulfill the requirements of approval.

Table 1 Sunnyvale Civic Center Modernization Master Plan Mitigation, Monitoring, and Reporting Program

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
Aesthetics				
Impact Aesthetics-5 **MM Aesthetics-1: Shield Night Lighting** Construction lighting shall not generally be used except when necessary such as for utility connections in roadways or when natural light during regular construction hours (Monday through Friday from 7:00 am to 6:00 pm and on Saturday from 8:00 am and 5:00 pm) is limited. Stationary lighting used during construction shall be shielded and directed downward or oriented such that the light source is not directed toward residential areas or into streets where glare could impact motorists or pedestrians.	Contractor	City of Sunnyvale Community Development Department	**Prior to Construction:** N/A **During Construction:** Install shielded lighting **After Construction:** N/A	
Air Quality and Greenhouse Gas Emissions				
Impact Air Quality-1 **MM Air Quality-1: Fugitive Dust Control** At a minimum the following control measures must be implemented during construction: • When moisture content is low enough to create dust, all exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or as often as needed to control dust emissions. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as	Contractor	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Post a publicly visible dust complaint sign **During Construction:** Implement fugitive dust control measures **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
soon as possible after grading unless seeding or soil binders are used. • Post a publicly visible sign with the telephone number and person to contact at the City of Sunnyvale regarding dust complaints. The City of Sunnyvale shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • Construction equipment shall be properly maintained by a certified mechanic.				
Impact Air Quality-1 **MM Air Quality-2: Exhaust Controls** All construction equipment used during Phase I construction shall be fitted with Level 3 Diesel Particulate Filters (DPF) and engines shall meet or exceed the U.S. Environmental Protection Agency Certified Tier 3 emission standards. Prior to issuance of any construction permit, the construction contractor shall ensure that all construction plans submitted to the City of Sunnyvale clearly show the requirement for Level 3 DPF and Tier 3 or higher emission standards for construction equipment. The construction contractor shall maintain a list of all operating equipment in use on the project site for verification by the City of Sunnyvale Building Division official or their designee. The construction equipment list shall state the makes, models, and number of construction equipment onsite to verify compliance with	Contractor	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Identify use of Tier 3 engines and Level 3 DPF on construction plans **During Construction:** Implement exhaust control standards **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
the requirement for equipment to have Level 3 DPF and Tier 3 or higher emission standards.				
Impact Air Quality-2: Implement Mitigation Measure MM Air Quality-1 (see above)				
Impact Air Quality-3: Implement Mitigation Measure MM Air Quality-1 and Air Quality-2 (see above)				
Impact Air Quality-4: Implement Mitigation Measure MM Air Quality-1 and Air Quality-2 (see above)				
Impact Air Quality-6: Implement Mitigation Measure MM Air Quality-1 and Air Quality-2 (see above)				
Biological Resources				
Impact Biology-1 **MM Biology-1: Nesting Bird Measures** **Pre-Construction Survey** • Use of heavy equipment, grading, demolition, construction, and/or tree removal, shall avoid the nesting season to the greatest extent feasible. • If construction activities occur during the nesting season, a pre-construction survey for active bird nests in the project site shall be conducted on the project site and within 500 feet of the project site by a qualified biologist within 3 days prior to construction start. 1. If no nesting or breeding behavior is observed, construction may proceed. 2. If an active nest is detected, a determination shall be made by a qualified biologist as to whether construction work could affect the active nest. If it is determined that construction would not affect an active nest, work may proceed. 3. If it is determined that construction activities are likely to impair the successful rearing of the young, a 'no-disturbance buffer' in the form of orange mesh	Contractor working with qualified wildlife biologist	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Conduct nesting bird survey; Identify and implement no disturbance buffer, as necessary **During Construction:** Conduct daily inspections for birds and limit lighting **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
Environmentally Sensitive Area (ESA) fencing shall be established around occupied nests to prevent destruction of the nest and to prevent disruption of breeding or rearing behavior. • The extent of the 'no-disturbance buffer' shall be determined by a qualified biologist in consultation with CDFW and shall depend on the level of noise or disturbance, line of sight between the nest and the disturbance area, the type of bird, ambient levels of noise and other disturbances, and other topographic or artificial barriers. • 'No-disturbance buffers' shall be maintained until the end of the breeding season or until a qualified wildlife biologist has determined that the nestlings have fledged. • A qualified wildlife biologist shall inspect the active nest to determine whether construction activities are disturbing to the nesting birds or nestlings. If the qualified wildlife biologist determines that construction activities pose a disturbance to nesting, construction work shall be stopped in the area of the nest, and the 'no-disturbance buffer' expanded. **Inspections** • Construction workers shall conduct daily inspections for nests. If a nest is discovered by workers on the project site during daily inspections, work shall stop and the qualified wildlife biologist shall be called to the site, who shall determine whether construction activities could affect nesting and establish a "no-disturbance buffer', if necessary, as described above. **Lighting** • Lighting shall be limited to areas required for operations or safety, shall be directed on-site to avoid backscatter, and shall be shielded from public view to the extent practical. Lighting that is not required to be on during nighttime hours shall be				

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
controlled with sensors or switches operated such that lighting shall be on only when needed.				
Impact Biology-4: Implement Mitigation Measure MM Biology-1 (see above)				
Impact Biology-5 **MM Biology-2: New Trees** New trees shall be sourced from certified disease-free stock.	Contractor	City of Sunnyvale Community Development Department and Department of Public Works	**Prior to Construction:** Identify tree source as certified disease-free prior to purchase **During Construction:** Plant trees **After Construction:** N/A	
Impact Biology-5 **MM Biology-3: Tree Protection Plan** The Tree Protection Plan, prepared in accordance with § 19.94.110 and incorporating the techniques identified in § 19.94.120, will also include the following requirements: **Project Arborist** The Project Arborist identified to assist with removal of protected trees, relocation of protected trees, and construction activities in the vicinity of protected trees throughout construction shall be certified by the International Society of Arboriculture. **Ground-Disturbing Activities** Ground-disturbing activities shall be conducted outside of the dripline of protected trees. When ground-disturbing activities (i.e., trenching, excavating) encounters roots smaller than two inches occurs outside of the dripline of protected trees, the roots shall be hand trimmed, making clear, clean cuts. All damaged, torn, and cut roots shall be given a clean cut to remove ragged edges, which promote decay. Trenches shall be filled within 24 hours, but, where, this is not possible, the side of the trench/excavation area adjacent to the protected trees shall be shaded with four layers of dampened,	Contractor working with Project Arborist	City of Sunnyvale Community Development Department and Department of Public Works	**Prior to Construction:** Complete Tree Protection Plan prior to removal of protected trees **During Construction:** Implement tree protection restrictions; Plant trees in accordance with approved replacement ratio **After Construction:** Monitor replacement trees	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
untreated burlap, wetted as frequently as necessary to keep the burlap wet. Roots two inches or larger, when encountered, shall be reported immediately to the Project Arborist, who shall decide whether the applicant may cut the roots as mentioned above or shall excavate by hand or with compressed air under the root. The root shall be protected with dampened burlap. In addition, the top two feet of the foundation closest to the protected trees shall be air spaded or hand dug under supervision of the Project Arborist to locate and evaluate any significant roots prior to mechanical excavation. The Project Arborist shall be required to submit a report to the City regarding the findings of the excavation and recommend any additional actions needed to protect the roots to preserve the health and structure of both the redwood and oak trees. **Underground Utilities** To avoid conflict with roots, underground utilities shall be routed outside of an area, ten times the diameter of a protected tree. In addition, where it is not possible to reroute pipes or trenches, the utility shall be routed beneath the dripline of the tree. The boring shall take place not less than three feet below the surface of the soil in order to avoid encountering feeder roots. **Protected Tree Replacement** Protected trees removed during construction shall be replaced using a ratio of between 1:1 and 1:4, depending on the size of the protected tree removed and the size of the replacement tree, in accordance with the City of Sunnyvale Community Development Department Tree Replacement Standards. **Monitoring** The planted replacement trees shall be monitored by the City to ensure that the trees have survived, and shall replace any trees that die.				
Impact Biology-7: Implement Mitigation Measure MM Biology-1 (see above)				

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
Cultural and Tribal Cultural Resources				
Impact Cultural-1 **MM Cultural-1: Documentation of the Sunnyvale Civic Center Historic District** Documentation of the Sunnyvale Civic Center Historic District using the standards and guidelines provided by the Historic American Landscapes Survey (HALS) should be prepared. The documentation shall, at a minimum, include (1) a historical narrative and descriptive report using the standard HALS outline format; (2) a plan that identifies the key building and cultural landscape features (to be attached as supplemental material to the report); and (3) large format photographs that show general views to illustrate the overall setting of the historic district's buildings and landscape and individual views of key features such as the buildings, entrance plazas and other circulation features, structures (such as arbors or walls), streets, the central lawn and the character of the vegetation, and details. Photographs and other field work associated with the documentation must be completed prior to any demolition or alteration of the buildings and cultural landscape features within the Sunnyvale Civic Center Historic District. The documentation shall be prepared under the oversight of a person with experience in HALS documentation and one who meets the National Park Service's qualifications standards for Historical Landscape Architect. Copies of the documentation (report, plan, digital prints of the large format photographs, and index to photographs) shall be provided in hard copy and in portable document format (pdf) to local repositories (such as the Sunnyvale Library and the Sunnyvale Historical Society) and the Environmental Design Archive at the University of California, Berkeley.	City of Sunnyvale working with experienced HALS documentation personnel	City of Sunnyvale Community Development Department	**Prior to Construction:** Conduct historic documentation prior **During Construction:** N/A **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
Impact Cultural-1 **MM Cultural-2: Documentation of the City Hall** Documentation of City Hall using the Historic American Buildings Survey (HABS) guidelines for the Outline Format Report and HABS photography of representative views of the interior and exterior shall be prepared. The documentation shall be prepared by a person with experience in preparing HABS documentation and one who meets the Secretary of the Interior's Historic Preservation Professional Qualifications for Architectural History. Copies of the outline report (both a hard copy and as a pdf) should be provided to local repositories (such as the Sunnyvale Library and the Sunnyvale Historical Society) and the Environmental Design Archive at the University of California, Berkeley.	City of Sunnyvale working with experienced HABS documentation personnel	City of Sunnyvale Community Development Department	**Prior to Construction:** Conduct historic documentation prior **During Construction:** N/A **After Construction:** N/A	
Impact Cultural-1 **MM Cultural-3: Documentation of the Sunnyvale Office Center** Documentation of the Sunnyvale Office Center using the Historic American Buildings Survey (HABS) guidelines for the Outline Format Report and HABS photography of representative views of the interior and exterior shall be prepared. The documentation shall be prepared by a person with experience in preparing HABS documentation and one who meets the Secretary of the Interior's Historic Preservation Professional Qualifications for Architectural History. Copies of the outline report (both a hard copy and as a pdf) should be provided to local repositories (such as the Sunnyvale Library and the Sunnyvale Historical Society) and the Environmental Design Archive at the University of California, Berkeley.	City of Sunnyvale working with experienced HABS documentation personnel	City of Sunnyvale Community Development Department	**Prior to Construction:** Conduct historic documentation prior **During Construction:** N/A **After Construction:** N/A	
Impact Cultural-1 **MM Cultural-4: Archival of the Historical Plans** Digital (pdf) copies of the historical plans of the Sunnyvale Civic Center Historic District's buildings (City Hall, City Hall Annex, Sunnyvale Library, and Sunnyvale Office Center) and landscapes on	City of Sunnyvale	City of Sunnyvale Community Development Department	**Prior to Construction:** Archive the Historical Plans **During Construction:** N/A **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
file with the City shall be provided to local repositories (such as the Sunnyvale Library and the Sunnyvale Historical Society) and the Environmental Design Archive at the University of California, Berkeley.				
Impact Cultural-2 **MM Cultural-5: Cultural Resources Sensitivity Training and Inadvertent Discovery** A professional archaeologist shall provide sensitivity training to supervisory staff prior to initiation of site preparation and/or construction, to alert construction workers to the possibility of exposing significant historic and/or prehistoric archaeological resources within the proposed project area. The training shall include a discussion of the types of prehistoric or historic objects that could be exposed and how to recognize them, the need to stop excavation at a discovery and within 50 feet of a discovery, and the procedures to follow regarding discovery protection and notification. An "Alert Sheet" shall be posted in staging areas, such as in construction trailers, to alert personnel to the procedures and protocols to follow for the discovery of a potentially significant historic and/or prehistoric archaeological resource. [a] In the event that an archaeological resource is discovered, ground disturbing work shall be halted within 50 feet of the find, and a qualified cultural resources specialist/archaeologist shall be brought to the site. The qualified cultural resources specialist/archaeologist shall evaluate the resource and determine whether it is (1) eligible for the CRHR (and thus a historic resource for purposes of CEQA) and/or (2) a unique archaeological resource as defined by CEQA. If the resource is determined to be neither a unique archaeological nor a historical resource, work may commence in the area. If the resource meets the criteria for either a historical or unique archaeological resource, work shall remain halted within 50 feet of the find, and the qualified cultural resources specialist/archaeologist	Contractor working with professional archaeologist	City of Sunnyvale Community Development Department	**Prior to Construction:** Conduct sensitivity training **During Construction:** Halt ground disturbing activities if a cultural resource is uncovered **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
shall evaluate the resource and determine whether it is (1) eligible for the CRHR (and thus a historic resource for purposes of CEQA) and/or (2) a unique archaeological resource as defined by CEQA. If the resource meets the criteria for either a historical or unique archaeological resource, work shall remain halted within 50 feet of the area of the find and the qualified cultural resource specialist shall consult with City staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA Guidelines Section 15064.5(b). Preservation-in-place (i.e., avoidance) is the preferred method of mitigation for impacts on cultural resources. If preservation-in-place and avoidance is not possible, data recovery shall be undertaken. The methods and results of data recovery work at an archaeological find shall be documented in a professional-level technical report to be filed with the California Historical Resources Information System (CHRIS). Work in the area may commence upon completion of treatment, as approved by the City.				
Impact Cultural-3 **MM Cultural-6: Paleontological Resources Sensitivity Training and Inadvertent Discovery** A professional paleontologist shall provide sensitivity training to supervisory staff to alert construction workers to the possibility of exposing significant paleontological resources within the proposed project area. The training shall be conducted as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995), to recognize fossil materials in the event that any are uncovered during construction. In the event that a paleontological resource is uncovered during project implementation, all ground-disturbing work within a 50-foot radius shall be halted. A qualified paleontologist shall inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts shall occur, no	Contractor working with professional paleontologist	City of Sunnyvale Community Development Department	**Prior to Construction:** Conduct sensitivity training **During Construction:** Halt ground disturbing activities if a paleontological resource is uncovered **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
further effort shall be required. If the resource cannot be avoided and may be subject to further impact, a qualified paleontologist shall evaluate the resource and determine whether it is "unique" [b] under CEQA, Appendix G, part V. If the resource is determined not to be unique, work may commence in the area. If the resource is determined to be a unique paleontological resource, work shall remain halted, and the paleontologist shall consult with City staff regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA. Preservation-in-place (i.e., avoidance) is the preferred method of mitigation for impacts to paleontological resources. If preservation-in-place is not feasible and avoidance is not possible, the fossils shall be recovered, prepared, identified, catalogued, and analyzed according to current professional standards under the direction of a qualified paleontologist. All recovered fossils shall be curated at an accredited and permanent scientific institution according to Society of Vertebrate Paleontology (SVP) standard guidelines. Work may commence upon completion of treatment.				
Impact Cultural-4 **MM Cultural-7: Human Remains** If human remains are encountered during construction, ground disturbing work shall halt within 50 feet of any area where human remains, or suspected human remains, are encountered in compliance with California law (Health and Safety Code section 7050.5; PRC sections 5097.94, 5097.98, and 5097.99). The City shall contact the Medical Examiner at the county coroner's office. The Medical Examiner has two (2) working days to examine the remains after being notified by the City. When the remains are determined to be Native American, the Medical Examiner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall immediately notify the identified Most Likely Descendant (MLD), and the MLD has 48 hours, from the time that	Contractor	City of Sunnyvale Community Development Department	**Prior to Construction:** N/A **During Construction:** Halt ground disturbing activities if human remains are encountered **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
access to the project site is granted, to make recommendations to the landowner or representative for the respectful treatment or disposition of the remains and grave goods. If the MLD does not make recommendations within 24 hours, the area of the property must be secured from further disturbance. If there are disputes between the landowner and the MLD, the NAHC shall mediate the dispute to attempt to find a resolution. If mediation fails to provide measures acceptable to the landowner, the landowner or his/her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.				
Impact Cultural-5 **MM Cultural-8: Tribal Cultural Resources Inadvertent Discovery** The training and Alert Sheet identified under MM Cultural-1 shall encompass tribal cultural resources as well. In the event that an archaeological resource is discovered, ground disturbing work shall be halted within 50 feet of the find, and a qualified cultural resources specialist/archaeologist shall be brought to the site. The qualified cultural resources specialist/archaeologist shall evaluate the resource and determine whether it is of special importance to a California Native American Tribe. If the resource is determined to not be of importance to the tribe, work may commence in the area. If the resource meets the criteria for an important tribal resource, work shall remain halted within 50 feet of the find, and the qualified cultural resources specialist/archaeologist shall evaluate the resource and determine whether it is an important resource to the local Native American Tribe. If the resource is important to the tribe, work shall remain halted within 50 feet of the area of the find and the qualified cultural resource specialist shall consult with City staff regarding methods to ensure that no substantial adverse change	Contractor working with cultural resources specialist	City of Sunnyvale Community Development Department	**Prior to Construction:** N/A **During Construction:** Halt ground disturbing activities if a tribal cultural resource is encountered **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
would occur to the significance of the tribal cultural resource pursuant to PRC section 21084.3. Methods may include the following: • Preservation-in-place (i.e., avoidance) is the preferred method of mitigation for impacts on tribal cultural resources. • Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: – Protecting the cultural character and integrity of the resource – Protecting the traditional use of the resource – Protecting the confidentiality of the resource • Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places. • Protecting the resource. • Work in the area may commence upon completion of treatment, as approved by the City.				
Impact Culutral-6: Implement Mitigation Measure MM Cultural-5, MM Cultural-6, and MM Cultural-8 (see above)				
Geology and Soils				
Impact Geology-3 **MM Geology-1: Geotechnical Investigation** The City shall conduct a design-level geotechnical investigation for the project site to identify and evaluate soil conditions and geologic hazards. Where potential soil or geologic hazards are found to occur, appropriate engineering design and construction measures shall be identified in the geotechnical investigation. These recommendations shall be incorporated into the design of Phase I and of future phases, as deemed appropriate by a California licensed Geotechnical Engineer or Certified Engineering Geologist. Appropriate design measures shall include, but are not limited to removal of unstable	City of Sunnyvale	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Conduct geotechnical investigation; Incorporate recommendations into final designs **During Construction:** N/A **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
materials and replacement with stable materials, and avoidance of highly unstable areas, if found.				
Impact Geology-4: Implement Mitigation Measure MM Geology-1 (see above)				
Hazards and Hazardous Materials				
Impact Hazards-1 **MM Hazards-1: Hazardous Building Materials Survey, Notification, Removal, and Disposal** **Survey:** A lead-based paint and asbestos survey shall be performed prior to any construction and demolition activities. • The asbestos survey shall adhere to Asbestos Hazard Emergency Response Act (AHERA) sampling protocol and should be performed prior to any activities that may disturb suspect asbestos-containing materials (ACMs). • The lead-based paint survey will require the project sponsor to collect and test material samples or perform an X-Ray Fluorescence (XRF) survey to determine the presence of lead-based paint. **Asbestos Notification:** USEPA and BAAQMD shall be notified using the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) Notification Form, at least ten working days prior to the start of building demolition and demolition shall comply with 40 CFR 61, Subpart M (National Emission Standard for Asbestos), under the Health & Safety Code § 39658(b)(l). **Removal and Disposal**: Disposal of contaminated waste shall comply with applicable regulations. • Removal and disposal of asbestos-containing materials shall comply with BAAQMD Regulation 11 Hazardous Pollutants, Rule 2 Asbestos Demolition, Renovation, and Manufacturing. • Disposal of building materials from structures built prior to 1978 shall comply with CalOSHA Lead Construction Standard, Title 8,	City of Sunnyvale and Contractor	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Conduct lead-based paint and asbestos survey; Post asbestos notification at least ten working days prior to construction **During Construction:** Dispose of contaminated waste in compliance with regulations **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
California Code of Regulation 1532, which requires development and implementation of a lead compliance plan when materials that contain lead would be disturbed during construction.				
Impact Hazards-1 **MM Hazards-2: Soil Testing and UST Investigation** **Soil Testing** Soil that is intended to be imported, disturbed during grading or construction, disposed of, or removed from the project site shall be tested for hazardous contaminants (i.e., pesticides or petroleum hydrocarbons), with the test results compared to regulatory standards such as Federal (RCRATCLP) and State (Title 22-STLC, TTLC) hazardous waste criteria, and other applicable health-based screening levels established by the California Environmental Protection Agency prior to import, disposal, or removal. **UST Investigation** An investigation shall verify that the historical UST to the north of the existing City Hall (former Public Safety Building) was removed prior to any future excavation in this area. An investigation of potential subsurface impacts related to the historic gasoline service station and automobile repair facilities formerly located on the southeast corner of the project site shall be conducted prior to any future excavation in this area.	City of Sunnyvale	City of Sunnyvale Community Development Department and Building Division	**Prior to Construction:** Conduct soil testing UST and investigation **During Construction:** N/A **After Construction:** N/A	
Impact Hazards-1 **MM Hazards-3: Soil Management Plan** A Soil Management Plan (SMP) shall be prepared for the project site following testing of soil, in accordance with MM Hazards-2. The City shall seek regulatory approval of the SMP if soil samples are found to exceed regulatory standards. The SMP shall include the following measures at a minimum: • **Management:** If project site soil is found to be contaminated, the soil shall either be properly disposed of based on the results of	City of Sunnyvale and Contractor	City of Sunnyvale Community Development Department	**Prior to Construction:** Prepare, review, and approve the Soil Management Plan **During Construction:** Implement Soil Management Plan **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
testing or encapsulated beneath an engineered cap of clean soil or concrete and/or asphalt for areas beneath new impervious surfaces (i.e., parking lots or garages). • **Import:** If a soil/fill source is found to be contaminated, a new soil/fill source shall be selected. • **Handling:** Handling of soil or earthen material that could be contaminated with pesticides shall be performed in accordance with all applicable federal, State, and local laws in order to protect worker health and minimize current or future exposure. • **Health and Safety:** Health and safety procedures shall be prepared and implemented in the event that contaminated soil, undocumented USTs, or other subsurface structures of environmental concern are encountered during construction.				
Impact Hazards-2: Implement Mitigation Measure MM Hazards-1, MM Hazards-2, MM Hazards-3 (see above) and MM Hazards-4 **MM Hazards-4: Spill Prevention and Response** The City shall, at a minimum, implement best management practices that address the following procedures related to the use of hazardous materials during construction: • Proper disposal or management of contaminated soils and materials (i.e., clean up materials) • Daily inspection of vehicles and equipment for leaks and spill containment procedures • Emergency response and reporting procedures to address hazardous material releases • Fuels and lubricating oils for vehicles and heavy equipment will not be stored or transferred within 100 feet of any storm drains • Emergency spill supplies and equipment shall be available to respond in a timely manner if an incident should occur • Response materials such as oil-absorbent material, tarps, and storage drums shall be available in the plan area at all times	City of Sunnyvale and Contractor	City of Sunnyvale Building Division	**Prior to Construction:** N/A **During Construction:** Implement best management practices for Spill Prevention and Response **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
during management activities and shall be used as needed to contain and control any minor releases • The absorbent material shall be removed promptly and disposed of properly • Placement of as needed, minor amounts of fuel, lubricants, and hydraulic fluid for equipment operation in appropriate storage tanks on the bed of fueling vehicles • Use of secondary containment and spill rags when fueling • Discourage "topping-off" fuel tanks • Spill kits for all fuel trucks and fueling areas • All workers shall be trained on the specific procedures for hazardous materials and emergency response as an element of the required worker environmental training prior to working in the plan area.				
Impact Hazards-3: Implement Mitigation Measure MM Hazards -1, MM Hazards -2, MM Hazards -3 and MM Hazards -4 (see above)				
Hydrology and Water Quality				
Impact Hydrology-1: Implement Mitigation Measure MM Hazards -2 and MM Hazards -3 (see above)				
Impact Hydrology-4 **MM Hydrology-1: Construction Stormwater Management** If construction occurs during the rainy season (i.e., November to April [c]), temporary detention basins shall be installed to ensure that stormwater flows from the project site into the stormwater collection system do not increase during construction.	Contractor	City of Sunnyvale Community Development Department	**Prior to Construction:** Install temporary detention basins, if construction occurs during rainy season **During Construction:** N/A **After Construction:** N/A	
Impact Hydrology-5: Implement Mitigation Measure MM Hydrology-1 and MM Hazards-4 (see above)				
Impact Hydrology-11: Implement Mitigation Measure MM Hazards-2 and MM Hazards-3 (see above)				
Noise				

<table>
<tr><th>Mitigation Measure</th><th>Implementation Responsibility</th><th>Monitoring Responsibility</th><th>Timing and Performance Standards</th><th>Compliance Verification</th></tr>
<tr><td>

Impact Noise-1

MM Noise-1: Noise Management Plan

The City shall prepare a Noise Management Plan that includes the following elements at a minimum:

- **Best Management Practices.** The plan shall identify noise best management practices to be implemented during construction, including but not limited to:
  - Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
  - Construct solid plywood fences (minimum 8 feet in height) or erect noise control blanket barriers between on-site demolition/construction sites and receptors (e.g., residences and library) as defined below. Noise barriers shall also be installed around the perimeter of all staging areas to reduce noise impacts on receptors (e.g., residences, library, and Little Tree Montessori International School of Sunnyvale).

<table>
<tr><th rowspan="2">Receptor</th><th colspan="3">Distances within which Noise Blanket or Barrier is Required</th></tr>
<tr><th>Demolitions & Site Preparation</th><th>Foundation Construction</th><th>Building Construction & Finishing</th></tr>
<tr><td>Residence</td><td>80 feet</td><td>60 feet</td><td>N/A</td></tr>
<tr><td>Library</td><td>200 feet</td><td>140 feet</td><td>80 feet</td></tr>
</table>

  - Position stationary noise-generating equipment as far as possible from receptors (preschool, residences and the library).
- **Construction Schedule.** The plan shall include a detailed construction plan identifying the schedule for major noise-generating construction activities. The construction plan shall identify a procedure for coordination with adjacent noise-

</td><td>City of Sunnyvale working with acoustical consultant</td><td>City of Sunnyvale Community Development Department</td><td>**Prior to Construction:** Prepare Noise Management Plan
During Construction: Implement Noise Management Plan
After Construction: N/A</td><td></td></tr>
</table>

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
sensitive land uses, including residences, Little Tree Montessori International School of Sunnyvale, and the Sunnyvale Library, so that construction activities can be scheduled to minimize noise disturbance during noise-sensitive periods (nighttime, preschool nap times, library events, etc.). The schedule shall identify noise-sensitive periods and define noise reduction techniques. • **Community Liaison.** The plan shall designate a "Community Liaison" to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise and vibration. • **Notices.** The plan shall identify receptors within 400 feet of the project that will receive construction notices. Construction notice details are identified below: - A notice with the name and phone number of the Community Liaison shall be posted on the fencing surrounding the construction work site on the project site. - Residents and schools shall be sent a notice at least 7 days prior to the start of construction. - Residences within 500 feet of nighttime construction shall receive additional notice 7 days prior to each occurrence of nighttime construction. - Notices shall include details regarding the construction schedule and the phone number for the Community Liaison, in addition to tips for reducing noise. • **Noise Complaints.** The Community Liaison shall respond to any local complaints regarding construction noise and vibration. The Community Liaison shall determine the cause of the noise or vibration complaint and implement reasonable measures to correct the problem. Reasonable measures could include the following: - Installation of temporary sound absorption barriers (i.e., sound walls, noise control blankets)				

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
- Use of mufflers on heavy equipment. – Locating of stationary noise sources (i.e., generators) as far as feasible from existing residences and Little Tree Montessori International School of Sunnyvale.				
Impact Noise-1 **MM Noise-2: Mechanical Equipment** A qualified acoustical consultant shall be retained to review the projected mechanical noise and design specific noise reduction techniques accordingly. Exterior mechanical equipment shall be selected and designed to not exceed 50 dBA at neighboring residential properties.	City of Sunnyvale working with acoustical consultant	City of Sunnyvale Community Development Department	**Prior to Construction:** Identify projected mechanical noise and design noise reduction techniques; Incorporate reduction techniques into designs **During Construction:** N/A **After Construction:** N/A	
Impact Noise-3: Implement Mitigation Measure MM Noise-2 (see above)				
Impact Noise-4: Implement Mitigation Measure MM Noise-2 (see above), MM Noise-3 and MM Noise-4 (see below) **MM Noise-3: Construction Impacts on the Library** The City shall post notices of project construction at the Sunnyvale Library at least 1 month prior to construction. Notices shall identify activities that would impact library noise levels and alert library users to the potential of vibration impacts that may occur as part of project construction. The City shall coordinate with library staff at least a week prior to conducting site preparation, demolition, construction, or staging activities within 200 feet of the library, and shall accommodate any special events or noise sensitivities expressed by library staff, as feasible.	City of Sunnyvale	City of Sunnyvale Community Development Department	**Prior to Construction:** Post notification at library 1 month prior to construction; Coordinate with library staff at least 1 week prior to construction **During Construction:** N/A **After Construction:** N/A	
Impact Noise-4 **MM Noise-4: Noise at Schools**	City of Sunnyvale	City of Sunnyvale Community	**Prior to Construction:** Coordinate with Little Tree Montessori	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
The City shall coordinate with administrators at the Little Tree Montessori International School of Sunnyvale to identify noise-sensitive periods (such as nap times) as required by MM Noise-1 and restrict construction activities that have the potential to generate noise levels over 73 dBA at the school (staging activity such as generator use or movement of materials with heavy equipment) within 59 feet of the school during these noise-sensitive periods.		Development Department	International School of Sunnyvale administrators to identify noise sensitive time periods **During Construction:** N/A **After Construction:** N/A	
Impact Noise-7: Implement Mitigation Measure MM Noise-1, MM Noise-3, and MM Noise-4 (see above)				
Traffic and Transportation				
Impact Traffice-1 **MM Traffic-1: Temporary Traffic Control Plan Measures** The following traffic control measures shall be incorporated into the Temporary Traffic Control plan prepared as required by the City: • **Road and Lane Closures** – Time road and lane closures to avoid peak (AM and PM) commuting hours. – Road closures along West Olive Avenue shall be prohibited during construction. Two lanes of traffic shall be retained at all times on West Olive Avenue. • **Construction Traffic and Safety** – Time construction worker commute and haul truck trips to avoid peak (AM and PM) commuting hours. – Construction traffic routes shall avoid the intersection of Mary Avenue/ West Olive Avenue. – Flaggers shall be posted to control the traffic into and out of the construction site. • **Notification** – The City shall notify local emergency personnel (i.e., fire departments, police departments, ambulance, and paramedic services), employees at the Civic Center Campus, and	City of Sunnyvale and Contractor	City of Sunnyvale Community Development Department and City Traffic Engineer	**Prior to Construction:** Prepare Temporary Traffic Control Plan **During Construction:** Implement measures identified in Temporary Traffic Control Plan **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
residents within 300 feet at least 7 days prior to road or lane closures. The notice shall include location(s), date(s), time(s), and duration of closure(s), and a contact number for the construction contractor.				
Impact Traffic-4: Implement Mitigation Measure MM Traffic-1 (see above) and MM Traffic-2 **MM Traffic-2: Maintain Line of Sight** The City shall evaluate site entrance and underground parking garage driveway designs according to the Caltrans Highway Design Manual and modify designs to ensure that appropriate recommendations for maintaining sight distance are incorporated. The City shall trim trees and other landscaping to ensure that line of sight for drivers entering and exiting site access points and underground parking garages is maintained. If entrances to and exits from the project site or underground parking garages are moved during the final design of each phase, they shall only be moved into positions that allow for adequate lines of sight for ingress and egress.	City of Sunnyvale	City of Sunnyvale Community Development Department working with Sunnyvale Department of Public Safety	**Prior to Construction:** Evaluate driveway designs according to the Caltrans Highway Design Manual and modify, as appropriate **During Construction:** Modify landscaping to ensure safe entering and exiting sites access points are maintained after construction **After Construction:** N/A	
Impact Traffic-5: Implement Mitigation Measure MM Traffic-1 (see above)				
Impact Traffic-6: Implement Mitigation Measure MM Traffic-1 (see above) and MM Traffic-3 **MM Traffic-3: Public Transit, Bicycle, and Pedestrian Facilities** The following measures shall be implemented during construction: • The City shall coordinate with Santa Clara Valley Transportation Agency to re-locate bus stops and/or re-route affected transit services via parallel streets during construction when affected transit service is subject to delays resulting from partial or full street closure. • The City shall post signs at the affected bus stops on West Olive Avenue. The signs will be posted at least 2 weeks in advance of lane closures and shall indicate when the bus stops along West	City of Sunnyvale	City of Sunnyvale Community Development Department and City Traffic Engineer	**Prior to Construction:** Coordinate with the Santa Clara Valley Transportation Agency; Post signs at bus stops and pedestrian intersections **During Construction:** N/A **After Construction:** N/A	

Mitigation Measure	Implementation Responsibility	Monitoring Responsibility	Timing and Performance Standards	Compliance Verification
Olive Avenue would be unavailable and where the nearest bus stop for Route 54 is located. • The City shall post signs at pedestrian intersections at least 2 weeks in advance of construction that are anticipated to be affected by detours. These signs shall state the date range of construction and shall indicate the route of pedestrian detours during construction. • Warning signs shall be posted on sidewalks where construction limits pedestrian access and to identify which side of the street can be safely accessed at intersections prior to construction zones. • The City or its construction contractors shall use "share the road" signs within the construction zones where partial closures would occur and provide clear signs using the bicycle symbol to guide bicyclists to detour routes.				
Impact Traffic-7: Implement Mitigation Measure MM Traffic-1 (see above)				
Utilities and Service Systems				
MM Utilities-3: Implement Mitigation Measure MM Hydrology-1 (see above)				
MM Utilities-6: Implement Mitigation Measure MM Hazards-1 and MM Hazards-3 (see above)				
MM Utilities-7: Implement Mitigation Measure MM Hazards-1 and MM Hazards-3 (see above)				
MM Utilities-8: Implement Mitigation Measure MM Hydrology-1 (see above)				

APPENDIX B

Update to the Sunnyvale Civic Center – Transportation Impact Analysis

Kimley»Horn

May 4, 2020

Ms. Caitlin Gilleran
Panorama Environmental, Inc.
717 Market Street, Suite 650
San Francisco, CA 94103
(transmitted via email)

RE: ***Update to the Sunnyvale Civic Center – Transportation Impact Analysis***

Dear Ms. Gilleran:

The Civic Center Modernization project located in the City of Sunnyvale, California, has been revised to reflect changes in the project description, circulation, and access. Kimley-Horn conducted a traffic study for the Civic Center Modernization project dated April 2018. The traffic analysis was updated to determine if the proposed changes would result in any new significant impacts than previously identified. This letter summarizes the methodology and results of the study.

Background

The Civic Center Modernization project, located on the northwest corner of Mathilda Avenue and El Camino Real in Sunnyvale, CA, proposes to reconstruct and expand the City Hall buildings, Public Safety Headquarters, and Library within the existing Civic Center. An update to the Civic Center ("Project") proposes to increase the City Hall building from 109,000 square feet to 120,214 square feet, with an increase of 11,214 square feet. In addition, access to the new City Hall underground parking garage will be relocated from All America Way to West Olive Avenue while access to the surface parking lot will remain on All America Way. An updated site plan for the City Hall building, provided by SmithGroup, is shown in **Attachment A**.

Study Area

The traffic analysis determined potential impacts of the project based on standards and methodology set forth by the City of Sunnyvale and Santa Clara Valley Transportation Authority (VTA). The study area for the traffic study is the same as the previous study which consisted of the following 27 intersections:

1. Mathilda Avenue / WB SR-237 Ramps
2. Mathilda Avenue / EB SR-237 Ramps
3. Mathilda Avenue / Ross Drive
4. Mathilda Avenue / Ahwanee Avenue
5. Mathilda Avenue / San Aleso Avenue
6. Mathilda Avenue / Maude Avenue
7. Mathilda Avenue / Indio Way
8. Mathilda Avenue / California Avenue
9. Mathilda Avenue / Washington Avenue

10. Mathilda Avenue / McKinley Avenue
11. Mathilda Avenue / Iowa Avenue
12. Mathilda Avenue / Olive Avenue
13. Mathilda Avenue / El Camino Real
14. Sunnyvale Avenue / El Camino Real
15. Mathilda Avenue / Sunnyvale Saratoga Road-Talisman Drive
16. Sunnyvale Saratoga Road / Remington Drive
17. Sunnyvale Saratoga Road / Fremont Avenue
18. S Pastoria Avenue / W Washington Avenue
19. S Pastoria Avenue / W Iowa Avenue
20. S Pastoria Avenue / W Olive Avenue
21. Hollenbeck Avenue / El Camino Real
22. Charles Street / W Iowa Avenue
23. Mary Avenue / W Olive Avenue
24. Mary Avenue / El Camino Real
25. Sunnyvale Saratoga Road / Cheyenne Drive-Connemara Way
26. Sunnyvale Saratoga Road / Alberta Avenue-Harwick Way
27. Sunnyvale Saratoga Road-De Anza Boulevard / Homestead Road

In addition, the following freeway segments along US-101 and SR-237 were analyzed:

1. Northbound/Southbound US-101
    a. Between Lawrence Expressway and Fair Oaks Avenue
    b. Between Fair Oaks Avenue and Mathilda Avenue
    c. Between Mathilda Avenue and SR-237
2. Eastbound/Westbound SR-237
    a. Between US-101 and Mathilda Avenue
    b. Between Mathilda Avenue and Fair Oaks Avenue
    c. Between Fair Oaks Avenue and Lawrence Expressway

Analysis Scenarios

The traffic study analyzed the study area intersections and freeway segments for the AM and PM peak hours under the following scenarios:

- **Existing Plus Project**: Assumes Existing traffic volumes and lane geometry from the 2018 traffic analysis and the Civic Center expansion with an update to the City Hall building.
- **Existing Plus Background Plus Project**: Assumes Existing plus Background traffic volumes and lane geometry from the 2018 traffic analysis and the Civic Center expansion with an update to the City Hall building.
- **Cumulative (2035) Plus Project**: Assumes Cumulative traffic volumes and lane geometry from the 2018 traffic analysis and the Civic Center expansion with an update to the City Hall building.

The baseline scenarios (without Project scenarios) from the previous traffic analysis are unchanged.

Civic Center Update

The Civic Center Update will increase the size of the City Hall building from 109,000 square feet to 120,214 square feet on the southwest corner of Mathilda Avenue and Olive Avenue. This results in an increased building size of 11,214 square feet. In addition, the driveway access to the underground City Hall parking garage will be relocated from All America Way to West Olive Avenue. It should be noted that there is still access to the parking lot from All America Way.

Trip Generation

Trip generation for the Civic Center Update was based on existing peak hour driveway counts to and from the Sunnyvale Civic Center in the previous 2018 analysis. A ratio of the updated proposed City Hall building size to the existing building size was applied to the existing site counts to determine the trips generated by the new City Hall. In addition, due to the proximity of the project site to public transit, where bus stops are located at the corner of El Camino Real and Mathilda Avenue, El Camino Real and Sunnyvale Avenue, and at El Camino Real and S Pastoria Ave, an 11 percent transit and transportation demand management (TDM) reduction was taken for all three Civic Center buildings (City Hall, Library, and Public Safety Headquarters). The 11 percent trip reduction is a combination of a six percent trip reduction for being an employment center located within 2,000 feet of a bus rapid transit (BRT) stop and a five percent trip reduction for financial incentives within a TDM program. In addition, the project is located approximately 0.8 miles away from the Sunnyvale Caltrain Station, where some employees would commute to work via Caltrain and walk/bike the last mile. As a result, the Civic Center Update will generate +93 net new total trips (64 in / 29 out) in the AM peak hour and +197 net new total trips (85 in / 112 out) in the PM peak hour. The trip generation comparison for the Civic Center Update is shown in **Table 1**.

Trip Distribution and Assignment

Trip distribution for the project remains unchanged from the previous 2018 analysis. Trip assignment for the new city hall building was modified to reflect the new driveway access for the underground City Hall parking garage along West Olive Avenue.

Table 1: Civic Center Update Trip Generation Comparison

Land Use Designation	Size	AM Trips			PM Trips		
		In	Out	Total	In	Out	Total
Existing							
City Hall	96,200 SF	194	44	238	53	163	216
Public Safety Headquarters	41,000 SF	31	23	54	21	50	71
Library	60,900 SF	39	20	59	94	97	191
A: Total Existing Trips	**198,100 SF**	**264**	**87**	**351**	**168**	**310**	**478**
Previous 2018 Study – Civic Center							
City Hall	109,000 SF	220	50	270	60	185	245
Public Safety Headquarters	65,000 SF	49	36	85	33	79	112
Library	120,000 SF	77	39	116	185	191	376
B: Total Proposed Trips	**294,000 SF**	**346**	**125**	**471**	**278**	**455**	**733**
C: Net New Trips: (B–A)	**95,900 SF**	**82**	**38**	**120**	**110**	**145**	**255**
Updated Study – Civic Center							
City Hall	120,214 SF	242	55	297	66	204	270
11% Trip Reduction		-27	-6	-33	-7	-22	-29
Public Safety Headquarters	65,000 SF	49	36	85	33	79	112
11% Trip Reduction		-5	-4	-9	-4	-9	-13
Library	120,000 SF	77	39	116	185	191	376
11% Trip Reduction		-8	-4	-12	-20	-21	-41
D: Proposed	**305,214 SF**	**328**	**116**	**444**	**253**	**422**	**675**
E: Net New: (D–A)	**107,114 SF**	**64**	**29**	**93**	**85**	**112**	**197**

Existing Plus Project

Traffic operations were evaluated at the study intersections under Existing Plus Project Conditions. Results of the intersection analysis are presented in **Table 2**. Traffix and Synchro outputs are provided in **Attachment B**. All study intersections operate within acceptable LOS standards under this analysis scenario, except the following intersection:

- #23 – Mary Avenue / Olive Avenue (AM and PM Peak Hours)
    - Intersection operating unacceptably without project and does not meet the peak hour signal warrant – **Not a significant impact**, similar to 2018 analysis

In addition, none of the unsignalized intersections met the peak hour signal warrant for the Existing Plus Project scenario in the AM and PM peak hours. Signal warrants are provided in **Attachment C**.

Results of the freeway analysis are presented in **Table 3**. All study freeway segments function within acceptable LOS standards under this analysis scenario, except the following freeway segments:

Northbound US-101

- Between Lawrence Expressway and Fair Oaks Avenue (AM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis

- Between Fair Oaks Avenue and Mathilda Avenue (AM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis

Southbound US-101

- Between SR-237 and Mathilda Avenue (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Mathilda Avenue and Fair Oaks Avenue (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Fair Oaks Avenue and Lawrence Expressway (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis

Eastbound SR-237

- Between US-101 and Mathilda Avenue (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Mathilda Avenue and Fair Oaks Avenue (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Fair Oaks Avenue and Lawrence Expressway (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis

Westbound SR-237

- Between Lawrence Expressway and Fair Oaks Avenue (AM and PM Peak Hours)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Fair Oaks Avenue and Mathilda Avenue (AM and PM Peak Hours)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis
- Between Mathilda Avenue and US-101 (PM Peak Hour)
    - Operated unacceptably under Existing Condition, project to add less than 1% of freeway capacity – **Not a significant impact**, similar to 2018 analysis

Although each freeway segment operates at a deficient LOS in either the AM peak hour, PM peak hour, or both, the Civic Center Update adds less than one percent of the freeway capacity. Therefore, the Civic Center Update does not significantly impact the freeway segments and there are no new Existing Plus Project impacts as compared to the previous Civic Center 2018 Analysis.

Kimley»Horn

Table 2: Existing Plus Project – Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction[1]	Control	Existing								Existing + Project											
					AM Peak				PM Peak				AM Peak						PM Peak					
					LOS	Delay (sec)[2]	v/c ratio	Critical Delay (sec)	LOS	Delay (sec)[2]	v/c ratio	Critical Delay (sec)	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var
1	Mathilda Avenue/WB SR-237 Ramps[3,4]	E	City	Signal	C	24.8	0.730	20.8	C	32.8	0.780	36.9	C	24.8	0.730	0.000	20.9	0.1	C	32.8	0.780	0.000	37.0	0.1
2	Mathilda Avenue/EB SR-237 Ramps[3,4]	E	City	Signal	D	39.4	0.620	22.1	D	43.5	0.600	5.9	D	39.6	0.620	0.000	22.1	0.0	D	44.6	0.600	0.000	5.9	0.0
3	Mathilda Avenue/Ross Drive[3,4]	E	City	Signal	C	21.0	0.590	20.6	C	23.5	0.640	18.1	C	20.9	0.590	0.000	20.6	0.0	C	23.5	0.640	0.000	18.2	0.1
4	Mathilda Avenue/Ahwanee Avenue[3,4]	E	City	Signal	C	27.3	0.650	24.6	E	55.9	0.710	71.9	C	27.4	0.650	0.000	24.7	0.1	E	55.5	0.720	0.010	71.7	-0.2
5	Mathilda Avenue/San Aleso Avenue[4]	E	City	Signal	A	8.5	0.534	9.1	B	13.2	0.385	9.1	A	8.5	0.535	0.001	9.1	0.0	B	13.1	0.388	0.003	9.0	-0.1
6	Mathilda Avenue/Maude Avenue[4]	E	City	Signal	D	41.4	0.657	39.0	D	46.0	0.663	45.2	D	41.4	0.659	0.002	39.0	0.0	D	46.0	0.666	0.003	45.1	-0.1
7	Mathilda Avenue/Indio Way[4]	E	City	Signal	C	30.2	0.636	28.8	C	25.0	0.726	26.0	C	30.2	0.638	0.002	28.8	0.0	C	25.1	0.733	0.007	26.2	0.2
8	Mathilda Avenue/California Avenue[4]	E	City	Signal	C	23.8	0.482	12.4	C	29.7	0.750	28.9	C	23.7	0.485	0.003	12.4	0.0	C	29.8	0.758	0.008	29.2	0.3
9	Mathilda Avenue/Washington Avenue[4]	E	City	Signal	C	31.9	0.690	32.8	C	31.5	0.713	26.9	C	31.8	0.693	0.003	32.8	0.0	C	31.4	0.718	0.005	26.9	0.0
10	Mathilda Avenue/McKinley Avenue[4]	E	City	Signal	B	13.1	0.465	12.7	B	17.7	0.571	17.6	B	13.3	0.469	0.004	13.0	0.3	B	17.6	0.577	0.006	17.5	-0.1
11	Mathilda Avenue/Iowa Avenue[4]	E	City	Signal	B	15.7	0.438	11.5	B-	18.8	0.495	15.2	B	16.4	0.443	0.005	12.4	0.9	B-	19.0	0.500	0.005	15.2	0.0
12	Mathilda Avenue/Olive Avenue[4]	E	City	Signal	B	13.6	0.549	8.5	B	16.4	0.526	12.9	B	14.7	0.552	0.003	8.9	0.4	C+	20.7	0.575	0.049	19.2	6.3
13	Mathilda Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D-	51.9	0.752	53.6	D	45.4	0.721	46.2	D-	52.0	0.751	-0.001	53.5	-0.1	D	45.1	0.719	-0.002	45.8	-0.4
14	Sunnyvale Avenue/El Camino Real[4]	E	City / Caltrans	Signal	C	30.0	0.428	26.8	C-	34.8	0.609	35.2	C	29.9	0.429	0.001	26.8	0.0	C-	34.8	0.610	0.001	35.2	0.0
15	Mathilda Avenue/Sunnyvale-Saratoga Road-Talisman Drive[4]	E	City	Signal	C	23.8	0.528	22.3	C	30.5	0.527	29.5	C	23.7	0.531	0.003	22.3	0.0	C	30.4	0.531	0.004	29.4	-0.1
16	Sunnyvale-Saratoga Road/Remington Drive[4]	E	City	Signal	D	41.3	0.784	35.7	D	43.4	0.754	45.7	D	41.4	0.786	0.002	35.7	0.0	D	43.6	0.761	0.007	46.0	0.3
17	Sunnyvale-Saratoga Road/Fremont Avenue[4]	E	City	Signal	D	48.3	0.789	46.6	D	46.6	0.760	45.3	D	48.3	0.792	0.003	46.6	0.0	D	46.6	0.765	0.005	45.3	0.0
18	S Pastoria Avenue/W Washington Avenue	D	City	Signal	B	13.1	0.282	13.5	B	13.4	0.326	13.8	B	13.1	0.282	0.000	13.5	0.0	B	13.4	0.326	0.000	13.8	0.0
19	S Pastoria Avenue/W Iowa Avenue	D	City	Signal	A	9.5	0.231	8.5	B+	10.4	0.285	9.5	A	9.5	0.231	0.000	8.5	0.0	B+	10.4	0.285	0.000	9.5	0.0
20	S Pastoria Avenue/W Olive Avenue	D	City	ASWC	B	10.4	0.349	10.4	B	13.6	0.647	13.6	B	10.5	0.355	0.006	10.5	0.1	B	13.9	0.660	0.013	13.9	0.3
21	Hollenbeck Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D+	37.3	0.476	34.0	D	40.2	0.596	40.5	D+	37.4	0.476	0.000	34.2	0.2	D	40.4	0.599	0.003	40.7	0.2
22	Charles Street/W Iowa Avenue	D	City	SSSC	A	10.0	0.022	2.7	B	10.9	0.041	2.7	B	10.2	0.029	0.007	3.2	0.5	B	11.5	0.044	0.003	3.5	0.8
23	Mary Avenue/W Olive Avenue	D	City	SSSC	**E**	**37.7**	**0.175**	**2.7**	**E**	**46.7**	**0.260**	**2.8**	**E**	**39.4**	**0.195**	**0.020**	**2.8**	**0.1**	**E**	**47.2**	**0.262**	**0.002**	**3.1**	**0.3**
24	Mary Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D	42.8	0.652	41.3	D	47.1	0.732	46.7	D	42.9	0.655	0.003	41.5	0.2	D	47.6	0.739	0.007	47.2	0.5
25	Sunnyvale-Saratoga Road/Cheyenne Drive-Connemara Way[4]	E	City	Signal	A	9.4	0.540	6.9	A	8.2	0.475	7.0	A	9.4	0.543	0.003	6.9	0.0	A	8.2	0.480	0.005	6.9	-0.1
26	Sunnyvale-Saratoga Road/Alberta Avenue-Harwick Way[4]	E	City	Signal	C+	22.8	0.615	18.0	C+	22.5	0.571	21.6	C+	22.8	0.618	0.003	18.0	0.0	C+	22.4	0.576	0.005	21.5	-0.1
27	Sunnyvale-Saratoga Road-De Anza Boulevard/Homestead Road[4]	E	City	Signal	D+	39.0	0.796	39.2	D	44.9	0.802	50.6	D+	39.0	0.800	0.004	39.3	0.1	D	45.0	0.807	0.005	50.7	0.1

Note: Locations operating unacceptably are in **bold** and impacts are highlighted.

1 City=Sunnyvale

2 The average control delay is reported for signalized and AWSC intersections. The delay for the worst movement is reported for SSSC intersections.

3 Intersection was analyzed using HCM 2000 methodology within Synchro software.

4 Mathilda Avenue, El Camino Real, and Sunnyvale-Saratoga Road are a regionally significant roadways with a LOS E threshold

Kimley»Horn

Table 3: Existing Plus Project Condition – Freeway Segment Level of Service Summary

Freeway Segment	Peak Hour	Criteria LOS	Miles	Lanes	Existing				Existing Plus Project			
					Volume (veh)	Speed (mph)	Density (pc/mi/ln)	LOS	Project Trips	Density (pc/mi/ln)	LOS	Impact (%)
				Mixed	Mixed	Mixed	Mixed	Mixed				
Northbound												
US 101 between Lawrence Expressway and Fair Oaks Avenue	AM	E	0.98	3	4,838	19	85	**F**	6	85	**F**	0.09%
	PM	E	0.98	3	5,717	65	29	D	5	29	D	-
US 101 between Fair Oaks Avenue and Mathilda Avenue	AM	E	0.85	3	5,999	33	61	**F**	6	61	**F**	0.09%
	PM	E	0.85	3	4,808	66	24	C	5	24	C	-
US 101 between Mathilda Avenue and SR-237	AM	E	0.35	3	6,393	43	50	E	2	50	E	-
	PM	E	0.35	3	4,808	66	24	C	7	24	C	-
Southbound												
US 101 between SR-237 and Mathilda Avenue	AM	E	0.35	3	4,606	66	23	C	5	23	C	-
	PM	E	0.35	3	4,747	18	88	**F**	4	88	**F**	0.06%
US 101 between Mathilda Avenue and Fair Oaks Avenue	AM	E	0.85	3	4,808	66	24	C	3	24	C	-
	PM	E	0.85	3	5,454	25	73	**F**	9	73	**F**	0.13%
US 101 between Fair Oaks Avenue and Lawrence Expressway	AM	E	0.98	3	5,565	66	28	D	3	28	D	-
	PM	E	0.98	3	4,464	16	93	**F**	9	93	**F**	0.13%
Eastbound												
SR-237 between US-101 and Mathilda Avenue	AM	E	0.53	2	4,444	55	40	D	0	40	D	-
	PM	E	0.53	2	2,202	9	122	**F**	0	122	**F**	0.00%
SR-237 between Mathilda Avenue and Fair Oaks Avenue	AM	E	0.96	2	4,272	64	33	D	3	33	D	-
	PM	E	0.96	2	2,828	14	101	**F**	9	101	**F**	0.20%
SR-237 between Fair Oaks Avenue and Lawrence Expressway	AM	E	0.63	2	4,272	64	33	D	3	33	D	-
	PM	E	0.63	2	2,323	10	116	**F**	9	117	**F**	0.20%
Westbound												
SR-237 between Lawrence Expressway and Fair Oaks Avenue	AM	E	0.63	2	2,879	15	96	**F**	6	96	**F**	0.14%
	PM	E	0.63	2	3,949	32	62	**F**	5	62	**F**	0.11%
SR-237 between Fair Oaks Avenue and Mathilda Avenue	AM	E	0.96	3	4,858	18	90	**F**	6	90	**F**	0.14%
	PM	E	0.96	3	4,838	19	85	**F**	5	85	**F**	0.11%
SR-237 between Mathilda Avenue and US-101	AM	E	0.53	2	4,232	41	52	E	0	52	E	-
	PM	E	0.53	2	3,313	20	83	**F**	0	83	**F**	0.00%

* pc/mi/ln = passenger car per mile per lane
Locations operating unacceptably are **bolded**.

Existing Plus Background Plus Project

Traffic operations were evaluated at the study intersections under Existing Plus Background Plus Project Conditions. Results of the intersection analysis are presented in **Table 4**. Traffix and Synchro outputs are provided in **Attachment D**. All study intersections operate within acceptable LOS standards under this analysis scenario, except the following intersections:

- #23 – Mary Avenue / Olive Avenue (AM and PM Peak Hours)
  - Intersection operating unacceptably without project and does not meet the peak hour traffic signal warrant – **Not a significant impact**, similar to 2018 analysis
- #102 – Mathilda Avenue / US-101 SB Ramps (PM Peak Hour)
  - Intersection operating unacceptable without project with an increase in critical movement delay by less than four (4) seconds and an increase in v/c by less than 0.01 – **Not a significant impact**, similar to 2018 analysis

In addition, none of the unsignalized intersections met the peak hour signal warrant for the Existing Plus Background Plus Project scenario in the AM and PM peak hours. Signal warrants are provided in **Attachment E**.

Kimley»Horn

Table 4: Existing Plus Background Plus Civic Center Update Condition – Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction[1]	Control	Existing + Background								Existing + Background + Project											
					AM Peak				PM Peak				AM Peak						PM Peak					
					LOS	Delay (sec)[2]	v/c ratio	Critical Delay (sec)	LOS	Delay (sec)[2]	v/c ratio	Critical Delay (sec)	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var
1	Mathilda Avenue/WB SR-237 Ramps[3, 4]	E	City	Signal	Intersection with no conflicting movements								Intersection with no conflicting movements											
2	Mathilda Avenue/EB SR-237 Ramps[3, 4]	E	City	Signal	C	32.3	0.860	39.3	C	21.5	0.630	12.3	C	32.3	0.860	0.000	39.3	0.0	C	21.6	0.630	0.000	12.4	0.1
3	Mathilda Avenue/Ross Drive[3, 4]	E	City	Signal	B	15.2	0.610	12.5	C	21.3	0.690	19.1	B	15.2	0.610	0.000	22.1	9.6	C	21.4	0.690	0.000	19.1	0.0
4	Mathilda Avenue/Ahwanee Avenue[3, 4]	E	City	Signal	C	28.2	0.790	25.5	C	30.9	0.750	27.0	C	28.3	0.790	0.000	25.5	0.0	C	30.9	0.760	0.010	27.1	0.1
5	Mathilda Avenue/San Aleso Avenue[4]	E	City	Signal	A	8.3	0.618	9.5	B	13.3	0.464	19.2	A	8.2	0.619	0.001	9.5	0.0	B	13.2	0.470	0.006	19.0	-0.2
6	Mathilda Avenue/Maude Avenue[4]	E	City	Signal	D	49.1	0.828	67.7	D-	55.0	0.800	57.1	D	49.1	0.828	0.000	67.7	0.0	E+	55.1	0.803	0.003	57.2	0.1
7	Mathilda Avenue/Indio Way[4]	E	City	Signal	D+	38.7	0.771	39.2	C-	34.1	0.856	37.8	D+	38.7	0.773	0.002	39.3	0.1	C-	34.4	0.862	0.006	38.3	0.5
8	Mathilda Avenue/California Avenue[4]	E	City	Signal	C	27.4	0.647	20.3	C-	34.7	0.840	34.8	C	27.3	0.650	0.003	20.3	0.0	C-	34.9	0.847	0.007	35.3	0.5
9	Mathilda Avenue/Washington Avenue[4]	E	City	Signal	D+	38.3	0.827	40.2	D+	38.4	0.810	34.2	D+	38.2	0.830	0.003	40.2	0.0	D+	38.4	0.816	0.006	34.3	0.1
10	Mathilda Avenue/McKinley Avenue[4]	E	City	Signal	B	15.0	0.668	14.9	B-	18.2	0.619	17.0	B	15.2	0.672	0.004	15.2	0.3	B-	18.3	0.627	0.008	17.2	0.2
11	Mathilda Avenue/Iowa Avenue[4]	E	City	Signal	B	17.9	0.622	13.6	B-	18.3	0.533	11.8	B-	18.7	0.627	0.005	14.3	0.7	B-	19.7	0.558	0.025	13.1	1.3
12	Mathilda Avenue/Olive Avenue[4]	E	City	Signal	B	16.7	0.624	11.2	C+	20.4	0.587	15.3	B	17.3	0.629	0.005	11.5	0.3	C	24.6	0.636	0.049	21.2	5.9
13	Mathilda Avenue/El Camino Real[4]	E	City / Caltrans	Signal	E+	57.8	0.820	60.3	D-	53.8	0.793	55.7	E+	57.9	0.831	0.011	59.6	-0.7	D-	53.5	0.792	-0.001	55.3	-0.4
14	Sunnyvale Avenue/El Camino Real[4]	E	City / Caltrans	Signal	C	30.0	0.486	27.0	D+	35.1	0.665	36.0	C	30.0	0.487	0.001	27.0	0.0	D+	35.1	0.667	0.002	36.0	0.0
15	Mathilda Avenue/Sunnyvale-Saratoga Road-Talisman Drive[4]	E	City	Signal	C	26.8	0.583	26.1	C-	33.3	0.569	32.7	C	26.7	0.587	0.004	26.1	0.0	C-	33.1	0.574	0.005	32.6	-0.1
16	Sunnyvale-Saratoga Road/Remington Drive[4]	E	City	Signal	D	46.3	0.848	42.6	D	49.3	0.790	51.1	D	46.3	0.852	0.004	42.7	0.1	D	49.3	0.796	0.006	51.2	0.1
17	Sunnyvale-Saratoga Road/Fremont Avenue[4]	E	City	Signal	D-	52.9	0.838	52.2	D-	53.5	0.806	52.4	D-	52.9	0.842	0.004	52.3	0.1	D-	53.6	0.811	0.005	52.5	0.1
18	S Pastoria Avenue/W Washington Avenue	D	City	Signal	B	13.6	0.333	13.9	B	14.2	0.411	14.6	B	13.6	0.333	0.000	13.9	0.0	B	14.2	0.411	0.000	14.6	0.0
19	S Pastoria Avenue/W Iowa Avenue	D	City	Signal	A	9.0	0.275	8.6	B+	10.5	0.334	9.0	A	9.0	0.275	0.000	8.6	0.0	B+	10.5	0.334	0.000	9.0	0.0
20	S Pastoria Avenue/W Olive Avenue	D	City	ASWC	B	11.7	0.495	11.7	C	17.1	0.768	17.1	B	11.7	0.496	0.001	11.7	0.0	C	17.2	0.771	0.003	17.2	0.1
21	Hollenbeck Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D	42.2	0.524	38.7	D	46.6	0.622	47.7	D	42.3	0.523	-0.001	38.9	0.2	D	47.0	0.623	0.001	47.8	0.1
22	Charles Street/W Iowa Avenue	D	City	SSSC	B	10.1	0.023	2.5	B	11.2	0.043	2.5	B	10.6	0.041	0.018	3.5	1.0	B	12.3	0.073	0.030	3.8	1.3
23	Mary Avenue/W Olive Avenue	D	City	SSSC	**F**	**65.5**	**0.271**	**3.7**	**F**	**78.7**	**0.365**	**3.9**	**F**	**70.5**	**0.303**	**0.032**	**3.9**	**0.2**	**F**	**79.7**	**0.369**	**0.004**	**4.5**	**0.6**
24	Mary Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D	50.1	0.732	50.3	E+	57.7	0.777	56.9	D	50.2	0.736	0.004	50.5	0.2	E+	58.2	0.784	0.007	57.4	0.5
25	Sunnyvale-Saratoga Road/Cheyenne Drive-Connemara Way[4]	E	City	Signal	B	12.7	0.600	10.8	B+	10.4	0.521	9.6	B	12.6	0.604	0.004	10.8	0.0	B+	10.4	0.526	0.005	9.5	-0.1
26	Sunnyvale-Saratoga Road/Alberta Avenue-Harwick Way[4]	E	City	Signal	C	26.4	0.671	23.0	C	25.7	0.612	25.4	C	26.4	0.674	0.003	23.0	0.0	C	25.6	0.617	0.005	25.3	-0.1
27	Sunnyvale-Saratoga Road-De Anza Boulevard/Homestead Road[4]	E	City	Signal	D	47.8	0.930	53.0	D-	54.2	0.913	61.1	D	48.1	0.933	0.003	53.4	0.4	D-	54.5	0.918	0.005	61.6	0.5
101	Mathilda Avenue/US-101 NB ramps[3, 4]	E	City	Signal	D	44.6	1.040	50.9	E	74.6	1.200	107.0	D	45.2	1.040	0.000	52.2	1.3	E	75.8	1.210	0.010	109.1	2.1
102	Mathilda Avenue/US-101 SB ramps[3, 4]	E	City	Signal	C	33.0	1.010	42.3	**F**	**143.2**	**1.380**	**196.6**	C	33.7	1.010	0.000	43.5	1.2	**F**	**144.8**	**1.380**	**0.000**	**199.3**	**2.7**

Note: Locations operating unacceptably are in **bold** and impacts are highlighted.

1 City=Sunnyvale

2 The average control delay is reported for signalized and AWSC intersections. The delay for the worst movement is reported for SSSC intersections.

3 Intersection was analyzed using HCM 2000 methodology within Synchro software.

4 Mathilda Avenue, El Camino Real, and Sunnyvale-Saratoga Road are a regionally significant roadways with a LOS E threshold

Cumulative Plus Project

Traffic operations were evaluated at the study intersections under Cumulative Plus Project Conditions. Results of the intersection analysis are presented in **Table 5**. Traffix and Synchro outputs are provided in **Attachment F**. All study intersections operate within acceptable LOS standards under this analysis scenario, except the following intersections:

- #13 – Mathilda Avenue / El Camino Real (AM Peak Hour)
  - Intersection operating unacceptably without project with increase in critical movement delay by less than four (4) seconds and increase in v/c by less than 0.01 – **Not a Significant Impact**, similar to 2018 analysis
- #16 – Sunnyvale Saratoga Road / Remington Drive (AM Peak Hour)
  - Intersection operating unacceptably without project with increase in critical movement delay by less than four (4) seconds and increase in v/c by less than 0.01 – **Not a Significant Impact**, similar to 2018 analysis
- #17 – Sunnyvale Saratoga Road / Fremont Avenue (AM Peak Hour)
  - Intersection operating unacceptably without project with increase in critical movement delay by less than four (4) seconds and increase in v/c by less than 0.01 – **Not a Significant Impact**, similar to 2018 analysis
- #20 – S Pastoria Avenue / W Olive Avenue (PM Peak)
  - Intersection operating unacceptably without project and meets the peak hour signal warrant – **Not a Significant Impact**, similar to 2018 analysis
- #23 – Mary Avenue / W Olive Avenue (AM and PM Peak Hours)
  - Intersection operating unacceptable without project and does not the peak hour signal warrant **– Not a Significant Impact**, similar to 2018 analysis
- #27 – Sunnyvale Saratoga Road / Homestead Road (AM and PM Peak Hours)
  - Intersection operating unacceptably without project with increase in critical movement delay by less than four (4) seconds and increase in v/c by less than 0.01 – **Not a Significant Impact**, similar to 2018 analysis
- #102 – Mathilda Avenue / US-101 SB Ramps (PM Peak Hour)
  - Intersection operating unacceptably without project with increase in critical movement delay by less than four (4) seconds – **Not a Significant Impact**, similar to 2018 analysis

It should be noted that the intersection of S Pastoria Avenue / W Olive Avenue meets the signal warrant in the PM peak hour in the Cumulative condition even without the addition of project trips. Signal warrants are provided in **Attachment G**.

Kimley»Horn

Table 5: Cumulative Plus Civic Center Update Condition – Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction[1]	Control	Cumulative (2035)								Cumulative (2035) + Project											
					AM Peak				PM Peak				AM Peak						PM Peak					
					LOS	Delay (sec)[2]	v/c ratio	Crit. Delay	LOS	Delay (sec)[2]	v/c ratio	Crit. Delay	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var	LOS	Delay (sec)[2]	v/c ratio	Var	Critical Delay (sec)	Var
1	Mathilda Avenue/WB SR-237 Ramps[3, 4]	E	City	Signal	Intersection with no conflicting movements								Intersection with no conflicting movements											
2	Mathilda Avenue/EB SR-237 Ramps[3, 4]	E	City	Signal	E	66.4	1.070	91.0	C	32.5	0.820	19.5	E	66.5	1.070	0.000	91.2	0.2	C	32.4	0.820	0.000	19.6	0.1
3	Mathilda Avenue/Ross Drive[3, 4]	E	City	Signal	C	21.6	0.750	20.5	C	28.8	0.870	26.2	C	21.6	0.750	0.000	20.6	0.1	C	28.9	0.870	0.000	26.4	0.2
4	Mathilda Avenue/Ahwanee Avenue[3, 4]	E	City	Signal	D	52.6	1.020	66.7	D	40.8	0.950	45.5	D	53.3	1.020	0.000	67.7	1.0	D	41.8	0.960	0.010	48.2	2.7
5	Mathilda Avenue/San Aleso Avenue[4]	E	City	Signal	B	15.9	0.830	19.9	C	24.2	0.698	33.5	B	15.9	0.832	0.002	20.0	0.1	C	24.1	0.704	0.006	33.4	-0.1
6	Mathilda Avenue/Maude Avenue[4]	E	City	Signal	E	73.4	1.026	104.1	E-	76.2	1.022	88.9	E	73.6	1.026	0.000	104.1	0.0	E-	76.9	1.026	0.004	89.6	0.7
7	Mathilda Avenue/Indio Way[4]	E	City	Signal	E+	58.4	0.978	70.4	E-	75.5	1.106	97.1	E+	58.7	0.979	0.001	70.9	0.5	E-	77.1	1.113	0.007	99.8	2.7
8	Mathilda Avenue/California Avenue[4]	E	City	Signal	C-	33.7	0.829	28.5	E	68.7	1.090	88.2	C-	33.7	0.832	0.003	28.6	0.1	E	70.2	1.097	0.007	90.9	2.7
9	Mathilda Avenue/Washington Avenue[4]	E	City	Signal	E	71.4	1.062	83.5	E	72.4	1.050	82.6	E	71.8	1.064	0.002	84.3	0.8	E	73.6	1.055	0.005	84.6	2.0
10	Mathilda Avenue/McKinley Avenue[4]	E	City	Signal	C	23.1	0.902	25.9	C	23.6	0.812	23.8	C	23.5	0.906	0.004	26.5	0.6	C	23.7	0.819	0.007	24.1	0.3
11	Mathilda Avenue/Iowa Avenue[4]	E	City	Signal	C+	22.0	0.804	19.3	C+	21.0	0.698	18.1	C+	22.8	0.808	0.004	20.0	0.7	C+	22.3	0.719	0.021	19.9	1.8
12	Mathilda Avenue/Olive Avenue[4]	E	City	Signal	C+	20.5	0.806	15.6	C	23.3	0.757	19.2	C+	21.1	0.813	0.007	16.2	0.6	C	27.7	0.806	0.049	25.7	6.5
13	Mathilda Avenue/El Camino Real[4]	E	City / Caltrans	Signal	**F**	**90.2**	**1.061**	**103.1**	E	74.1	1.027	88.2	**F**	**90.4**	**1.070**	**0.009**	**106.2**	**3.1**	E	73.8	1.027	0.000	87.9	-0.3
14	Sunnyvale Avenue/El Camino Real[4]	E	City / Caltrans	Signal	C-	32.1	0.621	29.3	D	42.3	0.867	45.5	C-	32.1	0.621	0.000	29.3	0.0	D	42.4	0.869	0.002	45.6	0.1
15	Mathilda Avenue/Sunnyvale-Saratoga Road-Talisman Drive[4]	E	City	Signal	C	29.6	0.744	30.0	D+	38.3	0.739	38.6	C	29.6	0.748	0.004	30.1	0.1	D+	38.3	0.744	0.005	38.7	0.1
16	Sunnyvale-Saratoga Road/Remington Drive[4]	E	City	Signal	**F**	**87.6**	**1.100**	**100.4**	E-	76.5	1.028	85.7	**F**	**88.5**	**1.103**	**0.003**	**101.8**	**1.4**	E-	77.4	1.033	0.005	87.1	1.4
17	Sunnyvale-Saratoga Road/Fremont Avenue[4]	E	City	Signal	**F**	**85.4**	**1.086**	**103.4**	E-	77.3	1.048	88.3	**F**	**86.1**	**1.089**	**0.003**	**104.6**	**1.2**	E-	78.4	1.053	0.005	89.9	1.6
18	S Pastoria Avenue/W Washington Avenue	D	City	Signal	B	14.3	0.433	14.8	B	15.4	0.535	16.0	B	14.3	0.433	0.000	14.8	0.0	B	15.4	0.535	0.000	16.0	0.0
19	S Pastoria Avenue/W Iowa Avenue	D	City	Signal	A	9.5	0.348	9.1	B+	11.0	0.438	9.5	A	9.5	0.348	0.000	9.1	0.0	B+	11.0	0.438	0.000	9.5	0.0
20	S Pastoria Avenue/W Olive Avenue	D	City	ASWC	C	16.3	0.699	16.3	**F**	**53.6**	**1.148**	**53.6**	C	16.3	0.701	0.002	16.3	0.0	**F**	**54.4**	**1.153**	**0.005**	**54.4**	**0.8**
21	Hollenbeck Avenue/El Camino Real[4]	E	City / Caltrans	Signal	D	45.0	0.678	42.6	D-	52.7	0.815	55.9	D	45.0	0.676	-0.002	42.7	0.1	D-	52.7	0.816	0.001	56.0	0.1
22	Charles Street/W Iowa Avenue	D	City	SSSC	B	10.7	0.033	2.5	B	12.4	0.064	2.8	B	11.3	0.049	0.016	3.4	0.9	B	13.8	0.084	0.020	3.9	1.1
23	Mary Avenue/W Olive Avenue	D	City	SSSC	**F**	**645.3**	**1.269**	**30.1**	**F**	**810.8**	**1.178**	**OVRFL**	**F**	**702.7**	**1.388**	**0.119**	**32.7**	**2.6**	**F**	**824.2**	**1.192**	**0.014**	**OVERFLOW**	**-**
24	Mary Avenue/El Camino Real[4]	E	City / Caltrans	Signal	E	62.0	0.944	67.1	E-	76.9	1.015	85.5	E	62.3	0.947	0.003	67.8	0.7	E-	78.5	1.022	0.007	87.8	2.3
25	Sunnyvale-Saratoga Road/Cheyenne Drive-Connemara Way[4]	E	City	Signal	B	14.3	0.770	13.5	B+	11.6	0.670	11.2	B	14.3	0.773	0.003	13.5	0.0	B+	11.6	0.675	0.005	11.2	0.0
26	Sunnyvale-Saratoga Road/Alberta Avenue-Harwick Way[4]	E	City	Signal	C	31.9	0.863	30.6	C	30.3	0.790	31.4	C	32.0	0.866	0.003	30.7	0.1	C	30.3	0.795	0.005	31.5	0.1
27	Sunnyvale-Saratoga Road-De Anza Boulevard/Homestead Road[4]	E	City	Signal	**F**	**96.3**	**1.180**	**131.8**	**F**	**103.3**	**1.163**	**134.6**	**F**	**97.2**	**1.184**	**0.004**	**133.2**	**1.4**	**F**	**104.5**	**1.168**	**0.005**	**136.7**	**2.1**
101	Mathilda Avenue/US-101 NB ramps[3, 4]	E	City	Signal	E	64.4	1.090	79.4	E	77.7	1.200	110.4	E	65.1	1.100	0.010	80.7	1.3	E	78.9	1.200	0.000	112.5	2.1
102	Mathilda Avenue/US-101 SB ramps[3, 4]	E	City	Signal	C	29.8	1.010	34.2	**F**	**146.9**	**1.380**	**203.1**	C	30.5	1.020	0.010	35.4	1.2	**F**	**148.6**	**1.390**	**0.010**	**205.9**	**2.8**

Note: Locations operating unacceptably are in **bold** and impacts are highlighted.

1 City=Sunnyvale

2 The average control delay is reported for signalized and AWSC intersections. The delay for the worst movement is reported for SSSC intersections.

3 Intersection was analyzed using HCM 2000 methodology within Synchro software.

4 Mathilda Avenue, El Camino Real, and Sunnyvale-Saratoga Road are a regionally significant roadways with a LOS E threshold

Summary of Impacts and Mitigations

Based on the results of the Civic Center Update traffic analysis, there are no new significant impacts as compared to the previous 2018 analysis.

Vehicle Queuing and Site Circulation and Access

Vehicle Queuing

The 95th percentile queue was determined using Synchro software based on HCM 2000 methodology. There are no impact thresholds for queuing, therefore an operational deficiency is assumed to occur when the project increases the queue by one or more vehicles and the vehicle queue exceeds the turn pocket length, assuming one vehicle length is equivalent to 25 feet. The analysis showed with the addition of the project, several existing turn bay lengths are exceeded as shown in **Table 6**. A summary of the queuing results is included in **Attachment H**.

Table 6: Summary of Queuing Deficiencies

#	Intersection	Scenario	Peak Period	Turning Movement	Storage Length (feet)	Queue Length		Variance
						Without Project	With Project	
11	Mathilda Avenue / Iowa Avenue	Existing	AM Peak	EBL	40	131	159	28 feet (2 veh)
			PM Peak			65	115	50 feet (2 veh)
		Existing + Background	AM Peak			159	185	26 feet (2 veh)
			PM Peak			71	115	44 feet (2 veh)
		Cumulative	PM Peak			84	145	61 feet (3 veh)
12	Mathilda Avenue / Olive Avenue	Existing + Background	PM Peak	EBR	65	84	121	37 feet (2 veh)
		Cumulative	PM Peak			120	159	39 feet (2 veh)
		Existing	AM Peak	NBL	130	144	175	31 feet (2 veh)
			PM Peak			113	244	131 feet (6 veh)
		Existing + Background	PM Peak			116	247	131 feet (6 veh)
		Cumulative	PM Peak			177	270	93 feet (4 veh)
		Existing	AM Peak	SBR	70	80	127	47 feet (2 veh)
		Existing + Background				81	128	47 feet (2 veh)
		Cumulative				106	154	48 feet (2 veh)
13	Mathilda Avenue / El Camino Real	Existing	AM Peak	WBR	345	486	521	35 feet (2 veh)
		Existing + Background				708	743	35 feet (2 veh)
		Cumulative				1037	1067	30 feet (2 veh)

- **Intersection #11 – Mathilda Avenue / Iowa Avenue**
  - Existing Plus Project, AM and PM Peak Hours: Eastbound left turn queue length of 159 feet in the AM peak hour and 115 feet in the PM peak hour exceeds the 40-foot turn pocket length in the Existing Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 28 feet of the total queue in the AM peak hour and by approximately two (2) vehicles or 50 feet of the total queue in the PM peak hour.
  - Existing Plus Background Plus Project, AM and PM Peak Hours: Eastbound left turn queue length of 185 feet in the AM peak hour and 115 feet in the PM peak hour exceeds the 40-foot turn pocket length in the Existing Plus Background Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 26 feet

of the total queue in the AM peak hour and by approximately two (2) vehicles or 44 feet of the total queue in the PM peak hour.

- Cumulative Plus Project, PM Peak Hour: Eastbound left turn queue length of 145 feet exceeds the 40-foot turn pocket length in the Cumulative Plus Project condition during the PM Peak Period. The Project increases queuing by approximately three (3) vehicles or 61 feet of the total queue.

- **Intersection #12 – Mathilda Avenue / Olive Avenue**
  - Existing Plus Project, AM and PM Peak Hours: Northbound left turn queue length of 175 feet in the AM peak hour and 244 feet in the PM peak hour exceeds the 130-foot turn pocket length in the Existing Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 31 feet of the total queue in the AM peak hour and approximately six (6) vehicles or 131 feet of the total queue in the PM peak hour. Southbound right turn queue length of 127 feet exceeds the 70-foot turn pocket length in the Existing Plus Project condition during the AM Peak Period. The Project increases queuing by approximately two (2) vehicles or 47 feet of the total queue.
  - Existing Plus Background Plus Project, AM and PM Peak Hours: Eastbound right turn queue length of 121 feet exceeds the 65-foot turn pocket length in the Existing Plus Background Plus Project condition during the PM Peak Period. The Project increases queuing by approximately two (2) vehicles or 37 feet of the total queue. Northbound left turn queue length of 247 feet exceeds the 130-foot turn pocket length in the Existing Plus Background Plus Project condition during the PM Peak Period. The Project increases queuing by approximately six (6) vehicles or 131 feet of the total queue. Southbound right turn queue length of 128 feet exceeds the 70-foot turn pocket length in the Existing Plus Background Plus Project condition during the AM Peak Period. The Project increases queuing by approximately two (2) vehicles or 47 feet of the total queue.
  - Cumulative Plus Project, AM and PM Peak Hours: Eastbound right turn queue length of 159 feet exceeds the 65-foot turn pocket length in the Cumulative Plus Project condition during the PM Peak Period. The Project increases queuing by approximately two (2) vehicles or 39 feet of the total queue. Northbound left turn queue length of 270 feet exceeds the 130-foot turn pocket length in the Cumulative Plus Project condition during the PM Peak Period. The Project increases queuing by approximately four (4) vehicles or 93 feet of the total queue. Southbound right turn queue length of 154 feet exceeds the 70-foot turn pocket length in the Cumulative Plus Project condition during the AM Peak Period. The Project increases queuing by approximately two (2) vehicles or 48 feet of the total queue.
- **Intersection #13 – Mathilda Avenue / El Camino Real**
  - Existing Plus Project, AM Peak Hour: Westbound right turn queue length of 521 feet in the AM peak hour exceeds the 345-foot turn pocket length in the Existing Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 35 feet of the total queue in the AM peak hour.
  - Existing Plus Background Plus Project, AM Peak Hour: Westbound right turn queue length of 743 feet in the AM peak hour exceeds the 345-foot turn pocket length in the

Existing Plus Background Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 35 feet of the total queue in the AM peak hour.

- Cumulative Plus Project, AM Peak Hour: Westbound right turn queue length of 1,067 feet in the AM peak hour exceeds the 345-foot turn pocket length in the Cumulative Plus Project condition. The Project increases queuing by approximately two (2) vehicles or 30 feet of the total queue in the AM peak hour.

Site Access Circulation

Access to the City Hall parking garage has been relocated from All America Way to West Olive Avenue. However, access to the surface parking lot will remain on all American Way. Therefore, it is anticipated that the main access for vehicles entering and exiting the parking garage to/from the north will be at Mathilda Avenue and W Olive Avenue. Vehicles coming from and going to the south along Mathilda Avenue will use All America Way and the driveway on El Camino Real adjacent to the Sunnyvale Superior Courthouse. Due to the relocation of the City Hall parking garage driveway, fewer project trips will be utilizing the driveway of Mathilda Avenue and All America Way to go northbound on Mathilda Avenue or eastbound on El Camino Real. As a result, there is a reduction in queues for the southbound left turn lane at Mathilda Avenue and El Camino Real and the project no longer creates a queuing deficiency for this movement.

Potential Impacts on Transit, Bicycle, and Pedestrian Mobility

Transit Vehicle Delay

Transit vehicle delay was observed for each transit route since the project is expected to increase the vehicle delay at study intersections. Transit vehicle delay were determined based on the intersection level of service outputs from Traffix Software. Since there are no impact thresholds for transit delay, it is provided for informational purposes only.

Routes 22 and 522 operate along El Camino Real in the study area. The eastbound and westbound through movements at intersections along El Camino Real were identified as along the bus routes. The maximum increase in vehicle delay is 0.7 seconds in the westbound through movement for all intersections combined in the AM peak. The maximum increase is 2.8 seconds for the eastbound through movements in the PM peak. This increase of 0.7 seconds in the AM peak and 2.8 seconds in the PM peak is insignificant.

Route 32 operates along Indio Way, California Avenue, and Mathilda Avenue in the study area. The northbound and eastbound turn movements at the intersections along Mathilda Avenue, Indio Way, and California Avenue were identified as along the bus routes. The maximum increase in vehicle delay is 0.7 seconds for the combined movements in the AM peak. The maximum increase is 2.3 seconds for the combined movements in the PM peak. This increase of 0.7 seconds in the AM peak and 2.3 seconds in the PM peak is insignificant.

Route 53 operates along Washington Avenue in the study area. The eastbound and westbound through movements and the southbound right turn movement along Washington Avenue, Mathilda Avenue and S Pastoria Avenue were identified as along the bus routes. The maximum increase in

vehicle delay is 0.1 seconds for the combined movements in the AM peak. The maximum increase is 2.1 seconds for the combined movements in the PM peak. This increase of 0.1 seconds in the AM peak and 2.1 seconds in the PM peak is insignificant.

Route 55 operates along Sunnyvale Saratoga Road in the study area. The northbound and southbound through movements, northbound right turn movement, and westbound left turn movement at the intersections along Sunnyvale Saratoga Road were identified as along the bus routes. In addition, the eastbound through movement, northbound left turn movement, and southbound right turn movement at the intersections along Sunnyvale Saratoga Road were identified as long the bus routes for certain timepoints. The maximum increase in vehicle delay is 3.8 seconds for the combined movements in the AM peak. The maximum increase is 4.5 seconds for the combined movements in the PM peak. This increase of 3.8 seconds in the AM peak and 4.5 seconds in the PM peak is insignificant.

Route 81 operates along Homestead Road in the study area. The eastbound and westbound through movements at intersections along Homestead Road were identified as along the bus routes. The maximum increase in vehicle delay is 2.0 seconds in the eastbound through movement for all intersections combined in the AM peak. The maximum increase is 2.0 seconds for the westbound through movements in the PM peak. This increase of 2.0 seconds in the AM peak and 2.0 seconds in the PM peak is insignificant.

The increases in transit vehicle delay are minimal in the AM and PM peak hours and should not affect the overall schedule for the transit routes.

Conclusions

An updated traffic analysis was conducted to evaluate the potential impacts of the Civic Center Update, which proposes to increase the City Hall building by 11,214 square feet. Access to the new City Hall underground parking garage will be relocated from All America Way to West Olive Avenue while access to the surface parking lot remains at All America Way. In addition, due to the close proximity to transit nearby the project site, an 11 percent trip reduction was taken for all three Civic Center buildings. The Civic Center Update does not result in additional intersection LOS impacts under all three analysis scenarios (Existing, Existing Plus Background, and Cumulative Scenarios).

Sincerely,

Ben Huie, P.E.
California Professional Engineer #C76682

Attachments

Attachment A – Site Plan
Attachment B – Existing Plus Project Traffix and Synchro Outputs
Attachment C – Existing Plus Project Signal Warrants
Attachment D – Existing Plus Background Plus Project Traffix and Synchro Outputs
Attachment E – Existing Plus Background Plus Project Signal Warrants
Attachment F – Cumulative Plus Project Traffix and Synchro Outputs
Attachment G – Cumulative Plus Project Signal Warrants
Attachment H – Queuing Summary

Attachment A

SUNNYVALE CIVIC CENTER - SITE IMPROVEMENT

456 W OLIVE AVE, SUNNYVALE, CA 94086

CITY OF SUNNYVALE, CALIFORNIA

465 W. OLIVE AVE
SUNNYVALE, CA 94086
408-730-7516
https://sunnyvale.ca.gov

SMITHGROUP

301 BATTERY STREET
7TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
www.smithgroup.com

VOLUME 1 OF 6

ISSUED FOR:
SCHEMATIC DESIGN

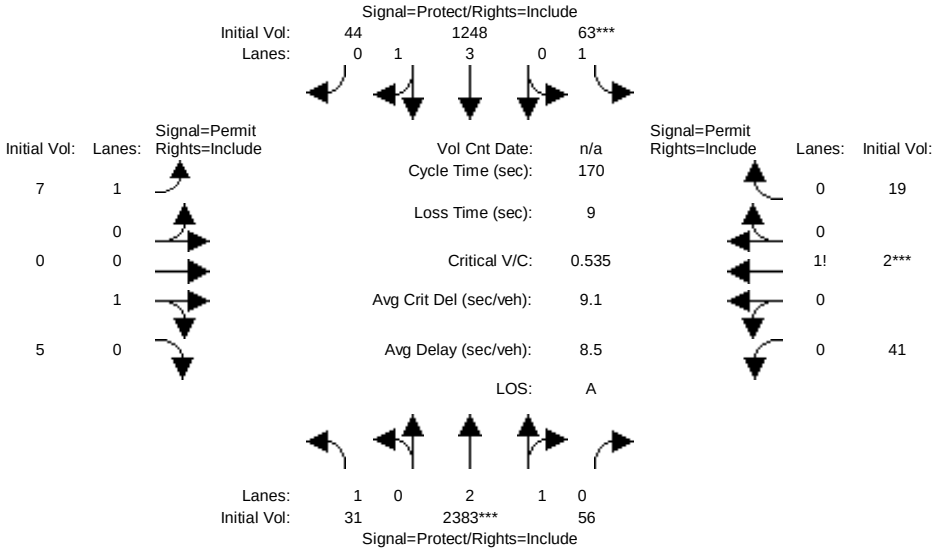
ISSUE DATE:
17 MAY 2019

SG Project # 11244.000

Plot Date: 5/17/2019 3:42:08 AM

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #5: Mathilda Ave / San Aleso Ave

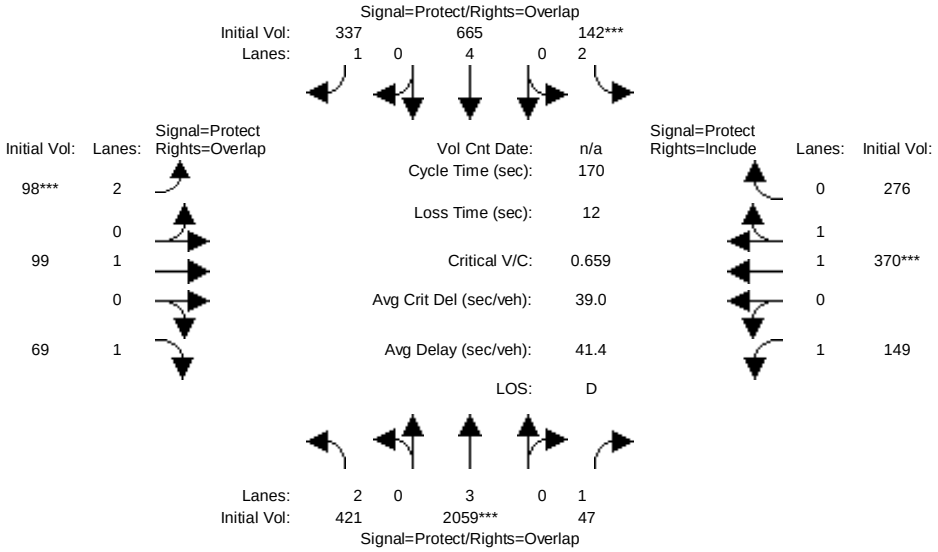


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	31	2374	56	63	1227	44	7	0	5	41	2	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:	31	2374	56	63	1227	44	7	0	5	41	2	19
Added Vol:	0	9	0	0	21	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	2383	56	63	1248	44	7	0	5	41	2	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:	31	2383	56	63	1248	44	7	0	5	41	2	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	2383	56	63	1248	44	7	0	5	41	2	19
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	2383	56	63	1248	44	7	0	5	41	2	19
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	0.99	0.95	0.92	1.00	0.95	0.92	0.92	0.92
Lanes:	1.00	2.93	0.07	1.00	3.86	0.14	1.00	0.00	1.00	0.66	0.03	0.31
Final Sat.:	1750	5471	129	1750	7244	255	1750	0	1800	1157	56	536
Capacity Analysis Module:												
Vol/Sat:	0.02	0.44	0.44	0.04	0.17	0.17	0.00	0.00	0.00	0.04	0.04	0.04
Crit Moves:		****		****							****	
Green Time:	18.0	138	138.3	11.4	132	131.8	11.3	0.0	11.3	11.3	11.3	11.3
Volume/Cap:	0.17	0.54	0.54	0.54	0.22	0.22	0.06	0.00	0.04	0.54	0.54	0.54
Uniform Del:	69.2	5.2	5.2	76.7	5.2	5.2	74.4	0.0	74.3	76.8	76.8	76.8
IncremntDel:	0.4	0.1	0.1	4.8	0.0	0.0	0.2	0.0	0.1	4.8	4.8	4.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.6	5.4	5.4	81.5	5.2	5.2	74.6	0.0	74.5	81.7	81.7	81.7
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:	69.6	5.4	5.4	81.5	5.2	5.2	74.6	0.0	74.5	81.7	81.7	81.7
LOS by Move:	E	A	A	F	A	A	E	A	E	F	F	F
HCM2kAvgQ:	38	349	349	86	113	113	10	0	7	102	102	102

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #6: Mathilda Ave / Maude Ave

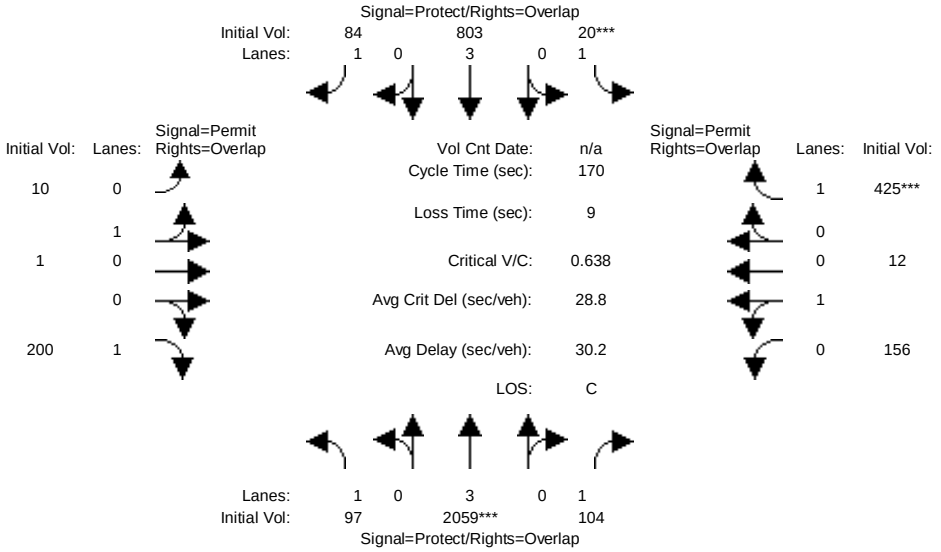


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	421	2050	47	142	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:	0	9	0	0	21	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	421	2059	47	142	665	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	2059	47	142	665	337	98	99	69	149	370	276
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	421	2059	47	142	665	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
FinalVolume:	421	2059	47	142	665	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:	47.5	93.2	126.0	11.6	57.4	65.4	8.0	20.4	67.9	32.8	45.1	45.1
Volume/Cap:	0.48	0.66	0.04	0.66	0.26	0.50	0.66	0.43	0.10	0.44	0.66	0.66
Uniform Del:	50.9	27.1	5.9	77.2	40.9	39.8	79.6	69.5	31.9	60.6	55.6	55.6
IncremntDel:	0.4	0.5	0.0	7.3	0.1	0.6	10.4	1.3	0.1	0.9	1.7	1.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	51.4	27.7	5.9	84.5	40.9	40.4	90.0	70.8	32.0	61.5	57.3	57.3
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:	51.4	27.7	5.9	84.5	40.9	40.4	90.0	70.8	32.0	61.5	57.3	57.3
LOS by Move:	D-	C	A	F	D	D	F	E	C-	E	E+	E+
HCM2kAvgQ:	261	608	17	112	149	349	104	127	58	188	393	393

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #7: Mathilda Ave / Indio Way

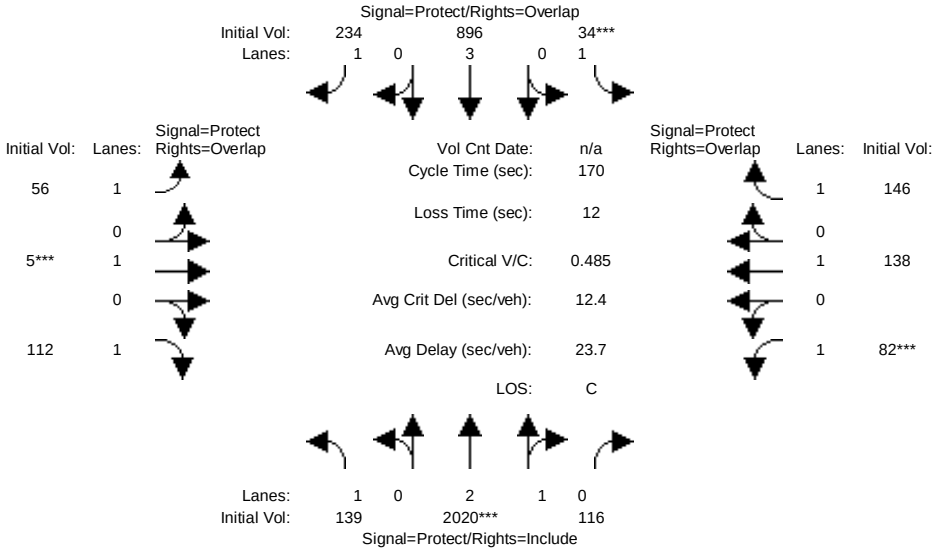


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	97	2050	103	20	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	9	1	0	21	0	0	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	2059	104	20	803	84	10	1	200	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	2059	104	20	803	84	10	1	200	156	12	425
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2059	104	20	803	84	10	1	200	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
FinalVolume:	97	2059	104	20	803	84	10	1	200	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	97.7	97.7	4.0	73.0	73.0	59.3	59.3	88.0	59.3	59.3	63.3
Volume/Cap:	0.33	0.63	0.10	0.49	0.33	0.11	0.02	0.02	0.22	0.27	0.27	0.65
Uniform Del:	62.2	24.1	16.4	82.0	32.2	29.1	36.3	36.3	22.3	39.7	39.7	44.2
IncremntDel:	0.7	0.4	0.0	8.8	0.1	0.1	0.0	0.0	0.1	0.2	0.2	2.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	62.8	24.5	16.4	90.7	32.3	29.2	36.3	36.3	22.4	40.0	40.0	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:	62.8	24.5	16.4	90.7	32.3	29.2	36.3	36.3	22.4	40.0	40.0	46.6
LOS by Move:	E	C	B	F	C-	C	D+	D+	C+	D	D	D
HCM2kAvgQ:	115	577	63	29	221	67	9	9	147	159	159	496

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #8: Mathilda Ave / California Ave

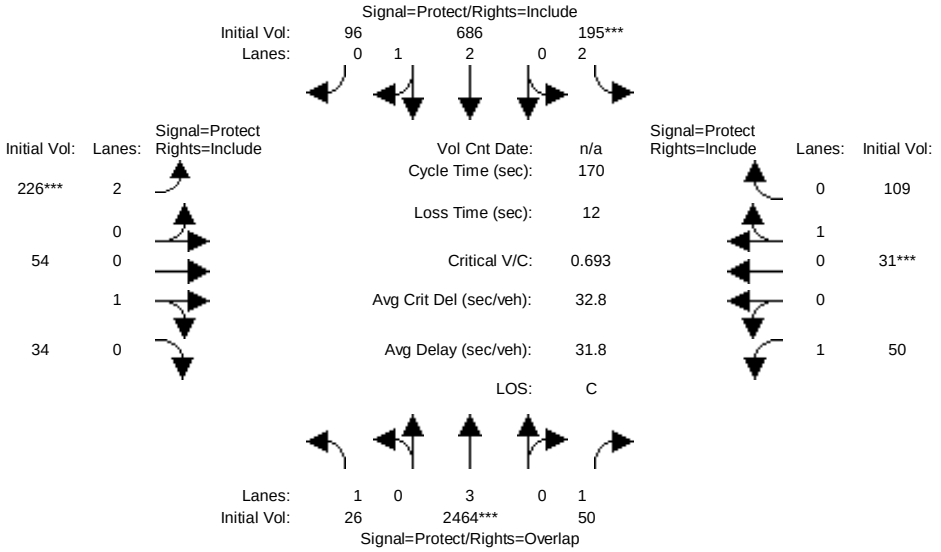


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	139	2009	115	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
Added Vol:	0	11	1	0	24	0	0	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	139	2020	116	34	896	234	56	5	112	82	138	146
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:	139	2020	116	34	896	234	56	5	112	82	138	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	139	2020	116	34	896	234	56	5	112	82	138	146
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:	139	2020	116	34	896	234	56	5	112	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	5295	304	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.38	0.38	0.02	0.16	0.13	0.03	0.00	0.06	0.05	0.07	0.08
Crit Moves:		****		****				****		****		
Green Time:	45.1	128	127.8	6.5	89.2	96.5	7.2	8.0	53.1	15.7	16.5	23.0
Volume/Cap:	0.30	0.51	0.51	0.51	0.30	0.24	0.75	0.06	0.20	0.51	0.75	0.62
Uniform Del:	49.9	8.5	8.5	80.2	22.8	18.4	80.5	77.4	43.0	73.5	74.8	69.4
IncremntDel:	0.4	0.1	0.1	6.2	0.1	0.1	34.0	0.3	0.2	2.6	15.8	4.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.2	8.6	8.6	86.4	22.8	18.5	114.5	77.7	43.1	76.1	90.6	74.3
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:	50.2	8.6	8.6	86.4	22.8	18.5	114.5	77.7	43.1	76.1	90.6	74.3
LOS by Move:	D	A	A	F	C+	B-	F	E-	D	E-	F	E
HCM2kAvgQ:	153	369	369	48	209	158	115	7	112	124	213	213

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #9: Mathilda Ave / Washington Ave

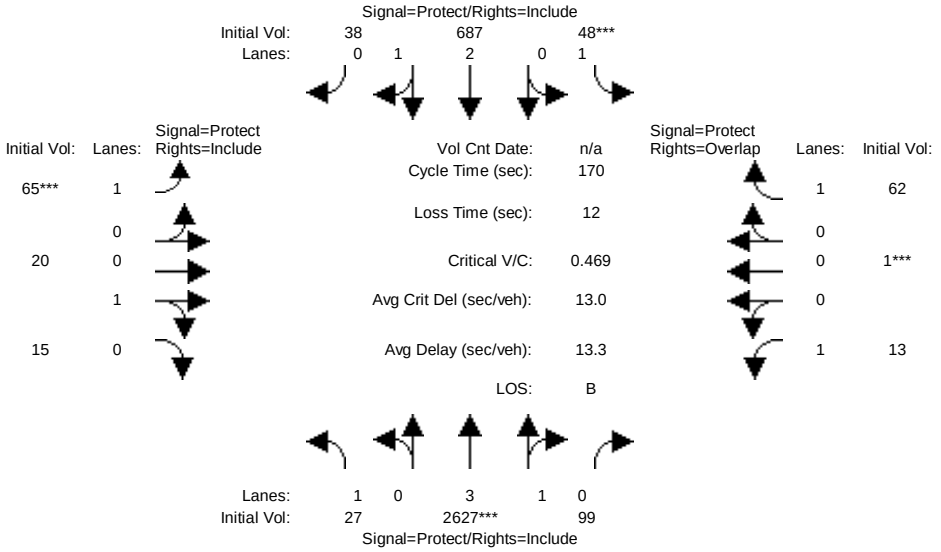


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	26	2452	50	195	659	96	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	12	0	0	27	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	2464	50	195	686	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	2464	50	195	686	96	226	54	34	50	31	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2464	50	195	686	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
FinalVolume:	26	2464	50	195	686	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	2.62	0.38	2.00	0.61	0.39	1.00	0.22	0.78
Final Sat.:	1750	5700	1750	3150	4912	687	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:	30.6	106	123.4	15.2	90.7	90.7	17.6	19.4	19.4	17.3	19.1	19.1
Volume/Cap:	0.08	0.69	0.04	0.69	0.26	0.26	0.69	0.43	0.43	0.28	0.69	0.69
Uniform Del:	58.0	21.2	6.6	75.1	21.5	21.5	73.6	70.1	70.1	70.6	72.6	72.6
IncremntDel:	0.1	0.6	0.0	7.2	0.0	0.0	6.3	1.4	1.4	0.9	9.9	9.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	58.2	21.8	6.6	82.4	21.5	21.5	79.9	71.5	71.5	71.5	82.5	82.5
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:	58.2	21.8	6.6	82.4	21.5	21.5	79.9	71.5	71.5	71.5	82.5	82.5
LOS by Move:	E+	C+	A	F	C+	C+	E-	E	E	E	F	F
HCM2kAvgQ:	29	694	19	179	179	179	175	109	109	69	214	214

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #10: Mathilda Ave / McKinley Ave

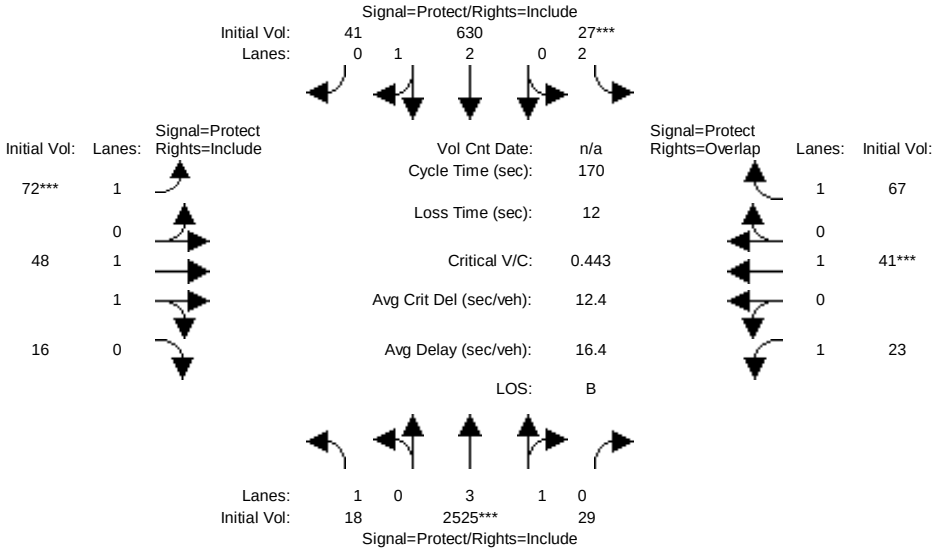


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	27	2619	99	48	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:	0	8	0	0	27	0	4	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	2627	99	48	687	38	65	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	2627	99	48	687	38	65	20	15	13	1	62
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	2627	99	48	687	38	65	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
FinalVolume:	27	2627	99	48	687	38	65	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	2.84	0.16	1.00	0.57	0.43	0.93	0.07	1.00
Final Sat.:	1750	7227	272	1750	5306	293	1750	1029	771	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:	21.1	127	127.4	9.6	116	115.9	13.0	14.0	14.0	7.0	8.0	17.6
Volume/Cap:	0.12	0.49	0.49	0.49	0.19	0.19	0.49	0.24	0.24	0.19	0.17	0.33
Uniform Del:	66.3	8.4	8.4	77.8	9.9	9.9	75.3	73.0	73.0	78.8	77.8	70.7
IncremntDel:	0.3	0.1	0.1	3.7	0.0	0.0	2.8	0.8	0.8	0.2	0.2	0.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	66.5	8.5	8.5	81.5	9.9	9.9	78.0	73.8	73.8	79.0	78.0	71.6
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:	66.5	8.5	8.5	81.5	9.9	9.9	78.0	73.8	73.8	79.0	78.0	71.6
LOS by Move:	E	A	A	F	A	A	E-	E	E	E-	E-	E
HCM2kAvgQ:	32	347	347	66	113	113	101	48	48	23	22	84

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #11: Mathilda Ave / Iowa Ave

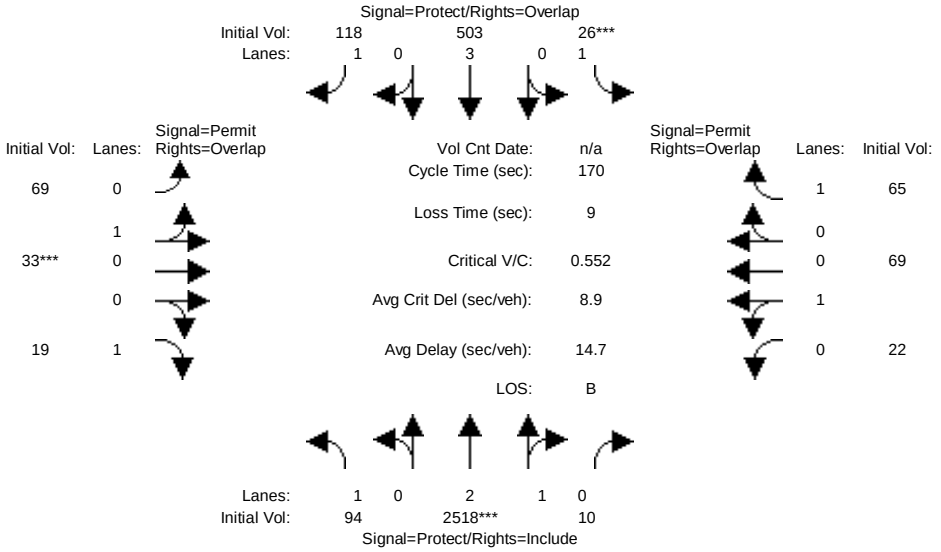


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	18	2526	29	27	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	-1	0	0	17	10	9	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	2525	29	27	630	41	72	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	2525	29	27	630	41	72	48	16	23	41	67
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2525	29	27	630	41	72	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
FinalVolume:	18	2525	29	27	630	41	72	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	2.81	0.19	1.00	1.49	0.51	1.00	1.00	1.00
Final Sat.:	1750	7415	85	3150	5257	342	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:	37.7	126	125.8	8.0	96.1	96.1	15.2	12.8	12.8	11.4	9.0	17.0
Volume/Cap:	0.05	0.46	0.46	0.18	0.21	0.21	0.46	0.23	0.23	0.20	0.41	0.38
Uniform Del:	52.0	8.7	8.7	77.9	18.3	18.3	73.5	74.0	74.0	75.0	77.9	71.6
IncremntDel:	0.0	0.1	0.1	0.6	0.0	0.0	2.1	0.4	0.4	0.8	2.7	1.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	52.0	8.8	8.8	78.4	18.3	18.3	75.6	74.4	74.4	75.8	80.6	73.0
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:	52.0	8.8	8.8	78.4	18.3	18.3	75.6	74.4	74.4	75.8	80.6	73.0
LOS by Move:	D-	A	A	E-	B-	B-	E-	E	E	E-	F	E
HCM2kAvgQ:	19	322	322	20	140	140	95	39	39	34	63	95

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #12: Mathilda Ave / Olive Ave

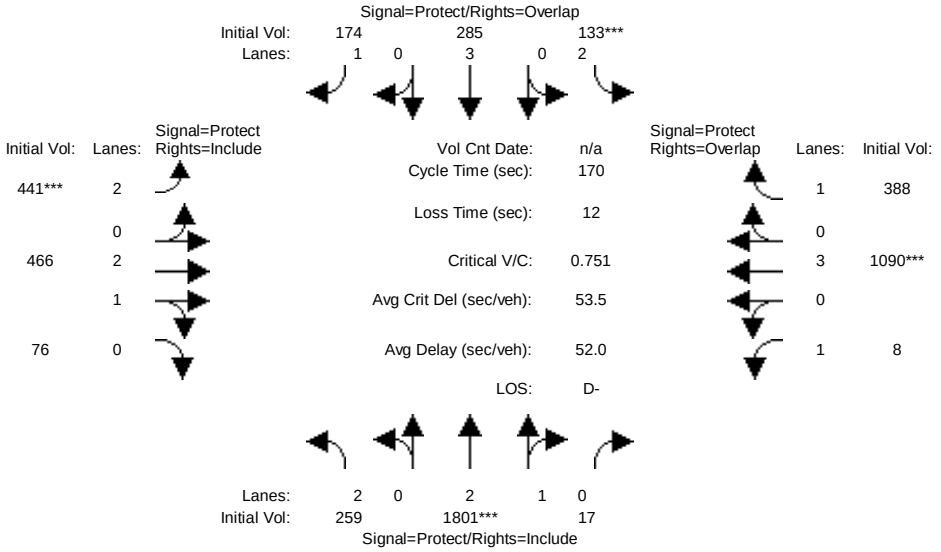


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	74	2520	12	26	538	65	67	29	22	26	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:	20	-2	-2	0	-35	53	2	4	-3	-4	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	94	2518	10	26	503	118	69	33	19	22	69	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:	94	2518	10	26	503	118	69	33	19	22	69	65
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	94	2518	10	26	503	118	69	33	19	22	69	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
FinalVolume:	94	2518	10	26	503	118	69	33	19	22	69	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	0.68	0.32	1.00	0.24	0.76	1.00
Final Sat.:	1750	5578	22	1750	5700	1750	1218	582	1750	435	1365	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.45	0.45	0.01	0.09	0.07	0.06	0.06	0.01	0.05	0.05	0.04
Crit Moves:		****		****				****				
Green Time:	54.3	139	139.0	4.6	89.2	89.2	17.4	17.4	71.8	17.4	17.4	22.0
Volume/Cap:	0.17	0.55	0.55	0.55	0.17	0.13	0.55	0.55	0.03	0.49	0.49	0.29
Uniform Del:	41.6	5.2	5.2	81.7	21.0	20.6	72.6	72.6	28.7	72.1	72.1	66.9
IncremntDel:	0.1	0.1	0.1	13.4	0.0	0.1	3.6	3.6	0.0	2.1	2.1	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	41.7	5.3	5.3	95.1	21.1	20.6	76.1	76.1	28.7	74.2	74.2	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:	41.7	5.3	5.3	95.1	21.1	20.6	76.1	76.1	28.7	74.2	74.2	67.6
LOS by Move:	D	A	A	F	C+	C+	E-	E-	C	E	E	E
HCM2kAvgQ:	92	367	367	38	108	81	149	149	15	130	130	85

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #13: Mathilda Ave / El Camino Real

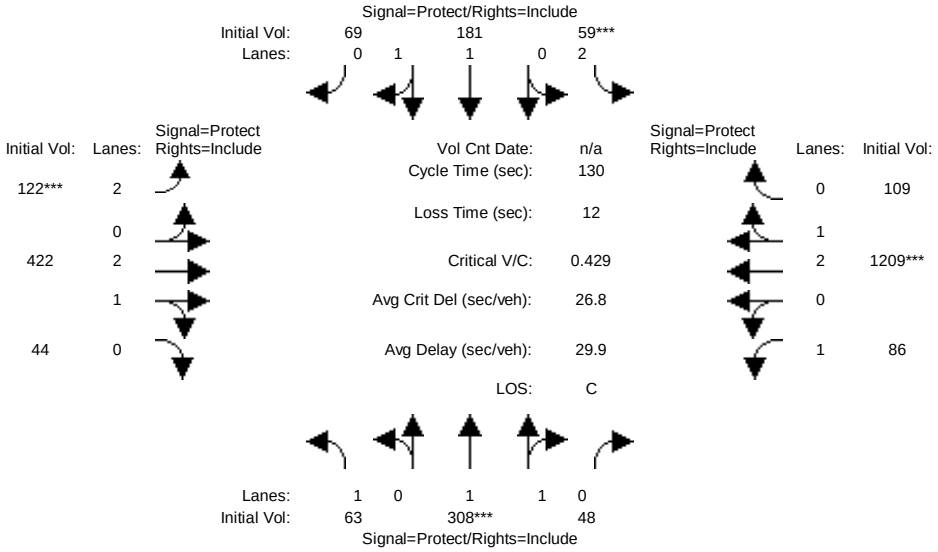


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	253	1793	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:	6	8	0	1	8	-4	-2	-2	-2	0	-9	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	259	1801	17	133	285	174	441	466	76	8	1090	388
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:	259	1801	17	133	285	174	441	466	76	8	1090	388
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	259	1801	17	133	285	174	441	466	76	8	1090	388
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:	259	1801	17	133	285	174	441	466	76	8	1090	388
Saturation Flow Module:												
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	5548	52	3150	5700	1750	3150	4814	785	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.32	0.32	0.04	0.05	0.10	0.14	0.10	0.10	0.00	0.19	0.22
Crit Moves:		****		****			****				****	
Green Time:	51.6	73.5	73.5	9.6	31.4	63.1	31.7	54.9	54.9	20.0	43.3	52.8
Volume/Cap:	0.27	0.75	0.75	0.75	0.27	0.27	0.75	0.30	0.30	0.04	0.75	0.71
Uniform Del:	44.9	40.6	40.6	79.1	59.5	37.3	65.4	43.1	43.1	66.5	58.4	51.9
IncremntDel:	0.2	1.4	1.4	16.4	0.1	0.2	5.4	0.1	0.1	0.1	2.2	4.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	45.1	41.9	41.9	95.4	59.6	37.6	70.8	43.2	43.2	66.5	60.6	56.3
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	41.9	41.9	95.4	59.6	37.6	70.8	43.2	43.2	66.5	60.6	56.3
LOS by Move:	D	D	D	F	E+	D+	E	D	D	E	E	E+
HCM2kAvgQ:	149	680	680	141	105	165	332	170	170	10	460	497

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #14: El Camino Real and Sunnyvale Ave

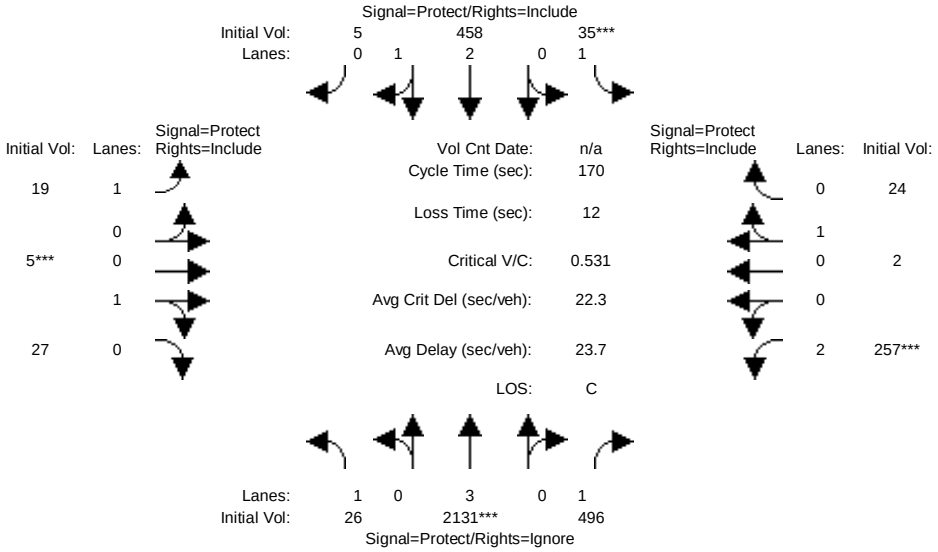


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	63	308	48	59	181	69	122	420	44	86	1205	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:	63	308	48	59	181	69	122	420	44	86	1205	109
Added Vol:	0	0	0	0	0	0	0	2	0	0	4	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	308	48	59	181	69	122	422	44	86	1209	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:	63	308	48	59	181	69	122	422	44	86	1209	109
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	63	308	48	59	181	69	122	422	44	86	1209	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
FinalVolume:	63	308	48	59	181	69	122	422	44	86	1209	109
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	0.83	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.72	0.28	2.00	1.43	0.57	2.00	2.71	0.29	1.00	2.74	0.26
Final Sat.:	1750	3201	499	3150	2678	1021	3150	5071	529	1750	5136	463
Capacity Analysis Module:												
Vol/Sat:	0.04	0.10	0.10	0.02	0.07	0.07	0.04	0.08	0.08	0.05	0.24	0.24
Crit Moves:		****		****			****				****	
Green Time:	14.8	28.8	28.8	7.0	21.1	21.1	11.6	49.9	49.9	32.3	70.6	70.6
Volume/Cap:	0.32	0.43	0.43	0.35	0.42	0.42	0.43	0.22	0.22	0.20	0.43	0.43
Uniform Del:	53.0	43.5	43.5	59.3	48.9	48.9	56.1	26.9	26.9	38.6	17.8	17.8
IncremntDel:	0.9	0.4	0.4	1.2	0.5	0.5	1.1	0.1	0.1	0.2	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	53.9	43.9	43.9	60.5	49.4	49.4	57.2	27.0	27.0	38.9	17.9	17.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.9	43.9	43.9	60.5	49.4	49.4	57.2	27.0	27.0	38.9	17.9	17.9
LOS by Move:	D-	D	D	E	D	D	E+	C	C	D+	B	B
HCM2kAvgQ:	68	161	161	44	121	121	81	103	103	73	260	260

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

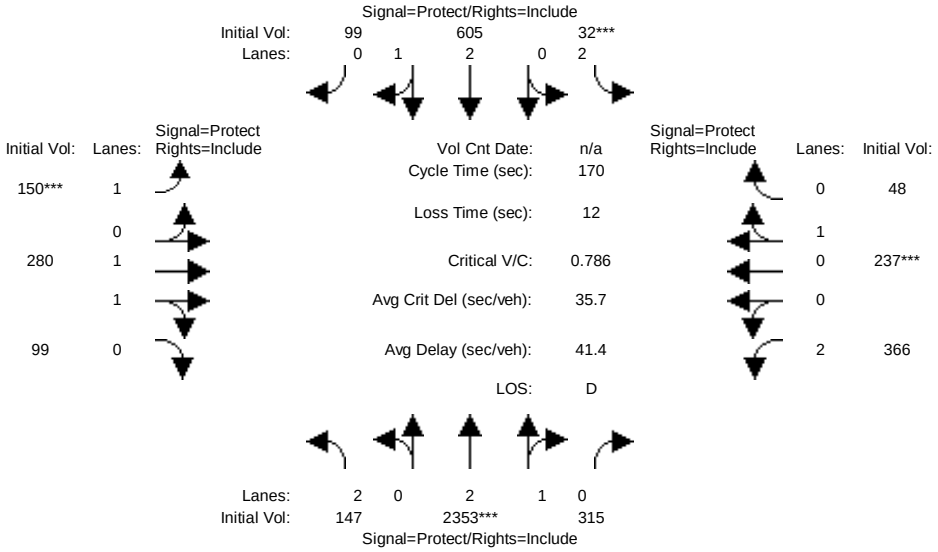


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	26	2117	496	35	452	5	19	5	27	257	2	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:	26	2117	496	35	452	5	19	5	27	257	2	24
Added Vol:	0	14	0	0	6	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	2131	496	35	458	5	19	5	27	257	2	24
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	2131	0	35	458	5	19	5	27	257	2	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2131	0	35	458	5	19	5	27	257	2	24
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	2131	0	35	458	5	19	5	27	257	2	24
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.97	0.03	1.00	0.16	0.84	2.00	0.08	0.92
Final Sat.:	1750	5700	1750	1750	5539	60	1750	281	1519	3150	138	1662
Capacity Analysis Module:												
Vol/Sat:	0.01	0.37	0.00	0.02	0.08	0.08	0.01	0.02	0.02	0.08	0.01	0.01
Crit Moves:		****		****				****		****		
Green Time:	40.3	114	0.0	7.0	80.8	80.8	13.6	12.0	12.0	24.9	23.3	23.3
Volume/Cap:	0.06	0.56	0.00	0.49	0.17	0.17	0.14	0.25	0.25	0.56	0.11	0.11
Uniform Del:	50.3	14.7	0.0	79.7	25.5	25.5	72.7	74.8	74.8	67.4	64.2	64.2
IncremntDel:	0.1	0.2	0.0	5.1	0.0	0.0	0.4	1.0	1.0	1.5	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.3	14.9	0.0	84.8	25.5	25.5	73.2	75.8	75.8	68.9	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:	50.3	14.9	0.0	84.8	25.5	25.5	73.2	75.8	75.8	68.9	64.4	64.4
LOS by Move:	D	B	A	F	C	C	E	E-	E-	E	E	E
HCM2kAvgQ:	26	459	0	64	111	111	27	46	46	199	31	31

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

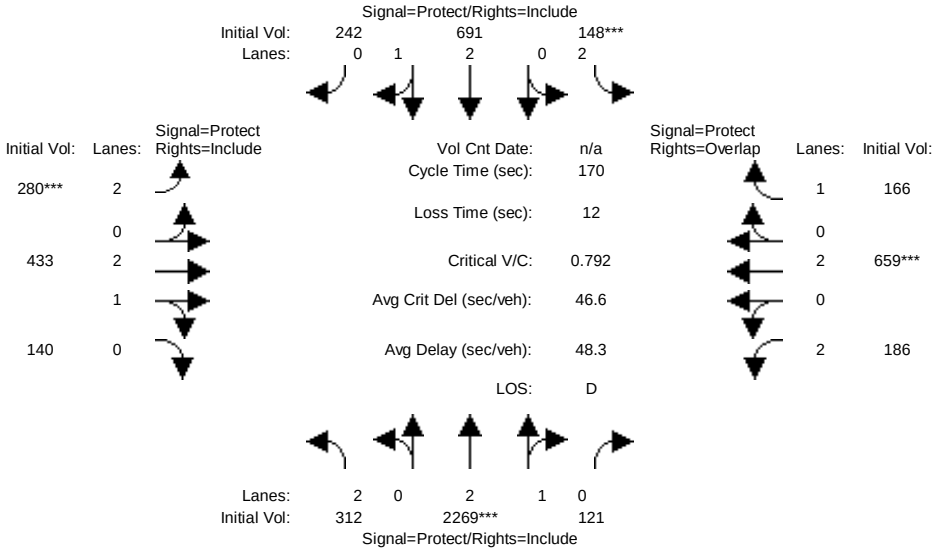


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	143	2339	315	32	599	99	150	280	96	366	237	48
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:	143	2339	315	32	599	99	150	280	96	366	237	48
Added Vol:	4	14	0	0	6	0	0	0	3	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	147	2353	315	32	605	99	150	280	99	366	237	48
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:	147	2353	315	32	605	99	150	280	99	366	237	48
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	147	2353	315	32	605	99	150	280	99	366	237	48
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:	147	2353	315	32	605	99	150	280	99	366	237	48
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.98	0.95	0.83	0.95	0.95
Lanes:	2.00	2.63	0.37	2.00	2.56	0.44	1.00	1.46	0.54	2.00	0.83	0.17
Final Sat.:	3150	4938	661	3150	4811	787	1750	2733	966	3150	1497	303
Capacity Analysis Module:												
Vol/Sat:	0.05	0.48	0.48	0.01	0.13	0.13	0.09	0.10	0.10	0.12	0.16	0.16
Crit Moves:		****		****			****				****	
Green Time:	28.6	102	101.8	4.0	77.2	77.2	18.3	24.4	24.4	27.7	33.8	33.8
Volume/Cap:	0.28	0.80	0.80	0.43	0.28	0.28	0.80	0.71	0.71	0.71	0.80	0.80
Uniform Del:	61.6	26.1	26.1	81.9	29.0	29.0	74.0	69.4	69.4	67.4	64.8	64.8
IncremntDel:	0.3	1.4	1.4	4.0	0.1	0.1	20.5	4.5	4.5	4.7	11.7	11.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	61.9	27.5	27.5	85.9	29.0	29.0	94.5	74.0	74.0	72.0	76.5	76.5
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:	61.9	27.5	27.5	85.9	29.0	29.0	94.5	74.0	74.0	72.0	76.5	76.5
LOS by Move:	E	C	C	F	C	C	F	E	E	E	E-	E-
HCM2kAvgQ:	94	869	869	25	185	185	253	271	271	299	412	412

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

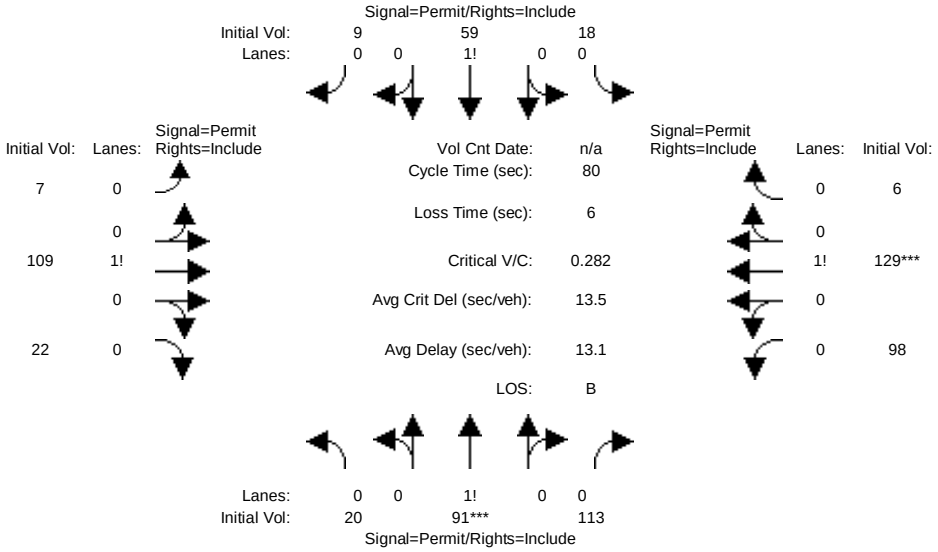


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	312	2251	121	148	682	242	280	433	140	186	659	166
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:	312	2251	121	148	682	242	280	433	140	186	659	166
Added Vol:	0	18	0	0	9	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	312	2269	121	148	691	242	280	433	140	186	659	166
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:	312	2269	121	148	691	242	280	433	140	186	659	166
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	312	2269	121	148	691	242	280	433	140	186	659	166
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:	312	2269	121	148	691	242	280	433	140	186	659	166
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.84	0.16	2.00	2.19	0.81	2.00	2.24	0.76	2.00	2.00	1.00
Final Sat.:	3150	5316	283	3150	4146	1452	3150	4230	1368	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.43	0.43	0.05	0.17	0.17	0.09	0.10	0.10	0.06	0.17	0.09
Crit Moves:		****			****			****			****	
Green Time:	37.9	91.6	91.6	10.1	63.8	63.8	19.1	35.7	35.7	20.6	37.2	47.3
Volume/Cap:	0.44	0.79	0.79	0.79	0.44	0.44	0.79	0.49	0.49	0.49	0.79	0.34
Uniform Del:	57.0	31.5	31.5	78.9	39.8	39.8	73.5	59.1	59.1	69.8	62.7	48.9
IncremntDel:	0.4	1.5	1.5	20.2	0.2	0.2	11.5	0.3	0.3	1.0	5.2	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	57.4	33.0	33.0	99.1	40.0	40.0	85.1	59.4	59.4	70.8	67.9	49.3
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:	57.4	33.0	33.0	99.1	40.0	40.0	85.1	59.4	59.4	70.8	67.9	49.3
LOS by Move:	E+	C-	C-	F	D	D	F	E+	E+	E	E	D
HCM2kAvgQ:	211	855	855	124	296	296	225	216	216	146	442	182

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #18: Pastoria Ave and Washington St

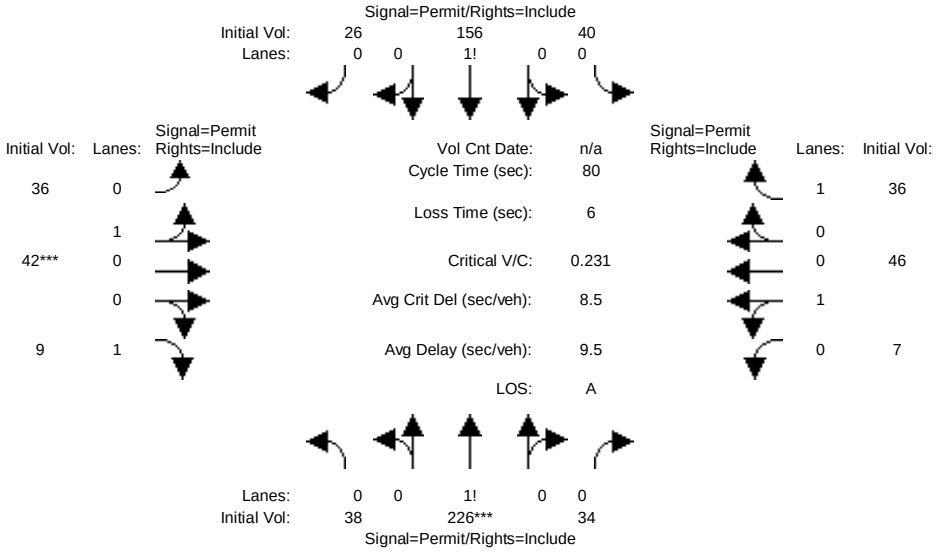


Street Name:	Pastoria Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	20	91	113	18	59	9	7	109	22	98	129	6
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:	20	91	113	18	59	9	7	109	22	98	129	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	91	113	18	59	9	7	109	22	98	129	6
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	91	113	18	59	9	7	109	22	98	129	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	20	91	113	18	59	9	7	109	22	98	129	6
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:	20	91	113	18	59	9	7	109	22	98	129	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.09	0.41	0.50	0.21	0.69	0.10	0.05	0.79	0.16	0.42	0.55	0.03
Final Sat.:	156	711	883	366	1201	183	89	1382	279	736	969	45
Capacity Analysis Module:												
Vol/Sat:	0.13	0.13	0.13	0.05	0.05	0.05	0.08	0.08	0.08	0.13	0.13	0.13
Crit Moves:		****									****	
Green Time:	36.3	36.3	36.3	36.3	36.3	36.3	37.7	37.7	37.7	37.7	37.7	37.7
Volume/Cap:	0.28	0.28	0.28	0.11	0.11	0.11	0.17	0.17	0.17	0.28	0.28	0.28
Uniform Del:	13.7	13.7	13.7	12.6	12.6	12.6	12.1	12.1	12.1	12.9	12.9	12.9
IncremntDel:	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	13.9	13.9	13.9	12.6	12.6	12.6	12.2	12.2	12.2	13.1	13.1	13.1
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:	13.9	13.9	13.9	12.6	12.6	12.6	12.2	12.2	12.2	13.1	13.1	13.1
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	94	94	94	33	33	33	51	51	51	90	90	90

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #19: Pastoria Ave and Iowa Ave

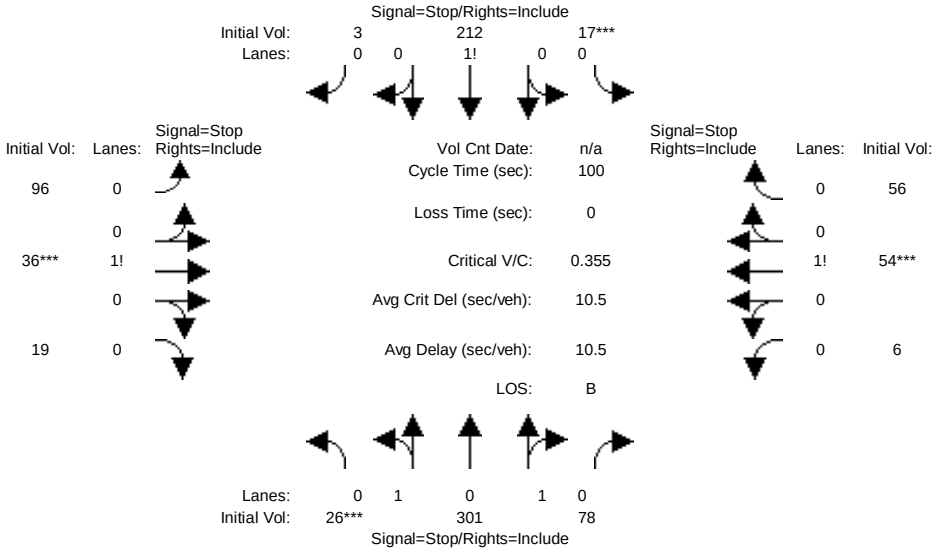


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	38	226	34	40	156	26	36	42	9	7	46	36
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:	38	226	34	40	156	26	36	42	9	7	46	36
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	226	34	40	156	26	36	42	9	7	46	36
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:	38	226	34	40	156	26	36	42	9	7	46	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	226	34	40	156	26	36	42	9	7	46	36
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:	38	226	34	40	156	26	36	42	9	7	46	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.13	0.76	0.11	0.18	0.70	0.12	0.46	0.54	1.00	0.13	0.87	1.00
Final Sat.:	223	1327	200	315	1230	205	831	969	1750	238	1562	1750
Capacity Analysis Module:												
Vol/Sat:	0.17	0.17	0.17	0.13	0.13	0.13	0.04	0.04	0.01	0.03	0.03	0.02
Crit Moves:		****						****				
Green Time:	59.0	59.0	59.0	59.0	59.0	59.0	15.0	15.0	15.0	15.0	15.0	15.0
Volume/Cap:	0.23	0.23	0.23	0.17	0.17	0.17	0.23	0.23	0.03	0.16	0.16	0.11
Uniform Del:	3.3	3.3	3.3	3.2	3.2	3.2	27.6	27.6	26.5	27.2	27.2	27.0
IncremntDel:	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.0	0.2	0.2	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.4	3.4	3.4	3.2	3.2	3.2	27.9	27.9	26.6	27.4	27.4	27.1
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:	3.4	3.4	3.4	3.2	3.2	3.2	27.9	27.9	26.6	27.4	27.4	27.1
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	64	64	64	45	45	45	41	41	5	27	27	19

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing + Op 1 AM

Intersection #20: Pastoria Ave and Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	26	296	82	17	208	3	96	33	19	10	52	56
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	296	82	17	208	3	96	33	19	10	52	56
Added Vol:	0	5	-4	0	4	0	0	3	0	-4	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	301	78	17	212	3	96	36	19	6	54	56
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	301	78	17	212	3	96	36	19	6	54	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	301	78	17	212	3	96	36	19	6	54	56
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:	26	301	78	17	212	3	96	36	19	6	54	56
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	1.49	0.38	0.07	0.92	0.01	0.63	0.24	0.13	0.05	0.47	0.48
Final Sat.:	80	952	255	48	597	8	375	141	74	31	283	294
Capacity Analysis Module:												
Vol/Sat:	0.32	0.32	0.31	0.36	0.36	0.36	0.26	0.26	0.26	0.19	0.19	0.19
Crit Moves:	****			****				****			****	
Delay/Veh:	10.9	10.6	10.2	11.0	11.0	11.0	10.4	10.4	10.4	9.6	9.6	9.6
Delay Adj:	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:	10.9	10.6	10.2	11.0	11.0	11.0	10.4	10.4	10.4	9.6	9.6	9.6
LOS by Move:	B	B	B	B	B	B	B	B	B	A	A	A
ApproachDel:		10.5			11.0			10.4			9.6	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		10.5			11.0			10.4			9.6	
LOS by Appr:		B			B			B			A	
AllWayAvgQ:	11.1	10.1	10.1	12.3	12.3	12.3	7.2	7.2	7.2	4.8	4.8	4.8

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave and Olive 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0	0 1!	0	0	0 1!	0	0	0 1!	0
Initial Vol:	26	301	78	17	212	3	96	36	19	6	54	56

Major Street Volume: 637
Minor Approach Volume: 151
Minor Approach Volume Threshold: 440

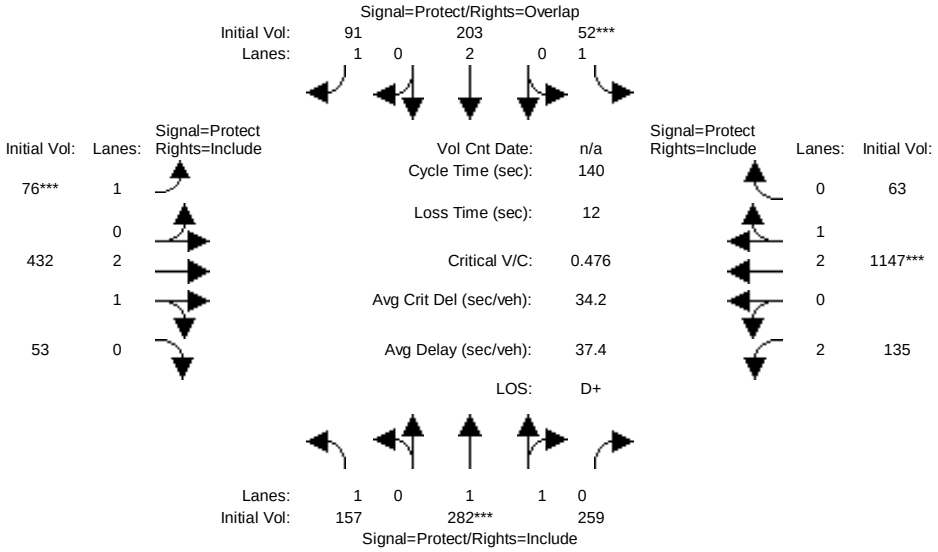
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

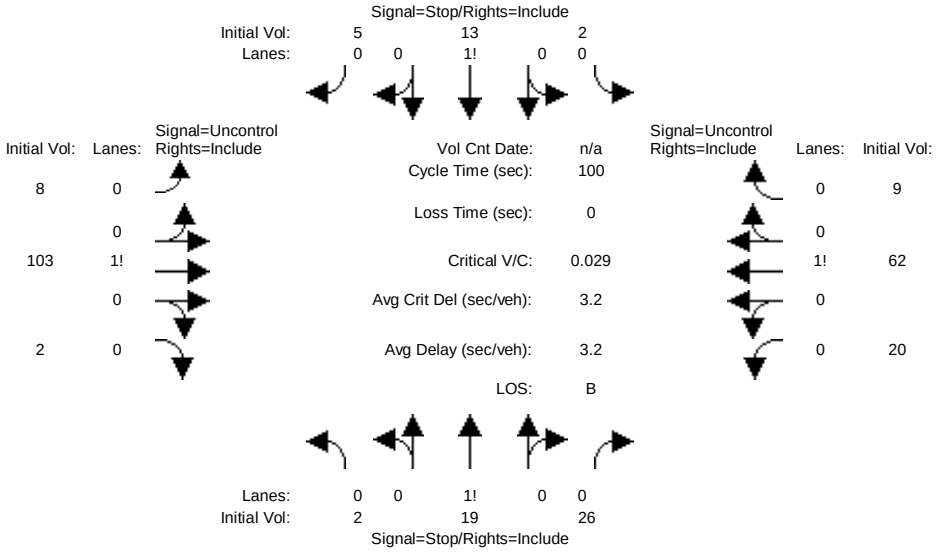


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	4.9	4.9
Volume Module:												
Base Vol:	157	276	259	58	200	88	69	432	53	135	1147	75
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	276	259	58	200	88	69	432	53	135	1147	75
Added Vol:	0	6	0	-6	3	3	7	0	0	0	0	-12
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	157	282	259	52	203	91	76	432	53	135	1147	63
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	157	282	259	52	203	91	76	432	53	135	1147	63
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	157	282	259	52	203	91	76	432	53	135	1147	63
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	157	282	259	52	203	91	76	432	53	135	1147	63
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.95	0.92	1.00	0.92	0.92	0.99	0.95	0.83	0.98	0.95
Lanes:	1.00	1.02	0.98	1.00	2.00	1.00	1.00	2.66	0.34	2.00	2.84	0.16
Final Sat.:	1750	1927	1770	1750	3800	1750	1750	4987	612	3150	5308	292
Capacity Analysis Module:												
Vol/Sat:	0.09	0.15	0.15	0.03	0.05	0.05	0.04	0.09	0.09	0.04	0.22	0.22
Crit Moves:		****		****			****				****	
Green Time:	27.4	41.6	41.6	12.0	26.2	39.2	13.0	39.9	39.9	34.5	61.4	61.4
Volume/Cap:	0.46	0.49	0.49	0.35	0.29	0.19	0.47	0.30	0.30	0.17	0.49	0.49
Uniform Del:	49.7	40.5	40.5	60.3	48.9	38.3	60.2	39.2	39.2	41.5	28.1	28.1
IncremntDel:	1.0	0.3	0.3	1.4	0.2	0.2	2.1	0.1	0.1	0.1	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.7	40.9	40.9	61.7	49.1	38.5	62.3	39.3	39.3	41.6	28.3	28.3
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:	50.7	40.9	40.9	61.7	49.1	38.5	62.3	39.3	39.3	41.6	28.3	28.3
LOS by Move:	D	D	D	E	D	D+	E	D	D	D	C	C
HCM2kAvgQ:	157	238	238	64	95	79	97	136	136	64	297	297

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing + Op 1 AM

Intersection #22: Charles St and Iowa Ave



Street Name:	Charles St						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:	2	15	17	2	13	5	8	103	2	10	62	9
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:	2	15	17	2	13	5	8	103	2	10	62	9
Added Vol:	0	4	9	0	0	0	0	0	0	10	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	19	26	2	13	5	8	103	2	20	62	9
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	19	26	2	13	5	8	103	2	20	62	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	19	26	2	13	5	8	103	2	20	62	9
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:												
Cnflict Vol:	236	231	104	249	228	67	71	xxxx	xxxxx	105	xxxx	xxxxx
Potent Cap.:	717	667	948	702	670	994	1523	xxxx	xxxxx	1480	xxxx	xxxxx
Move Cap.:	692	655	948	658	658	994	1523	xxxx	xxxxx	1480	xxxx	xxxxx
Volume/Cap:	0.00	0.03	0.03	0.00	0.02	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	1.0	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	792	xxxxx	xxxx	718	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	10.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	A	*	*	B	*	*	*	*	*	*	*
ApproachDel:		9.8			10.2			xxxxx			xxxxx	
ApproachLOS:		A			B			*			*	

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St and 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:	2	19	26	2	13	5	8	103	2	20	62	9
ApproachDel:	9.8			10.2			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=271]
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=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=271]
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 #22 Charles St and 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:	2	19	26	2	13	5	8	103	2	20	62	9

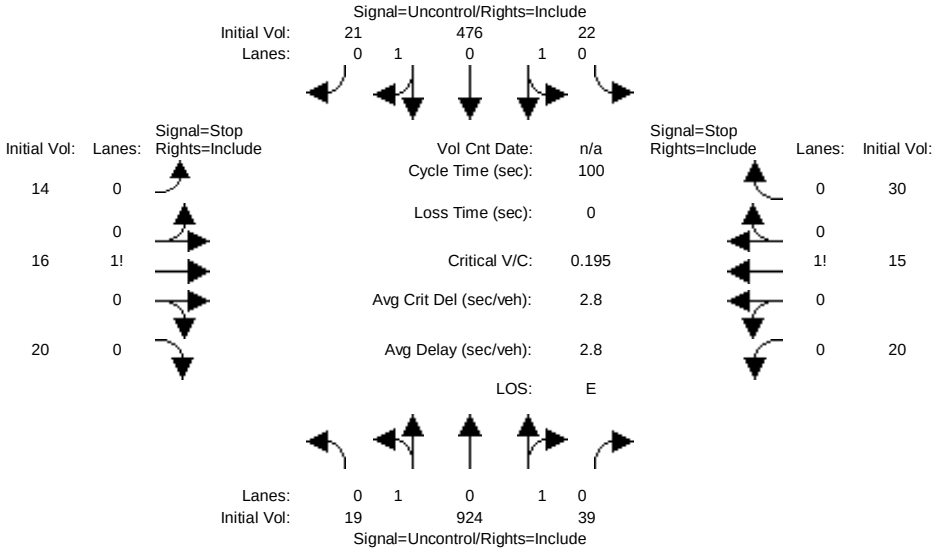
Major Street Volume: 204
Minor Approach Volume: 47
Minor Approach Volume Threshold: 643

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing + Op 1 AM

Intersection #23: Mary Ave and Olive Ave



Street Name:	Mary Ave						Olive 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	924	36	22	476	21	14	16	20	18	15	30
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	924	36	22	476	21	14	16	20	18	15	30
Added Vol:	0	0	3	0	0	0	0	0	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	924	39	22	476	21	14	16	20	20	15	30
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	924	39	22	476	21	14	16	20	20	15	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	19	924	39	22	476	21	14	16	20	20	15	30
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	497	xxxx	xxxxx	963	xxxx	xxxxx	1038	1532	249	1272	1523	482
Potent Cap.:	1056	xxxx	xxxxx	704	xxxx	xxxxx	184	115	748	124	116	528
Move Cap.:	1056	xxxx	xxxxx	704	xxxx	xxxxx	149	109	748	103	110	528
Volume/Cap:	0.02	xxxx	xxxx	0.03	xxxx	xxxx	0.09	0.15	0.03	0.19	0.14	0.06
Level Of Service Module:												
2Way95thQ:	1.4	xxxx	xxxxx	2.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.5	xxxx	xxxxx	10.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	B	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	187	xxxxx	xxxx	168	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	1.0	xxxxx	xxxxx	1.7	xxxxx
Shrd ConDel:	8.5	xxxx	xxxxx	10.3	xxxx	xxxxx	xxxxx	31.1	xxxxx	xxxxx	39.4	xxxxx
Shared LOS:	A	*	*	B	*	*	*	D	*	*	E	*
ApproachDel:	xxxxxx			xxxxxx			31.1			39.4		
ApproachLOS:	*			*			D			E		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave and Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	19	924	39	22	476	21	14	16	20	20	15	30
ApproachDel:	xxxxxx			xxxxxx			31.1			39.4		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=50]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1616]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
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=1616]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave and Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	19	924	39	22	476	21	14	16	20	20	15	30

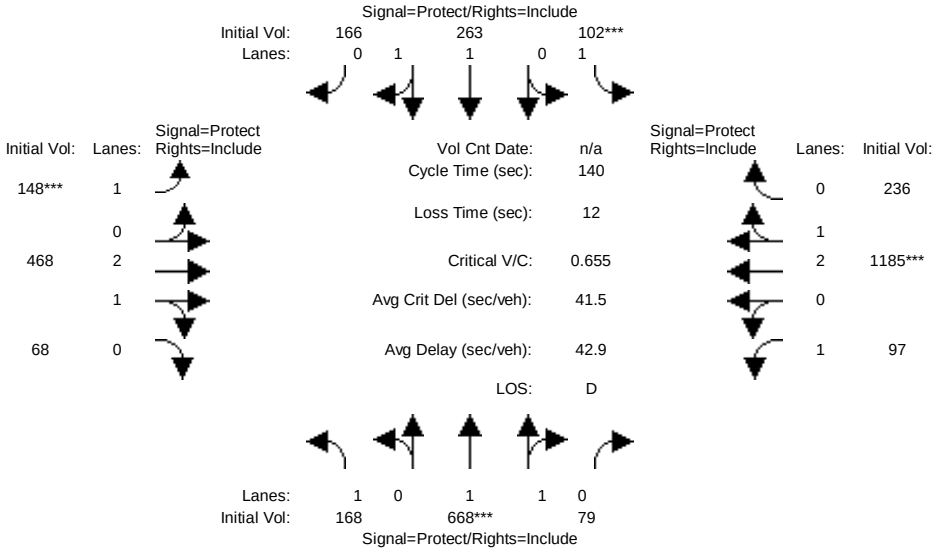
Major Street Volume: 1501
Minor Approach Volume: 65
Minor Approach Volume Threshold: 145

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #24: Mary Ave / El Camino Real

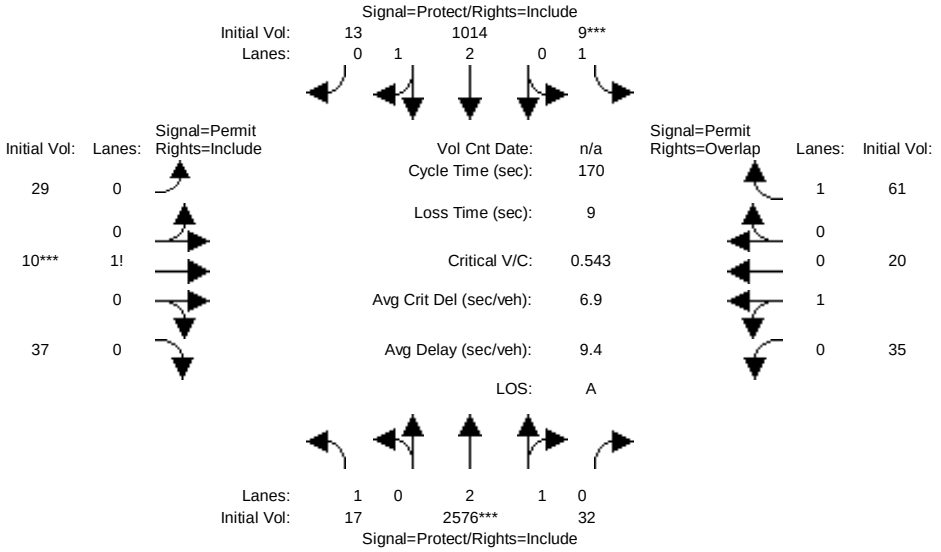


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	168	668	76	102	263	164	145	464	68	95	1183	236
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:	168	668	76	102	263	164	145	464	68	95	1183	236
Added Vol:	0	0	3	0	0	2	3	4	0	2	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	168	668	79	102	263	166	148	468	68	97	1185	236
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:	168	668	79	102	263	166	148	468	68	97	1185	236
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	168	668	79	102	263	166	148	468	68	97	1185	236
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:	168	668	79	102	263	166	148	468	68	97	1185	236
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	0.99	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.78	0.22	1.00	1.20	0.80	1.00	2.61	0.39	1.00	2.48	0.52
Final Sat.:	1750	3308	391	1750	2267	1431	1750	4889	710	1750	4669	930
Capacity Analysis Module:												
Vol/Sat:	0.10	0.20	0.20	0.06	0.12	0.12	0.08	0.10	0.10	0.06	0.25	0.25
Crit Moves:		****		****			****				****	
Green Time:	25.2	43.2	43.2	12.5	30.4	30.4	18.1	38.2	38.2	34.2	54.3	54.3
Volume/Cap:	0.53	0.65	0.65	0.65	0.53	0.53	0.65	0.35	0.35	0.23	0.65	0.65
Uniform Del:	52.1	42.0	42.0	61.7	48.5	48.5	58.0	40.9	40.9	42.3	35.2	35.2
IncremntDel:	1.8	1.4	1.4	9.6	0.7	0.7	6.8	0.1	0.1	0.3	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	53.8	43.3	43.3	71.3	49.2	49.2	64.8	41.1	41.1	42.6	35.9	35.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.8	43.3	43.3	71.3	49.2	49.2	64.8	41.1	41.1	42.6	35.9	35.9
LOS by Move:	D-	D	D	E	D	D	E	D	D	D	D+	D+
HCM2kAvgQ:	174	353	353	118	204	204	190	156	156	89	430	430

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

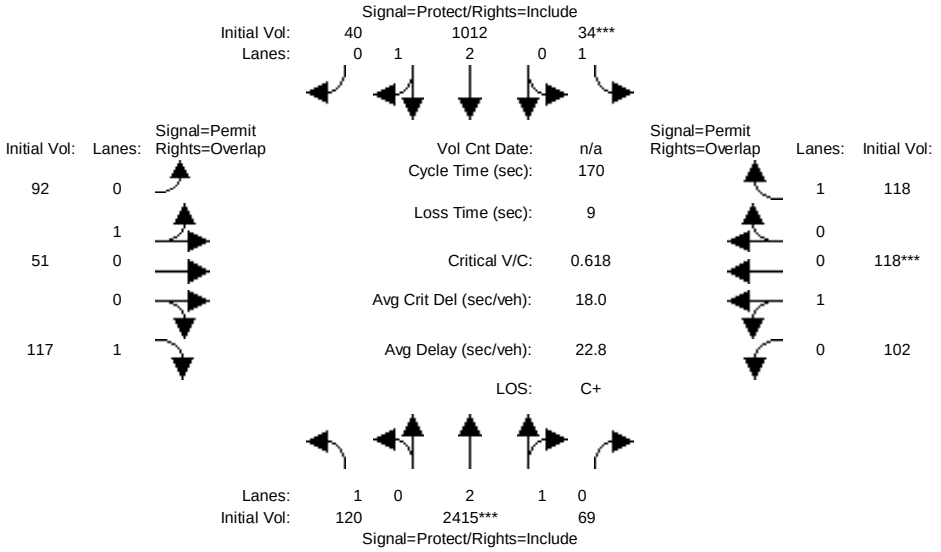


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	2558	32	9	1005	13	29	10	37	35	20	61
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	2558	32	9	1005	13	29	10	37	35	20	61
Added Vol:	0	18	0	0	9	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2576	32	9	1014	13	29	10	37	35	20	61
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	2576	32	9	1014	13	29	10	37	35	20	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	2576	32	9	1014	13	29	10	37	35	20	61
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:	17	2576	32	9	1014	13	29	10	37	35	20	61
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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.96	0.04	1.00	2.96	0.04	0.38	0.13	0.49	0.64	0.36	1.00
Final Sat.:	1750	5531	69	1750	5529	71	668	230	852	1145	655	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.47	0.47	0.01	0.18	0.18	0.04	0.04	0.04	0.03	0.03	0.03
Crit Moves:		****		****				****				
Green Time:	23.8	142	141.8	6.0	124	123.9	13.2	13.2	13.2	13.2	13.2	19.2
Volume/Cap:	0.07	0.56	0.56	0.15	0.25	0.25	0.56	0.56	0.56	0.39	0.39	0.31
Uniform Del:	63.4	4.4	4.4	79.5	7.6	7.6	75.6	75.6	75.6	74.6	74.6	69.3
IncremntDel:	0.1	0.2	0.2	1.1	0.0	0.0	5.1	5.1	5.1	1.8	1.8	0.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	63.6	4.5	4.5	80.6	7.7	7.7	80.7	80.7	80.7	76.4	76.4	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:	63.6	4.5	4.5	80.6	7.7	7.7	80.7	80.7	80.7	76.4	76.4	70.2
LOS by Move:	E	A	A	F	A	A	F	F	F	E-	E-	E
HCM2kAvgQ:	20	356	356	15	145	145	122	122	122	81	81	83

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

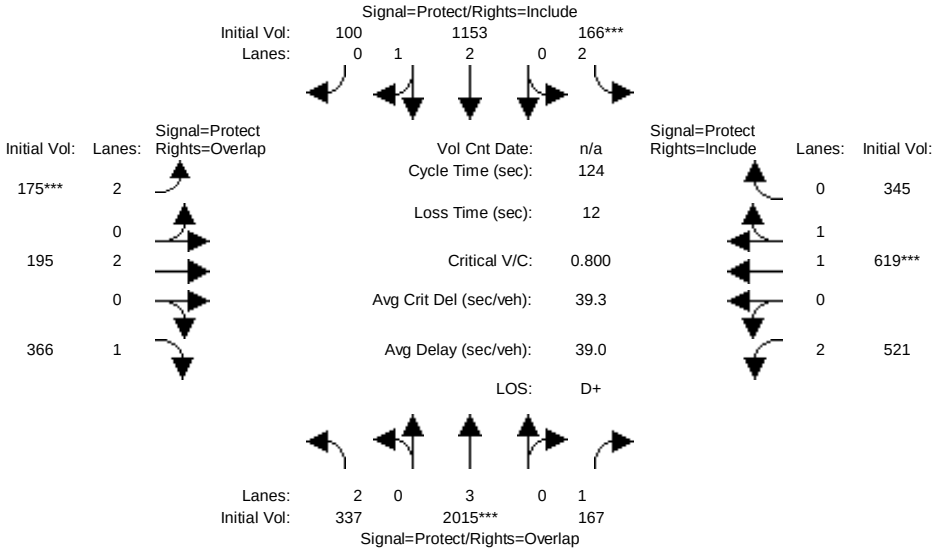


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	120	2397	69	34	1003	40	92	51	117	102	118	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:	120	2397	69	34	1003	40	92	51	117	102	118	118
Added Vol:	0	18	0	0	9	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	120	2415	69	34	1012	40	92	51	117	102	118	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:	120	2415	69	34	1012	40	92	51	117	102	118	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	120	2415	69	34	1012	40	92	51	117	102	118	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
FinalVolume:	120	2415	69	34	1012	40	92	51	117	102	118	118
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.91	0.09	1.00	2.88	0.12	0.64	0.36	1.00	0.46	0.54	1.00
Final Sat.:	1750	5444	156	1750	5387	213	1158	642	1750	835	965	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.44	0.44	0.02	0.19	0.19	0.08	0.08	0.07	0.12	0.12	0.07
Crit Moves:		****		****							****	
Green Time:	34.1	122	121.5	6.0	93.4	93.4	33.5	33.5	67.6	33.5	33.5	39.5
Volume/Cap:	0.34	0.62	0.62	0.55	0.34	0.34	0.40	0.40	0.17	0.62	0.62	0.29
Uniform Del:	58.3	12.4	12.4	80.7	21.2	21.2	59.5	59.5	33.1	62.4	62.4	53.7
IncremntDel:	0.6	0.3	0.3	10.2	0.1	0.1	0.8	0.8	0.1	3.4	3.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	58.9	12.7	12.7	90.9	21.3	21.3	60.3	60.3	33.2	65.8	65.8	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:	58.9	12.7	12.7	90.9	21.3	21.3	60.3	60.3	33.2	65.8	65.8	54.1
LOS by Move:	E+	B	B	F	C+	C+	E	E	C-	E	E	D-
HCM2kAvgQ:	136	534	534	49	247	247	172	172	102	288	288	135

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 AM

Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd

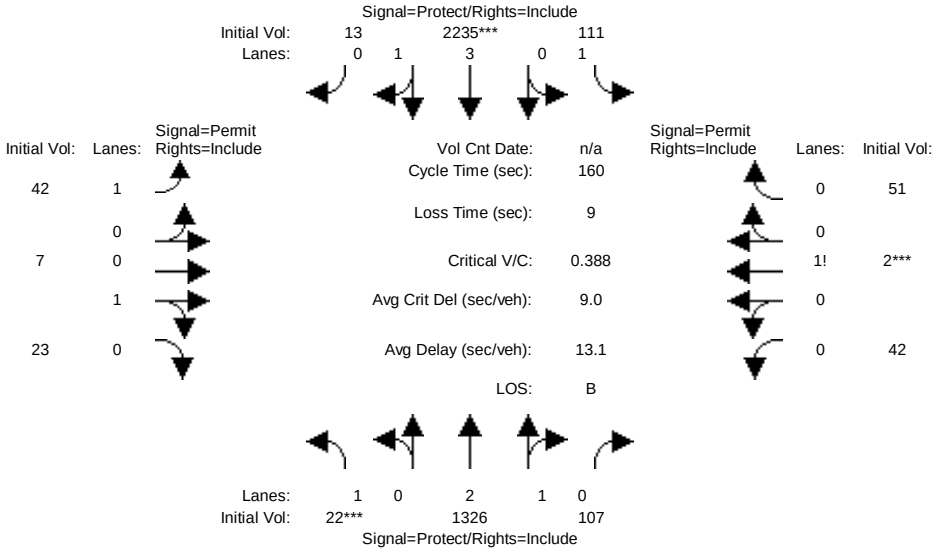


Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	337	1997	167	166	1144	100	175	195	366	521	619	345
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:	337	1997	167	166	1144	100	175	195	366	521	619	345
Added Vol:	0	18	0	0	9	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	337	2015	167	166	1153	100	175	195	366	521	619	345
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:	337	2015	167	166	1153	100	175	195	366	521	619	345
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	337	2015	167	166	1153	100	175	195	366	521	619	345
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:	337	2015	167	166	1153	100	175	195	366	521	619	345
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	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	2.75	0.25	2.00	2.00	1.00	2.00	1.26	0.74
Final Sat.:	3150	5700	1750	3150	5152	447	3150	3800	1750	3150	2375	1324
Capacity Analysis Module:												
Vol/Sat:	0.11	0.35	0.10	0.05	0.22	0.22	0.06	0.05	0.21	0.17	0.26	0.26
Crit Moves:		****		****			****				****	
Green Time:	20.4	54.8	85.1	8.2	42.6	42.6	8.6	18.7	39.1	30.3	40.4	40.4
Volume/Cap:	0.65	0.80	0.14	0.80	0.65	0.65	0.80	0.34	0.66	0.68	0.80	0.80
Uniform Del:	48.5	29.9	6.7	57.1	34.4	34.4	56.8	47.1	36.8	42.4	38.1	38.1
IncremntDel:	2.9	1.9	0.1	19.4	0.8	0.8	18.5	0.4	3.0	2.4	3.9	3.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	51.4	31.8	6.8	76.5	35.2	35.2	75.4	47.5	39.8	44.8	42.0	42.0
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	31.8	6.8	76.5	35.2	35.2	75.4	47.5	39.8	44.8	42.0	42.0
LOS by Move:	D-	C	A	E-	D+	D+	E-	D	D	D	D	D
HCM2kAvgQ:	205	585	58	103	337	337	148	88	342	293	471	471

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #5: Mathilda Ave / San Aleso Ave

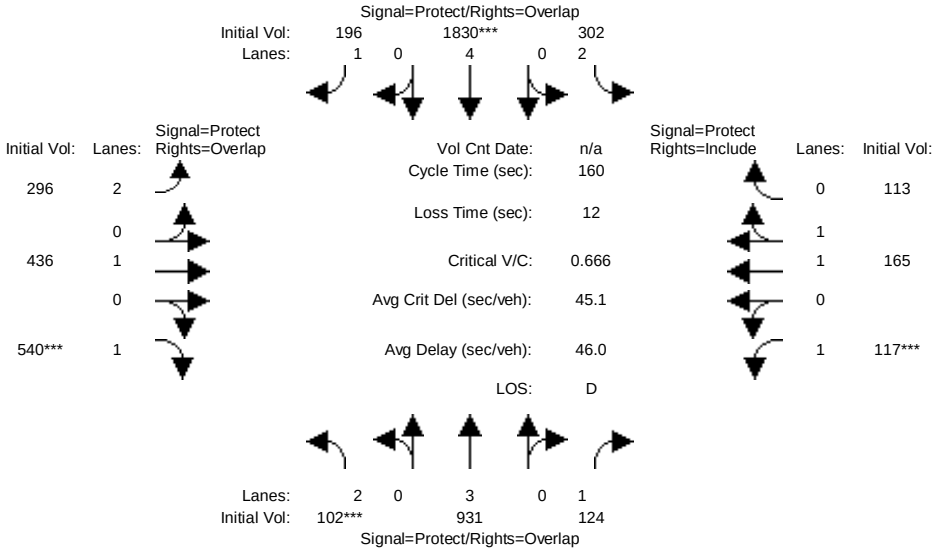


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	22	1293	107	111	2213	13	42	7	23	42	2	51
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:	22	1293	107	111	2213	13	42	7	23	42	2	51
Added Vol:	0	33	0	0	22	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	1326	107	111	2235	13	42	7	23	42	2	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:	22	1326	107	111	2235	13	42	7	23	42	2	51
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	1326	107	111	2235	13	42	7	23	42	2	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
FinalVolume:	22	1326	107	111	2235	13	42	7	23	42	2	51
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	0.99	0.95	0.92	0.95	0.95	0.92	0.92	0.92
Lanes:	1.00	2.77	0.23	1.00	3.98	0.02	1.00	0.23	0.77	0.44	0.02	0.54
Final Sat.:	1750	5181	418	1750	7457	43	1750	420	1380	774	37	939
Capacity Analysis Module:												
Vol/Sat:	0.01	0.26	0.26	0.06	0.30	0.30	0.02	0.02	0.02	0.05	0.05	0.05
Crit Moves:	****				****						****	
Green Time:	5.2	103	103.1	25.6	123	123.5	22.4	22.4	22.4	22.4	22.4	22.4
Volume/Cap:	0.39	0.40	0.40	0.40	0.39	0.39	0.17	0.12	0.12	0.39	0.39	0.39
Uniform Del:	75.9	13.6	13.6	60.3	6.0	6.0	60.7	60.2	60.2	62.6	62.6	62.6
IncremntDel:	4.4	0.1	0.1	0.9	0.0	0.0	0.3	0.2	0.2	1.0	1.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	80.2	13.7	13.7	61.2	6.0	6.0	61.0	60.4	60.4	63.6	63.6	63.6
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:	80.2	13.7	13.7	61.2	6.0	6.0	61.0	60.4	60.4	63.6	63.6	63.6
LOS by Move:	F	B	B	E	A	A	E	E	E	E	E	E
HCM2kAvgQ:	28	271	271	127	223	223	50	34	34	120	120	120

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #6: Mathilda Ave / Maude Ave

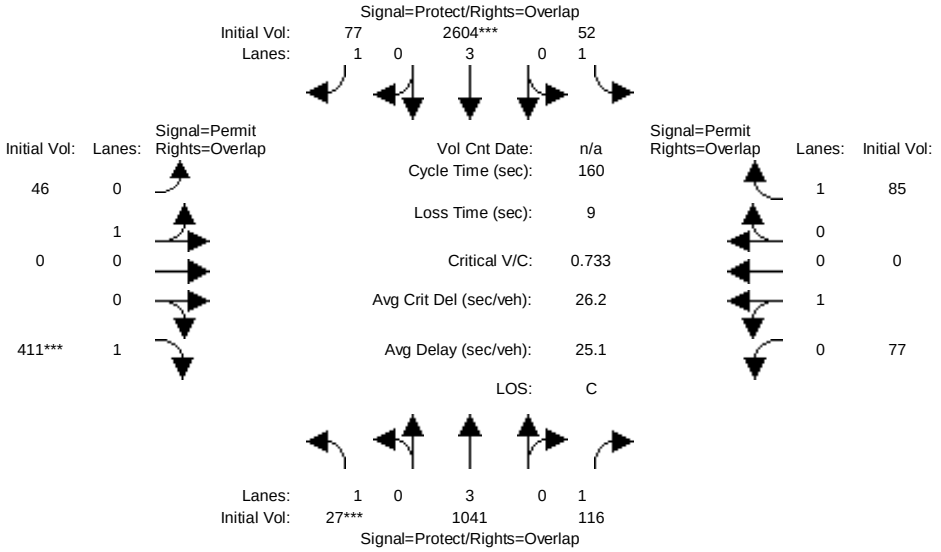


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	102	898	124	302	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:	0	33	0	0	22	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	102	931	124	302	1830	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	931	124	302	1830	196	296	436	540	117	165	113
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	931	124	302	1830	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
FinalVolume:	102	931	124	302	1830	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	41.3	57.4	24.3	57.8	103.6	45.8	66.3	74.1	16.1	36.6	36.6
Volume/Cap:	0.67	0.63	0.20	0.63	0.67	0.17	0.33	0.55	0.67	0.67	0.33	0.33
Uniform Del:	74.8	52.6	35.4	63.7	43.0	11.2	45.0	35.6	33.3	69.4	51.4	51.4
IncremntDel:	10.6	0.9	0.2	2.7	0.6	0.1	0.2	0.9	2.1	9.4	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	85.5	53.5	35.6	66.4	43.6	11.3	45.2	36.4	35.5	78.7	51.7	51.7
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:	85.5	53.5	35.6	66.4	43.6	11.3	45.2	36.4	35.5	78.7	51.7	51.7
LOS by Move:	F	D-	D+	E	D	B+	D	D+	D+	E-	D-	D-
HCM2kAvgQ:	77	331	108	207	462	99	168	398	553	177	144	144

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #7: Mathilda Ave / Indio Way

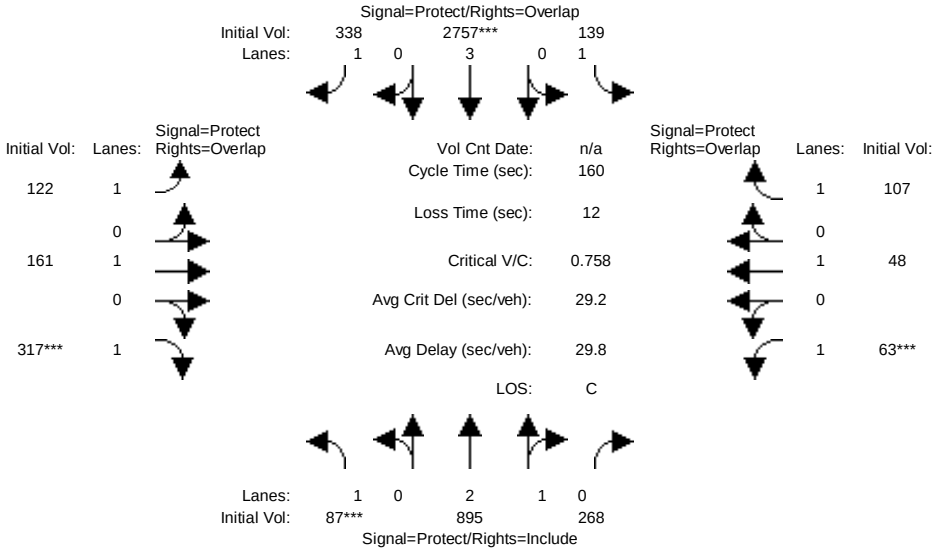


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	27	1008	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	33	5	0	22	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	1041	116	52	2604	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	1041	116	52	2604	77	46	0	411	77	0	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1041	116	52	2604	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
FinalVolume:	27	1041	116	52	2604	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	0.07	0.03	0.46	0.04	0.03	0.00	0.23	0.04	0.00	0.05
Crit Moves:	****				****				****			
Green Time:	4.0	90.1	90.1	14.7	101	100.7	46.3	0.0	50.3	46.3	0.0	60.9
Volume/Cap:	0.62	0.32	0.12	0.32	0.73	0.07	0.09	0.00	0.75	0.15	0.00	0.13
Uniform Del:	77.2	18.7	16.4	68.0	20.2	11.5	41.5	0.0	49.2	42.2	0.0	32.2
IncremntDel:	23.7	0.1	0.1	1.2	0.8	0.0	0.1	0.0	5.6	0.1	0.0	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Delay/Veh:	101.0	18.8	16.4	69.2	21.0	11.5	41.6	0.0	54.8	42.4	0.0	32.3
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:	101.0	18.8	16.4	69.2	21.0	11.5	41.6	0.0	54.8	42.4	0.0	32.3
LOS by Move:	F	B-	B	E	C+	B+	D	A	D-	D	A	C-
HCM2kAvgQ:	38	217	69	62	705	37	42	0	509	71	0	70

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #8: Mathilda Ave / California Ave

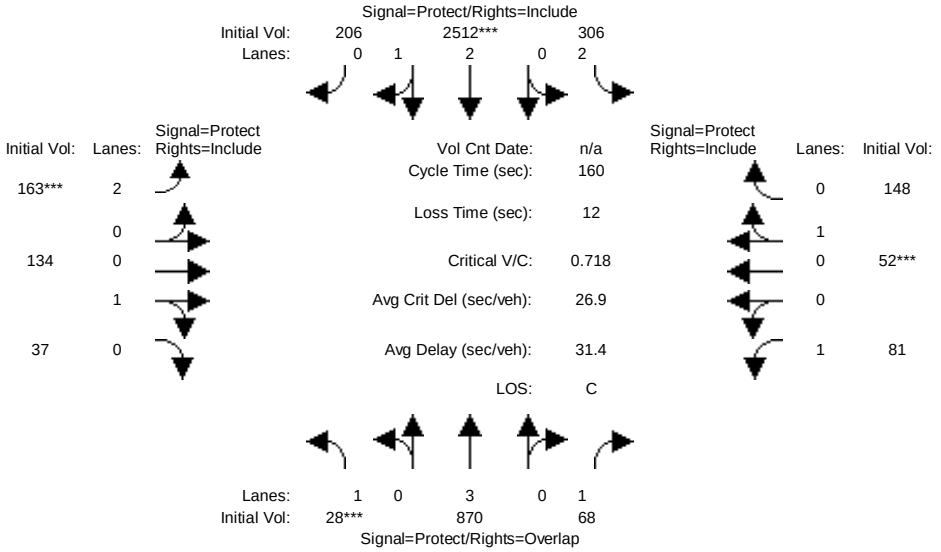


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	87	857	263	139	2732	338	122	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	38	5	0	25	0	0	0	4	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	87	895	268	139	2757	338	122	161	317	63	48	107
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:	87	895	268	139	2757	338	122	161	317	63	48	107
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	87	895	268	139	2757	338	122	161	317	63	48	107
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:	87	895	268	139	2757	338	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	2.28	0.72	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4308	1290	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.21	0.21	0.08	0.48	0.19	0.07	0.08	0.18	0.04	0.03	0.06
Crit Moves:	****				****				****	****		
Green Time:	10.5	81.5	81.5	31.2	102	123.9	21.7	27.8	38.3	7.6	13.6	44.8
Volume/Cap:	0.76	0.41	0.41	0.41	0.76	0.25	0.51	0.49	0.76	0.76	0.30	0.22
Uniform Del:	73.5	24.3	24.3	56.4	20.3	5.1	64.2	59.7	56.6	75.3	68.7	44.2
IncremntDel:	24.8	0.1	0.1	0.8	1.0	0.1	1.9	1.1	7.8	32.4	1.0	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	98.3	24.4	24.4	57.2	21.2	5.2	66.1	60.9	64.4	107.7	69.7	44.4
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:	98.3	24.4	24.4	57.2	21.2	5.2	66.1	60.9	64.4	107.7	69.7	44.4
LOS by Move:	F	C	C	E+	C+	A	E	E	E	F	E	D
HCM2kAvgQ:	154	289	289	152	765	120	162	184	421	122	60	106

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #9: Mathilda Ave / Washington Ave

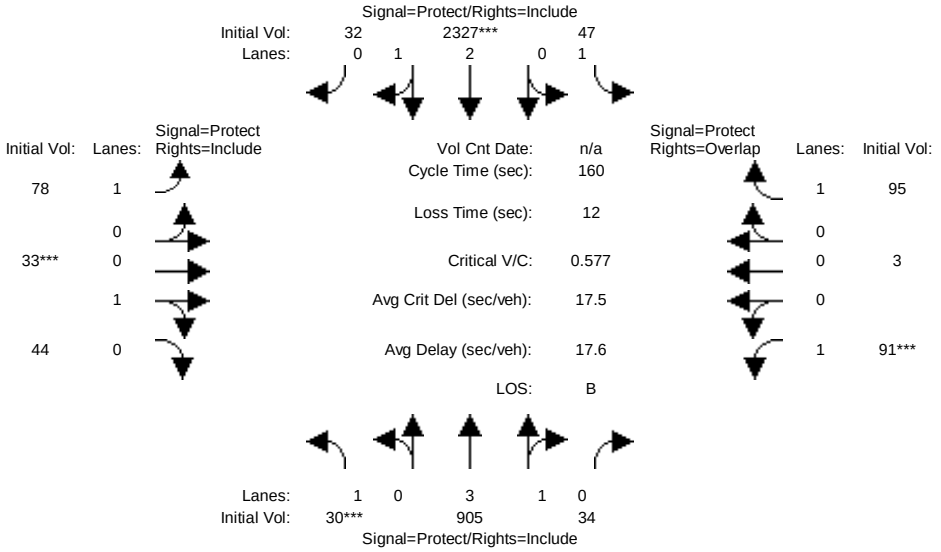


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	28	827	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	43	0	0	29	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	28	870	68	306	2512	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	870	68	306	2512	206	163	134	37	81	52	148
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	28	870	68	306	2512	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
FinalVolume:	28	870	68	306	2512	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	5175	424	3150	1411	389	1750	468	1332
Capacity Analysis Module:												
Vol/Sat:	0.02	0.15	0.04	0.10	0.49	0.49	0.05	0.10	0.10	0.05	0.11	0.11
Crit Moves:	****				****		****				****	
Green Time:	8.0	68.9	81.1	43.9	105	104.8	11.2	23.0	23.0	12.1	24.0	24.0
Volume/Cap:	0.32	0.35	0.08	0.35	0.74	0.74	0.74	0.66	0.66	0.61	0.74	0.74
Uniform Del:	73.4	30.6	20.3	46.7	18.5	18.5	73.0	64.8	64.8	71.6	65.0	65.0
IncremntDel:	2.1	0.1	0.0	0.3	0.8	0.8	12.6	6.2	6.2	8.1	10.4	10.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	75.5	30.7	20.3	46.9	19.3	19.3	85.6	70.9	70.9	79.7	75.5	75.5
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:	75.5	30.7	20.3	46.9	19.3	19.3	85.6	70.9	70.9	79.7	75.5	75.5
LOS by Move:	E-	C	C+	D	B-	B-	F	E	E	E-	E-	E-
HCM2kAvgQ:	35	228	44	178	754	754	125	210	210	128	282	282

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #10: Mathilda Ave / McKinley Ave

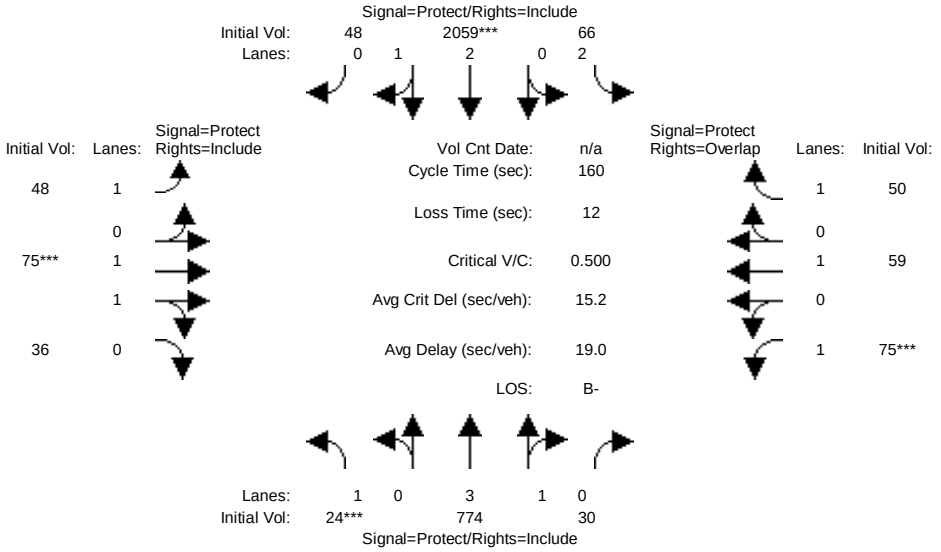


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	30	865	34	47	2298	32	75	33	44	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:	0	40	0	0	29	0	3	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	905	34	47	2327	32	78	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	905	34	47	2327	32	78	33	44	91	3	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	905	34	47	2327	32	78	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
FinalVolume:	30	905	34	47	2327	32	78	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	3.85	0.15	1.00	2.96	0.04	1.00	0.43	0.57	0.97	0.03	1.00
Final Sat.:	1750	7228	272	1750	5524	76	1750	771	1029	1743	57	1800
Capacity Analysis Module:												
Vol/Sat:	0.02	0.13	0.13	0.03	0.42	0.42	0.04	0.04	0.04	0.05	0.05	0.05
Crit Moves:	****				****			****			****	
Green Time:	4.8	100	100.2	21.5	117	116.9	12.1	11.9	11.9	14.5	14.2	35.7
Volume/Cap:	0.58	0.20	0.20	0.20	0.58	0.58	0.59	0.58	0.58	0.58	0.59	0.24
Uniform Del:	76.6	12.8	12.8	61.6	10.0	10.0	71.5	71.6	71.6	69.8	70.1	51.0
IncremntDel:	15.0	0.0	0.0	0.4	0.2	0.2	6.7	6.1	6.1	2.5	2.8	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	91.6	12.8	12.8	62.0	10.2	10.2	78.2	77.7	77.7	72.3	72.9	51.1
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:	91.6	12.8	12.8	62.0	10.2	10.2	78.2	77.7	77.7	72.3	72.9	51.1
LOS by Move:	F	B	B	E	B+	B+	E-	E-	E-	E	E	D-
HCM2kAvgQ:	41	120	120	52	438	438	122	117	117	136	137	99

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #11: Mathilda Ave / Iowa Ave

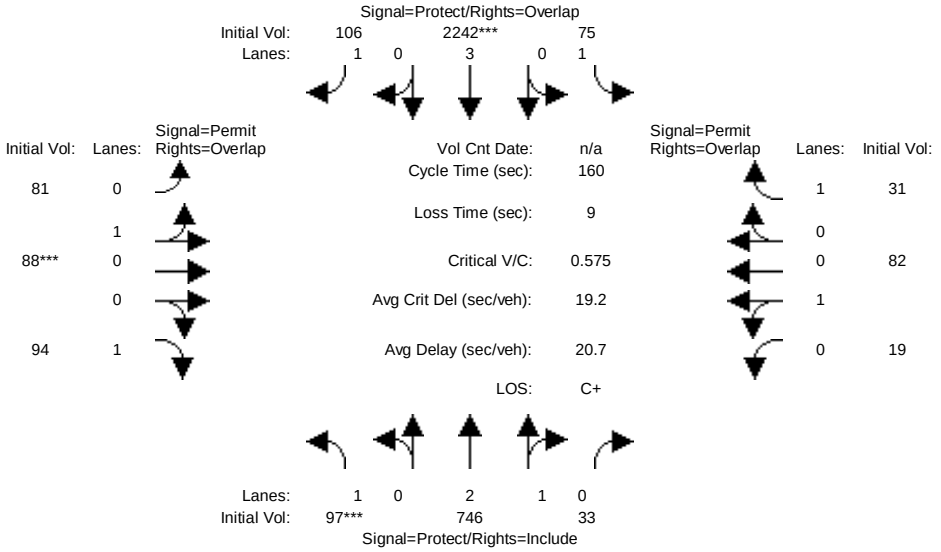


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	24	756	30	66	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
Added Vol:	0	18	0	0	6	23	22	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	24	774	30	66	2059	48	48	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	774	30	66	2059	48	48	75	36	75	59	50
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	24	774	30	66	2059	48	48	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
FinalVolume:	24	774	30	66	2059	48	48	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	2.93	0.07	1.00	1.33	0.67	1.00	1.00	1.00
Final Sat.:	1750	7220	280	3150	5472	128	1750	2499	1200	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.11	0.11	0.02	0.38	0.38	0.03	0.03	0.03	0.04	0.03	0.03
Crit Moves:	****				****			****			****	
Green Time:	8.0	85.4	85.4	39.8	117	117.3	10.7	9.4	9.4	13.4	12.0	51.9
Volume/Cap:	0.27	0.20	0.20	0.08	0.51	0.51	0.41	0.51	0.51	0.51	0.41	0.09
Uniform Del:	73.2	19.5	19.5	46.1	9.1	9.1	71.6	73.1	73.1	70.2	70.6	37.6
IncremntDel:	1.7	0.0	0.0	0.0	0.1	0.1	2.3	2.1	2.1	3.1	1.9	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	74.9	19.5	19.5	46.1	9.3	9.3	74.0	75.2	75.2	73.3	72.6	37.7
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:	74.9	19.5	19.5	46.1	9.3	9.3	74.0	75.2	75.2	73.3	72.6	37.7
LOS by Move:	E	B-	B-	D	A	A	E	E-	E-	E	E	D+
HCM2kAvgQ:	30	124	124	35	365	365	60	68	68	111	79	44

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #12: Mathilda Ave / Olive Ave

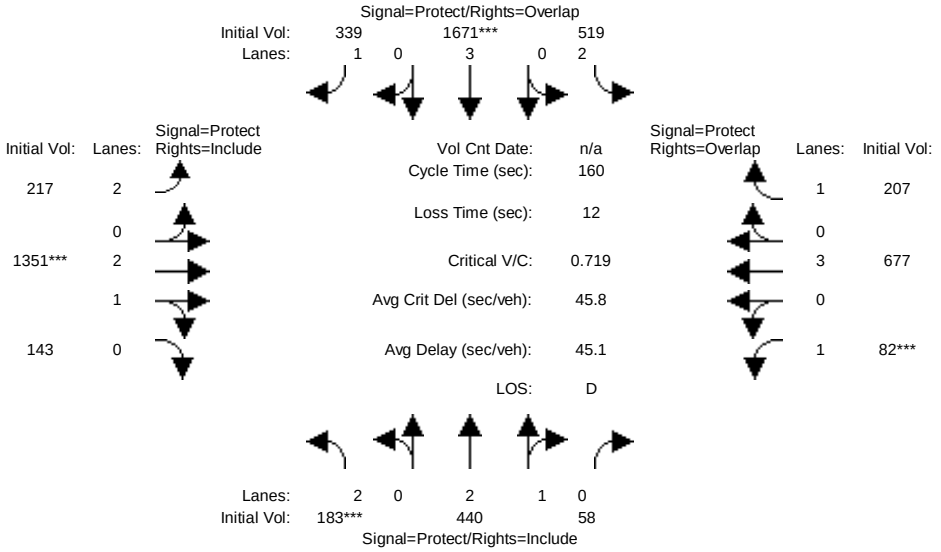


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	56	755	43	75	2252	91	54	71	100	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:	41	-9	-10	0	-10	15	27	17	-6	-9	17	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	746	33	75	2242	106	81	88	94	19	82	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:	97	746	33	75	2242	106	81	88	94	19	82	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	746	33	75	2242	106	81	88	94	19	82	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:	97	746	33	75	2242	106	81	88	94	19	82	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	2.87	0.13	1.00	3.00	1.00	0.48	0.52	1.00	0.19	0.81	1.00
Final Sat.:	1750	5362	237	1750	5700	1750	863	937	1750	339	1461	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.14	0.14	0.04	0.39	0.06	0.09	0.09	0.05	0.06	0.06	0.02
Crit Moves:	****				****			****				
Green Time:	15.4	95.5	95.5	29.4	109	109.5	26.1	26.1	41.5	26.1	26.1	55.5
Volume/Cap:	0.57	0.23	0.23	0.23	0.57	0.09	0.57	0.57	0.21	0.34	0.34	0.05
Uniform Del:	69.2	15.1	15.1	55.7	13.2	8.5	61.8	61.8	46.3	59.3	59.3	34.7
IncremntDel:	4.8	0.0	0.0	0.4	0.2	0.0	2.8	2.8	0.2	0.7	0.7	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	73.9	15.2	15.2	56.1	13.4	8.5	64.6	64.6	46.6	60.0	60.0	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:	73.9	15.2	15.2	56.1	13.4	8.5	64.6	64.6	46.6	60.0	60.0	34.8
LOS by Move:	E	B	B	E+	B	A	E	E	D	E	E	C-
HCM2kAvgQ:	142	145	145	80	465	45	214	214	95	118	118	26

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #13: Mathilda Ave / El Camino Real

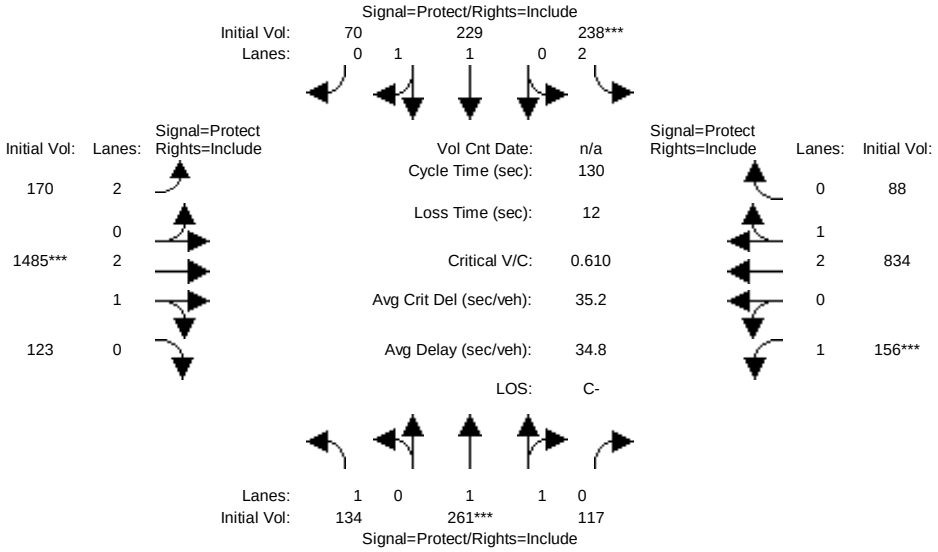


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	194	418	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:	-11	22	0	9	29	-9	-10	-10	-10	0	-11	19
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	183	440	58	519	1671	339	217	1351	143	82	677	207
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:	183	440	58	519	1671	339	217	1351	143	82	677	207
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	183	440	58	519	1671	339	217	1351	143	82	677	207
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:	183	440	58	519	1671	339	217	1351	143	82	677	207
Saturation Flow Module:												
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	2.64	0.36	2.00	3.00	1.00	2.00	2.70	0.30	1.00	3.00	1.00
Final Sat.:	3150	4947	652	3150	5700	1750	3150	5063	536	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.09	0.09	0.16	0.29	0.19	0.07	0.27	0.27	0.05	0.12	0.12
Crit Moves:	****				****			****			****	
Green Time:	12.9	27.4	27.4	50.8	65.3	90.9	25.6	59.4	59.4	10.4	44.2	95.0
Volume/Cap:	0.72	0.52	0.52	0.52	0.72	0.34	0.43	0.72	0.72	0.72	0.43	0.20
Uniform Del:	71.8	60.3	60.3	44.6	39.7	18.5	60.6	43.1	43.1	73.3	47.6	15.0
IncremntDel:	9.5	0.5	0.5	0.5	1.1	0.2	0.6	1.2	1.2	19.8	0.2	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	81.3	60.8	60.8	45.1	40.8	18.7	61.2	44.4	44.4	93.1	47.8	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:	81.3	60.8	60.8	45.1	40.8	18.7	61.2	44.4	44.4	93.1	47.8	15.1
LOS by Move:	F	E	E	D	D	B-	E	D	D	F	D	B
HCM2kAvgQ:	167	196	196	311	577	232	138	520	520	142	224	121

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #14: El Camino Real and Sunnyvale Ave

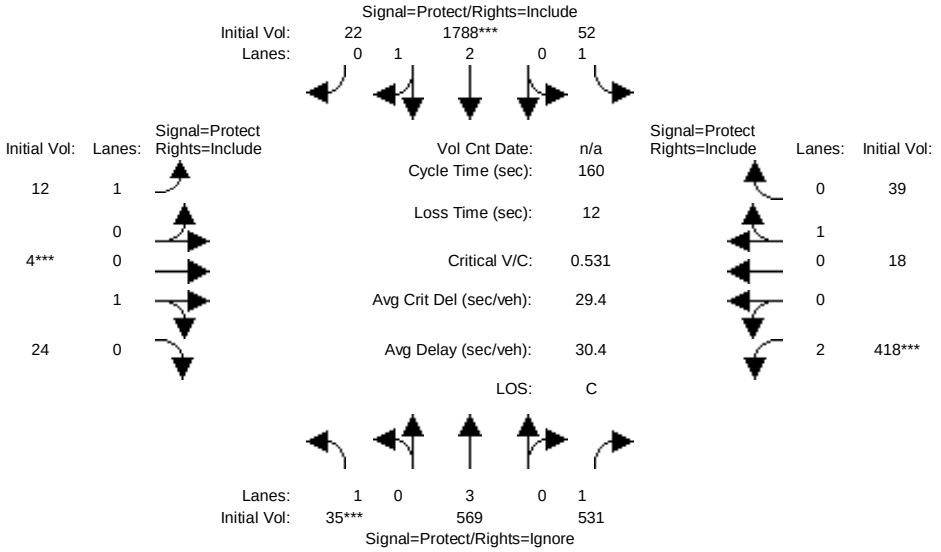


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	134	261	117	238	229	70	170	1477	123	156	826	88
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:	134	261	117	238	229	70	170	1477	123	156	826	88
Added Vol:	0	0	0	0	0	0	0	8	0	0	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	134	261	117	238	229	70	170	1485	123	156	834	88
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:	134	261	117	238	229	70	170	1485	123	156	834	88
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	134	261	117	238	229	70	170	1485	123	156	834	88
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:	134	261	117	238	229	70	170	1485	123	156	834	88
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	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.36	0.64	2.00	1.52	0.48	2.00	2.76	0.24	1.00	2.70	0.30
Final Sat.:	1750	2554	1145	3150	2833	866	3150	5171	428	1750	5065	534
Capacity Analysis Module:												
Vol/Sat:	0.08	0.10	0.10	0.08	0.08	0.08	0.05	0.29	0.29	0.09	0.16	0.16
Crit Moves:		****		****				****		****		
Green Time:	18.4	21.8	21.8	16.1	19.4	19.4	19.8	61.2	61.2	19.0	60.4	60.4
Volume/Cap:	0.54	0.61	0.61	0.61	0.54	0.54	0.35	0.61	0.61	0.61	0.35	0.35
Uniform Del:	51.9	50.2	50.2	54.0	51.1	51.1	49.4	25.6	25.6	52.0	22.3	22.3
IncremntDel:	2.4	1.8	1.8	2.8	1.1	1.1	0.5	0.4	0.4	4.3	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	54.3	52.0	52.0	56.8	52.2	52.2	49.8	26.0	26.0	56.3	22.4	22.4
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:	54.3	52.0	52.0	56.8	52.2	52.2	49.8	26.0	26.0	56.3	22.4	22.4
LOS by Move:	D-	D-	D-	E+	D-	D-	D	C	C	E+	C+	C+
HCM2kAvgQ:	150	198	198	158	156	156	96	404	404	179	195	195

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

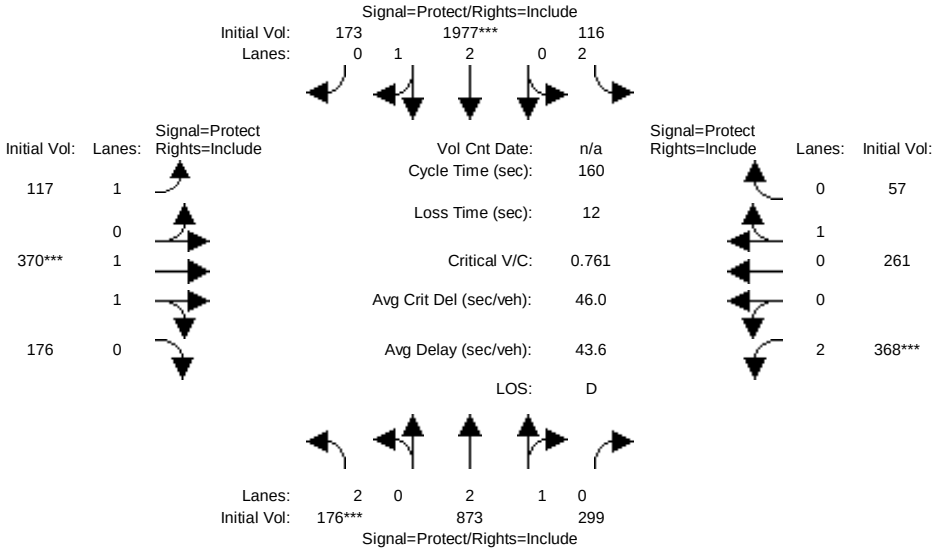


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	35	558	531	52	1768	22	12	4	24	418	18	39
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:	35	558	531	52	1768	22	12	4	24	418	18	39
Added Vol:	0	11	0	0	20	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	35	569	531	52	1788	22	12	4	24	418	18	39
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	35	569	0	52	1788	22	12	4	24	418	18	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	35	569	0	52	1788	22	12	4	24	418	18	39
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	35	569	0	52	1788	22	12	4	24	418	18	39
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.96	0.04	1.00	0.14	0.86	2.00	0.32	0.68
Final Sat.:	1750	5700	1750	1750	5532	68	1750	257	1543	3150	568	1232
Capacity Analysis Module:												
Vol/Sat:	0.02	0.10	0.00	0.03	0.32	0.32	0.01	0.02	0.02	0.13	0.03	0.03
Crit Moves:	****				****			****			****	
Green Time:	7.0	68.5	0.0	30.0	91.5	91.5	18.3	12.0	12.0	37.5	31.3	31.3
Volume/Cap:	0.46	0.23	0.00	0.16	0.57	0.57	0.06	0.21	0.21	0.57	0.16	0.16
Uniform Del:	74.6	29.1	0.0	54.4	21.7	21.7	63.2	69.5	69.5	54.0	53.5	53.5
IncremntDel:	4.3	0.0	0.0	0.2	0.2	0.2	0.1	0.8	0.8	1.0	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	78.9	29.1	0.0	54.7	21.9	21.9	63.3	70.3	70.3	55.1	53.7	53.7
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:	78.9	29.1	0.0	54.7	21.9	21.9	63.3	70.3	70.3	55.1	53.7	53.7
LOS by Move:	E-	C	A	D-	C+	C+	E	E	E	E+	D-	D-
HCM2kAvgQ:	45	140	0	57	464	464	15	37	37	278	60	60

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

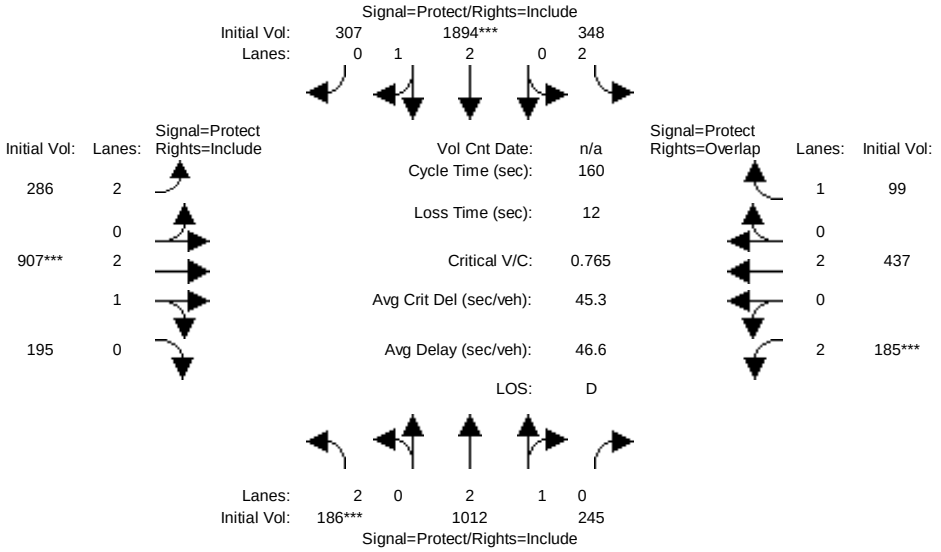


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	173	862	299	116	1957	173	117	370	169	368	261	57
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:	173	862	299	116	1957	173	117	370	169	368	261	57
Added Vol:	3	11	0	0	20	0	0	0	7	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	176	873	299	116	1977	173	117	370	176	368	261	57
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:	176	873	299	116	1977	173	117	370	176	368	261	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	176	873	299	116	1977	173	117	370	176	368	261	57
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:	176	873	299	116	1977	173	117	370	176	368	261	57
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.99	0.95	0.83	0.95	0.95
Lanes:	2.00	2.21	0.79	2.00	2.75	0.25	1.00	1.34	0.66	2.00	0.82	0.18
Final Sat.:	3150	4169	1428	3150	5149	451	1750	2506	1192	3150	1477	323
Capacity Analysis Module:												
Vol/Sat:	0.06	0.21	0.21	0.04	0.38	0.38	0.07	0.15	0.15	0.12	0.18	0.18
Crit Moves:	****				****			****		****		
Green Time:	11.7	78.6	78.6	13.8	80.7	80.7	15.3	31.0	31.0	24.5	40.3	40.3
Volume/Cap:	0.76	0.43	0.43	0.43	0.76	0.76	0.70	0.76	0.76	0.76	0.70	0.70
Uniform Del:	72.8	26.2	26.2	69.3	31.9	31.9	70.2	61.0	61.0	64.9	54.4	54.4
IncremntDel:	13.8	0.1	0.1	1.1	1.3	1.3	12.5	4.8	4.8	7.0	4.9	4.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	86.5	26.3	26.3	70.4	33.2	33.2	82.7	65.8	65.8	71.9	59.2	59.2
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:	86.5	26.3	26.3	70.4	33.2	33.2	82.7	65.8	65.8	71.9	59.2	59.2
LOS by Move:	F	C	C	E	C-	C-	F	E	E	E	E+	E+
HCM2kAvgQ:	132	298	298	79	709	709	183	359	359	298	391	391

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

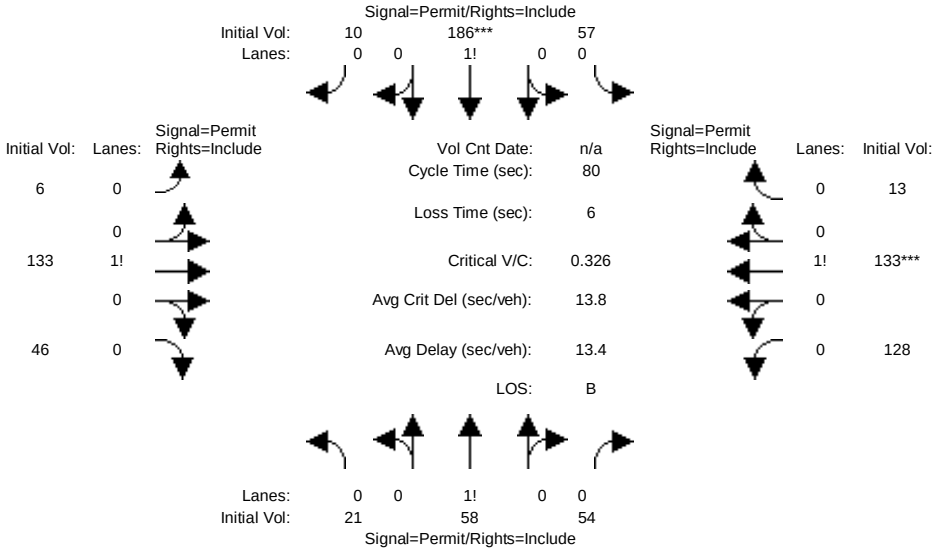


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	186	998	245	348	1867	307	286	907	195	185	437	99
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	998	245	348	1867	307	286	907	195	185	437	99
Added Vol:	0	14	0	0	27	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	186	1012	245	348	1894	307	286	907	195	185	437	99
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	1012	245	348	1894	307	286	907	195	185	437	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	186	1012	245	348	1894	307	286	907	195	185	437	99
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:	186	1012	245	348	1894	307	286	907	195	185	437	99
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.39	0.61	2.00	2.57	0.43	2.00	2.45	0.55	2.00	2.00	1.00
Final Sat.:	3150	4507	1091	3150	4818	781	3150	4608	991	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.22	0.22	0.11	0.39	0.39	0.09	0.20	0.20	0.06	0.12	0.06
Crit Moves:	****				****			****			****	
Green Time:	12.3	63.4	63.4	31.2	82.2	82.2	23.6	41.2	41.2	12.3	29.9	61.0
Volume/Cap:	0.77	0.57	0.57	0.57	0.77	0.77	0.62	0.77	0.77	0.77	0.62	0.15
Uniform Del:	72.4	37.6	37.6	58.3	31.2	31.2	64.0	54.9	54.9	72.4	59.8	32.4
IncremntDel:	13.5	0.3	0.3	1.2	1.3	1.3	2.5	2.5	2.5	13.6	1.6	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	85.9	38.0	38.0	59.5	32.4	32.4	66.5	57.5	57.5	86.0	61.4	32.5
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:	85.9	38.0	38.0	59.5	32.4	32.4	66.5	57.5	57.5	86.0	61.4	32.5
LOS by Move:	F	D+	D+	E+	C-	C-	E	E+	E+	F	E	C-
HCM2kAvgQ:	176	401	401	221	706	706	197	430	430	176	260	83

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #18: Pastoria Ave and Washington St

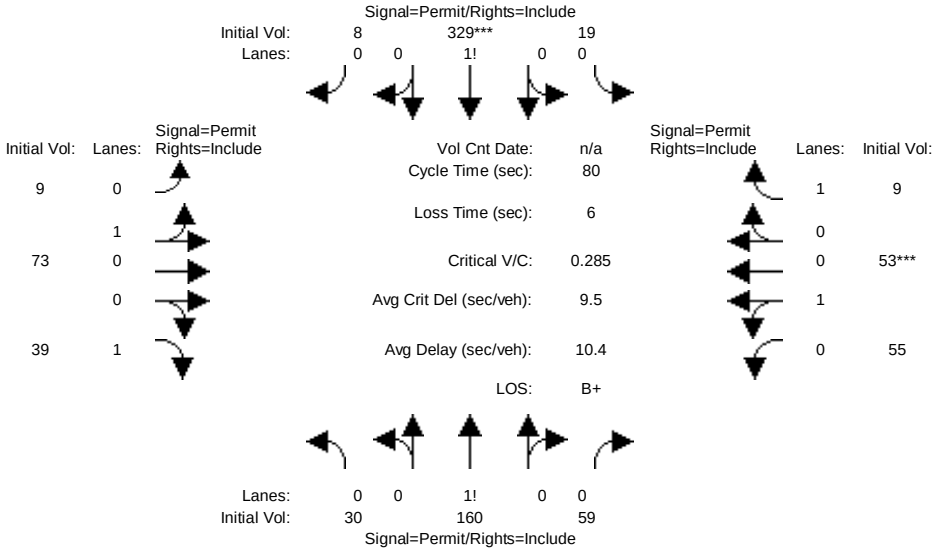


Street Name:	Pastoria Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	21	58	54	57	186	10	6	133	46	128	133	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	58	54	57	186	10	6	133	46	128	133	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	58	54	57	186	10	6	133	46	128	133	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:	21	58	54	57	186	10	6	133	46	128	133	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	58	54	57	186	10	6	133	46	128	133	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	21	58	54	57	186	10	6	133	46	128	133	13
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.16	0.44	0.40	0.23	0.73	0.04	0.03	0.72	0.25	0.47	0.48	0.05
Final Sat.:	276	763	711	394	1287	69	57	1258	435	818	849	83
Capacity Analysis Module:												
Vol/Sat:	0.08	0.08	0.08	0.14	0.14	0.14	0.11	0.11	0.11	0.16	0.16	0.16
Crit Moves:					****						****	
Green Time:	35.5	35.5	35.5	35.5	35.5	35.5	38.5	38.5	38.5	38.5	38.5	38.5
Volume/Cap:	0.17	0.17	0.17	0.33	0.33	0.33	0.22	0.22	0.22	0.33	0.33	0.33
Uniform Del:	13.4	13.4	13.4	14.5	14.5	14.5	12.1	12.1	12.1	12.8	12.8	12.8
IncremntDel:	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	13.5	13.5	13.5	14.7	14.7	14.7	12.2	12.2	12.2	13.0	13.0	13.0
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:	13.5	13.5	13.5	14.7	14.7	14.7	12.2	12.2	12.2	13.0	13.0	13.0
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	53	53	53	111	111	111	69	69	69	106	106	106

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #19: Pastoria Ave and Iowa Ave

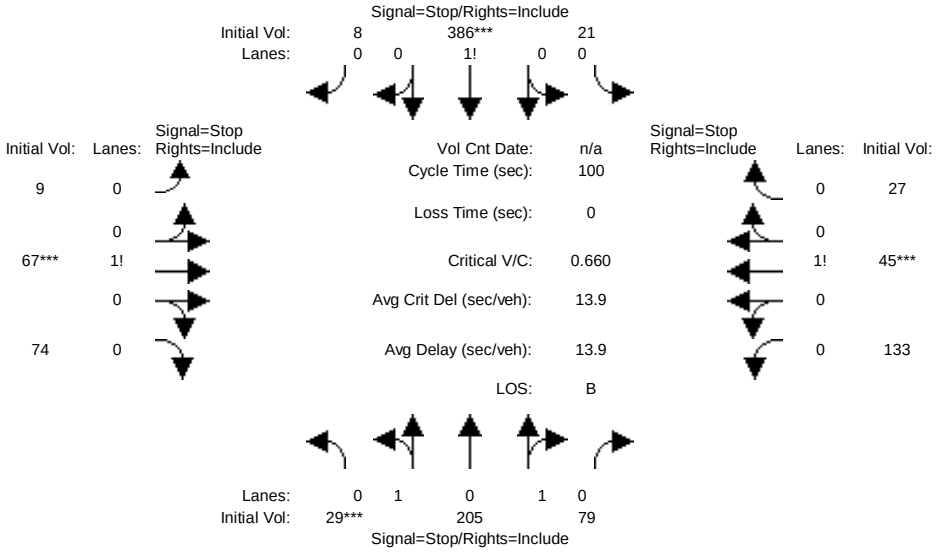


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	30	160	59	19	329	8	9	73	39	55	53	9
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	160	59	19	329	8	9	73	39	55	53	9
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	160	59	19	329	8	9	73	39	55	53	9
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	160	59	19	329	8	9	73	39	55	53	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	160	59	19	329	8	9	73	39	55	53	9
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:	30	160	59	19	329	8	9	73	39	55	53	9
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.12	0.64	0.24	0.05	0.93	0.02	0.11	0.89	1.00	0.51	0.49	1.00
Final Sat.:	211	1124	415	93	1617	39	198	1602	1750	917	883	1750
Capacity Analysis Module:												
Vol/Sat:	0.14	0.14	0.14	0.20	0.20	0.20	0.05	0.05	0.02	0.06	0.06	0.01
Crit Moves:					****						****	
Green Time:	57.1	57.1	57.1	57.1	57.1	57.1	16.9	16.9	16.9	16.9	16.9	16.9
Volume/Cap:	0.20	0.20	0.20	0.28	0.28	0.28	0.22	0.22	0.11	0.28	0.28	0.02
Uniform Del:	3.8	3.8	3.8	4.1	4.1	4.1	26.1	26.1	25.5	26.5	26.5	25.0
IncremntDel:	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.4	0.4	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.9	3.9	3.9	4.2	4.2	4.2	26.4	26.4	25.6	26.9	26.9	25.1
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:	3.9	3.9	3.9	4.2	4.2	4.2	26.4	26.4	25.6	26.9	26.9	25.1
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	56	56	56	87	87	87	42	42	20	57	57	5

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Existing + Op 1 PM

Intersection #20: Pastoria Ave and Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	29	201	88	21	378	8	9	60	74	144	38	27
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	201	88	21	378	8	9	60	74	144	38	27
Added Vol:	0	4	-9	0	8	0	0	7	0	-11	7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	205	79	21	386	8	9	67	74	133	45	27
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	205	79	21	386	8	9	67	74	133	45	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	205	79	21	386	8	9	67	74	133	45	27
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:	29	205	79	21	386	8	9	67	74	133	45	27
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.19	1.31	0.50	0.05	0.93	0.02	0.06	0.45	0.49	0.65	0.22	0.13
Final Sat.:	102	739	298	32	584	12	32	241	267	349	118	71
Capacity Analysis Module:												
Vol/Sat:	0.28	0.28	0.27	0.66	0.66	0.66	0.28	0.28	0.28	0.38	0.38	0.38
Crit Moves:	****				****			****			****	
Delay/Veh:	11.2	10.9	10.4	18.0	18.0	18.0	10.9	10.9	10.9	12.4	12.4	12.4
Delay Adj:	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:	11.2	10.9	10.4	18.0	18.0	18.0	10.9	10.9	10.9	12.4	12.4	12.4
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
ApproachDel:	10.8			18.0			10.9			12.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	10.8			18.0			10.9			12.4		
LOS by Appr:	B			C			B			B		
AllWayAvgQ:	8.8	7.9	7.9	41.2	41.2	41.2	7.3	7.3	7.3	12.3	12.3	12.3

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave and Olive 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0	0 1!	0 0	0	0 1!	0 0	0	0 1!	0 0
Initial Vol:	29	205	79	21	386	8	9	67	74	133	45	27

Major Street Volume: 728
Minor Approach Volume: 205
Minor Approach Volume Threshold: 394

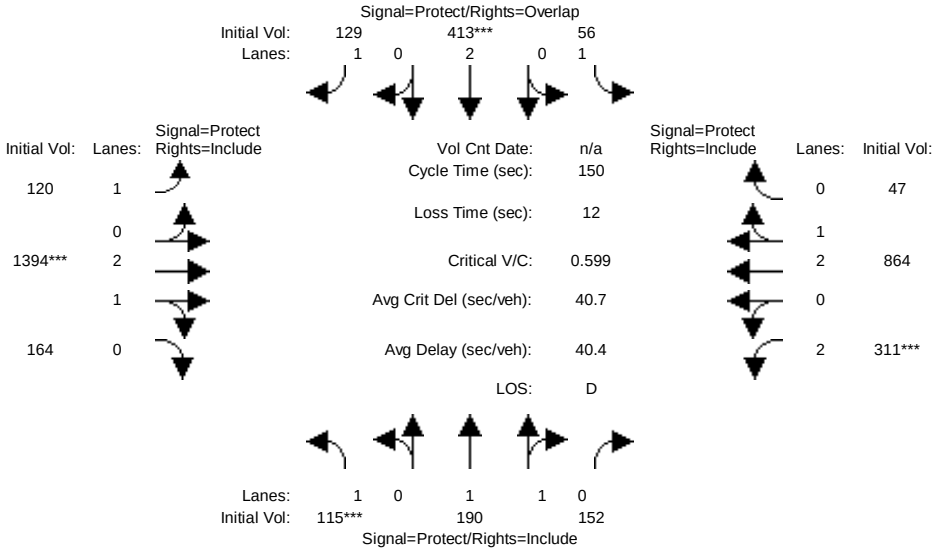
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

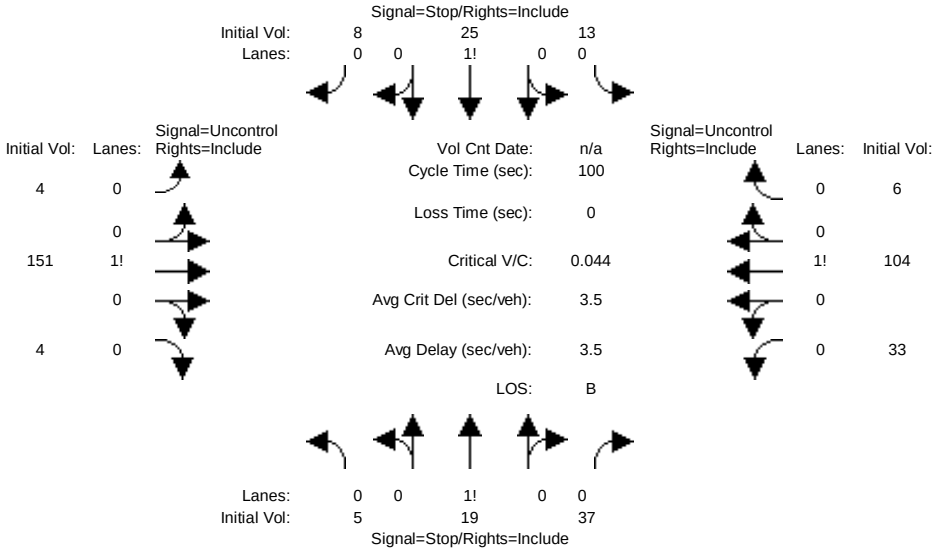


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	9.4	9.4
Volume Module:												
Base Vol:	115	182	152	85	402	113	105	1394	164	311	864	75
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:	115	182	152	85	402	113	105	1394	164	311	864	75
Added Vol:	0	8	0	-29	11	16	15	0	0	0	0	-28
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	115	190	152	56	413	129	120	1394	164	311	864	47
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:	115	190	152	56	413	129	120	1394	164	311	864	47
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	115	190	152	56	413	129	120	1394	164	311	864	47
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:	115	190	152	56	413	129	120	1394	164	311	864	47
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	0.99	0.95	0.83	0.98	0.95
Lanes:	1.00	1.09	0.91	1.00	2.00	1.00	1.00	2.67	0.33	2.00	2.84	0.16
Final Sat.:	1750	2054	1643	1750	3800	1750	1750	5010	589	3150	5311	289
Capacity Analysis Module:												
Vol/Sat:	0.07	0.09	0.09	0.03	0.11	0.07	0.07	0.28	0.28	0.10	0.16	0.16
Crit Moves:	****				****			****		****		
Green Time:	16.4	23.4	23.4	20.2	27.2	60.0	32.8	69.6	69.6	24.7	61.6	61.6
Volume/Cap:	0.60	0.59	0.59	0.24	0.60	0.18	0.31	0.60	0.60	0.60	0.40	0.40
Uniform Del:	63.6	58.9	58.9	58.0	56.4	29.2	49.2	29.8	29.8	58.1	31.1	31.1
IncremntDel:	5.2	1.7	1.7	0.5	1.5	0.1	0.5	0.4	0.4	1.9	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	68.8	60.5	60.5	58.5	57.9	29.3	49.6	30.2	30.2	60.0	31.3	31.3
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:	68.8	60.5	60.5	58.5	57.9	29.3	49.6	30.2	30.2	60.0	31.3	31.3
LOS by Move:	E	E	E	E+	E+	C	D	C	C	E	C	C
HCM2kAvgQ:	137	186	186	64	232	100	125	445	445	196	239	239

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing + Op 1 PM

Intersection #22: Charles St and Iowa Ave



Street Name:	Charles St						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:	5	16	15	13	25	8	4	151	4	10	104	6
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	15	13	25	8	4	151	4	10	104	6
Added Vol:	0	3	22	0	0	0	0	0	0	23	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	19	37	13	25	8	4	151	4	33	104	6
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	19	37	13	25	8	4	151	4	33	104	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	19	37	13	25	8	4	151	4	33	104	6
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:												
Cnflict Vol:	351	337	153	362	336	107	110	xxxx	xxxxx	155	xxxx	xxxxx
Potent Cap.:	602	582	890	592	583	944	1474	xxxx	xxxxx	1419	xxxx	xxxxx
Move Cap.:	566	567	890	542	568	944	1474	xxxx	xxxxx	1419	xxxx	xxxxx
Volume/Cap:	0.01	0.03	0.04	0.02	0.04	0.01	0.00	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	1.8	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	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	727	xxxxx	xxxx	601	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.4	xxxxx	xxxxx	11.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		10.4			11.5			xxxxx			xxxxx	
ApproachLOS:		B			B			*			*	

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St and 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:	5	19	37	13	25	8	4	151	4	33	104	6
ApproachDel:	10.4			11.5			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=61]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=409]
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=46]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=409]
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 #22 Charles St and 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:	5	19	37	13	25	8	4	151	4	33	104	6

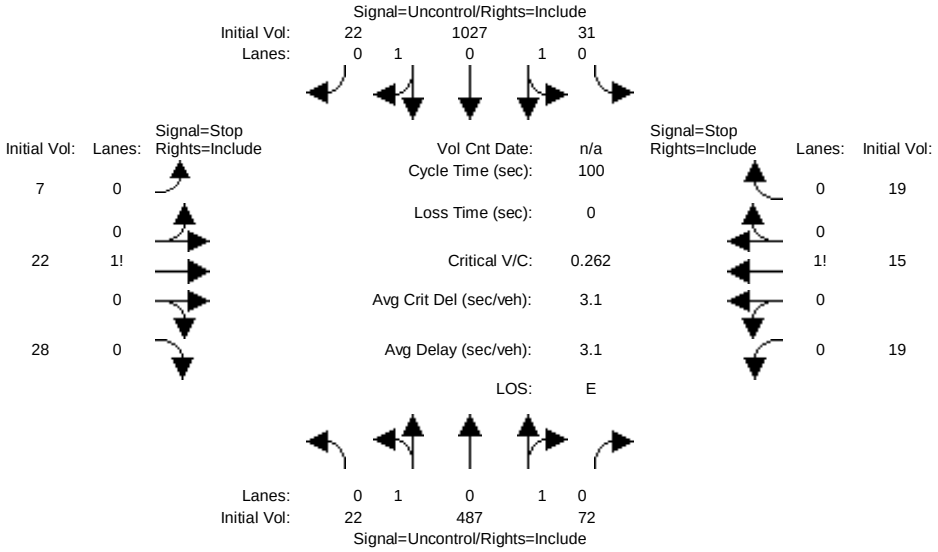
Major Street Volume: 302
Minor Approach Volume: 61
Minor Approach Volume Threshold: 539

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing + Op 1 PM

Intersection #23: Mary Ave and Olive Ave



Street Name:	Mary Ave						Olive 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:	22	487	65	31	1027	22	7	22	28	12	15	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:	22	487	65	31	1027	22	7	22	28	12	15	19
Added Vol:	0	0	7	0	0	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	487	72	31	1027	22	7	22	28	19	15	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:	22	487	72	31	1027	22	7	22	28	19	15	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	487	72	31	1027	22	7	22	28	19	15	19
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	1049	xxxx	xxxxx	559	xxxx	xxxxx	1395	1703	525	1154	1678	280
Potent Cap.:	653	xxxx	xxxxx	1001	xxxx	xxxxx	100	90	495	151	93	715
Move Cap.:	653	xxxx	xxxxx	1001	xxxx	xxxxx	80	84	495	108	87	715
Volume/Cap:	0.03	xxxx	xxxx	0.03	xxxx	xxxx	0.09	0.26	0.06	0.18	0.17	0.03
Level Of Service Module:												
2Way95thQ:	2.6	xxxx	xxxxx	2.4	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	10.7	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	140	xxxxx	xxxx	141	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	1.8	xxxxx	xxxxx	1.6	xxxxx
Shrd ConDel:	10.7	xxxx	xxxxx	8.7	xxxx	xxxxx	xxxxx	47.2	xxxxx	xxxxx	45.0	xxxxx
Shared LOS:	B	*	*	A	*	*	*	E	*	*	E	*
ApproachDel:	xxxxxx			xxxxxx			47.2			45.0		
ApproachLOS:	*			*			E			E		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave and Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1! 0		0	0 0 1! 0		0
Initial Vol:	22	487	72	31	1027	22	7	22	28	19	15	19
ApproachDel:	xxxxxx			xxxxxx			47.2			45.0		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=57]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1771]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.7]
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=1771]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave and Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1! 0		0	0 0 1! 0		0
Initial Vol:	22	487	72	31	1027	22	7	22	28	19	15	19

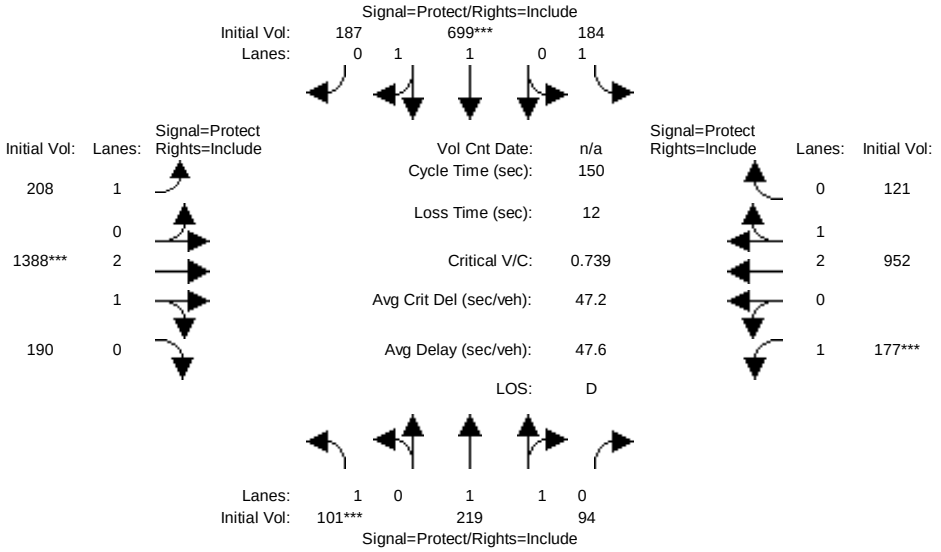
Major Street Volume: 1661
Minor Approach Volume: 57
Minor Approach Volume Threshold: 110

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #24: Mary Ave / El Camino Real

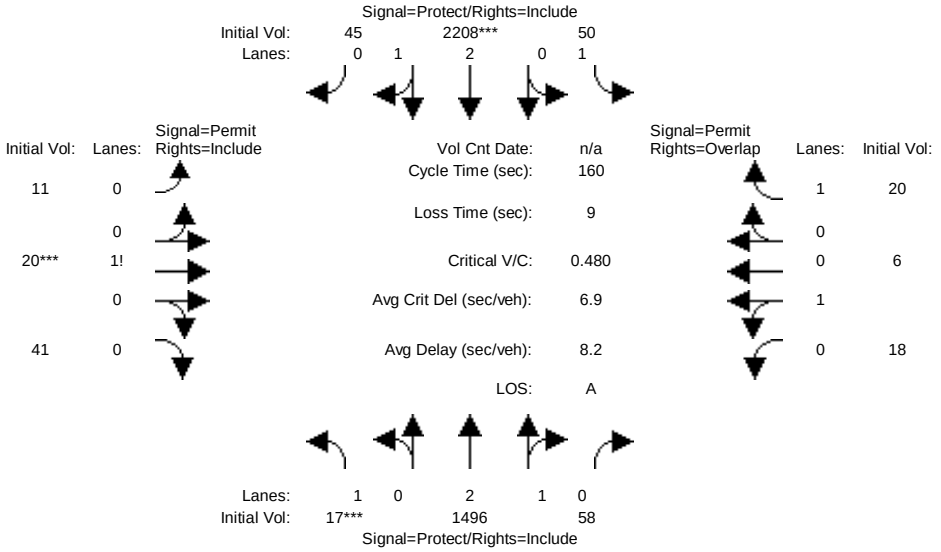


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	101	219	87	184	699	180	201	1381	190	170	944	121
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:	101	219	87	184	699	180	201	1381	190	170	944	121
Added Vol:	0	0	7	0	0	7	7	7	0	7	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	101	219	94	184	699	187	208	1388	190	177	952	121
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:	101	219	94	184	699	187	208	1388	190	177	952	121
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	219	94	184	699	187	208	1388	190	177	952	121
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	101	219	94	184	699	187	208	1388	190	177	952	121
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	0.98	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.38	0.62	1.00	1.57	0.43	1.00	2.63	0.37	1.00	2.65	0.35
Final Sat.:	1750	2588	1111	1750	2918	781	1750	4925	674	1750	4968	631
Capacity Analysis Module:												
Vol/Sat:	0.06	0.08	0.08	0.11	0.24	0.24	0.12	0.28	0.28	0.10	0.19	0.19
Crit Moves:	****				****			****			****	
Green Time:	12.0	27.0	27.0	33.5	48.5	48.5	29.7	57.0	57.0	20.5	47.8	47.8
Volume/Cap:	0.72	0.47	0.47	0.47	0.74	0.74	0.60	0.74	0.74	0.74	0.60	0.60
Uniform Del:	67.4	55.1	55.1	50.5	45.2	45.2	54.8	40.1	40.1	62.2	43.0	43.0
IncremntDel:	16.7	0.5	0.5	0.9	2.5	2.5	2.9	1.4	1.4	11.7	0.6	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	84.1	55.6	55.6	51.4	47.7	47.7	57.7	41.5	41.5	73.9	43.6	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:	84.1	55.6	55.6	51.4	47.7	47.7	57.7	41.5	41.5	73.9	43.6	43.6
LOS by Move:	F	E+	E+	D-	D	D	E+	D	D	E	D	D
HCM2kAvgQ:	129	161	161	193	468	468	249	546	546	249	355	355

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

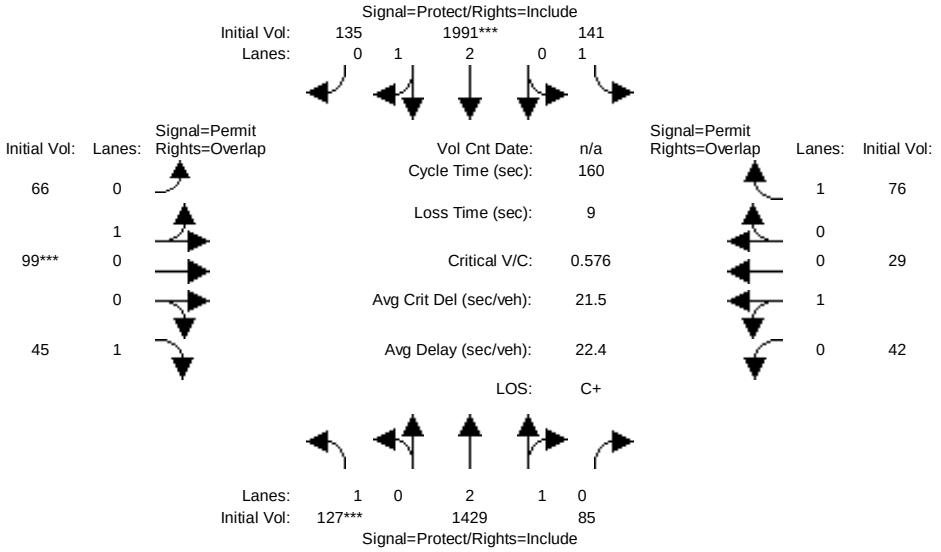


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	1482	58	50	2181	45	11	20	41	18	6	20
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	1482	58	50	2181	45	11	20	41	18	6	20
Added Vol:	0	14	0	0	27	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	1496	58	50	2208	45	11	20	41	18	6	20
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	1496	58	50	2208	45	11	20	41	18	6	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	1496	58	50	2208	45	11	20	41	18	6	20
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:	17	1496	58	50	2208	45	11	20	41	18	6	20
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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.88	0.12	1.00	2.94	0.06	0.15	0.28	0.57	0.75	0.25	1.00
Final Sat.:	1750	5391	209	1750	5488	112	267	486	997	1350	450	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.28	0.28	0.03	0.40	0.40	0.04	0.04	0.04	0.01	0.01	0.01
Crit Moves:	****				****			****				
Green Time:	6.0	121	121.2	16.4	132	131.5	13.5	13.5	13.5	13.5	13.5	29.8
Volume/Cap:	0.26	0.37	0.37	0.28	0.49	0.49	0.49	0.49	0.49	0.16	0.16	0.06
Uniform Del:	74.8	6.5	6.5	66.4	4.2	4.2	70.0	70.0	70.0	68.0	68.0	53.6
IncremntDel:	2.1	0.1	0.1	0.9	0.1	0.1	2.6	2.6	2.6	0.5	0.5	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	76.9	6.6	6.6	67.2	4.3	4.3	72.5	72.5	72.5	68.5	68.5	53.6
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:	76.9	6.6	6.6	67.2	4.3	4.3	72.5	72.5	72.5	68.5	68.5	53.6
LOS by Move:	E-	A	A	E	A	A	E	E	E	E	E	D-
HCM2kAvgQ:	21	212	212	65	276	276	105	105	105	31	31	21

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

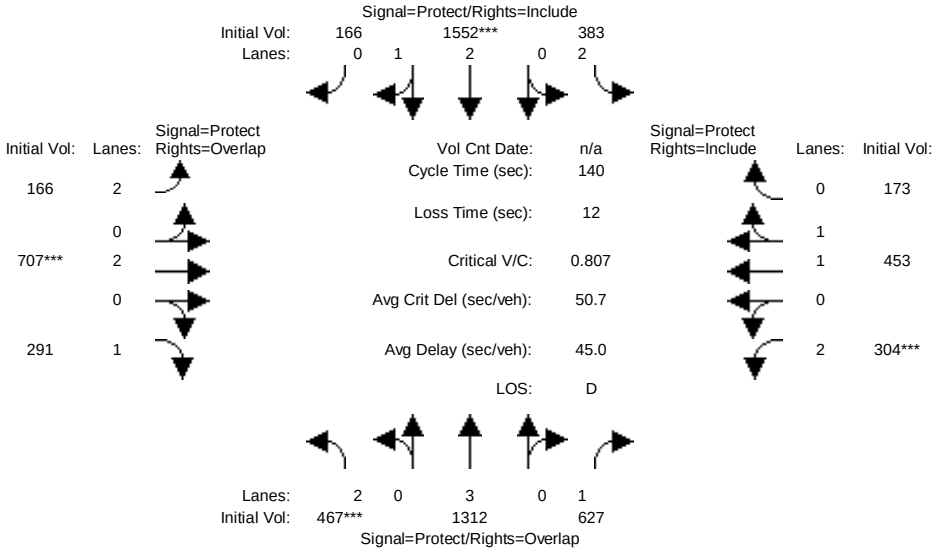


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	127	1415	85	141	1964	135	66	99	45	42	29	76
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:	127	1415	85	141	1964	135	66	99	45	42	29	76
Added Vol:	0	14	0	0	27	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	127	1429	85	141	1991	135	66	99	45	42	29	76
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:	127	1429	85	141	1991	135	66	99	45	42	29	76
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	127	1429	85	141	1991	135	66	99	45	42	29	76
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:	127	1429	85	141	1991	135	66	99	45	42	29	76
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.83	0.17	1.00	2.80	0.20	0.40	0.60	1.00	0.59	0.41	1.00
Final Sat.:	1750	5285	314	1750	5244	356	720	1080	1750	1065	735	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.27	0.27	0.08	0.38	0.38	0.09	0.09	0.03	0.04	0.04	0.04
Crit Moves:	****				****			****				
Green Time:	20.1	96.7	96.7	28.8	105	105.4	25.4	25.4	45.6	25.4	25.4	54.3
Volume/Cap:	0.58	0.45	0.45	0.45	0.58	0.58	0.58	0.58	0.09	0.25	0.25	0.13
Uniform Del:	65.9	17.1	17.1	58.5	15.0	15.0	62.3	62.3	42.0	58.9	58.9	36.5
IncremntDel:	3.7	0.1	0.1	1.0	0.2	0.2	2.9	2.9	0.1	0.5	0.5	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.6	17.2	17.2	59.5	15.2	15.2	65.2	65.2	42.1	59.4	59.4	36.6
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:	69.6	17.2	17.2	59.5	15.2	15.2	65.2	65.2	42.1	59.4	59.4	36.6
LOS by Move:	E	B	B	E+	B	B	E	E	D	E+	E+	D+
HCM2kAvgQ:	155	326	326	161	473	473	211	211	42	81	81	67

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing + Op 1 PM

Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd



Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	467	1298	627	383	1525	166	166	707	291	304	453	173
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:	467	1298	627	383	1525	166	166	707	291	304	453	173
Added Vol:	0	14	0	0	27	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	467	1312	627	383	1552	166	166	707	291	304	453	173
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:	467	1312	627	383	1552	166	166	707	291	304	453	173
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	467	1312	627	383	1552	166	166	707	291	304	453	173
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:	467	1312	627	383	1552	166	166	707	291	304	453	173
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	0.99	0.95	0.83	1.00	0.92	0.83	0.98	0.95
Lanes:	2.00	3.00	1.00	2.00	2.70	0.30	2.00	2.00	1.00	2.00	1.43	0.57
Final Sat.:	3150	5700	1750	3150	5058	541	3150	3800	1750	3150	2677	1022
Capacity Analysis Module:												
Vol/Sat:	0.15	0.23	0.36	0.12	0.31	0.31	0.05	0.19	0.17	0.10	0.17	0.17
Crit Moves:	****				****			****		****		
Green Time:	25.7	53.9	70.7	25.0	53.2	53.2	11.6	32.3	58.0	16.7	37.4	37.4
Volume/Cap:	0.81	0.60	0.71	0.68	0.81	0.81	0.63	0.81	0.40	0.81	0.63	0.63
Uniform Del:	54.8	34.4	26.8	53.7	38.8	38.8	62.1	50.9	28.8	60.1	45.3	45.3
IncremntDel:	8.2	0.5	2.7	3.4	2.4	2.4	5.0	5.6	0.4	12.1	1.4	1.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	63.0	34.8	29.5	57.1	41.2	41.2	67.1	56.5	29.2	72.1	46.6	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:	63.0	34.8	29.5	57.1	41.2	41.2	67.1	56.5	29.2	72.1	46.6	46.6
LOS by Move:	E	C-	C	E+	D	D	E	E+	C	E	D	D
HCM2kAvgQ:	339	375	568	229	561	561	130	405	232	243	316	316

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

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 Ramps

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	2344	0	0	264	99
Future Volume (vph)	0	0	0	531	36	273	134	2344	0	0	264	99
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.0	5.0	5.0	5.1	5.1			6.4	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frpb, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	
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)				1490	1502	1384	1568	5678			5446	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1490	1502	1384	1568	5678			5446	
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	2520	0	0	284	106
RTOR Reduction (vph)	0	0	0	0	0	50	0	0	0	0	31	0
Lane Group Flow (vph)	0	0	0	303	307	244	144	2520	0	0	359	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)						2			2			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4						
Actuated Green, G (s)				37.4	37.4	37.4	18.3	90.7			65.8	
Effective Green, g (s)				39.0	39.0	39.0	18.5	90.9			66.0	
Actuated g/C Ratio				0.28	0.28	0.28	0.13	0.65			0.47	
Clearance Time (s)				6.6	6.6	6.6	5.3	5.3			6.6	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				415	418	385	207	3686			2567	
v/s Ratio Prot				0.20	c0.20		0.09	c0.44			0.07	
v/s Ratio Perm						0.18						
v/c Ratio				0.73	0.73	0.63	0.70	0.68			0.14	
Uniform Delay, d1				45.7	45.8	44.3	58.1	15.5			20.9	
Progression Factor				1.00	1.00	1.00	0.96	0.83			1.00	
Incremental Delay, d2				6.5	6.6	3.4	8.6	0.9			0.1	
Delay (s)				52.2	52.4	47.7	64.4	13.8			21.1	
Level of Service				D	D	D	E	B			C	
Approach Delay (s)		0.0			50.8			16.5			21.1	
Approach LOS		A			D			B			C	

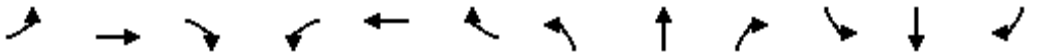
Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

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	735	45	750	0
Future Volume (vph)	845	0	72	0	0	0	0	1633	735	45	750	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.91	0.91	1.00					0.81	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2854	1427	1377					6684	1364	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2854	1427	1377					6684	1364	1568	4506	
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	766	47	781	0
RTOR Reduction (vph)	0	0	55	0	0	0	0	0	349	0	0	0
Lane Group Flow (vph)	590	290	20	0	0	0	0	1701	417	47	781	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	36.3	36.3	36.3					76.1	76.1	8.4	90.8	
Effective Green, g (s)	37.7	37.7	37.7					76.3	76.3	8.6	91.0	
Actuated g/C Ratio	0.27	0.27	0.27					0.54	0.54	0.06	0.65	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	768	384	370					3642	743	96	2928	
v/s Ratio Prot								0.25		c0.03	0.17	
v/s Ratio Perm	c0.21	0.20	0.01						c0.31			
v/c Ratio	0.77	0.76	0.05					0.47	0.56	0.49	0.27	
Uniform Delay, d1	47.1	46.9	37.9					19.4	20.9	63.6	10.4	
Progression Factor	1.00	1.00	1.00					0.27	6.09	0.95	0.84	
Incremental Delay, d2	4.6	8.2	0.1					0.4	2.6	3.7	0.2	
Delay (s)	51.8	55.1	38.0					5.6	129.8	64.3	8.9	
Level of Service	D	E	D					A	F	E	A	
Approach Delay (s)		51.7			0.0			44.2			12.1	
Approach LOS		D			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive



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	2157	79	27	699	96
Future Volume (vph)	26	3	39	185	31	185	115	2157	79	27	699	96
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
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	0.98	1.00	1.00	0.98	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)	1568	1650	1369	1550	1650	1381	1568	6641		1568	4413	
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)	1214	1650	1369	1233	1650	1381	1568	6641		1568	4413	
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	2271	83	28	736	101
RTOR Reduction (vph)	0	0	31	0	0	148	0	3	0	0	11	0
Lane Group Flow (vph)	27	3	10	195	33	47	121	2351	0	28	826	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	29.9	29.9	29.9	29.5	29.5	29.5	13.3	82.5		9.6	79.0	
Effective Green, g (s)	33.0	33.0	33.0	32.6	32.6	32.6	15.9	85.1		12.2	81.6	
Actuated g/C Ratio	0.24	0.24	0.24	0.23	0.23	0.23	0.11	0.61		0.09	0.58	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	286	388	322	287	384	321	178	4036		136	2572	
v/s Ratio Prot		0.00			0.02		c0.08	c0.35		0.02	c0.19	
v/s Ratio Perm	0.02		0.01	c0.16		0.03						
v/c Ratio	0.09	0.01	0.03	0.68	0.09	0.15	0.68	0.58		0.21	0.32	
Uniform Delay, d1	41.8	41.0	41.2	48.9	42.0	42.6	59.6	16.7		59.4	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.73	0.50	
Incremental Delay, d2	0.1	0.0	0.0	6.3	0.1	0.2	9.9	0.6		0.7	0.3	
Delay (s)	42.0	41.0	41.2	55.2	42.1	42.9	69.5	17.3		44.3	7.8	
Level of Service	D	D	D	E	D	D	E	B		D	A	
Approach Delay (s)		41.5			48.5			19.8			9.0	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	9	20	42	53	221	78	2393	24	84	1362	417
Future Volume (vph)	96	9	20	42	53	221	78	2393	24	84	1362	417
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1449		1568	1650	1382	1568	5678	1372	1568	5452	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1449		1568	1650	1382	1568	5678	1372	1568	5452	
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)	100	9	21	44	55	230	81	2493	25	88	1419	434
RTOR Reduction (vph)	0	16	0	0	0	147	0	0	11	0	26	0
Lane Group Flow (vph)	100	14	0	44	55	83	81	2493	14	88	1827	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	10.1	34.4		8.1	32.5	32.5	13.3	91.8	91.8	13.7	92.2	
Effective Green, g (s)	10.2	37.2		8.2	35.2	35.2	13.4	94.8	94.8	13.8	95.2	
Actuated g/C Ratio	0.06	0.22		0.05	0.21	0.21	0.08	0.56	0.56	0.08	0.56	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	182	317		75	341	286	123	3166	765	127	3053	
v/s Ratio Prot	c0.03	0.01		0.03	0.03		0.05	c0.44		c0.06	0.34	
v/s Ratio Perm						c0.06			0.01			
v/c Ratio	0.55	0.04		0.59	0.16	0.29	0.66	0.79	0.02	0.69	0.60	
Uniform Delay, d1	77.7	52.4		79.2	55.3	56.8	76.1	29.7	16.8	76.0	24.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.27	0.53	1.00	1.00	1.00	
Incremental Delay, d2	3.4	0.1		11.2	0.2	0.6	8.4	1.4	0.0	15.1	0.9	
Delay (s)	81.0	52.4		90.4	55.5	57.4	105.2	17.1	16.8	91.1	25.6	
Level of Service	F	D		F	E	E	F	B	B	F	C	
Approach Delay (s)		74.4			61.5			19.8			28.6	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 Ramps

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	532	0	0	1622	558
Future Volume (vph)	0	0	0	541	31	39	86	532	0	0	1622	558
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.0	5.0	5.0	5.1	5.1			6.4	
Lane Util. Factor				0.95	0.95	1.00	1.00	0.86			0.86	
Frpb, ped/bikes				1.00	1.00	0.99	1.00	1.00			1.00	
Flpb, ped/bikes				1.00	1.00	1.00	1.00	1.00			1.00	
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)				1490	1501	1384	1568	5678			5460	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1490	1501	1384	1568	5678			5460	
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	582	33	42	92	572	0	0	1744	600
RTOR Reduction (vph)	0	0	0	0	0	31	0	0	0	0	26	0
Lane Group Flow (vph)	0	0	0	308	307	11	92	572	0	0	2318	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)						2			2			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				4	4		5	2			6	
Permitted Phases						4						
Actuated Green, G (s)				36.3	36.3	36.3	13.6	91.8			71.6	
Effective Green, g (s)				37.9	37.9	37.9	13.8	92.0			71.8	
Actuated g/C Ratio				0.27	0.27	0.27	0.10	0.66			0.51	
Clearance Time (s)				6.6	6.6	6.6	5.3	5.3			6.6	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				403	406	374	154	3731			2800	
v/s Ratio Prot				c0.21	0.20		c0.06	0.10			c0.42	
v/s Ratio Perm						0.01						
v/c Ratio				0.76	0.76	0.03	0.60	0.15			0.83	
Uniform Delay, d1				46.9	46.8	37.5	60.4	9.2			28.9	
Progression Factor				1.00	1.00	1.00	0.97	0.81			1.00	
Incremental Delay, d2				8.4	7.8	0.0	6.1	0.1			3.0	
Delay (s)				55.3	54.6	37.6	64.7	7.5			31.8	
Level of Service				E	D	D	E	A			C	
Approach Delay (s)		0.0			53.9			15.4			31.8	
Approach LOS		A			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

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	488	650	347	1816	0
Future Volume (vph)	130	0	135	0	0	0	0	488	650	347	1816	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.91	0.91	1.00					0.81	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97					1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2854	1427	1363					6684	1364	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2854	1427	1363					6684	1364	1568	4506	
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)	135	0	141	0	0	0	0	508	677	361	1892	0
RTOR Reduction (vph)	0	0	67	0	0	0	0	0	368	0	0	0
Lane Group Flow (vph)	90	45	74	0	0	0	0	508	309	361	1892	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	13.6	13.6	13.6					63.7	63.7	43.5	113.5	
Effective Green, g (s)	15.0	15.0	15.0					63.9	63.9	43.7	113.7	
Actuated g/C Ratio	0.11	0.11	0.11					0.46	0.46	0.31	0.81	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	305	152	146					3050	622	489	3659	
v/s Ratio Prot								0.08		c0.23	c0.42	
v/s Ratio Perm	0.03	0.03	c0.05						0.23			
v/c Ratio	0.30	0.30	0.51					0.17	0.50	0.74	0.52	
Uniform Delay, d1	57.6	57.6	59.0					22.4	26.7	43.0	4.3	
Progression Factor	1.00	1.00	1.00					0.52	6.60	1.09	0.33	
Incremental Delay, d2	0.5	1.1	2.8					0.1	2.7	3.7	0.3	
Delay (s)	58.2	58.7	61.8					11.8	179.2	50.8	1.7	
Level of Service	E	E	E					B	F	D	A	
Approach Delay (s)		60.1			0.0			107.4			9.6	
Approach LOS		E			A			F			A	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive

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	997	323	190	1707	54
Future Volume (vph)	70	39	129	125	4	71	59	997	323	190	1707	54
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
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	0.98	1.00	1.00	0.98	1.00	0.99		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	0.96		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)	1568	1650	1369	1551	1650	1380	1568	6386		1568	4482	
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)	1246	1650	1369	1192	1650	1380	1568	6386		1568	4482	
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)	74	41	136	132	4	75	62	1049	340	200	1797	57
RTOR Reduction (vph)	0	0	107	0	0	59	0	34	0	0	2	0
Lane Group Flow (vph)	74	41	29	132	4	16	62	1355	0	200	1852	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	26.3	26.3	26.3	25.9	25.9	25.9	9.1	78.9		16.8	86.8	
Effective Green, g (s)	29.4	29.4	29.4	29.0	29.0	29.0	11.7	81.5		19.4	89.4	
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.08	0.58		0.14	0.64	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	261	346	287	246	341	285	131	3717		217	2862	
v/s Ratio Prot		0.02			0.00		c0.04	0.21		c0.13	c0.41	
v/s Ratio Perm	0.06		0.02	c0.11		0.01						
v/c Ratio	0.28	0.12	0.10	0.54	0.01	0.05	0.47	0.36		0.92	0.65	
Uniform Delay, d1	46.5	44.8	44.6	49.5	44.1	44.5	61.2	15.5		59.5	15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.84	
Incremental Delay, d2	0.6	0.2	0.2	2.2	0.0	0.1	2.7	0.3		36.7	1.0	
Delay (s)	47.1	45.0	44.8	51.8	44.1	44.6	63.9	15.8		96.3	14.1	
Level of Service	D	D	D	D	D	D	E	B		F	B	
Approach Delay (s)		45.5			49.1			17.8			22.1	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	94	50	31	10	94	31	1295	71	155	2192	76
Future Volume (vph)	317	94	50	31	10	94	31	1295	71	155	2192	76
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1550		1568	1650	1381	1568	5678	1372	1568	5645	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1550		1568	1650	1381	1568	5678	1372	1568	5645	
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)	330	98	52	32	10	98	32	1349	74	161	2283	79
RTOR Reduction (vph)	0	13	0	0	0	80	0	0	35	0	2	0
Lane Group Flow (vph)	330	137	0	32	10	18	32	1349	39	161	2360	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	10.9	30.9		7.6	27.7	27.7	7.9	86.3	86.3	23.2	101.6	
Effective Green, g (s)	11.0	33.7		7.7	30.4	30.4	8.0	89.3	89.3	23.3	104.6	
Actuated g/C Ratio	0.06	0.20		0.05	0.18	0.18	0.05	0.53	0.53	0.14	0.62	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	196	307		71	295	246	73	2982	720	214	3473	
v/s Ratio Prot	c0.11	c0.09		0.02	0.01		0.02	0.24		c0.10	c0.42	
v/s Ratio Perm						0.01			0.03			
v/c Ratio	1.68	0.45		0.45	0.03	0.07	0.44	0.45	0.05	0.75	0.68	
Uniform Delay, d1	79.5	60.0		79.1	57.7	58.1	78.8	25.1	19.7	70.6	21.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.21	0.88	1.07	1.00	1.00	
Incremental Delay, d2	328.8	1.0		4.5	0.0	0.1	3.8	0.4	0.1	13.9	1.1	
Delay (s)	408.3	61.0		83.6	57.7	58.2	99.4	22.4	21.2	84.4	22.7	
Level of Service	F	E		F	E	E	F	C	C	F	C	
Approach Delay (s)		299.8			64.0			24.1			26.6	
Approach LOS		F			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Pastoria Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	637	151		Y	Y	**Y**		Y		Y	Y	**Y**		Y			
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	728	205		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**		
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	1,365	356		2	2	**2**	0	2	**0**	2	2	**2**	1	2	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Iowa Avenue** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Charles Street** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	204	47															
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	302	61												Y			
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	506	108		0	0	**0**	0	0	**0**	0	0	**0**	0	1	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Mary Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Project Conditions**

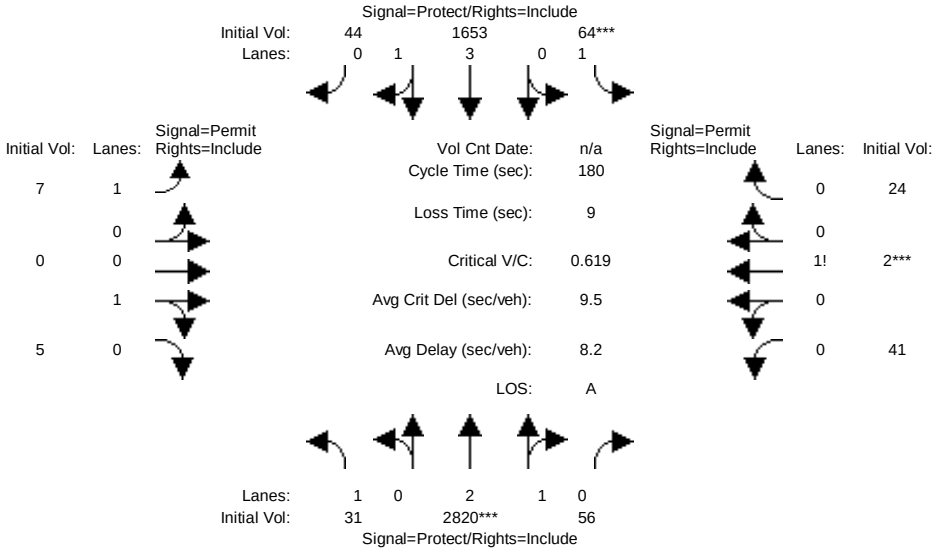
ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	1,501	65		Y			Y			Y			Y	Y	**Y**		
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	1,661	57		Y			Y			Y			Y				
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	3,162	122		2	0	**0**	2	0	**0**	2	0	**0**	2	1	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #5: Mathilda Ave / San Aleso Ave

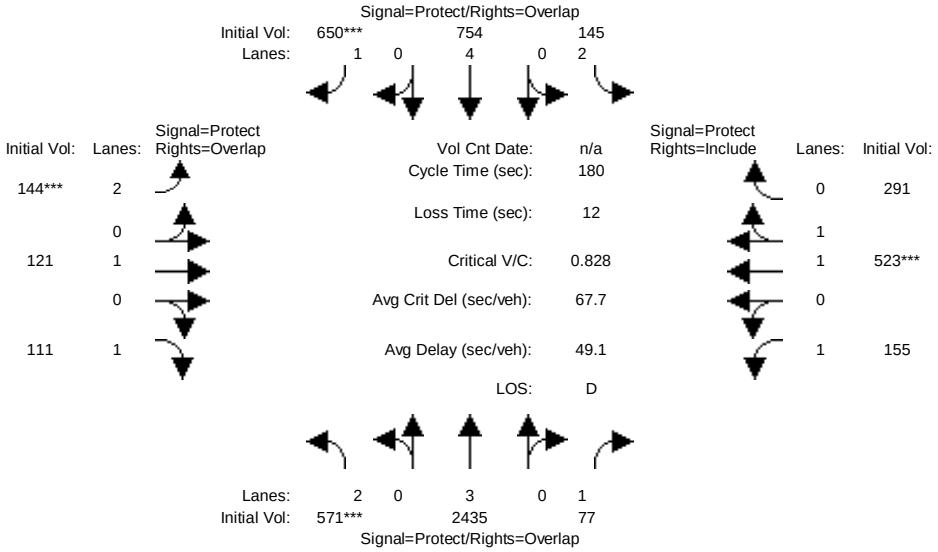


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	31	2374	56	63	1227	44	7	0	5	41	2	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:	31	2374	56	63	1227	44	7	0	5	41	2	19
Added Vol:	0	446	0	1	426	0	0	0	0	0	0	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	2820	56	64	1653	44	7	0	5	41	2	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:	31	2820	56	64	1653	44	7	0	5	41	2	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	2820	56	64	1653	44	7	0	5	41	2	24
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	31	2820	56	64	1653	44	7	0	5	41	2	24
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	0.99	0.95	0.92	1.00	0.95	0.92	0.92	0.92
Lanes:	1.00	2.94	0.06	1.00	3.89	0.11	1.00	0.00	1.00	0.61	0.03	0.36
Final Sat.:	1750	5491	109	1750	7305	194	1750	0	1800	1071	52	627
Capacity Analysis Module:												
Vol/Sat:	0.02	0.51	0.51	0.04	0.23	0.23	0.00	0.00	0.00	0.04	0.04	0.04
Crit Moves:		****		****							****	
Green Time:	14.3	149	149.2	10.6	146	145.6	11.1	0.0	11.1	11.1	11.1	11.1
Volume/Cap:	0.22	0.62	0.62	0.62	0.28	0.28	0.06	0.00	0.04	0.62	0.62	0.62
Uniform Del:	77.6	5.4	5.4	82.7	4.3	4.3	79.5	0.0	79.4	82.4	82.4	82.4
IncremntDel:	0.8	0.3	0.3	11.0	0.0	0.0	0.3	0.0	0.2	10.5	10.5	10.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Delay/Veh:	78.5	5.7	5.7	93.7	4.3	4.3	79.8	0.0	79.6	92.9	92.9	92.9
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:	78.5	5.7	5.7	93.7	4.3	4.3	79.8	0.0	79.6	92.9	92.9	92.9
LOS by Move:	E-	A	A	F	A	A	E-	A	E-	F	F	F
HCM2kAvgQ:	41	458	458	94	144	144	11	0	7	122	122	122

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #6: Mathilda Ave / Maude Ave

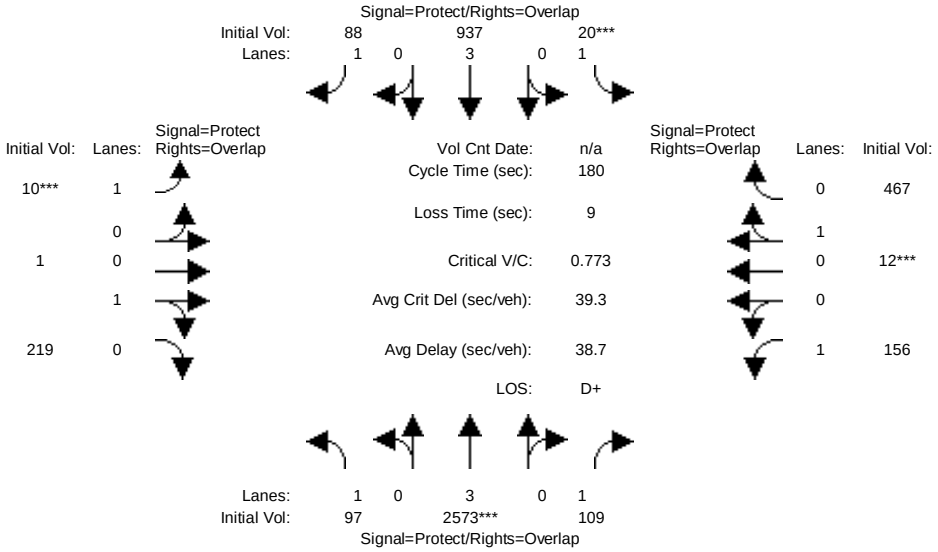


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	421	2050	47	142	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:	150	385	30	3	110	313	46	22	42	6	153	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	571	2435	77	145	754	650	144	121	111	155	523	291
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:	571	2435	77	145	754	650	144	121	111	155	523	291
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	571	2435	77	145	754	650	144	121	111	155	523	291
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:	571	2435	77	145	754	650	144	121	111	155	523	291
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	1.27	0.73
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2376	1322
Capacity Analysis Module:												
Vol/Sat:	0.18	0.43	0.04	0.05	0.10	0.37	0.05	0.06	0.06	0.09	0.22	0.22
Crit Moves:	****					****	****				****	
Green Time:	39.4	99.5	133.1	10.7	70.8	80.7	9.9	24.2	63.6	33.6	47.8	47.8
Volume/Cap:	0.83	0.77	0.06	0.77	0.25	0.83	0.83	0.47	0.18	0.47	0.83	0.83
Uniform Del:	67.1	31.4	6.4	83.4	36.8	43.5	84.2	72.0	40.2	65.3	62.2	62.2
IncremntDel:	8.2	1.2	0.0	17.8	0.0	7.3	26.8	1.4	0.1	1.1	5.9	5.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	75.3	32.7	6.4	101.3	36.8	50.8	111.0	73.4	40.3	66.4	68.1	68.1
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:	75.3	32.7	6.4	101.3	36.8	50.8	111.0	73.4	40.3	66.4	68.1	68.1
LOS by Move:	E-	C-	A	F	D+	D	F	E	D	E	E	E
HCM2kAvgQ:	442	834	29	127	166	866	166	161	109	209	582	582

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #7: Mathilda Ave / Indio Way

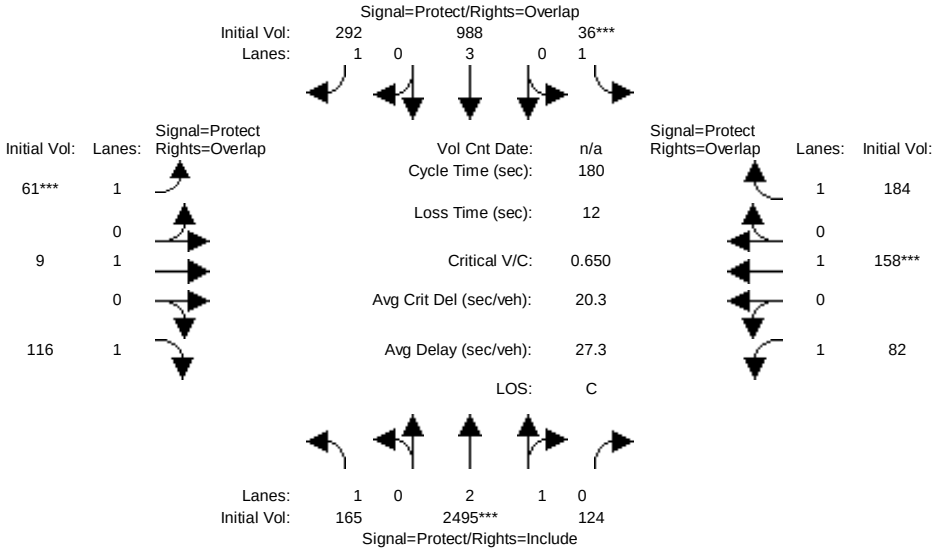


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	97	2050	103	20	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	523	6	0	155	4	0	0	22	0	0	42
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	2573	109	20	937	88	10	1	219	156	12	467
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	2573	109	20	937	88	10	1	219	156	12	467
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	97	2573	109	20	937	88	10	1	219	156	12	467
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:	97	2573	109	20	937	88	10	1	219	156	12	467
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.01	0.99	1.00	0.03	0.97
Final Sat.:	1750	5700	1750	1750	5700	1750	1750	8	1792	1750	45	1755
Capacity Analysis Module:												
Vol/Sat:	0.06	0.45	0.06	0.01	0.16	0.05	0.01	0.12	0.12	0.09	0.27	0.27
Crit Moves:		****		****			****				****	
Green Time:	26.2	100	128.3	4.0	77.8	85.8	8.0	38.7	65.0	28.2	59.0	63.0
Volume/Cap:	0.38	0.81	0.09	0.51	0.38	0.11	0.13	0.57	0.34	0.57	0.81	0.76
Uniform Del:	69.5	32.4	7.9	87.0	34.7	26.0	82.7	63.2	41.9	70.2	55.4	51.8
IncremntDel:	0.9	1.7	0.0	11.3	0.1	0.1	0.7	2.0	0.3	2.8	8.4	5.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	70.5	34.1	8.0	98.4	34.8	26.0	83.4	65.2	42.2	73.0	63.8	57.2
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:	70.5	34.1	8.0	98.4	34.8	26.0	83.4	65.2	42.2	73.0	63.8	57.2
LOS by Move:	E	C-	A	F	C-	C	F	E	D	E	E	E+
HCM2kAvgQ:	124	943	47	31	279	69	17	291	224	227	666	630

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #8: Mathilda Ave / California Ave

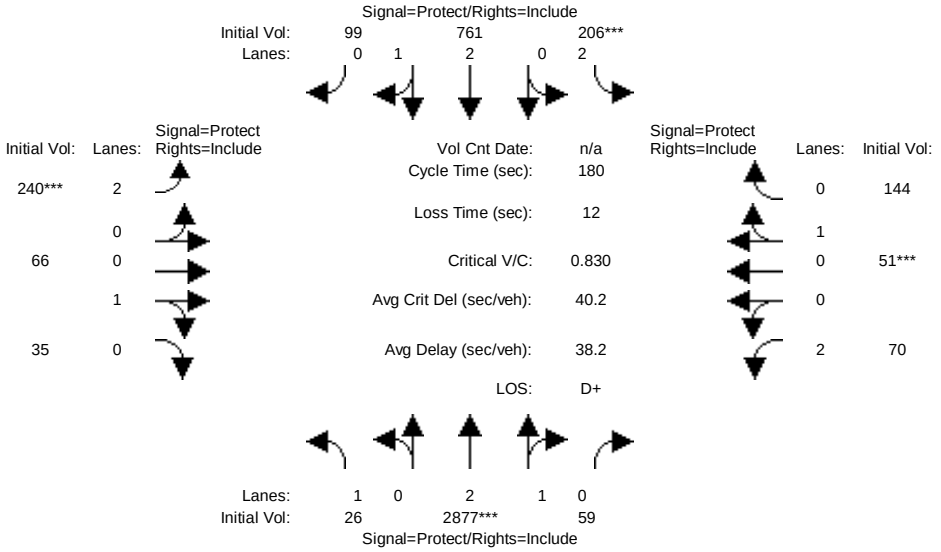


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	139	2009	115	34	872	234	56	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
Added Vol:	26	486	9	2	116	58	5	4	7	0	20	38
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	165	2495	124	36	988	292	61	9	116	82	158	184
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:	165	2495	124	36	988	292	61	9	116	82	158	184
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	165	2495	124	36	988	292	61	9	116	82	158	184
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:	165	2495	124	36	988	292	61	9	116	82	158	184
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	2.85	0.15	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5335	265	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.47	0.47	0.02	0.17	0.17	0.03	0.00	0.07	0.05	0.08	0.11
Crit Moves:		****		****			****				****	
Green Time:	47.7	130	129.6	5.7	87.6	97.3	9.7	15.9	63.6	16.8	23.0	28.7
Volume/Cap:	0.36	0.65	0.65	0.65	0.36	0.31	0.65	0.05	0.19	0.50	0.65	0.66
Uniform Del:	53.7	13.3	13.3	86.2	28.7	22.8	83.5	75.1	40.3	77.6	74.6	71.0
IncremntDel:	0.5	0.4	0.4	24.0	0.1	0.2	14.9	0.1	0.1	2.5	6.1	5.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	54.2	13.6	13.6	110.2	28.7	23.0	98.4	75.3	40.5	80.1	80.7	76.7
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:	54.2	13.6	13.6	110.2	28.7	23.0	98.4	75.3	40.5	80.1	80.7	76.7
LOS by Move:	D-	B	B	F	C	C+	F	E-	D	F	F	E-
HCM2kAvgQ:	195	629	629	56	268	230	116	12	115	129	228	277

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #9: Mathilda Ave / Washington Ave

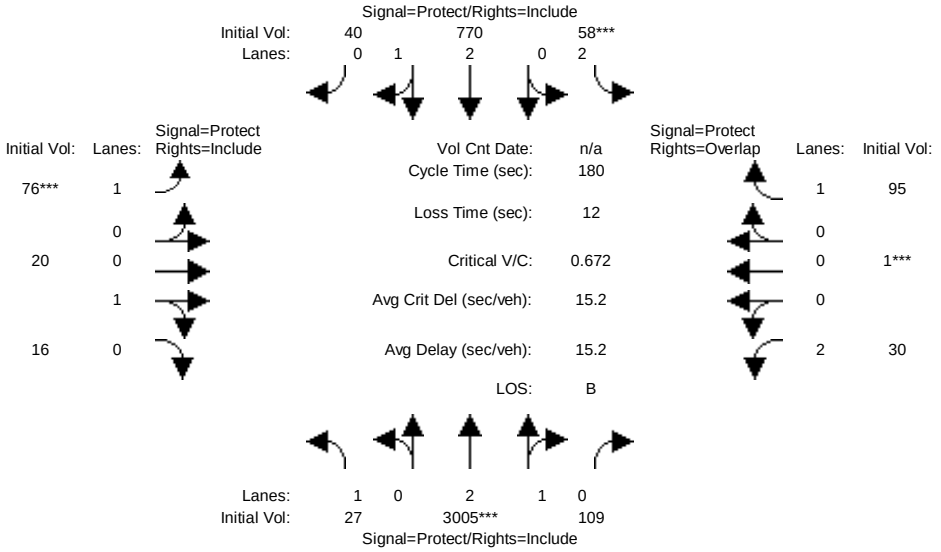


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	26	2452	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	425	9	11	102	3	14	12	1	20	20	35
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	2877	59	206	761	99	240	66	35	70	51	144
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	2877	59	206	761	99	240	66	35	70	51	144
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2877	59	206	761	99	240	66	35	70	51	144
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:	26	2877	59	206	761	99	240	66	35	70	51	144
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	2.94	0.06	2.00	2.64	0.36	2.00	0.65	0.35	2.00	0.26	0.74
Final Sat.:	1750	5487	113	3150	4954	645	3150	1176	624	3150	471	1329
Capacity Analysis Module:												
Vol/Sat:	0.01	0.52	0.52	0.07	0.15	0.15	0.08	0.06	0.06	0.02	0.11	0.11
Crit Moves:		****		****			****				****	
Green Time:	28.7	114	113.8	14.2	99.2	99.2	16.5	22.3	22.3	17.7	23.5	23.5
Volume/Cap:	0.09	0.83	0.83	0.83	0.28	0.28	0.83	0.45	0.45	0.23	0.83	0.83
Uniform Del:	64.5	25.6	25.6	81.7	21.4	21.4	80.3	73.1	73.1	74.8	76.3	76.3
IncremntDel:	0.1	1.8	1.8	20.3	0.0	0.0	17.9	1.5	1.5	0.4	21.2	21.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.7	27.4	27.4	102.0	21.5	21.5	98.2	74.6	74.6	75.2	97.5	97.5
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:	64.7	27.4	27.4	102.0	21.5	21.5	98.2	74.6	74.6	75.2	97.5	97.5
LOS by Move:	E	C	C	F	C+	C+	F	E	E	E-	F	F
HCM2kAvgQ:	31	1046	1046	219	203	203	210	132	132	56	328	328

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #10: Mathilda Ave / McKinley Ave

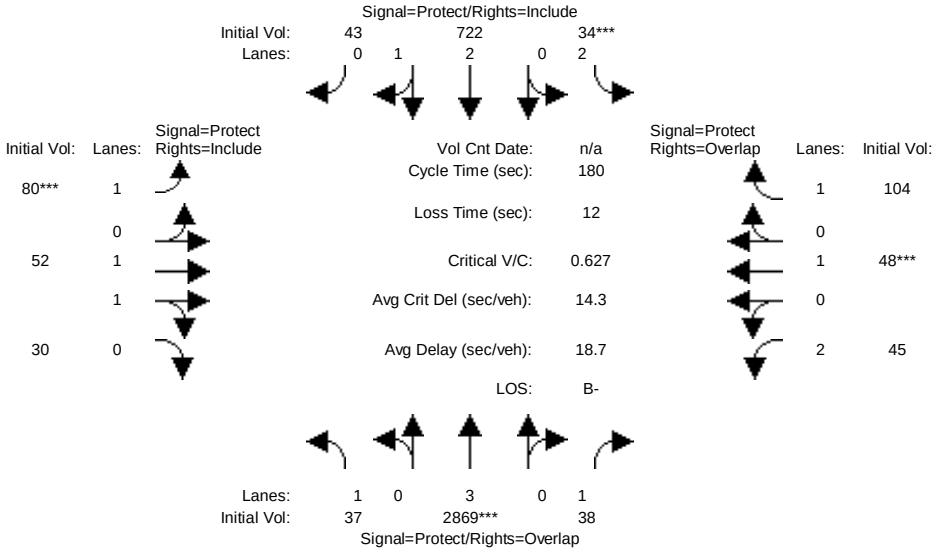


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	27	2619	99	48	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:	0	386	10	10	110	2	15	0	1	17	0	33
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	3005	109	58	770	40	76	20	16	30	1	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:	27	3005	109	58	770	40	76	20	16	30	1	95
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	3005	109	58	770	40	76	20	16	30	1	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
FinalVolume:	27	3005	109	58	770	40	76	20	16	30	1	95
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	2.85	0.15	1.00	0.56	0.44	1.94	0.06	1.00
Final Sat.:	1750	5404	196	3150	5323	277	1750	1000	800	3396	113	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.56	0.56	0.02	0.14	0.14	0.04	0.02	0.02	0.01	0.01	0.05
Crit Moves:		****		****			****				****	
Green Time:	19.8	144	144.0	4.8	129	128.9	11.2	12.8	12.8	6.4	8.0	12.8
Volume/Cap:	0.14	0.70	0.70	0.70	0.20	0.20	0.70	0.28	0.28	0.25	0.20	0.77
Uniform Del:	72.4	8.1	8.1	86.9	8.5	8.5	82.7	79.2	79.2	84.4	82.9	82.1
IncremntDel:	0.3	0.5	0.5	22.5	0.0	0.0	17.7	1.2	1.2	0.3	0.2	19.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	72.7	8.6	8.6	109.4	8.5	8.5	100.4	80.4	80.4	84.7	83.1	101.2
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:	72.7	8.6	8.6	109.4	8.5	8.5	100.4	80.4	80.4	84.7	83.1	101.2
LOS by Move:	E	A	A	F	A	A	F	F	F	F	F	F
HCM2kAvgQ:	34	648	648	52	122	122	143	54	54	28	26	180

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #11: Mathilda Ave / Iowa Ave

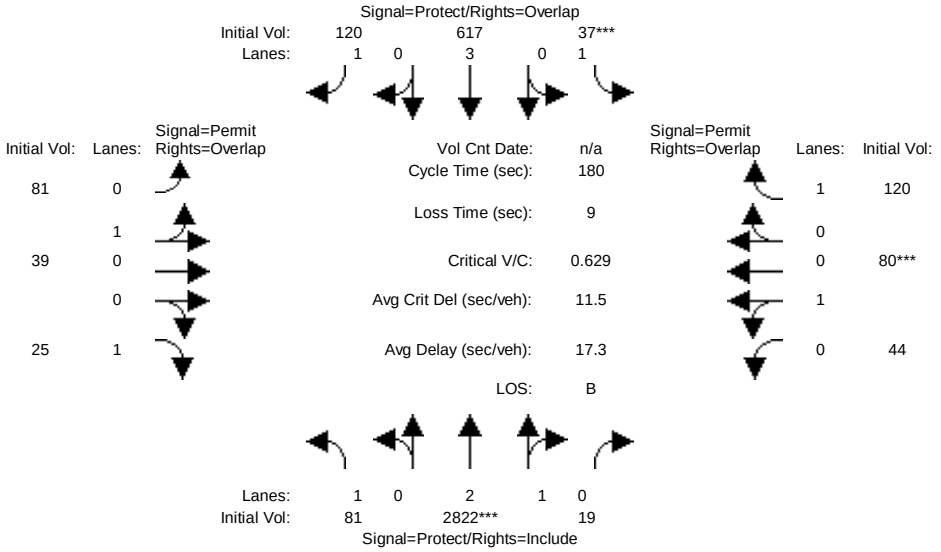


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	18	2526	29	27	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:	19	343	9	7	109	12	17	4	14	22	7	37
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	2869	38	34	722	43	80	52	30	45	48	104
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:	37	2869	38	34	722	43	80	52	30	45	48	104
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	37	2869	38	34	722	43	80	52	30	45	48	104
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:	37	2869	38	34	722	43	80	52	30	45	48	104
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	0.99	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.83	0.17	1.00	1.25	0.75	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5285	315	1750	2345	1353	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.50	0.02	0.01	0.14	0.14	0.05	0.02	0.02	0.01	0.03	0.06
Crit Moves:		****		****			****				****	
Green Time:	35.9	138	148.6	8.0	110	110.5	12.6	11.4	11.4	10.2	9.0	17.0
Volume/Cap:	0.11	0.65	0.03	0.24	0.22	0.22	0.65	0.35	0.35	0.25	0.51	0.63
Uniform Del:	58.9	9.7	2.8	83.1	15.5	15.5	81.6	80.7	80.7	81.3	83.3	78.5
IncremntDel:	0.1	0.4	0.0	0.9	0.0	0.0	12.1	0.9	0.9	0.8	4.3	7.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	59.0	10.0	2.8	84.0	15.6	15.6	93.7	81.6	81.6	82.1	87.7	86.0
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:	59.0	10.0	2.8	84.0	15.6	15.6	93.7	81.6	81.6	82.1	87.7	86.0
LOS by Move:	E+	B+	A	F	B	B	F	F	F	F	F	F
HCM2kAvgQ:	42	600	10	27	153	153	119	54	54	41	81	172

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #12: Mathilda Ave / Olive Ave

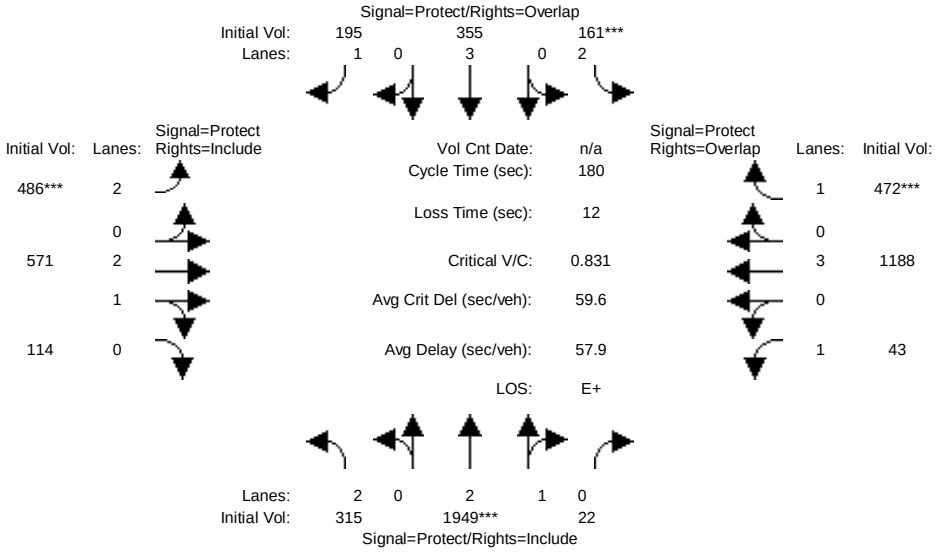


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	74	2520	12	26	538	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:	7	302	7	11	79	55	14	10	3	18	18	55
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	81	2822	19	37	617	120	81	39	25	44	80	120
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:	81	2822	19	37	617	120	81	39	25	44	80	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	81	2822	19	37	617	120	81	39	25	44	80	120
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:	81	2822	19	37	617	120	81	39	25	44	80	120
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	2.98	0.02	1.00	3.00	1.00	0.67	0.33	1.00	0.35	0.65	1.00
Final Sat.:	1750	5562	37	1750	5700	1750	1215	585	1750	639	1161	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.51	0.51	0.02	0.11	0.07	0.07	0.07	0.01	0.07	0.07	0.07
Crit Moves:		****		****							****	
Green Time:	45.3	145	145.2	6.1	106	106.0	19.7	19.7	65.0	19.7	19.7	25.8
Volume/Cap:	0.18	0.63	0.63	0.63	0.18	0.12	0.61	0.61	0.04	0.63	0.63	0.48
Uniform Del:	52.8	6.8	6.8	85.9	17.1	16.3	76.5	76.5	37.2	76.6	76.6	70.9
IncremntDel:	0.2	0.3	0.3	19.7	0.0	0.1	5.4	5.4	0.0	6.3	6.3	1.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	53.0	7.1	7.1	105.6	17.1	16.4	81.9	81.9	37.3	83.0	83.0	72.4
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:	53.0	7.1	7.1	105.6	17.1	16.4	81.9	81.9	37.3	83.0	83.0	72.4
LOS by Move:	D-	A	A	F	B	B	F	F	D+	F	F	E
HCM2kAvgQ:	92	514	514	57	125	76	185	185	23	193	193	172

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #13: Mathilda Ave / El Camino Real

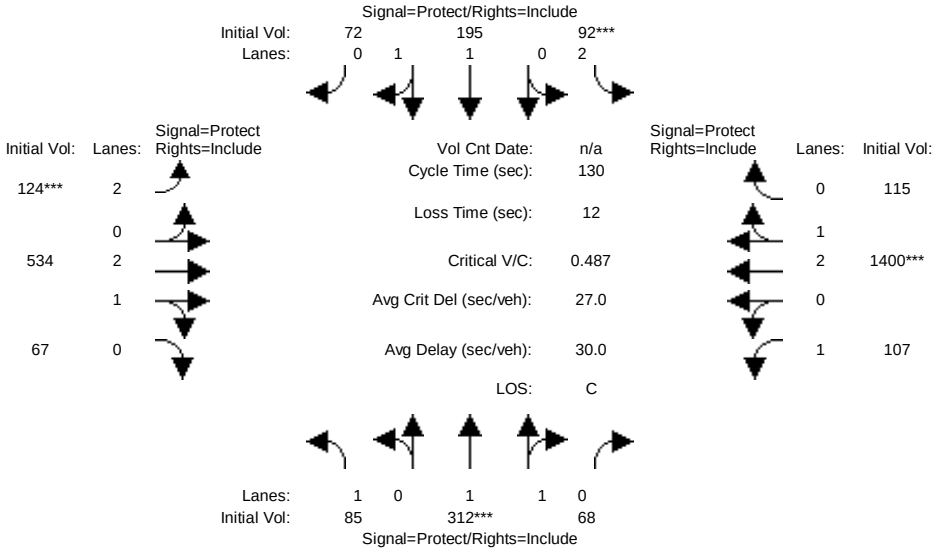


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	253	1793	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:	62	156	5	29	78	17	43	103	36	35	89	97
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	315	1949	22	161	355	195	486	571	114	43	1188	472
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:	315	1949	22	161	355	195	486	571	114	43	1188	472
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	315	1949	22	161	355	195	486	571	114	43	1188	472
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:	315	1949	22	161	355	195	486	571	114	43	1188	472
Saturation Flow Module:												
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	2.48	0.52	1.00	3.00	1.00
Final Sat.:	3150	5537	63	3150	5700	1750	3150	4667	932	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.35	0.35	0.05	0.06	0.11	0.15	0.12	0.12	0.02	0.21	0.27
Crit Moves:		****		****			****					****
Green Time:	53.8	76.2	76.2	11.1	33.5	66.9	33.4	63.4	63.4	17.3	47.3	58.4
Volume/Cap:	0.33	0.83	0.83	0.83	0.33	0.30	0.83	0.35	0.35	0.26	0.79	0.83
Uniform Del:	49.2	46.2	46.2	83.5	63.6	40.0	70.6	43.0	43.0	75.4	61.8	56.2
IncremntDel:	0.2	2.6	2.6	25.1	0.2	0.3	9.8	0.1	0.1	0.8	3.0	10.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	49.4	48.8	48.8	108.7	63.8	40.3	80.4	43.1	43.1	76.2	64.7	66.3
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:	49.4	48.8	48.8	108.7	63.8	40.3	80.4	43.1	43.1	76.2	64.7	66.3
LOS by Move:	D	D	D	F	E	D	F	D	D	E-	E	E
HCM2kAvgQ:	197	844	844	182	141	198	404	225	225	63	538	688

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #14: El Camino Real and Sunnyvale Ave

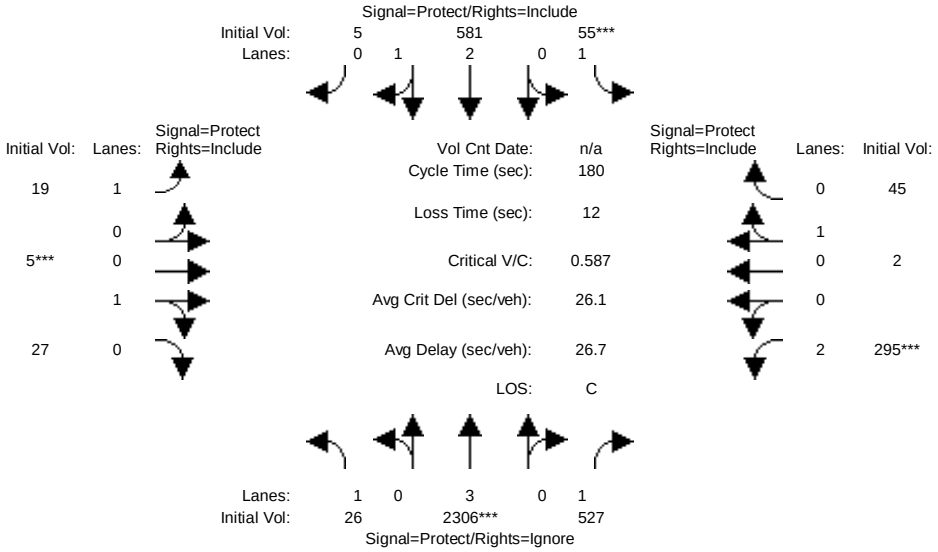


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	63	308	48	59	181	69	122	420	44	86	1205	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:	63	308	48	59	181	69	122	420	44	86	1205	109
Added Vol:	22	4	20	33	14	3	2	114	23	21	195	6
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	85	312	68	92	195	72	124	534	67	107	1400	115
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	85	312	68	92	195	72	124	534	67	107	1400	115
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	85	312	68	92	195	72	124	534	67	107	1400	115
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:	85	312	68	92	195	72	124	534	67	107	1400	115
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	0.83	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.63	0.37	2.00	1.45	0.55	2.00	2.65	0.35	1.00	2.76	0.24
Final Sat.:	1750	3037	662	3150	2702	997	3150	4975	624	1750	5174	425
Capacity Analysis Module:												
Vol/Sat:	0.05	0.10	0.10	0.03	0.07	0.07	0.04	0.11	0.11	0.06	0.27	0.27
Crit Moves:		****		****			****				****	
Green Time:	14.5	27.4	27.4	7.8	20.7	20.7	10.5	52.7	52.7	30.0	72.3	72.3
Volume/Cap:	0.44	0.49	0.49	0.49	0.45	0.45	0.49	0.26	0.26	0.26	0.49	0.49
Uniform Del:	53.9	45.1	45.1	59.2	49.5	49.5	57.2	25.7	25.7	40.9	17.6	17.6
IncremntDel:	1.6	0.5	0.5	2.0	0.6	0.6	1.5	0.1	0.1	0.4	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	55.5	45.6	45.6	61.1	50.1	50.1	58.6	25.8	25.8	41.3	17.7	17.7
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:	55.5	45.6	45.6	61.1	50.1	50.1	58.6	25.8	25.8	41.3	17.7	17.7
LOS by Move:	E+	D	D	E	D	D	E+	C	C	D	B	B
HCM2kAvgQ:	96	178	178	70	132	132	86	132	132	95	306	306

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

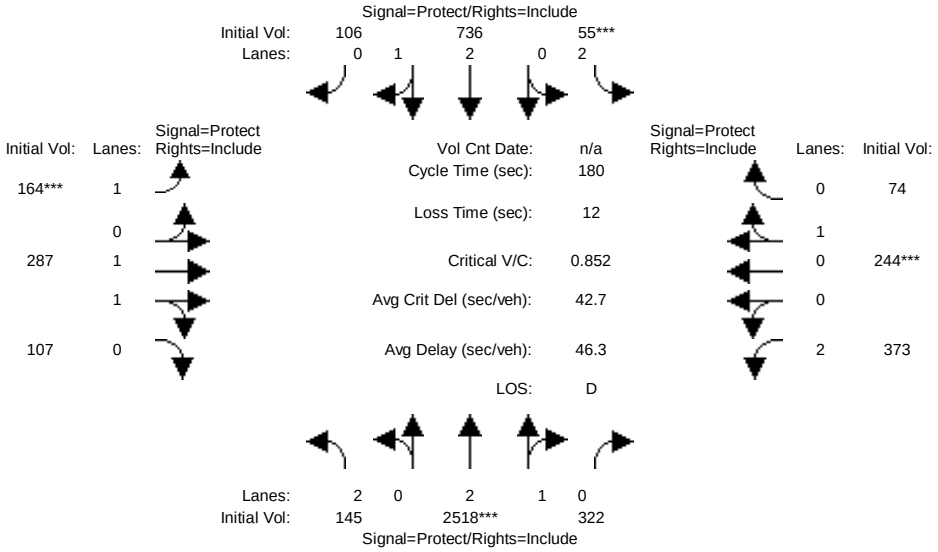


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	26	2117	496	35	452	5	19	5	27	257	2	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:	26	2117	496	35	452	5	19	5	27	257	2	24
Added Vol:	0	189	31	20	129	0	0	0	0	38	0	21
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	2306	527	55	581	5	19	5	27	295	2	45
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	26	2306	0	55	581	5	19	5	27	295	2	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	2306	0	55	581	5	19	5	27	295	2	45
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	26	2306	0	55	581	5	19	5	27	295	2	45
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.97	0.03	1.00	0.16	0.84	2.00	0.04	0.96
Final Sat.:	1750	5700	1750	1750	5552	48	1750	281	1519	3150	77	1723
Capacity Analysis Module:												
Vol/Sat:	0.01	0.40	0.00	0.03	0.10	0.10	0.01	0.02	0.02	0.09	0.03	0.03
Crit Moves:		****		****				****		****		
Green Time:	34.8	119	0.0	9.3	93.6	93.6	14.6	12.0	12.0	27.6	25.0	25.0
Volume/Cap:	0.08	0.61	0.00	0.61	0.20	0.20	0.13	0.27	0.27	0.61	0.19	0.19
Uniform Del:	59.5	17.3	0.0	83.6	23.1	23.1	76.8	79.8	79.8	71.2	68.5	68.5
IncremntDel:	0.1	0.3	0.0	11.7	0.0	0.0	0.4	1.2	1.2	2.3	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	59.6	17.6	0.0	95.3	23.2	23.2	77.3	81.0	81.0	73.5	68.9	68.9
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:	59.6	17.6	0.0	95.3	23.2	23.2	77.3	81.0	81.0	73.5	68.9	68.9
LOS by Move:	E+	B	A	F	C	C	E-	F	F	E	E	E
HCM2kAvgQ:	29	564	0	104	139	139	28	49	49	243	61	61

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

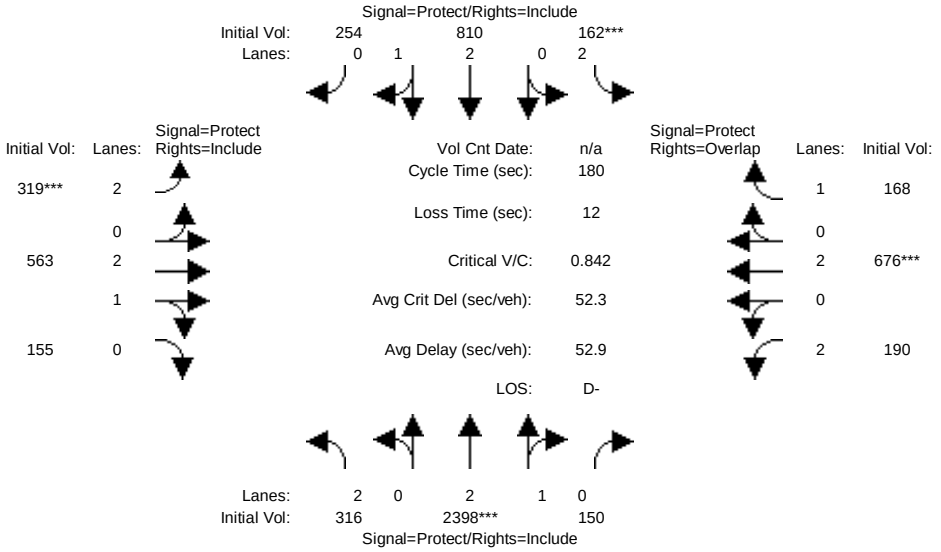


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	143	2339	315	32	599	99	150	280	96	366	237	48
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:	143	2339	315	32	599	99	150	280	96	366	237	48
Added Vol:	2	179	7	23	137	7	14	7	11	7	7	26
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	145	2518	322	55	736	106	164	287	107	373	244	74
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:	145	2518	322	55	736	106	164	287	107	373	244	74
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	145	2518	322	55	736	106	164	287	107	373	244	74
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:	145	2518	322	55	736	106	164	287	107	373	244	74
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.98	0.95	0.83	0.95	0.95
Lanes:	2.00	2.65	0.35	2.00	2.61	0.39	1.00	1.44	0.56	2.00	0.77	0.23
Final Sat.:	3150	4964	635	3150	4894	705	1750	2694	1005	3150	1381	419
Capacity Analysis Module:												
Vol/Sat:	0.05	0.51	0.51	0.02	0.15	0.15	0.09	0.11	0.11	0.12	0.18	0.18
Crit Moves:		****			****			****			****	
Green Time:	26.0	107	107.0	4.0	85.0	85.0	19.8	27.0	27.0	30.0	37.3	37.3
Volume/Cap:	0.32	0.85	0.85	0.79	0.32	0.32	0.85	0.71	0.71	0.71	0.85	0.85
Uniform Del:	69.0	30.1	30.1	87.6	29.5	29.5	78.7	72.8	72.8	70.9	68.7	68.7
IncremntDel:	0.4	2.3	2.3	43.0	0.1	0.1	29.0	4.3	4.3	4.5	17.1	17.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.5	32.4	32.4	130.6	29.6	29.6	107.7	77.0	77.0	75.4	85.8	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:	69.5	32.4	32.4	130.6	29.6	29.6	107.7	77.0	77.0	75.4	85.8	85.8
LOS by Move:	E	C-	C-	F	C	C	F	E-	E-	E-	F	F
HCM2kAvgQ:	100	1054	1054	52	233	233	298	292	292	318	499	499

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

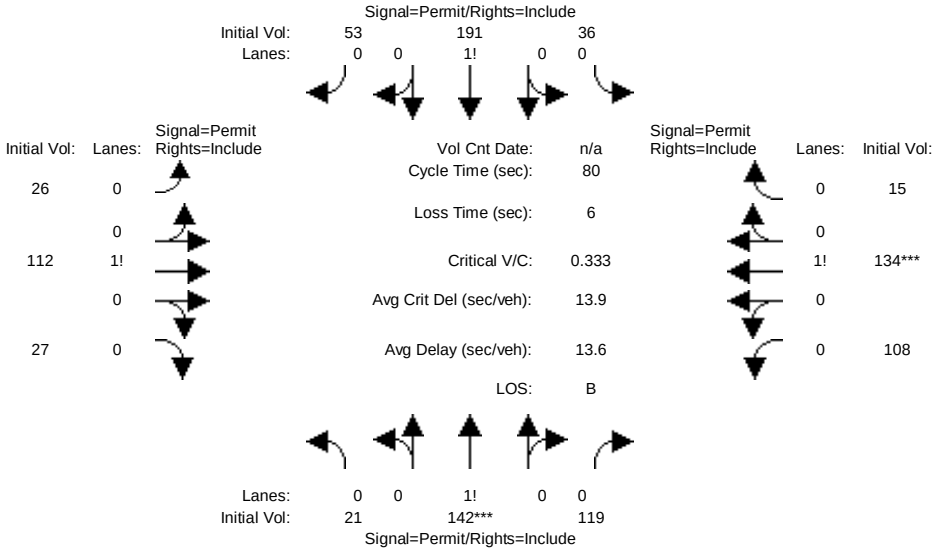


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	312	2251	121	148	682	242	280	433	140	186	659	166
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:	312	2251	121	148	682	242	280	433	140	186	659	166
Added Vol:	4	147	29	14	128	12	39	130	15	4	17	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	316	2398	150	162	810	254	319	563	155	190	676	168
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:	316	2398	150	162	810	254	319	563	155	190	676	168
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	316	2398	150	162	810	254	319	563	155	190	676	168
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:	316	2398	150	162	810	254	319	563	155	190	676	168
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.82	0.18	2.00	2.26	0.74	2.00	2.33	0.67	2.00	2.00	1.00
Final Sat.:	3150	5270	330	3150	4261	1336	3150	4390	1208	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.46	0.46	0.05	0.19	0.19	0.10	0.13	0.13	0.06	0.18	0.10
Crit Moves:		****		****			****				****	
Green Time:	37.4	97.3	97.3	11.0	70.9	70.9	21.7	40.6	40.6	19.1	38.0	49.0
Volume/Cap:	0.48	0.84	0.84	0.84	0.48	0.48	0.84	0.57	0.57	0.57	0.84	0.35
Uniform Del:	62.8	34.9	34.9	83.6	40.8	40.8	77.5	61.9	61.9	76.5	68.1	52.7
IncremntDel:	0.6	2.3	2.3	27.0	0.2	0.2	15.5	0.6	0.6	2.3	8.0	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	63.3	37.1	37.1	110.6	41.0	41.0	93.0	62.5	62.5	78.8	76.1	53.2
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:	63.3	37.1	37.1	110.6	41.0	41.0	93.0	62.5	62.5	78.8	76.1	53.2
LOS by Move:	E	D+	D+	F	D	D	F	E	E	E-	E-	D-
HCM2kAvgQ:	232	1020	1020	146	357	357	277	291	291	166	496	197

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #18: Pastoria Ave and Washington St

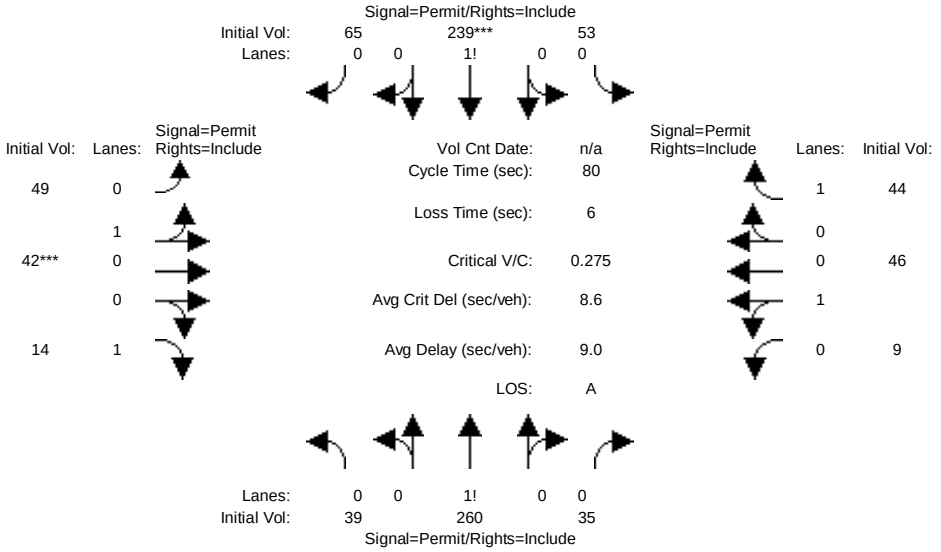


Street Name:	Pastoria Ave						Washington St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	20	91	113	18	59	9	7	109	22	98	129	6
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:	20	91	113	18	59	9	7	109	22	98	129	6
Added Vol:	1	51	6	18	132	44	19	3	5	10	5	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	142	119	36	191	53	26	112	27	108	134	15
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	142	119	36	191	53	26	112	27	108	134	15
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	142	119	36	191	53	26	112	27	108	134	15
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:	21	142	119	36	191	53	26	112	27	108	134	15
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.07	0.51	0.42	0.13	0.68	0.19	0.16	0.68	0.16	0.42	0.52	0.06
Final Sat.:	130	881	738	225	1194	331	276	1188	286	735	912	102
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.16	0.16	0.16	0.16	0.09	0.09	0.09	0.15	0.15	0.15
Crit Moves:		****									****	
Green Time:	38.7	38.7	38.7	38.7	38.7	38.7	35.3	35.3	35.3	35.3	35.3	35.3
Volume/Cap:	0.33	0.33	0.33	0.33	0.33	0.33	0.21	0.21	0.21	0.33	0.33	0.33
Uniform Del:	12.7	12.7	12.7	12.7	12.7	12.7	13.8	13.8	13.8	14.6	14.6	14.6
IncremntDel:	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	12.9	12.9	12.9	12.9	12.9	12.9	13.9	13.9	13.9	14.9	14.9	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:	12.9	12.9	12.9	12.9	12.9	12.9	13.9	13.9	13.9	14.9	14.9	14.9
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	117	117	117	116	116	116	65	65	65	105	105	105

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #19: Pastoria Ave / Iowa Ave

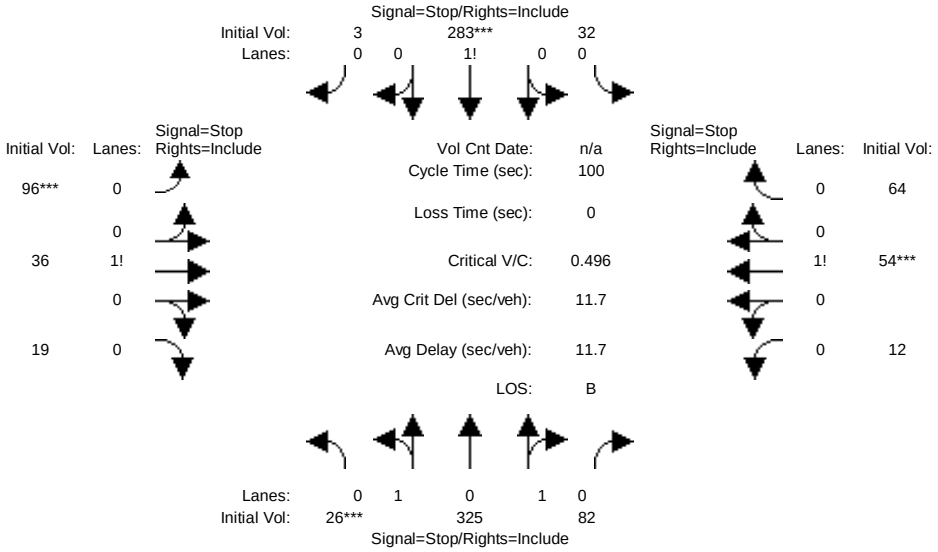


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	38	226	34	40	156	26	36	42	9	7	46	36
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:	38	226	34	40	156	26	36	42	9	7	46	36
Added Vol:	1	34	1	13	83	39	13	0	5	2	0	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	39	260	35	53	239	65	49	42	14	9	46	44
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:	39	260	35	53	239	65	49	42	14	9	46	44
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	260	35	53	239	65	49	42	14	9	46	44
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:	39	260	35	53	239	65	49	42	14	9	46	44
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.12	0.78	0.10	0.15	0.67	0.18	0.54	0.46	1.00	0.16	0.84	1.00
Final Sat.:	204	1362	183	260	1172	319	969	831	1750	295	1505	1750
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.20	0.20	0.20	0.05	0.05	0.01	0.03	0.03	0.03
Crit Moves:					****			****				
Green Time:	59.3	59.3	59.3	59.3	59.3	59.3	14.7	14.7	14.7	14.7	14.7	14.7
Volume/Cap:	0.26	0.26	0.26	0.28	0.28	0.28	0.28	0.28	0.04	0.17	0.17	0.14
Uniform Del:	3.3	3.3	3.3	3.4	3.4	3.4	28.1	28.1	26.9	27.5	27.5	27.3
IncremntDel:	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.1	0.2	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.4	3.4	3.4	3.5	3.5	3.5	28.5	28.5	26.9	27.7	27.7	27.5
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:	3.4	3.4	3.4	3.5	3.5	3.5	28.5	28.5	26.9	27.7	27.7	27.5
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	73	73	73	79	79	79	49	49	7	29	29	23

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #20: Pastoria Ave / Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	26	296	82	17	208	3	96	33	19	10	52	56
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	296	82	17	208	3	96	33	19	10	52	56
Added Vol:	0	29	0	15	75	0	0	3	0	2	2	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	325	82	32	283	3	96	36	19	12	54	64
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	325	82	32	283	3	96	36	19	12	54	64
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	325	82	32	283	3	96	36	19	12	54	64
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:	26	325	82	32	283	3	96	36	19	12	54	64
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	1.50	0.38	0.10	0.89	0.01	0.63	0.24	0.13	0.09	0.42	0.49
Final Sat.:	73	928	242	64	570	6	349	131	69	52	236	280
Capacity Analysis Module:												
Vol/Sat:	0.36	0.35	0.34	0.50	0.50	0.50	0.27	0.27	0.27	0.23	0.23	0.23
Crit Moves:	****				****		****				****	
Delay/Veh:	11.6	11.3	10.8	13.3	13.3	13.3	11.0	11.0	11.0	10.2	10.2	10.2
Delay Adj:	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:	11.6	11.3	10.8	13.3	13.3	13.3	11.0	11.0	11.0	10.2	10.2	10.2
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
ApproachDel:	11.2			13.3			11.0			10.2		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	11.2			13.3			11.0			10.2		
LOS by Appr:	B			B			B			B		
AllWayAvgQ:	12.9	11.8	11.8	21.8	21.8	21.8	7.7	7.7	7.7	5.9	5.9	5.9

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave / Olive 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0	0 1!	0 0	0	0 1!	0 0	0	0 1!	0 0
Initial Vol:	26	325	82	32	283	3	96	36	19	12	54	64

Major Street Volume: 751
Minor Approach Volume: 151
Minor Approach Volume Threshold: 383

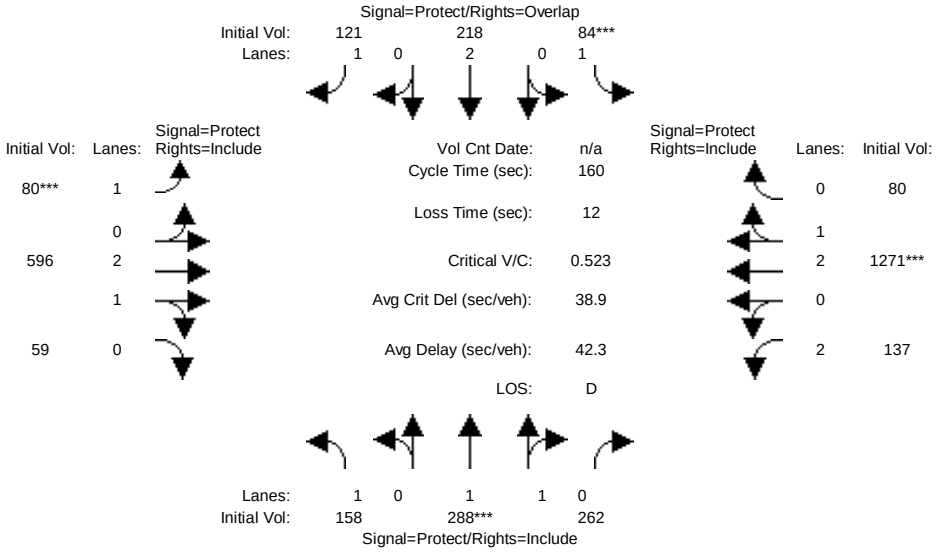
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

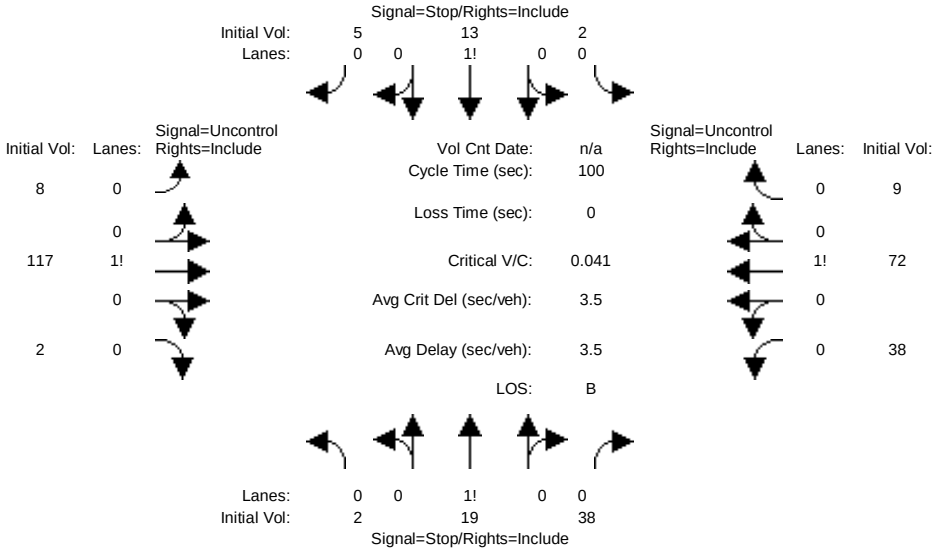


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	4.9	4.9
Volume Module:												
Base Vol:	157	276	259	58	200	88	69	432	53	135	1147	75
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	276	259	58	200	88	69	432	53	135	1147	75
Added Vol:	1	12	3	26	18	33	11	164	6	2	124	5
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	158	288	262	84	218	121	80	596	59	137	1271	80
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	288	262	84	218	121	80	596	59	137	1271	80
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	158	288	262	84	218	121	80	596	59	137	1271	80
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:	158	288	262	84	218	121	80	596	59	137	1271	80
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.95	0.92	1.00	0.92	0.92	0.99	0.95	0.83	0.98	0.95
Lanes:	1.00	1.02	0.98	1.00	2.00	1.00	1.00	2.72	0.28	2.00	2.82	0.18
Final Sat.:	1750	1936	1761	1750	3800	1750	1750	5095	504	3150	5268	332
Capacity Analysis Module:												
Vol/Sat:	0.09	0.15	0.15	0.05	0.06	0.07	0.05	0.12	0.12	0.04	0.24	0.24
Crit Moves:		****		****			****				****	
Green Time:	32.9	45.5	45.5	14.7	27.3	41.3	14.0	51.8	51.8	36.0	73.8	73.8
Volume/Cap:	0.44	0.52	0.52	0.52	0.34	0.27	0.52	0.36	0.36	0.19	0.52	0.52
Uniform Del:	55.5	48.1	48.1	69.3	58.4	47.3	69.8	41.4	41.4	50.2	30.6	30.6
IncremntDel:	0.9	0.5	0.5	3.1	0.3	0.3	3.3	0.1	0.1	0.1	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	56.4	48.6	48.6	72.4	58.7	47.6	73.1	41.5	41.5	50.4	30.8	30.8
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:	56.4	48.6	48.6	72.4	58.7	47.6	73.1	41.5	41.5	50.4	30.8	30.8
LOS by Move:	E+	D	D	E	E+	D	E	D	D	D	C	C
HCM2kAvgQ:	177	282	282	122	119	125	117	203	203	76	374	374

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #22: Charles St / Iowa Ave



Street Name:	Charles St						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:	2	15	17	2	13	5	8	103	2	10	62	9
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:	2	15	17	2	13	5	8	103	2	10	62	9
Added Vol:	0	4	21	0	0	0	0	14	0	28	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	19	38	2	13	5	8	117	2	38	72	9
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	19	38	2	13	5	8	117	2	38	72	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	2	19	38	2	13	5	8	117	2	38	72	9
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:												
Cnflict Vol:	296	291	118	315	288	77	81	xxxx	xxxxx	119	xxxx	xxxxx
Potent Cap.:	655	618	931	636	621	982	1510	xxxx	xxxxx	1463	xxxx	xxxxx
Move Cap.:	625	598	931	581	601	982	1510	xxxx	xxxxx	1463	xxxx	xxxxx
Volume/Cap:	0.00	0.03	0.04	0.00	0.02	0.01	0.01	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	2.0	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	779	xxxxx	xxxx	663	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	10.0	xxxxx	xxxxx	10.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		10.0			10.6		xxxxxx			xxxxxx		
ApproachLOS:		B			B		*			*		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St / 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:	2	19	38	2	13	5	8	117	2	38	72	9
ApproachDel:	10.0			10.6			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=59]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=325]
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=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=325]
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 #22 Charles St / 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:	2	19	38	2	13	5	8	117	2	38	72	9

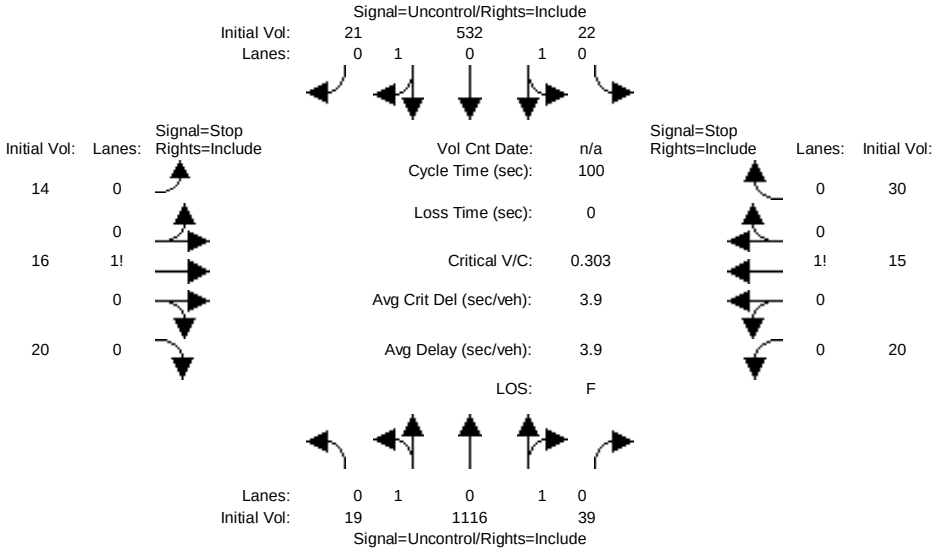
Major Street Volume: 246
Minor Approach Volume: 59
Minor Approach Volume Threshold: 593

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #23: Mary Ave / Olive Ave



Street Name:	Mary Ave						Olive 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	924	36	22	476	21	14	16	20	18	15	30
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	924	36	22	476	21	14	16	20	18	15	30
Added Vol:	0	192	3	0	56	0	0	0	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	1116	39	22	532	21	14	16	20	20	15	30
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	1116	39	22	532	21	14	16	20	20	15	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	19	1116	39	22	532	21	14	16	20	20	15	30
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	553	xxxx	xxxxx	1155	xxxx	xxxxx	1190	1780	277	1492	1771	578
Potent Cap.:	1006	xxxx	xxxxx	595	xxxx	xxxxx	142	80	718	85	82	457
Move Cap.:	1006	xxxx	xxxxx	595	xxxx	xxxxx	108	76	718	66	77	457
Volume/Cap:	0.02	xxxx	xxxx	0.04	xxxx	xxxx	0.13	0.21	0.03	0.30	0.20	0.07
Level Of Service Module:												
2Way95thQ:	1.4	xxxx	xxxxx	2.9	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	8.6	xxxx	xxxxx	11.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	B	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	136	xxxxx	xxxx	115	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	1.5	xxxxx	xxxxx	2.7	xxxxx
Shrd ConDel:	8.6	xxxx	xxxxx	11.3	xxxx	xxxxx	xxxxx	46.2	xxxxx	xxxxx	70.5	xxxxx
Shared LOS:	A	*	*	B	*	*	*	E	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			46.2			70.5		
ApproachLOS:	*			*			E			F		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	19	1116	39	22	532	21	14	16	20	20	15	30
ApproachDel:	xxxxxx			xxxxxx			46.2			70.5		

Approach[eastbound][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=50]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=1864]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
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=1864]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	19	1116	39	22	532	21	14	16	20	20	15	30

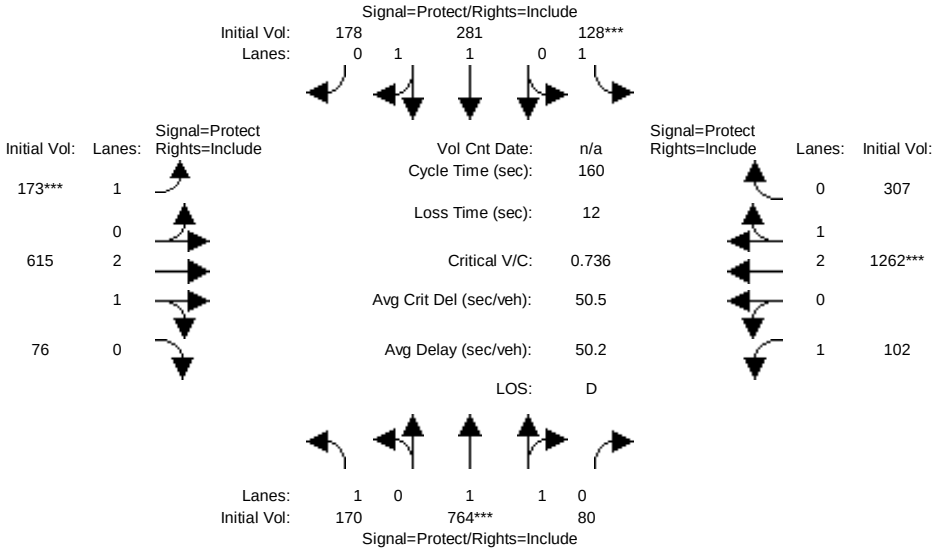
Major Street Volume: 1749
Minor Approach Volume: 65
Minor Approach Volume Threshold: 92 [less than minimum of 100]

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).

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #24: Mary Ave / El Camino Real

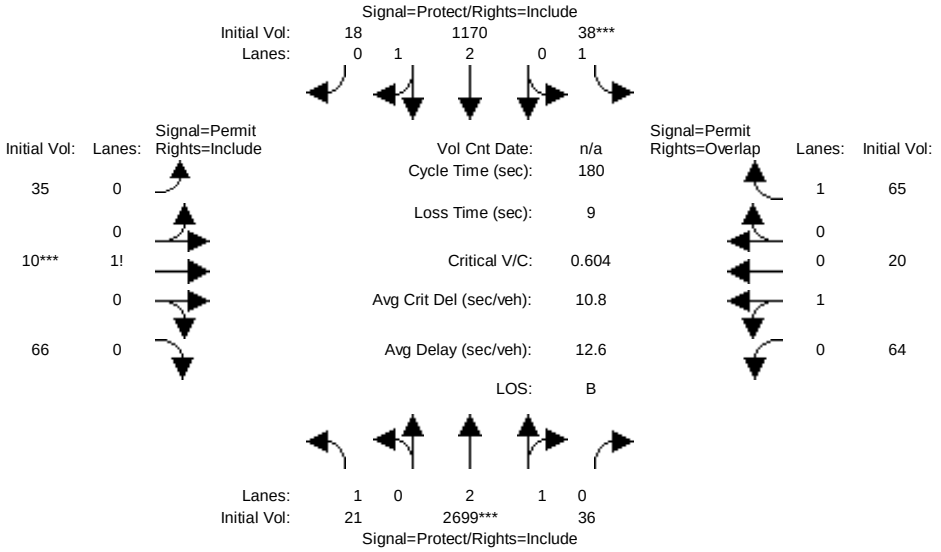


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	168	668	76	102	263	164	145	464	68	95	1183	236
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:	168	668	76	102	263	164	145	464	68	95	1183	236
Added Vol:	2	96	4	26	18	14	28	151	8	7	79	71
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	170	764	80	128	281	178	173	615	76	102	1262	307
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:	170	764	80	128	281	178	173	615	76	102	1262	307
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	170	764	80	128	281	178	173	615	76	102	1262	307
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:	170	764	80	128	281	178	173	615	76	102	1262	307
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	0.99	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.81	0.19	1.00	1.20	0.80	1.00	2.66	0.34	1.00	2.39	0.61
Final Sat.:	1750	3349	351	1750	2264	1434	1750	4983	616	1750	4503	1095
Capacity Analysis Module:												
Vol/Sat:	0.10	0.23	0.23	0.07	0.12	0.12	0.10	0.12	0.12	0.06	0.28	0.28
Crit Moves:		****		****			****				****	
Green Time:	28.8	49.6	49.6	15.9	36.8	36.8	21.5	51.3	51.3	31.2	61.0	61.0
Volume/Cap:	0.54	0.74	0.74	0.74	0.54	0.54	0.74	0.38	0.38	0.30	0.74	0.74
Uniform Del:	59.6	49.3	49.3	70.0	54.2	54.2	66.5	42.1	42.1	55.1	42.6	42.6
IncremntDel:	1.9	2.5	2.5	15.1	0.7	0.7	11.5	0.1	0.1	0.5	1.4	1.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	61.5	51.8	51.8	85.1	54.9	54.9	78.0	42.3	42.3	55.6	44.0	44.0
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:	61.5	51.8	51.8	85.1	54.9	54.9	78.0	42.3	42.3	55.6	44.0	44.0
LOS by Move:	E	D-	D-	F	D-	D-	E-	D	D	E+	D	D
HCM2kAvgQ:	201	476	476	172	247	247	256	217	217	116	572	572

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

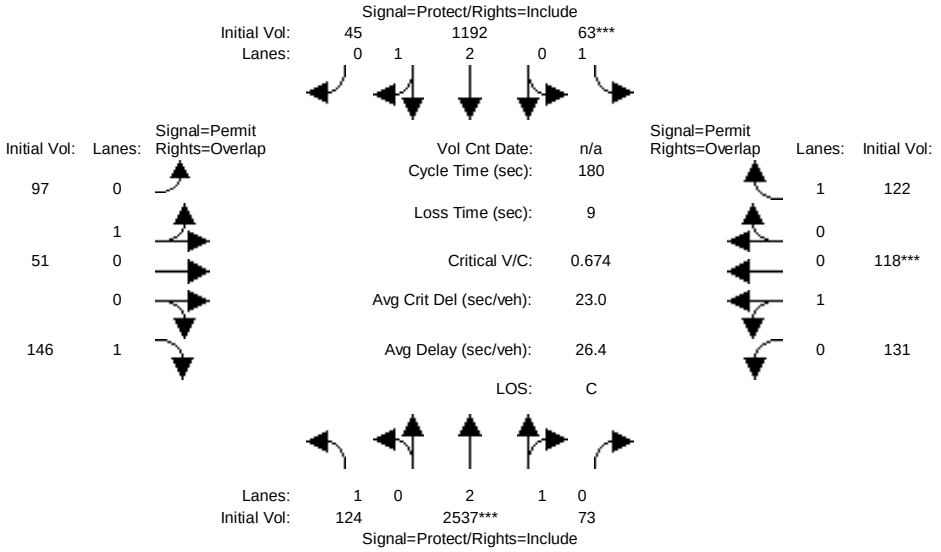


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	2558	32	9	1005	13	29	10	37	35	20	61
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	2558	32	9	1005	13	29	10	37	35	20	61
Added Vol:	4	141	4	29	165	5	6	0	29	29	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	2699	36	38	1170	18	35	10	66	64	20	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:	21	2699	36	38	1170	18	35	10	66	64	20	65
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	21	2699	36	38	1170	18	35	10	66	64	20	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
FinalVolume:	21	2699	36	38	1170	18	35	10	66	64	20	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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.96	0.04	1.00	2.95	0.05	0.32	0.09	0.59	0.76	0.24	1.00
Final Sat.:	1750	5526	74	1750	5515	85	552	158	1041	1371	429	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.49	0.49	0.02	0.21	0.21	0.06	0.06	0.06	0.05	0.05	0.04
Crit Moves:		****		****				****				
Green Time:	20.7	146	145.6	6.5	131	131.4	18.9	18.9	18.9	18.9	18.9	25.4
Volume/Cap:	0.10	0.60	0.60	0.60	0.29	0.29	0.60	0.60	0.60	0.44	0.44	0.26
Uniform Del:	71.4	6.4	6.4	85.5	8.3	8.3	77.0	77.0	77.0	75.6	75.6	69.0
IncremntDel:	0.2	0.2	0.2	15.5	0.0	0.0	5.6	5.6	5.6	1.7	1.7	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	71.6	6.7	6.7	101.0	8.4	8.4	82.5	82.5	82.5	77.3	77.3	69.5
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:	71.6	6.7	6.7	101.0	8.4	8.4	82.5	82.5	82.5	77.3	77.3	69.5
LOS by Move:	E	A	A	F	A	A	F	F	F	E-	E-	E
HCM2kAvgQ:	26	468	468	79	183	183	177	177	177	123	123	88

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

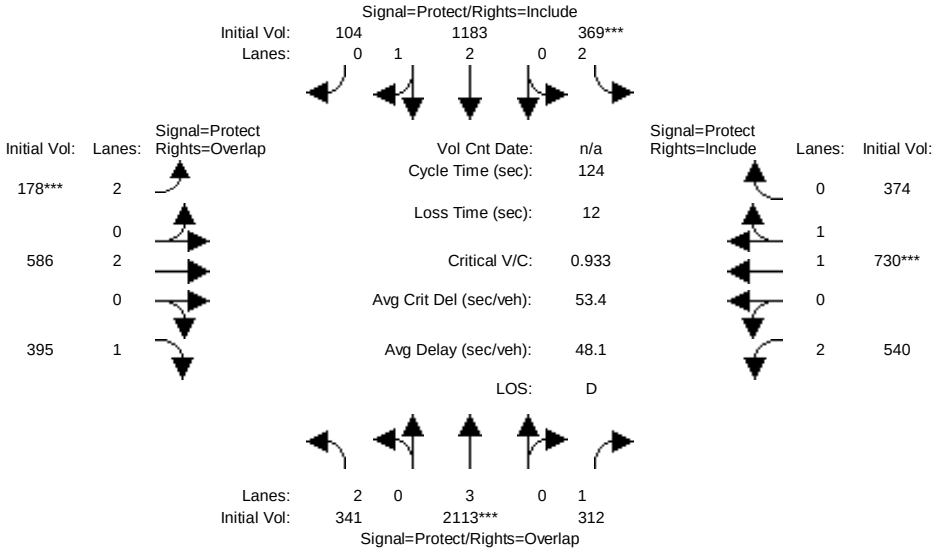


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	120	2397	69	34	1003	40	92	51	117	102	118	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:	120	2397	69	34	1003	40	92	51	117	102	118	118
Added Vol:	4	140	4	29	189	5	5	0	29	29	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	124	2537	73	63	1192	45	97	51	146	131	118	122
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:	124	2537	73	63	1192	45	97	51	146	131	118	122
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	124	2537	73	63	1192	45	97	51	146	131	118	122
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:	124	2537	73	63	1192	45	97	51	146	131	118	122
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.91	0.09	1.00	2.89	0.11	0.66	0.34	1.00	0.53	0.47	1.00
Final Sat.:	1750	5443	157	1750	5396	204	1180	620	1750	947	853	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.47	0.47	0.04	0.22	0.22	0.08	0.08	0.08	0.14	0.14	0.07
Crit Moves:		****		****							****	
Green Time:	32.6	124	124.5	9.6	102	101.5	36.9	36.9	69.5	36.9	36.9	46.5
Volume/Cap:	0.39	0.67	0.67	0.67	0.39	0.39	0.40	0.40	0.22	0.67	0.67	0.27
Uniform Del:	65.0	16.1	16.1	83.7	22.0	22.0	61.9	61.9	37.0	66.0	66.0	53.2
IncremntDel:	0.8	0.5	0.5	17.7	0.1	0.1	0.7	0.7	0.2	4.9	4.9	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.8	16.5	16.5	101.4	22.0	22.0	62.7	62.7	37.2	70.8	70.8	53.5
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:	65.8	16.5	16.5	101.4	22.0	22.0	62.7	62.7	37.2	70.8	70.8	53.5
LOS by Move:	E	B	B	F	C+	C+	E	E	D+	E	E	D-
HCM2kAvgQ:	151	655	655	96	310	310	185	185	140	349	349	141

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 AM

Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd

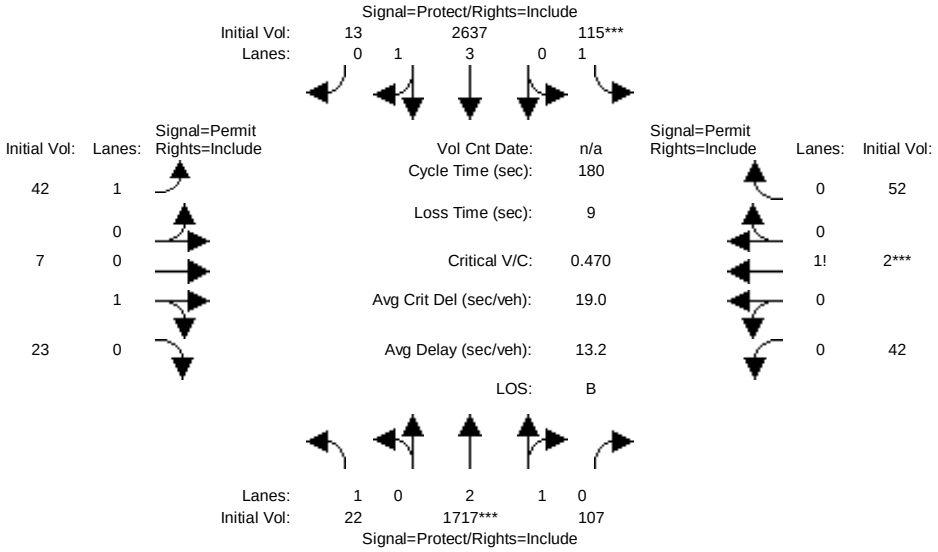


Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	337	1997	167	166	1144	100	175	195	366	521	619	345
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:	337	1997	167	166	1144	100	175	195	366	521	619	345
Added Vol:	4	116	145	203	39	4	3	391	29	19	111	29
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	341	2113	312	369	1183	104	178	586	395	540	730	374
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:	341	2113	312	369	1183	104	178	586	395	540	730	374
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	341	2113	312	369	1183	104	178	586	395	540	730	374
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:	341	2113	312	369	1183	104	178	586	395	540	730	374
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	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	2.75	0.25	2.00	2.00	1.00	2.00	1.30	0.70
Final Sat.:	3150	5700	1750	3150	5147	452	3150	3800	1750	3150	2446	1253
Capacity Analysis Module:												
Vol/Sat:	0.11	0.37	0.18	0.12	0.23	0.23	0.06	0.15	0.23	0.17	0.30	0.30
Crit Moves:		****		****			****				****	
Green Time:	20.8	49.3	74.1	15.6	44.1	44.1	7.5	22.3	43.1	24.8	39.7	39.7
Volume/Cap:	0.65	0.93	0.30	0.93	0.65	0.65	0.93	0.86	0.65	0.86	0.93	0.93
Uniform Del:	48.2	35.8	12.2	53.7	33.4	33.4	58.0	49.3	34.1	47.9	40.9	40.9
IncremntDel:	2.8	7.9	0.2	28.9	0.7	0.7	46.3	10.4	2.5	11.1	13.2	13.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	51.0	43.6	12.4	82.6	34.2	34.2	104.3	59.6	36.6	59.0	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:	51.0	43.6	12.4	82.6	34.2	34.2	104.3	59.6	36.6	59.0	54.1	54.1
LOS by Move:	D	D	B	F	C-	C-	F	E+	D+	E+	D-	D-
HCM2kAvgQ:	206	750	153	244	342	342	172	337	355	366	630	630

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #5: Mathilda Ave / San Aleso Ave

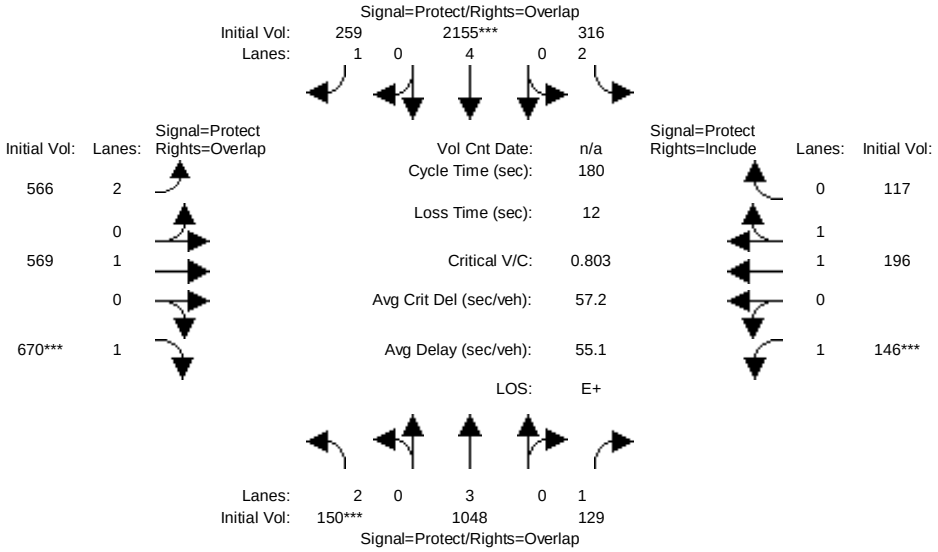


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	22	1293	107	111	2213	13	42	7	23	42	2	51
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:	22	1293	107	111	2213	13	42	7	23	42	2	51
Added Vol:	0	424	0	4	424	0	0	0	0	0	0	1
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	1717	107	115	2637	13	42	7	23	42	2	52
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:	22	1717	107	115	2637	13	42	7	23	42	2	52
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	22	1717	107	115	2637	13	42	7	23	42	2	52
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:	22	1717	107	115	2637	13	42	7	23	42	2	52
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	0.99	0.95	0.92	0.95	0.95	0.92	0.92	0.92
Lanes:	1.00	2.82	0.18	1.00	3.98	0.02	1.00	0.23	0.77	0.44	0.02	0.54
Final Sat.:	1750	5271	328	1750	7463	37	1750	420	1380	766	36	948
Capacity Analysis Module:												
Vol/Sat:	0.01	0.33	0.33	0.07	0.35	0.35	0.02	0.02	0.02	0.05	0.05	0.05
Crit Moves:		****		****							****	
Green Time:	8.9	125	124.8	25.2	141	141.1	21.0	21.0	21.0	21.0	21.0	21.0
Volume/Cap:	0.25	0.47	0.47	0.47	0.45	0.45	0.21	0.14	0.14	0.47	0.47	0.47
Uniform Del:	82.4	12.6	12.6	71.3	6.5	6.5	71.9	71.4	71.4	74.3	74.3	74.3
IncremntDel:	1.6	0.1	0.1	1.4	0.1	0.1	0.5	0.3	0.3	1.7	1.7	1.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	83.9	12.6	12.6	72.7	6.6	6.6	72.4	71.7	71.7	76.0	76.0	76.0
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:	83.9	12.6	12.6	72.7	6.6	6.6	72.4	71.7	71.7	76.0	76.0	76.0
LOS by Move:	F	B	B	E	A	A	E	E	E	E-	E-	E-
HCM2kAvgQ:	30	370	370	152	302	302	58	40	40	143	143	143

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #6: Mathilda Ave / Maude Ave

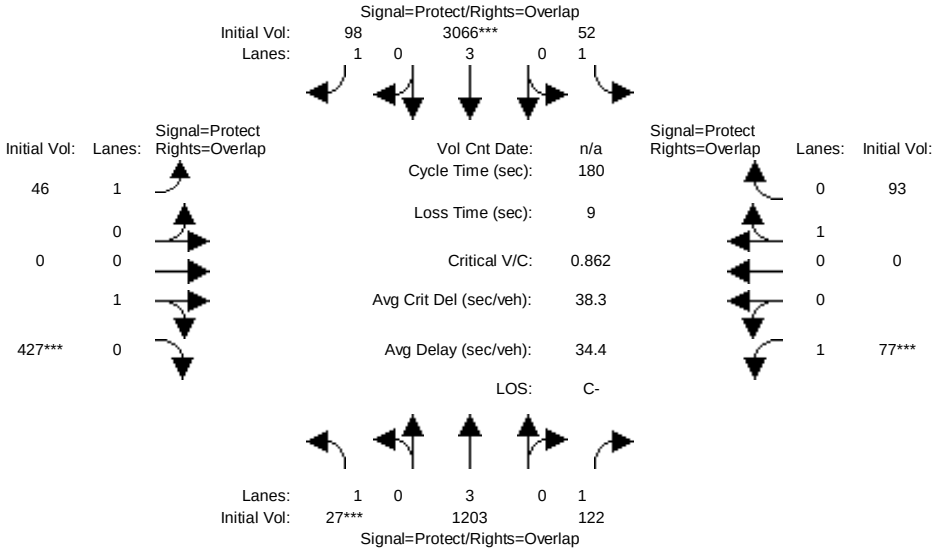


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	102	898	124	302	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:	48	150	5	14	347	63	270	133	130	29	31	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	150	1048	129	316	2155	259	566	569	670	146	196	117
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:	150	1048	129	316	2155	259	566	569	670	146	196	117
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	150	1048	129	316	2155	259	566	569	670	146	196	117
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:	150	1048	129	316	2155	259	566	569	670	146	196	117
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	1.23	0.77
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2316	1382
Capacity Analysis Module:												
Vol/Sat:	0.05	0.18	0.07	0.10	0.28	0.15	0.18	0.30	0.38	0.08	0.08	0.08
Crit Moves:	****				****				****	****		
Green Time:	10.7	48.0	66.7	26.2	63.5	127.3	63.8	75.1	85.8	18.7	30.0	30.0
Volume/Cap:	0.80	0.69	0.20	0.69	0.80	0.21	0.51	0.72	0.80	0.80	0.51	0.51
Uniform Del:	83.6	59.3	38.5	73.0	52.6	9.1	45.7	43.6	40.0	78.9	68.2	68.2
IncremntDel:	21.7	1.4	0.2	4.4	1.8	0.1	0.4	3.2	5.7	22.2	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	105.3	60.7	38.6	77.5	54.4	9.1	46.1	46.8	45.6	101.0	68.9	68.9
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:	105.3	60.7	38.6	77.5	54.4	9.1	46.1	46.8	45.6	101.0	68.9	68.9
LOS by Move:	F	E	D+	E-	D-	A	D	D	D	F	E	E
HCM2kAvgQ:	132	426	124	248	673	128	361	650	859	260	207	207

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #7: Mathilda Ave / Indio Way

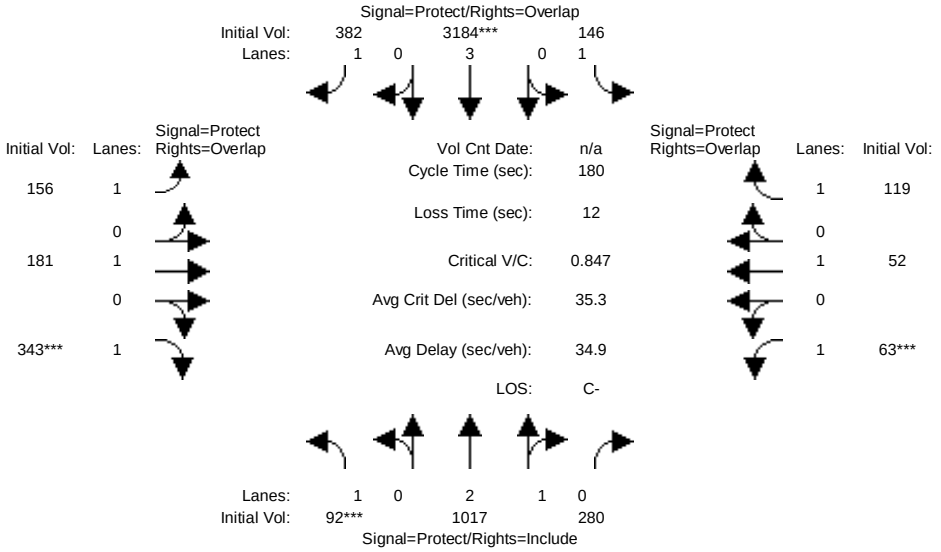


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	27	1008	111	52	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	195	11	0	484	21	0	0	20	0	0	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	1203	122	52	3066	98	46	0	427	77	0	93
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	1203	122	52	3066	98	46	0	427	77	0	93
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	1203	122	52	3066	98	46	0	427	77	0	93
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:	27	1203	122	52	3066	98	46	0	427	77	0	93
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.95
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	1750	0	1800	1750	0	1800
Capacity Analysis Module:												
Vol/Sat:	0.02	0.21	0.07	0.03	0.54	0.06	0.03	0.00	0.24	0.04	0.00	0.05
Crit Moves:	****				****				****	****		
Green Time:	4.0	102	111.5	14.4	113	149.1	36.3	0.0	49.1	9.2	0.0	23.6
Volume/Cap:	0.69	0.37	0.11	0.37	0.86	0.07	0.13	0.00	0.87	0.86	0.00	0.39
Uniform Del:	87.4	21.2	14.0	78.5	27.2	2.8	58.9	0.0	62.4	84.7	0.0	71.6
IncremntDel:	42.6	0.1	0.0	1.7	2.3	0.0	0.2	0.0	15.4	52.0	0.0	1.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Delay/Veh:	130.0	21.3	14.0	80.2	29.5	2.8	59.1	0.0	77.9	136.8	0.0	72.7
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:	130.0	21.3	14.0	80.2	29.5	2.8	59.1	0.0	77.9	136.8	0.0	72.7
LOS by Move:	F	C+	B	F	C	A	E+	A	E-	F	A	E
HCM2kAvgQ:	43	289	71	69	1109	25	55	0	647	166	0	128

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #8: Mathilda Ave / California Ave

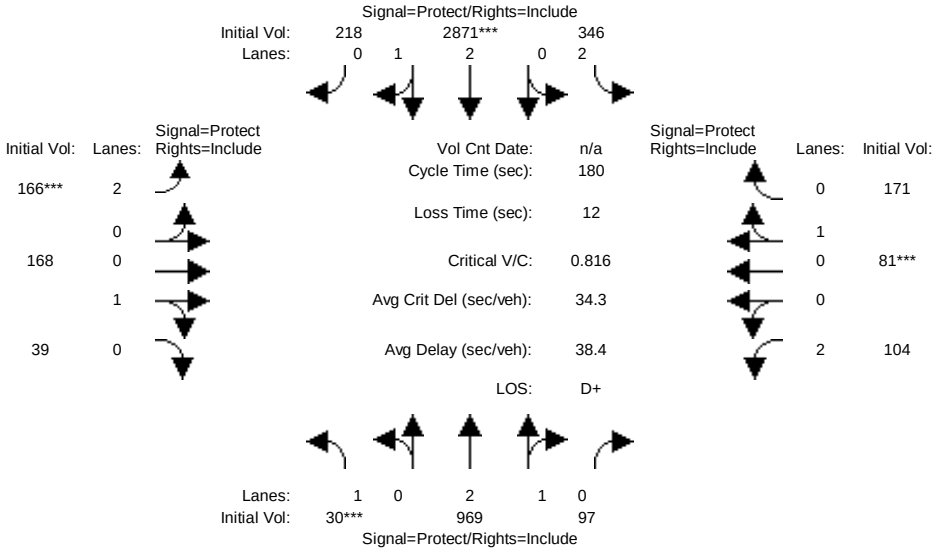


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	87	857	263	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:	5	160	17	7	452	44	34	20	30	0	4	12
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	92	1017	280	146	3184	382	156	181	343	63	52	119
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:	92	1017	280	146	3184	382	156	181	343	63	52	119
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	92	1017	280	146	3184	382	156	181	343	63	52	119
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:	92	1017	280	146	3184	382	156	181	343	63	52	119
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	2.33	0.67	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4389	1209	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.23	0.23	0.08	0.56	0.22	0.09	0.10	0.20	0.04	0.03	0.07
Crit Moves:	****				****				****	****		
Green Time:	11.2	95.5	95.5	34.4	119	145.2	26.5	30.5	41.6	7.6	11.6	46.0
Volume/Cap:	0.85	0.44	0.44	0.44	0.85	0.27	0.60	0.56	0.85	0.85	0.43	0.27
Uniform Del:	83.6	25.8	25.8	64.3	23.6	4.3	71.8	68.6	66.1	85.6	81.0	53.5
IncremntDel:	42.8	0.1	0.1	0.9	1.9	0.1	4.0	2.3	15.2	55.9	2.4	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	126.3	25.9	25.9	65.2	25.6	4.4	75.8	70.9	81.4	141.5	83.4	53.9
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:	126.3	25.9	25.9	65.2	25.6	4.4	75.8	70.9	81.4	141.5	83.4	53.9
LOS by Move:	F	C	C	E	C	A	E-	E	F	F	F	D-
HCM2kAvgQ:	188	355	355	179	1083	133	233	238	540	141	80	138

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #9: Mathilda Ave / Washington Ave

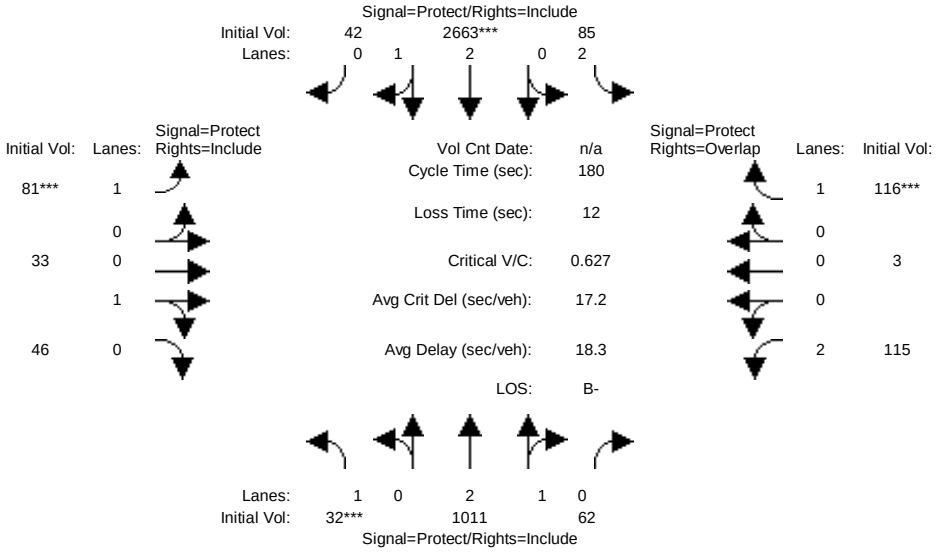


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	28	827	68	306	2483	206	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:	2	142	29	40	388	12	3	34	2	23	29	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	30	969	97	346	2871	218	166	168	39	104	81	171
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	969	97	346	2871	218	166	168	39	104	81	171
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	30	969	97	346	2871	218	166	168	39	104	81	171
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:	30	969	97	346	2871	218	166	168	39	104	81	171
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	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.72	0.28	2.00	2.78	0.22	2.00	0.81	0.19	2.00	0.32	0.68
Final Sat.:	1750	5090	510	3150	5204	395	3150	1461	339	3150	579	1221
Capacity Analysis Module:												
Vol/Sat:	0.02	0.19	0.19	0.11	0.55	0.55	0.05	0.12	0.12	0.03	0.14	0.14
Crit Moves:	****				****		****				****	
Green Time:	8.0	80.3	80.3	46.3	119	118.6	11.3	29.9	29.9	11.5	30.1	30.1
Volume/Cap:	0.39	0.43	0.43	0.43	0.84	0.84	0.84	0.69	0.69	0.51	0.84	0.84
Uniform Del:	83.6	34.1	34.1	55.8	23.4	23.4	83.4	70.7	70.7	81.5	72.6	72.6
IncremntDel:	3.2	0.1	0.1	0.4	1.8	1.8	25.6	6.8	6.8	2.3	18.2	18.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	86.8	34.2	34.2	56.1	25.2	25.2	109.1	77.6	77.6	83.8	90.8	90.8
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:	86.8	34.2	34.2	56.1	25.2	25.2	109.1	77.6	77.6	83.8	90.8	90.8
LOS by Move:	F	C-	C-	E+	C	C	F	E-	E-	F	F	F
HCM2kAvgQ:	43	326	326	236	1107	1107	149	284	284	99	406	406

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #10: Mathilda Ave / McKinley Ave

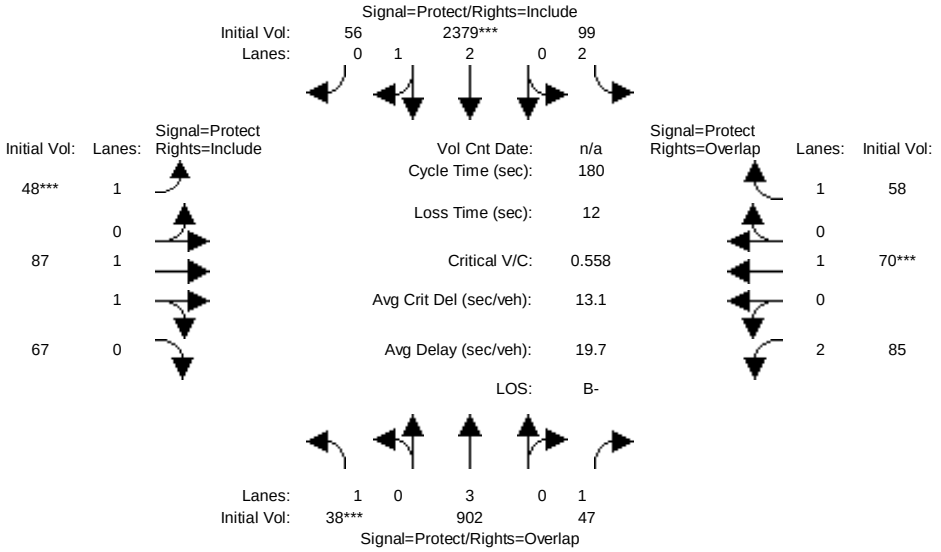


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	30	865	34	47	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:	2	146	28	38	365	10	6	0	2	24	0	21
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	1011	62	85	2663	42	81	33	46	115	3	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:	32	1011	62	85	2663	42	81	33	46	115	3	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	1011	62	85	2663	42	81	33	46	115	3	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
FinalVolume:	32	1011	62	85	2663	42	81	33	46	115	3	116
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	0.93	0.95	0.95
Lanes:	1.00	2.82	0.18	2.00	2.95	0.05	1.00	0.42	0.58	1.95	0.05	1.00
Final Sat.:	1750	5276	324	3150	5513	87	1750	752	1048	3444	90	1800
Capacity Analysis Module:												
Vol/Sat:	0.02	0.19	0.19	0.03	0.48	0.48	0.05	0.04	0.04	0.03	0.03	0.06
Crit Moves:	****				****		****					****
Green Time:	5.3	126	126.2	17.8	139	138.7	13.3	13.7	13.7	10.3	10.8	28.5
Volume/Cap:	0.63	0.27	0.27	0.27	0.63	0.63	0.63	0.58	0.58	0.58	0.56	0.41
Uniform Del:	86.4	10.0	10.0	75.1	9.2	9.2	80.9	80.3	80.3	82.7	82.3	68.1
IncremntDel:	22.1	0.0	0.0	0.5	0.3	0.3	9.4	5.9	5.9	2.2	1.7	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	108.5	10.0	10.0	75.6	9.5	9.5	90.3	86.2	86.2	84.9	84.0	68.6
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:	108.5	10.0	10.0	75.6	9.5	9.5	90.3	86.2	86.2	84.9	84.0	68.6
LOS by Move:	F	A	A	E-	A	A	F	F	F	F	F	E
HCM2kAvgQ:	50	180	180	61	533	533	141	130	130	106	104	154

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #11: Mathilda Ave / Iowa Ave

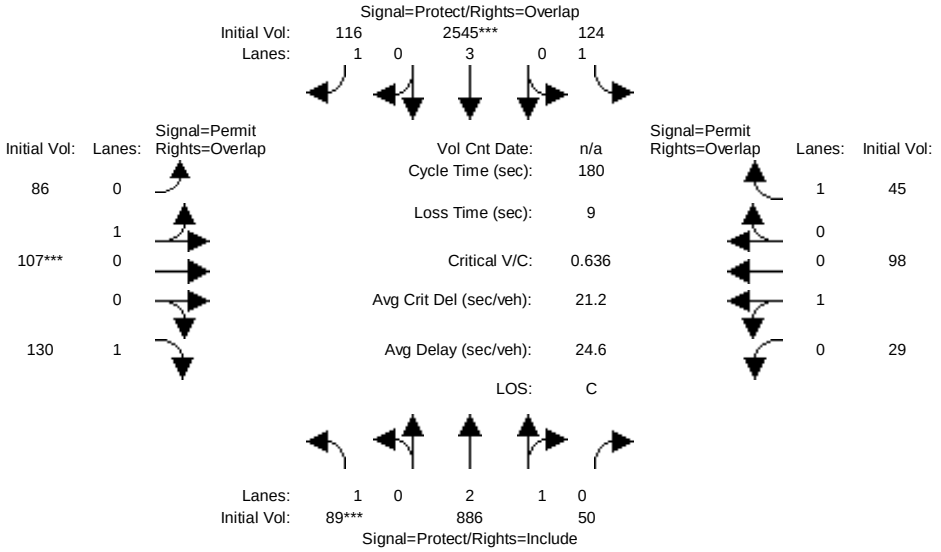


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	24	756	30	66	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
Added Vol:	14	146	17	33	326	31	22	12	31	10	11	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	902	47	99	2379	56	48	87	67	85	70	58
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:	38	902	47	99	2379	56	48	87	67	85	70	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	902	47	99	2379	56	48	87	67	85	70	58
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:	38	902	47	99	2379	56	48	87	67	85	70	58
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	0.99	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.93	0.07	1.00	1.11	0.89	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5471	129	1750	2089	1609	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.16	0.03	0.03	0.43	0.43	0.03	0.04	0.04	0.03	0.04	0.03
Crit Moves:	****				****		****				****	
Green Time:	8.0	115	124.8	32.3	139	139.4	8.8	10.9	10.9	9.7	11.8	44.1
Volume/Cap:	0.49	0.25	0.04	0.18	0.56	0.56	0.56	0.69	0.69	0.50	0.56	0.14
Uniform Del:	84.0	13.9	8.7	62.5	8.1	8.1	83.7	82.9	82.9	82.8	81.6	53.0
IncremntDel:	4.8	0.0	0.0	0.1	0.2	0.2	8.2	8.6	8.6	2.3	5.7	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	88.8	13.9	8.7	62.7	8.3	8.3	92.0	91.5	91.5	85.1	87.3	53.2
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:	88.8	13.9	8.7	62.7	8.3	8.3	92.0	91.5	91.5	85.1	87.3	53.2
LOS by Move:	F	B	A	E	A	A	F	F	F	F	F	D-
HCM2kAvgQ:	56	170	21	65	443	443	71	110	110	84	112	65

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #12: Mathilda Ave / Olive Ave

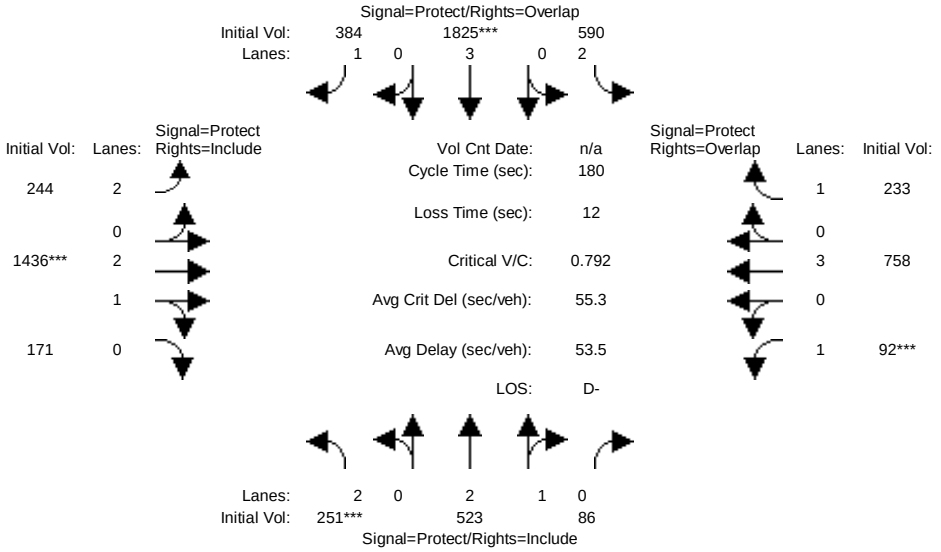


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	56	755	43	75	2252	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:	33	131	7	49	293	25	32	36	30	1	33	14
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	89	886	50	124	2545	116	86	107	130	29	98	45
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:	89	886	50	124	2545	116	86	107	130	29	98	45
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	886	50	124	2545	116	86	107	130	29	98	45
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:	89	886	50	124	2545	116	86	107	130	29	98	45
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	0.45	0.55	1.00	0.23	0.77	1.00
Final Sat.:	1750	5300	299	1750	5700	1750	802	998	1750	411	1389	1750
Capacity Analysis Module:												
Vol/Sat:	0.05	0.17	0.17	0.07	0.45	0.07	0.11	0.11	0.07	0.07	0.07	0.03
Crit Moves:	****				****			****				
Green Time:	14.4	98.8	98.8	41.9	126	126.3	30.3	30.3	44.7	30.3	30.3	72.2
Volume/Cap:	0.64	0.30	0.30	0.30	0.64	0.09	0.64	0.64	0.30	0.42	0.42	0.06
Uniform Del:	80.3	22.0	22.0	57.0	14.5	8.6	69.7	69.7	54.9	67.0	67.0	33.1
IncremntDel:	9.3	0.1	0.1	0.4	0.3	0.0	4.4	4.4	0.4	0.9	0.9	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	89.6	22.1	22.1	57.5	14.8	8.6	74.1	74.1	55.3	67.9	67.9	33.2
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:	89.6	22.1	22.1	57.5	14.8	8.6	74.1	74.1	55.3	67.9	67.9	33.2
LOS by Move:	F	C+	C+	E+	B	A	E	E	E+	E	E	C-
HCM2kAvgQ:	153	226	226	145	614	53	277	277	154	167	167	39

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #13: Mathilda Ave / El Camino Real

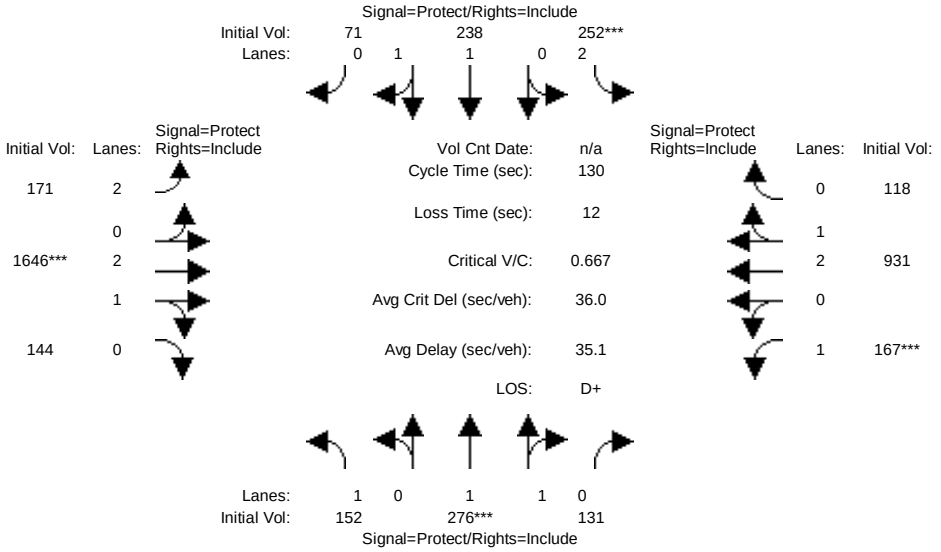


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	194	418	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:	57	105	28	80	183	36	17	75	18	10	70	45
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	251	523	86	590	1825	384	244	1436	171	92	758	233
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:	251	523	86	590	1825	384	244	1436	171	92	758	233
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	251	523	86	590	1825	384	244	1436	171	92	758	233
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:	251	523	86	590	1825	384	244	1436	171	92	758	233
Saturation Flow Module:												
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	2.56	0.44	2.00	3.00	1.00	2.00	2.67	0.33	1.00	3.00	1.00
Final Sat.:	3150	4808	791	3150	5700	1750	3150	5003	596	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.19	0.32	0.22	0.08	0.29	0.29	0.05	0.13	0.13
Crit Moves:	****				****			****			****	
Green Time:	18.1	33.4	33.4	57.5	72.7	101.1	28.4	65.2	65.2	11.9	48.8	106.2
Volume/Cap:	0.79	0.59	0.59	0.59	0.79	0.39	0.49	0.79	0.79	0.79	0.49	0.23
Uniform Del:	79.1	67.0	67.0	51.3	47.0	22.1	69.2	51.3	51.3	82.8	55.2	17.4
IncremntDel:	12.8	0.9	0.9	0.9	2.0	0.3	0.8	2.2	2.2	30.0	0.2	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	91.9	67.9	67.9	52.2	49.0	22.4	70.0	53.5	53.5	112.8	55.4	17.6
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:	91.9	67.9	67.9	52.2	49.0	22.4	70.0	53.5	53.5	112.8	55.4	17.6
LOS by Move:	F	E	E	D-	D	C+	E	D-	D-	F	E+	B
HCM2kAvgQ:	248	269	269	407	748	308	177	663	663	179	289	157

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #14: El Camino Real and Sunnyvale Ave

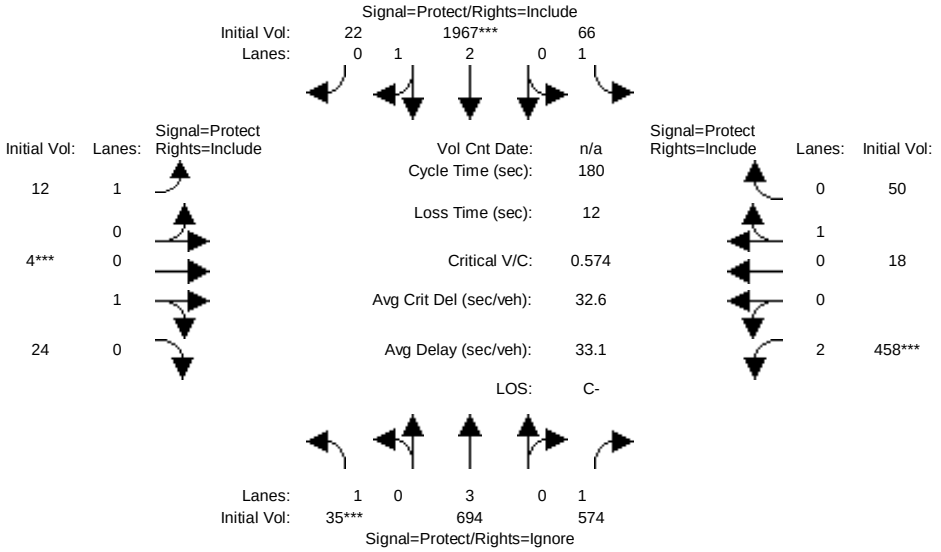


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	134	261	117	238	229	70	170	1477	123	156	826	88
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:	134	261	117	238	229	70	170	1477	123	156	826	88
Added Vol:	18	15	14	14	9	1	1	169	21	11	105	30
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	152	276	131	252	238	71	171	1646	144	167	931	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:	152	276	131	252	238	71	171	1646	144	167	931	118
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	152	276	131	252	238	71	171	1646	144	167	931	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
FinalVolume:	152	276	131	252	238	71	171	1646	144	167	931	118
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	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.34	0.66	2.00	1.53	0.47	2.00	2.75	0.25	1.00	2.65	0.35
Final Sat.:	1750	2508	1190	3150	2849	850	3150	5149	450	1750	4969	630
Capacity Analysis Module:												
Vol/Sat:	0.09	0.11	0.11	0.08	0.08	0.08	0.05	0.32	0.32	0.10	0.19	0.19
Crit Moves:		****		****				****		****		
Green Time:	18.9	21.5	21.5	15.6	18.2	18.2	18.2	62.3	62.3	18.6	62.8	62.8
Volume/Cap:	0.60	0.67	0.67	0.67	0.60	0.60	0.39	0.67	0.67	0.67	0.39	0.39
Uniform Del:	52.0	50.9	50.9	54.7	52.5	52.5	50.8	25.9	25.9	52.8	21.4	21.4
IncremntDel:	3.9	2.8	2.8	4.5	1.9	1.9	0.6	0.6	0.6	6.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	55.9	53.7	53.7	59.2	54.4	54.4	51.4	26.5	26.5	59.5	21.5	21.5
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:	55.9	53.7	53.7	59.2	54.4	54.4	51.4	26.5	26.5	59.5	21.5	21.5
LOS by Move:	E+	D-	D-	E+	D-	D-	D-	C	C	E+	C+	C+
HCM2kAvgQ:	173	221	221	174	168	168	100	467	467	198	220	220

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

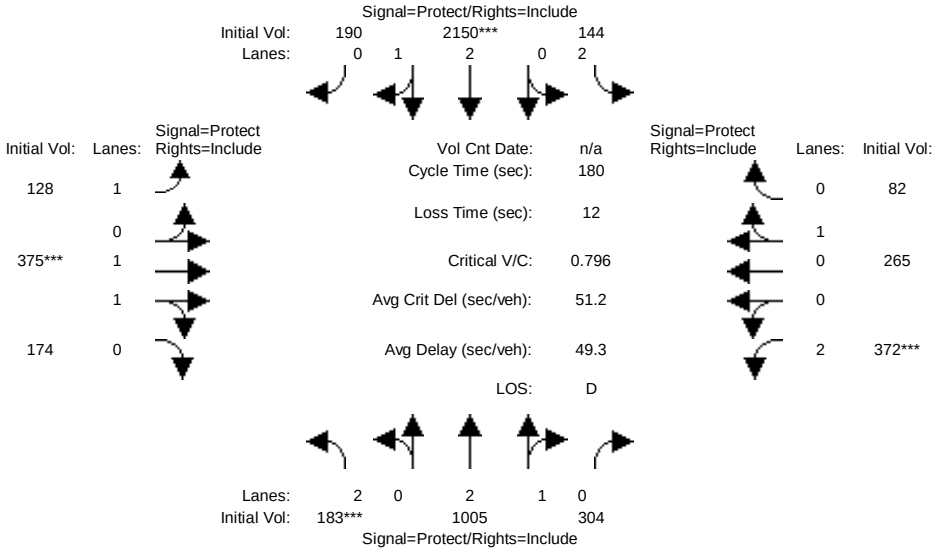


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	35	558	531	52	1768	22	12	4	24	418	18	39
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:	35	558	531	52	1768	22	12	4	24	418	18	39
Added Vol:	0	136	43	14	199	0	0	0	0	40	0	11
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	35	694	574	66	1967	22	12	4	24	458	18	50
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	35	694	0	66	1967	22	12	4	24	458	18	50
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	35	694	0	66	1967	22	12	4	24	458	18	50
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	35	694	0	66	1967	22	12	4	24	458	18	50
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.97	0.03	1.00	0.14	0.86	2.00	0.26	0.74
Final Sat.:	1750	5700	1750	1750	5538	62	1750	257	1543	3150	476	1324
Capacity Analysis Module:												
Vol/Sat:	0.02	0.12	0.00	0.04	0.36	0.36	0.01	0.02	0.02	0.15	0.04	0.04
Crit Moves:	****				****			****			****	
Green Time:	7.0	85.4	0.0	27.3	106	105.7	20.4	12.0	12.0	43.3	34.9	34.9
Volume/Cap:	0.51	0.26	0.00	0.25	0.60	0.60	0.06	0.23	0.23	0.60	0.19	0.19
Uniform Del:	84.8	28.3	0.0	67.3	23.8	23.8	71.3	79.6	79.6	60.8	60.8	60.8
IncremntDel:	6.6	0.1	0.0	0.5	0.3	0.3	0.1	1.0	1.0	1.4	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	91.4	28.3	0.0	67.8	24.1	24.1	71.4	80.6	80.6	62.2	61.0	61.0
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:	91.4	28.3	0.0	67.8	24.1	24.1	71.4	80.6	80.6	62.2	61.0	61.0
LOS by Move:	F	C	A	E	C	C	E	F	F	E	E	E
HCM2kAvgQ:	51	180	0	87	577	577	16	42	42	343	81	81

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

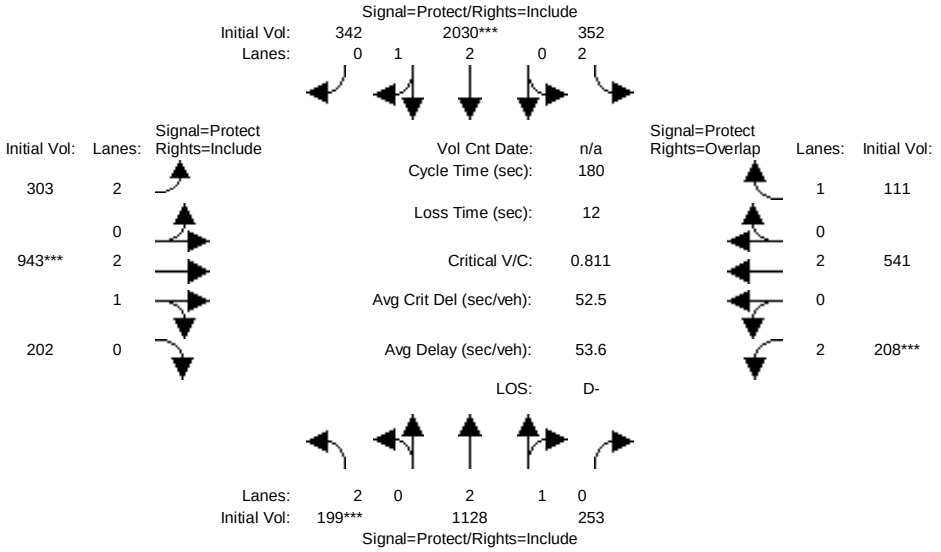


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	173	862	299	116	1957	173	117	370	169	368	261	57
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:	173	862	299	116	1957	173	117	370	169	368	261	57
Added Vol:	10	143	5	28	193	17	11	5	5	4	4	25
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	183	1005	304	144	2150	190	128	375	174	372	265	82
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:	183	1005	304	144	2150	190	128	375	174	372	265	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	183	1005	304	144	2150	190	128	375	174	372	265	82
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:	183	1005	304	144	2150	190	128	375	174	372	265	82
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.99	0.95	0.83	0.95	0.95
Lanes:	2.00	2.28	0.72	2.00	2.75	0.25	1.00	1.35	0.65	2.00	0.76	0.24
Final Sat.:	3150	4298	1300	3150	5145	455	1750	2526	1172	3150	1375	425
Capacity Analysis Module:												
Vol/Sat:	0.06	0.23	0.23	0.05	0.42	0.42	0.07	0.15	0.15	0.12	0.19	0.19
Crit Moves:	****				****			****		****		
Green Time:	13.1	90.1	90.1	17.6	94.6	94.6	16.6	33.6	33.6	26.7	43.7	43.7
Volume/Cap:	0.80	0.47	0.47	0.47	0.80	0.80	0.79	0.80	0.80	0.80	0.79	0.79
Uniform Del:	82.1	29.3	29.3	76.8	34.8	34.8	80.0	69.9	69.9	74.0	63.9	63.9
IncremntDel:	17.3	0.1	0.1	1.1	1.6	1.6	23.1	6.4	6.4	9.2	9.6	9.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	99.4	29.4	29.4	77.9	36.4	36.4	103.1	76.3	76.3	83.2	73.6	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:	99.4	29.4	29.4	77.9	36.4	36.4	103.1	76.3	76.3	83.2	73.6	73.6
LOS by Move:	F	C	C	E-	D+	D+	F	E-	E-	F	E	E
HCM2kAvgQ:	155	379	379	109	879	879	232	410	410	341	506	506

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

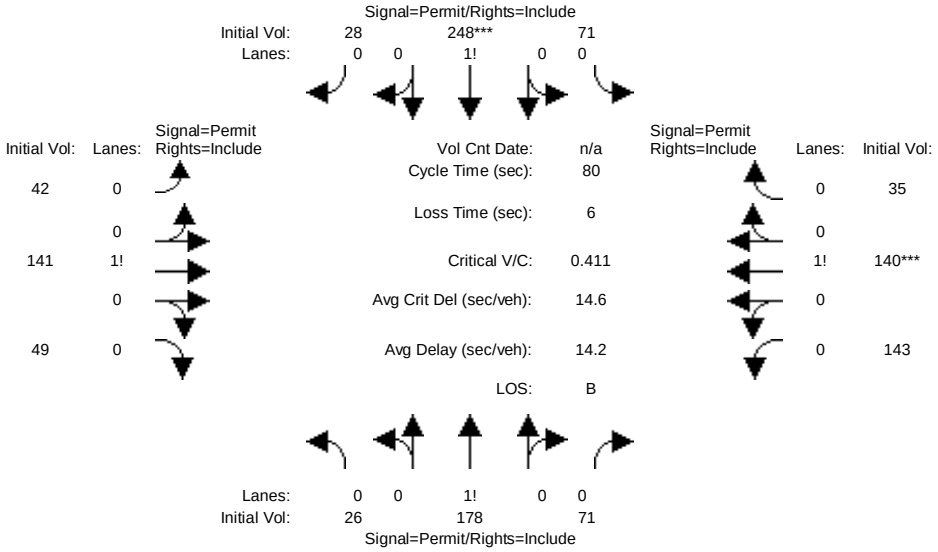


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	186	998	245	348	1867	307	286	907	195	185	437	99
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	998	245	348	1867	307	286	907	195	185	437	99
Added Vol:	13	130	8	4	163	35	17	36	7	23	104	12
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	199	1128	253	352	2030	342	303	943	202	208	541	111
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:	199	1128	253	352	2030	342	303	943	202	208	541	111
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	199	1128	253	352	2030	342	303	943	202	208	541	111
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:	199	1128	253	352	2030	342	303	943	202	208	541	111
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.43	0.57	2.00	2.55	0.45	2.00	2.45	0.55	2.00	2.00	1.00
Final Sat.:	3150	4573	1026	3150	4792	807	3150	4611	988	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.25	0.25	0.11	0.42	0.42	0.10	0.20	0.20	0.07	0.14	0.06
Crit Moves:	****				****			****			****	
Green Time:	14.0	74.3	74.3	33.7	94.0	94.0	24.2	45.4	45.4	14.6	35.8	69.5
Volume/Cap:	0.81	0.60	0.60	0.60	0.81	0.81	0.72	0.81	0.81	0.81	0.72	0.16
Uniform Del:	81.7	41.2	41.2	67.0	35.7	35.7	74.6	63.3	63.3	81.3	67.3	36.2
IncremntDel:	18.2	0.4	0.4	1.7	1.8	1.8	5.7	3.7	3.7	17.5	3.3	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	99.9	41.6	41.6	68.7	37.5	37.5	80.4	67.0	67.0	98.8	70.6	36.3
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:	99.9	41.6	41.6	68.7	37.5	37.5	80.4	67.0	67.0	98.8	70.6	36.3
LOS by Move:	F	D	D	E	D+	D+	F	E	E	F	E	D+
HCM2kAvgQ:	210	492	492	253	887	887	245	516	516	218	370	104

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #18: Pastoria Ave and Washington St

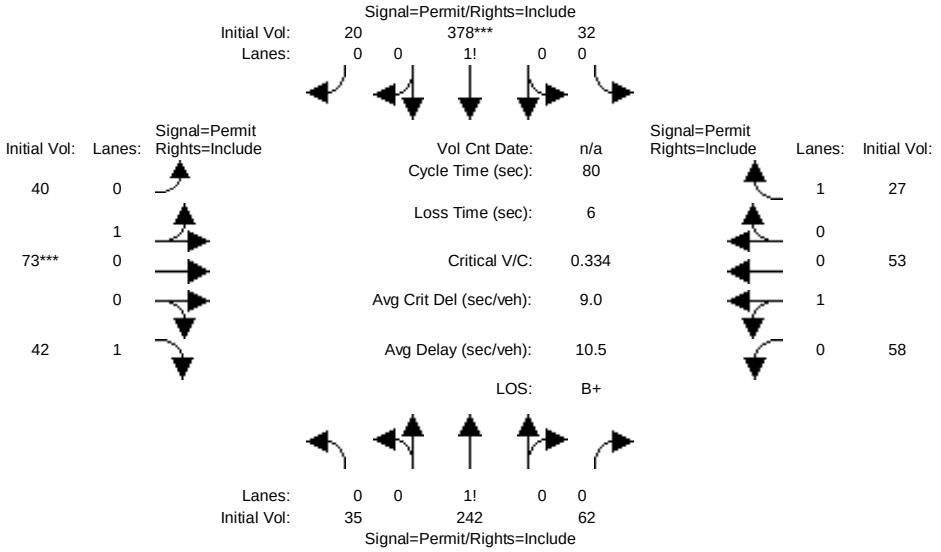


Street Name:	Pastoria Ave						Washington St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	21	58	54	57	186	10	6	133	46	128	133	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	58	54	57	186	10	6	133	46	128	133	13
Added Vol:	5	120	17	14	62	18	36	8	3	15	7	22
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	178	71	71	248	28	42	141	49	143	140	35
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	178	71	71	248	28	42	141	49	143	140	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	178	71	71	248	28	42	141	49	143	140	35
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:	26	178	71	71	248	28	42	141	49	143	140	35
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.09	0.65	0.26	0.20	0.72	0.08	0.18	0.61	0.21	0.45	0.44	0.11
Final Sat.:	165	1133	452	358	1251	141	317	1064	370	787	770	193
Capacity Analysis Module:												
Vol/Sat:	0.16	0.16	0.16	0.20	0.20	0.20	0.13	0.13	0.13	0.18	0.18	0.18
Crit Moves:					****						****	
Green Time:	38.6	38.6	38.6	38.6	38.6	38.6	35.4	35.4	35.4	35.4	35.4	35.4
Volume/Cap:	0.33	0.33	0.33	0.41	0.41	0.41	0.30	0.30	0.30	0.41	0.41	0.41
Uniform Del:	12.7	12.7	12.7	13.4	13.4	13.4	14.3	14.3	14.3	15.2	15.2	15.2
IncremntDel:	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	12.9	12.9	12.9	13.7	13.7	13.7	14.6	14.6	14.6	15.6	15.6	15.6
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:	12.9	12.9	12.9	13.7	13.7	13.7	14.6	14.6	14.6	15.6	15.6	15.6
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	114	114	114	152	152	152	96	96	96	135	135	135

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #19: Pastoria Ave / Iowa Ave

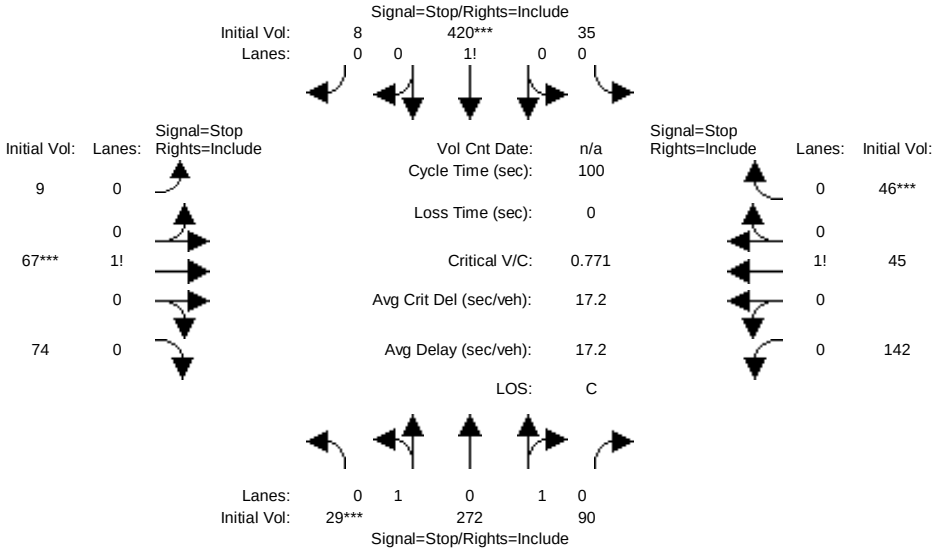


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	30	160	59	19	329	8	9	73	39	55	53	9
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	160	59	19	329	8	9	73	39	55	53	9
Added Vol:	5	82	3	13	49	12	31	0	3	3	0	18
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	35	242	62	32	378	20	40	73	42	58	53	27
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	242	62	32	378	20	40	73	42	58	53	27
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	35	242	62	32	378	20	40	73	42	58	53	27
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:	35	242	62	32	378	20	40	73	42	58	53	27
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.10	0.72	0.18	0.07	0.88	0.05	0.35	0.65	1.00	0.52	0.48	1.00
Final Sat.:	181	1249	320	130	1538	81	637	1163	1750	941	859	1750
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.25	0.25	0.25	0.06	0.06	0.02	0.06	0.06	0.02
Crit Moves:					****			****				
Green Time:	58.9	58.9	58.9	58.9	58.9	58.9	15.1	15.1	15.1	15.1	15.1	15.1
Volume/Cap:	0.26	0.26	0.26	0.33	0.33	0.33	0.33	0.33	0.13	0.33	0.33	0.08
Uniform Del:	3.4	3.4	3.4	3.7	3.7	3.7	28.1	28.1	27.0	28.1	28.1	26.8
IncremntDel:	0.1	0.1	0.1	0.2	0.2	0.2	0.6	0.6	0.2	0.6	0.6	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.5	3.5	3.5	3.8	3.8	3.8	28.7	28.7	27.2	28.7	28.7	26.9
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:	3.5	3.5	3.5	3.8	3.8	3.8	28.7	28.7	27.2	28.7	28.7	26.9
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	76	76	76	103	103	103	62	62	22	60	60	14

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #20: Pastoria Ave / Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	29	201	88	21	378	8	9	60	74	144	38	27
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	201	88	21	378	8	9	60	74	144	38	27
Added Vol:	0	71	2	14	42	0	0	7	0	-2	7	19
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	272	90	35	420	8	9	67	74	142	45	46
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	272	90	35	420	8	9	67	74	142	45	46
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	272	90	35	420	8	9	67	74	142	45	46
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:	29	272	90	35	420	8	9	67	74	142	45	46
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.15	1.39	0.46	0.07	0.91	0.02	0.06	0.45	0.49	0.61	0.19	0.20
Final Sat.:	79	754	259	45	544	10	29	219	242	311	98	101
Capacity Analysis Module:												
Vol/Sat:	0.37	0.36	0.35	0.77	0.77	0.77	0.31	0.31	0.31	0.46	0.46	0.46
Crit Moves:	****				****			****				****
Delay/Veh:	12.7	12.4	11.8	24.7	24.7	24.7	11.8	11.8	11.8	14.1	14.1	14.1
Delay Adj:	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:	12.7	12.4	11.8	24.7	24.7	24.7	11.8	11.8	11.8	14.1	14.1	14.1
LOS by Move:	B	B	B	C	C	C	B	B	B	B	B	B
ApproachDel:		12.3			24.7			11.8			14.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		12.3			24.7			11.8			14.1	
LOS by Appr:		B			C			B			B	
AllWayAvgQ:	12.9	11.7	11.7	66.0	66.0	66.0	8.0	8.0	8.0	16.4	16.4	16.4

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave / Olive 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0	0 1!	0 0	0	0 1!	0 0	0	0 1!	0 0
Initial Vol:	29	272	90	35	420	8	9	67	74	142	45	46

Major Street Volume: 854
Minor Approach Volume: 233
Minor Approach Volume Threshold: 339

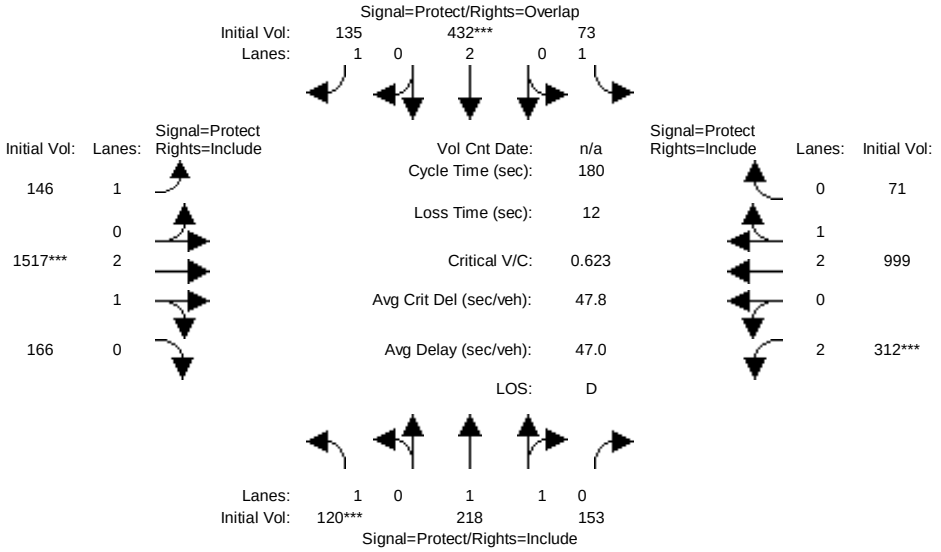
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

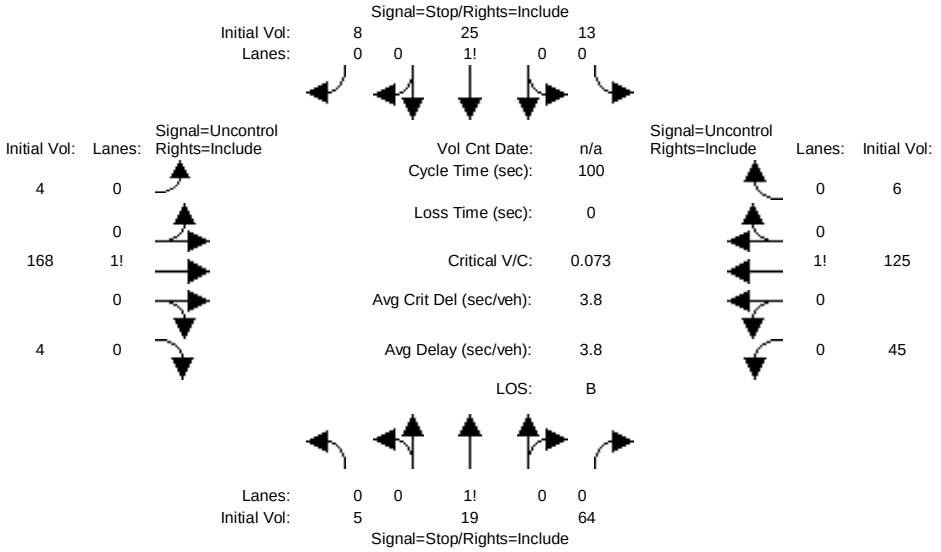


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	9.4	9.4
Volume Module:												
Base Vol:	115	182	152	85	402	113	105	1394	164	311	864	75
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:	115	182	152	85	402	113	105	1394	164	311	864	75
Added Vol:	5	36	1	-12	30	22	41	123	2	1	135	-4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	120	218	153	73	432	135	146	1517	166	312	999	71
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:	120	218	153	73	432	135	146	1517	166	312	999	71
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	120	218	153	73	432	135	146	1517	166	312	999	71
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:	120	218	153	73	432	135	146	1517	166	312	999	71
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	0.99	0.95	0.83	0.98	0.95
Lanes:	1.00	1.15	0.85	1.00	2.00	1.00	1.00	2.69	0.31	2.00	2.79	0.21
Final Sat.:	1750	2173	1525	1750	3800	1750	1750	5047	552	3150	5228	372
Capacity Analysis Module:												
Vol/Sat:	0.07	0.10	0.10	0.04	0.11	0.08	0.08	0.30	0.30	0.10	0.19	0.19
Crit Moves:	****				****			****			****	
Green Time:	19.8	31.6	31.6	21.0	32.8	67.9	35.1	86.8	86.8	28.6	80.3	80.3
Volume/Cap:	0.62	0.57	0.57	0.36	0.62	0.20	0.43	0.62	0.62	0.62	0.43	0.43
Uniform Del:	76.5	68.0	68.0	73.3	67.9	37.8	63.7	34.5	34.5	70.7	34.1	34.1
IncremntDel:	6.2	1.2	1.2	1.1	1.8	0.2	0.9	0.5	0.5	2.5	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	82.8	69.2	69.2	74.3	69.7	38.0	64.5	35.0	35.0	73.1	34.2	34.2
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:	82.8	69.2	69.2	74.3	69.7	38.0	64.5	35.0	35.0	73.1	34.2	34.2
LOS by Move:	F	E	E	E	E	D+	E	C-	C-	E	C-	C-
HCM2kAvgQ:	172	236	236	105	287	130	192	568	568	237	326	326

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #22: Charles St / Iowa Ave



Street Name:	Charles St						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:	5	16	15	13	25	8	4	151	4	10	104	6
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	15	13	25	8	4	151	4	10	104	6
Added Vol:	0	3	49	0	0	0	0	17	0	35	21	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	19	64	13	25	8	4	168	4	45	125	6
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	19	64	13	25	8	4	168	4	45	125	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	5	19	64	13	25	8	4	168	4	45	125	6
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:												
Cnflict Vol:	413	399	170	438	398	128	131	xxxx	xxxxx	172	xxxx	xxxxx
Potent Cap.:	548	537	871	528	538	919	1448	xxxx	xxxxx	1399	xxxx	xxxxx
Move Cap.:	509	518	871	462	519	919	1448	xxxx	xxxxx	1399	xxxx	xxxxx
Volume/Cap:	0.01	0.04	0.07	0.03	0.05	0.01	0.00	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.2	xxxx	xxxxx	2.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	7.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	734	xxxxx	xxxx	541	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.6	xxxxx	xxxxx	12.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		10.6			12.3			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St / 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:	5	19	64	13	25	8	4	168	4	45	125	6
ApproachDel:	10.6			12.3			xxxxxx			xxxxxx		

Approach[northbound][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=88]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=486]
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=46]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=486]
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 #22 Charles St / 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:	5	19	64	13	25	8	4	168	4	45	125	6

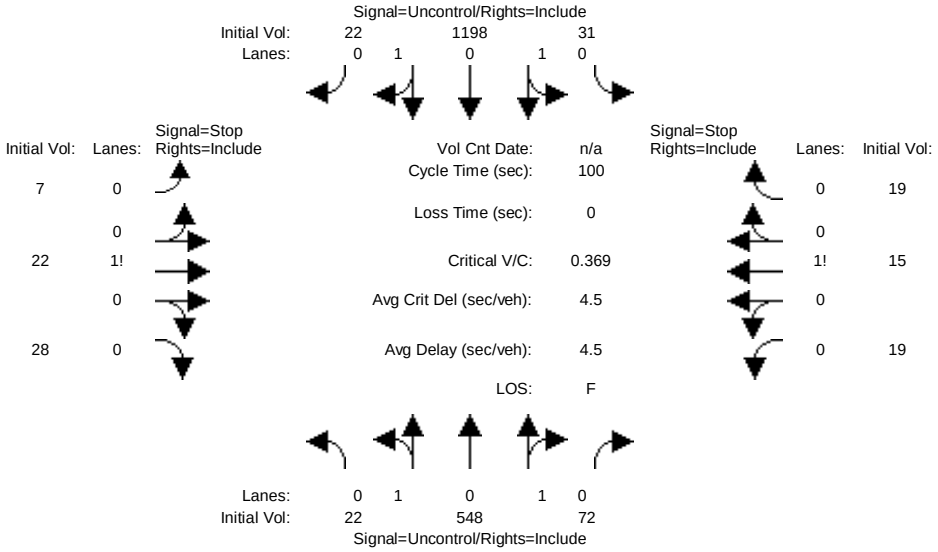
Major Street Volume: 352
Minor Approach Volume: 88
Minor Approach Volume Threshold: 498

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #23: Mary Ave / Olive Ave



Street Name:	Mary Ave						Olive 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:	22	487	65	31	1027	22	7	22	28	12	15	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:	22	487	65	31	1027	22	7	22	28	12	15	19
Added Vol:	0	61	7	0	171	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	22	548	72	31	1198	22	7	22	28	19	15	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:	22	548	72	31	1198	22	7	22	28	19	15	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	548	72	31	1198	22	7	22	28	19	15	19
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	1220	xxxx	xxxxx	620	xxxx	xxxxx	1597	1935	610	1300	1910	310
Potent Cap.:	562	xxxx	xxxxx	950	xxxx	xxxxx	71	64	435	118	67	683
Move Cap.:	562	xxxx	xxxxx	950	xxxx	xxxxx	53	60	435	74	62	683
Volume/Cap:	0.04	xxxx	xxxx	0.03	xxxx	xxxx	0.13	0.37	0.06	0.26	0.24	0.03
Level Of Service Module:												
2Way95thQ:	3.1	xxxx	xxxxx	2.5	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	11.7	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	101	xxxxx	xxxx	101	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	2.6	xxxxx	xxxxx	2.4	xxxxx
Shrd ConDel:	11.7	xxxx	xxxxx	8.9	xxxx	xxxxx	xxxxx	79.7	xxxxx	xxxxx	74.9	xxxxx
Shared LOS:	B	*	*	A	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			79.7			74.9		
ApproachLOS:	*			*			F			F		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	22	548	72	31	1198	22	7	22	28	19	15	19
ApproachDel:	xxxxxx			xxxxxx			79.7			74.9		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.3]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=57]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2003]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
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=2003]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	22	548	72	31	1198	22	7	22	28	19	15	19

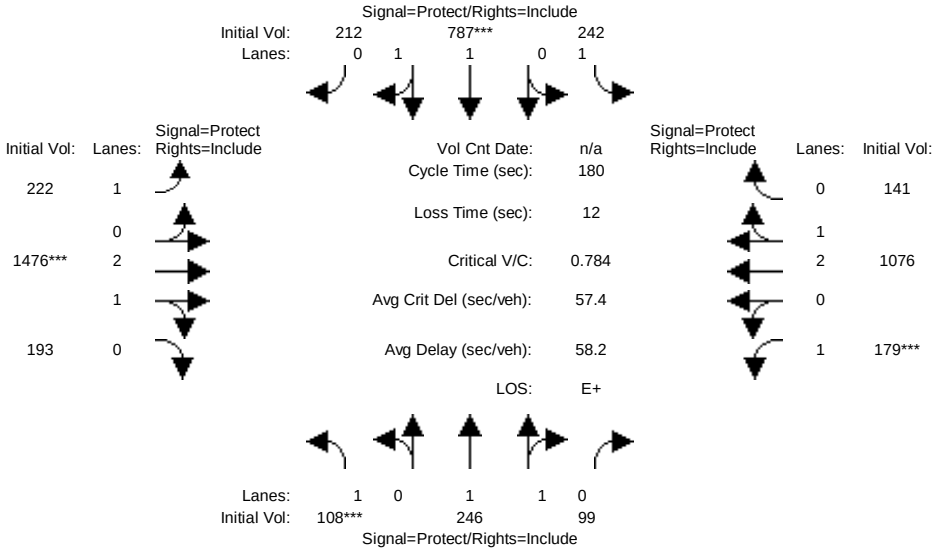
Major Street Volume: 1893
Minor Approach Volume: 57
Minor Approach Volume Threshold: 65 [less than minimum of 100]

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).

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #24: Mary Ave / El Camino Real

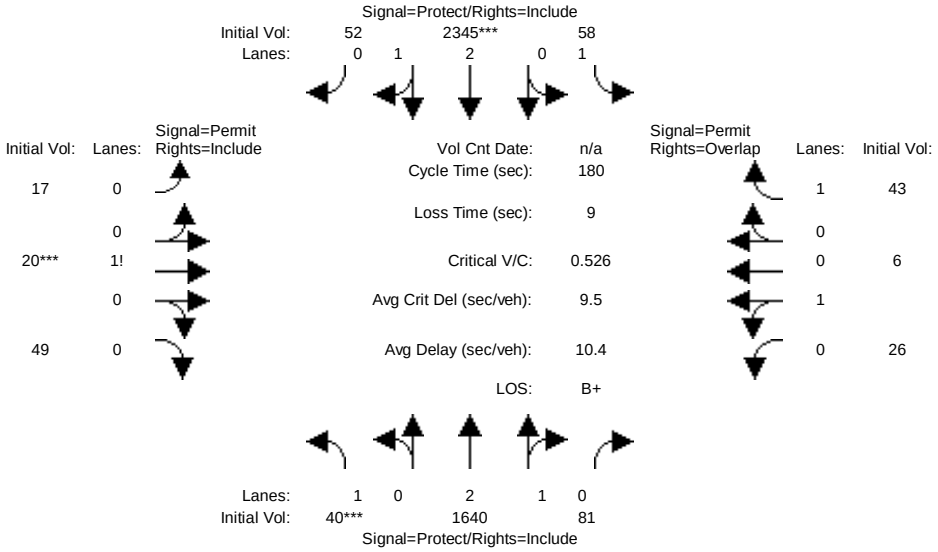


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	101	219	87	184	699	180	201	1381	190	170	944	121
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:	101	219	87	184	699	180	201	1381	190	170	944	121
Added Vol:	7	27	12	58	88	32	21	95	3	9	132	20
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	108	246	99	242	787	212	222	1476	193	179	1076	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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:	108	246	99	242	787	212	222	1476	193	179	1076	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	108	246	99	242	787	212	222	1476	193	179	1076	141
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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:	108	246	99	242	787	212	222	1476	193	179	1076	141
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	0.98	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.41	0.59	1.00	1.56	0.44	1.00	2.64	0.36	1.00	2.64	0.36
Final Sat.:	1750	2637	1061	1750	2914	785	1750	4952	647	1750	4950	649
Capacity Analysis Module:												
Vol/Sat:	0.06	0.09	0.09	0.14	0.27	0.27	0.13	0.30	0.30	0.10	0.22	0.22
Crit Moves:	****				****			****			****	
Green Time:	14.2	30.7	30.7	45.5	62.0	62.0	33.9	68.4	68.4	23.5	58.0	58.0
Volume/Cap:	0.78	0.55	0.55	0.55	0.78	0.78	0.67	0.78	0.78	0.78	0.67	0.67
Uniform Del:	81.4	68.3	68.3	58.3	53.0	53.0	67.9	49.3	49.3	75.8	52.8	52.8
IncremntDel:	24.9	1.0	1.0	1.4	3.3	3.3	5.4	2.0	2.0	16.2	1.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	106.3	69.3	69.3	59.8	56.3	56.3	73.4	51.3	51.3	92.0	53.8	53.8
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:	106.3	69.3	69.3	59.8	56.3	56.3	73.4	51.3	51.3	92.0	53.8	53.8
LOS by Move:	F	E	E	E+	E+	E+	E	D-	D-	F	D-	D-
HCM2kAvgQ:	168	218	218	305	640	640	326	704	704	301	495	495

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

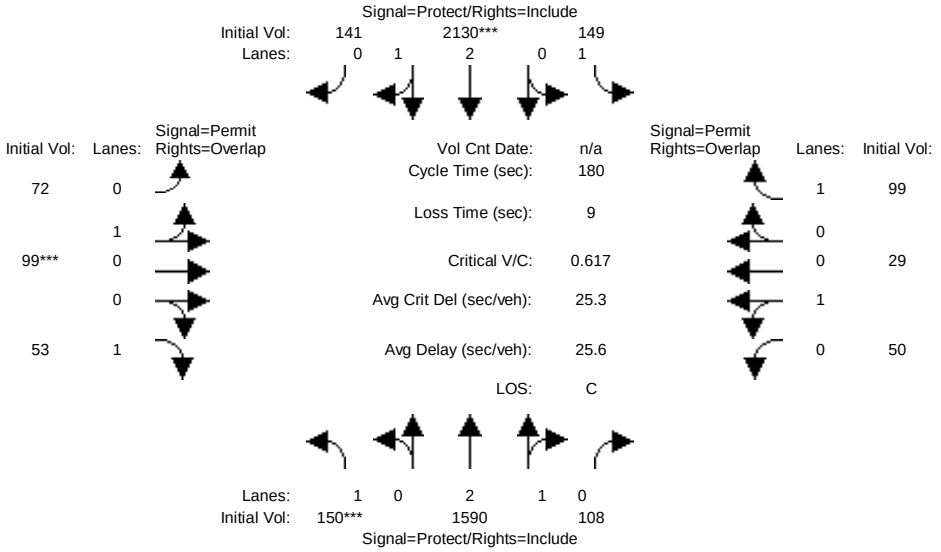


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	1482	58	50	2181	45	11	20	41	18	6	20
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	1482	58	50	2181	45	11	20	41	18	6	20
Added Vol:	23	158	23	8	164	7	6	0	8	8	0	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	40	1640	81	58	2345	52	17	20	49	26	6	43
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:	40	1640	81	58	2345	52	17	20	49	26	6	43
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	40	1640	81	58	2345	52	17	20	49	26	6	43
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:	40	1640	81	58	2345	52	17	20	49	26	6	43
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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.85	0.15	1.00	2.93	0.07	0.20	0.23	0.57	0.81	0.19	1.00
Final Sat.:	1750	5336	264	1750	5478	121	346	407	997	1462	337	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.31	0.31	0.03	0.43	0.43	0.05	0.05	0.05	0.02	0.02	0.02
Crit Moves:	****				****			****				
Green Time:	7.8	139	139.1	15.1	146	146.4	16.8	16.8	16.8	16.8	16.8	31.9
Volume/Cap:	0.53	0.40	0.40	0.40	0.53	0.53	0.53	0.53	0.53	0.19	0.19	0.14
Uniform Del:	84.3	6.7	6.7	78.1	5.5	5.5	77.8	77.8	77.8	75.3	75.3	62.5
IncremntDel:	6.7	0.1	0.1	1.8	0.1	0.1	3.2	3.2	3.2	0.6	0.6	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	91.0	6.8	6.8	79.9	5.6	5.6	81.0	81.0	81.0	75.9	75.9	62.7
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:	91.0	6.8	6.8	79.9	5.6	5.6	81.0	81.0	81.0	75.9	75.9	62.7
LOS by Move:	F	A	A	E-	A	A	F	F	F	E-	E-	E
HCM2kAvgQ:	59	258	258	90	359	359	137	137	137	45	45	53

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

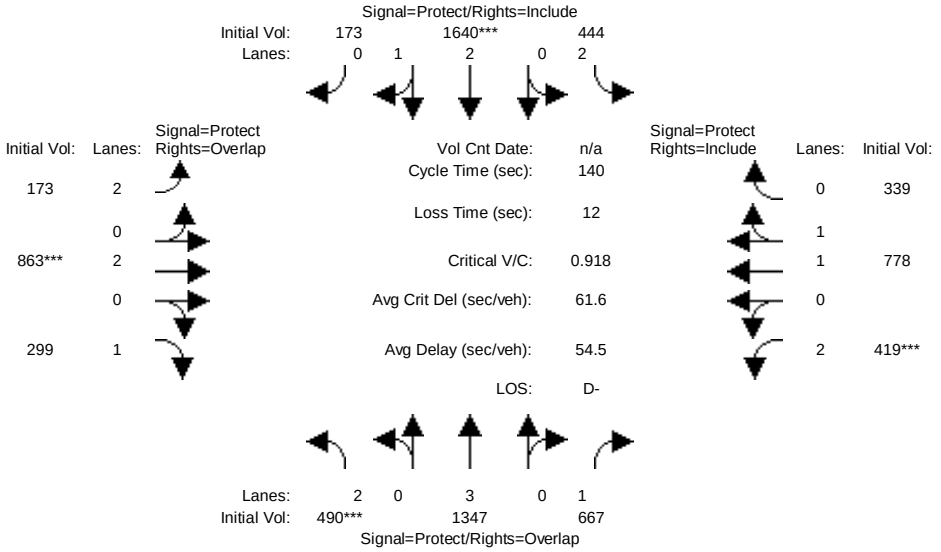


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	127	1415	85	141	1964	135	66	99	45	42	29	76
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:	127	1415	85	141	1964	135	66	99	45	42	29	76
Added Vol:	23	175	23	8	166	6	6	0	8	8	0	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	150	1590	108	149	2130	141	72	99	53	50	29	99
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:	150	1590	108	149	2130	141	72	99	53	50	29	99
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	150	1590	108	149	2130	141	72	99	53	50	29	99
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:	150	1590	108	149	2130	141	72	99	53	50	29	99
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.80	0.20	1.00	2.81	0.19	0.42	0.58	1.00	0.63	0.37	1.00
Final Sat.:	1750	5243	356	1750	5252	348	758	1042	1750	1139	661	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.30	0.30	0.09	0.41	0.41	0.10	0.10	0.03	0.04	0.04	0.06
Crit Moves:	****				****			****				
Green Time:	25.0	112	111.9	31.4	118	118.3	27.7	27.7	52.7	27.7	27.7	59.1
Volume/Cap:	0.62	0.49	0.49	0.49	0.62	0.62	0.62	0.62	0.10	0.29	0.29	0.17
Uniform Del:	73.0	18.5	18.5	67.0	17.8	17.8	71.2	71.2	46.4	67.4	67.4	43.0
IncremntDel:	4.7	0.1	0.1	1.2	0.3	0.3	4.2	4.2	0.1	0.6	0.6	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	77.7	18.6	18.6	68.3	18.1	18.1	75.4	75.4	46.5	68.0	68.0	43.2
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:	77.7	18.6	18.6	68.3	18.1	18.1	75.4	75.4	46.5	68.0	68.0	43.2
LOS by Move:	E-	B-	B-	E	B-	B-	E-	E-	D	E	E	D
HCM2kAvgQ:	203	409	409	193	595	595	247	247	55	102	102	101

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex + Bg + Op 1 PM

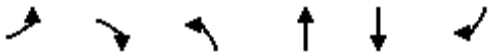
Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd



Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	467	1298	627	383	1525	166	166	707	291	304	453	173
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:	467	1298	627	383	1525	166	166	707	291	304	453	173
Added Vol:	23	49	40	61	115	7	7	156	8	115	325	166
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	490	1347	667	444	1640	173	173	863	299	419	778	339
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:	490	1347	667	444	1640	173	173	863	299	419	778	339
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	490	1347	667	444	1640	173	173	863	299	419	778	339
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:	490	1347	667	444	1640	173	173	863	299	419	778	339
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	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	2.70	0.30	2.00	2.00	1.00	2.00	1.38	0.62
Final Sat.:	3150	5700	1750	3150	5065	534	3150	3800	1750	3150	2576	1123
Capacity Analysis Module:												
Vol/Sat:	0.16	0.24	0.38	0.14	0.32	0.32	0.05	0.23	0.17	0.13	0.30	0.30
Crit Moves:	****				****			****			****	
Green Time:	23.7	46.6	66.9	26.5	49.4	49.4	8.4	34.6	58.3	20.3	46.5	46.5
Volume/Cap:	0.92	0.71	0.80	0.75	0.92	0.92	0.91	0.92	0.41	0.92	0.91	0.91
Uniform Del:	57.2	40.8	30.8	53.6	43.4	43.4	65.4	51.3	28.7	59.0	44.8	44.8
IncremntDel:	21.0	1.3	5.4	5.1	7.4	7.4	40.8	13.6	0.4	23.5	10.1	10.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	78.1	42.1	36.3	58.7	50.8	50.8	106.2	64.9	29.1	82.5	54.9	54.9
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:	78.1	42.1	36.3	58.7	50.8	50.8	106.2	64.9	29.1	82.5	54.9	54.9
LOS by Move:	E-	D	D+	E+	D	D	F	E	C	F	D-	D-
HCM2kAvgQ:	399	437	680	270	668	668	176	542	239	352	675	675

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

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2854	932	145
Future Volume (vph)	0	0	0	2854	932	145
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.1	6.4	
Lane Util. Factor				0.81	0.86	
Frt				1.00	0.98	
Flt Protected				1.00	1.00	
Satd. Flow (prot)				6684	5563	
Flt Permitted				1.00	1.00	
Satd. Flow (perm)				6684	5563	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	3069	1002	156
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	3069	1158	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type				NA	NA	
Protected Phases				2	6	
Permitted Phases						
Actuated Green, G (s)				150.0	150.0	
Effective Green, g (s)				150.0	150.0	
Actuated g/C Ratio				1.00	1.00	
Clearance Time (s)				5.3	6.6	
Lane Grp Cap (vph)				6684	5563	
v/s Ratio Prot				c0.46	0.21	
v/s Ratio Perm						
v/c Ratio				0.46	0.21	
Uniform Delay, d1				0.0	0.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.1	
Delay (s)				0.1	0.1	
Level of Service				A	A	
Approach Delay (s)	0.0			0.1	0.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	6.4
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

Near Term + Project
Timing Plan: AM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	915	0	78	0	0	0	0	1938	749	49	883	0
Future Volume (vph)	915	0	78	0	0	0	0	1938	749	49	883	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.95	0.95	1.00					0.81	0.88	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00	0.95	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	1490	1381					6684	2350	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	1490	1381					6684	2350	1568	4506	
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)	953	0	81	0	0	0	0	2019	780	51	920	0
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	392	0	0	0
Lane Group Flow (vph)	639	314	44	0	0	0	0	2019	388	51	920	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	68.8	68.8	68.8					55.8	55.8	6.2	68.3	
Effective Green, g (s)	70.2	70.2	70.2					56.0	56.0	6.4	68.5	
Actuated g/C Ratio	0.47	0.47	0.47					0.37	0.37	0.04	0.46	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	697	697	646					2495	877	66	2057	
v/s Ratio Prot								c0.30		c0.03	0.20	
v/s Ratio Perm	c0.43	0.21	0.03						0.17			
v/c Ratio	0.92	0.45	0.07					0.81	0.44	0.77	0.45	
Uniform Delay, d1	37.2	26.9	21.9					42.2	35.3	71.1	27.8	
Progression Factor	1.00	1.00	1.00					0.66	0.57	1.00	1.00	
Incremental Delay, d2	16.8	0.5	0.0					2.5	1.4	41.6	0.7	
Delay (s)	54.0	27.4	22.0					30.5	21.6	112.7	28.5	
Level of Service	D	C	C					C	C	F	C	
Approach Delay (s)		43.4			0.0			28.0			32.9	
Approach LOS		D			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	3	39	207	31	222	115	2439	89	35	829	96
Future Volume (vph)	26	3	39	207	31	222	115	2439	89	35	829	96
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.76		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	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)	1568	1650	1368	1549	1650	1381	1568	7477		1568	4426	
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)	1214	1650	1368	1232	1650	1381	1568	7477		1568	4426	
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	218	33	234	121	2567	94	37	873	101
RTOR Reduction (vph)	0	0	31	0	0	97	0	3	0	0	8	0
Lane Group Flow (vph)	27	3	10	218	33	137	121	2658	0	37	966	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	33.5	33.5	33.5	33.1	33.1	33.1	20.2	91.6		6.9	78.5	
Effective Green, g (s)	36.6	36.6	36.6	36.2	36.2	36.2	22.8	94.2		9.5	81.1	
Actuated g/C Ratio	0.24	0.24	0.24	0.24	0.24	0.24	0.15	0.63		0.06	0.54	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	296	402	333	297	398	333	238	4695		99	2392	
v/s Ratio Prot		0.00			0.02		c0.08	c0.36		0.02	0.22	
v/s Ratio Perm	0.02		0.01	c0.18		0.10						
v/c Ratio	0.09	0.01	0.03	0.73	0.08	0.41	0.51	0.57		0.37	0.40	
Uniform Delay, d1	43.8	42.9	43.2	52.5	44.0	47.9	58.4	16.1		67.4	20.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.47		0.76	0.35	
Incremental Delay, d2	0.1	0.0	0.0	9.0	0.1	0.8	0.4	0.1		2.2	0.5	
Delay (s)	44.0	43.0	43.2	61.5	44.1	48.7	55.9	7.7		53.7	7.6	
Level of Service	D	D	D	E	D	D	E	A		D	A	
Approach Delay (s)		43.5			54.2			9.8			9.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Near Term + Project
Timing Plan: AM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	16	27	42	101	226	127	2786	24	85	1761	466
Future Volume (vph)	103	16	27	42	101	226	127	2786	24	85	1761	466
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1473		1568	1650	1380	1568	5678	1372	1568	5476	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1473		1568	1650	1380	1568	5678	1372	1568	5476	
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)	107	17	28	44	105	235	132	2902	25	89	1834	485
RTOR Reduction (vph)	0	22	0	0	0	109	0	0	11	0	25	0
Lane Group Flow (vph)	107	23	0	44	105	126	132	2902	14	89	2294	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	17.3	27.1		9.2	19.1	19.1	13.5	83.7	83.7	8.0	78.2	
Effective Green, g (s)	17.4	29.9		9.3	21.8	21.8	13.6	86.7	86.7	8.1	81.2	
Actuated g/C Ratio	0.12	0.20		0.06	0.15	0.15	0.09	0.58	0.58	0.05	0.54	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	352	293		97	239	200	142	3281	793	84	2964	
v/s Ratio Prot	c0.04	0.02		c0.03	0.06		c0.08	c0.51		0.06	0.42	
v/s Ratio Perm						c0.09			0.01			
v/c Ratio	0.30	0.08		0.45	0.44	0.63	0.93	0.88	0.02	1.06	0.77	
Uniform Delay, d1	60.8	48.8		67.9	58.5	60.3	67.7	27.3	13.5	71.0	27.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.88	0.54	1.00	0.94	0.91	
Incremental Delay, d2	0.5	0.1		3.3	1.3	6.0	35.2	2.1	0.0	88.6	1.1	
Delay (s)	61.2	48.9		71.2	59.8	66.3	94.8	16.9	13.5	155.2	25.9	
Level of Service	E	D		E	E	E	F	B	B	F	C	
Approach Delay (s)		57.6			65.1			20.2			30.7	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

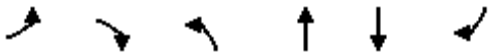
HCM Signalized Intersection Capacity Analysis
101: Mathilda Avenue & NB US-101 Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	860	751	2470	538	10	1212
Future Volume (vph)	860	751	2470	538	10	1212
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6	6.3	6.3	6.3	6.3
Lane Util. Factor	0.97	0.88	0.91	1.00	1.00	0.91
Frt	1.00	0.85	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)	3072	2493	4550	1417	1583	4550
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3072	2493	4550	1417	1583	4550
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	935	816	2685	585	11	1317
RTOR Reduction (vph)	0	64	0	246	0	0
Lane Group Flow (vph)	935	752	2685	339	11	1317
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	42.4	42.4	86.8	86.8	1.6	94.7
Effective Green, g (s)	42.4	42.4	86.8	86.8	1.6	94.7
Actuated g/C Ratio	0.28	0.28	0.58	0.58	0.01	0.63
Clearance Time (s)	6.6	6.6	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)	868	704	2632	819	16	2872
v/s Ratio Prot	c0.30		c0.59		0.01	c0.29
v/s Ratio Perm		0.30		0.24		
v/c Ratio	1.08	1.07	1.02	0.41	0.69	0.46
Uniform Delay, d1	53.8	53.8	31.6	17.5	74.0	14.3
Progression Factor	1.00	1.00	0.53	0.16	0.75	0.40
Incremental Delay, d2	53.5	53.7	15.7	0.5	77.3	0.5
Delay (s)	107.3	107.5	32.7	3.3	132.7	6.2
Level of Service	F	F	C	A	F	A
Approach Delay (s)	107.4		27.4			7.3
Approach LOS	F		C			A

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: Mathilda Avenue & SB US-101 Ramps

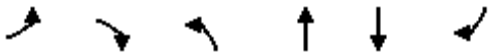


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	375	622	0	2779	1930	143
Future Volume (vph)	375	622	0	2779	1930	143
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6		6.3	6.3	
Lane Util. Factor	0.97	0.88		0.91	0.91	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3072	2493		4550	4503	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3072	2493		4550	4503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	408	676	0	3021	2098	155
RTOR Reduction (vph)	0	20	0	0	6	0
Lane Group Flow (vph)	408	656	0	3021	2247	0
Turn Type	Perm	Perm		NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4				
Actuated Green, G (s)	37.4	37.4		99.7	99.7	
Effective Green, g (s)	37.4	37.4		99.7	99.7	
Actuated g/C Ratio	0.25	0.25		0.66	0.66	
Clearance Time (s)	6.6	6.6		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	765	621		3024	2992	
v/s Ratio Prot				c0.66	0.50	
v/s Ratio Perm	0.13	c0.26				
v/c Ratio	0.53	1.06		1.00	0.75	
Uniform Delay, d1	48.7	56.3		25.1	16.8	
Progression Factor	1.00	1.00		0.68	0.81	
Incremental Delay, d2	0.7	52.2		11.7	1.2	
Delay (s)	49.5	108.5		28.9	14.9	
Level of Service	D	F		C	B	
Approach Delay (s)	86.2			28.9	14.9	
Approach LOS	F			C	B	

Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	634	2484	643
Future Volume (vph)	0	0	0	634	2484	643
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.1	6.4	
Lane Util. Factor				0.81	0.86	
Frt				1.00	0.97	
Flt Protected				1.00	1.00	
Satd. Flow (prot)				6684	5503	
Flt Permitted				1.00	1.00	
Satd. Flow (perm)				6684	5503	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	682	2671	691
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	682	3362	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type				NA	NA	
Protected Phases				2	6	
Permitted Phases						
Actuated Green, G (s)				180.0	180.0	
Effective Green, g (s)				180.0	180.0	
Actuated g/C Ratio				1.00	1.00	
Clearance Time (s)				5.3	6.6	
Lane Grp Cap (vph)				6684	5503	
v/s Ratio Prot				0.10	c0.61	
v/s Ratio Perm						
v/c Ratio				0.10	0.61	
Uniform Delay, d1				0.0	0.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.0	0.5	
Delay (s)				0.0	0.5	
Level of Service				A	A	
Approach Delay (s)	0.0			0.0	0.5	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	6.4
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	0	160	0	0	0	0	493	712	371	2113	0
Future Volume (vph)	141	0	160	0	0	0	0	493	712	371	2113	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.95	0.95	1.00					0.81	0.88	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97					1.00	0.95	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	1490	1365					6684	2337	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	1490	1365					6684	2337	1568	4506	
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)	147	0	167	0	0	0	0	514	742	386	2201	0
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	461	0	0	0
Lane Group Flow (vph)	98	49	116	0	0	0	0	514	281	386	2201	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	20.2	20.2	20.2					67.9	67.9	72.7	146.9	
Effective Green, g (s)	21.6	21.6	21.6					68.1	68.1	72.9	147.1	
Actuated g/C Ratio	0.12	0.12	0.12					0.38	0.38	0.41	0.82	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	178	178	163					2528	884	635	3682	
v/s Ratio Prot								0.08		0.25	c0.49	
v/s Ratio Perm	0.07	0.03	c0.08						0.12			
v/c Ratio	0.55	0.28	0.71					0.20	0.32	0.61	0.60	
Uniform Delay, d1	74.6	72.1	76.2					37.7	39.5	42.3	5.9	
Progression Factor	1.00	1.00	1.00					0.54	0.74	1.00	1.00	
Incremental Delay, d2	3.7	0.8	13.6					0.2	0.9	1.3	0.6	
Delay (s)	78.3	72.9	89.8					20.4	30.0	43.6	6.5	
Level of Service	E	E	F					C	C	D	A	
Approach Delay (s)		83.6			0.0			26.0			12.0	
Approach LOS		F			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	39	129	136	4	85	59	1051	344	222	1996	54
Future Volume (vph)	70	39	129	136	4	85	59	1051	344	222	1996	54
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.76		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99		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	0.96		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)	1568	1650	1364	1546	1650	1379	1568	7180		1568	4485	
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)	1246	1650	1364	1188	1650	1379	1568	7180		1568	4485	
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)	74	41	136	143	4	89	62	1106	362	234	2101	57
RTOR Reduction (vph)	0	0	102	0	0	73	0	28	0	0	1	0
Lane Group Flow (vph)	74	41	34	143	4	16	62	1440	0	234	2157	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	29.5	29.5	29.5	29.1	29.1	29.1	10.8	91.7		40.8	121.9	
Effective Green, g (s)	32.6	32.6	32.6	32.2	32.2	32.2	13.4	94.3		43.4	124.5	
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.18	0.07	0.52		0.24	0.69	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	225	298	247	212	295	246	116	3761		378	3102	
v/s Ratio Prot		0.02			0.00		0.04	0.20		c0.15	c0.48	
v/s Ratio Perm	0.06		0.02	c0.12		0.01						
v/c Ratio	0.33	0.14	0.14	0.67	0.01	0.06	0.53	0.38		0.62	0.70	
Uniform Delay, d1	64.2	61.9	61.9	69.0	60.8	61.4	80.3	25.5		60.9	16.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.02	0.36		0.94	0.74	
Incremental Delay, d2	0.9	0.2	0.3	8.2	0.0	0.1	4.1	0.3		2.5	1.1	
Delay (s)	65.0	62.1	62.1	77.2	60.8	61.5	86.2	9.5		59.5	13.2	
Level of Service	E	E	E	E	E	E	F	A		E	B	
Approach Delay (s)		63.0			71.0			12.6			17.7	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Near Term + Project
Timing Plan: PM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	136	94	31	20	95	41	1677	71	159	2555	86
Future Volume (vph)	361	136	94	31	20	95	41	1677	71	159	2555	86
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1532		1568	1650	1373	1568	5678	1372	1568	5646	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1532		1568	1650	1373	1568	5678	1372	1568	5646	
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)	376	142	98	32	21	99	43	1747	74	166	2661	90
RTOR Reduction (vph)	0	15	0	0	0	92	0	0	38	0	2	0
Lane Group Flow (vph)	376	225	0	32	21	7	43	1747	36	166	2749	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	33.8	37.3		6.9	10.5	10.5	7.1	85.2	85.2	28.6	106.7	
Effective Green, g (s)	33.9	40.1		7.0	13.2	13.2	7.2	88.2	88.2	28.7	109.7	
Actuated g/C Ratio	0.19	0.22		0.04	0.07	0.07	0.04	0.49	0.49	0.16	0.61	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	572	341		60	121	100	62	2782	672	250	3440	
v/s Ratio Prot	0.12	c0.15		c0.02	0.01		0.03	0.31		c0.11	c0.49	
v/s Ratio Perm						0.01			0.03			
v/c Ratio	0.66	0.66		0.53	0.17	0.07	0.69	0.63	0.05	0.66	0.80	
Uniform Delay, d1	67.7	63.7		84.9	78.3	77.7	85.3	33.8	24.0	71.1	26.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.93	0.59	1.00	0.91	0.85	
Incremental Delay, d2	2.7	4.7		8.8	0.7	0.3	23.8	0.9	0.1	0.6	0.2	
Delay (s)	70.4	68.5		93.7	79.0	78.0	103.1	20.8	24.2	65.1	22.9	
Level of Service	E	E		F	E	E	F	C	C	E	C	
Approach Delay (s)		69.7			81.4			22.8			25.3	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

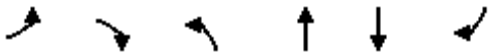
HCM Signalized Intersection Capacity Analysis
101: Mathilda Avenue & NB US-101 Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	839	223	1376	552	40	3272
Future Volume (vph)	839	223	1376	552	40	3272
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6	6.3	6.3	6.3	6.3
Lane Util. Factor	0.97	0.88	0.91	1.00	1.00	0.91
Frt	1.00	0.85	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)	3072	2493	4550	1417	1583	4550
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3072	2493	4550	1417	1583	4550
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	912	242	1496	600	43	3557
RTOR Reduction (vph)	0	114	0	248	0	0
Lane Group Flow (vph)	912	128	1496	352	43	3557
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	46.4	46.4	105.7	105.7	8.7	120.7
Effective Green, g (s)	46.4	46.4	105.7	105.7	8.7	120.7
Actuated g/C Ratio	0.26	0.26	0.59	0.59	0.05	0.67
Clearance Time (s)	6.6	6.6	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)	791	642	2671	832	76	3051
v/s Ratio Prot	c0.30		0.33		0.03	c0.78
v/s Ratio Perm		0.05		0.25		
v/c Ratio	1.15	0.20	0.56	0.42	0.57	1.17
Uniform Delay, d1	66.8	52.3	22.8	20.4	83.8	29.6
Progression Factor	1.00	1.00	0.21	0.46	1.08	0.69
Incremental Delay, d2	83.1	0.2	0.7	1.4	8.6	78.3
Delay (s)	149.9	52.4	5.4	10.8	99.4	98.6
Level of Service	F	D	A	B	F	F
Approach Delay (s)	129.4		7.0			98.6
Approach LOS	F		A			F

Intersection Summary			
HCM 2000 Control Delay	75.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: Mathilda Avenue & SB US-101 Ramps



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	613	0	1732	2955	1156
Future Volume (vph)	110	613	0	1732	2955	1156
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6		6.3	6.3	
Lane Util. Factor	0.97	0.88		0.91	0.91	
Frt	1.00	0.85		1.00	0.96	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3072	2493		4550	4358	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3072	2493		4550	4358	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	666	0	1883	3212	1257
RTOR Reduction (vph)	0	3	0	0	39	0
Lane Group Flow (vph)	120	663	0	1883	4430	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	36.4	36.4		130.7	130.7	
Effective Green, g (s)	36.4	36.4		130.7	130.7	
Actuated g/C Ratio	0.20	0.20		0.73	0.73	
Clearance Time (s)	6.6	6.6		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	621	504		3303	3164	
v/s Ratio Prot	0.04			0.41	c1.02	
v/s Ratio Perm		c0.27				
v/c Ratio	0.19	1.32		0.57	1.40	
Uniform Delay, d1	59.6	71.8		11.5	24.7	
Progression Factor	1.00	1.00		0.42	0.54	
Incremental Delay, d2	0.2	155.4		0.6	180.2	
Delay (s)	59.8	227.2		5.4	193.5	
Level of Service	E	F		A	F	
Approach Delay (s)	201.6			5.4	193.5	
Approach LOS	F			A	F	

Intersection Summary			
HCM 2000 Control Delay	144.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	127.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Pastoria Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Background Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	751	151		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**		
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	854	233		Y	Y	**Y**		Y		Y	Y	**Y**	Y	Y	**Y**	**Y**	
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	1,605	384		2	2	**2**	0	2	**0**	2	2	**2**	2	2	**2**	**1**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Iowa Avenue** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Charles Street** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Background Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	246	59															
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	352	88						Y						Y			
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	598	147		0	0	**0**	0	1	**0**	0	0	**0**	0	1	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Mary Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Existing Plus Background Plus Project Conditions**

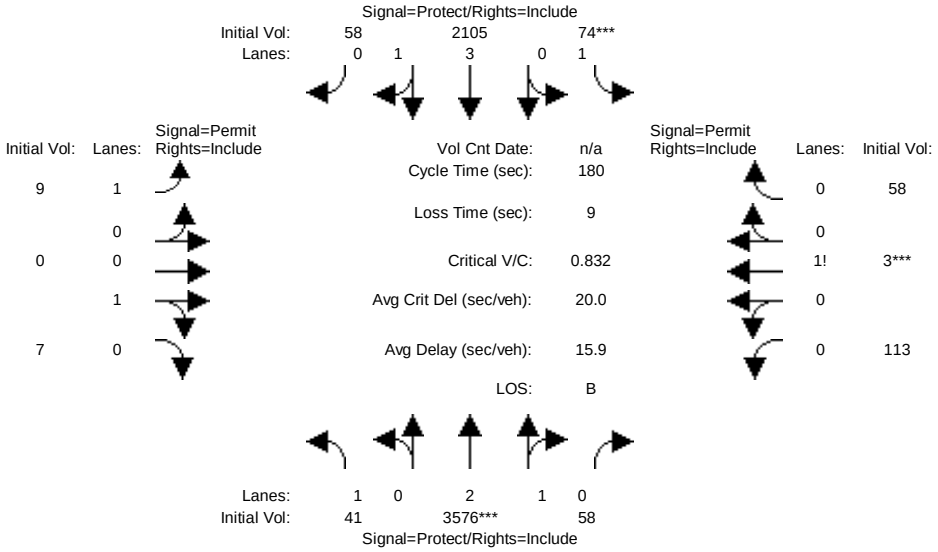
ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	1,749	65		Y			Y			Y			Y	Y	**Y**		
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	1,893	57		Y			Y			Y			Y				
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	3,642	122		2	0	**0**	2	0	**0**	2	0	**0**	2	1	**1**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #5: Mathilda Ave / San Aleso Ave

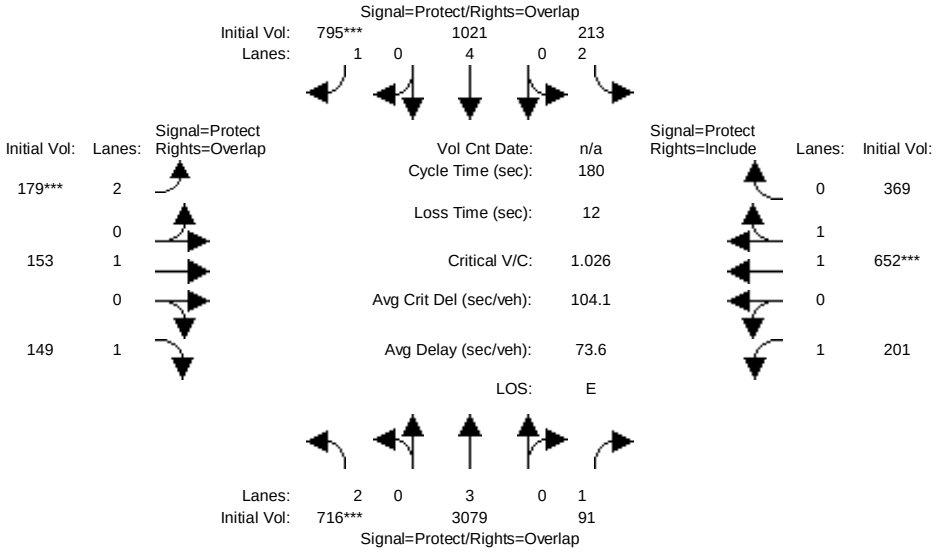


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	31	2374	56	63	1227	44	7	0	5	41	2	19
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	41	3104	73	82	1604	58	9	0	7	54	3	25
Added Vol:	0	472	-15	-8	501	0	0	0	0	59	0	33
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	41	3576	58	74	2105	58	9	0	7	113	3	58
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	3576	58	74	2105	58	9	0	7	113	3	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	41	3576	58	74	2105	58	9	0	7	113	3	58
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:	41	3576	58	74	2105	58	9	0	7	113	3	58
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	0.99	0.95	0.92	1.00	0.95	0.92	0.92	0.92
Lanes:	1.00	2.95	0.05	1.00	3.89	0.11	1.00	0.00	1.00	0.65	0.02	0.33
Final Sat.:	1750	5510	90	1750	7300	199	1750	0	1800	1139	26	585
Capacity Analysis Module:												
Vol/Sat:	0.02	0.65	0.65	0.04	0.29	0.29	0.01	0.00	0.00	0.10	0.10	0.10
Crit Moves:		****		****							****	
Green Time:	11.1	140	140.4	9.2	138	138.5	21.4	0.0	21.4	21.4	21.4	21.4
Volume/Cap:	0.37	0.83	0.83	0.83	0.37	0.37	0.04	0.00	0.03	0.83	0.83	0.83
Uniform Del:	81.1	12.4	12.4	84.6	6.7	6.7	70.2	0.0	70.1	77.5	77.5	77.5
IncremntDel:	2.2	1.5	1.5	45.5	0.0	0.0	0.1	0.0	0.1	23.8	23.8	23.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Delay/Veh:	83.3	13.9	13.9	130.1	6.8	6.8	70.3	0.0	70.2	101.3	101	101.3
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:	83.3	13.9	13.9	130.1	6.8	6.8	70.3	0.0	70.2	101.3	101	101.3
LOS by Move:	F	B	B	F	A	A	E	A	E	F	F	F
HCM2kAvgQ:	53	981	981	117	236	236	12	0	8	305	305	305

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #6: Mathilda Ave / Maude Ave

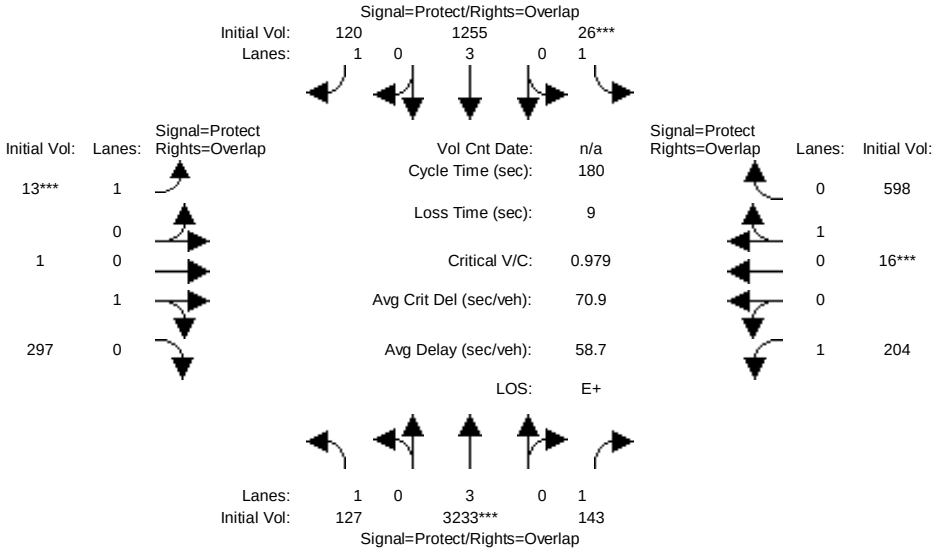


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	421	2050	47	142	644	337	98	99	69	149	370	276
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	550	2680	61	186	842	441	128	129	90	195	484	361
Added Vol:	166	399	30	27	179	354	51	24	59	6	168	8
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	716	3079	91	213	1021	795	179	153	149	201	652	369
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:	716	3079	91	213	1021	795	179	153	149	201	652	369
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	716	3079	91	213	1021	795	179	153	149	201	652	369
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:	716	3079	91	213	1021	795	179	153	149	201	652	369
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	1.26	0.74
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2362	1337
Capacity Analysis Module:												
Vol/Sat:	0.23	0.54	0.05	0.07	0.13	0.45	0.06	0.08	0.09	0.11	0.28	0.28
Crit Moves:	****					****	****				****	
Green Time:	39.9	97.4	131.7	12.2	69.7	79.7	10.0	24.1	64.0	34.3	48.4	48.4
Volume/Cap:	1.03	1.00	0.07	1.00	0.35	1.03	1.03	0.60	0.24	0.60	1.03	1.03
Uniform Del:	70.0	41.2	6.8	83.9	39.0	50.2	85.0	73.4	40.8	66.6	65.8	65.8
IncremntDel:	40.8	15.7	0.0	61.0	0.1	39.1	75.0	4.0	0.2	3.1	35.3	35.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	110.8	56.9	6.9	144.9	39.1	89.2	160.0	77.4	41.0	69.7	101	101.1
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:	110.8	56.9	6.9	144.9	39.1	89.2	160.0	77.4	41.0	69.7	101	101.1
LOS by Move:	F	E+	A	F	D	F	F	E-	D	E	F	F
HCM2kAvgQ:	604	1364	35	213	237	1358	231	215	150	284	879	879

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #7: Mathilda Ave / Indio Way

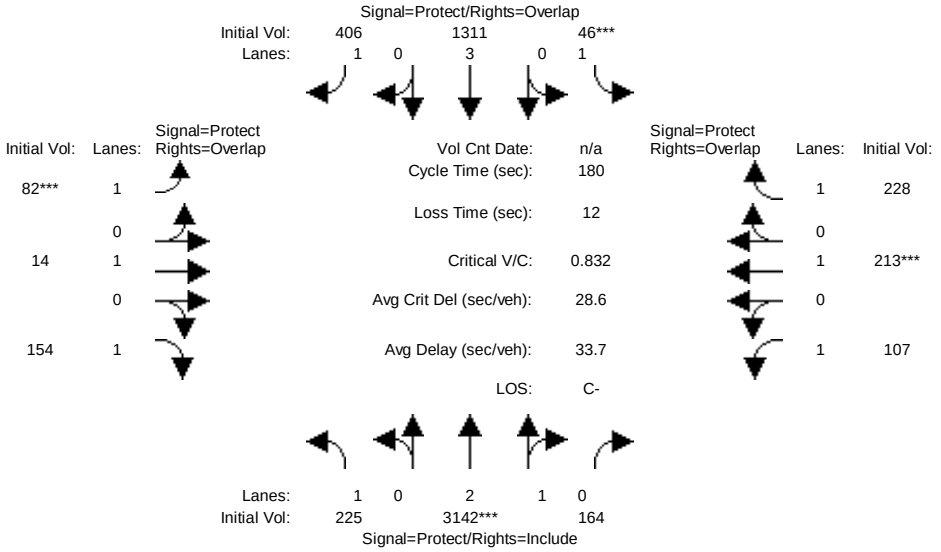


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	97	2050	103	20	782	84	10	1	197	156	12	425
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	127	2680	135	26	1022	110	13	1	258	204	16	556
Added Vol:	0	553	8	0	233	10	0	0	39	0	0	42
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	127	3233	143	26	1255	120	13	1	297	204	16	598
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:	127	3233	143	26	1255	120	13	1	297	204	16	598
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	127	3233	143	26	1255	120	13	1	297	204	16	598
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:	127	3233	143	26	1255	120	13	1	297	204	16	598
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	3.00	1.00	1.00	0.01	0.99	1.00	0.03	0.97
Final Sat.:	1750	5700	1750	1750	5700	1750	1750	8	1792	1750	46	1754
Capacity Analysis Module:												
Vol/Sat:	0.07	0.57	0.08	0.01	0.22	0.07	0.01	0.17	0.17	0.12	0.34	0.34
Crit Moves:		****		****			****				****	
Green Time:	25.6	99.3	127.3	4.0	77.7	85.7	8.0	39.7	65.3	28.0	59.7	63.7
Volume/Cap:	0.51	1.03	0.12	0.67	0.51	0.14	0.17	0.75	0.46	0.75	1.03	0.96
Uniform Del:	71.4	40.3	8.4	87.3	37.2	26.5	82.8	65.5	43.8	72.7	60.2	57.0
IncremntDel:	1.8	23.7	0.0	37.5	0.2	0.1	1.0	7.8	0.5	11.0	44.1	26.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	73.2	64.0	8.4	124.9	37.4	26.6	83.8	73.3	44.3	83.7	104	83.7
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:	73.2	64.0	8.4	124.9	37.4	26.6	83.8	73.3	44.3	83.7	104	83.7
LOS by Move:	E	E	A	F	D+	C	F	E	D	F	F	F
HCM2kAvgQ:	165	1598	64	42	404	95	22	430	321	324	1063	983

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #8: Mathilda Ave / California Ave

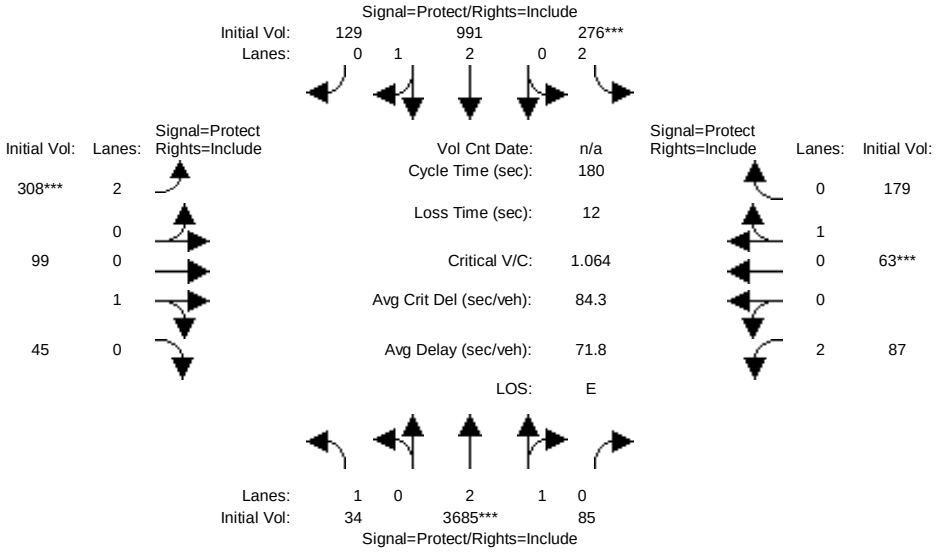


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	139	2009	115	34	872	234	56	5	109	82	138	146
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	182	2626	150	44	1140	306	73	7	142	107	180	191
Added Vol:	43	516	14	2	171	100	9	7	12	0	33	37
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	225	3142	164	46	1311	406	82	14	154	107	213	228
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:	225	3142	164	46	1311	406	82	14	154	107	213	228
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	225	3142	164	46	1311	406	82	14	154	107	213	228
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:	225	3142	164	46	1311	406	82	14	154	107	213	228
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	2.85	0.15	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	5321	278	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.13	0.59	0.59	0.03	0.23	0.23	0.05	0.01	0.09	0.06	0.11	0.13
Crit Moves:		****		****			****				****	
Green Time:	47.8	128	127.8	5.7	85.7	95.9	10.2	14.5	62.3	20.0	24.3	30.0
Volume/Cap:	0.48	0.83	0.83	0.83	0.48	0.44	0.83	0.09	0.25	0.55	0.83	0.78
Uniform Del:	55.7	18.5	18.5	86.6	32.1	25.6	84.1	76.6	42.2	75.8	75.9	71.8
IncremntDel:	0.8	1.6	1.6	63.4	0.1	0.3	42.3	0.3	0.2	3.4	20.1	12.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	56.5	20.1	20.1	150.1	32.2	25.9	126.3	76.9	42.4	79.2	95.9	84.4
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:	56.5	20.1	20.1	150.1	32.2	25.9	126.3	76.9	42.4	79.2	95.9	84.4
LOS by Move:	E+	C+	C+	F	C-	C	F	E-	D	E-	F	F
HCM2kAvgQ:	280	1101	1101	77	391	352	170	18	159	166	338	364

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #9: Mathilda Ave / Washington Ave

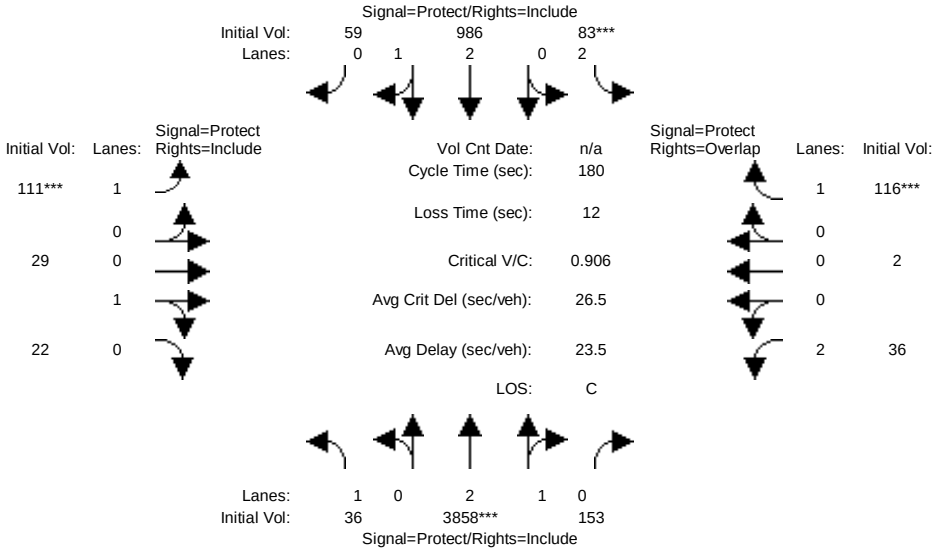


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	26	2452	50	195	659	96	226	54	34	50	31	109
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	34	3205	65	255	862	126	295	71	44	65	41	142
Added Vol:	0	480	20	21	129	3	13	28	1	22	22	37
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	34	3685	85	276	991	129	308	99	45	87	63	179
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	3685	85	276	991	129	308	99	45	87	63	179
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	3685	85	276	991	129	308	99	45	87	63	179
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:	34	3685	85	276	991	129	308	99	45	87	63	179
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	2.93	0.07	2.00	2.64	0.36	2.00	0.68	0.32	2.00	0.26	0.74
Final Sat.:	1750	5473	127	3150	4956	643	3150	1232	568	3150	465	1335
Capacity Analysis Module:												
Vol/Sat:	0.02	0.67	0.67	0.09	0.20	0.20	0.10	0.08	0.08	0.03	0.13	0.13
Crit Moves:		****		****			****				****	
Green Time:	23.4	114	113.9	14.8	105	105.3	16.6	25.3	25.3	14.0	22.7	22.7
Volume/Cap:	0.15	1.06	1.06	1.06	0.34	0.34	1.06	0.57	0.57	0.36	1.06	1.06
Uniform Del:	69.5	33.1	33.1	82.6	19.4	19.4	81.7	72.3	72.3	78.7	78.6	78.6
IncremntDel:	0.3	35.7	35.7	73.9	0.1	0.1	70.9	3.1	3.1	0.9	77.7	77.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.8	68.8	68.8	156.5	19.4	19.4	152.6	75.4	75.4	79.6	156	156.4
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:	69.8	68.8	68.8	156.5	19.4	19.4	152.6	75.4	75.4	79.6	156	156.4
LOS by Move:	E	E	E	F	B-	B-	F	E-	E-	E-	F	F
HCM2kAvgQ:	42	1943	1943	339	259	259	324	192	192	76	487	487

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #10: Mathilda Ave / McKinley Ave

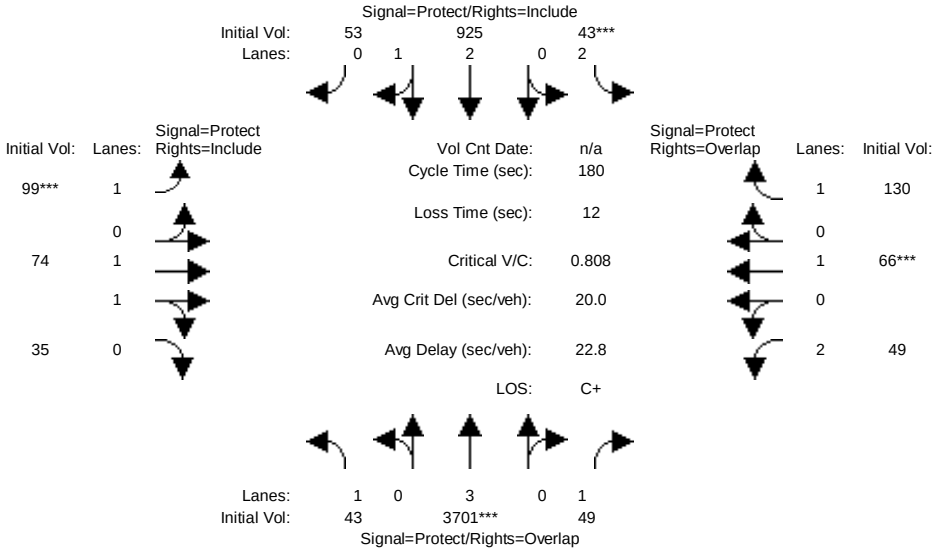


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	27	2619	99	48	660	38	61	20	15	13	1	62
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	35	3424	129	63	863	50	80	26	20	17	1	81
Added Vol:	1	434	24	20	123	9	31	3	2	19	1	35
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	36	3858	153	83	986	59	111	29	22	36	2	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:	36	3858	153	83	986	59	111	29	22	36	2	116
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	3858	153	83	986	59	111	29	22	36	2	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
FinalVolume:	36	3858	153	83	986	59	111	29	22	36	2	116
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	2.83	0.17	1.00	0.57	0.43	1.89	0.11	1.00
Final Sat.:	1750	5386	214	3150	5285	315	1750	1034	766	3305	212	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.72	0.72	0.03	0.19	0.19	0.06	0.03	0.03	0.01	0.01	0.07
Crit Moves:		****		****			****					****
Green Time:	15.7	142	142.3	5.2	132	131.8	12.6	13.7	13.7	6.8	8.0	13.2
Volume/Cap:	0.24	0.91	0.91	0.91	0.25	0.25	0.91	0.37	0.37	0.29	0.25	0.90
Uniform Del:	76.6	13.9	13.9	87.1	7.9	7.9	83.1	79.1	79.1	84.2	83.1	82.8
IncremntDel:	0.8	3.1	3.1	64.3	0.0	0.0	53.4	1.7	1.7	0.3	0.2	42.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	77.4	17.1	17.1	151.4	8.0	8.0	136.6	80.8	80.8	84.5	83.3	124.9
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:	77.4	17.1	17.1	151.4	8.0	8.0	136.6	80.8	80.8	84.5	83.3	124.9
LOS by Move:	E-	B	B	F	A	A	F	F	F	F	F	F
HCM2kAvgQ:	47	1368	1368	81	156	156	229	78	78	35	33	237

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #11: Mathilda Ave / Iowa Ave

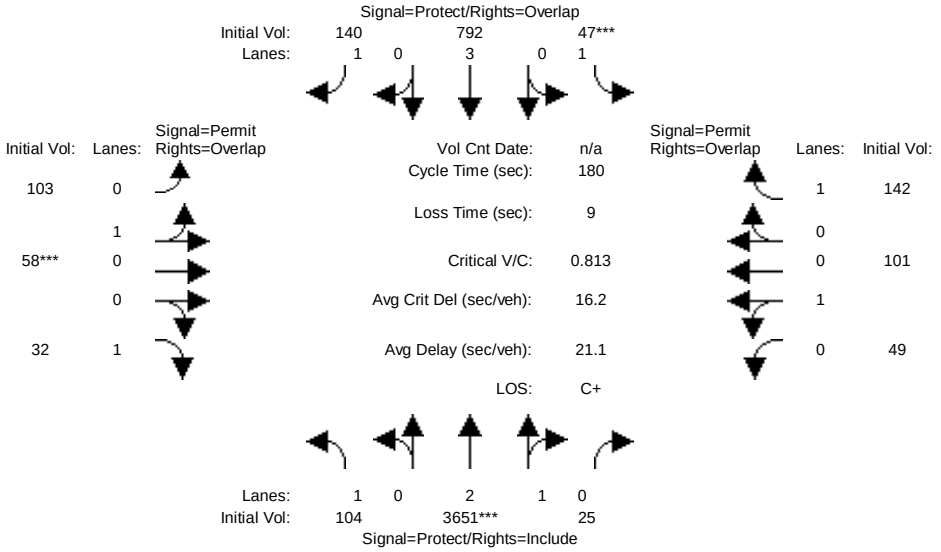


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	18	2526	29	27	613	31	63	48	16	23	41	67
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	24	3302	38	35	801	41	82	63	21	30	54	88
Added Vol:	19	399	11	8	124	12	17	11	14	19	12	42
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	43	3701	49	43	925	53	99	74	35	49	66	130
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:	43	3701	49	43	925	53	99	74	35	49	66	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	43	3701	49	43	925	53	99	74	35	49	66	130
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:	43	3701	49	43	925	53	99	74	35	49	66	130
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	0.99	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.83	0.17	1.00	1.34	0.66	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5299	301	1750	2510	1188	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.02	0.65	0.03	0.01	0.17	0.17	0.06	0.03	0.03	0.02	0.03	0.07
Crit Moves:		****		****			****				****	
Green Time:	29.8	139	148.8	8.0	117	117.1	12.1	11.2	11.2	9.9	9.0	17.0
Volume/Cap:	0.15	0.84	0.03	0.31	0.27	0.27	0.84	0.47	0.47	0.28	0.69	0.78
Uniform Del:	64.2	13.4	2.8	83.3	13.3	13.3	83.0	81.6	81.6	81.6	84.1	79.7
IncremntDel:	0.2	1.6	0.0	1.3	0.0	0.0	39.1	1.5	1.5	0.9	19.5	21.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.5	15.0	2.8	84.6	13.4	13.4	122.1	83.1	83.1	82.5	104	101.0
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:	64.5	15.0	2.8	84.6	13.4	13.4	122.1	83.1	83.1	82.5	104	101.0
LOS by Move:	E	B	A	F	B	B	F	F	F	F	F	F
HCM2kAvgQ:	50	1081	12	34	186	186	160	73	73	45	120	233

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #12: Mathilda Ave / Olive Ave

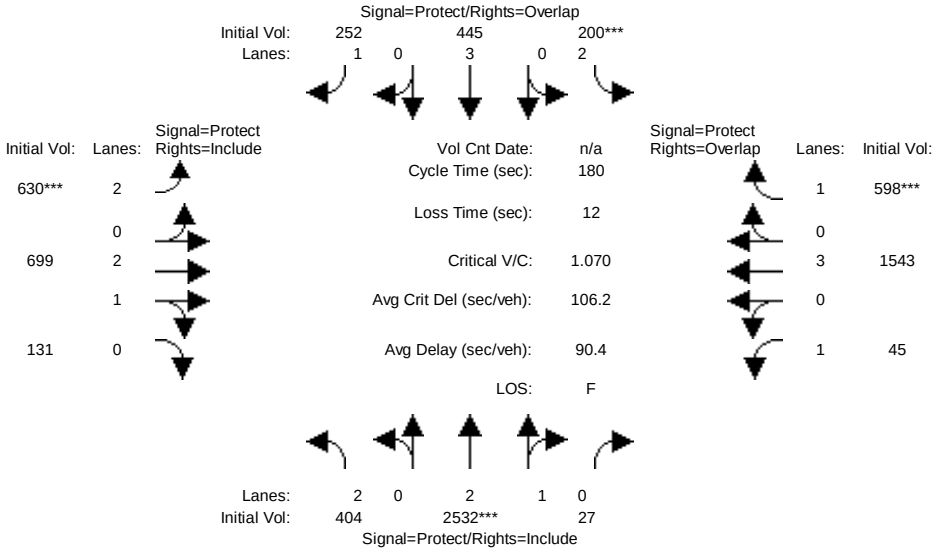


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	74	2520	12	26	538	65	67	29	22	26	62	65
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	97	3294	16	34	703	85	88	38	29	34	81	85
Added Vol:	7	357	9	13	89	55	15	20	3	15	20	57
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	104	3651	25	47	792	140	103	58	32	49	101	142
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:	104	3651	25	47	792	140	103	58	32	49	101	142
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	104	3651	25	47	792	140	103	58	32	49	101	142
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:	104	3651	25	47	792	140	103	58	32	49	101	142
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	2.98	0.02	1.00	3.00	1.00	0.64	0.36	1.00	0.33	0.67	1.00
Final Sat.:	1750	5562	38	1750	5700	1750	1151	649	1750	588	1212	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.66	0.66	0.03	0.14	0.08	0.09	0.09	0.02	0.08	0.08	0.08
Crit Moves:		****		****				****				
Green Time:	45.2	145	145.3	5.9	106	106.0	19.7	19.7	65.0	19.7	19.7	25.7
Volume/Cap:	0.24	0.81	0.81	0.81	0.24	0.14	0.81	0.81	0.05	0.76	0.76	0.57
Uniform Del:	53.6	9.7	9.7	86.5	17.6	16.5	78.3	78.3	37.4	77.8	77.8	72.0
IncremntDel:	0.3	1.2	1.2	56.7	0.0	0.1	22.0	22.0	0.0	15.7	15.7	3.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	53.9	10.9	10.9	143.2	17.7	16.6	100.4	100	37.5	93.6	93.6	75.1
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:	53.9	10.9	10.9	143.2	17.7	16.6	100.4	100	37.5	93.6	93.6	75.1
LOS by Move:	D-	B+	B+	F	B	B	F	F	D+	F	F	E-
HCM2kAvgQ:	120	972	972	78	166	89	276	276	29	250	250	210

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #13: Mathilda Ave / El Camino Real

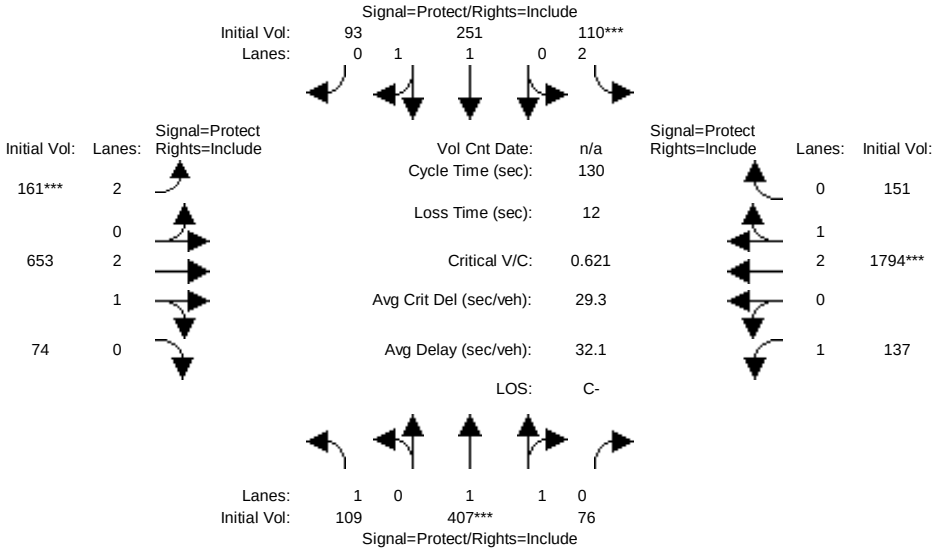


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	253	1793	17	132	277	178	443	468	78	8	1099	375
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	331	2344	22	173	362	233	579	612	102	10	1437	490
Added Vol:	73	188	5	27	83	19	51	87	29	35	106	108
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	404	2532	27	200	445	252	630	699	131	45	1543	598
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:	404	2532	27	200	445	252	630	699	131	45	1543	598
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	404	2532	27	200	445	252	630	699	131	45	1543	598
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:	404	2532	27	200	445	252	630	699	131	45	1543	598
Saturation Flow Module:												
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	2.51	0.49	1.00	3.00	1.00
Final Sat.:	3150	5540	60	3150	5700	1750	3150	4715	884	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.13	0.46	0.46	0.06	0.08	0.14	0.20	0.15	0.15	0.03	0.27	0.34
Crit Moves:		****		****			****					****
Green Time:	54.4	76.9	76.9	10.7	33.1	66.8	33.6	65.7	65.7	14.8	46.8	57.5
Volume/Cap:	0.42	1.07	1.07	1.07	0.42	0.39	1.07	0.41	0.41	0.32	1.04	1.07
Uniform Del:	50.3	51.6	51.6	84.7	65.0	41.6	73.2	42.6	42.6	77.9	66.6	61.3
IncremntDel:	0.3	40.6	40.6	85.8	0.3	0.4	57.3	0.1	0.1	1.3	34.5	58.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	50.6	92.1	92.1	170.5	65.3	42.0	130.5	42.7	42.7	79.1	101	119.5
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:	50.6	92.1	92.1	170.5	65.3	42.0	130.5	42.7	42.7	79.1	101	119.5
LOS by Move:	D	F	F	F	E	D	F	D	D	E-	F	F
HCM2kAvgQ:	262	1450	1450	261	182	267	644	275	275	69	877	1113

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #14: El Camino Real and Sunnyvale Ave

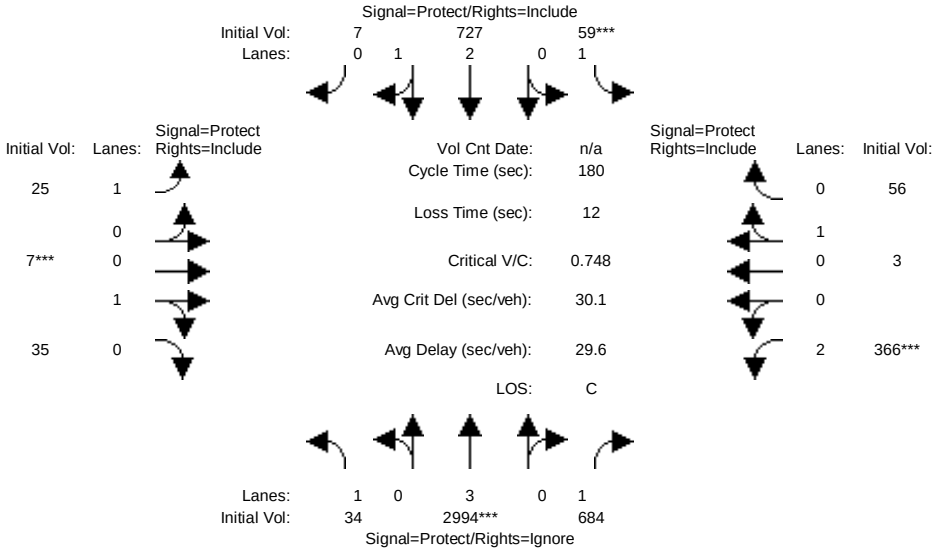


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	63	308	48	59	181	69	122	420	44	86	1205	109
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	82	403	63	77	237	90	159	549	58	112	1575	142
Added Vol:	27	4	13	33	14	3	2	104	16	25	219	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	109	407	76	110	251	93	161	653	74	137	1794	151
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:	109	407	76	110	251	93	161	653	74	137	1794	151
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	109	407	76	110	251	93	161	653	74	137	1794	151
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:	109	407	76	110	251	93	161	653	74	137	1794	151
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	0.83	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.68	0.32	2.00	1.44	0.56	2.00	2.69	0.31	1.00	2.76	0.24
Final Sat.:	1750	3119	581	3150	2696	1003	3150	5033	567	1750	5163	436
Capacity Analysis Module:												
Vol/Sat:	0.06	0.13	0.13	0.03	0.09	0.09	0.05	0.13	0.13	0.08	0.35	0.35
Crit Moves:		****		****			****				****	
Green Time:	13.9	27.3	27.3	7.3	20.7	20.7	10.7	52.0	52.0	31.4	72.7	72.7
Volume/Cap:	0.58	0.62	0.62	0.62	0.58	0.58	0.62	0.32	0.32	0.32	0.62	0.62
Uniform Del:	55.3	46.7	46.7	60.0	50.7	50.7	57.7	26.9	26.9	40.5	19.4	19.4
IncremntDel:	4.7	1.6	1.6	6.7	1.5	1.5	4.6	0.1	0.1	0.4	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	60.0	48.2	48.2	66.6	52.2	52.2	62.3	27.0	27.0	41.0	19.8	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:	60.0	48.2	48.2	66.6	52.2	52.2	62.3	27.0	27.0	41.0	19.8	19.8
LOS by Move:	E+	D	D	E	D-	D-	E	C	C	D	B-	B-
HCM2kAvgQ:	134	241	241	91	180	180	120	165	165	123	443	443

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

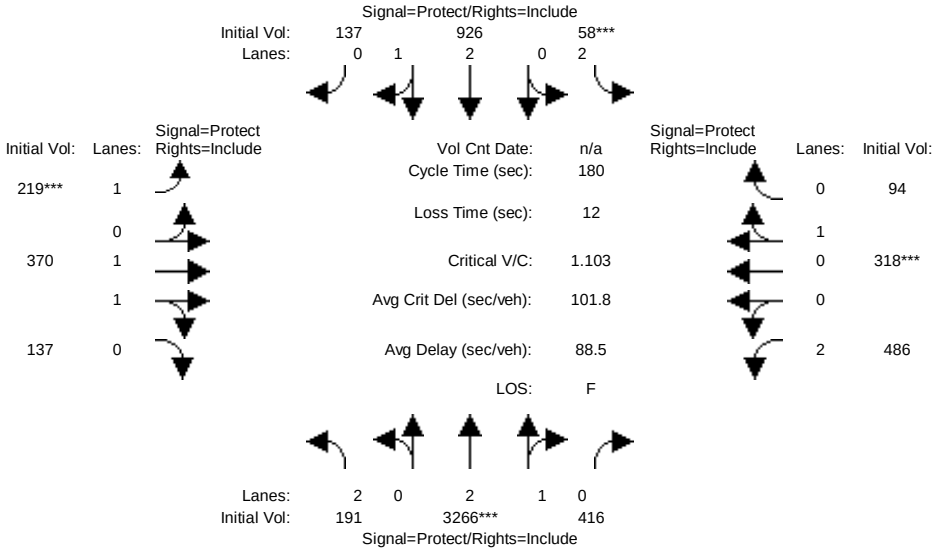


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	26	2117	496	35	452	5	19	5	27	257	2	24
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	34	2768	648	46	591	7	25	7	35	336	3	31
Added Vol:	0	226	36	13	136	0	0	0	0	30	0	25
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	34	2994	684	59	727	7	25	7	35	366	3	56
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	34	2994	0	59	727	7	25	7	35	366	3	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	2994	0	59	727	7	25	7	35	366	3	56
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	34	2994	0	59	727	7	25	7	35	366	3	56
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.97	0.03	1.00	0.16	0.84	2.00	0.04	0.96
Final Sat.:	1750	5700	1750	1750	5550	50	1750	281	1519	3150	80	1720
Capacity Analysis Module:												
Vol/Sat:	0.02	0.53	0.00	0.03	0.13	0.13	0.01	0.02	0.02	0.12	0.03	0.03
Crit Moves:		****		****				****		****		
Green Time:	29.6	121	0.0	7.8	99.6	99.6	14.3	12.0	12.0	26.9	24.5	24.5
Volume/Cap:	0.12	0.78	0.00	0.78	0.24	0.24	0.18	0.35	0.35	0.78	0.24	0.24
Uniform Del:	64.1	20.1	0.0	85.3	20.7	20.7	77.4	80.3	80.3	73.7	69.4	69.4
IncremntDel:	0.2	1.1	0.0	39.2	0.0	0.0	0.6	1.8	1.8	8.1	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	64.3	21.2	0.0	124.5	20.7	20.7	78.0	82.0	82.0	81.8	69.9	69.9
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:	64.3	21.2	0.0	124.5	20.7	20.7	78.0	82.0	82.0	81.8	69.9	69.9
LOS by Move:	E	C+	A	F	C+	C+	E-	F	F	F	E	E
HCM2kAvgQ:	39	865	0	127	168	168	37	65	65	331	77	77

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

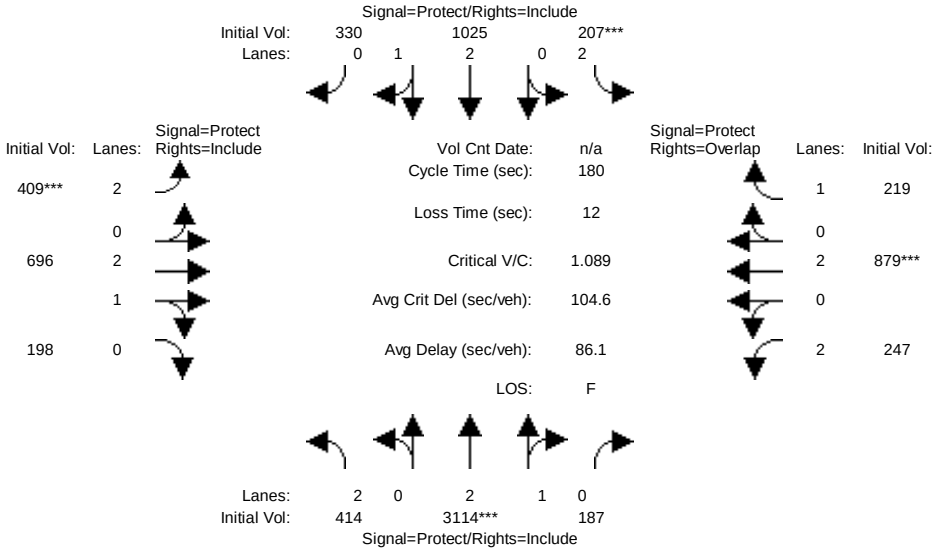


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	143	2339	315	32	599	99	150	280	96	366	237	48
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	187	3058	412	42	783	129	196	366	126	478	310	63
Added Vol:	4	208	4	16	143	8	23	4	11	8	8	31
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	191	3266	416	58	926	137	219	370	137	486	318	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:	191	3266	416	58	926	137	219	370	137	486	318	94
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	191	3266	416	58	926	137	219	370	137	486	318	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:	191	3266	416	58	926	137	219	370	137	486	318	94
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.98	0.95	0.83	0.95	0.95
Lanes:	2.00	2.65	0.35	2.00	2.60	0.40	1.00	1.45	0.55	2.00	0.77	0.23
Final Sat.:	3150	4967	632	3150	4875	723	1750	2702	997	3150	1390	410
Capacity Analysis Module:												
Vol/Sat:	0.06	0.66	0.66	0.02	0.19	0.19	0.13	0.14	0.14	0.15	0.23	0.23
Crit Moves:		****		****			****				****	
Green Time:	26.8	107	106.6	4.0	83.9	83.9	20.3	27.0	27.0	30.4	37.1	37.1
Volume/Cap:	0.41	1.11	1.11	0.83	0.41	0.41	1.11	0.91	0.91	0.91	1.11	1.11
Uniform Del:	69.4	36.7	36.7	87.7	31.7	31.7	79.8	75.4	75.4	73.5	71.5	71.5
IncremntDel:	0.6	54.5	54.5	52.7	0.1	0.1	96.7	19.7	19.7	20.3	79.9	79.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	70.0	91.2	91.2	140.4	31.8	31.8	176.5	95.1	95.1	93.8	151	151.3
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:	70.0	91.2	91.2	140.4	31.8	31.8	176.5	95.1	95.1	93.8	151	151.3
LOS by Move:	E	F	F	F	C	C	F	F	F	F	F	F
HCM2kAvgQ:	131	1973	1973	55	314	314	475	430	430	475	807	807

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

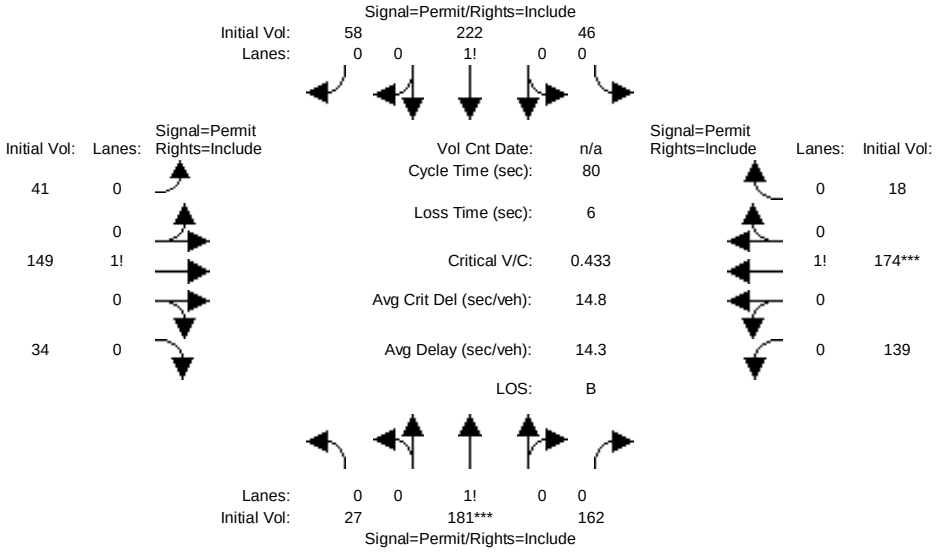


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	312	2251	121	148	682	242	280	433	140	186	659	166
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	408	2943	158	193	892	316	366	566	183	243	862	217
Added Vol:	6	171	29	14	133	14	43	130	15	4	17	2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	414	3114	187	207	1025	330	409	696	198	247	879	219
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	414	3114	187	207	1025	330	409	696	198	247	879	219
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	414	3114	187	207	1025	330	409	696	198	247	879	219
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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:	414	3114	187	207	1025	330	409	696	198	247	879	219
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.98	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.82	0.18	2.00	2.24	0.76	2.00	2.31	0.69	2.00	2.00	1.00
Final Sat.:	3150	5282	318	3150	4233	1365	3150	4358	1240	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.13	0.59	0.59	0.07	0.24	0.24	0.13	0.16	0.16	0.08	0.23	0.13
Crit Moves:		****		****			****				****	
Green Time:	38.1	97.4	97.4	10.9	70.2	70.2	21.5	40.0	40.0	19.7	38.2	49.1
Volume/Cap:	0.62	1.09	1.09	1.09	0.62	0.62	1.09	0.72	0.72	0.72	1.09	0.46
Uniform Del:	64.4	41.3	41.3	84.6	44.2	44.2	79.3	64.8	64.8	77.5	70.9	54.4
IncremntDel:	1.8	46.3	46.3	91.0	0.6	0.6	72.5	2.1	2.1	7.1	58.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	66.2	87.6	87.6	175.5	44.7	44.7	151.7	66.8	66.8	84.6	130	55.1
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:	66.2	87.6	87.6	175.5	44.7	44.7	151.7	66.8	66.8	84.6	130	55.1
LOS by Move:	E	F	F	F	D	D	F	E	E	F	F	E+
HCM2kAvgQ:	321	1872	1872	225	494	494	436	387	387	230	799	268

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #18: Pastoria Ave and Washington St

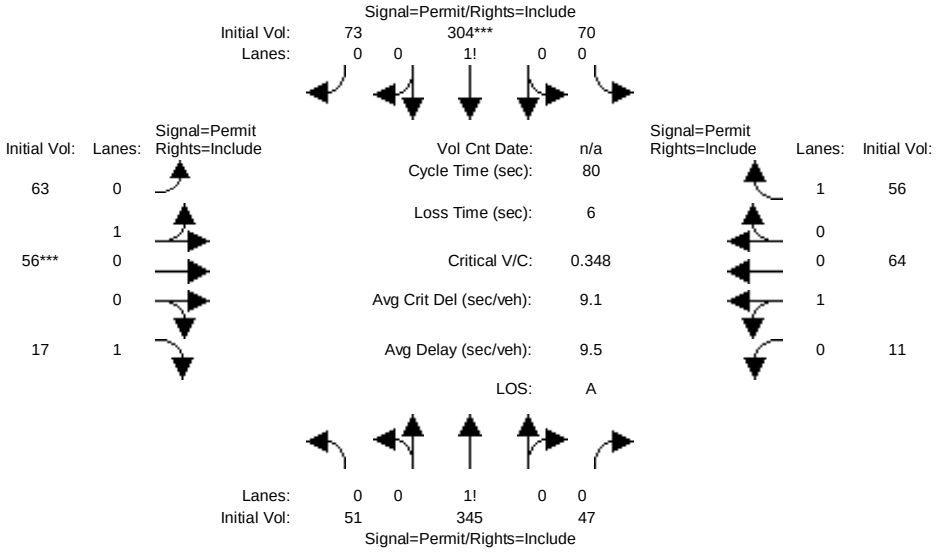


Street Name:	Pastoria Ave						Washington St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	20	91	113	18	59	9	7	109	22	98	129	6
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	26	119	148	24	77	12	9	142	29	128	169	8
Added Vol:	1	62	14	22	145	46	32	7	5	11	5	10
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	27	181	162	46	222	58	41	149	34	139	174	18
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	181	162	46	222	58	41	149	34	139	174	18
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	27	181	162	46	222	58	41	149	34	139	174	18
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:	27	181	162	46	222	58	41	149	34	139	174	18
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.07	0.49	0.44	0.14	0.68	0.18	0.18	0.67	0.15	0.42	0.53	0.05
Final Sat.:	128	856	765	245	1195	311	321	1166	263	736	919	94
Capacity Analysis Module:												
Vol/Sat:	0.21	0.21	0.21	0.19	0.19	0.19	0.13	0.13	0.13	0.19	0.19	0.19
Crit Moves:		****									****	
Green Time:	39.1	39.1	39.1	39.1	39.1	39.1	34.9	34.9	34.9	34.9	34.9	34.9
Volume/Cap:	0.43	0.43	0.43	0.38	0.38	0.38	0.29	0.29	0.29	0.43	0.43	0.43
Uniform Del:	13.3	13.3	13.3	12.9	12.9	12.9	14.6	14.6	14.6	15.7	15.7	15.7
IncremntDel:	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	13.6	13.6	13.6	13.1	13.1	13.1	14.8	14.8	14.8	16.0	16.0	16.0
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:	13.6	13.6	13.6	13.1	13.1	13.1	14.8	14.8	14.8	16.0	16.0	16.0
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	164	164	164	139	139	139	93	93	93	140	140	140

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #19: Pastoria Ave / Iowa Ave

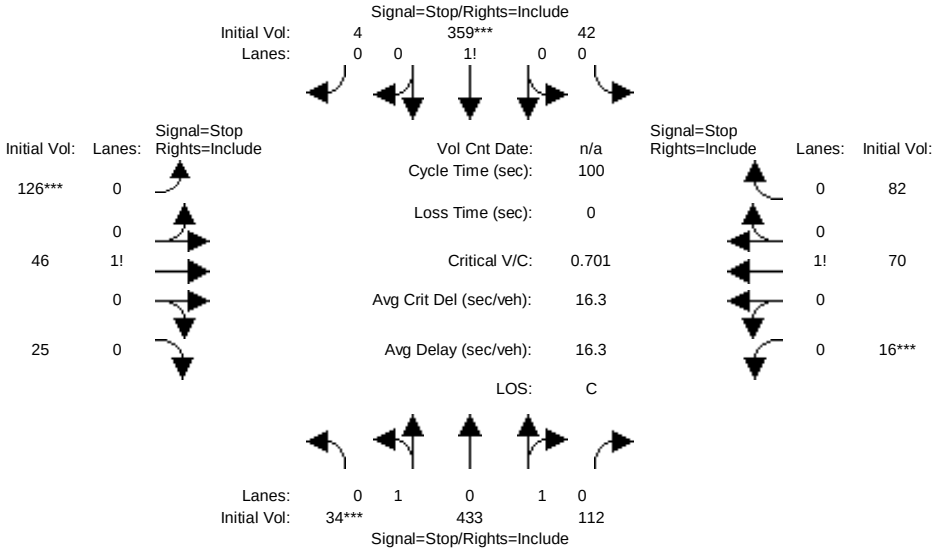


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	38	226	34	40	156	26	36	42	9	7	46	36
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	50	295	44	52	204	34	47	55	12	9	60	47
Added Vol:	1	50	3	18	100	39	16	1	5	2	4	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	51	345	47	70	304	73	63	56	17	11	64	56
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:	51	345	47	70	304	73	63	56	17	11	64	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	51	345	47	70	304	73	63	56	17	11	64	56
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:	51	345	47	70	304	73	63	56	17	11	64	56
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.11	0.78	0.11	0.16	0.68	0.16	0.53	0.47	1.00	0.15	0.85	1.00
Final Sat.:	200	1363	187	275	1189	286	954	846	1750	267	1533	1750
Capacity Analysis Module:												
Vol/Sat:	0.25	0.25	0.25	0.26	0.26	0.26	0.07	0.07	0.01	0.04	0.04	0.03
Crit Moves:					****			****				
Green Time:	58.8	58.8	58.8	58.8	58.8	58.8	15.2	15.2	15.2	15.2	15.2	15.2
Volume/Cap:	0.34	0.34	0.34	0.35	0.35	0.35	0.35	0.35	0.05	0.22	0.22	0.17
Uniform Del:	3.8	3.8	3.8	3.8	3.8	3.8	28.1	28.1	26.5	27.4	27.4	27.1
IncremntDel:	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.6	0.1	0.3	0.3	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.9	3.9	3.9	3.9	3.9	3.9	28.7	28.7	26.6	27.7	27.7	27.3
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:	3.9	3.9	3.9	3.9	3.9	3.9	28.7	28.7	26.6	27.7	27.7	27.3
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	108	108	108	109	109	109	65	65	9	39	39	29

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Cum + Op 1 AM

Intersection #20: Pastoria Ave / Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	26	296	82	17	208	3	96	33	19	10	52	56
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	34	387	107	22	272	4	126	43	25	13	68	73
Added Vol:	0	46	5	20	87	0	0	3	0	3	2	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	34	433	112	42	359	4	126	46	25	16	70	82
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	433	112	42	359	4	126	46	25	16	70	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	34	433	112	42	359	4	126	46	25	16	70	82
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:	34	433	112	42	359	4	126	46	25	16	70	82
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.12	1.49	0.39	0.10	0.89	0.01	0.64	0.23	0.13	0.09	0.42	0.49
Final Sat.:	65	840	224	60	512	6	311	114	61	47	205	240
Capacity Analysis Module:												
Vol/Sat:	0.53	0.52	0.50	0.70	0.70	0.70	0.40	0.40	0.40	0.34	0.34	0.34
Crit Moves:	****				****		****			****		
Delay/Veh:	15.7	15.2	14.4	21.0	21.0	21.0	13.7	13.7	13.7	12.4	12.4	12.4
Delay Adj:	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:	15.7	15.2	14.4	21.0	21.0	21.0	13.7	13.7	13.7	12.4	12.4	12.4
LOS by Move:	C	C	B	C	C	C	B	B	B	B	B	B
ApproachDel:	15.0			21.0			13.7			12.4		
Delay Adj:	1.00			1.00			1.00			1.00		
ApprAdjDel:	15.0			21.0			13.7			12.4		
LOS by Appr:	C			C			B			B		
AllWayAvgQ:	25.1	22.7	22.7	48.0	48.0	48.0	13.3	13.3	13.3	9.8	9.8	9.8

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave / Olive 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	34	433	112	42	359	4	126	46	25	16	70	82

Major Street Volume: 984
Minor Approach Volume: 196
Minor Approach Volume Threshold: 290

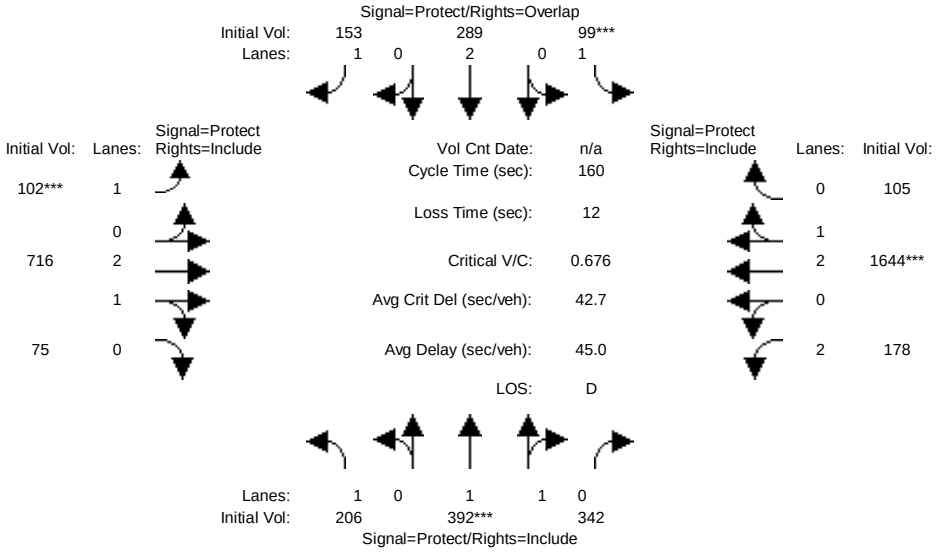
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

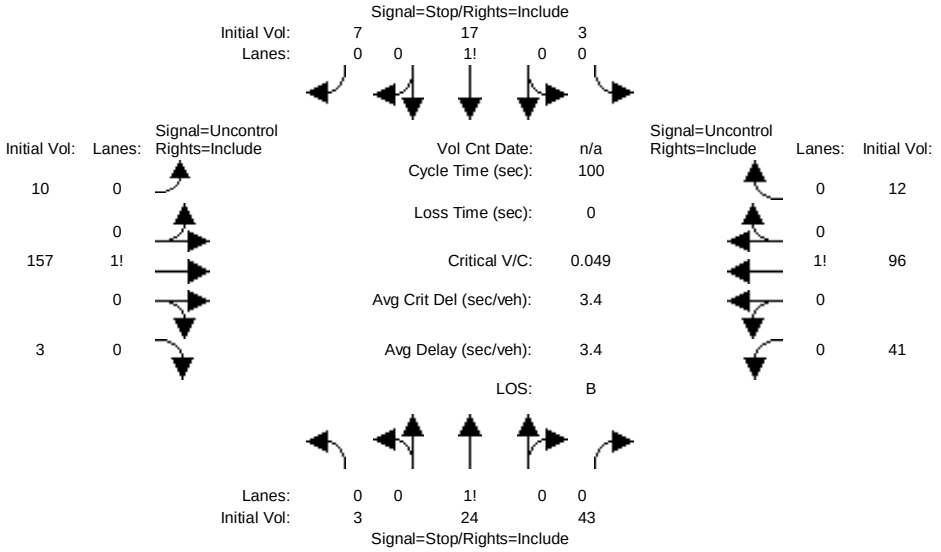


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	4.9	4.9
Volume Module:												
Base Vol:	157	276	259	58	200	88	69	432	53	135	1147	75
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	205	361	339	76	261	115	90	565	69	176	1499	98
Added Vol:	1	31	3	23	28	38	12	151	6	2	145	7
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	206	392	342	99	289	153	102	716	75	178	1644	105
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:	206	392	342	99	289	153	102	716	75	178	1644	105
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	206	392	342	99	289	153	102	716	75	178	1644	105
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:	206	392	342	99	289	153	102	716	75	178	1644	105
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.95	0.92	1.00	0.92	0.92	0.99	0.95	0.83	0.98	0.95
Lanes:	1.00	1.04	0.96	1.00	2.00	1.00	1.00	2.70	0.30	2.00	2.81	0.19
Final Sat.:	1750	1975	1722	1750	3800	1750	1750	5066	533	3150	5263	336
Capacity Analysis Module:												
Vol/Sat:	0.12	0.20	0.20	0.06	0.08	0.09	0.06	0.14	0.14	0.06	0.31	0.31
Crit Moves:		****		****			****				****	
Green Time:	36.6	46.9	46.9	13.4	23.7	37.5	13.8	55.7	55.7	32.0	73.9	73.9
Volume/Cap:	0.52	0.68	0.68	0.68	0.52	0.37	0.68	0.41	0.41	0.28	0.68	0.68
Uniform Del:	53.9	49.8	49.8	71.2	62.9	51.4	70.9	39.6	39.6	54.2	33.7	33.7
IncremntDel:	1.2	1.7	1.7	12.0	0.8	0.6	11.6	0.1	0.1	0.2	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	55.1	51.6	51.6	83.2	63.7	52.0	82.5	39.7	39.7	54.5	34.4	34.4
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:	55.1	51.6	51.6	83.2	63.7	52.0	82.5	39.7	39.7	54.5	34.4	34.4
LOS by Move:	E+	D-	D-	F	E	D-	F	D	D	D-	C-	C-
HCM2kAvgQ:	233	403	403	157	173	170	161	243	243	102	520	520

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cum + Op 1 AM

Intersection #22: Charles St / Iowa Ave



Street Name:	Charles St						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:	2	15	17	2	13	5	8	103	2	10	62	9
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	3	20	22	3	17	7	10	135	3	13	81	12
Added Vol:	0	4	21	0	0	0	0	22	0	28	15	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	24	43	3	17	7	10	157	3	41	96	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	24	43	3	17	7	10	157	3	41	96	12
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	24	43	3	17	7	10	157	3	41	96	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:												
Cnflict Vol:	375	369	158	396	364	102	108	xxxx	xxxxx	159	xxxx	xxxxx
Potent Cap.:	581	559	885	562	562	950	1477	xxxx	xxxxx	1414	xxxx	xxxxx
Move Cap.:	547	538	885	502	542	950	1477	xxxx	xxxxx	1414	xxxx	xxxxx
Volume/Cap:	0.00	0.04	0.05	0.01	0.03	0.01	0.01	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	2.2	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	712	xxxxx	xxxx	602	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.3	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	10.6	xxxxx	xxxxx	11.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		10.6			11.3		xxxxxx			xxxxxx		
ApproachLOS:		B			B		*			*		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St / 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	24	43	3	17	7	10	157	3	41	96	12
ApproachDel:	10.6			11.3			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=414]
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=26]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=414]
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 #22 Charles St / 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	24	43	3	17	7	10	157	3	41	96	12

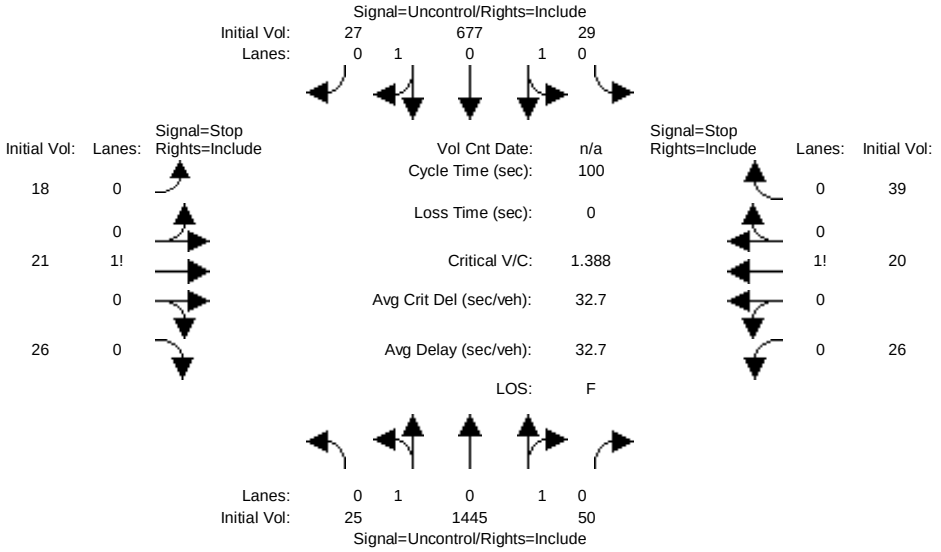
Major Street Volume: 319
Minor Approach Volume: 69
Minor Approach Volume Threshold: 524

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cum + Op 1 AM

Intersection #23: Mary Ave / Olive Ave



Street Name:	Mary Ave						Olive 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	924	36	22	476	21	14	16	20	18	15	30
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	25	1208	47	29	622	27	18	21	26	24	20	39
Added Vol:	0	237	3	0	55	0	0	0	0	2	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	25	1445	50	29	677	27	18	21	26	26	20	39
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	1445	50	29	677	27	18	21	26	26	20	39
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	1445	50	29	677	27	18	21	26	26	20	39
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	705	xxxx	xxxxx	1495	xxxx	xxxxx	1530	2293	352	1926	2282	748
Potent Cap.:	882	xxxx	xxxxx	440	xxxx	xxxxx	79	38	641	40	39	353
Move Cap.:	882	xxxx	xxxxx	440	xxxx	xxxxx	37	34	641	18	35	353
Volume/Cap:	0.03	xxxx	xxxx	0.07	xxxx	xxxx	0.50	0.61	0.04	1.39	0.56	0.11
Level Of Service Module:												
2Way95thQ:	2.2	xxxx	xxxxx	5.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	9.2	xxxx	xxxxx	13.8	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	B	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	57	xxxxx	xxxx	41	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxxx	5.5	xxxxx	xxxxx	9.0	xxxxx
Shrd ConDel:	9.2	xxxx	xxxxx	13.8	xxxx	xxxxx	xxxxx	285	xxxxx	xxxxx	703	xxxxx
Shared LOS:	A	*	*	B	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			285.3			702.7		
ApproachLOS:	*			*			F			F		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1! 0		0	0 0 1! 0		0
Initial Vol:	25	1445	50	29	677	27	18	21	26	26	20	39
ApproachDel:	xxxxxx			xxxxxx			285.3			702.7		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=5.2]
SUCCEED - Vehicle-hours greater than or equal to 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=2403]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=16.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=84]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2403]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1 0	1	0	0 1 0	1	0	0 0 1! 0		0	0 0 1! 0		0
Initial Vol:	25	1445	50	29	677	27	18	21	26	26	20	39

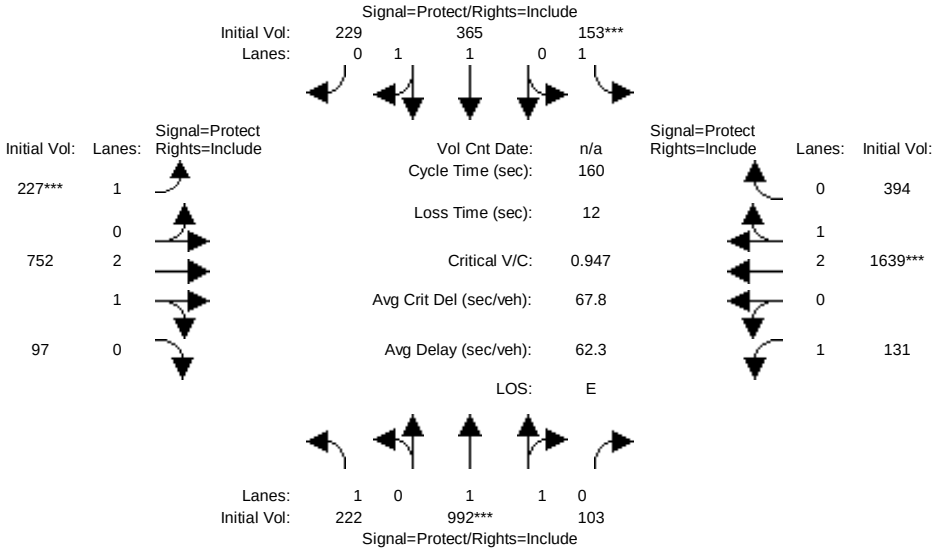
Major Street Volume: 2253
Minor Approach Volume: 84
Minor Approach Volume Threshold: 5 [less than minimum of 100]

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).

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #24: Mary Ave / El Camino Real

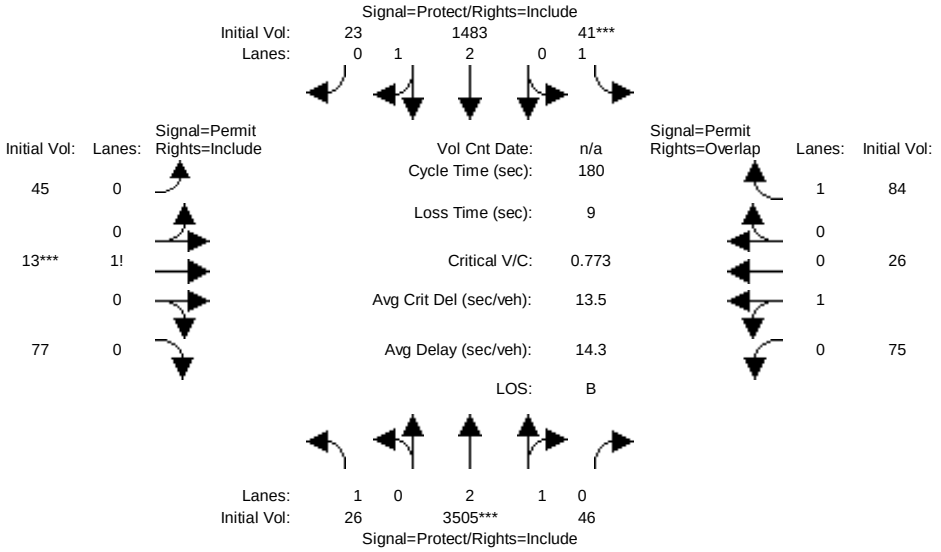


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	168	668	76	102	263	164	145	464	68	95	1183	236
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	220	873	99	133	344	214	190	607	89	124	1547	309
Added Vol:	2	119	4	20	21	15	37	145	8	7	92	85
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	222	992	103	153	365	229	227	752	97	131	1639	394
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:	222	992	103	153	365	229	227	752	97	131	1639	394
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	222	992	103	153	365	229	227	752	97	131	1639	394
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:	222	992	103	153	365	229	227	752	97	131	1639	394
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	0.99	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.81	0.19	1.00	1.21	0.79	1.00	2.64	0.36	1.00	2.40	0.60
Final Sat.:	1750	3351	349	1750	2271	1428	1750	4960	639	1750	4514	1084
Capacity Analysis Module:												
Vol/Sat:	0.13	0.30	0.30	0.09	0.16	0.16	0.13	0.15	0.15	0.07	0.36	0.36
Crit Moves:		****		****			****				****	
Green Time:	28.6	50.0	50.0	14.8	36.2	36.2	21.9	55.6	55.6	27.5	61.3	61.3
Volume/Cap:	0.71	0.95	0.95	0.95	0.71	0.71	0.95	0.44	0.44	0.44	0.95	0.95
Uniform Del:	61.8	53.7	53.7	72.2	57.0	57.0	68.5	40.1	40.1	59.3	47.8	47.8
IncremntDel:	7.4	15.5	15.5	55.1	2.8	2.8	43.6	0.2	0.2	1.0	9.8	9.8
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.2	69.2	69.2	127.3	59.9	59.9	112.1	40.3	40.3	60.3	57.6	57.6
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:	69.2	69.2	69.2	127.3	59.9	59.9	112.1	40.3	40.3	60.3	57.6	57.6
LOS by Move:	E	E	E	F	E+	E+	F	D	D	E	E+	E+
HCM2kAvgQ:	280	745	745	238	346	346	390	265	265	160	922	922

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

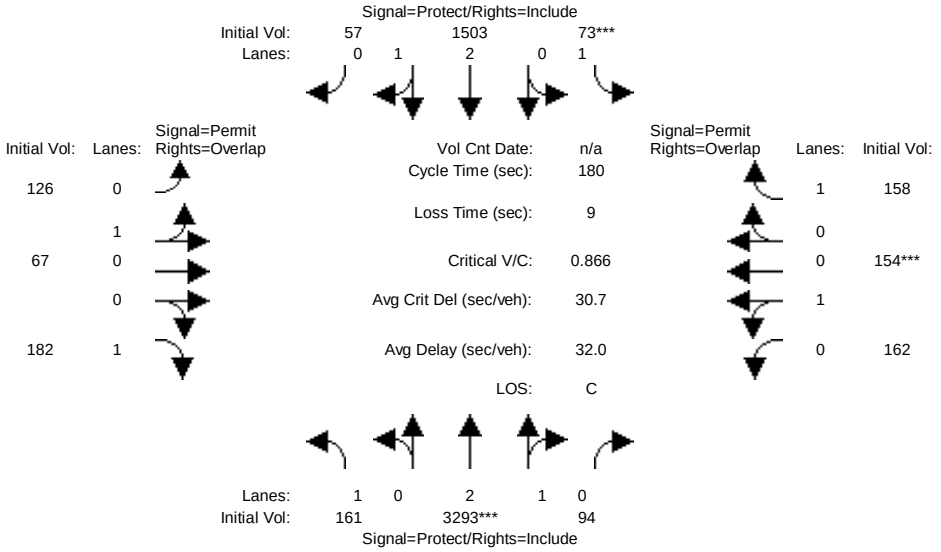


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	2558	32	9	1005	13	29	10	37	35	20	61
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	22	3344	42	12	1314	17	38	13	48	46	26	80
Added Vol:	4	161	4	29	169	6	7	0	29	29	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	26	3505	46	41	1483	23	45	13	77	75	26	84
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	3505	46	41	1483	23	45	13	77	75	26	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	26	3505	46	41	1483	23	45	13	77	75	26	84
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:	26	3505	46	41	1483	23	45	13	77	75	26	84
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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.96	0.04	1.00	2.95	0.05	0.33	0.10	0.57	0.74	0.26	1.00
Final Sat.:	1750	5528	72	1750	5514	86	581	169	1000	1334	466	1750
Capacity Analysis Module:												
Vol/Sat:	0.01	0.63	0.63	0.02	0.27	0.27	0.08	0.08	0.08	0.06	0.06	0.05
Crit Moves:		****		****				****				
Green Time:	16.9	147	147.1	6.0	136	136.2	17.9	17.9	17.9	17.9	17.9	23.9
Volume/Cap:	0.16	0.78	0.78	0.70	0.36	0.36	0.78	0.78	0.78	0.56	0.56	0.36
Uniform Del:	75.0	8.2	8.2	86.1	7.3	7.3	79.1	79.1	79.1	77.3	77.3	71.1
IncremntDel:	0.5	0.9	0.9	31.3	0.1	0.1	19.4	19.4	19.4	4.0	4.0	1.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	75.5	9.1	9.1	117.4	7.3	7.3	98.5	98.5	98.5	81.3	81.3	72.0
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:	75.5	9.1	9.1	117.4	7.3	7.3	98.5	98.5	98.5	81.3	81.3	72.0
LOS by Move:	E-	A	A	F	A	A	F	F	F	F	F	E
HCM2kAvgQ:	33	796	796	91	226	226	239	239	239	156	156	117

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

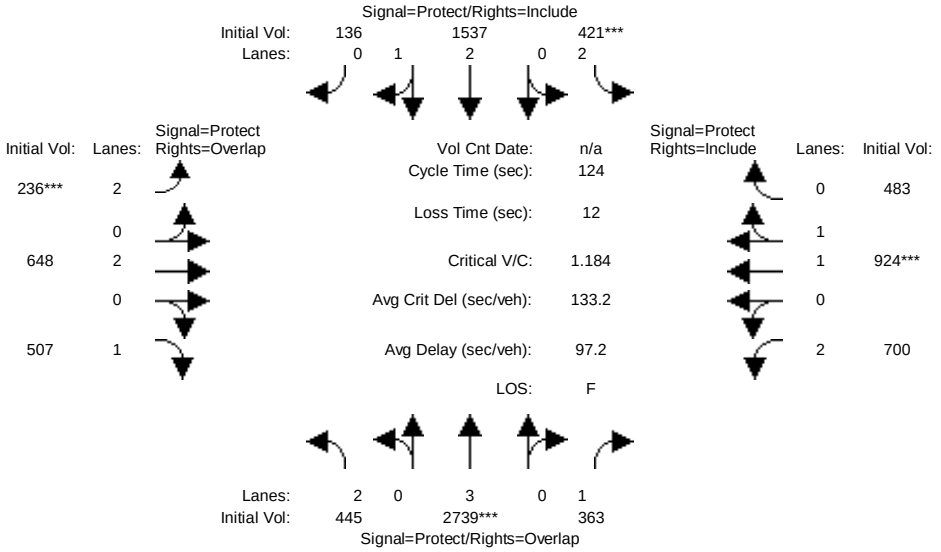


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	120	2397	69	34	1003	40	92	51	117	102	118	118
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	157	3134	90	44	1311	52	120	67	153	133	154	154
Added Vol:	4	159	4	29	192	5	6	0	29	29	0	4
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	161	3293	94	73	1503	57	126	67	182	162	154	158
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:	161	3293	94	73	1503	57	126	67	182	162	154	158
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	161	3293	94	73	1503	57	126	67	182	162	154	158
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:	161	3293	94	73	1503	57	126	67	182	162	154	158
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.91	0.09	1.00	2.89	0.11	0.65	0.35	1.00	0.51	0.49	1.00
Final Sat.:	1750	5444	156	1750	5394	206	1178	622	1750	923	877	1750
Capacity Analysis Module:												
Vol/Sat:	0.09	0.60	0.60	0.04	0.28	0.28	0.11	0.11	0.10	0.18	0.18	0.09
Crit Moves:		****		****							****	
Green Time:	33.3	126	125.7	8.7	101	101.1	36.6	36.6	69.9	36.6	36.6	45.3
Volume/Cap:	0.50	0.87	0.87	0.87	0.50	0.50	0.53	0.53	0.27	0.87	0.87	0.36
Uniform Del:	65.8	20.7	20.7	85.1	24.0	24.0	64.0	64.0	37.6	69.4	69.4	55.4
IncremntDel:	1.2	2.3	2.3	55.9	0.1	0.1	1.4	1.4	0.2	19.0	19.0	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	67.0	23.0	23.0	141.0	24.1	24.1	65.5	65.5	37.8	88.4	88.4	55.9
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:	67.0	23.0	23.0	141.0	24.1	24.1	65.5	65.5	37.8	88.4	88.4	55.9
LOS by Move:	E	C+	C+	F	C	C	E	E	D+	F	F	E+
HCM2kAvgQ:	197	1114	1114	123	427	427	254	254	178	504	504	191

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 AM

Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd

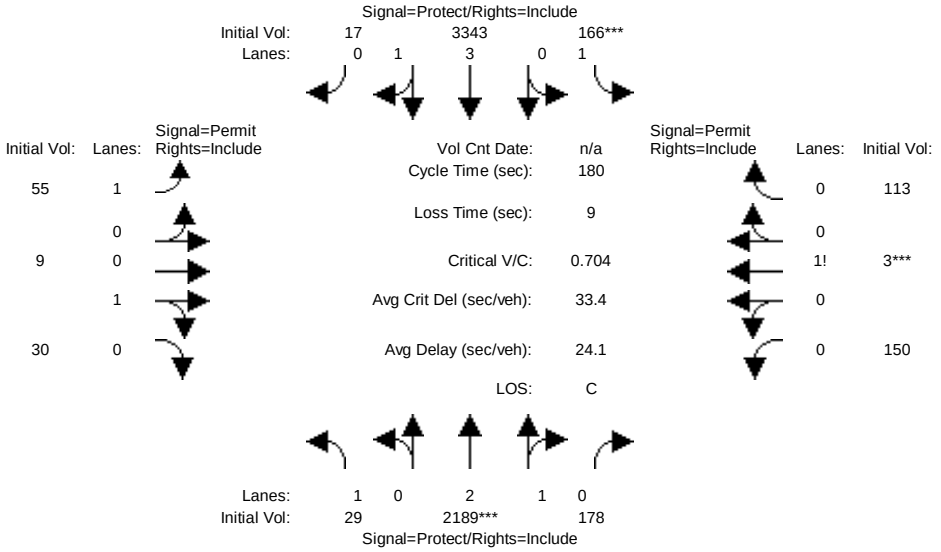


Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	337	1997	167	166	1144	100	175	195	366	521	619	345
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	441	2611	218	217	1496	131	229	255	478	681	809	451
Added Vol:	4	128	145	204	41	5	7	393	29	19	115	32
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	445	2739	363	421	1537	136	236	648	507	700	924	483
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:	445	2739	363	421	1537	136	236	648	507	700	924	483
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	445	2739	363	421	1537	136	236	648	507	700	924	483
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:	445	2739	363	421	1537	136	236	648	507	700	924	483
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	0.99	0.95	0.83	1.00	0.92	0.83	0.99	0.95
Lanes:	2.00	3.00	1.00	2.00	2.75	0.25	2.00	2.00	1.00	2.00	1.29	0.71
Final Sat.:	3150	5700	1750	3150	5145	454	3150	3800	1750	3150	2429	1269
Capacity Analysis Module:												
Vol/Sat:	0.14	0.48	0.21	0.13	0.30	0.30	0.07	0.17	0.29	0.22	0.38	0.38
Crit Moves:		****		****			****				****	
Green Time:	20.6	50.3	77.3	14.0	43.7	43.7	7.8	20.7	41.3	27.0	39.8	39.8
Volume/Cap:	0.85	1.18	0.33	1.18	0.85	0.85	1.18	1.02	0.87	1.02	1.18	1.18
Uniform Del:	50.2	36.8	11.1	55.0	37.1	37.1	58.1	51.6	38.8	48.5	42.1	42.1
IncremntDel:	12.3	87.6	0.2	107.8	3.7	3.7	122.2	41.2	13.3	39.9	91.6	91.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	62.4	124	11.3	162.8	40.7	40.7	180.3	92.9	52.1	88.4	134	133.7
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:	62.4	124	11.3	162.8	40.7	40.7	180.3	92.9	52.1	88.4	134	133.7
LOS by Move:	E	F	B+	F	D	D	F	F	D-	F	F	F
HCM2kAvgQ:	312	1355	174	378	517	517	268	449	561	560	1094	1094

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #5: Mathilda Ave / San Aleso Ave

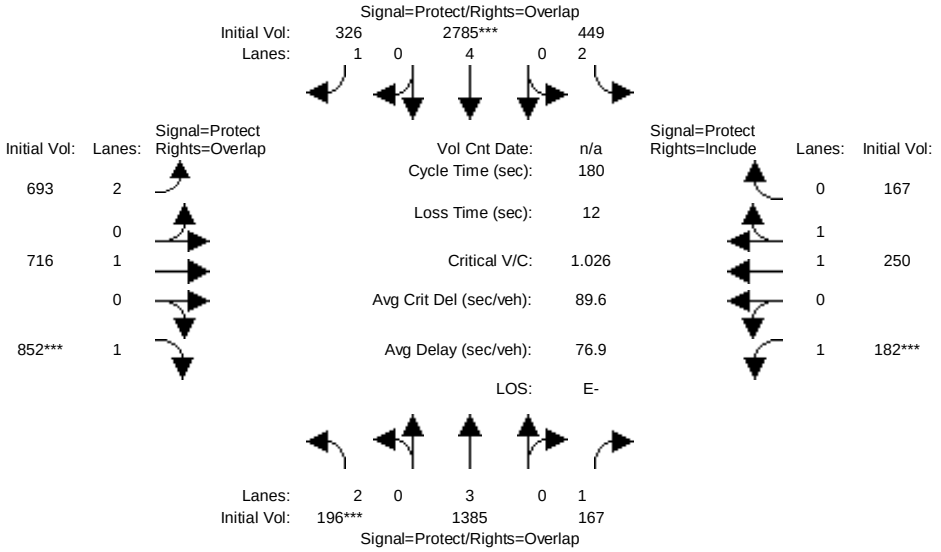


Street Name:	Mathilda Ave						San Aleso Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	4	4	4	4	4	4	4	4	4	4	4
Y+R:	4.0	5.8	5.8	4.0	5.8	5.8	6.3	6.3	6.3	6.3	6.3	6.3
Volume Module:												
Base Vol:	22	1293	107	111	2213	13	42	7	23	42	2	51
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	29	1690	140	145	2893	17	55	9	30	55	3	67
Added Vol:	0	499	38	21	450	0	0	0	0	95	0	46
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	2189	178	166	3343	17	55	9	30	150	3	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:	29	2189	178	166	3343	17	55	9	30	150	3	113
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	2189	178	166	3343	17	55	9	30	150	3	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
FinalVolume:	29	2189	178	166	3343	17	55	9	30	150	3	113
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	0.99	0.95	0.92	0.95	0.95	0.92	0.92	0.92
Lanes:	1.00	2.77	0.23	1.00	3.98	0.02	1.00	0.23	0.77	0.57	0.01	0.42
Final Sat.:	1750	5179	421	1750	7462	38	1750	420	1380	989	17	744
Capacity Analysis Module:												
Vol/Sat:	0.02	0.42	0.42	0.09	0.45	0.45	0.03	0.02	0.02	0.15	0.15	0.15
Crit Moves:		****		****							****	
Green Time:	6.3	108	108.0	24.3	126	126.0	38.7	38.7	38.7	38.7	38.7	38.7
Volume/Cap:	0.47	0.70	0.70	0.70	0.64	0.64	0.15	0.10	0.10	0.70	0.70	0.70
Uniform Del:	85.3	24.9	24.9	74.4	14.7	14.7	57.2	56.7	56.7	65.3	65.3	65.3
IncremntDel:	5.7	0.7	0.7	9.3	0.3	0.3	0.2	0.1	0.1	6.0	6.0	6.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	91.0	25.6	25.6	83.7	14.9	14.9	57.4	56.8	56.8	71.3	71.3	71.3
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:	91.0	25.6	25.6	83.7	14.9	14.9	57.4	56.8	56.8	71.3	71.3	71.3
LOS by Move:	F	C	C	F	B	B	E+	E+	E+	E	E	E
HCM2kAvgQ:	40	713	713	232	612	612	65	44	44	385	385	385

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #6: Mathilda Ave / Maude Ave

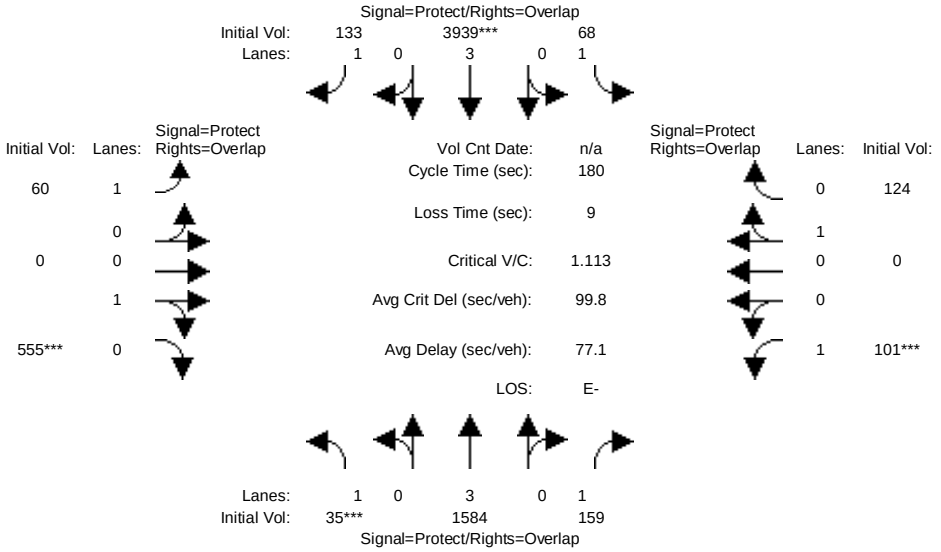


Street Name:	Mathilda Ave						Maude Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	5	5	4	5	5	4	9	9	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7
Volume Module:												
Base Vol:	102	898	124	302	1808	196	296	436	540	117	165	113
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	133	1174	162	395	2364	256	387	570	706	153	216	148
Added Vol:	63	211	5	54	421	70	306	146	146	29	34	19
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	196	1385	167	449	2785	326	693	716	852	182	250	167
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:	196	1385	167	449	2785	326	693	716	852	182	250	167
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	196	1385	167	449	2785	326	693	716	852	182	250	167
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:	196	1385	167	449	2785	326	693	716	852	182	250	167
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	1.18	0.82
Final Sat.:	3150	5700	1750	3150	7600	1750	3150	1900	1750	1750	2218	1481
Capacity Analysis Module:												
Vol/Sat:	0.06	0.24	0.10	0.14	0.37	0.19	0.22	0.38	0.49	0.10	0.11	0.11
Crit Moves:	****				****				****	****		
Green Time:	10.9	47.4	65.7	27.8	64.3	125.7	61.3	74.5	85.4	18.2	31.4	31.4
Volume/Cap:	1.03	0.92	0.26	0.92	1.03	0.27	0.65	0.91	1.03	1.03	0.65	0.65
Uniform Del:	84.5	64.5	40.1	75.0	57.8	10.1	50.1	49.6	47.3	80.9	69.1	69.1
IncremntDel:	71.9	9.7	0.2	23.1	24.2	0.1	1.4	14.6	37.9	74.4	2.3	2.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	156.4	74.2	40.4	98.1	82.0	10.2	51.5	64.2	85.2	155.3	71.4	71.4
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:	156.4	74.2	40.4	98.1	82.0	10.2	51.5	64.2	85.2	155.3	71.4	71.4
LOS by Move:	F	E	D	F	F	B+	D-	E	F	F	E	E
HCM2kAvgQ:	201	659	166	393	1080	172	484	993	1463	379	290	290

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #7: Mathilda Ave / Indio Way

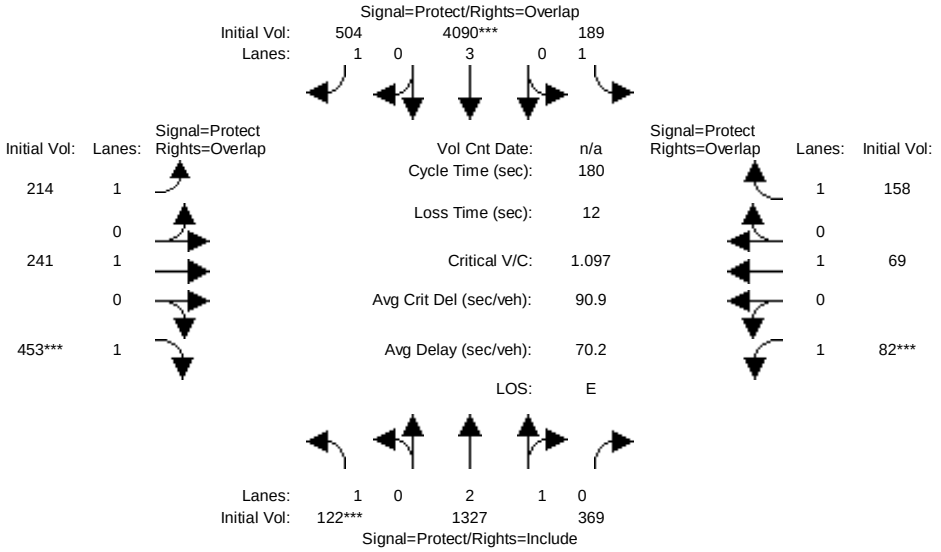


Street Name:	Mathilda Ave						Indio Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	4	4	4	4	4	8	8	8	8	8	8
Y+R:	4.0	5.1	5.1	4.0	5.1	5.1	6.1	6.1	6.1	6.1	6.1	6.1
Volume Module:												
Base Vol:	27	1008	111	52	2582	77	46	0	407	77	0	85
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	35	1318	145	68	3375	101	60	0	532	101	0	111
Added Vol:	0	266	14	0	564	32	0	0	23	0	0	13
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	35	1584	159	68	3939	133	60	0	555	101	0	124
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	1584	159	68	3939	133	60	0	555	101	0	124
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	35	1584	159	68	3939	133	60	0	555	101	0	124
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:	35	1584	159	68	3939	133	60	0	555	101	0	124
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	1.00	0.95	0.92	1.00	0.95
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	1750	0	1800	1750	0	1800
Capacity Analysis Module:												
Vol/Sat:	0.02	0.28	0.09	0.04	0.69	0.08	0.03	0.00	0.31	0.06	0.00	0.07
Crit Moves:	****				****				****	****		
Green Time:	4.0	101	110.6	14.2	112	144.6	33.1	0.0	50.2	9.3	0.0	23.5
Volume/Cap:	0.91	0.49	0.15	0.49	1.12	0.09	0.19	0.00	1.11	1.12	0.00	0.53
Uniform Del:	87.8	23.8	14.7	79.5	34.2	3.8	62.1	0.0	64.9	85.4	0.0	73.1
IncremntDel:	107.8	0.1	0.1	2.8	56.4	0.0	0.3	0.0	72.4	129.3	0.0	2.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Delay/Veh:	195.7	23.9	14.8	82.2	90.7	3.8	62.4	0.0	137.3	214.7	0.0	75.4
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:	195.7	23.9	14.8	82.2	90.7	3.8	62.4	0.0	137.3	214.7	0.0	75.4
LOS by Move:	F	C	B	F	F	A	E	A	F	F	A	E-
HCM2kAvgQ:	62	420	95	89	2090	39	75	0	1052	248	0	179

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #8: Mathilda Ave / California Ave

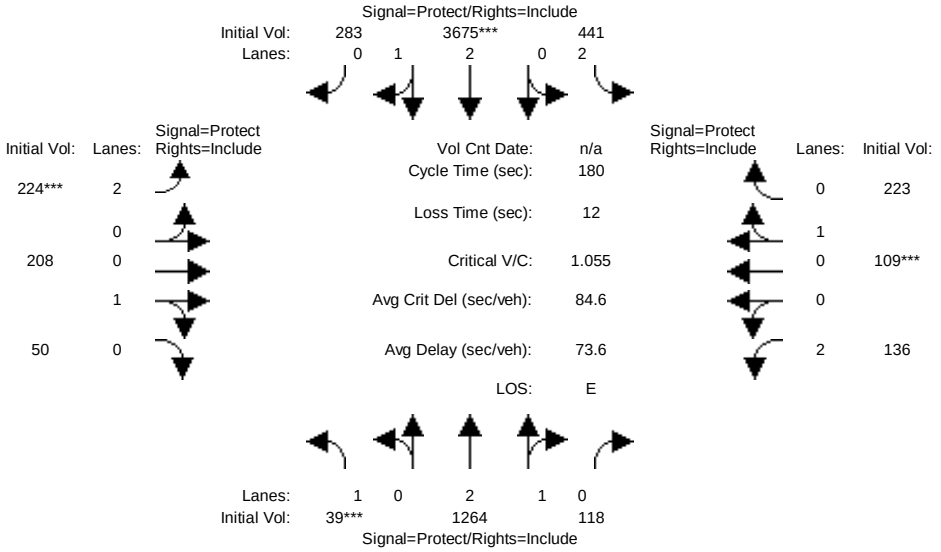


Street Name:	Mathilda Ave						California Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	5	5	4	5	5	4	8	8	4	7	7
Y+R:	4.0	5.8	5.8	4.0	5.6	5.6	4.0	6.3	6.3	4.0	5.9	5.9
Volume Module:												
Base Vol:	87	857	263	139	2732	338	122	161	313	63	48	107
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	114	1120	344	182	3572	442	159	210	409	82	63	140
Added Vol:	8	207	25	7	518	62	55	31	44	0	6	18
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	122	1327	369	189	4090	504	214	241	453	82	69	158
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:	122	1327	369	189	4090	504	214	241	453	82	69	158
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	122	1327	369	189	4090	504	214	241	453	82	69	158
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:	122	1327	369	189	4090	504	214	241	453	82	69	158
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	2.32	0.68	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1750	4381	1217	1750	5700	1750	1750	1900	1750	1750	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.07	0.30	0.30	0.11	0.72	0.29	0.12	0.13	0.26	0.05	0.04	0.09
Crit Moves:	****				****				****	****		
Green Time:	11.4	95.3	95.3	33.9	118	147.2	29.5	31.1	42.5	7.7	9.3	43.3
Volume/Cap:	1.10	0.57	0.57	0.57	1.10	0.35	0.75	0.74	1.10	1.10	0.70	0.38
Uniform Del:	84.3	28.6	28.6	66.5	31.1	4.2	71.7	70.6	68.7	86.1	83.9	57.1
IncremntDel:	113.8	0.3	0.3	2.4	48.4	0.2	10.4	8.4	72.9	132.6	19.6	0.6
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	198.1	28.9	28.9	68.9	79.5	4.3	82.2	79.0	141.7	218.8	104	57.7
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:	198.1	28.9	28.9	68.9	79.5	4.3	82.2	79.0	141.7	218.8	104	57.7
LOS by Move:	F	C	C	E	E-	A	F	E-	F	F	F	E+
HCM2kAvgQ:	287	519	519	235	2108	176	337	344	890	209	125	194

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #9: Mathilda Ave / Washington Ave

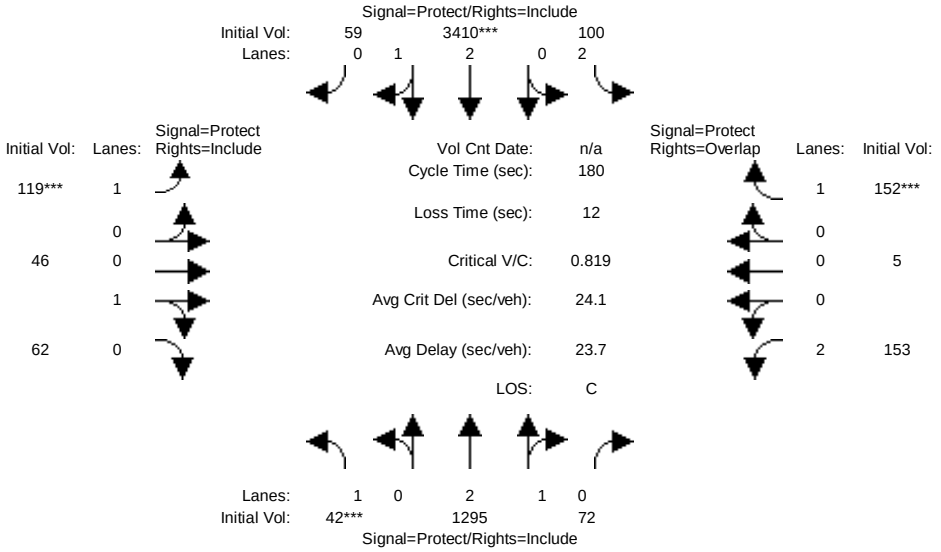


Street Name:	Mathilda Ave						Washington Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	11	11	8	9	9	8	9	9
Y+R:	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.8	6.8	4.0	7.0	7.0
Volume Module:												
Base Vol:	28	827	68	306	2483	206	163	134	37	81	52	148
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	37	1081	89	400	3246	269	213	175	48	106	68	193
Added Vol:	2	183	29	41	429	14	11	33	2	30	41	30
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	39	1264	118	441	3675	283	224	208	50	136	109	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:	39	1264	118	441	3675	283	224	208	50	136	109	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	39	1264	118	441	3675	283	224	208	50	136	109	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
FinalVolume:	39	1264	118	441	3675	283	224	208	50	136	109	223
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	0.99	0.95	0.83	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	2.73	0.27	2.00	2.78	0.22	2.00	0.81	0.19	2.00	0.33	0.67
Final Sat.:	1750	5122	478	3150	5199	401	3150	1449	351	3150	590	1210
Capacity Analysis Module:												
Vol/Sat:	0.02	0.25	0.25	0.14	0.71	0.71	0.07	0.14	0.14	0.04	0.18	0.18
Crit Moves:	****				****		****				****	
Green Time:	8.0	80.1	80.1	45.4	117	117.5	11.8	32.5	32.5	10.0	30.7	30.7
Volume/Cap:	0.50	0.55	0.55	0.55	1.08	1.08	1.08	0.80	0.80	0.77	1.08	1.08
Uniform Del:	84.0	36.8	36.8	58.5	31.3	31.3	84.1	70.6	70.6	83.9	74.7	74.7
IncremntDel:	4.9	0.3	0.3	0.9	43.0	43.0	86.4	12.8	12.8	18.9	75.3	75.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	88.9	37.1	37.1	59.4	74.2	74.2	170.5	83.4	83.4	102.7	150	150.0
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:	88.9	37.1	37.1	59.4	74.2	74.2	170.5	83.4	83.4	102.7	150	150.0
LOS by Move:	F	D+	D+	E+	E	E	F	F	F	F	F	F
HCM2kAvgQ:	57	459	459	319	2202	2202	242	368	368	152	652	652

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #10: Mathilda Ave / McKinley Ave

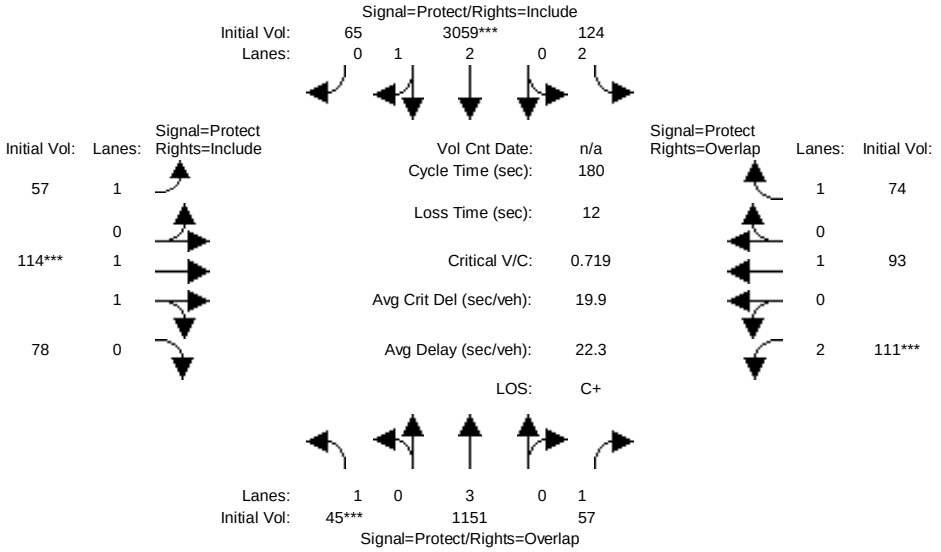


Street Name:	Mathilda Ave						McKinley Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	8	8	4	5	5	4	8	8	4	8	8
Y+R:	4.0	5.7	5.7	4.0	5.7	5.7	4.0	6.3	6.3	4.0	6.4	6.4
Volume Module:												
Base Vol:	30	865	34	47	2298	32	75	33	44	91	3	95
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	39	1131	44	61	3004	42	98	43	58	119	4	124
Added Vol:	3	164	28	39	406	17	21	3	4	34	1	28
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	42	1295	72	100	3410	59	119	46	62	153	5	152
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	1295	72	100	3410	59	119	46	62	153	5	152
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	1295	72	100	3410	59	119	46	62	153	5	152
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	42	1295	72	100	3410	59	119	46	62	153	5	152
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	0.93	0.95	0.95
Lanes:	1.00	2.84	0.16	2.00	2.95	0.05	1.00	0.43	0.57	1.94	0.06	1.00
Final Sat.:	1750	5303	297	3150	5505	95	1750	771	1029	3424	110	1800
Capacity Analysis Module:												
Vol/Sat:	0.02	0.24	0.24	0.03	0.62	0.62	0.07	0.06	0.06	0.04	0.04	0.08
Crit Moves:	****				****		****					****
Green Time:	5.3	125	125.1	16.3	136	136.2	15.0	15.2	15.2	11.3	11.6	27.9
Volume/Cap:	0.82	0.35	0.35	0.35	0.82	0.82	0.82	0.71	0.71	0.71	0.69	0.55
Uniform Del:	86.9	11.1	11.1	76.9	14.0	14.0	81.2	80.3	80.3	82.7	82.5	70.2
IncremntDel:	63.2	0.1	0.1	0.7	1.3	1.3	29.3	14.4	14.4	5.3	4.7	1.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	150.0	11.1	11.1	77.6	15.4	15.4	110.4	94.6	94.6	88.0	87.2	71.3
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:	150.0	11.1	11.1	77.6	15.4	15.4	110.4	94.6	94.6	88.0	87.2	71.3
LOS by Move:	F	B+	B+	E-	B	B	F	F	F	F	F	E
HCM2kAvgQ:	71	250	250	72	955	955	224	185	185	148	146	213

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #11: Mathilda Ave / Iowa Ave

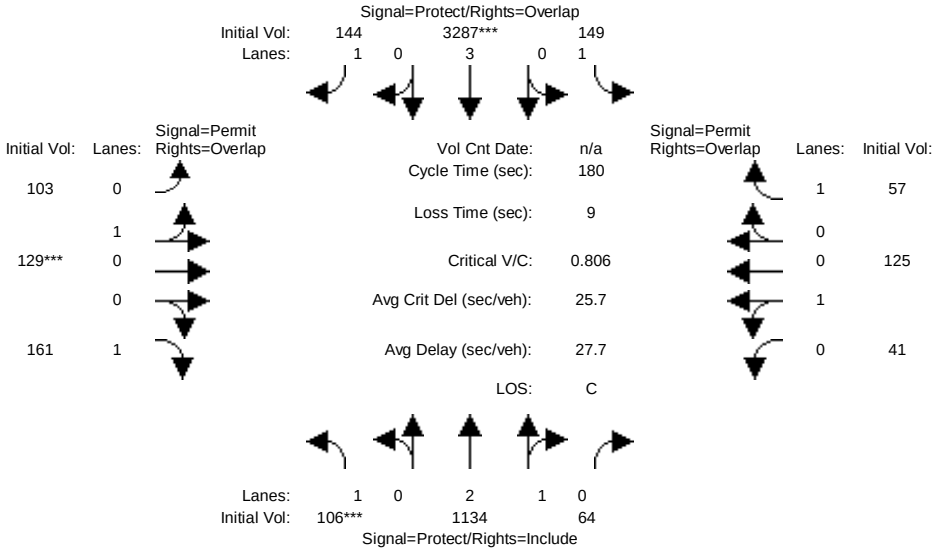


Street Name:	Mathilda Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	8	11	11	8	12	12	8	9	9	8	9	9
Y+R:	4.0	6.6	6.6	4.0	6.1	6.1	4.5	6.8	6.8	4.5	6.9	6.9
Volume Module:												
Base Vol:	24	756	30	66	2053	25	26	75	36	75	59	50
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	31	988	39	86	2684	33	34	98	47	98	77	65
Added Vol:	14	163	18	38	375	32	23	16	31	13	16	9
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	1151	57	124	3059	65	57	114	78	111	93	74
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:	45	1151	57	124	3059	65	57	114	78	111	93	74
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	1151	57	124	3059	65	57	114	78	111	93	74
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:	45	1151	57	124	3059	65	57	114	78	111	93	74
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	0.99	0.95	0.83	1.00	0.92
Lanes:	1.00	3.00	1.00	2.00	2.94	0.06	1.00	1.17	0.83	2.00	1.00	1.00
Final Sat.:	1750	5700	1750	3150	5484	116	1750	2195	1503	3150	1900	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.20	0.03	0.04	0.56	0.56	0.03	0.05	0.05	0.04	0.05	0.04
Crit Moves:	****				****			****			****	
Green Time:	8.0	120	128.7	26.4	138	138.4	10.2	12.9	12.9	8.7	11.5	37.8
Volume/Cap:	0.58	0.30	0.05	0.27	0.73	0.73	0.58	0.73	0.73	0.73	0.77	0.20
Uniform Del:	84.4	12.5	7.6	68.2	10.9	10.9	82.8	81.8	81.8	84.4	83.0	58.6
IncremntDel:	10.8	0.0	0.0	0.3	0.6	0.6	8.1	9.6	9.6	15.9	25.6	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	95.2	12.6	7.6	68.5	11.5	11.5	90.9	91.4	91.4	100.3	109	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:	95.2	12.6	7.6	68.5	11.5	11.5	90.9	91.4	91.4	100.3	109	58.9
LOS by Move:	F	B	A	E	B+	B+	F	F	F	F	F	E+
HCM2kAvgQ:	68	213	24	85	732	732	83	137	137	125	167	90

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #12: Mathilda Ave / Olive Ave

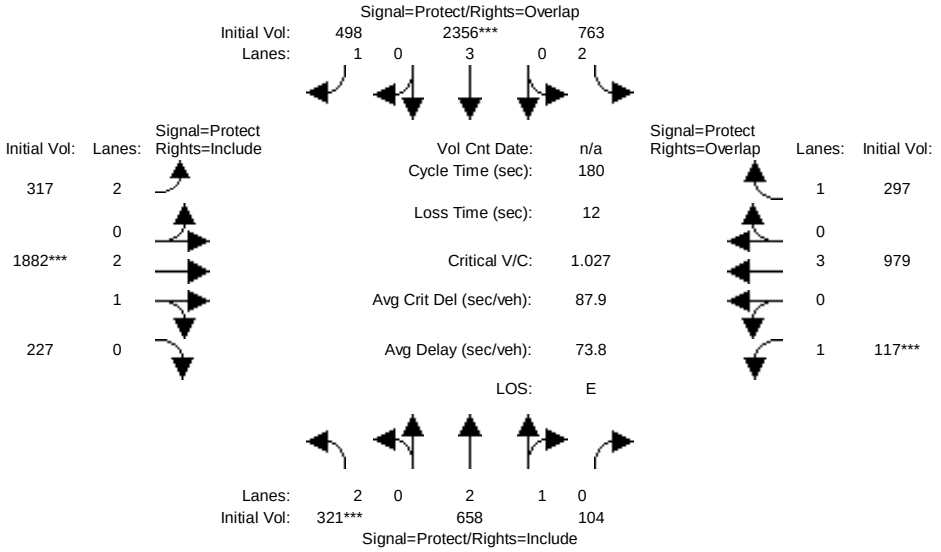


Street Name:	Mathilda Ave						Olive Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	4	5	5	4	5	5	8	8	8	8	8	8
Y+R:	4.0	5.7	5.7	4.0	5.6	5.6	6.4	6.4	6.4	6.4	6.4	6.4
Volume Module:												
Base Vol:	56	755	43	75	2252	91	54	71	100	28	65	31
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	73	987	56	98	2944	119	71	93	131	37	85	41
Added Vol:	33	147	8	51	343	25	32	36	30	4	40	16
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	106	1134	64	149	3287	144	103	129	161	41	125	57
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:	106	1134	64	149	3287	144	103	129	161	41	125	57
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	106	1134	64	149	3287	144	103	129	161	41	125	57
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:	106	1134	64	149	3287	144	103	129	161	41	125	57
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	0.44	0.56	1.00	0.25	0.75	1.00
Final Sat.:	1750	5299	300	1750	5700	1750	798	1002	1750	441	1359	1750
Capacity Analysis Module:												
Vol/Sat:	0.06	0.21	0.21	0.09	0.58	0.08	0.13	0.13	0.09	0.09	0.09	0.03
Crit Moves:	****				****			****				
Green Time:	13.5	102	101.8	40.5	129	128.7	28.7	28.7	42.3	28.7	28.7	69.2
Volume/Cap:	0.81	0.38	0.38	0.38	0.81	0.12	0.81	0.81	0.39	0.58	0.58	0.08
Uniform Del:	81.9	21.6	21.6	59.1	17.2	8.0	73.0	73.0	58.0	70.0	70.0	35.2
IncremntDel:	29.3	0.1	0.1	0.6	1.2	0.0	15.3	15.3	0.6	2.9	2.9	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	111.3	21.7	21.7	59.7	18.5	8.0	88.3	88.3	58.7	72.9	72.9	35.3
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:	111.3	21.7	21.7	59.7	18.5	8.0	88.3	88.3	58.7	72.9	72.9	35.3
LOS by Move:	F	C+	C+	E+	B-	A	F	F	E+	E	E	D+
HCM2kAvgQ:	203	296	296	177	995	63	369	369	200	234	234	51

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #13: Mathilda Ave / El Camino Real

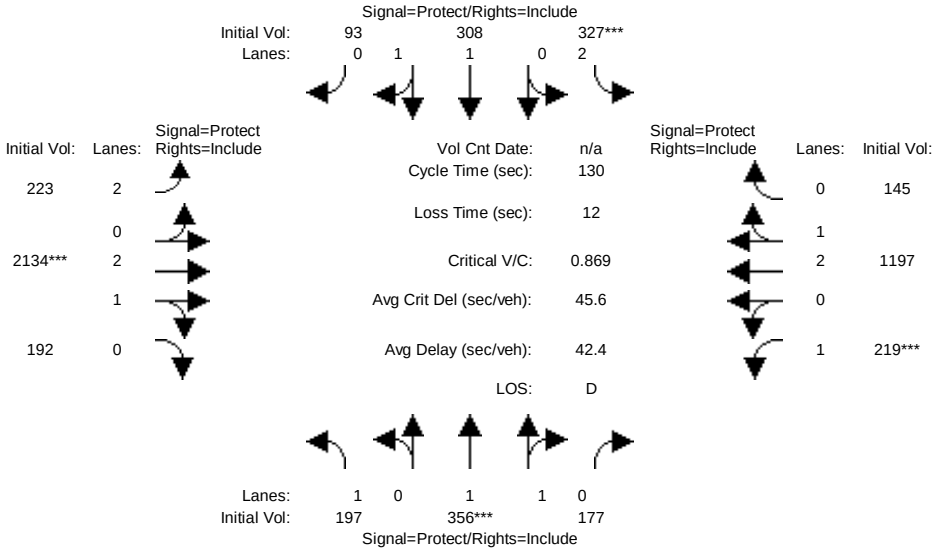


Street Name:	Mathilda Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	4	8	8	4	8	8	6	8	8	6	10	10
Y+R:	3.5	7.0	7.0	3.5	7.1	7.1	3.5	7.1	7.1	3.5	7.5	7.5
Volume Module:												
Base Vol:	194	418	58	510	1642	348	227	1361	153	82	688	188
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	254	546	76	667	2147	455	297	1779	200	107	899	246
Added Vol:	67	112	28	96	209	43	20	103	27	10	80	51
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	321	658	104	763	2356	498	317	1882	227	117	979	297
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:	321	658	104	763	2356	498	317	1882	227	117	979	297
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	321	658	104	763	2356	498	317	1882	227	117	979	297
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:	321	658	104	763	2356	498	317	1882	227	117	979	297
Saturation Flow Module:												
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	2.58	0.42	2.00	3.00	1.00	2.00	2.67	0.33	1.00	3.00	1.00
Final Sat.:	3150	4836	763	3150	5700	1750	3150	4996	603	1750	5700	1750
Capacity Analysis Module:												
Vol/Sat:	0.10	0.14	0.14	0.24	0.41	0.28	0.10	0.38	0.38	0.07	0.17	0.17
Crit Moves:	****				****			****			****	
Green Time:	17.8	32.5	32.5	57.8	72.4	101.1	28.7	66.0	66.0	11.7	49.0	106.8
Volume/Cap:	1.03	0.75	0.75	0.75	1.03	0.51	0.63	1.03	1.03	1.03	0.63	0.29
Uniform Del:	81.1	70.0	70.0	54.8	53.8	24.2	70.7	57.0	57.0	84.1	57.5	17.9
IncremntDel:	58.1	3.3	3.3	3.3	26.1	0.4	2.6	27.2	27.2	91.7	0.8	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	139.2	73.3	73.3	58.0	79.9	24.6	73.3	84.2	84.2	175.9	58.4	18.1
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:	139.2	73.3	73.3	58.0	79.9	24.6	73.3	84.2	84.2	175.9	58.4	18.1
LOS by Move:	F	E	E	E+	E-	C	E	F	F	F	E+	B-
HCM2kAvgQ:	373	369	369	582	1264	439	233	1076	1076	264	399	207

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #14: El Camino Real and Sunnyvale Ave

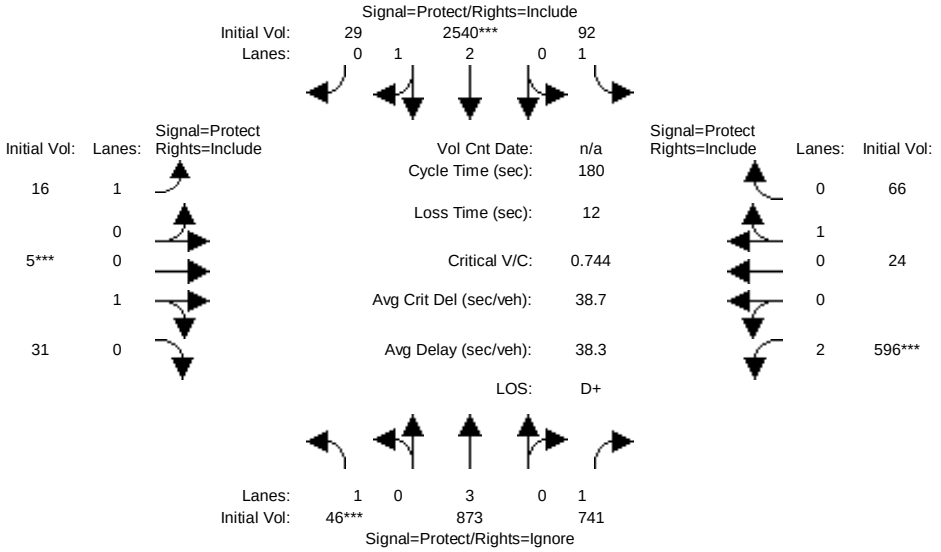


Street Name:	Sunnyvale Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	134	261	117	238	229	70	170	1477	123	156	826	88
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	175	341	153	311	299	92	222	1931	161	204	1080	115
Added Vol:	22	15	24	16	9	1	1	203	31	15	117	30
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	197	356	177	327	308	93	223	2134	192	219	1197	145
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:	197	356	177	327	308	93	223	2134	192	219	1197	145
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	197	356	177	327	308	93	223	2134	192	219	1197	145
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:	197	356	177	327	308	93	223	2134	192	219	1197	145
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	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.32	0.68	2.00	1.53	0.47	2.00	2.74	0.26	1.00	2.66	0.34
Final Sat.:	1750	2471	1228	3150	2846	854	3150	5138	462	1750	4994	605
Capacity Analysis Module:												
Vol/Sat:	0.11	0.14	0.14	0.10	0.11	0.11	0.07	0.42	0.42	0.13	0.24	0.24
Crit Moves:		****		****				****		****		
Green Time:	18.9	21.6	21.6	15.5	18.2	18.2	18.5	62.2	62.2	18.7	62.4	62.4
Volume/Cap:	0.77	0.87	0.87	0.87	0.77	0.77	0.50	0.87	0.87	0.87	0.50	0.50
Uniform Del:	53.5	52.8	52.8	56.2	53.9	53.9	51.5	30.3	30.3	54.4	23.1	23.1
IncremntDel:	13.7	12.6	12.6	18.9	7.2	7.2	0.9	3.3	3.3	25.9	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	67.2	65.5	65.5	75.1	61.1	61.1	52.4	33.6	33.6	80.4	23.2	23.2
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:	67.2	65.5	65.5	75.1	61.1	61.1	52.4	33.6	33.6	80.4	23.2	23.2
LOS by Move:	E	E	E	E-	E	E	D-	C-	C-	F	C	C
HCM2kAvgQ:	251	336	336	261	243	243	136	760	760	301	306	306

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #15: Mathilda Ave / Talisman Dr-Sunnyvale-Saratoga Rd

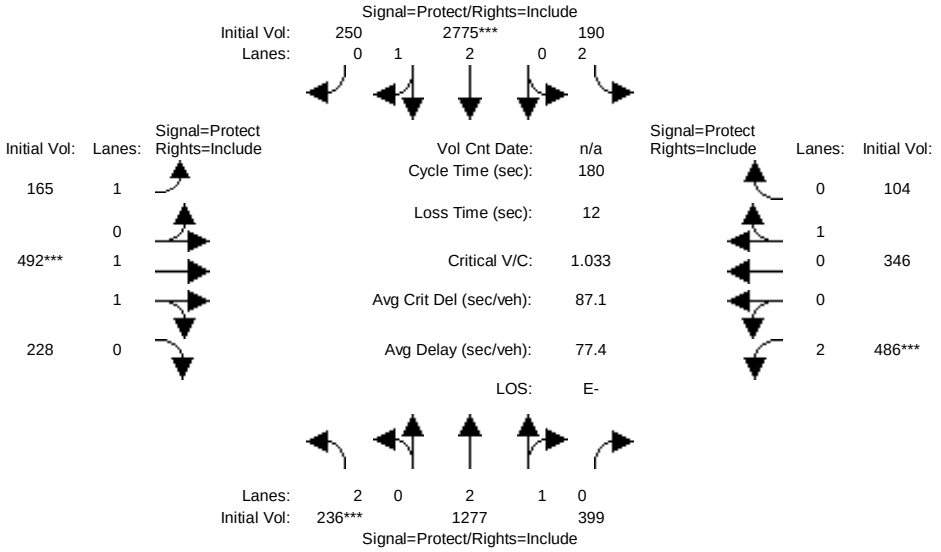


Street Name:	Mathilda Ave						Talisman Dr - Sunnyvale Saratoga					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	7	9	9	7	8	8	7	12	12	7	12	12
Y+R:	4.0	6.0	6.0	4.0	6.1	6.1	4.0	5.4	5.4	4.0	5.4	5.4
Volume Module:												
Base Vol:	35	558	531	52	1768	22	12	4	24	418	18	39
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	46	729	694	68	2311	29	16	5	31	546	24	51
Added Vol:	0	144	47	24	229	0	0	0	0	50	0	15
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	46	873	741	92	2540	29	16	5	31	596	24	66
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	46	873	0	92	2540	29	16	5	31	596	24	66
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	46	873	0	92	2540	29	16	5	31	596	24	66
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	46	873	0	92	2540	29	16	5	31	596	24	66
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	0.98	0.95	0.92	0.95	0.95	0.83	0.95	0.95
Lanes:	1.00	3.00	1.00	1.00	2.97	0.03	1.00	0.14	0.86	2.00	0.26	0.74
Final Sat.:	1750	5700	1750	1750	5537	63	1750	257	1543	3150	473	1327
Capacity Analysis Module:												
Vol/Sat:	0.03	0.15	0.00	0.05	0.46	0.46	0.01	0.02	0.02	0.19	0.05	0.05
Crit Moves:	****				****			****			****	
Green Time:	7.0	83.7	0.0	28.7	105	105.5	20.5	12.0	12.0	43.5	35.1	35.1
Volume/Cap:	0.67	0.33	0.00	0.33	0.78	0.78	0.08	0.31	0.31	0.78	0.26	0.26
Uniform Del:	85.4	30.4	0.0	67.1	28.5	28.5	71.3	80.0	80.0	63.8	61.4	61.4
IncremntDel:	23.2	0.1	0.0	0.7	1.3	1.3	0.2	1.4	1.4	5.3	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	108.6	30.5	0.0	67.8	29.8	29.8	71.5	81.5	81.5	69.1	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:	108.6	30.5	0.0	67.8	29.8	29.8	71.5	81.5	81.5	69.1	61.8	61.8
LOS by Move:	F	C	A	E	C	C	E	F	F	E	E	E
HCM2kAvgQ:	69	239	0	123	915	915	21	57	57	494	109	109

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #16: Sunnyvale Saratoga Rd / Remington Dr

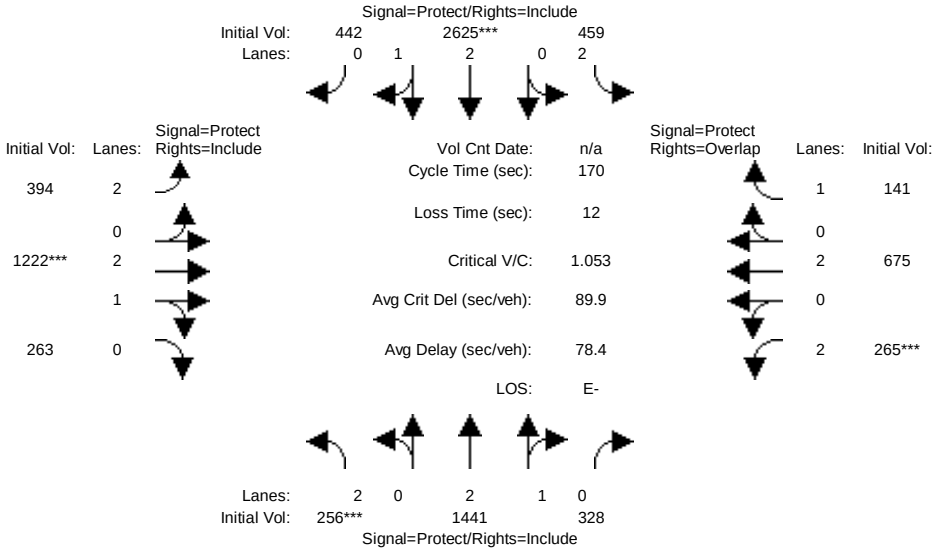


Street Name:	Sunnyvale Saratoga Rd						Remington Dr					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	7	7	4	7	7	4	9	9	4	10	10
Y+R:	4.0	6.3	6.3	4.0	6.5	6.5	4.0	6.1	6.1	4.0	6.4	6.4
Volume Module:												
Base Vol:	173	862	299	116	1957	173	117	370	169	368	261	57
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	226	1127	391	152	2558	226	153	484	221	481	341	75
Added Vol:	10	150	8	38	217	24	12	8	7	5	5	29
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	236	1277	399	190	2775	250	165	492	228	486	346	104
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:	236	1277	399	190	2775	250	165	492	228	486	346	104
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	236	1277	399	190	2775	250	165	492	228	486	346	104
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:	236	1277	399	190	2775	250	165	492	228	486	346	104
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.92	0.99	0.95	0.83	0.95	0.95
Lanes:	2.00	2.26	0.74	2.00	2.74	0.26	1.00	1.35	0.65	2.00	0.77	0.23
Final Sat.:	3150	4265	1332	3150	5136	463	1750	2527	1172	3150	1386	414
Capacity Analysis Module:												
Vol/Sat:	0.07	0.30	0.30	0.06	0.54	0.54	0.09	0.19	0.19	0.15	0.25	0.25
Crit Moves:	****				****			****		****		
Green Time:	13.1	89.3	89.3	18.0	94.1	94.1	16.7	33.9	33.9	26.9	44.1	44.1
Volume/Cap:	1.03	0.60	0.60	0.60	1.03	1.03	1.02	1.03	1.03	1.03	1.02	1.02
Uniform Del:	83.5	32.6	32.6	77.6	42.9	42.9	81.7	73.0	73.0	76.6	67.9	67.9
IncremntDel:	68.4	0.4	0.4	3.3	25.9	25.9	75.8	42.9	42.9	50.3	47.7	47.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	151.9	33.0	33.0	80.9	68.8	68.8	157.5	116	115.9	126.8	116	115.6
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:	151.9	33.0	33.0	80.9	68.8	68.8	157.5	116	115.9	126.8	116	115.6
LOS by Move:	F	C-	C-	F	E	E	F	F	F	F	F	F
HCM2kAvgQ:	230	532	532	144	1551	1551	347	652	652	533	800	800

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #17: Sunnyvale Saratoga Rd / Fremont Ave

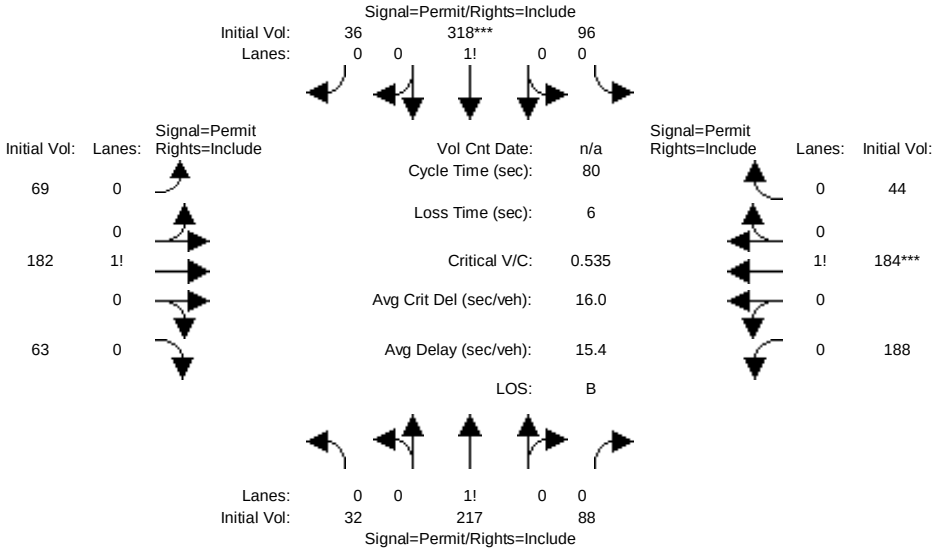


Street Name:	Sunnyvale Saratoga Rd						Fremont Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	4	9	9	4	10	10	4	10	10	4	10	10
Y+R:	4.0	5.9	5.9	4.0	6.2	6.2	4.0	6.1	6.1	4.0	6.1	6.1
Volume Module:												
Base Vol:	186	998	245	348	1867	307	286	907	195	185	437	99
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	243	1305	320	455	2441	401	374	1186	255	242	571	129
Added Vol:	13	136	8	4	184	41	20	36	8	23	104	12
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	256	1441	328	459	2625	442	394	1222	263	265	675	141
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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:	256	1441	328	459	2625	442	394	1222	263	265	675	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	256	1441	328	459	2625	442	394	1222	263	265	675	141
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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:	256	1441	328	459	2625	442	394	1222	263	265	675	141
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	0.99	0.95	0.83	0.99	0.95	0.83	0.99	0.95	0.83	1.00	0.92
Lanes:	2.00	2.42	0.58	2.00	2.55	0.45	2.00	2.45	0.55	2.00	2.00	1.00
Final Sat.:	3150	4559	1039	3150	4791	807	3150	4607	991	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.08	0.32	0.32	0.15	0.55	0.55	0.13	0.27	0.27	0.08	0.18	0.08
Crit Moves:	****				****			****			****	
Green Time:	13.1	69.5	69.5	32.1	88.5	88.5	23.3	42.8	42.8	13.6	33.1	65.2
Volume/Cap:	1.05	0.77	0.77	0.77	1.05	1.05	0.91	1.05	1.05	1.05	0.91	0.21
Uniform Del:	78.4	43.4	43.4	65.5	40.8	40.8	72.3	63.6	63.6	78.2	67.0	35.2
IncremntDel:	72.2	1.7	1.7	6.2	32.7	32.7	23.4	39.2	39.2	71.3	15.6	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	150.7	45.1	45.1	71.7	73.4	73.4	95.8	103	102.7	149.5	82.6	35.3
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:	150.7	45.1	45.1	71.7	73.4	73.4	95.8	103	102.7	149.5	82.6	35.3
LOS by Move:	F	D	D	E	E	E	F	F	F	F	F	D+
HCM2kAvgQ:	305	687	687	314	1428	1428	339	799	799	314	510	128

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #18: Pastoria Ave and Washington St

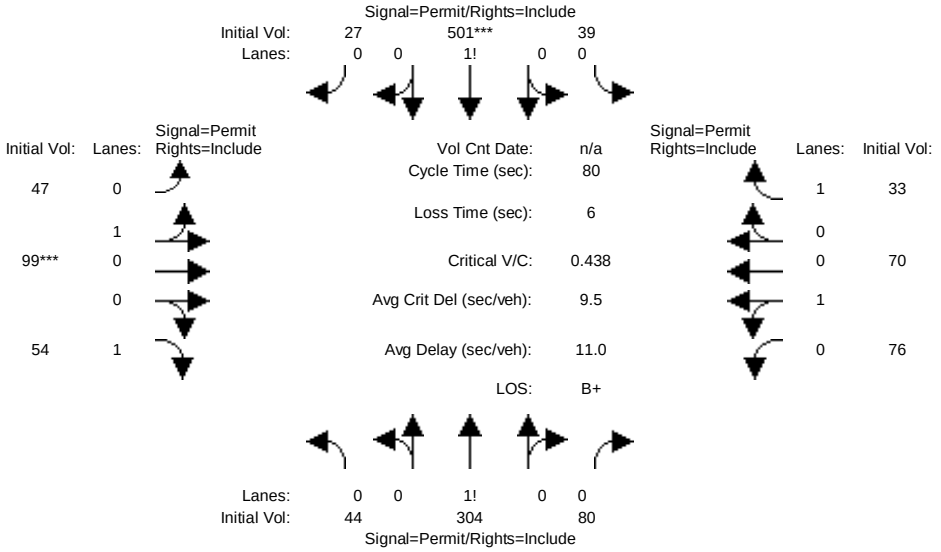


Street Name:	Pastoria Ave						Washington St					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	21	58	54	57	186	10	6	133	46	128	133	13
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	27	76	71	75	243	13	8	174	60	167	174	17
Added Vol:	5	141	17	21	75	23	61	8	3	21	10	27
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	217	88	96	318	36	69	182	63	188	184	44
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	217	88	96	318	36	69	182	63	188	184	44
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	217	88	96	318	36	69	182	63	188	184	44
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:	32	217	88	96	318	36	69	182	63	188	184	44
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lanes:	0.10	0.64	0.26	0.21	0.71	0.08	0.22	0.58	0.20	0.45	0.44	0.11
Final Sat.:	169	1126	455	372	1238	140	384	1014	352	792	773	185
Capacity Analysis Module:												
Vol/Sat:	0.19	0.19	0.19	0.26	0.26	0.26	0.18	0.18	0.18	0.24	0.24	0.24
Crit Moves:					****						****	
Green Time:	38.4	38.4	38.4	38.4	38.4	38.4	35.6	35.6	35.6	35.6	35.6	35.6
Volume/Cap:	0.40	0.40	0.40	0.53	0.53	0.53	0.40	0.40	0.40	0.53	0.53	0.53
Uniform Del:	13.4	13.4	13.4	14.5	14.5	14.5	15.0	15.0	15.0	16.2	16.2	16.2
IncremntDel:	0.3	0.3	0.3	0.7	0.7	0.7	0.3	0.3	0.3	0.7	0.7	0.7
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	13.7	13.7	13.7	15.2	15.2	15.2	15.4	15.4	15.4	16.9	16.9	16.9
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:	13.7	13.7	13.7	15.2	15.2	15.2	15.4	15.4	15.4	16.9	16.9	16.9
LOS by Move:	B	B	B	B	B	B	B	B	B	B	B	B
HCM2kAvgQ:	147	147	147	218	218	218	138	138	138	184	184	184

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #19: Pastoria Ave / Iowa Ave

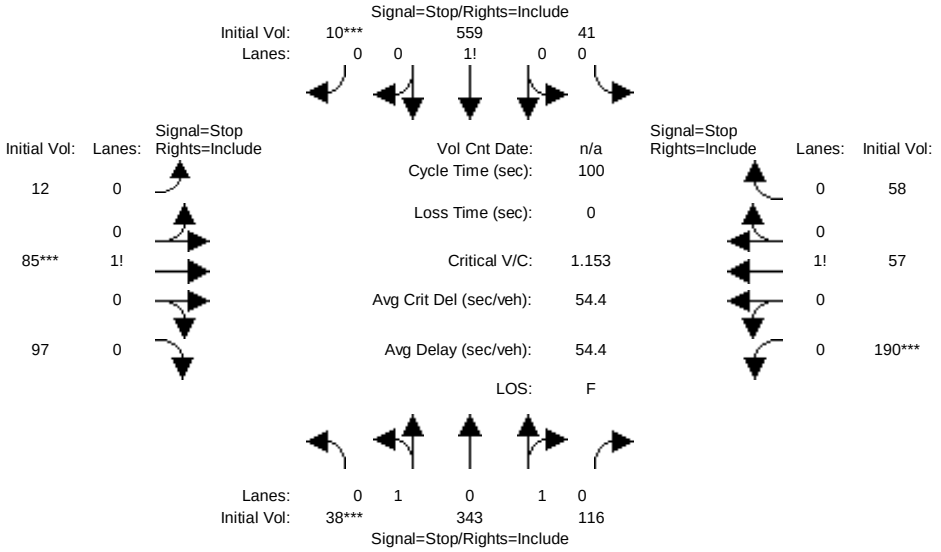


Street Name:	Pastoria Ave						Iowa Ave					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	8	8	8	8	8	8
Y+R:	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Volume Module:												
Base Vol:	30	160	59	19	329	8	9	73	39	55	53	9
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	39	209	77	25	430	10	12	95	51	72	69	12
Added Vol:	5	95	3	14	71	17	35	4	3	4	1	21
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	44	304	80	39	501	27	47	99	54	76	70	33
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:	44	304	80	39	501	27	47	99	54	76	70	33
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	304	80	39	501	27	47	99	54	76	70	33
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:	44	304	80	39	501	27	47	99	54	76	70	33
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	0.10	0.71	0.19	0.07	0.88	0.05	0.32	0.68	1.00	0.52	0.48	1.00
Final Sat.:	181	1242	327	120	1546	85	576	1224	1750	935	865	1750
Capacity Analysis Module:												
Vol/Sat:	0.24	0.24	0.24	0.32	0.32	0.32	0.08	0.08	0.03	0.08	0.08	0.02
Crit Moves:					****			****				
Green Time:	59.2	59.2	59.2	59.2	59.2	59.2	14.8	14.8	14.8	14.8	14.8	14.8
Volume/Cap:	0.33	0.33	0.33	0.44	0.44	0.44	0.44	0.44	0.17	0.44	0.44	0.10
Uniform Del:	3.6	3.6	3.6	4.0	4.0	4.0	28.9	28.9	27.4	28.9	28.9	27.1
IncremntDel:	0.2	0.2	0.2	0.2	0.2	0.2	0.9	0.9	0.2	0.9	0.9	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	3.7	3.7	3.7	4.2	4.2	4.2	29.8	29.8	27.6	29.8	29.8	27.2
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:	3.7	3.7	3.7	4.2	4.2	4.2	29.8	29.8	27.6	29.8	29.8	27.2
LOS by Move:	A	A	A	A	A	A	C	C	C	C	C	C
HCM2kAvgQ:	101	101	101	151	151	151	83	83	29	80	80	17

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

Level Of Service Computation Report
2000 HCM 4-Way Stop (Future Volume Alternative)
Cum + Op 1 PM

Intersection #20: Pastoria Ave / Olive Ave



Street Name:	Pastoria Ave						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:	0	0	0	0	0	0	0	0	0	0	0	0
Volume Module:												
Base Vol:	29	201	88	21	378	8	9	60	74	144	38	27
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	38	263	115	27	494	10	12	78	97	188	50	35
Added Vol:	0	80	1	14	65	0	0	7	0	2	7	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	38	343	116	41	559	10	12	85	97	190	57	58
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:	38	343	116	41	559	10	12	85	97	190	57	58
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	38	343	116	41	559	10	12	85	97	190	57	58
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:	38	343	116	41	559	10	12	85	97	190	57	58
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.15	1.38	0.47	0.07	0.91	0.02	0.06	0.44	0.50	0.62	0.19	0.19
Final Sat.:	72	663	232	36	485	9	27	198	224	294	88	90
Capacity Analysis Module:												
Vol/Sat:	0.53	0.52	0.50	1.15	1.15	1.15	0.43	0.43	0.43	0.65	0.65	0.65
Crit Moves:	****					****		****		****		
Delay/Veh:	18.0	17.4	16.4	112.9	113	112.9	15.8	15.8	15.8	22.4	22.4	22.4
Delay Adj:	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:	18.0	17.4	16.4	112.9	113	112.9	15.8	15.8	15.8	22.4	22.4	22.4
LOS by Move:	C	C	C	F	F	F	C	C	C	C	C	C
ApproachDel:		17.2			112.9			15.8			22.4	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		17.2			112.9			15.8			22.4	
LOS by Appr:		C			F			C			C	
AllWayAvgQ:	25.4	22.9	22.9	379	379	379.3	16.1	16.1	16.1	39.0	39.0	39.0

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

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #20 Pastoria Ave / Olive Ave

****

Future Volume Alternative: Peak Hour Warrant 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			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	38	343	116	41	559	10	12	85	97	190	57	58

Major Street Volume: 1108
Minor Approach Volume: 305
Minor Approach Volume Threshold: 250

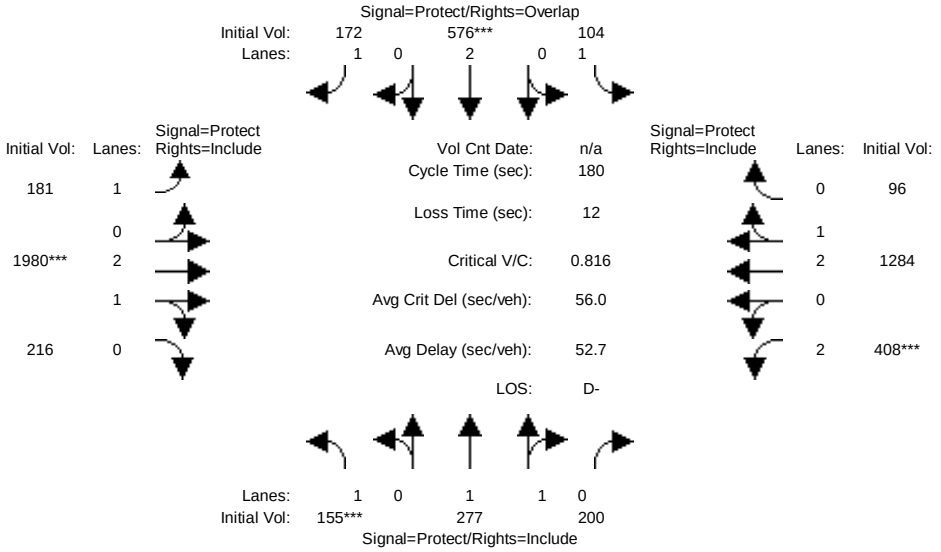
SIGNAL WARRANT DISCLAIMER

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #21: Pastoria Ave - Hollenbeck Ave / El Camino Real

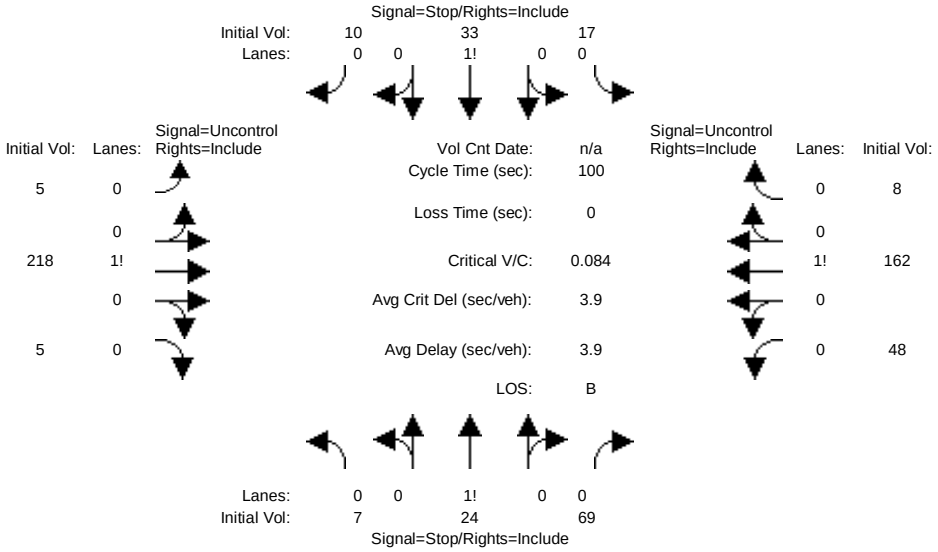


Street Name:	Pastoria Ave - Hollenbeck Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Min. Green:	12	12	12	12	12	12	13	15	15	13	15	15
Y+R:	3.7	4.2	4.2	3.7	4.2	4.2	3.7	4.9	4.9	3.7	9.4	9.4
Volume Module:												
Base Vol:	115	182	152	85	402	113	105	1394	164	311	864	75
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	150	238	199	111	526	148	137	1822	214	407	1130	98
Added Vol:	5	39	1	-7	50	24	44	158	2	1	154	-2
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	155	277	200	104	576	172	181	1980	216	408	1284	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:	155	277	200	104	576	172	181	1980	216	408	1284	96
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	155	277	200	104	576	172	181	1980	216	408	1284	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
FinalVolume:	155	277	200	104	576	172	181	1980	216	408	1284	96
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	0.99	0.95	0.83	0.99	0.95
Lanes:	1.00	1.14	0.86	1.00	2.00	1.00	1.00	2.69	0.31	2.00	2.78	0.22
Final Sat.:	1750	2149	1549	1750	3800	1750	1750	5048	552	3150	5210	390
Capacity Analysis Module:												
Vol/Sat:	0.09	0.13	0.13	0.06	0.15	0.10	0.10	0.39	0.39	0.13	0.25	0.25
Crit Moves:	****				****			****		****		
Green Time:	19.6	34.9	34.9	18.1	33.4	67.4	34.0	86.5	86.5	28.5	81.0	81.0
Volume/Cap:	0.82	0.66	0.66	0.59	0.82	0.26	0.55	0.82	0.82	0.82	0.55	0.55
Uniform Del:	78.5	67.1	67.1	77.5	70.4	39.0	66.0	40.0	40.0	73.2	36.1	36.1
IncremntDel:	23.2	2.4	2.4	5.4	7.4	0.2	1.9	2.0	2.0	10.1	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	101.6	69.5	69.5	82.8	77.7	39.2	67.9	42.0	42.0	83.3	36.4	36.4
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:	101.6	69.5	69.5	82.8	77.7	39.2	67.9	42.0	42.0	83.3	36.4	36.4
LOS by Move:	F	E	E	F	E-	D	E	D	D	F	D+	D+
HCM2kAvgQ:	241	310	310	167	425	170	251	891	891	332	448	448

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

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cum + Op 1 PM

Intersection #22: Charles St / Iowa Ave



Street Name:	Charles St						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:	5	16	15	13	25	8	4	151	4	10	104	6
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	7	21	20	17	33	10	5	197	5	13	136	8
Added Vol:	0	3	49	0	0	0	0	21	0	35	26	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	7	24	69	17	33	10	5	218	5	48	162	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:	7	24	69	17	33	10	5	218	5	48	162	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	7	24	69	17	33	10	5	218	5	48	162	8
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:												
Cnflict Vol:	515	497	221	540	496	166	170	xxxx	xxxxx	224	xxxx	xxxxx
Potent Cap.:	469	473	816	451	474	876	1401	xxxx	xxxxx	1339	xxxx	xxxxx
Move Cap.:	424	454	816	384	454	876	1401	xxxx	xxxxx	1339	xxxx	xxxxx
Volume/Cap:	0.02	0.05	0.08	0.04	0.07	0.01	0.00	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	2.8	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	7.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	651	xxxxx	xxxx	470	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.5	xxxxx	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	11.5	xxxxx	xxxxx	13.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	B	*	*	*	*	*	*	*
ApproachDel:		11.5			13.8			xxxxx			xxxxx	
ApproachLOS:		B			B			*			*	

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

Peak Hour Delay Signal Warrant Report

****

Intersection #22 Charles St / 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:	7	24	69	17	33	10	5	218	5	48	162	8
ApproachDel:	11.5			13.8			xxxxxx			xxxxxx		

Approach[northbound][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=99]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=606]
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=60]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=606]
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 #22 Charles St / 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:	7	24	69	17	33	10	5	218	5	48	162	8

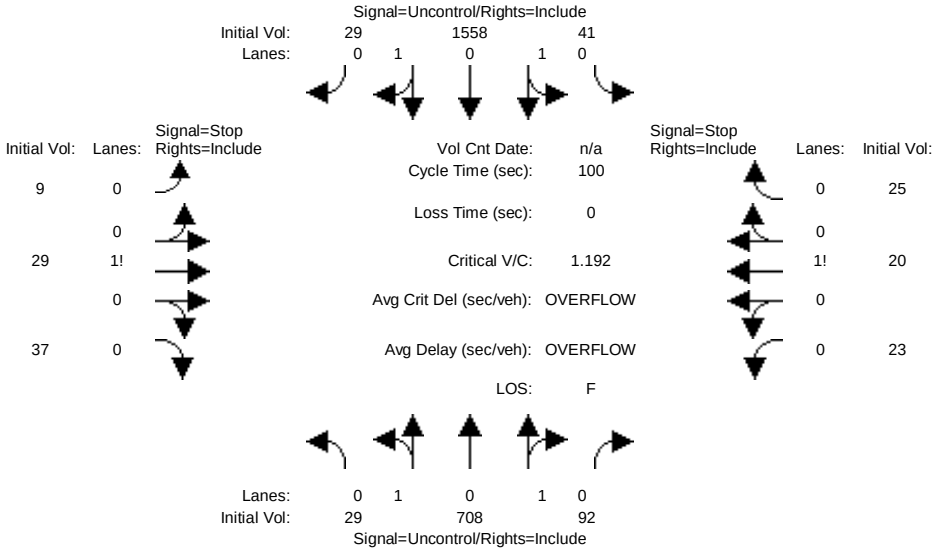
Major Street Volume: 447
Minor Approach Volume: 99
Minor Approach Volume Threshold: 434

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.

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cum + Op 1 PM

Intersection #23: Mary Ave / Olive Ave



Street Name:	Mary Ave						Olive 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:	22	487	65	31	1027	22	7	22	28	12	15	19
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	29	637	85	41	1343	29	9	29	37	16	20	25
Added Vol:	0	71	7	0	215	0	0	0	0	7	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	29	708	92	41	1558	29	9	29	37	23	20	25
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	708	92	41	1558	29	9	29	37	23	20	25
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	29	708	92	41	1558	29	9	29	37	23	20	25
Critical Gap Module:												
Critical Gp:	4.2	xxxx	xxxxx	4.2	xxxx	xxxxx	7.6	6.6	7.0	7.6	6.6	7.0
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	1586	xxxx	xxxxx	800	xxxx	xxxxx	2074	2510	793	1685	2479	400
Potent Cap.:	405	xxxx	xxxxx	813	xxxx	xxxxx	31	28	329	61	29	597
Move Cap.:	405	xxxx	xxxxx	813	xxxx	xxxxx	10	24	329	0	25	597
Volume/Cap:	0.07	xxxx	xxxx	0.05	xxxx	xxxx	0.94	1.19	0.11	xxxx	0.77	0.04
Level Of Service Module:												
2Way95thQ:	5.7	xxxx	xxxxx	3.9	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	14.6	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	B	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	33	xxxxx	xxxx	0	xxxxx
SharedQueue:	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxxx	8.5	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	14.6	xxxx	xxxxx	9.7	xxxx	xxxxx	xxxxx	824	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	B	*	*	A	*	*	*	F	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			824.2			xxxxxx		
ApproachLOS:	*			*			F			F		

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

Peak Hour Delay Signal Warrant Report

****

Intersection #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0 1	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	29	708	92	41	1558	29	9	29	37	23	20	25
ApproachDel:	xxxxxx			xxxxxx			824.2			xxxxxx		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=17.1]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=75]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2597]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=67]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2597]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more 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 #23 Mary Ave / Olive 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:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	0 1	0 1	0	0 1	0 1	0	0 0	1! 0	0	0 0	1! 0	0
Initial Vol:	29	708	92	41	1558	29	9	29	37	23	20	25

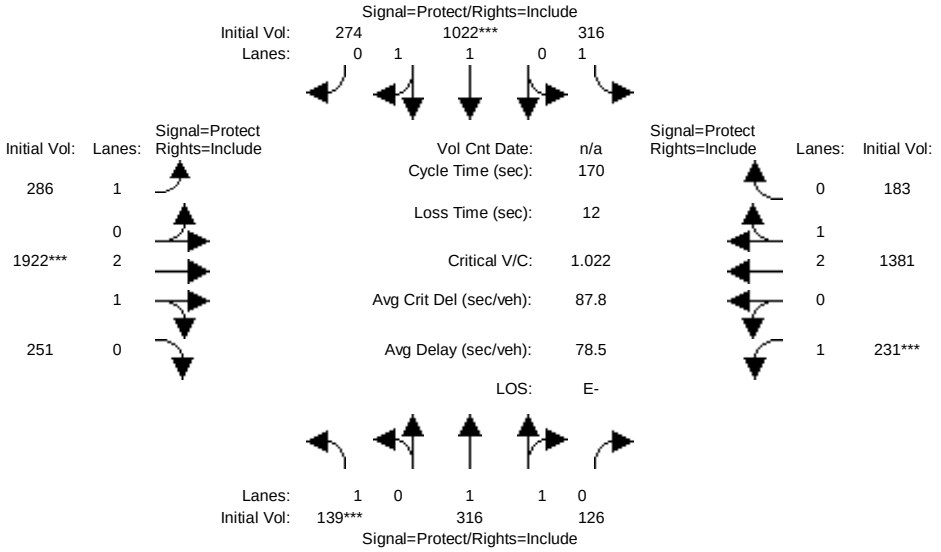
Major Street Volume: 2455
Minor Approach Volume: 75
Minor Approach Volume Threshold: -25 [less than minimum of 100]

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).

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.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #24: Mary Ave / El Camino Real

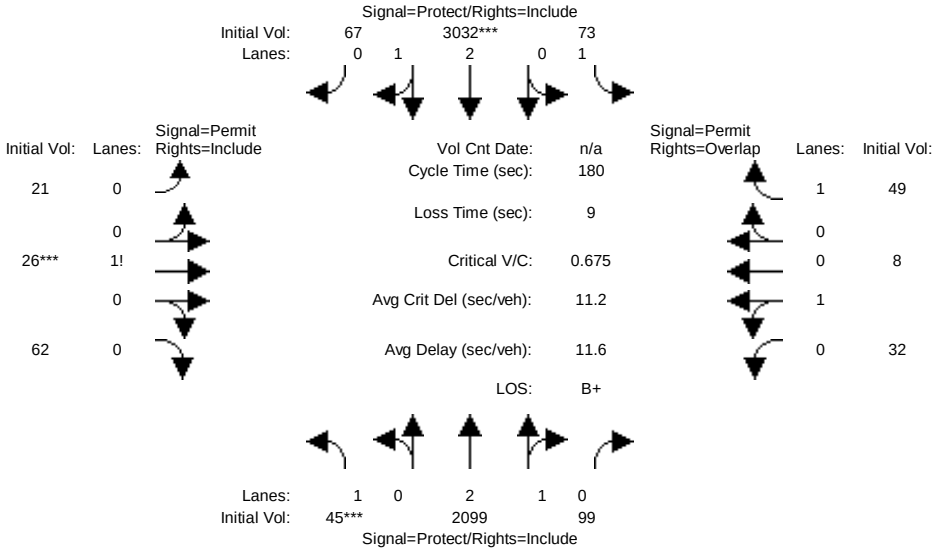


Street Name:	Mary Ave						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	12	12	12	12	12	12	12	10	10	12	10	10
Y+R:	4.0	4.5	4.5	4.0	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	101	219	87	184	699	180	201	1381	190	170	944	121
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	132	286	114	241	914	235	263	1805	248	222	1234	158
Added Vol:	7	30	12	75	108	39	23	117	3	9	147	25
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	139	316	126	316	1022	274	286	1922	251	231	1381	183
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:	139	316	126	316	1022	274	286	1922	251	231	1381	183
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	139	316	126	316	1022	274	286	1922	251	231	1381	183
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:	139	316	126	316	1022	274	286	1922	251	231	1381	183
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	0.98	0.95	0.92	0.99	0.95	0.92	0.99	0.95
Lanes:	1.00	1.42	0.58	1.00	1.57	0.43	1.00	2.64	0.36	1.00	2.64	0.36
Final Sat.:	1750	2647	1052	1750	2916	783	1750	4952	648	1750	4943	656
Capacity Analysis Module:												
Vol/Sat:	0.08	0.12	0.12	0.18	0.35	0.35	0.16	0.39	0.39	0.13	0.28	0.28
Crit Moves:	****				****			****			****	
Green Time:	13.2	28.5	28.5	43.0	58.3	58.3	31.9	64.6	64.6	22.0	54.6	54.6
Volume/Cap:	1.02	0.71	0.71	0.71	1.02	1.02	0.87	1.02	1.02	1.02	0.87	0.87
Uniform Del:	78.4	66.9	66.9	57.9	55.9	55.9	67.0	52.7	52.7	74.0	54.3	54.3
IncremntDel:	83.2	3.9	3.9	5.4	31.1	31.1	21.2	25.4	25.4	65.7	4.9	4.9
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	161.6	70.8	70.8	63.3	87.0	87.0	88.3	78.1	78.1	139.8	59.2	59.2
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:	161.6	70.8	70.8	63.3	87.0	87.0	88.3	78.1	78.1	139.8	59.2	59.2
LOS by Move:	F	E	E	E	F	F	F	E-	E-	F	E+	E+
HCM2kAvgQ:	245	282	282	406	1011	1011	455	1137	1137	445	705	705

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #25: Sunnyvale Saratoga Rd / Cheyenne Dr/Connemara Way

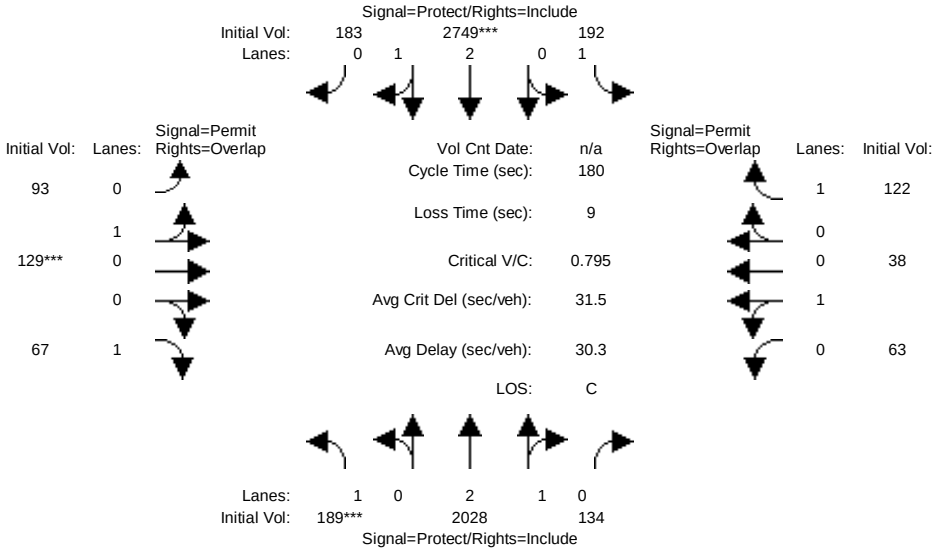


Street Name:	Sunnyvale Saratoga Rd						Cheyenne Dr/Connemara Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	9	9	6	9	9	9	9	9	9	9	9
Y+R:	4.0	6.3	6.3	4.0	6.0	6.0	6.9	6.9	6.9	6.9	6.9	6.9
Volume Module:												
Base Vol:	17	1482	58	50	2181	45	11	20	41	18	6	20
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	22	1937	76	65	2851	59	14	26	54	24	8	26
Added Vol:	23	162	23	8	181	8	7	0	8	8	0	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	2099	99	73	3032	67	21	26	62	32	8	49
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:	45	2099	99	73	3032	67	21	26	62	32	8	49
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	2099	99	73	3032	67	21	26	62	32	8	49
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:	45	2099	99	73	3032	67	21	26	62	32	8	49
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	0.98	0.95	0.92	0.92	0.92	0.95	0.95	0.92
Lanes:	1.00	2.86	0.14	1.00	2.93	0.07	0.20	0.24	0.56	0.80	0.20	1.00
Final Sat.:	1750	5348	252	1750	5479	121	343	419	988	1441	359	1750
Capacity Analysis Module:												
Vol/Sat:	0.03	0.39	0.39	0.04	0.55	0.55	0.06	0.06	0.06	0.02	0.02	0.03
Crit Moves:	****				****			****				
Green Time:	6.9	139	139.5	14.9	147	147.5	16.6	16.6	16.6	16.6	16.6	31.5
Volume/Cap:	0.68	0.51	0.51	0.51	0.68	0.68	0.68	0.68	0.68	0.24	0.24	0.16
Uniform Del:	85.5	7.5	7.5	79.0	6.6	6.6	79.1	79.1	79.1	75.8	75.8	63.0
IncremntDel:	24.0	0.1	0.1	2.9	0.4	0.4	10.8	10.8	10.8	0.7	0.7	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	109.5	7.6	7.6	81.9	7.0	7.0	89.9	89.9	89.9	76.5	76.5	63.3
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:	109.5	7.6	7.6	81.9	7.0	7.0	89.9	89.9	89.9	76.5	76.5	63.3
LOS by Move:	F	A	A	F	A	A	F	F	F	E-	E-	E
HCM2kAvgQ:	68	370	370	119	582	582	185	185	185	56	56	61

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

Intersection #26: Sunnyvale Saratoga Rd/Alberta Ave/Harwick Way

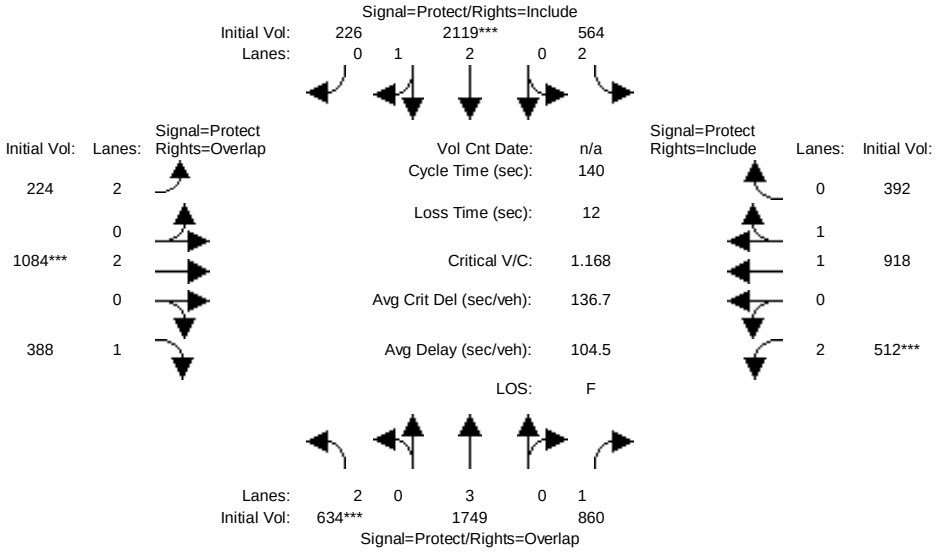


Street Name:	Sunnyvale Saratoga Rd						Alberta Ave/Harwick Way					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	6	11	11	6	11	11	9	9	9	9	9	9
Y+R:	4.0	6.2	6.2	4.0	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Volume Module:												
Base Vol:	127	1415	85	141	1964	135	66	99	45	42	29	76
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	166	1850	111	184	2568	176	86	129	59	55	38	99
Added Vol:	23	178	23	8	181	7	7	0	8	8	0	23
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	189	2028	134	192	2749	183	93	129	67	63	38	122
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:	189	2028	134	192	2749	183	93	129	67	63	38	122
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	189	2028	134	192	2749	183	93	129	67	63	38	122
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:	189	2028	134	192	2749	183	93	129	67	63	38	122
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	0.98	0.95	0.95	0.95	0.92	0.95	0.95	0.92
Lanes:	1.00	2.81	0.19	1.00	2.81	0.19	0.42	0.58	1.00	0.62	0.38	1.00
Final Sat.:	1750	5252	347	1750	5249	350	754	1046	1750	1123	677	1750
Capacity Analysis Module:												
Vol/Sat:	0.11	0.39	0.39	0.11	0.52	0.52	0.12	0.12	0.04	0.06	0.06	0.07
Crit Moves:	****				****			****				
Green Time:	24.5	111	111.3	31.7	119	118.5	28.0	28.0	52.5	28.0	28.0	59.7
Volume/Cap:	0.80	0.62	0.62	0.62	0.80	0.80	0.80	0.80	0.13	0.36	0.36	0.21
Uniform Del:	75.3	21.4	21.4	68.6	22.0	22.0	73.2	73.2	47.0	68.0	68.0	43.2
IncremntDel:	16.7	0.4	0.4	4.0	1.3	1.3	14.5	14.5	0.1	0.8	0.8	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	92.1	21.7	21.7	72.6	23.3	23.3	87.7	87.7	47.1	68.8	68.8	43.4
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:	92.1	21.7	21.7	72.6	23.3	23.3	87.7	87.7	47.1	68.8	68.8	43.4
LOS by Move:	F	C+	C+	E	C	C	F	F	D	E	E	D
HCM2kAvgQ:	262	586	586	256	964	964	354	354	71	133	133	126

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

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Cum + Op 1 PM

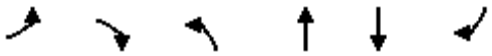
Intersection #27: Sunnyvale Saratoga Rd/De Anza Blvd/Homestead Rd



Street Name:	Sunnyvale Saratoga Rd/De Anza Blv						Homestead Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	6	10	10	6	10	10	6	10	10	6	10	10
Y+R:	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.5	4.5	4.0	4.5	4.5
Volume Module:												
Base Vol:	467	1298	627	383	1525	166	166	707	291	304	453	173
Growth Adj:	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
Initial Bse:	611	1697	820	501	1994	217	217	924	380	397	592	226
Added Vol:	23	52	40	63	125	9	7	160	8	115	326	166
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	634	1749	860	564	2119	226	224	1084	388	512	918	392
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:	634	1749	860	564	2119	226	224	1084	388	512	918	392
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	634	1749	860	564	2119	226	224	1084	388	512	918	392
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:	634	1749	860	564	2119	226	224	1084	388	512	918	392
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	0.99	0.95	0.83	1.00	0.92	0.83	0.98	0.95
Lanes:	2.00	3.00	1.00	2.00	2.70	0.30	2.00	2.00	1.00	2.00	1.39	0.61
Final Sat.:	3150	5700	1750	3150	5059	540	3150	3800	1750	3150	2592	1107
Capacity Analysis Module:												
Vol/Sat:	0.20	0.31	0.49	0.18	0.42	0.42	0.07	0.29	0.22	0.16	0.35	0.35
Crit Moves:	****				****			****			****	
Green Time:	24.1	48.1	67.6	26.2	50.2	50.2	9.0	34.2	58.3	19.5	44.7	44.7
Volume/Cap:	1.17	0.89	1.02	0.96	1.17	1.17	1.11	1.17	0.53	1.17	1.11	1.11
Uniform Del:	57.9	43.5	36.2	56.3	44.9	44.9	65.5	52.9	30.6	60.3	47.6	47.6
IncremntDel:	94.1	5.7	35.4	26.5	81.4	81.4	95.6	87.3	0.8	97.7	61.4	61.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	152.1	49.2	71.6	82.8	126	126.3	161.1	140	31.4	157.9	109	109.1
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:	152.1	49.2	71.6	82.8	126	126.3	161.1	140	31.4	157.9	109	109.1
LOS by Move:	F	D	E	F	F	F	F	F	C	F	F	F
HCM2kAvgQ:	650	667	1203	387	1186	1186	257	888	335	540	1009	1009

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

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 On Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	3597	1184	188
Future Volume (vph)	0	0	0	3597	1184	188
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.1	6.4	
Lane Util. Factor				0.81	0.86	
Frt				1.00	0.98	
Flt Protected				1.00	1.00	
Satd. Flow (prot)				6684	5561	
Flt Permitted				1.00	1.00	
Satd. Flow (perm)				6684	5561	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	3868	1273	202
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	3868	1475	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type				NA	NA	
Protected Phases				2	6	
Permitted Phases						
Actuated Green, G (s)				190.0	190.0	
Effective Green, g (s)				190.0	190.0	
Actuated g/C Ratio				1.00	1.00	
Clearance Time (s)				5.3	6.6	
Lane Grp Cap (vph)				6684	5561	
v/s Ratio Prot				c0.58	0.27	
v/s Ratio Perm						
v/c Ratio				0.58	0.27	
Uniform Delay, d1				0.0	0.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.1	0.1	
Delay (s)				0.1	0.1	
Level of Service				A	A	
Approach Delay (s)	0.0			0.1	0.1	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	6.4
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1177	0	94	0	0	0	0	2419	980	64	1119	0
Future Volume (vph)	1177	0	94	0	0	0	0	2419	980	64	1119	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.95	0.95	1.00					0.81	0.88	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00	0.94	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	1490	1381					6684	2333	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	1490	1381					6684	2333	1568	4506	
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)	1226	0	98	0	0	0	0	2520	1021	67	1166	0
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	342	0	0	0
Lane Group Flow (vph)	821	405	71	0	0	0	0	2520	679	67	1166	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	95.4	95.4	95.4					67.3	67.3	8.1	81.7	
Effective Green, g (s)	96.8	96.8	96.8					67.5	67.5	8.3	81.9	
Actuated g/C Ratio	0.51	0.51	0.51					0.36	0.36	0.04	0.43	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	759	759	703					2374	828	68	1942	
v/s Ratio Prot								c0.38		c0.04	0.26	
v/s Ratio Perm	c0.55	0.27	0.05						0.29			
v/c Ratio	1.08	0.53	0.10					1.06	0.82	0.99	0.60	
Uniform Delay, d1	46.6	31.4	24.1					61.2	55.7	90.8	41.5	
Progression Factor	1.00	1.00	1.00					0.78	0.49	1.00	1.00	
Incremental Delay, d2	57.0	0.7	0.1					34.9	6.4	102.1	1.4	
Delay (s)	103.6	32.1	24.2					82.5	33.6	192.9	42.8	
Level of Service	F	C	C					F	C	F	D	
Approach Delay (s)		75.9			0.0			68.4			51.0	
Approach LOS		E			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	66.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	4	51	266	41	290	150	3075	114	37	1051	126
Future Volume (vph)	34	4	51	266	41	290	150	3075	114	37	1051	126
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.76		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.98	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)	1568	1650	1363	1544	1650	1382	1568	7476		1568	4423	
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)	1203	1650	1363	1227	1650	1382	1568	7476		1568	4423	
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)	36	4	54	280	43	305	158	3237	120	39	1106	133
RTOR Reduction (vph)	0	0	39	0	0	62	0	3	0	0	7	0
Lane Group Flow (vph)	36	4	15	280	43	243	158	3354	0	39	1232	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	50.6	50.6	50.6	50.2	50.2	50.2	27.4	115.0		6.4	94.2	
Effective Green, g (s)	53.7	53.7	53.7	53.3	53.3	53.3	30.0	117.6		9.0	96.8	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.28	0.16	0.62		0.05	0.51	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	340	466	385	344	462	387	247	4627		74	2253	
v/s Ratio Prot		0.00			0.03		c0.10	c0.45		0.02	0.28	
v/s Ratio Perm	0.03		0.01	c0.23		0.18						
v/c Ratio	0.11	0.01	0.04	0.81	0.09	0.63	0.64	0.72		0.53	0.55	
Uniform Delay, d1	50.4	49.0	49.4	63.7	50.5	59.7	74.9	25.0		88.4	31.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.59		0.86	0.19	
Incremental Delay, d2	0.1	0.0	0.0	13.7	0.1	3.2	0.5	0.1		5.6	0.8	
Delay (s)	50.5	49.0	49.5	77.4	50.6	62.9	62.6	14.9		81.4	6.9	
Level of Service	D	D	D	E	D	E	E	B		F	A	
Approach Delay (s)		49.9			68.5			17.0			9.1	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Cumulative + Project
Timing Plan: AM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	19	33	55	119	294	151	3573	31	111	2240	594
Future Volume (vph)	133	19	33	55	119	294	151	3573	31	111	2240	594
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.98		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1467		1568	1650	1381	1568	5678	1372	1568	5475	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1467		1568	1650	1381	1568	5678	1372	1568	5475	
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)	139	20	34	57	124	306	157	3722	32	116	2333	619
RTOR Reduction (vph)	0	28	0	0	0	101	0	0	13	0	23	0
Lane Group Flow (vph)	139	26	0	57	124	205	157	3722	19	116	2929	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	11.4	31.7		13.4	33.8	33.8	18.7	110.0	110.0	12.9	104.2	
Effective Green, g (s)	11.5	34.5		13.5	36.5	36.5	18.8	113.0	113.0	13.0	107.2	
Actuated g/C Ratio	0.06	0.18		0.07	0.19	0.19	0.10	0.59	0.59	0.07	0.56	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	184	266		111	316	265	155	3376	815	107	3089	
v/s Ratio Prot	c0.05	0.02		0.04	0.08		c0.10	c0.66		0.07	0.54	
v/s Ratio Perm						c0.15			0.01			
v/c Ratio	0.76	0.10		0.51	0.39	0.77	1.01	1.10	0.02	1.08	0.95	
Uniform Delay, d1	87.9	64.8		85.1	67.1	72.8	85.6	38.5	15.8	88.5	38.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.92	0.38	1.00	0.98	0.60	
Incremental Delay, d2	16.1	0.2		4.0	0.8	13.1	24.9	46.6	0.0	92.2	5.3	
Delay (s)	103.9	65.0		89.1	67.9	86.0	103.7	61.4	15.8	179.2	28.6	
Level of Service	F	E		F	E	F	F	E	B	F	C	
Approach Delay (s)		93.0			81.7			62.7			34.3	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

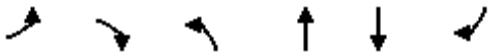
HCM Signalized Intersection Capacity Analysis
101: Mathilda Avenue & NB US-101 Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	883	751	2775	596	10	1224
Future Volume (vph)	883	751	2775	596	10	1224
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6	6.3	6.3	6.3	6.3
Lane Util. Factor	0.97	0.88	0.91	1.00	1.00	0.91
Frt	1.00	0.85	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)	3072	2493	4550	1417	1583	4550
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3072	2493	4550	1417	1583	4550
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	960	816	3016	648	11	1330
RTOR Reduction (vph)	0	48	0	226	0	0
Lane Group Flow (vph)	960	768	3016	422	11	1330
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	53.4	53.4	115.8	115.8	1.6	123.7
Effective Green, g (s)	53.4	53.4	115.8	115.8	1.6	123.7
Actuated g/C Ratio	0.28	0.28	0.61	0.61	0.01	0.65
Clearance Time (s)	6.6	6.6	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)	863	700	2773	863	13	2962
v/s Ratio Prot	c0.31		c0.66		0.01	c0.29
v/s Ratio Perm		0.31		0.30		
v/c Ratio	1.11	1.10	1.09	0.49	0.85	0.45
Uniform Delay, d1	68.3	68.3	37.1	20.6	94.1	16.3
Progression Factor	1.00	1.00	0.55	0.11	0.90	0.43
Incremental Delay, d2	66.3	63.6	42.6	0.8	150.7	0.4
Delay (s)	134.6	131.9	63.0	3.0	235.4	7.4
Level of Service	F	F	E	A	F	A
Approach Delay (s)	133.4		52.4			9.3
Approach LOS	F		D			A

Intersection Summary			
HCM 2000 Control Delay	65.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: Mathilda Avenue & SB US-101 Ramps

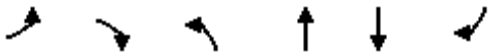


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	379	653	0	2816	1965	144
Future Volume (vph)	379	653	0	2816	1965	144
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6		6.3	6.3	
Lane Util. Factor	0.97	0.88		0.91	0.91	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3072	2493		4550	4503	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3072	2493		4550	4503	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	412	710	0	3061	2136	157
RTOR Reduction (vph)	0	19	0	0	4	0
Lane Group Flow (vph)	412	692	0	3061	2289	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	49.4	49.4		127.7	127.7	
Effective Green, g (s)	49.4	49.4		127.7	127.7	
Actuated g/C Ratio	0.26	0.26		0.67	0.67	
Clearance Time (s)	6.6	6.6		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	798	648		3058	3026	
v/s Ratio Prot	0.13			c0.67	0.51	
v/s Ratio Perm		c0.28				
v/c Ratio	0.52	1.07		1.00	0.76	
Uniform Delay, d1	60.1	70.3		31.1	20.8	
Progression Factor	1.00	1.00		0.31	0.76	
Incremental Delay, d2	0.6	54.6		5.1	1.2	
Delay (s)	60.7	124.9		14.6	17.1	
Level of Service	E	F		B	B	
Approach Delay (s)	101.3			14.6	17.1	
Approach LOS	F			B	B	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Mathilda Avenue & WB SR-237 Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	823	3168	828
Future Volume (vph)	0	0	0	823	3168	828
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)				5.1	6.4	
Lane Util. Factor				0.81	0.86	
Frt				1.00	0.97	
Flt Protected				1.00	1.00	
Satd. Flow (prot)				6684	5501	
Flt Permitted				1.00	1.00	
Satd. Flow (perm)				6684	5501	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	885	3406	890
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	885	4296	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type				NA	NA	
Protected Phases				2	6	
Permitted Phases						
Actuated Green, G (s)				200.0	200.0	
Effective Green, g (s)				200.0	200.0	
Actuated g/C Ratio				1.00	1.00	
Clearance Time (s)				5.3	6.6	
Lane Grp Cap (vph)				6684	5501	
v/s Ratio Prot				0.13	c0.78	
v/s Ratio Perm						
v/c Ratio				0.13	0.78	
Uniform Delay, d1				0.0	0.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.0	1.2	
Delay (s)				0.0	1.2	
Level of Service				A	A	
Approach Delay (s)	0.0			0.0	1.2	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	6.4
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Mathilda Avenue & EB SR-237 Ramps

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	0	210	0	0	0	0	638	920	480	2688	0
Future Volume (vph)	186	0	210	0	0	0	0	638	920	480	2688	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	5.2	5.2	5.2					6.1	6.1	6.1	6.1	
Lane Util. Factor	0.95	0.95	1.00					0.81	0.88	1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98					1.00	0.94	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	1490	1370					6684	2328	1568	4506	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	1490	1370					6684	2328	1568	4506	
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)	194	0	219	0	0	0	0	665	958	500	2800	0
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	578	0	0	0
Lane Group Flow (vph)	130	64	175	0	0	0	0	665	380	500	2800	0
Confl. Peds. (#/hr)									5	5		
Confl. Bikes (#/hr)			8			1			2			7
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4						2			
Actuated Green, G (s)	29.7	29.7	29.7					68.4	68.4	82.7	157.4	
Effective Green, g (s)	31.1	31.1	31.1					68.6	68.6	82.9	157.6	
Actuated g/C Ratio	0.16	0.16	0.16					0.34	0.34	0.41	0.79	
Clearance Time (s)	6.6	6.6	6.6					6.3	6.3	6.3	6.3	
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	231	231	213					2292	798	649	3550	
v/s Ratio Prot								0.10		0.32	c0.62	
v/s Ratio Perm	0.09	0.04	c0.13						0.16			
v/c Ratio	0.56	0.28	0.82					0.29	0.48	0.77	0.79	
Uniform Delay, d1	78.2	74.5	81.8					47.9	51.6	50.4	11.9	
Progression Factor	1.00	1.00	1.00					0.55	1.05	1.00	1.00	
Incremental Delay, d2	3.1	0.7	21.8					0.3	1.8	3.4	1.1	
Delay (s)	81.3	75.2	103.6					26.5	56.0	53.8	13.0	
Level of Service	F	E	F					C	E	D	B	
Approach Delay (s)		92.2			0.0			43.9			19.2	
Approach LOS		F			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	17.4
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Mathilda Avenue & Ross Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	51	169	175	5	103	77	1364	445	290	2538	71
Future Volume (vph)	92	51	169	175	5	103	77	1364	445	290	2538	71
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	3.9	3.9	3.9	4.3	4.3	4.3	1.4	4.4		1.4	4.2	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.76		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.98	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)	1568	1650	1362	1544	1650	1380	1568	7178		1568	4485	
Flt Permitted	0.75	1.00	1.00	0.70	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1245	1650	1362	1139	1650	1380	1568	7178		1568	4485	
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)	97	54	178	184	5	108	81	1436	468	305	2672	75
RTOR Reduction (vph)	0	0	75	0	0	87	0	28	0	0	1	0
Lane Group Flow (vph)	97	54	103	184	5	21	81	1876	0	305	2746	0
Confl. Peds. (#/hr)			11	11					5	5		
Confl. Bikes (#/hr)			1			4			2			3
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
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)	35.3	35.3	35.3	34.9	34.9	34.9	10.9	93.8		52.9	136.0	
Effective Green, g (s)	38.4	38.4	38.4	38.0	38.0	38.0	13.5	96.4		55.5	138.6	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.07	0.48		0.28	0.69	
Clearance Time (s)	7.0	7.0	7.0	7.4	7.4	7.4	4.0	7.0		4.0	6.8	
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)	239	316	261	216	313	262	105	3459		435	3108	
v/s Ratio Prot		0.03			0.00		0.05	0.26		c0.19	c0.61	
v/s Ratio Perm	0.08		0.08	c0.16		0.01						
v/c Ratio	0.41	0.17	0.39	0.85	0.02	0.08	0.77	0.54		0.70	0.88	
Uniform Delay, d1	70.8	67.5	70.6	78.3	65.8	66.6	91.7	36.3		64.8	24.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	0.51		0.87	0.63	
Incremental Delay, d2	1.1	0.3	1.0	26.2	0.0	0.1	26.3	0.6		3.1	2.6	
Delay (s)	71.9	67.8	71.6	104.4	65.8	66.7	125.7	19.0		59.2	18.0	
Level of Service	E	E	E	F	E	E	F	B		E	B	
Approach Delay (s)		71.1			90.1			23.3			22.1	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	10.1
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Mathilda Avenue & Almanor Avenue/Ahwanee Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	458	166	109	41	23	124	51	2185	93	207	3265	109
Future Volume (vph)	458	166	109	41	23	124	51	2185	93	207	3265	109
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	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	1.00	1.00	1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3042	1534		1568	1650	1373	1568	5678	1372	1568	5646	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3042	1534		1568	1650	1373	1568	5678	1372	1568	5646	
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)	477	173	114	43	24	129	53	2276	97	216	3401	114
RTOR Reduction (vph)	0	12	0	0	0	120	0	0	49	0	2	0
Lane Group Flow (vph)	477	275	0	43	24	9	53	2276	48	216	3513	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			1			3			3			1
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8			6			
Actuated Green, G (s)	39.3	43.6		6.7	11.1	11.1	8.3	96.9	96.9	30.8	119.4	
Effective Green, g (s)	39.4	46.4		6.8	13.8	13.8	8.4	99.9	99.9	30.9	122.4	
Actuated g/C Ratio	0.20	0.23		0.03	0.07	0.07	0.04	0.50	0.50	0.15	0.61	
Clearance Time (s)	4.1	6.8		4.1	6.7	6.7	4.1	7.0	7.0	4.1	7.0	
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)	599	355		53	113	94	65	2836	685	242	3455	
v/s Ratio Prot	c0.16	c0.18		0.03	0.01		0.03	c0.40		0.14	c0.62	
v/s Ratio Perm						0.01			0.04			
v/c Ratio	0.80	0.77		0.81	0.21	0.09	0.82	0.80	0.07	0.89	1.02	
Uniform Delay, d1	76.5	71.9		96.0	88.0	87.2	95.0	41.8	26.0	82.9	38.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.68	0.31	0.25	1.08	0.90	
Incremental Delay, d2	7.3	10.1		59.7	0.9	0.4	24.5	1.0	0.1	4.2	9.7	
Delay (s)	83.7	82.0		155.6	88.9	87.7	88.8	14.0	6.5	94.0	44.5	
Level of Service	F	F		F	F	F	F	B	A	F	D	
Approach Delay (s)		83.1			102.7			15.3			47.4	
Approach LOS		F			F			B			D	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		
Description: Optimized splits			

c Critical Lane Group

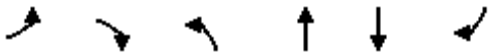
HCM Signalized Intersection Capacity Analysis
101: Mathilda Avenue & NB US-101 Ramps

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	849	225	1410	626	40	3294
Future Volume (vph)	849	225	1410	626	40	3294
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6	6.3	6.3	6.3	6.3
Lane Util. Factor	0.97	0.88	0.91	1.00	1.00	0.91
Frt	1.00	0.85	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)	3072	2493	4550	1417	1583	4550
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3072	2493	4550	1417	1583	4550
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	923	245	1533	680	43	3580
RTOR Reduction (vph)	0	102	0	275	0	0
Lane Group Flow (vph)	923	143	1533	405	43	3580
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	52.4	52.4	119.2	119.2	9.2	134.7
Effective Green, g (s)	52.4	52.4	119.2	119.2	9.2	134.7
Actuated g/C Ratio	0.26	0.26	0.60	0.60	0.05	0.67
Clearance Time (s)	6.6	6.6	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)	804	653	2711	844	72	3064
v/s Ratio Prot	c0.30		0.34		0.03	c0.79
v/s Ratio Perm		0.06		0.29		
v/c Ratio	1.15	0.22	0.57	0.48	0.60	1.17
Uniform Delay, d1	73.8	57.8	24.6	22.9	93.6	32.7
Progression Factor	1.00	1.00	0.31	0.85	1.02	0.71
Incremental Delay, d2	80.9	0.2	0.7	1.7	8.8	78.5
Delay (s)	154.7	58.0	8.5	21.0	104.3	101.6
Level of Service	F	E	A	C	F	F
Approach Delay (s)	134.4		12.3			101.6
Approach LOS	F		B			F

Intersection Summary			
HCM 2000 Control Delay	78.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	19.2
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
102: Mathilda Avenue & SB US-101 Ramps



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	625	0	1810	2986	1157
Future Volume (vph)	115	625	0	1810	2986	1157
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700
Total Lost time (s)	6.6	6.6		6.3	6.3	
Lane Util. Factor	0.97	0.88		0.91	0.91	
Frt	1.00	0.85		1.00	0.96	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3072	2493		4550	4359	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3072	2493		4550	4359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	679	0	1967	3246	1258
RTOR Reduction (vph)	0	3	0	0	35	0
Lane Group Flow (vph)	125	676	0	1967	4469	0
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	41.4	41.4		145.7	145.7	
Effective Green, g (s)	41.4	41.4		145.7	145.7	
Actuated g/C Ratio	0.21	0.21		0.73	0.73	
Clearance Time (s)	6.6	6.6		6.3	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	635	516		3314	3175	
v/s Ratio Prot	0.04			0.43	c1.03	
v/s Ratio Perm		c0.27				
v/c Ratio	0.20	1.31		0.59	1.41	
Uniform Delay, d1	65.6	79.3		13.0	27.2	
Progression Factor	1.00	1.00		0.45	0.62	
Incremental Delay, d2	0.2	152.8		0.5	183.6	
Delay (s)	65.7	232.1		6.3	200.4	
Level of Service	E	F		A	F	
Approach Delay (s)	206.3			6.3	200.4	
Approach LOS	F			A	F	

Intersection Summary			
HCM 2000 Control Delay	148.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	200.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Pastoria Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Cumulative Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	984	197		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	1,107	305		Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	2,091	502		2	2	**2**	2	2	**2**	2	2	**2**	2	2	**2**	**2**	**1**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Iowa Avenue** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Charles Street** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Cumulative Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	319	70												Y			
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	446	100						Y		Y				Y			
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	765	170		0	0	**0**	0	1	**0**	1	0	**0**	0	2	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2010 MUTCD)

MAJOR STREET: **Mary Avenue** NB SB # OF APPROACH LANES: **2**

MINOR STREET: **Olive Avenue** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **Sunnyvale, CA**

COMMENTS: **Cumulative Plus Project Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**		**60**	**75**
06:30 AM TO 07:30 AM																	
07:30 AM TO 08:30 AM																	
08:30 AM TO 09:30 AM	2,253	85		Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
09:30 AM TO 10:30 AM																	
10:30 AM TO 11:30 AM																	
11:00 AM TO 12:00 PM																	
12:30 PM TO 01:30 PM																	
01:30 PM TO 02:30 PM																	
02:30 PM TO 03:30 PM																	
03:30 PM TO 04:30 PM																	
04:30 PM TO 05:30 PM																	
05:30 PM TO 06:30 PM	2,457	75		Y			Y	Y	**Y**	Y			Y	Y	**Y**		
06:30 PM TO 07:30 PM																	
07:30 PM TO 08:30 PM																	
08:30 PM TO 09:30 PM																	
09:30 PM TO 10:30 PM																	
	4,710	160		2	0	**0**	2	2	**2**	2	0	**0**	2	2	**2**	**1**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

03/17/20
Kimley-Horn and Associates

Civic Center Update Queuing Summary

Scenarios Analyzed	Turning Movement	Mathilda Avenue																							
		WB SR-237 Ramps #1			EB SR-237 Ramps #2			Ross Dr #3			NB US-101 Ramps #101			SB US-101 Ramps #102			Ahwanee Ave #4			San Aleso Ave #5			Maude Ave #6		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Traffic	EBL							75	42	92							315	91	**383**	70	<25	84	115	114	**408**
	EBR				50	37	**126**	35	<25	49													240	<25	**694**
	WBL	310	333	**346**				35	**230**	**157**							235	96	76				140	**393**	**299**
	WBR	305	256	<25				35	59	<25							55	**119**	48						
	NBL							130	**198**	102							345	130	79	200	43	50	240	**333**	105
	NBR																130	<25	<25				65	**<25**	<25
	SBL							100	52	**351**							115	**162**	**360**	170	132	**264**	270	164	**404**
	SBR																						325	297	155
Existing + Project Traffic	EBL							75	42	92							315	91	**383**	70	<25	84	115	114	**408**
	EBR				50	37	**126**	35	<25	49													240	<25	**694**
	WBL	310	333	**346**				35	**230**	**157**							235	96	76				140	**393**	**299**
	WBR	305	256	<25				35	59	<25							55	**119**	48						
	NBL							130	**198**	102							345	129	79	200	43	51	240	**332**	105
	NBR																130	<25	<25				65	<25	<25
	SBL							100	53	**351**							115	**162**	**360**	170	131	**260**	270	165	**404**
	SBR																						325	299	156
Existing + Background Traffic	EBL							75	44	**124**							315	78	255	70	<25	89	115	**186**	**782**
	EBR				50	35	**210**	35	<25	**74**													240	56	**1050**
	WBL							35	**269**	**230**							235	91	80				140	**409**	**382**
	WBR							35	**161**	49	100	**606**	92				55	**189**	25						
	NBL							130	123	134							345	170	89	200	70	62	240	**382**	141
	NBR										500	<25	<25										65	<25	<25
	SBL							100	78	**352**	400	27	84				115	139	127	170	106	187	270	165	**415**
	SBR																						325	**1104**	129
Existing + Background + Project Traffic	EBL							75	44	**124**							315	78	255	70	<25	89	115	**186**	**782**
	EBR				50	35	**210**	35	<25	**74**													240	56	**1050**
	WBL							35	**269**	**230**							235	91	80				140	**409**	**382**
	WBR							35	**161**	49	100	**606**	92				55	**189**	25						
	NBL							130	123	134							345	170	88	200	70	62	240	**380**	143
	NBR										500	<25	<25										65	<25	<25
	SBL							100	78	**352**	400	27	85				115	136	127	170	104	184	270	165	**415**
	SBR																						325	**1104**	130
Cumulative Traffic	EBL							75	61	**177**							315	141	**380**	70	29	**113**	115	**239**	**954**
	EBR				50	63	**320**	35	<25	**188**													240	64	**1533**
	WBL							35	**415**	**352**							235	172	130				140	**545**	**488**
	WBR							35	**336**	**61**	100	**765**	111				55	**346**	58						
	NBL							130	**177**	**213**							345	183	77	200	103	102	240	**343**	169
	NBR										500	<25	100										65	<25	<25
	SBL							100	88	**492**	400	27	76				115	**240**	**194**	170	144	**245**	270	268	**601**
	SBR																						325	**1515**	228
Cumulative + Project Traffic	EBL							75	61	**177**							315	141	**380**	70	29	**113**	115	**239**	**954**
	EBR				50	63	**320**	35	<25	**188**													240	64	**1533**
	WBL							35	**415**	**352**							235	172	130				140	**545**	**488**
	WBR							35	**336**	**61**	100	**765**	111				55	**346**	58						
	NBL							130	**178**	**212**							345	185	76	200	103	102	240	**341**	165
	NBR										500	<25	98										65	<25	<25
	SBL							100	87	**492**	400	27	76				115	**239**	**192**	170	140	**244**	270	268	**601**
	SBR																						325	**1515**	229

Scenarios Analyzed	Turning Movement	Mathilda Avenue																							
		Indio Way #7			California Ave #8			Washington Ave #9			McKinley Ave #10			Iowa Ave #11			Olive Ave #12			El Camino Real #13			Sunnyvale-Saratoga Rd #15		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Traffic	EBL				120	118	**313**	100	**247**	**160**	55	**146**	**192**	40	**131**	**65**				320	**397**	177	55	55	40
	EBR	75	52	**353**	120	58	**219**										65	<25	71						
	WBL				110	**161**	127				165	42	**243**	175	61	197				220	32	173	110	**231**	**449**
	WBR	75	**441**	41	240	82	55										85	44	<25	345	**486**	61			
	NBL	280	153	63	355	179	169	180	40	73	120	52	75	160	26	64	130	144	113	370	215	157	140	31	75
	NBR	150	28	<25																			170	<25	<25
	SBL	240	51	80	175	82	**303**	300	229	269	370	113	58	265	37	65	210	69	125	435	143	395	145	83	129
	SBR	150	35	<25	150	77	117										70	80	<25	290	172	147			
Existing + Project Traffic	EBL				120	118	**313**	100	**247**	**160**	55	**160**	**201**	40	**159**	**115**				320	**395**	170	55	55	40
	EBR	75	52	**358**	120	58	**225**										65	<25	86						
	WBL				110	**161**	127				165	42	**243**	175	61	197				220	32	173	110	**231**	**449**
	WBR	75	**441**	41	240	83	55										85	44	19	345	**521**	64			
	NBL	280	152	61	355	178	168	180	40	72	120	52	76	160	26	61	130	**175**	**244**	370	220	149	140	29	74
	NBR	150	28	<25																			170	<25	<25
	SBL	240	53	80	175	84	**297**	300	228	267	370	111	57	265	38	65	210	69	134	435	147	405	145	84	129
	SBR	150	34	<25	150	82	117										70	**127**	<25	290	129	117			
Existing + Background Traffic	EBL	75	<25	69	120	133	**412**	100	**268**	**164**	55	**181**	**201**	40	**159**	**71**				320	**457**	203	55	55	40
	EBR				120	58	**264**										65	<25	84						
	WBL	75	**195**	**242**	110	**161**	127				165	38	109	175	51	80				220	99	203	110	**284**	**501**
	WBR				240	144	57										85	87	36	345	**708**	65			
	NBL	280	124	56	355	175	174	180	29	75	120	37	77	160	<25	69	130	144	116	370	262	250	140	27	68
	NBR	150	<25	<25																			170	<25	<25
	SBL	240	53	67	175	89	**261**	300	245	259	370	66	45	265	44	91	210	91	227	435	184	**484**	145	127	**172**
	SBR	150	28	<25	150	103	108										70	81	<25	290	182	171			
Existing + Background + Project Traffic	EBL	75	<25	68	120	133	**412**	100	**268**	**164**	55	**197**	**210**	40	**185**	**115**				320	**455**	190	55	55	40
	EBR				120	59	**271**										65	<25	**121**						
	WBL	75	**196**	**242**	110	**161**	127				165	38	109	175	51	80				220	99	203	110	**284**	**501**
	WBR				240	144	57										85	86	36	345	**743**	68			
	NBL	280	124	54	355	175	175	180	29	74	120	36	78	160	48	85	130	**155**	**247**	370	268	237	140	26	66
	NBR	150	<25	<25																			170	<25	<25
	SBL	240	52	65	175	90	**255**	300	244	256	370	67	45	265	44	91	210	91	**236**	435	189	421	145	139	**172**
	SBR	150	<25	<25	150	112	106										70	**128**	<25	290	159	125			
Cumulative Traffic	EBL	75	27	74	120	**195**	**569**	100	**360**	**245**	55	**289**	**321**	40	**222**	**84**				320	**646**	300	55	66	48
	EBR				120	67	**572**										65	<25	**120**						
	WBL	75	**284**	**277**	110	**237**	**161**				165	43	163	175	55	108				220	107	**273**	110	**380**	**682**
	WBR				240	226	111										85	**114**	51	345	**1037**	74			
	NBL	280	126	56	355	177	208	180	28	92	120	39	96	160	<25	78	130	**210**	**177**	370	259	340	140	28	68
	NBR	150	<25	36																			170	<25	47
	SBL	240	58	67	175	81	**224**	300	**342**	220	370	87	40	265	53	128	210	108	225	435	245	**472**	145	141	**255**
	SBR	150	43	28	150	**181**	111										70	**106**	<25	290	208	153			
Cumulative + Project Traffic	EBL	75	27	74	120	**195**	**569**	100	**360**	**245**	55	**303**	**328**	40	**242**	**145**				320	**644**	286	55	66	48
	EBR				120	67	**577**										65	<25	**159**						
	WBL	75	**285**	**276**	110	**237**	**161**				165	43	163	175	55	108				220	107	**273**	110	**380**	**682**
	WBR				240	226	115										85	**114**	52	345	**1067**	78			
	NBL	280	126	55	355	175	208	180	28	87	120	39	97	160	42	98	130	**230**	**270**	370	264	327	140	28	67
	NBR	150	<25	40																			170	<25	45
	SBL	240	56	67	175	81	**218**	300	**341**	219	370	87	40	265	53	128	210	107	221	435	246	455	145	150	**255**
	SBR	150	33	28	150	**181**	110										70	**154**	<25	290	205	132			

Note: Locations where the queue length exceeds the link storage by 25 feet or more are shown in shaded cells. Operational Deficiencies are in red.

Civic Center Update Queuing Summary

Scenarios Analyzed	Turning Movement	Sunnyvale-Saratoga Rd																S Pastoria Avenue												Sunnyvale Avenue			Charles Street			Mary Avenue					
		Remington Dr #16			Fremont Ave #17			Cheyenne Dr #25			Alberta Ave #26			Homestead Rd #27			Washington Ave #18			Iowa Ave #19			Olive Ave #20			El Camino Real #21			El Camino Real #14			W Iowa Ave #22			Olive Ave #23			El Camino Real #24		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Traffic	EBL	135	**334**	**238**	165	**277**	**285**							185	107	102										415	119	195	395	92	126							425	269	401
	EBR										45	**103**	<25	95	**126**	**229**				50	<25	<25																		
	WBL	130	**380**	**381**	160	159	157							290	**331**	165										315	106	272	265	138	227							500	127	340
	WBR				155	155	60	95	42	<25	35	**104**	49							30	<25	<25																		
	NBL	135	85	145	390	269	163	195	25	38	290	212	216	400	179	256										135	**270**	**230**	160	108	**256**							225	**305**	158
	NBR													215	75	**471**																								
	SBL	180	28	94	370	107	290	395	<25	55	410	89	381	490	103	275										135	107	154	110	52	**182**							260	184	**385**
	SBR																									190	42	51												
Existing + Project Traffic	EBL	135	**334**	**238**	165	**277**	**285**							185	107	102										415	127	238	395	92	126							425	277	418
	EBR										45	**103**	<25	95	**126**	**229**				50	<25	<25																		
	WBL	130	**380**	**381**	160	159	157							290	**331**	165										315	106	272	265	137	227							500	133	355
	WBR				155	155	60	95	42	<25	35	**104**	49							30	<25	<25																		
	NBL	135	86	147	390	269	163	195	25	38	290	212	216	400	179	256										135	**270**	**230**	160	108	**256**							225	**305**	158
	NBR													215	75	**471**																								
	SBL	180	28	94	370	108	289	395	<25	54	410	92	381	490	103	275										135	99	109	110	52	**182**							260	184	**385**
	SBR																									190	44	53												
Existing + Background Traffic	EBL	135	**376**	**272**	165	**330**	**308**							185	108	106										415	120	266	395	93	126							425	330	435
	EBR										45	**132**	<25	95	**355**	**245**				50	<25	<25																		
	WBL	130	**389**	**388**	160	161	175							290	**350**	230										315	108	274	265	162	243							500	119	344
	WBR				155	157	76	95	43	33	35	**109**	**67**							30	<25	<25																		
	NBL	135	79	151	390	248	170	195	28	77	290	218	252	400	180	282										135	**274**	**244**	160	135	**298**							225	**308**	168
	NBR													215	158	**549**																								
	SBL	180	42	126	370	120	259	395	69	59	410	187	392	490	262	333										135	**187**	**198**	110	75	**201**							260	249	**517**
	SBR																									190	49	52												
Existing + Background + Project Traffic	EBL	135	**376**	**272**	165	**330**	**308**							185	108	106										415	130	307	395	93	126							425	335	**450**
	EBR										45	**132**	<25	95	**355**	**245**				50	<25	<25																		
	WBL	130	**389**	**388**	160	161	175							290	**350**	230										315	108	274	265	162	243							500	123	361
	WBR				155	157	76	95	43	33	35	**109**	**67**							30	<25	<25																		
	NBL	135	79	152	390	245	170	195	27	76	290	218	252	400	180	282										135	**274**	**244**	160	135	**298**							225	**308**	168
	NBR													215	160	**549**																								
	SBL	180	43	127	370	120	257	395	69	58	410	187	388	490	262	333										135	**170**	135	110	75	**201**							260	249	**517**
	SBR																									190	49	54												
Cumulative Traffic	EBL	135	**526**	**378**	165	**454**	**434**							185	140	133										415	150	362	395	115	161							425	**454**	**579**
	EBR										45	**185**	40	95	**516**	**414**				50	<25																		
	WBL	130	**539**	**539**	160	**231**	**256**							290	**497**	**324**										315	140	**395**	265	196	**429**							500	110	465
	WBR				155	**238**	119	95	68	38	35	**158**	**97**							30	<25																		
	NBL	135	81	158	390	254	211	195	27	68	290	**317**	**396**	400	237	415										135	**391**	**336**	160	165	**410**							225	**429**	233
	NBR													215	228	**895**																								
	SBL	180	42	132	370	161	252	395	58	55	410	220	434	490	311	446										135	**227**	**281**	110	86	**290**							260	**309**	**683**
	SBR																									190	54	86												
Cumulative + Project Traffic	EBL	135	**526**	**378**	165	**454**	**434**							185	140	133										415	166	400	395	115	161							425	**460**	**594**
	EBR										45	**185**	40	95	**516**	**414**				50	<25	<25																		
	WBL	130	**539**	**539**	160	**231**	**256**							290	**497**	**324**										315	140	**395**	265	196	**429**							500	111	482
	WBR				155	**238**	119	95	68	38	35	**158**	**97**							30	<25	<25																		
	NBL	135	81	158	390	251	209	195	27	67	290	**317**	**396**	400	237	415										135	**391**	**336**	160	165	**410**							225	**429**	233
	NBR													215	229	**895**																								
	SBL	180	43	131	370	162	251	395	58	55	410	221	429	490	311	446										135	**210**	**204**	110	86	**290**							260	**309**	**683**
	SBR																									190	54	93												

Note: Locations where the queue length exceeds the link storage by 25 feet or more are shown in shaded cells. Operational Deficiencies are in red.