

**Appendix H:  
Traffic Impact Study**

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# Traffic Impact Study for the 2220 Fulton Road Project



Prepared for the City of Santa Rosa

Submitted by  
**W-Trans**

October 22, 2019



**TRAFFIC ENGINEERING  
TRANSPORTATION PLANNING**  
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# Executive Summary

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The proposed 2220 Fulton Road project would result in construction of 120 single-family homes. The project's anticipated trip generation includes 1,124 daily trips on average during a weekday, with 88 trips during the a.m. peak hour and 118 during the p.m. peak hour with deductions from the existing single-family home taken into account.

The study area was established by the City and includes nine intersections surrounding the project site. The collision histories of the nine study intersections were reviewed, and all were determined to be operating with below-average crash rates compared to similar facilities statewide, indicating that there is not a readily apparent safety issue at any of the nine locations. Analysis indicates that the nine study intersections are operating acceptably under Existing conditions both without and with project traffic added. All intersections would be expected to continue operating at LOS D or better overall with project traffic added, though side-street approaches currently operating at LOS E or F would be expected to continue doing so. Because the arterial corridors would continue to operate at high service levels, the project's impact is considered less-than-significant.

For the Baseline scenario, anticipated volumes from approved projects in the vicinity of the proposed project were added to the roadway network. Under the Baseline plus Project scenario the study intersections are expected to operate acceptably overall. The additional delay due to project-added trips would again be expected to have a less-than-significant impact, with all intersections expected to continue operating at LOS D or better overall, though some side-street movements are operating at LOS E or F, and these conditions would be expected to continue.

In the future, the City plans to convert Piner Road/Waltzer Road to a signalized intersection. Because this is a planned future improvement, it is assumed that this signalization project is included in the City's "Public Facilities Fee" (PFF), so payment of the fee as part of the approval process would provide the project's contribution to the cost of the signal project.

Vehicles would access the project via a New Project Street connecting to Fulton Road. Sight distances at the proposed location for the New Project Street would be adequate for both entering and exiting drivers if clear lines of sight are maintained through avoidance of installing signs or landscaping in the vision area. There is a two-way-left-turn lane on Fulton Road at the New Project Street; it is recommended that the striping be modified to provide a dedicated southbound left-turn lane at the New Project Street. A traffic signal is not warranted at Fulton Road/New Project Street under volumes for either Existing or Baseline plus Project scenarios during either peak hour. The project would also make a roadway connection between Tedeschi Street and Orleans Street using Andre Lane. Access for emergency response vehicles is expected to be adequate.

The project site is generally served by adequate facilities for alternative modes. Sidewalks would be provided along all new project streets as well as along frontages of existing streets where new connections are to be made. The site would be served by bike lanes along Fulton Road and Piner Road. There are, however, no transit lines within an acceptable walking distance of the project site, so it is recommended that the applicant contact Santa Rosa CityBus to request that consideration be given to extending a route into the adjacent neighborhood to better serve the project site and nearby residential neighborhoods.

# Introduction

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This report presents an analysis of the potential traffic impacts that would be associated with the proposed development of 120 single-family homes at 2220 Fulton Road in the City of Santa Rosa. The traffic study was completed in accordance with the criteria established by the City of Santa Rosa that reflects a scope of work reviewed and approved by City Staff and is consistent with standard traffic engineering techniques.

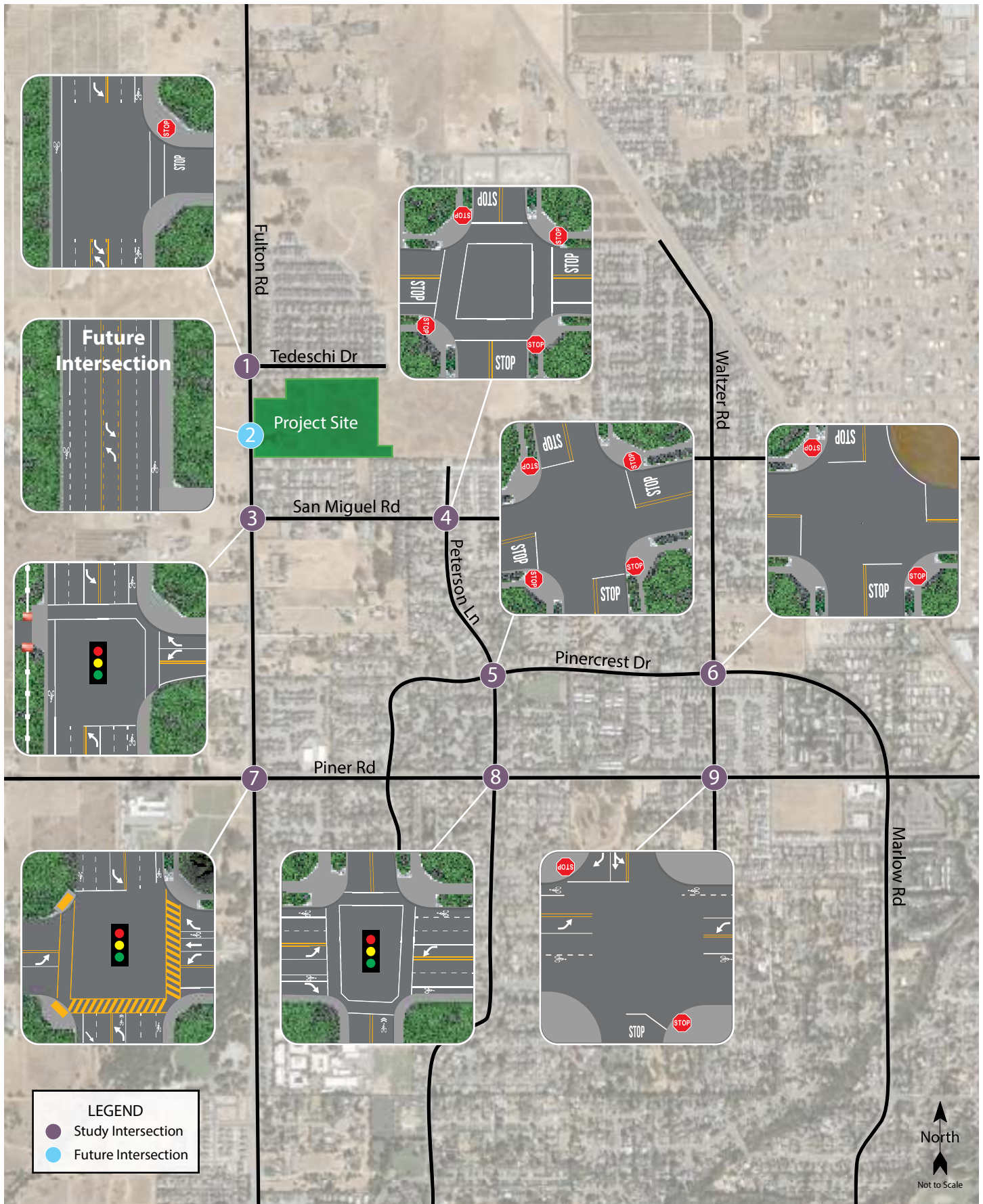
## Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the City's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

## Project Profile

The project as proposed includes construction of 120 detached single-family homes on a site that currently has one single-family dwelling and which will be accessed from Fulton Road via a new road, and a proposed road connection between Andre Lane and Orleans Street which would connect the project to San Miguel Avenue and Tedeschi Drive. The project site is located at 2220 Fulton Road, as shown in Figure 1.





**Traffic Impact Study for the 2220 Fulton Road Project**  
**Figure 1 – Study Area and Existing Lane Configurations**

# Transportation Setting

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## Operational Analysis

### Study Area and Periods

The study area consists of the following intersections:

1. Fulton Road/Tedeschi Drive
2. Fulton Road/New Project Street
3. Fulton Road/San Miguel Road
4. Peterson Lane/San Miguel Road
5. Peterson Lane/Pinercrest Drive
6. Waltzer Road/Pinercrest Drive
7. Fulton Road/Piner Road
8. Peterson Lane/Piner Road
9. Waltzer Road/Piner Road

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

### Study Intersections

**Fulton Road/Tedeschi Drive** is a stop-controlled tee-intersection, with a stop control at the westbound Tedeschi Drive approach. There are bicycle lanes along Fulton Road and a crosswalk on the east leg.

**Fulton Road/New Project Street** would be a new intersection constructed with the proposed project approximately 0.10 mile north of Fulton Road/San Miguel Road. As proposed, the New Project Street would form the eastern leg of the intersection. There are bicycle lanes along Fulton Road at the new project street.

**Fulton Road/San Miguel Road** is a signalized four-legged intersection with protected left-turn phasing on the northbound, southbound, and westbound approaches. It should be noted that the west leg is a driveway to a single-family dwelling. Crosswalks and associated pedestrian signal heads are present on the north and east legs.

**Peterson Lane/San Miguel Road** is an all-way stop-controlled four-legged intersection. Crosswalks and curb ramps are present on all legs of the intersection.

**Peterson Lane/Pinercrest Drive** is a four-legged all-way stop-controlled intersection. While curb ramps are present on all four curbs, there are no associated crosswalks on any leg of the intersection.

**Waltzer Road/Pinercrest Drive** is an all-way stop-controlled four-legged intersection. Curb ramps are present on three of the four curbs, with no associated crosswalks on any of the legs.

**Fulton Road/Piner Road** is a signalized four-legged intersection, with protected left-turn phasing on all four approaches. Crosswalks, as well as associated pedestrian signal heads and phasing, are present on the south, east, and west legs of the intersection. Bicycle lanes exist along Fulton Road and along Piner Road east of the intersection.

**Peterson Lane/Piner Road** is a four-legged, signalized intersection. Left-turn protected-permitted phasing is present on the eastbound and westbound approaches of Piner Road. Bicycle lanes exist along Piner Road, and crosswalks are present on all four legs with associated pedestrian signal phasing.

**Waltzer Road/Piner Road** is a four-legged, two-way stop-controlled intersection with stop controls at the northbound and southbound Waltzer Road approaches. Bicycle lanes exist along Piner Road, and there are curb ramps at all four legs but no associated crosswalks.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

## Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is October 1, 2013 through September 30, 2018.

Calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2014 Collision Data on California State Highways*, California Department of Transportation (Caltrans). The average collision rates for intersections differ based on whether the intersection is controlled by a traffic signal, all-way stop signs, or is uncontrolled, as well as the number of approaches (three or four).

As presented in Table 1, all nine intersections had lower collision rates than the statewide averages within the most recent five-year period. The collision rate calculation output is provided in Appendix A.

**Table 1 – Collision Rates at the Study Intersections**

Study Intersection	Number of Collisions (2013-2018)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Fulton Rd/Tedeschi Dr	2	0.05	0.14
3. Fulton Rd/San Miguel Rd	4	0.12	0.43
4. Peterson Ln/San Miguel Rd	0	0.00	0.14
5. Peterson Ln/Pinercrest Dr	1	0.23	0.32
6. Waltzer Rd/Pinercrest Dr	0	0.00	0.32
7. Fulton Rd/Piner Rd	9	0.19	0.43
8. Peterson Ln/Piner Rd	7	0.25	0.43
9. Waltzer Rd/Piner Rd	3	0.11	0.26

Note: c/mve = collisions per million vehicles entering

## Alternative Modes

### Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks, and curb ramps provide access for pedestrians in the residential areas near the proposed project site. Currently there are sidewalks along Fulton Road and plans for a connected sidewalk network throughout the project site.

## Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

Fronting the proposed project, Class II bike lanes exist on Fulton Road between the Santa Rosa North City Limits and Sebastopol Road. There are also existing Class II bicycle lanes on Piner Road between Fulton Road and Marlow Road. According to the *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018*, a trail is planned behind the proposed project site. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 2 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018*.

**Table 2 – Bicycle Facility Summary**

Status Facility	Class	Length (miles)	Begin Point	End Point
<b>Existing</b>				
Fulton Rd	II	3.95	City Limits North	Sebastopol Rd
Piner Rd	II	1.00	Fulton Rd	Marlow Rd
<b>Planned</b>				
Trail	I	0.44	Village Dr	Orleans St
San Miguel Ave	II	0.50	Fulton Rd	Francisco Ave
Francisco Ave	II	1.00	City Limits North	San Miguel Ave

Source: *City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018*, City of Santa Rosa, 2018

## Transit Facilities

There are no public transit service or facilities within one-quarter mile of the project site. The nearest transit service stop is located south of Fulton Road/Piner Road, approximately 0.8 mile from the proposed project site, and it is served by the Santa Rosa City Bus Route 6.

# Capacity Analysis

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## Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the “Two-Way Stop-Controlled” intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections with stop signs on all approaches were analyzed using the “All-Way Stop-Controlled” Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and then related to a Level of Service.

The study intersections that are currently controlled by a traffic signal, or may be in the future, were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the City of Santa Rosa.

The ranges of delay associated with the various levels of service are indicated in Table 3.



**Table 3 – Intersection Level of Service Criteria**

<b>LOS</b>	<b>Two-Way Stop-Controlled</b>	<b>All-Way Stop-Controlled</b>	<b>Signalized</b>
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2010

## Traffic Operation Standards

### City of Santa Rosa

The City of Santa Rosa's adopted Level of Service (LOS) Standard is contained in *Santa Rosa General Plan 2035*. Standard TD-1 states that the City will try to maintain a Level of Service (LOS) D or better along all major corridors. Exceptions to meeting this standard are allowed where attainment would result in significant environmental degradation; where topography or environmental impacts make the improvement impossible; or where attainment would ensure loss of an area's unique character.

While a corridor level of service is applied by the City in its analysis of the entire City as part of the environmental documentation supporting the General Plan, this type of analysis only provides relevant data when performed on a much longer segment than the ones included as the study area for the project. Therefore, although the City's standard does not specify criteria for intersections, for the purposes of this study, as is standard practice for such studies, a minimum operation of LOS D for the overall operation of signalized intersections was applied.

Because delay on a stop-controlled side-street does not impact operation of the through corridor on which the City's service level standard is based, delay indicative of LOS E or F on a side-street approach was considered acceptable as long as the average for the intersection as a whole is LOS D or better.

## Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was provided by the City of Santa Rosa for the intersections of Fulton Road/San Miguel Road, Peterson Lane/Piner Road, Fulton Road/Piner Road, and the segment of Fulton Road between the City Limits and San Miguel Road. Since these intersections and the segment were taken between 2017 and 2018, a yearly growth rate for each intersection was calculated and applied to the turning movement volumes.

Volumes were collected on April 30, 2019, while local schools were in session, for the remaining intersections. Because current traffic volumes are substantially lower due to the loss of homes and businesses in the area during the firestorm of October 2017, a growth factor of 1.33 was applied to volumes for both peak hours to account for the anticipated traffic that would return as the area is rebuilt. Because traffic volumes for Fulton Road/Piner Road and Peterson Lane/Piner Road were taken before the firestorm, the firestorm-related growth factor was not applied to these two intersections.

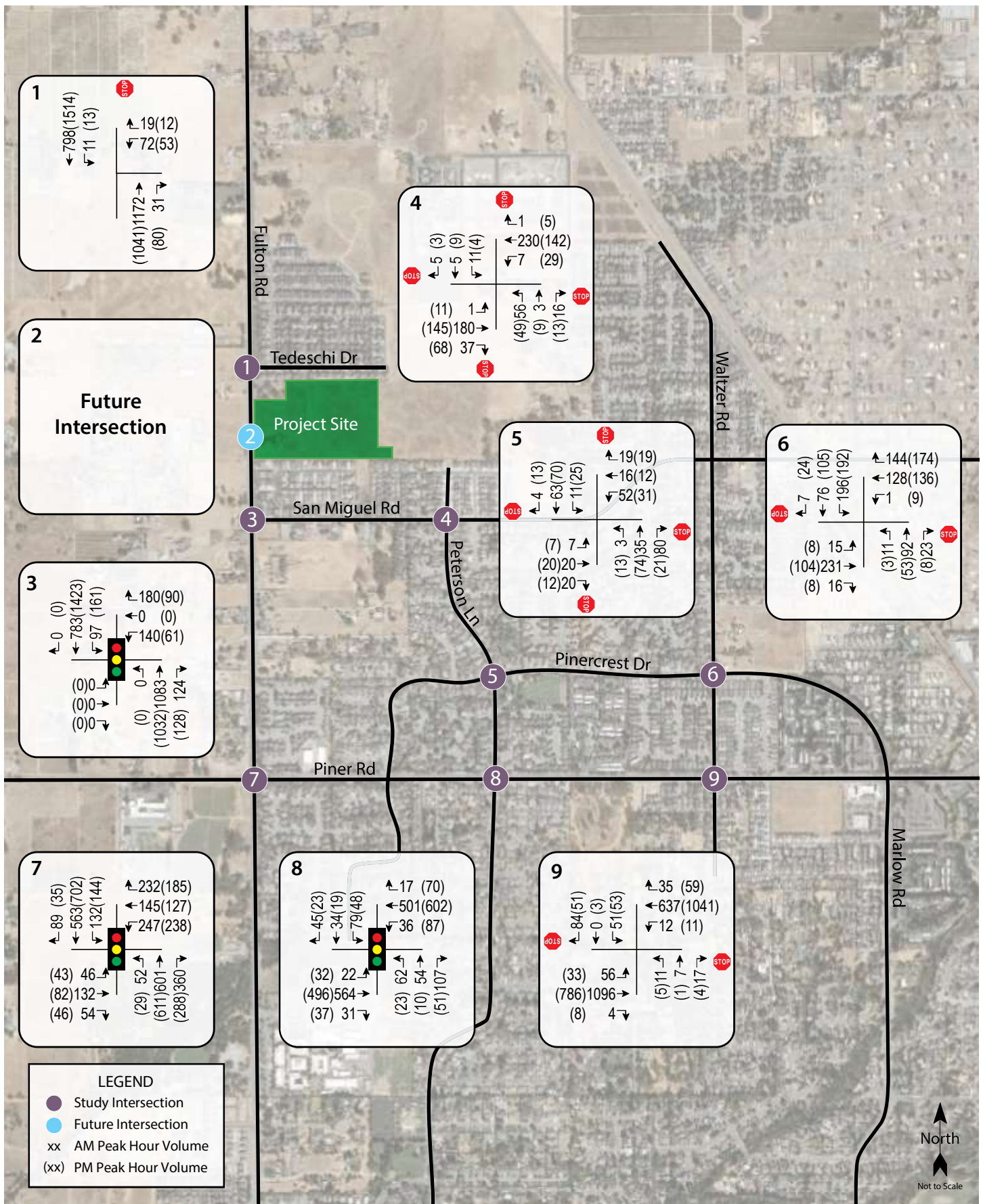
## Intersection Levels of Service

Under existing conditions, all study intersections are operating acceptably overall at LOS C or better. A summary of the intersection level of service calculations is contained in Table 4, and copies of the Level of Service calculations are provided in Appendix B. The existing traffic volumes are shown in Figure 2.

**Table 4 – Existing Peak Hour Intersection Levels of Service**

Study Intersection <i>Approach</i>	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Fulton Rd/Tedeschi Dr <i>Westbound (Tedeschi Dr) Approach</i>	4.9 <i>110.9</i>	A <i>F</i>	4.0 <i>**</i>	A <i>F</i>
2. Fulton Rd/New Project St	-	-	-	-
3. Fulton Rd/San Miguel Rd	13.9	B	13.9	B
4. Peterson Ln/San Miguel Rd	9.0	A	8.6	A
5. Peterson Ln/Pinercrest Dr	7.7	A	7.8	A
6. Waltzer Rd/Pinercrest Dr	12.2	B	11.6	B
7. Fulton Rd/Piner Rd	33.3	C	30.1	C
8. Peterson Ln/Piner Rd	9.9	A	9.0	A
9. Waltzer Rd/Piner Rd <i>Northbound (Waltzer Rd) Approach</i> <i>Southbound (Waltzer Rd) Approach</i>	11.6 <i>78.1</i> <i>**</i>	B <i>F</i> <i>F</i>	10.8 <i>75.7</i> <i>**</i>	B <i>F</i> <i>F</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; \*\* = delay greater than 120 seconds



Traffic Impact Study for the 2220 Fulton Road Project  
**Figure 2 – Existing Traffic Volumes**



## Baseline Conditions

The Baseline Conditions scenario provides an evaluation of operation with traffic added from approved or pending projects in the study area that could be operational within the next two to three years. At the request of City staff, the following three approved projects were included in the Baseline Conditions analysis:

- Kerry Ranch (Phases 1-3) – 95 detached single-family dwelling units at 2181 Francisco Avenue.
- Francisco Village – 77 single family dwelling unit development at 2601 Francisco Avenue.
- North Village II – 164 multi-family dwelling units at 2406 Fulton Road (based on original traffic study from 2002). For the purposes of the study, while the development is listed as including 116 multi-family dwelling units on the City of Santa Rosa's *Citywide Summary of Pending Development*, the original buildout of 164 units was conservatively used to match the trip generation from the project's traffic study.

The trip generation rates assumed in the traffic studies for the three approved projects were used for the Baseline scenario; it is noted that they differ slightly from the 10<sup>th</sup> Edition rates as the reports were written before the newest edition was published.

Under estimated Baseline volumes the study intersections would be expected to continue operating at the same levels of service as under existing volumes except for Peterson Lane/Piner Road, which would be anticipated to continue operating acceptably but experience a change in service level during the morning peak hour from LOS A to LOS B. These results are summarized in Table 5, and Baseline volumes are shown in Figure 3.

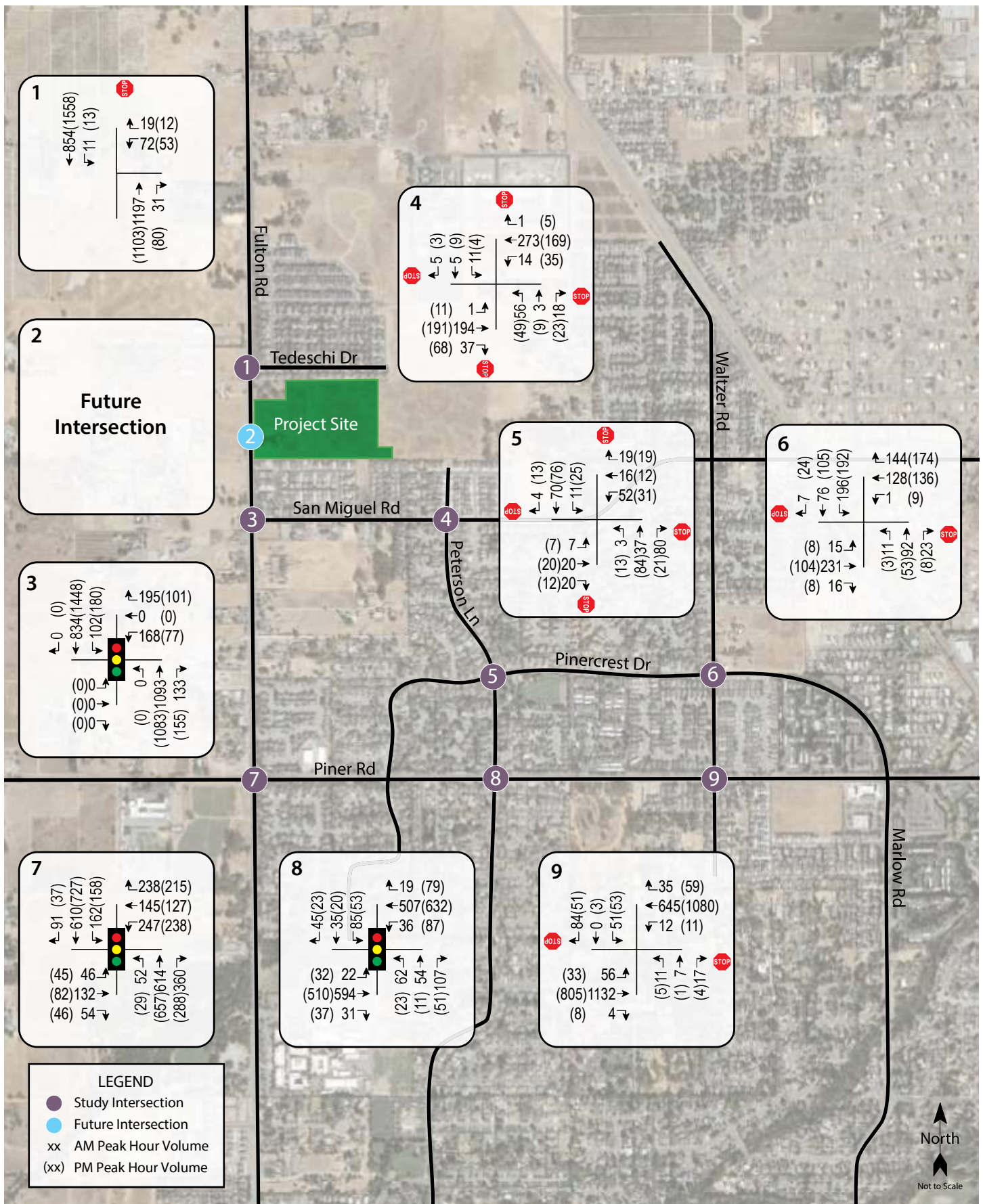
**Table 5 – Baseline Peak Hour Intersection Levels of Service**

Study Intersection <i>Approach</i>	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Fulton Rd/Tedeschi Dr <i>Westbound (Tedeschi Dr) Approach</i>	5.6 <i>**</i>	A <i>F</i>	5.0 <i>**</i>	A <i>F</i>
2. Fulton Rd/New Project St	-	-	-	-
3. Fulton Rd/San Miguel Rd	14.1	B	14.4	B
4. Peterson Ln/San Miguel Rd	9.4	A	9.1	A
5. Peterson Ln/Pinercrest Dr	7.7	A	7.8	A
6. Waltzer Rd/Pinercrest Dr	12.2	B	11.6	B
7. Fulton Rd/Piner Rd	34.0	C	30.7	C
8. Peterson Ln/Piner Rd	10.5	B	9.1	A
9. Waltzer Rd/Piner Rd <i>Northbound (Waltzer Rd) Approach</i> <i>Southbound (Waltzer Rd) Approach</i>	12.9 <i>86.4</i> <i>**</i>	B <i>F</i> <i>F</i>	12.3 <i>85.1</i> <i>**</i>	A <i>F</i> <i>F</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; \*\* = delay greater than 120 seconds

## Future (Cumulative) Conditions

A future conditions scenario was considered for evaluation for the project's impact on the surrounding network with future planned development. The City of Santa Rosa is in the process of updating the transportation element for the General Plan, as well as their Traffic Impact Study Guidelines. Since the proposed project is consistent with its zoning and General Plan land use designation, its traffic would be included in volumes projected for analysis of



Traffic Impact Study for the 2220 Fulton Road Project  
**Figure 3 – Baseline Traffic Volumes**

the General Plan, so analysis of a future scenario is not necessary under the policies contained in the draft traffic study guidelines. It is noted that at the discretion of the Public Works staff such a scenario could be requested, though one was not for this project.

## Project Description

The project as proposed would entail constructing 120 single-family homes on a lot currently occupied by a single home and located north of San Miguel Avenue and east of Fulton Road. The project would be accessed by a new street connecting to Fulton Road and another between Orleans Street and Andre Lane connecting the site to San Miguel Road and Tedeschi Drive. Neighborhoods off Andre Lane would benefit from the road connection south, providing a more direct route south of the neighborhood and the option of traveling south along Fulton via the signalized intersection at Fulton Road/San Miguel Road instead of waiting to turn left at Fulton Road/Tedeschi Drive. The proposed project site plan is shown in Figure 4.

## Trip Generation

The anticipated trip generations for the proposed project as well as the existing home were estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10<sup>th</sup> Edition, 2017 for “Single Family Detached Housing” (ITE LU 210). As shown in Table 6, the proposed project is expected to generate an average of 1,133 trips per day, including 89 trips during the a.m. peak hour and 119 during the p.m. peak hour. After deductions are taken into account for the home to be removed, the project would be expected to generate 1,124 new trips on a daily basis, including 88 during the morning peak hour and 118 during the evening peak hour; these new trips represent the increase in traffic associated with the project compared to existing volumes.

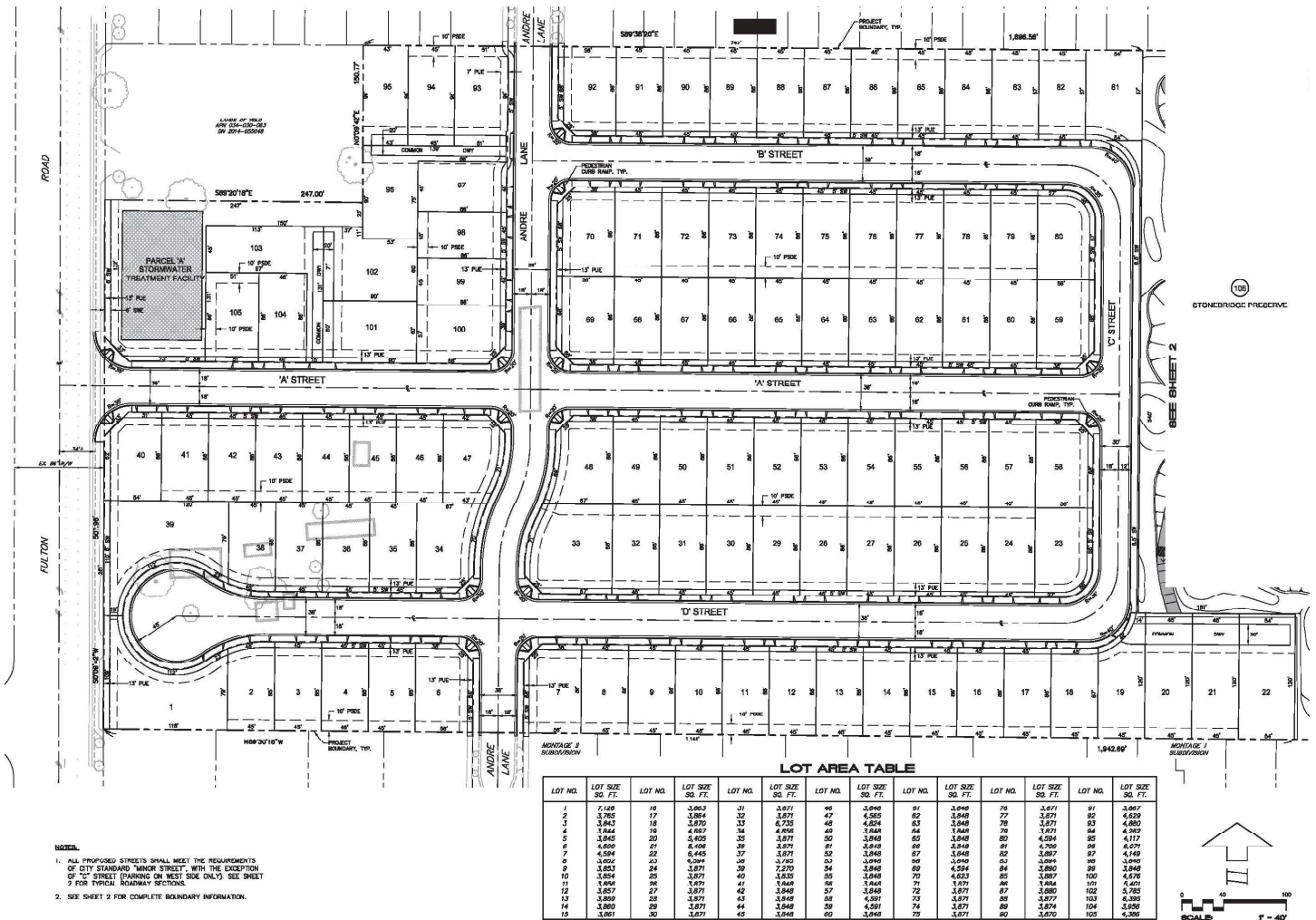
**Table 6 – Trip Generation Summary**

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour					
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out		
Existing													
Single Family Detached Housing	-1 du	9.44	-9	0.74	-1	0	-1	0.99	-1	-1	0		
Proposed													
Single Family Detached Housing	120 du	9.44	1,133	0.74	89	22	67	0.99	119	75	44		
Total (net new trips)		1,124		88		22		66		118		74	44

Note: du = dwelling unit

## Trip Distribution

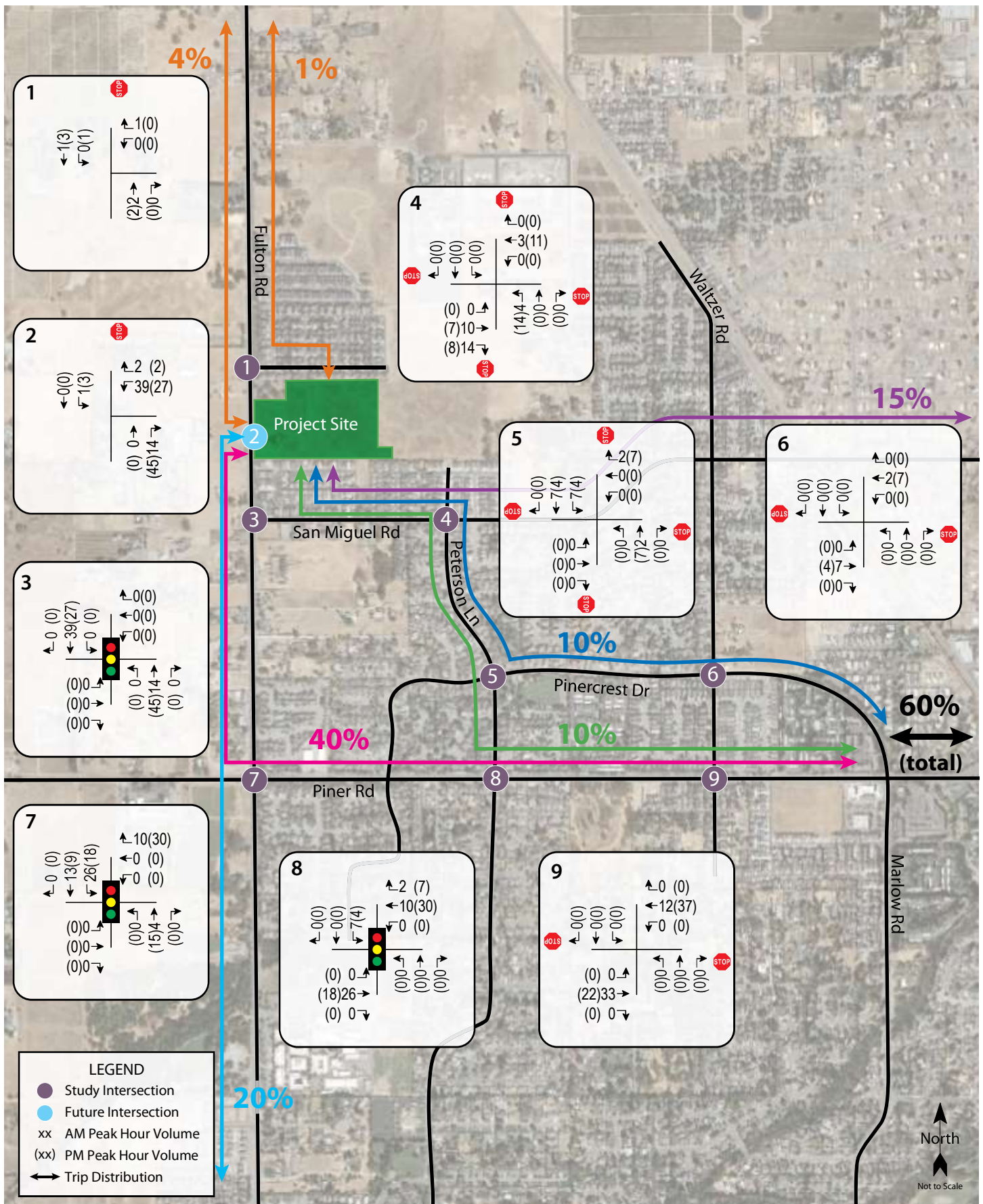
The pattern used to allocate new project trips to the street network was based on data from the 2000 Census for home-to-work trips. It should be noted that of the five percent of trips anticipated to travel to and from the north via Fulton Road, one percent of the trips were allocated to travel via Andre Lane to the intersection of Fulton Road/Tedeschi Drive to account for the 25 units (approximately 20 percent of the total proposed dwelling units) on the northern section of the proposed project site that might use this route rather than directly onto Fulton Road via the New Project Street. It was conservatively assumed all the project trips going south on Fulton Road would use the New Project Street, resulting in the maximum potential for improvements to be warranted at this location. The applied distribution assumptions and resulting trips are shown in Figure 5 and Table 7.



**Traffic Impact Study for the 2220 Fulton Road Project**  
**Figure 4 – Site Plan**







Traffic Impact Study for the 2220 Fulton Road Project  
**Figure 5 – Project Traffic Volumes and Trip Distribution**

**Table 7 – Trip Distribution Assumptions**

<b>Route</b>	<b>Percent</b>	<b>Daily Trips</b>	<b>AM Trips</b>	<b>PM Trips</b>
To/from the north on Fulton Rd via Tedeschi Dr	1%	11	1	1
To/from the north on Fulton Rd via New Project St	4%	45	4	5
To/from the east on San Miguel Rd	15%	169	13	18
To/from the east on Piner Rd via Peterson Ln	10%	112	9	12
To/from the east on Piner Rd via Pinercrest Dr	10%	112	9	12
To/from the east on Piner Rd	40%	450	35	47
To/from the south on Fulton Rd	20%	225	18	24
<b>TOTAL</b>	<b>100%</b>	<b>1,124</b>	<b>89*</b>	<b>119*</b>

Note: \* Trips do not add up to the calculated trip generation due to rounding

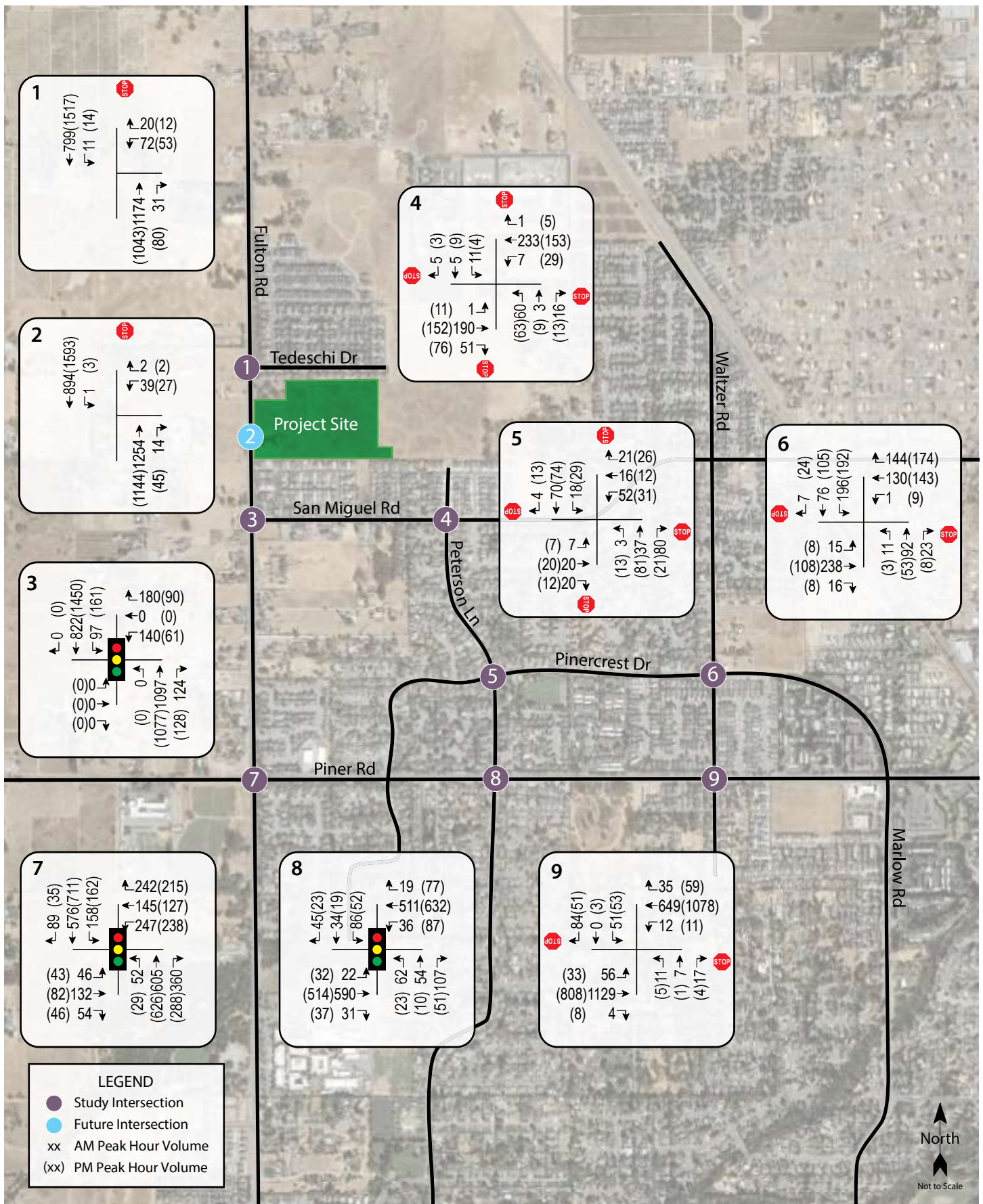
The proposed project is expected to result in a nominal number of trips through the adjacent neighborhoods because few destinations are to the north and for most of the new homes, exiting via the new project street would provide the most direct and convenient route. The project is therefore expected to generate only one new trip during each peak period through the neighborhood to the north to reach Tedeschi Drive and connect to Fulton Road.

## Intersection Operation

### Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to continue operating acceptably overall. Existing plus Project traffic volumes are shown in Figure 6. These results are summarized in Table 8.





Traffic Impact Study for the 2220 Fulton Road Project  
**Figure 6 – Existing plus Project Traffic Volumes**

**Table 8 – Existing and Existing plus Project Peak Hour Intersection Levels of Service**

Study Intersection Approach	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Fulton Rd/Tedeschi Dr <i>Westbound (Tedeschi Dr) Approach</i>	4.9 <i>110.9</i>	A <i>F</i>	4.0 <i>**</i>	A <i>F</i>	4.9 <i>111.6</i>	A <i>F</i>	4.1 <i>**</i>	A <i>F</i>
2. Fulton Rd/New Project St <i>Westbound (New Project St) Approach</i>	- <i>-</i>	- <i>-</i>	- <i>-</i>	- <i>-</i>	1.5 <i>82.0</i>	A <i>F</i>	1.2 <i>118.7</i>	A <i>F</i>
3. Fulton Rd/San Miguel Rd	13.9	B	13.9	B	13.9	B	13.9	B
4. Peterson Ln/San Miguel Rd	9.0	A	8.6	A	9.1	A	8.8	A
5. Peterson Ln/Pinercrest Dr	7.7	A	7.8	A	7.8	A	7.9	A
6. Waltzer Rd/Pinercrest Dr	12.2	B	11.6	B	12.4	B	11.7	B
7. Fulton Rd/Piner Rd	33.3	C	30.1	C	34.1	C	30.8	C
8. Peterson Ln/Piner Rd	9.9	A	9.0	A	10.4	B	9.1	A
9. Waltzer Rd/Piner Rd <i>Northbound (Waltzer Rd) Approach</i> <i>Southbound (Waltzer Rd) Approach</i>	11.6 <i>78.1</i> <i>**</i>	B <i>F</i> <i>F</i>	10.8 <i>75.7</i> <i>**</i>	B <i>F</i> <i>F</i>	12.9 <i>86.7</i> <i>**</i>	B <i>F</i> <i>F</i>	12.4 <i>85.2</i> <i>**</i>	B <i>F</i> <i>F</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; \*\* = delay greater than 120 seconds

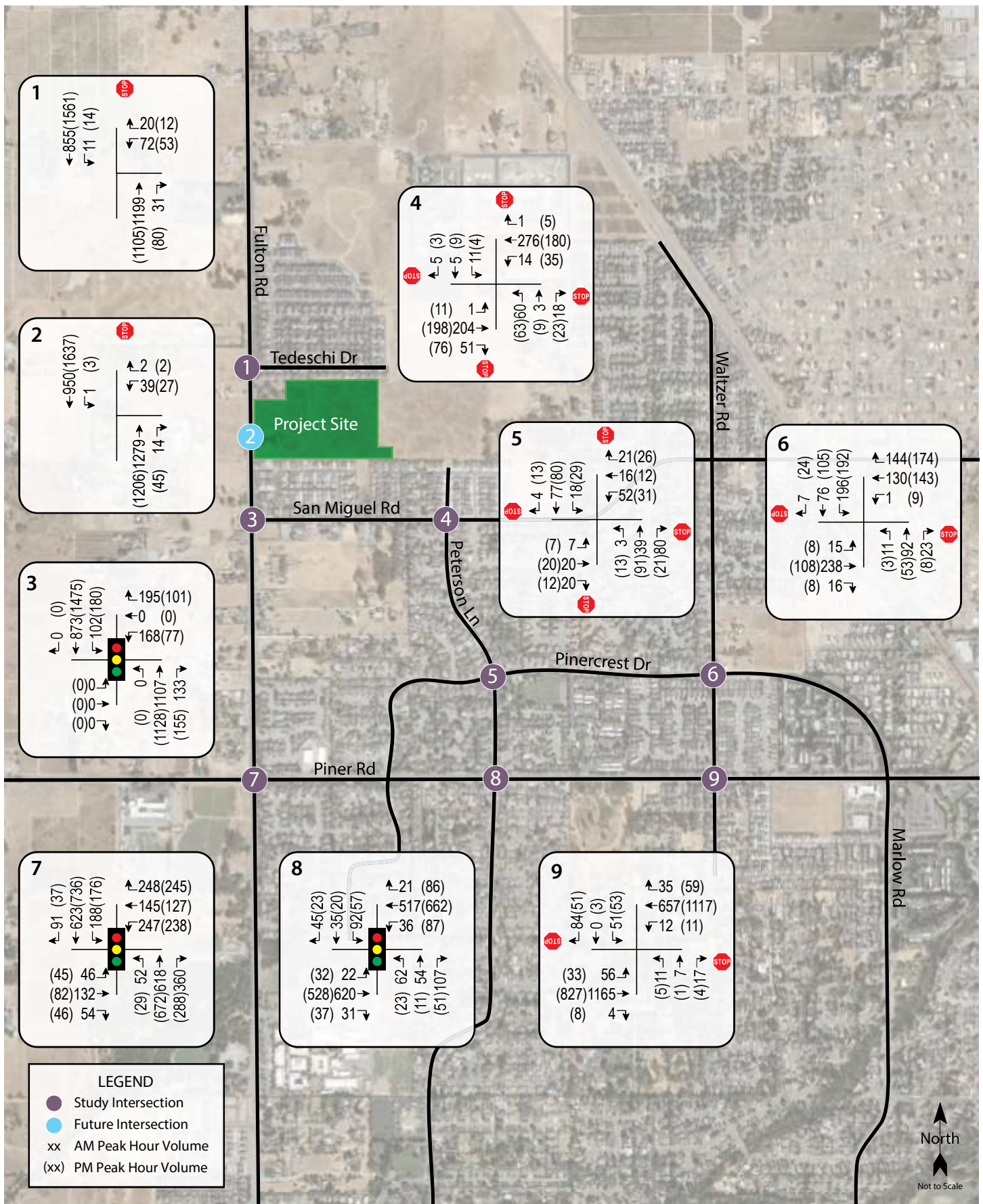
It is noted that while the minor approach at Fulton Road/Tedeschi Drive is expected to operate at LOS F, with the construction of the proposed project, existing trips from the adjacent neighborhood off Andre Lane may reroute and benefit from the proposed road connection between Andre Lane and the signalized intersection of Fulton Road/San Miguel, thus improving the intersection's operation with the construction of the project. No diversion of trips was assumed, however, to retain a conservative analysis.

**Finding** – The study intersections are expected to continue operating acceptably overall upon the addition of project-generated traffic. It is noted that while some stop-controlled approaches are projected to operate at LOS E or F, this is considered acceptable as these intersections would be expected to operate at LOS A or B overall. The project's impact under Existing plus Project conditions is therefore less-than-significant.

## Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, the study intersections are expected to operate at the same levels of service overall with as without project-added volumes. Baseline plus Project traffic volumes are shown in Figure 7. These results are summarized in Table 9.





**Traffic Impact Study for the 2220 Fulton Road Project**  
**Figure 7 – Baseline plus Project Traffic Volumes**

**Table 9 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service**

Study Intersection Approach	Baseline Conditions				Baseline plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Fulton Rd/Tedeschi Dr <i>Westbound (Tedeschi Dr) Approach</i>	5.6 <i>**</i>	A <i>F</i>	5.0 <i>**</i>	A <i>F</i>	5.7 <i>**</i>	A <i>F</i>	5.1 <i>**</i>	A <i>F</i>
2. Fulton Rd/New Project St <i>Westbound (New Project St) Approach</i>	- -	- -	- -	- -	1.7 93.3	A <i>F</i>	1.5 <i>**</i>	A <i>F</i>
3. Fulton Rd/San Miguel Rd	14.1	B	14.4	B	14.1	B	14.6	B
4. Peterson Ln/San Miguel Rd	9.4	A	9.1	A	9.6	A	9.3	A
5. Peterson Ln/Pinercrest Dr	7.7	A	7.8	A	7.8	A	7.9	A
6. Waltzer Rd/Pinercrest Dr	12.2	B	11.6	B	12.4	B	11.7	B
7. Fulton Rd/Piner Rd	34.0	C	30.7	C	34.8	C	31.4	C
8. Peterson Ln/Piner Rd	10.5	B	9.1	A	11.0	B	9.4	A
9. Waltzer Rd/Piner Rd <i>Northbound (Waltzer Rd) Approach</i> <i>Southbound (Waltzer Rd) Approach</i>	12.9 86.4 <i>**</i>	B <i>F</i> <i>F</i>	12.3 85.1 <i>**</i>	B <i>F</i> <i>F</i>	14.4 96.3 <i>**</i>	B <i>F</i> <i>F</i>	14.0 96.3 <i>**</i>	B <i>F</i> <i>F</i>

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; \*\*= delay greater than 120 seconds

**Finding** – The study intersections are expected to continue operating acceptably overall at the same levels of service upon the addition of project-generated traffic, resulting in a less-than-significant impact on traffic operation.

## Proportional Share for Future Improvements

It is understood that the City of Santa Rosa is planning to install a traffic signal at Piner Road/Waltzer Road and it is assumed that this future improvement is included in the City's Public Facilities Fee (PFF). Payment of the PFF would therefore provide a contribution to the signalization project.

# Alternative Modes

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## Pedestrian Facilities

Given the proximity of residential neighborhoods as well as Piner High School to the south of the site, it is reasonable to assume that some project residents will want to walk, bicycle, and/or use transit for trips from and to the project site. Sidewalks exist along the project frontage, and site plans show that sidewalks will be provided along new project streets.

**Finding** – Pedestrian facilities serving the project site will be adequate upon completion of improvements planned as part of the project.

## Bicycle Facilities

Existing bicycle facilities, including bike lanes on Fulton Road, together with shared use of minor streets provide adequate access for bicyclists.

### Bicycle Storage

As proposed, all units would have a garage in which to store their bicycles, therefore additional bicycle storage facilities are not necessary.

**Finding** – Bicycle facilities serving the project site are adequate. Residents would be able to store bicycles in their private garages, so no bike parking facilities are required.

## Transit

There are no existing transit routes or stops within an acceptable walking distance of the site; however, based on the distance between the project site and employment centers, it is reasonable to expect that some residents would want to travel using transit if it were available.

**Finding** – Transit facilities serving the project site are inadequate.

**Recommendation** – The project applicant should request that Santa Rosa CityBus evaluate the potential for modifying Route 6 to better serve residents living north of Piner Road and east of Fulton Road.

# Access and Circulation

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## Site Access

The project would be accessible via a new roadway connecting to Fulton Road to be built as part of the project. The new project street would also connect to Orleans Street and Tedeschi Drive. There is an existing two-way left-turn lane (TWLTL) on Fulton Road at the New Project Street. As part of the project construction the TWLTL should be converted to provide a dedicated left-turn pocket in the southbound direction.

## Sight Distance

Sight distance along Fulton Road at the proposed new project street was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distances, with approach travel speeds used as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

Sight distance at the proposed new project driveway was field measured. Based on a design speed of 45 mph, the minimum corner sight distance needed is 495 feet. Based on observations during a field visit, there is more than adequate sight lines in both directions at the project driveway along Fulton Road.

**Finding** – Sight distance along Fulton Road at the New Project Street driveway is expected to be more adequate, with sight lines of more than 495 feet in both directions from the new street approach.

**Recommendation** – The two-way-left-turn lane on Fulton Road at the New Project Street should be converted to a dedicated left-turn lane in the southbound direction.

## Traffic Signal Warrants

A signal warrant analysis was performed to determine potential need for a traffic signal at Fulton Road/New Project Street.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices* (CA-MUTCD) provides guidance on when a traffic signal should be considered.

**Warrant 3**, peak hour volumes, which is often the first warrant to be met, is based on the volumes during the highest-volume hour of the day. Under the Peak Hour Warrant the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

- A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:
  1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one-lane approach; or five vehicle-hours for a two-lane approach, and
  2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and

3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.
- B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

The intersection of Fulton Road/New Project Street would not warrant a traffic signal under volumes for either the Existing or Baseline plus project scenarios during either peak hour. Copies of the Signal Warrant Spreadsheets are provided in Appendix C.

### **On-Site Circulation**

Based on a standard-sized fire truck size and the proposed site plan, on-site circulation would be adequate to accommodate emergency vehicle turning-movements. AutoTURN output for emergency vehicle access is provided in Appendix D. The site plan was also reviewed for compliance with the City of Santa Rosa neighborhood street design features. All streets widths are adequate to meet the City's standards.

**Finding** – Emergency access would be adequate.

# Conclusions and Recommendations

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## Conclusions

- The proposed project would generate an average of 1,124 new daily trips to the surrounding roadway network with 88 trips during the weekday a.m. peak hour and 118 trips during the weekday p.m. peak hour.
- Under Existing Conditions all the study intersections are operating acceptably at LOS C or better overall during both peak hours, and is are expected to continue operating acceptably with the addition of project generated traffic.
- Under the anticipated Existing plus Approved, or “Baseline,” volumes, the study intersections are expected to operate acceptably overall, without and with project-added traffic.
- Upon completion of sidewalks on both sides of all streets constructed by the project, pedestrian facilities would be connected and adequate.
- There are adequate bicycle facilities along the project frontage.
- There are no bus routes within an acceptable walking distance of the project site.
- Adequate sight distance is available at the proposed new project roadway connection.
- The intersection of Fulton Road/New Project Street was evaluated to determine potential need for a traffic signal; however, a signal is not warranted based on volumes during both peak hours for the Existing and Baseline plus Project scenarios.

## Recommendations

- The project application should request that Santa Rosa CityBus investigate the potential for modifying Route 6 to better serve the neighborhood north of Piner Road and east of Fulton Road.
- The two-way left-turn lane on Fulton Road should be restriped at the New Project Street to a southbound left-turn lane.
- Piner Road/Waltzer Road is planned to be converted to a signalized intersection in the future. The applicant should pay the City’s Public Facilities Fee, which is assumed to include the cost of improvements to the intersection.



# Study Participants and References

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## Study Participants

<b>Principal in Charge</b>	Dalene J. Whitlock, PE, PTOE
<b>Assistant Engineer</b>	Allison Jaromin, EIT
<b>Assistant Planner</b>	Julia Walker
<b>Graphics</b>	Katia Wolfe
<b>Editing/Formatting</b>	Alex Scrobonia
<b>Quality Control</b>	Dalene J. Whitlock, PE, PTOE

## References

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# Appendix A

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## Collision Rate Calculations



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### Intersection Collision Rate Calculations

#### Traffic Impact Study for 2220 Fulton Road Project

**Intersection # 1:** Fulton Road & Tedeschi Drive

**Date of Count:** Tuesday, April 30, 2019

**Number of Collisions:** 2

**Number of Injuries:** 2

**Number of Fatalities:** 0

**ADT:** 20400

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Tee

**Control Type:** Stop & Yield Controls

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{2}{20,400} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.05 c/mve</b>	<b>0.0%</b>	<b>100.0%</b>
<b>Statewide Average*</b>	<b>0.14 c/mve</b>	<b>0.7%</b>	<b>38.0%</b>

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

**Intersection # 3:** Fulton Road & San Miguel Road

**Date of Count:** Thursday, May 10, 2018

**Number of Collisions:** 4

**Number of Injuries:** 3

**Number of Fatalities:** 0

**ADT:** 18100

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** Signals

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{4}{18,100} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.12 c/mve</b>	<b>0.0%</b>	<b>75.0%</b>
<b>Statewide Average*</b>	<b>0.43 c/mve</b>	<b>0.4%</b>	<b>37.9%</b>

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

### Intersection Collision Rate Calculations

#### Traffic Impact Study for 2220 Fulton Road Project

**Intersection # 4:** Peterson Lane & San Miguel Road

**Date of Count:** Tuesday, April 30, 2019

**Number of Collisions:** 0

**Number of Injuries:** 0

**Number of Fatalities:** 0

**ADT:** 3700

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Tee

**Control Type:** Stop & Yield Controls

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{0}{3,700} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.00 c/mve	0.0%	0.0%
Statewide Average*	0.14 c/mve	0.7%	38.0%

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

**Intersection # 5:** Peterson Lane & Pinercrest Drive

**Date of Count:** Tuesday, April 30, 2019

**Number of Collisions:** 1

**Number of Injuries:** 1

**Number of Fatalities:** 0

**ADT:** 2400

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** 4 Way Stop

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{1}{2,400} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.23 c/mve	0.0%	100.0%
Statewide Average*	0.32 c/mve	0.4%	44.7%

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

### Intersection Collision Rate Calculations

#### Traffic Impact Study for 2220 Fulton Road Project

**Intersection # 6:** Waltzer Road & Pinercrest Drive

**Date of Count:** Tuesday, April 30, 2019

**Number of Collisions:** 0

**Number of Injuries:** 0

**Number of Fatalities:** 0

**ADT:** 6200

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** 4 Way Stop

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{0}{6,200} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.00 c/mve	0.0%	0.0%
Statewide Average*	0.32 c/mve	0.4%	44.7%

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

**Intersection # 7:** Fulton Road & Piner Road

**Date of Count:** Thursday, March 2, 2017

**Number of Collisions:** 9

**Number of Injuries:** 4

**Number of Fatalities:** 0

**ADT:** 26500

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** Signals

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{9}{26,500} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.19 c/mve	0.0%	44.4%
Statewide Average*	0.43 c/mve	0.4%	37.9%

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

### Intersection Collision Rate Calculations

#### Traffic Impact Study for 2220 Fulton Road Project

**Intersection # 8:** Peterson Lane & Piner Road

**Date of Count:** Thursday, March 2, 2017

**Number of Collisions:** 7

**Number of Injuries:** 6

**Number of Fatalities:** 0

**ADT:** 15500

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** Signals

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{7}{15,500} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.25 c/mve</b>	<b>0.0%</b>	<b>85.7%</b>
<b>Statewide Average*</b>	<b>0.43 c/mve</b>	<b>0.4%</b>	<b>37.9%</b>

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

**Intersection # 9:** Waltzer Road & Piner Road

**Date of Count:** Tuesday, April 30, 2019

**Number of Collisions:** 3

**Number of Injuries:** 3

**Number of Fatalities:** 0

**ADT:** 15500

**Start Date:** September 30, 2013

**End Date:** October 1, 2018

**Number of Years:** 5

**Intersection Type:** Four-Legged

**Control Type:** Stop & Yield Controls

**Area:** Suburban

$$\text{collision rate} = \frac{\text{Number of Collisions} \times 1 \text{ Million}}{\text{ADT} \times 365 \text{ Days per Year} \times \text{Number of Years}}$$

$$\text{collision rate} = \frac{3}{15,500} \times \frac{1,000,000}{365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Intersection</b>	<b>0.11 c/mve</b>	<b>0.0%</b>	<b>100.0%</b>
<b>Statewide Average*</b>	<b>0.26 c/mve</b>	<b>0.9%</b>	<b>37.4%</b>

ADT = average daily total vehicles entering intersection

c/mve = collisions per million vehicles entering intersection

\* 2013 Collision Data on California State Highways, Caltrans

# Appendix B

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## Intersection Level of Service Calculations



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Intersection Level Of Service Report

Intersection 1: Fulton Rd/Tedeschi Dr

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 117.2  
Level Of Service: F  
Volume to Capacity (v/c): 0.768

Intersection Setup

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	881	23		8	600	54	14		
Base Volume Adjustment Factor	1.0000	1.0000		1.0000	1.0000	1.0000	1.0000		
Heavy Vehicles Percentage [%]	2.00	2.00		2.00	2.00	2.00	2.00		
Growth Factor	1.3300	1.3300		1.3300	1.3300	1.3300	1.3300		
In-Process Volume [veh/h]	0	0		0	0	0	0		
Site-Generated Trips [veh/h]	0	0		0	0	0	0		
Diverted Trips [veh/h]	0	0		0	0	0	0		
Pass-by Trips [veh/h]	0	0		0	0	0	0		
Existing Site Adjustment Volume [veh/h]	0	0		0	0	0	0		
Other Volume [veh/h]	0	0		0	0	0	0		
Total Hourly Volume [veh/h]	1172	31		11	798	72	19		
Peak Hour Factor	1.0000	1.0000		1.0000	1.0000	1.0000	1.0000		
Other Adjustment Factor	1.0000	1.0000		1.0000	1.0000	1.0000	1.0000		
Total 15-Minute Volume [veh/h]	293	8		3	200	18	5		
Total Analysis Volume [veh/h]	1172	31		11	798	72	19		
Pedestrian Volume [ped/h]	0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio				0.01				0.02				0.01				0.77				0.04			
d_M, Delay for Movement [s/veh]				0.00				11.37				0.00				117.23				86.94			
Movement LOS				A				B				A				F				F			
95th-Percentile Queue Length [veh/ln]				0.00				0.06				0.00				4.67				4.67			
95th-Percentile Queue Length [ft/ln]				0.00				1.46				0.00				116.66				116.66			
d_A, Approach Delay [s/veh]				0.00				0.15				A				110.91				F			
Approach LOS				A				A				A				F				F			
d_I, Intersection Delay [s/veh]								4.86															
Intersection LOS								F															

Intersection Level Of Service Report

Intersection 3: Fulton Rd/San Miguel Ave

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 13.9  
Level Of Service: B  
Volume to Capacity (v/c): 0.501

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	TTL		TTL		TTL	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	814	93	73	589	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1083	124	97	783	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	271	31	24	196	0
Total Analysis Volume [veh/h]	0	1083	124	97	783	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicyclesh]	9	13	8	0	0	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	2.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	1.6
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

## Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
I1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, I, Effective Green Time [s]	0	19	19	3	23	0	9	9
g / C, Green / Cycle	0.00	0.40	0.40	0.07	0.48	0.00	0.19	0.19
(v / s), J Volume / Saturation Flow Rate	0.00	0.33	0.33	0.05	0.22	0.00	0.08	0.11
s, saturation flow rate [veh/h]	1774	1863	1784	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	755	723	128	1694	0	331	295
d1, Uniform Delay [s]	0.00	12.57	12.62	21.67	8.34	0.00	17.11	17.78
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.19	2.39	8.65	0.20	0.00	0.32	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

## Lane Group Results

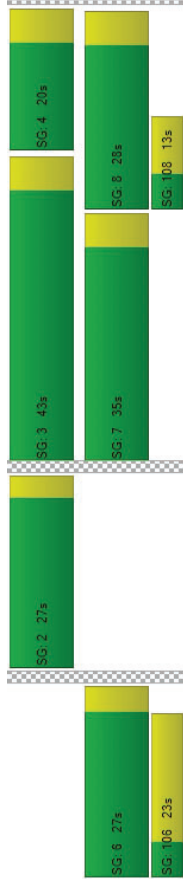
X, volume / capacity	0.00	0.81	0.82	0.76	0.46	0.00	0.42	0.61
d, Delay for Lane Group [s/veh]	0.00	14.75	15.01	30.32	8.54	0.00	17.43	18.54
Lane Group LOS	A	B	B	C	A	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	4.39	4.30	1.20	1.73	0.00	1.26	1.70
50th-Percentile Queue Length [ft/in]	0.00	109.82	107.47	30.01	43.17	0.00	31.46	42.61
95th-Percentile Queue Length [veh/in]	0.00	7.83	7.70	2.16	3.11	0.00	2.26	3.07
95th-Percentile Queue Length [ft/in]	0.00	195.75	192.47	54.02	77.71	0.00	56.62	76.70

## Movement, Approach, &amp; Intersection Results

d, M, Delay for Movement [s/veh]	0.00	14.87	15.01	30.32	8.54	0.00	0.00	17.43	0.00	18.54
Movement LOS	A	B	B	C	A	A	A	B	B	B
d, A, Approach Delay [s/veh]		14.88			10.94		0.00			18.06
Approach LOS		B			B		A			B
d, I, Intersection Delay [s/veh]					13.86					
Intersection LOS					B					
Intersection V/C					0.501					

## Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Peterson Ln/San Miguel Ave

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 9.0  
Level Of Service: A  
Volume to Capacity (v/c): 0.293

Intersection Setup

Name	Peterson Ln		Peterson Ln		San Miguel Ave		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		San Miguel Ave		San Miguel Ave	
Base Volume Input [veh/h]	42	2	12	8	4	1	135	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	3	16	11	5	1	180	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	1	4	3	1	1	45	9
Total Analysis Volume [veh/h]	56	3	16	11	5	1	180	37
Pedestrian Volume [ped/h]	0		2		0		3	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	718	715	828	814
Degree of Utilization, x	0.10	0.03	0.26	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.35	0.09	1.06	1.22
95th-Percentile Queue Length [ft]	8.70	2.27	26.42	30.50
Approach Delay [s/veh]	8.59	8.19	8.89	9.24
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	8.96			
Intersection LOS	A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Delay (sec / veh): 7.7  
Level Of Service: A  
Volume to Capacity (v/c): 0.129

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	2	26	60	8	47	3	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	35	80	11	63	4	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	20	3	16	1	2	5
Total Analysis Volume [veh/h]	3	35	80	11	63	4	7	20
Pedestrian Volume [ped/h]	2		4		0		3	

Intersection Settings

Lanes		Capacity per Entry Lane [veh/h]		918		827		851		819	
Degree of Utilization, x		0.13		0.09		0.06		0.11			

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	0.31	0.18	0.36
95th-Percentile Queue Length [ft]	11.02	7.79	4.38	8.88
Approach Delay [s/veh]	7.50	7.81	7.48	7.92
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.68			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinecrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 12.2  
Level Of Service: B  
Volume to Capacity (v/c): 0.448

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr		Westbound	
Approach	Northbound		Southbound		Eastbound		Westbound			
Lane Configuration	+ +		+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00			
Grade [%]	0.00		0.00		0.00		0.00			
Crosswalk	Yes		No		Yes		No			

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr			
Base Volume Input [veh/h]	8	69	17	147	57	5	11	174	12	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	92	23	196	76	7	15	231	16	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	6	49	19	2	4	58	4	0
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	231	16	1
Pedestrian Volume [ped/h]	4		0		5		0		0	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	612	623	645	881
Degree of Utilization, x	0.21	0.45	0.41	0.40

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	2.31	1.97	1.94
95th-Percentile Queue Length [ft]	19.19	57.72	49.29	48.45
Approach Delay [s/veh]	10.40	13.38	12.35	11.80
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	12.23			
Intersection LOS	B			

Intersection Level Of Service Report

Intersection 7: Fulton Rd/Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 33.3  
Level Of Service: C  
Volume to Capacity (v/c): 0.597

Intersection Setup

Name	Fulton Rd Northbound			Fulton Rd Southbound			Piner Rd Eastbound			Piner Rd Westbound		
Approach	TIF			TIF			TIF			TIF		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00			45.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Fulton Rd			Fulton Rd			Piner Rd			Piner Rd		
Base Volume Input [veh/h]	52	601	360	132	563	89	46	132	54	247	145	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	601	360	132	563	89	46	132	54	247	145	232
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	150	90	33	141	22	12	33	14	62	36	58
Total Analysis Volume [veh/h]	52	601	360	132	563	89	46	132	54	247	145	232
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0			0			10		
Bicycle Volume [bicycles/h]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lag	-	-	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.00	3.90	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.00	1.90	1.90	
g, l, Effective Green Time [s]	5	68	68	12	74	74	4	17	20	32	32	32	
g / C, Green / Cycle	0.04	0.52	0.52	0.09	0.57	0.57	0.03	0.13	0.15	0.25	0.25	0.25	
(v / s), J Volume / Saturation Flow Rate	0.03	0.27	0.28	0.07	0.18	0.18	0.03	0.11	0.14	0.08	0.15	0.15	
s, saturation flow rate [veh/h]	1774	1863	1619	1774	1863	1775	1774	1756	1774	1863	1583	1583	
c, Capacity [veh/h]	68	967	840	158	1062	1012	60	226	274	464	394	394	
d1, Uniform Delay [s]	62.00	20.75	20.81	58.34	14.66	14.67	62.35	55.25	54.05	39.77	42.97	42.97	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.66	2.08	2.43	4.43	0.78	0.82	7.49	2.89	4.43	0.14	0.52	0.52	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

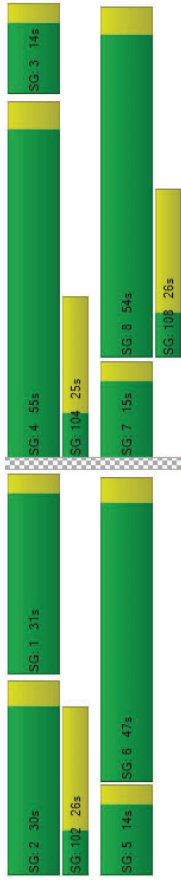
X, volume / capacity	0.77	0.53	0.53	0.84	0.31	0.31	0.77	0.82	0.90	0.31	0.59	
d, Delay for Lane Group [s/veh]	68.66	22.83	23.24	62.77	15.43	15.48	69.84	58.15	58.47	39.81	43.49	
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/in]	1.80	10.30	9.13	4.38	5.08	4.87	1.62	6.04	8.15	3.76	6.53	
50th-Percentile Queue Length [ft/in]	44.90	257.45	228.19	109.50	127.10	121.66	40.39	150.96	203.68	94.01	163.16	
95th-Percentile Queue Length [veh/in]	3.23	15.66	14.08	7.81	8.78	8.48	2.91	10.07	12.83	6.77	10.72	
95th-Percentile Queue Length [ft/in]	80.82	389.02	352.06	195.31	219.55	212.10	72.70	251.71	320.71	169.22	267.90	

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	68.66	22.89	23.24	62.77	15.45	15.48	69.84	58.15	58.47	39.81	43.49	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d, A, Approach Delay [s/veh]		25.36			23.42			60.47		48.59		
Approach LOS		C			C			E		D		
d, I, Intersection Delay [s/veh]					33.32							
Intersection LOS					C							
Intersection V/C					0.597							

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.9  
Level Of Service: A  
Volume to Capacity (v/c): 0.442

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Base Volume Input [veh/h]	62	54	107	79	34	45	22	564
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	54	107	79	34	45	22	564
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	27	20	9	11	6	141
Total Analysis Volume [veh/h]	62	54	107	79	34	45	22	564
Presence of On-Street Parking	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		3		5	
Bicycle Volume [bicycl/h]	0		2		1		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	0	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]	3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1, p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g, l, Effective Green Time [s]	7	7	17	12	12	17	12	12
g / C, Green / Cycle	0.21	0.21	0.54	0.36	0.36	0.54	0.38	0.38
(v / s) , Volume / Saturation Flow Rate	0.13	0.11	0.02	0.30	0.02	0.03	0.14	0.14
s, saturation flow rate [veh/h]	1656	1398	1249	1863	1539	1259	1863	1838
c, Capacity [veh/h]	487	459	656	679	561	546	713	704
d1, Uniform Delay [s]	11.56	11.12	6.15	9.25	6.58	9.14	7.07	7.08
k, delay calibration	0.04	0.04	0.04	0.09	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	0.17	0.01	2.38	0.02	0.02	0.12	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

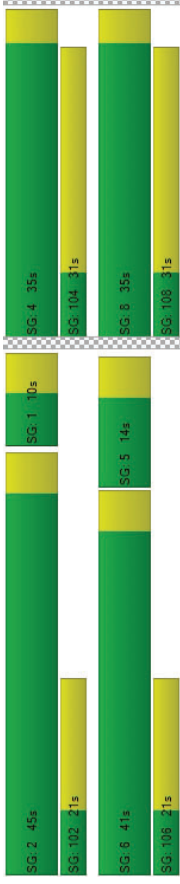
X, volume / capacity	0.46	0.34	0.03	0.83	0.06	0.07	0.36	0.37
d, Delay for Lane Group [s/veh]	11.81	11.29	6.16	11.64	6.60	9.16	7.19	7.20
Lane Group LOS	B	B	A	B	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/in]	1.09	0.74	0.02	2.30	0.07	0.03	0.67	0.66
50th-Percentile Queue Length [ft/in]	27.31	18.49	0.42	57.45	1.87	0.71	16.72	16.58
95th-Percentile Queue Length [veh/in]	1.97	1.33	0.03	4.14	0.13	0.05	1.20	1.19
95th-Percentile Queue Length [ft/in]	49.16	33.28	0.76	103.41	3.36	1.27	30.09	29.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.81	11.81	11.81	11.81	11.29	11.29	6.16	11.64	6.60	9.16	7.19	7.20
Movement LOS	B	B	B	B	B	B	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	11.81	11.81	11.81	11.81	11.29	11.29	11.19	11.19	7.32	7.32	7.32	7.32
Approach LOS	B	B	B	B	B	B	B	B	A	A	A	A
d_I, Intersection Delay [s/veh]	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91
Intersection LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection V/C	0.442	0.442	0.442	0.442	0.442	0.442	0.442	0.442	0.442	0.442	0.442	0.442

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



## Intersection Level Of Service Report

Intersection 9: Waltzer Rd/Piner Rd

Control Type:	Two-way stop
Analysis Method:	HCM 2010
Analysis Period:	15 minutes

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

### Intersection Setup

Name	Walzer Rd Northbound			Walzer Rd Southbound			Piner Rd Eastbound			Piner Rd Westbound		
Approach	+			+			+			+		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	100.00	95.00	100.00	100.00
Speed [mph]	25.00			25.00			40.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

## Volumes

Name	Walter Rd			Walter Rd			Piner Rd			Piner Rd		
Base Volume Input [veh/h]	8	5	13	38	0	63						
Base Volume Adjustment Factor	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	7	17	51	0	84	56	1096	4	12	637	35
Peak Hour Factor	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other Adjustment Factor	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total 15-Minute Volume [veh/h]	3	2	4	13	0	21	14	274	1	3	159	9
Total Analysis Volume [veh/h]	11	7	17	51	0	84	56	1096	4	12	637	35
Pedestrian Volume [ped/h]	2			5			0			0		

### Intersection Settings

	Stop	Slop	Free	Free
Priority Scheme				
Flared Lane	Yes			
Storage Area [veh]	1	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

## Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.27	0.11	0.07	1.23	0.00	0.18	0.06	0.01	0.00	0.02	0.01	0.00
d, M, Delay for Movement [s/veh]	120.08	90.09	45.99	367.57	337.71	14.54	9.21	0.00	0.00	10.80	0.00	0.00
Movement LOS	F	F	E	F	F	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	1.66	1.66	1.66	5.00	5.00	0.66	0.20	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	41.56	41.56	41.56	125.10	125.10	16.48	4.91	0.00	0.00	1.45	0.00	0.00
d, A, Approach Delay [s/veh]	78.10			147.90				0.45		0.19		
Approach LOS	F			F				A		A		
d, I, Intersection Delay [s/veh]						11.61					A	
Intersection LOS						F						

Intersection Level Of Service Report

Intersection 1: Fulton Rd/Tedeschi Dr

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 173.0  
Level Of Service: F  
Volume to Capacity (v/c): 0.843

Intersection Setup

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	783	60	10	1138	40	9			
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00			
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300			
In-Process Volume [veh/h]	0	0	0	0	0	0			
Site-Generated Trips [veh/h]	0	0	0	0	0	0			
Diverted Trips [veh/h]	0	0	0	0	0	0			
Pass-by Trips [veh/h]	0	0	0	0	0	0			
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0			
Other Volume [veh/h]	0	0	0	0	0	0			
Total Hourly Volume [veh/h]	1041	80	13	1514	53	12			
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Total 15-Minute Volume [veh/h]	260	20	3	379	13	3			
Total Analysis Volume [veh/h]	1041	80	13	1514	53	12			
Pedestrian Volume [ped/h]	0			0					1

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.01	0.00	0.02	0.02	0.84	0.03
d_M, Delay for Movement [s/veh]		0.00	0.00	10.95	0.00	173.01	123.39
Movement LOS		A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]		0.00	0.00	0.06	0.00	4.36	4.36
95th-Percentile Queue Length [ft/ln]		0.00	0.00	1.61	0.00	109.02	109.02
d_A, Approach Delay [s/veh]		0.00		0.09		163.85	
Approach LOS		A		A		F	
d_I, Intersection Delay [s/veh]				3.98			
Intersection LOS				F			

Intersection Level Of Service Report

Intersection 3: Fulton Rd/San Miguel Ave

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

13.8  
B  
0.468

Control Type:  
Analysis Method:  
Analysis Period:

Signalized  
HCM 2010  
15 minutes

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	TTL		TTL		+	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	776	96	121	1070	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1032	128	161	1423	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	258	32	40	356	0
Total Analysis Volume [veh/h]	0	1032	128	161	1423	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	15	0	0	12	3	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	0.0
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

## Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	49	49	49	49	49	49	49	49
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
I1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, I, Effective Green Time [s]	0	19	19	6	25	0	8	8
g / C, Green / Cycle	0.00	0.39	0.39	0.12	0.51	0.00	0.16	0.16
(v / s), J Volume / Saturation Flow Rate	0.00	0.32	0.32	0.09	0.40	0.00	0.03	0.06
s, saturation flow rate [veh/h]	1774	1863	1774	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	728	694	215	1815	0	286	255
d1, Uniform Delay [s]	0.00	13.29	13.35	20.78	9.73	0.00	17.83	18.25
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.24	2.48	5.21	0.77	0.00	0.14	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

## Lane Group Results

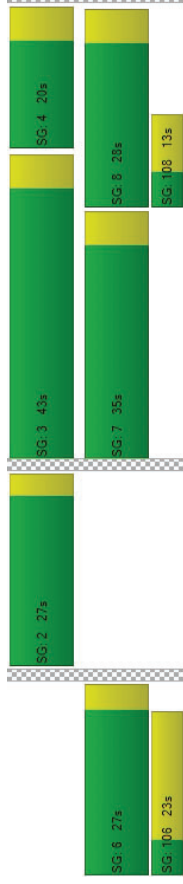
X, volume / capacity	0.00	0.81	0.82	0.75	0.78	0.00	0.21	0.35
d, Delay for Lane Group [s/veh]	0.00	15.53	15.83	25.99	10.50	0.00	17.96	18.56
Lane Group LOS	A	B	B	C	B	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	4.52	4.41	1.79	3.83	0.00	0.56	0.85
50th-Percentile Queue Length [ft/in]	0.00	112.94	110.28	44.75	95.84	0.00	14.03	21.33
95th-Percentile Queue Length [veh/in]	0.00	8.00	7.86	3.22	6.90	0.00	1.01	1.54
95th-Percentile Queue Length [ft/in]	0.00	200.08	196.39	80.54	172.52	0.00	25.26	38.40

## Movement, Approach, &amp; Intersection Results

d_M, Delay for Movement [s/veh]	0.00	15.66	15.83	25.99	10.50	0.00	0.00	17.96	0.00	18.56
Movement LOS	A	B	B	C	B	A	A	B	B	B
d_A, Approach Delay [s/veh]		15.67			12.08		0.00		18.32	
Approach LOS		B			B		A		B	
d_I, Intersection Delay [s/veh]					13.85					
Intersection LOS					B					
Intersection V/C					0.468					

## Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 4: Peterson Ln/San Miguel Ave

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 8.6  
Level Of Service: A  
Volume to Capacity (v/c): 0.260

Intersection Setup

Name	Peterson Ln		Peterson Ln		San Miguel Ave		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		San Miguel Ave		San Miguel Ave	
Base Volume Input [veh/h]	37	7	10	3	7	2	8	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	9	13	4	9	3	11	145
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	3	1	2	1	3	36
Total Analysis Volume [veh/h]	49	9	13	4	9	3	11	145
Pedestrian Volume [ped/h]	3		3		4		1	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	740	741	862	818
Degree of Utilization, x	0.10	0.02	0.26	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.32	0.07	1.04	0.81
95th-Percentile Queue Length [ft]	7.93	1.65	25.98	20.36
Approach Delay [s/veh]	8.38	7.96	8.63	8.61
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	8.56			
Intersection LOS	A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Delay (sec / veh): 7.8  
Level Of Service: A  
Volume to Capacity (v/c): 0.128

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	74	21	25	70	13	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	19	5	6	18	3	2	5
Total Analysis Volume [veh/h]	13	74	21	25	70	13	7	20
Pedestrian Volume [ped/h]	1			4			1	

Intersection Settings

Lanes	Capacity per Entry Lane [veh/h]	860	847	831	824
Degree of Utilization, x		0.13	0.13	0.05	0.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.43	0.44	0.15	0.24
95th-Percentile Queue Length [ft]	10.73	10.92	3.69	6.09
Approach Delay [s/veh]	7.79	7.87	7.55	7.73
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.76			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinercrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 11.6  
Level Of Service: B  
Volume to Capacity (v/c): 0.469

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr		Westbound	
Approach	Northbound		Southbound		Eastbound		Westbound			
Lane Configuration	+ +		+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00			
Grade [%]	0.00		0.00		0.00		0.00			
Crosswalk	Yes		No		Yes		No			

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr			
Base Volume Input [veh/h]	2	40	6	144	79	18	6	78	6	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	53	8	192	105	24	8	104	8	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	2	48	26	6	2	26	2	34
Total Analysis Volume [veh/h]	3	53	8	192	105	24	8	104	8	9
Pedestrian Volume [ped/h]	5		0		0		5		0	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	649	685	660	738
Degree of Utilization, x	0.10	0.47	0.18	0.43

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	2.51	0.66	2.19
95th-Percentile Queue Length [ft]	8.17	62.71	16.51	54.77
Approach Delay [s/veh]	9.16	12.81	9.66	11.53
Approach LOS	A	B	A	B
Intersection Delay [s/veh]	11.57			
Intersection LOS	B			

Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 30.1  
Level Of Service: C  
Volume to Capacity (v/c): 0.549

Intersection Setup

Name	Fulton Rd			Fulton Rd			Piner Rd			Piner Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	TIF			TIF			TIF			TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00			45.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Fulton Rd		Fulton Rd		Fulton Rd		Piner Rd		Piner Rd		Piner Rd	
Base Volume Input (veh/h)	29	611	288	144	702	35	43	82	46	238	127	185
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage (%)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Diverfed Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	29	611	288	144	702	35	43	82	46	238	127	185
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	7	153	72	36	176	9	11	21	12	60	32	46
Total Analysis Volume (veh/h)	29	611	288	144	702	35	43	82	46	238	127	185
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume (ped/h)	2		0		0		0		0		3	
Bicycle Volume (bicycles/h)	2		0		0		2		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	27.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lead	-	Lag	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	15	54	0	15	55	0	14	30	0	30	46	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.00	3.90	3.00	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.00	1.90	1.00	1.90	
g, l, Effective Green Time [s]	3	72	72	12	82	82	4	12	19	27	27			
g / C, Green / Cycle	0.02	0.55	0.55	0.10	0.63	0.63	0.03	0.09	0.15	0.21	0.21			
(v / s), J Volume / Saturation Flow Rate	0.02	0.25	0.26	0.08	0.20	0.20	0.02	0.07	0.13	0.07	0.12			
s, saturation flow rate [veh/h]	1774	1863	1635	1774	1863	1832	1774	1735	1774	1863	1561			
c, Capacity [veh/h]	37	1031	905	170	1170	1151	56	160	265	391	328			
d1, Uniform Delay [s]	63.38	17.41	17.52	57.87	11.23	11.23	62.53	57.87	54.36	43.56	46.05			
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04			
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
d2, Incremental Delay [s]	12.14	1.48	1.74	4.40	0.71	0.73	7.99	3.47	4.40	0.18	0.57			
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			

Lane Group Results

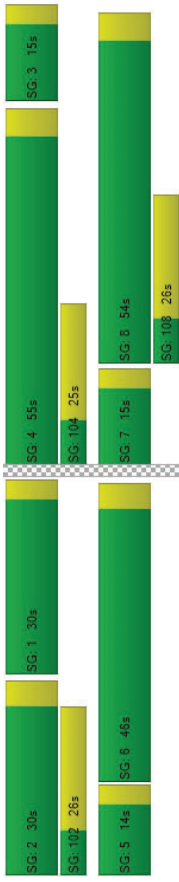
X, volume / capacity	0.78	0.46	0.47	0.85	0.32	0.32	0.77	0.80	0.90	0.32	0.56			
d, Delay for Lane Group [s/veh]	75.52	18.90	19.27	62.26	11.94	11.95	70.52	61.34	58.76	43.74	46.62			
Lane Group LOS	E	B	B	E	B	B	E	E	E	D	D			
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No			
50th-Percentile Queue Length [veh/in]	1.06	8.42	7.62	4.77	4.80	4.72	1.52	4.23	7.86	3.46	5.34			
50th-Percentile Queue Length [ft/in]	26.59	210.54	190.62	119.21	119.97	118.09	37.98	105.65	196.38	86.38	133.57			
95th-Percentile Queue Length [veh/in]	1.91	13.18	12.15	8.35	8.39	8.29	2.73	7.60	12.45	6.22	9.13			
95th-Percentile Queue Length [ft/in]	47.85	329.52	303.84	208.74	209.78	207.20	68.36	189.94	311.29	155.49	228.34			

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	75.52	18.98	19.27	62.26	11.95	11.95	70.52	61.34	58.76	43.74	46.62			
Movement LOS	E	B	B	E	B	B	E	E	E	D	D			
d, A, Approach Delay [s/veh]	20.84			20.17			63.65			51.21				
Approach LOS	C			C			E			D				
d, I, Intersection Delay [s/veh]							30.10							
Intersection LOS							C							
Intersection V/C							0.549							

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.0  
Level Of Service: A  
Volume to Capacity (v/c): 0.335

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln				Peterson Ln				Piner Rd			
Base Volume Input [veh/h]	23	10	51	48	19	23	32	496	37	87	602	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	10	51	48	19	23	32	496	37	87	602	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	13	12	5	6	8	124	9	22	151	18
Total Analysis Volume [veh/h]	23	10	51	48	19	23	32	496	37	87	602	70
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5				1				16			
Bicycle Volume [bicycles/h]	2				2				4			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	5	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	10	31	0	24	45	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	31	31	31	31	31	31	31	31
L, Total Lost Time per Cycle [s]	3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1, p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g, l, Effective Green Time [s]	6	6	17	10	10	17	11	11
g / C, Green / Cycle	0.18	0.18	0.56	0.33	0.33	0.56	0.36	0.36
(v / s) , Volume / Saturation Flow Rate	0.05	0.05	0.03	0.27	0.02	0.06	0.18	0.18
s, saturation flow rate [veh/h]	1625	1667	1239	1863	1533	1356	1863	1785
c, Capacity [veh/h]	448	487	656	618	509	637	672	644
d1, Uniform Delay [s]	10.76	10.76	6.65	9.32	7.01	7.68	7.66	7.67
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.07	0.01	0.94	0.02	0.04	0.22	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

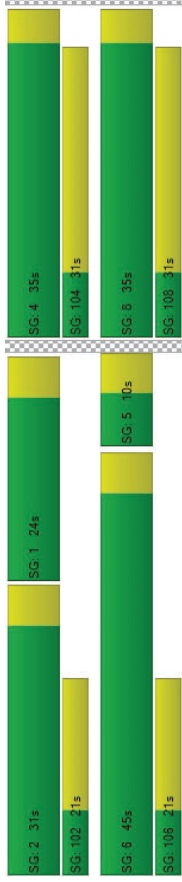
X, volume / capacity	0.19	0.18	0.05	0.80	0.07	0.14	0.51	0.51
d, Delay for Lane Group [s/veh]	10.83	10.82	6.66	10.26	7.03	7.71	7.88	7.91
Lane Group LOS	B	B	A	B	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/in]	0.37	0.39	0.02	1.74	0.09	0.04	0.92	0.89
50th-Percentile Queue Length [ft/in]	9.19	9.82	0.39	43.53	2.29	1.10	23.07	22.36
95th-Percentile Queue Length [veh/in]	0.66	0.71	0.03	3.13	0.17	0.08	1.66	1.61
95th-Percentile Queue Length [ft/in]	16.54	17.68	0.70	78.36	4.13	1.98	41.52	40.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.83	10.83	10.83	10.83	10.83	10.82	10.82	10.82	6.66	10.26	7.03	7.71	7.89	7.91
Movement LOS	B	B	B	B	B	B	B	B	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	10.83	10.83	10.83	10.83	10.82	10.82	10.82	10.82	9.85	9.85	7.88	7.88	7.88	7.88
Approach LOS	B	B	B	B	B	B	B	B	A	A	A	A	A	A
d_I, Intersection Delay [s/veh]									8.96					
Intersection LOS									A					
Intersection V/C									0.335					

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-







Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**

**Intersection 1: Fulton Rd/Tedeschi Dr**

Delay (sec / veh): 139.2  
Level Of Service: F  
Volume to Capacity (v/c): 0.834

**Intersection Setup**

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	881	23		8	600		54	14	
Base Volume Adjustment Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00		0.00	2.00		2.00	0.00	
Growth Factor	1.3300	1.3300		1.3300	1.3300		1.3300	1.3300	
In-Process Volume [veh/h]	0	0		0	0		0	0	
Site-Generated Trips [veh/h]	25	0		0	56		0	0	
Diverted Trips [veh/h]	0	0		0	0		0	0	
Pass-by Trips [veh/h]	0	0		0	0		0	0	
Existing Site Adjustment Volume [veh/h]	0	0		0	0		0	0	
Other Volume [veh/h]	0	0		0	0		0	0	
Total Hourly Volume [veh/h]	1197	31		11	854		72	19	
Peak Hour Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Other Adjustment Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Total 15-Minute Volume [veh/h]	299	8		3	214		18	5	
Total Analysis Volume [veh/h]	1197	31		11	854		72	19	
Pedestrian Volume [ped/h]	0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.01	0.83	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	11.39	0.00	139.20	105.70
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.00	5.10	5.10
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.46	0.00	127.43	127.43
d_A, Approach Delay [s/veh]	0.00	0.00	0.14	0.00	132.20	
Approach LOS	A	A	A	A	F	
d_I, Intersection Delay [s/veh]				5.57		
Intersection LOS				F		

Intersection Level Of Service Report

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 14.1  
Level Of Service: B  
Volume to Capacity (v/c): 0.519

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	TTL		TTL		+	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	814	93	73	589	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	9	5	51	0
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1093	133	102	834	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	273	33	26	209	0
Total Analysis Volume [veh/h]	0	1093	133	102	834	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicydes/h]	9	0	0	13	8	0



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	61	120	0	25	84	0	0	45
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	2.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearance [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	1.6
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, l, Effective Green Time [s]	0	20	20	4	24	0	9	9
g / C, Green / Cycle	0.00	0.41	0.41	0.08	0.49	0.00	0.18	0.18
(v / s), J Volume / Saturation Flow Rate	0.00	0.33	0.34	0.06	0.24	0.00	0.09	0.12
s, saturation flow rate [veh/h]	1774	1863	1780	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	763	729	135	1724	0	327	292
d1, Uniform Delay [s]	0.00	12.71	12.78	21.97	8.38	0.00	17.84	18.42
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.22	2.45	8.14	0.21	0.00	0.47	0.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

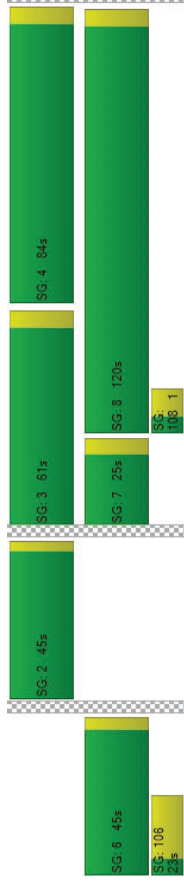
X, volume / capacity	0.00	0.82	0.83	0.75	0.48	0.00	0.51	0.67
d, Delay for Lane Group [s/veh]	0.00	14.94	15.22	30.11	8.59	0.00	18.31	19.41
Lane Group LOS	A	B	B	C	A	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	4.59	4.49	1.27	1.88	0.00	1.59	1.93
50th-Percentile Queue Length [ft/in]	0.00	114.65	112.15	31.67	47.09	0.00	39.66	48.27
95th-Percentile Queue Length [veh/in]	0.00	8.10	7.96	2.28	3.39	0.00	2.86	3.48
95th-Percentile Queue Length [ft/in]	0.00	202.46	198.99	57.00	84.76	0.00	71.39	86.89

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	0.00	15.06	15.22	30.11	8.59	0.00	0.00	18.31	0.00	19.41
Movement LOS	A	B	B	C	A		A	A	B	B
d, A, Approach Delay [s/veh]		15.08			10.94		0.00		18.90	
Approach LOS		B			B		A		B	
d, I, Intersection Delay [s/veh]					14.09					
Intersection LOS					B					
Intersection V/C					0.519					

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 4: Peterson Ln/San Miguel Ave**

Control Type:	All-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.357

**Intersection Setup**

Name	Peterson Ln				San Miguel Ave			
Approach	Northbound				Eastbound			
Lane Configuration	+ + + +				+ + + +			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

**Volumes**

Name	Peterson Ln				San Miguel Ave			
Base Volume Input [veh/h]	42	2	12	8	4	1	135	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	2	0	0	0	14	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	3	18	11	5	1	194	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	1	5	3	1	1	49	9
Total Analysis Volume [veh/h]	56	3	18	11	5	1	194	37
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

Lanes					
Capacity per Entry Lane [veh/h]	700	693	814	807	
Degree of Utilization, x	0.11	0.03	0.28	0.36	
Movement, Approach, & Intersection Results					
95th-Percentile Queue Length [veh]	0.37	0.09	1.18	1.62	
95th-Percentile Queue Length [ft]	9.23	2.34	29.42	40.61	
Approach Delay [s/veh]	8.78	8.36	9.18	9.92	
Approach LOS	A	A	A	A	
Intersection Delay [s/veh]	9.44				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

7.7  
A  
0.131

Control Type:  
Analysis Method:  
Analysis Period:

All-way stop  
HCM 2010  
15 minutes

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	2	26	60	8	47	3	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	37	80	11	70	4	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	20	3	18	1	2	5
Total Analysis Volume [veh/h]	3	37	80	11	70	4	7	20
Pedestrian Volume [ped/h]	2		4		0		3	

Intersection Settings

Intersection Settings

Capacity per Entry Lane [veh/h]  
Degree of Utilization, x

914  
0.13

826  
0.10

847  
0.06

815  
0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	0.34	0.18	0.36
95th-Percentile Queue Length [ft]	11.29	8.57	4.40	8.93
Approach Delay [s/veh]	7.53	7.86	7.50	7.95
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.72			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinecrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 12.2  
Level Of Service: B  
Volume to Capacity (v/c): 0.448

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		No		Yes		No	

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	8	69	17	147	57	5	11	174
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	92	23	196	76	7	15	231
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	6	49	19	2	4	58
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	231
Pedestrian Volume [ped/h]	4		0		5		0	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	612	623	645	881
Degree of Utilization, x	0.21	0.45	0.41	0.40

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	2.31	1.97	1.94
95th-Percentile Queue Length [ft]	19.19	57.72	49.29	48.45
Approach Delay [s/veh]	10.40	13.38	12.35	11.80
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	12.23			
Intersection LOS	B			



Control Type :  
Analysis Method :  
Analysis Period :

Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

34.0  
C  
0.617

Intersection Setup

Name	Fulton Rd Northbound			Fulton Rd Southbound			Piner Rd Eastbound			Piner Rd Westbound		
Approach	TIF			TIF			TIF			TIF		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00			45.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Fulton Rd			Fulton Rd			Piner Rd			Piner Rd		
Base Volume Input [veh/h]	52	601	360	132	563	89	46	132	54	247	145	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	30	47	2	0	0	0	0	0	6
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	614	360	162	610	91	46	132	54	247	145	238
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	154	90	41	153	23	12	33	14	62	36	60
Total Analysis Volume [veh/h]	52	614	360	162	610	91	46	132	54	247	145	238
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0			0			10		
Bicycle Volume [bicyclesh]	0			0			1			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lead	-	Lag	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.90	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.90	1.90	
g, l, Effective Green Time [s]	5	65	65	14	74	74	4	17	20	32	32	
g / C, Green / Cycle	0.04	0.50	0.50	0.11	0.57	0.57	0.03	0.13	0.15	0.25	0.25	
(v / s), J Volume / Saturation Flow Rate	0.03	0.28	0.28	0.09	0.19	0.19	0.03	0.11	0.14	0.08	0.15	
s, saturation flow rate [veh/h]	1774	1863	1621	1774	1863	1779	1774	1756	1774	1863	1583	
c, Capacity [veh/h]	68	935	814	188	1062	1014	60	226	274	464	394	
d1, Uniform Delay [s]	62.00	22.36	22.43	57.21	14.90	14.90	62.35	55.25	54.05	39.77	43.16	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.66	2.37	2.77	4.45	0.86	0.90	7.49	2.89	4.43	0.14	0.56	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

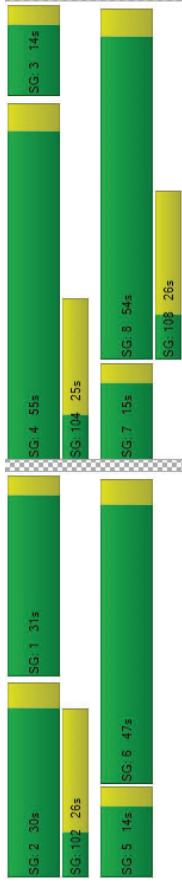
X, volume / capacity	0.77	0.55	0.56	0.86	0.34	0.34	0.77	0.82	0.90	0.31	0.60	
d, Delay for Lane Group [s/veh]	68.66	24.73	25.20	61.66	15.76	15.81	69.84	58.15	58.47	39.81	43.72	
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/in]	1.80	10.97	9.75	5.35	5.56	5.32	1.62	6.04	8.15	3.76	6.73	
50th-Percentile Queue Length [ft/in]	44.90	274.31	243.71	133.86	138.95	133.10	40.39	150.96	203.68	94.01	168.17	
95th-Percentile Queue Length [veh/in]	3.23	16.40	14.87	9.15	9.42	9.11	2.91	10.07	12.83	6.77	10.98	
95th-Percentile Queue Length [ft/in]	80.82	410.12	371.72	228.74	235.61	227.71	72.70	251.71	320.71	169.22	274.51	

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	68.66	24.80	25.20	61.66	15.78	15.81	69.84	58.15	58.47	39.81	43.72	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d, A, Approach Delay [s/veh]	27.17			24.40			60.47			48.63		
Approach LOS	C			C			E			D		
d, I, Intersection Delay [s/veh]							34.02					
Intersection LOS							C					
Intersection V/C							0.617					

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 10.5  
Level Of Service: B  
Volume to Capacity (v/c): 0.459

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Base Volume Input [veh/h]	62	54	107	79	34	45	22	564
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	1	0	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	54	107	86	35	45	22	594
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	27	21	9	11	6	149
Total Analysis Volume [veh/h]	62	54	107	86	35	45	22	594
Presence of On-Street Parking	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		3		5	
Bicycle Volume [bicycl/h]	0		2		1		1	



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	0	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group		C	C	L	C	R	L	C	C
C, Cycle Length [s]		33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]		3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1, p, Permitted Start-Up Lost Time [s]		2.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g, l, Effective Green Time [s]		7	7	18	12	12	18	13	13
g / C, Green / Cycle		0.20	0.20	0.55	0.38	0.38	0.55	0.40	0.40
(v / s) , Volume / Saturation Flow Rate		0.14	0.12	0.02	0.32	0.02	0.03	0.14	0.14
s, saturation flow rate [veh/h]		1647	1353	1230	1863	1540	1229	1863	1836
c, Capacity [veh/h]		476	442	658	705	583	534	738	728
d1, Uniform Delay [s]		11.98	11.63	6.09	9.31	6.47	9.52	6.96	6.97
k, delay calibration		0.04	0.04	0.04	0.14	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.27	0.19	0.01	3.56	0.01	0.02	0.11	0.11
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.37	0.03	0.84	0.05	0.07	0.36
d, Delay for Lane Group [s/veh]	12.25	11.82	6.09	12.86	6.48	9.54	7.07
Lane Group LOS	B	B	A	B	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/in]	1.15	0.82	0.02	2.71	0.08	0.03	0.69
50th-Percentile Queue Length [ft/in]	28.79	20.59	0.43	67.78	1.88	0.72	17.02
95th-Percentile Queue Length [veh/in]	2.07	1.48	0.03	4.88	0.14	0.05	1.24
95th-Percentile Queue Length [ft/in]	51.83	37.07	0.77	122.00	3.39	1.30	30.63

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	12.25	12.25	12.25	11.82	11.82	11.82	6.09	12.86	6.48	9.54	7.08	7.08
Movement LOS	B	B	B	B	B	B	A	B	A	A	A	A
d, A, Approach Delay [s/veh]	12.25	12.25	12.25	11.82	11.82	12.33					7.23	
Approach LOS	B	B	B	B	B	B					A	
d, I, Intersection Delay [s/veh]						10.47						
Intersection LOS						B						
Intersection V/C						0.459						

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 1: Fulton Rd/Tedeschi Dr

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 223.6  
Level Of Service: F  
Volume to Capacity (v/c): 0.962

Intersection Setup

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	783	60	10	1138	40	9			
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	2.00	2.00	0.00			
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300			
In-Process Volume [veh/h]	0	0	0	0	0	0			
Site-Generated Trips [veh/h]	62	0	0	44	0	0			
Diverted Trips [veh/h]	0	0	0	0	0	0			
Pass-by Trips [veh/h]	0	0	0	0	0	0			
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0			
Other Volume [veh/h]	0	0	0	0	0	0			
Total Hourly Volume [veh/h]	1103	80	13	1558	53	12			
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Total 15-Minute Volume [veh/h]	276	20	3	390	13	3			
Total Analysis Volume [veh/h]	1103	80	13	1558	53	12			
Pedestrian Volume [ped/h]	0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.02	0.96	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	11.17	0.00	223.64	166.26
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	0.00	4.89	4.89
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.67	0.00	122.21	122.21
d_A, Approach Delay [s/veh]	0.00		0.09		213.04	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]			4.96			
Intersection LOS			F			

Intersection Level Of Service Report  
Intersection 3: Fulton Rd/San Miguel Ave

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 14.4  
Level Of Service: B  
Volume to Capacity (v/c): 0.509

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	TTL		TTL		+	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	776	96	121	1070	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	51	27	19	25	0
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1083	155	180	1448	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	271	39	45	362	0
Total Analysis Volume [veh/h]	0	1083	155	180	1448	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicyclesh]	15	0	0	12	3	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	0.0
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



## Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	53	53	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g_l, Effective Green Time [s]	0	22	22	7	29	0	8	8
g / C, Green / Cycle	0.00	0.41	0.41	0.13	0.54	0.00	0.16	0.16
(v / s)_j Volume / Saturation Flow Rate	0.00	0.34	0.34	0.10	0.41	0.00	0.04	0.06
s, saturation flow rate [veh/h]	1774	1863	1765	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	761	721	236	1921	0	279	249
d1, Uniform Delay [s]	0.00	14.07	14.17	22.24	9.44	0.00	19.73	20.16
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.42	2.75	5.04	0.62	0.00	0.20	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

## Lane Group Results

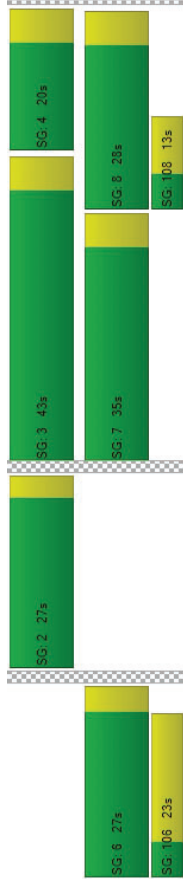
X, volume / capacity	0.00	0.83	0.84	0.76	0.75	0.00	0.28	0.41
d, Delay for Lane Group [s/veh]	0.00	16.49	16.91	27.28	10.06	0.00	19.93	20.56
Lane Group LOS	A	B	B	C	B	A	B	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	5.44	5.32	2.18	4.08	0.00	0.80	1.08
50th-Percentile Queue Length [ft/in]	0.00	136.05	132.90	54.45	102.06	0.00	20.02	27.01
95th-Percentile Queue Length [veh/in]	0.00	9.27	9.10	3.92	7.35	0.00	1.44	1.94
95th-Percentile Queue Length [ft/in]	0.00	231.70	227.43	98.00	183.71	0.00	36.04	48.62

## Movement, Approach, &amp; Intersection Results

d_M, Delay for Movement [s/veh]	0.00	16.67	16.91	27.28	10.06	0.00	0.00	19.93	0.00	20.56
Movement LOS	A	B	B	C	B	A	A	B	C	C
d_A, Approach Delay [s/veh]		16.70			11.96		0.00			20.29
Approach LOS		B			B		A			C
d_I, Intersection Delay [s/veh]					14.37					
Intersection LOS					B					
Intersection V/C					0.509					

## Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Peterson Ln/San Miguel Ave

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.1  
Level Of Service: A  
Volume to Capacity (v/c): 0.321

Intersection Setup

Name	Peterson Ln				San Miguel Ave			
Approach	Northbound				Southbound			
Lane Configuration	+ + + +				+ + + +			
Turning Movement	Left	Thru	Right		Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Peterson Ln				Peterson Ln				San Miguel Ave			
Base Volume Input [veh/h]	37	7	10	3	7	2	8	109	51	22	107	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	10	0	0	0	0	46	0	6	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	9	23	4	9	3	11	191	68	35	169	5
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	6	1	2	1	3	48	17	9	42	1
Total Analysis Volume [veh/h]	49	9	23	4	9	3	11	191	68	35	169	5
Pedestrian Volume [ped/h]	3				3				4			

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	723	710	842	802
Degree of Utilization, x	0.11	0.02	0.32	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	0.07	1.39	1.04
95th-Percentile Queue Length [ft]	9.41	1.73	34.75	26.10
Approach Delay [s/veh]	8.60	8.18	9.29	9.07
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.06			
Intersection LOS	A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Delay (sec / veh): 7.8  
Level Of Service: A  
Volume to Capacity (v/c): 0.138

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	0	6	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	84	21	25	76	13	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	21	5	6	19	3	2	5
Total Analysis Volume [veh/h]	13	84	21	25	76	13	7	20
Pedestrian Volume [ped/h]	1		4		1		3	

Intersection Settings

Lanes		Capacity per Entry Lane [veh/h]		Degree of Utilization, x		844		823		816	
		0.14		0.14		0.14		0.05		0.08	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]		0.48		0.47		0.15		0.25	
95th-Percentile Queue Length [ft]		11.92		11.66		3.72		6.15	
Approach Delay [s/veh]		7.87		7.93		7.59		7.77	
Approach LOS		A		A		A		A	
Intersection Delay [s/veh]									
Intersection LOS									

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinecrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 11.6  
Level Of Service: B  
Volume to Capacity (v/c): 0.469

Intersection Setup

Name	Waltzer Rd Northbound		Waltzer Rd Southbound		Pinecrest Dr Eastbound		Pinecrest Dr Westbound		
Approach	+		+		+		+		
Lane Configuration									
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00		
Grade [%]	0.00		0.00		0.00		0.00		
Crosswalk	Yes		No		Yes		No		

Volumes

Name		Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr				
Base Volume Input (veh/h)	2	40	6	144	79	18	6	78	6	7	102	131
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	3	53	8	192	105	24	8	104	8	9	136	174
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	1	13	2	48	26	6	2	26	2	2	34	44
Total Analysis Volume (veh/h)	3	53	8	192	105	24	8	104	8	9	136	174
Pedestrian Volume (ped/h)	5	5	0	0	0	0	5	5	0	0	0	0

Intersection Settings

Lanes		Capacity per Entry Lane [veh/h]		649		685		738	
Degree of Utilization, x		0.10		0.47		0.18		0.43	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33		2.51		0.66		2.19	
95th-Percentile Queue Length [ft]	8.17		62.71		16.51		54.77	
Approach Delay [s/veh]	9.16		12.81		9.66		11.53	
Approach LOS	A		B		A		B	
Intersection Delay [s/veh]			11.57					
Intersection LOS			B					

Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 30.7  
Level Of Service: C  
Volume to Capacity (v/c): 0.569

Intersection Setup

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd		
Approach	Northbound		Southbound		Eastbound		Westbound		
Lane Configuration	TIF		TIF		TIF		TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00		45.00		40.00		40.00		
Grade [%]	0.00		0.00		0.00		0.00		
Crosswalk	Yes		No		Yes		Yes		

Volumes

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd					
Base Volume Input [veh/h]	29	611	288	144	702	35	43	82	46	238	127	185
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	46	0	14	25	2	2	0	0	0	0	30
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	657	288	158	727	37	45	82	46	238	127	215
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	164	72	40	182	9	11	21	12	60	32	54
Total Analysis Volume [veh/h]	29	657	288	158	727	37	45	82	46	238	127	215
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	2		0		0		0		0		3	
Bicycle Volume [bicycles/h]	2		0		0		2		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lag	-	-	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.90	3.00	3.90	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.90	1.00	1.90	
g, l, Effective Green Time [s]	3	71	71	13	82	82	4	12	19	27	27	27	
g / C, Green / Cycle	0.02	0.55	0.55	0.10	0.63	0.63	0.03	0.09	0.15	0.21	0.21	0.21	
(v / s)_j Volume / Saturation Flow Rate	0.02	0.27	0.27	0.09	0.21	0.21	0.03	0.07	0.13	0.07	0.14	0.14	
s, saturation flow rate [veh/h]	1774	1863	1645	1774	1863	1831	1774	1735	1774	1863	1561	1561	
c, Capacity [veh/h]	37	1016	897	184	1170	1150	59	160	265	389	326	326	
d1, Uniform Delay [s]	63.38	18.35	18.46	57.34	11.33	11.33	62.41	57.87	54.36	43.72	47.25	47.25	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	12.15	1.69	1.98	4.41	0.75	0.77	7.65	3.47	4.39	0.18	0.86	0.86	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

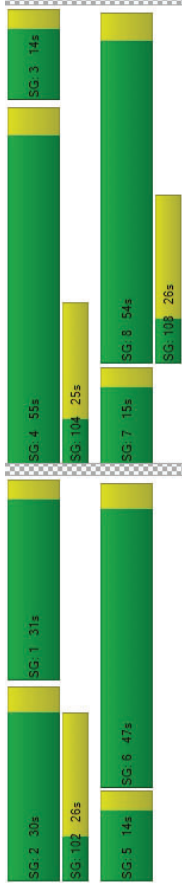
X, volume / capacity	0.78	0.49	0.50	0.86	0.33	0.33	0.77	0.80	0.90	0.33	0.66	
d, Delay for Lane Group [s/veh]	75.53	20.04	20.44	61.75	12.09	12.10	70.05	61.34	58.75	43.90	48.11	
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/in]	1.06	9.20	8.37	5.22	5.02	4.94	1.58	4.23	7.85	3.46	6.38	
50th-Percentile Queue Length [ft/in]	26.59	230.03	209.35	130.56	125.59	123.58	39.58	105.65	196.37	86.57	159.42	
95th-Percentile Queue Length [veh/in]	1.91	14.18	13.12	8.97	8.70	8.59	2.85	7.60	12.45	6.23	10.52	
95th-Percentile Queue Length [ft/in]	47.86	354.39	328.00	224.26	217.49	214.73	71.25	189.94	311.28	155.82	262.96	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	75.53	20.14	20.44	61.75	12.09	12.10	70.05	61.34	58.75	43.90	48.11	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d_A, Approach Delay [s/veh]	21.87			20.60			63.61			51.55		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]				30.66								
Intersection LOS				C								
Intersection V/C				0.569								

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.1  
Level Of Service: A  
Volume to Capacity (v/c): 0.346

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Base Volume Input [veh/h]	23	10	51	48	19	23	32	496
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	5	1	0	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	11	51	53	20	23	32	510
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	13	13	5	6	8	128
Total Analysis Volume [veh/h]	23	11	51	53	20	23	32	510
Presence of On-Street Parking	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		16		6	
Bicycle Volume [bicydes/h]	2		2		4		3	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	0	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	31	31	31	31	31	31	31	31
L, Total Lost Time per Cycle [s]	3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_l, Effective Green Time [s]	6	6	17	11	11	17	11	11
g / C, Green / Cycle	0.19	0.19	0.56	0.34	0.34	0.56	0.36	0.36
(v / s)_J Volume / Saturation Flow Rate	0.05	0.06	0.03	0.27	0.02	0.06	0.19	0.20
s, saturation flow rate [veh/h]	1625	1662	1214	1863	1533	1341	1863	1780
c, Capacity [veh/h]	450	490	640	628	517	626	682	651
d1, Uniform Delay [s]	10.90	10.93	6.97	9.45	7.03	7.95	7.80	7.82
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.07	0.01	0.98	0.02	0.04	0.24	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

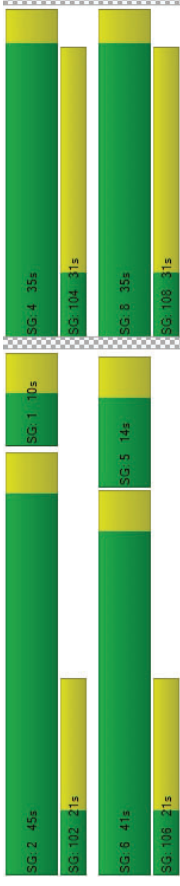
X, volume / capacity	0.19	0.20	0.05	0.81	0.07	0.14	0.53	0.54
d, Delay for Lane Group [s/veh]	10.97	11.00	6.98	10.43	7.06	7.99	8.04	8.07
Lane Group LOS	B	B	A	B	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/in]	0.38	0.43	0.02	1.86	0.09	0.05	1.02	0.99
50th-Percentile Queue Length [ft/in]	9.57	10.82	0.44	46.57	2.36	1.25	25.56	24.71
95th-Percentile Queue Length [veh/in]	0.69	0.78	0.03	3.35	0.17	0.09	1.84	1.78
95th-Percentile Queue Length [ft/in]	17.22	19.47	0.79	83.83	4.25	2.25	46.01	44.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.97	10.97	10.97	10.97	11.00	11.00	11.00	11.00	6.98	10.43	7.06	7.99	8.05	8.07
Movement LOS	B	B	B	B	B	B	B	B	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	10.97	10.97	10.97	10.97	11.00	11.00	11.00	11.00	10.02	10.02	10.02	8.05	8.05	8.05
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	A	A	A
d_I, Intersection Delay [s/veh]	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12	9.12
Intersection LOS	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Intersection V/C	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-







Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**

**Intersection 1: Fulton Rd/Tedeschi Dr**

Delay (sec / veh): 118.3  
Level Of Service: F  
Volume to Capacity (v/c): 0.771

**Intersection Setup**

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	881	23		8	600		54	14	
Base Volume Adjustment Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00		2.00	2.00		2.00	2.00	
Growth Factor	1.3300	1.3300		1.3300	1.3300		1.3300	1.3300	
In-Process Volume [veh/h]	0	0		0	0		0	0	
Site-Generated Trips [veh/h]	2	0		0	1		0	1	
Diverted Trips [veh/h]	0	0		0	0		0	0	
Pass-by Trips [veh/h]	0	0		0	0		0	0	
Existing Site Adjustment Volume [veh/h]	0	0		0	0		0	0	
Other Volume [veh/h]	0	0		0	0		0	0	
Total Hourly Volume [veh/h]	1174	31		11	799		72	20	
Peak Hour Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Other Adjustment Factor	1.0000	1.0000		1.0000	1.0000		1.0000	1.0000	
Total 15-Minute Volume [veh/h]	294	8		3	200		18	5	
Total Analysis Volume [veh/h]	1174	31		11	799		72	20	
Pedestrian Volume [ped/h]	0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio		0.01	0.00	0.02	0.01	0.77	0.05
d_M, Delay for Movement [s/veh]		0.00	0.00	11.38	0.00	118.25	87.82
Movement LOS		A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]		0.00	0.00	0.06	0.00	4.72	4.72
95th-Percentile Queue Length [ft/ln]		0.00	0.00	1.46	0.00	118.06	118.06
d_A, Approach Delay [s/veh]		0.00	0.00	0.15	0.00	111.64	
Approach LOS		A	A	A	A	F	
d_I, Intersection Delay [s/veh]				4.93			
Intersection LOS				F			

Intersection Level Of Service Report

Intersection 2: Fulton Rd/New Project Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 83.7  
Level Of Service: F  
Volume to Capacity (v/c): 0.478

Intersection Setup

Name	Fulton Rd		Fulton Rd		New Project Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IIH		HH		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			New Project Rd		
Base Volume Input [veh/h]	943	0	0	0	672	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	1	1	0	39	2	2	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1254	14	1	1	894	39	2	2	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	314	4	0	0	224	10	1	1	1
Total Analysis Volume [veh/h]	1254	14	1	1	894	39	2	2	2
Pedestrian Volume [ped/h]	0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.48	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	11.63	0.00	83.69	48.06
Movement LOS	A	A	B	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.01	0.00	2.04	2.04
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.07	51.07	51.07
d_A, Approach Delay [s/veh]	0.00		0.01		81.95	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]			1.53			
Intersection LOS			F			

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report  
Intersection 3: Fulton Rd/San Miguel Ave

Delay (sec / veh): 13.9  
Level Of Service: B  
Volume to Capacity (v/c): 0.505

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	TTL		TTL		TTL	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	814	93	73	589	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	0	0	39	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1097	124	97	822	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	274	31	24	206	0
Total Analysis Volume [veh/h]	0	1097	124	97	822	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	9	0	0	13	8	0

Intersection Settings									
Located in CBD	No								
Signal Coordination Group	-								
Cycle Length [s]	90								
Coordination Type	Time of Day Pattern Isolated								
Actuation Type	Fully actuated								
Offset [s]	0.0								
Offset Reference	LeadGreen								
Permissive Mode	SingleBand								
Lost time [s]	0.00								

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split	Permis	Split	Split
Signal Group	3	8	0	7	4	0	5	2	0	6	0
Auxiliary Signal Groups	Lead	-	-	-	-	-	-	-	-	Lead	-
Minimum Green [s]	5	7	0	4	7	0	0	7	0	9	0
Maximum Green [s]	7	35	0	25	35	0	7	0	30	0	0
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	0.0	3.0	0.0	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27	0	27	0
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	0.0	1.0	0.0	2.0	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	5	0
Pedestrian Clearances [s]	0	8	0	0	0	0	0	0	0	18	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	0.0	1.0	0.0	1.6	0.0
Minimum Recall	No	Yes	No	No	Yes	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

## Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	48	48	48	48	48	48	48	48
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, l, Effective Green Time [s]	0	20	20	3	23	0	9	9
g / C, Green / Cycle	0.00	0.41	0.41	0.07	0.48	0.00	0.19	0.19
(v / s) , J Volume / Saturation Flow Rate	0.00	0.33	0.34	0.05	0.23	0.00	0.08	0.11
s, saturation flow rate [veh/h]	1774	1863	1785	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	761	729	129	1706	0	329	293
d1, Uniform Delay [s]	0.00	12.58	12.63	21.82	8.41	0.00	17.28	17.96
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.20	2.40	8.64	0.21	0.00	0.33	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

## Lane Group Results

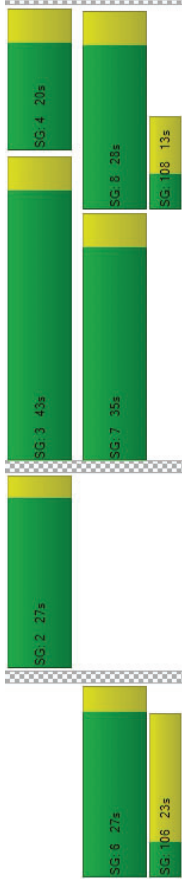
X, volume / capacity	0.00	0.82	0.82	0.75	0.48	0.00	0.43	0.61
d, Delay for Lane Group [s/veh]	0.00	14.78	15.04	30.46	8.62	0.00	17.60	18.74
Lane Group LOS	A	B	B	C	A	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	4.47	4.38	1.21	1.84	0.00	1.27	1.72
50th-Percentile Queue Length [ft/ln]	0.00	111.82	109.52	30.22	46.00	0.00	31.81	43.09
95th-Percentile Queue Length [veh/ln]	0.00	7.94	7.81	2.18	3.31	0.00	2.29	3.10
95th-Percentile Queue Length [ft/ln]	0.00	198.54	195.33	54.40	82.81	0.00	57.25	77.56

## Movement, Approach, &amp; Intersection Results

d, M, Delay for Movement [s/veh]	0.00	14.89	15.04	30.46	8.62	0.00	0.00	0.00	17.60	0.00	18.74
Movement LOS	A	B	B	C	A				A	B	B
d, A, Approach Delay [s/veh]		14.90			10.92			0.00		18.24	
Approach LOS		B			B			A		B	
d, I, Intersection Delay [s/veh]					13.85						
Intersection LOS					B						
Intersection V/C					0.506						

## Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Peterson Ln/San Miguel Ave

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 9.1  
Level Of Service: A  
Volume to Capacity (v/c): 0.299

Intersection Setup

Name	Peterson Ln				Peterson Ln				San Miguel Ave			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration	+ +				+ +				+ +			
Turning Movement	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name	Peterson Ln				Peterson Ln				San Miguel Ave			
Base Volume Input [veh/h]	42	2	12	8	4	4	1	135	28	5	173	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	0	0	0	0	10	14	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	3	16	11	5	5	1	190	51	7	233	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	1	4	3	1	1	1	0	48	13	2	58
Total Analysis Volume [veh/h]	60	3	16	11	5	5	1	190	51	7	233	1
Pedestrian Volume [ped/h]	0				2				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	708	705	830	806
Degree of Utilization, x	0.11	0.03	0.29	0.30

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	0.09	1.22	1.26
95th-Percentile Queue Length [ft]	9.37	2.30	30.41	31.42
Approach Delay [s/veh]	8.72	8.26	9.12	9.36
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	9.13			
Intersection LOS	A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Delay (sec / veh): 7.8  
Level Of Service: A  
Volume to Capacity (v/c): 0.132

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	2	26	60	8	47	3	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	7	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	37	80	18	70	4	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	20	5	18	1	2	5
Total Analysis Volume [veh/h]	3	37	80	18	70	4	7	20
Pedestrian Volume [ped/h]	2		4		0		3	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	910	822	843	814
Degree of Utilization, x	0.13	0.11	0.06	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	0.38	0.18	0.37
95th-Percentile Queue Length [ft]	11.33	9.42	4.42	9.17
Approach Delay [s/veh]	7.55	7.93	7.52	7.97
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.75			
Intersection LOS	A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report  
Intersection 6: Waltzer Rd/Pinercrest Dr

Delay (sec / veh): 12.4  
Level Of Service: B  
Volume to Capacity (v/c): 0.450

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr		Westbound	
Approach	Northbound		Southbound		Eastbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00		0.00		0.00	
Crosswalk	Yes		No		Yes		No		No	

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr		Westbound	
Base Volume Input [veh/h]	8	69	17	147	57	5	11	174	12	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	92	23	196	76	7	15	238	16	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	6	49	19	2	4	60	4	0
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	238	16	1
Pedestrian Volume [ped/h]	4		0		0		5		0	

Intersection Settings

Lanes		Capacity per Entry Lane [veh/h]		609		620		678	
Degree of Utilization, x		0.21		0.45		0.42		0.41	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	2.33	2.06	1.97
95th-Percentile Queue Length [ft]	19.34	59.24	51.61	49.35
Approach Delay [s/veh]	10.45	13.48	12.56	11.90
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	12.36			
Intersection LOS	B			



Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 34.1  
Level Of Service: C  
Volume to Capacity (v/c): 0.613

Intersection Setup

Name Approach	Fulton Rd Northbound			Fulton Rd Southbound			Piner Rd Eastbound			Piner Rd Westbound		
Lane Configuration	TIF			TIF			TIF			TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00			45.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd		Piner Rd			
Base Volume Input (veh/h)	52	601	360	132	563	89	46	132	54	247	145	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage (%)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips (veh/h)	0	4	0	26	13	0	0	0	0	0	0	10
Diverfed Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	52	605	360	158	576	89	46	132	54	247	145	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	13	151	90	40	144	22	12	33	14	62	36	61
Total Analysis Volume (veh/h)	52	605	360	158	576	89	46	132	54	247	145	242
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume (ped/h)	6		0		0		0		0		10	
Bicycle Volume (bicycles/h)	0		0		0		1		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lead	-	Lag	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	4.30	3.00	4.30	3.00	3.90	3.90
I1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	2.30	1.00	1.90	1.00	1.90	1.90
g, I, Effective Green Time [s]	5	66	66	13	74	74	4	17	20	32	32	32	32
g / C, Green / Cycle	0.04	0.50	0.50	0.10	0.57	0.57	0.03	0.13	0.15	0.25	0.25	0.25	0.25
(v / s), J Volume / Saturation Flow Rate	0.03	0.28	0.28	0.09	0.18	0.18	0.03	0.11	0.14	0.08	0.15	0.08	0.15
s, saturation flow rate [veh/h]	1774	1863	1619	1774	1863	1777	1774	1756	1774	1863	1583	1863	1583
c, Capacity [veh/h]	68	939	817	184	1062	1013	60	226	274	464	394	464	394
d1, Uniform Delay [s]	62.00	22.08	22.16	57.36	14.72	14.73	62.35	55.25	54.05	39.77	43.29	39.77	43.29
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.66	2.29	2.68	4.44	0.80	0.84	7.49	2.89	4.43	0.14	0.58	0.14	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

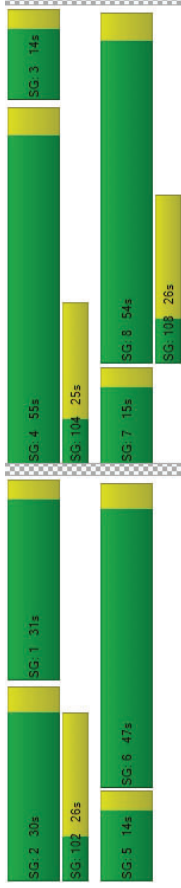
X, volume / capacity	0.77	0.55	0.55	0.86	0.32	0.32	0.77	0.82	0.90	0.31	0.61	0.31	0.61
d, Delay for Lane Group [s/veh]	68.66	24.38	24.84	61.80	15.52	15.56	69.84	58.15	58.47	39.81	43.87	39.81	43.87
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/in]	1.80	10.77	9.56	5.22	5.21	4.99	1.62	6.04	8.15	3.76	6.86	3.76	6.86
50th-Percentile Queue Length [ft/in]	44.90	269.33	238.95	130.62	130.21	124.64	40.39	150.96	203.68	94.01	171.55	94.01	171.55
95th-Percentile Queue Length [veh/in]	3.23	16.16	14.63	8.97	8.95	8.65	2.91	10.07	12.83	6.77	11.16	6.77	11.16
95th-Percentile Queue Length [ft/in]	80.82	403.91	365.70	224.33	223.78	216.19	72.70	251.71	320.71	169.22	278.95	169.22	278.95

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	68.66	24.45	24.84	61.80	15.54	15.56	69.84	58.15	58.47	39.81	43.87	39.81	43.87
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	D	D
d, A, Approach Delay [s/veh]	26.85				24.42			60.47		48.65			
Approach LOS	C				C			E		D			
d, I, Intersection Delay [s/veh]					34.10								
Intersection LOS					C								
Intersection V/C					0.613								

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 10.4  
Level Of Service: B  
Volume to Capacity (v/c): 0.457

Intersection Setup

Name Approach	Peterson Ln Northbound			Peterson Ln Southbound			Piner Rd Eastbound			Piner Rd Westbound			
Lane Configuration	+			+			+/-			+/-			
Turning Movement		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	1	0	1	1	0	0	0
Pocket Length [ft]		100.00	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00	100.00	100.00	100.00
Speed [mph]		30.00		30.00		30.00		40.00		40.00		40.00	
Grade [%]		0.00		0.00		0.00		0.00		0.00		0.00	
Crosswalk		Yes		Yes		Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Peterson Ln		Piner Rd		Piner Rd			
Base Volume Input (veh/h)	62	54	107	79	34	45	22	564	31	36	501	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	0	0	26	0	0	10	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	54	107	86	34	45	22	590	31	36	511	19
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	27	22	9	11	6	148	8	9	128	5
Total Analysis Volume [veh/h]	62	54	107	86	34	45	22	590	31	36	511	19
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		3		3		5		5	
Bicycle Volume [bicycles/h]	0		2		1		1		1		1	



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	5	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group		C	C	L	C	R	L	C	C
C, Cycle Length [s]		33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]		3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1, p, Permitted Start-Up Lost Time [s]		2.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g, l, Effective Green Time [s]		7	7	18	12	12	18	13	13
g / C, Green / Cycle		0.20	0.20	0.55	0.38	0.38	0.55	0.39	0.39
(v / s) , Volume / Saturation Flow Rate		0.14	0.12	0.02	0.32	0.02	0.03	0.14	0.14
s, saturation flow rate [veh/h]		1648	1349	1230	1863	1540	1233	1863	1836
c, Capacity [veh/h]		477	443	656	701	580	536	735	725
d1, Uniform Delay [s]		11.93	11.58	6.12	9.30	6.48	9.47	6.99	6.99
k, delay calibration		0.04	0.04	0.04	0.13	0.04	0.04	0.04	0.04
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.27	0.19	0.01	3.40	0.01	0.02	0.11	0.11
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

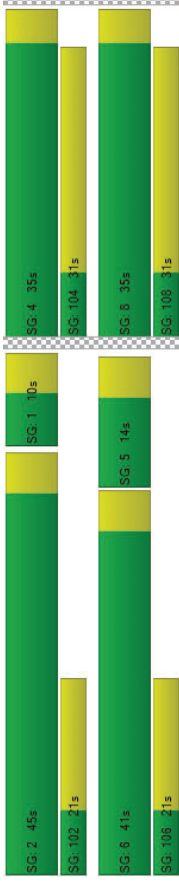
X, volume / capacity		0.47	0.37	0.03	0.84	0.05	0.07	0.36	0.36
d, Delay for Lane Group [s/veh]		12.19	11.77	6.13	12.70	6.50	9.49	7.10	7.11
Lane Group LOS		B	B	A	B	A	A	A	A
Critical Lane Group		Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/in]		1.14	0.82	0.02	2.65	0.08	0.03	0.69	0.69
50th-Percentile Queue Length [ft/in]		28.60	20.46	0.43	66.36	1.88	0.72	17.31	17.15
95th-Percentile Queue Length [veh/in]		2.06	1.47	0.03	4.78	0.14	0.05	1.25	1.23
95th-Percentile Queue Length [ft/in]		51.48	36.83	0.77	119.46	3.39	1.30	31.15	30.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.19	12.19	12.19	11.77	11.77	11.77	6.13	12.70	6.50	9.49	7.10	7.11
Movement LOS		B	B	B	B	B	A	B	A	A	A	A
d_A, Approach Delay [s/veh]		12.19			11.77		12.17				7.26	
Approach LOS		B			B		B				A	
d_I, Intersection Delay [s/veh]							10.39					
Intersection LOS							B					
Intersection V/C							0.457					

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 9: Waltzer Rd/Piner Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 424.6  
Level Of Service: F  
Volume to Capacity (v/c): 1.336

Intersection Setup

Name	Waltzer Rd Northbound		Waltzer Rd Southbound		Piner Rd Eastbound		Piner Rd Westbound		
Approach	+		+		+		+		
Lane Configuration									
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	50.00	100.00	100.00	95.00	100.00
Speed [mph]	25.00		25.00		40.00		30.00		
Grade [%]	0.00		0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		No		

Volumes

Name	Waltzer Rd			Waltzer Rd			Piner Rd			Piner Rd		
Base Volume Input (veh/h)	8	5	13	38	0	63	42	824	3	9	479	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips (veh/h)	0	0	0	0	0	0	0	33	0	0	12	0
Diverted Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	11	7	17	51	0	84	56	1129	4	12	649	35
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	3	2	4	13	0	21	14	282	1	3	162	9
Total Analysis Volume (veh/h)	11	7	17	51	0	84	56	1129	4	12	649	35
Pedestrian Volume (ped/h)	2		5		0		0		0		0	

Intersection Settings

Priority Scheme	Stop	Stop	Stop	Free
Flared Lane	Yes			
Storage Area [veh]	1	0	0	0
Two-Stage Gap Acceptance	No	No	No	
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.12	0.07	1.34	0.00	0.19	0.06	0.01	0.00	0.02	0.01	0.00										
d_M, Delay for Movement [s/veh]	132.45	99.28	51.82	424.56	360.97	14.72	9.26	0.00	0.00	10.98	0.00	0.00										
Movement LOS	F	F	F	F	F	B	A	A	A	B	A	A										
95th-Percentile Queue Length [veh/ln]	1.80	1.80	1.80	5.25	5.25	0.67	0.20	0.00	0.00	0.06	0.00	0.00										
95th-Percentile Queue Length [ft/ln]	45.01	45.01	45.01	131.18	131.18	16.79	4.96	0.00	0.00	1.49	0.00	0.00										
d_A, Approach Delay [s/veh]	86.65		F		F		0.44		A		0.19											
Approach LOS	F		F		F		A		A		A											
d_I, Intersection Delay [s/veh]	12.93																					
Intersection LOS	F																					

Control Type : Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**

**Intersection 1: Fulton Rd/Tedeschi Dr**

Delay (sec / veh): 176.5  
Level Of Service: F  
Volume to Capacity (v/c): 0.852

**Intersection Setup**

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	783	60	10	1138	40	9			
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00			
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300			
In-Process Volume [veh/h]	0	0	0	0	0	0			
Site-Generated Trips [veh/h]	2	0	1	3	0	0			
Diverted Trips [veh/h]	0	0	0	0	0	0			
Pass-by Trips [veh/h]	0	0	0	0	0	0			
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0			
Other Volume [veh/h]	0	0	0	0	0	0			
Total Hourly Volume [veh/h]	1043	80	14	1517	53	12			
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Total 15-Minute Volume [veh/h]	261	20	4	379	13	3			
Total Analysis Volume [veh/h]	1043	80	14	1517	53	12			
Pedestrian Volume [ped/h]	0			0					1

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.85	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	10.97	176.52	126.33
Movement LOS	A	A	B	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	4.40	4.40
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.74	110.05	110.05
d_A, Approach Delay [s/veh]	0.00		0.10	167.25	
Approach LOS	A		A	F	
d_I, Intersection Delay [s/veh]			4.05		
Intersection LOS			F		

Intersection Level Of Service Report

Intersection 2: Fulton Rd/New Project Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 122.7  
Level Of Service: F  
Volume to Capacity (v/c): 0.498

Intersection Setup

Name	Fulton Rd		Fulton Rd		New Project Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	1H		1H		1T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			New Project Rd		
Base Volume Input [veh/h]	860	0	0	0	1198	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	3	0	0	27	2	2	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1144	45	3	1593	27	2	2	2	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	286	11	1	398	7	1	1	1	1
Total Analysis Volume [veh/h]	1144	45	3	1593	27	2	2	2	2
Pedestrian Volume [ped/h]	0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio		0.01	0.00	0.01	0.02	0.50	0.00
d_M, Delay for Movement [s/veh]		0.00	0.00	11.21	0.00	122.74	64.35
Movement LOS		A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]		0.00	0.00	0.02	0.01	1.96	1.96
95th-Percentile Queue Length [ft/ln]		0.00	0.00	0.39	0.19	49.01	49.01
d_A, Approach Delay [s/veh]		0.00	0.00	0.02	0.02	118.72	
Approach LOS		A	A	A	A	F	
d_I, Intersection Delay [s/veh]				1.24			
Intersection LOS				F			

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report  
Intersection 3: Fulton Rd/San Miguel Ave

Delay (sec / veh): 13.9  
Level Of Service: B  
Volume to Capacity (v/c): 0.480

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	TTL		TTL		TTL	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	776	96	121	1070	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	0	0	27	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1077	128	161	1450	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	269	32	40	363	0
Total Analysis Volume [veh/h]	0	1077	128	161	1450	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicyclesh]	15	0	0	12	3	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	2.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	0.0
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	50	50	50	50	50	50	50	50
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
I1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, I, Effective Green Time [s]	0	20	20	6	26	0	8	8
g / C, Green / Cycle	0.00	0.40	0.40	0.12	0.52	0.00	0.16	0.16
(v / s), J Volume / Saturation Flow Rate	0.00	0.33	0.33	0.09	0.41	0.00	0.03	0.06
s, saturation flow rate [veh/h]	1774	1863	1779	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	749	715	214	1853	0	281	251
d1, Uniform Delay [s]	0.00	13.37	13.44	21.31	9.66	0.00	18.39	18.63
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.29	2.53	5.26	0.75	0.00	0.14	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

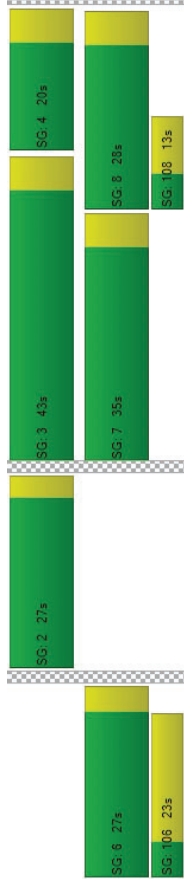
X, volume / capacity	0.00	0.82	0.83	0.75	0.78	0.00	0.22	0.36
d, Delay for Lane Group [s/veh]	0.00	15.65	15.97	26.57	10.41	0.00	18.53	19.15
Lane Group LOS	A	B	B	C	B	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	4.82	4.72	1.85	3.97	0.00	0.58	0.88
50th-Percentile Queue Length [ft/in]	0.00	120.43	117.90	46.13	99.20	0.00	14.55	22.11
95th-Percentile Queue Length [veh/in]	0.00	8.42	8.28	3.32	7.14	0.00	1.05	1.59
95th-Percentile Queue Length [ft/in]	0.00	210.42	206.93	83.04	176.57	0.00	26.18	39.81

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	0.00	15.79	15.97	26.57	10.41	0.00	0.00	18.53	0.00	19.15
Movement LOS	A	B	B	C	B	A	A	B	B	B
d, A, Approach Delay [s/veh]	15.81				12.03	0.00	0.00	18.90		
Approach LOS	B				B	A	A	B		
d, I, Intersection Delay [s/veh]					13.91					
Intersection LOS					B					
Intersection V/C					0.480					

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**  
**Intersection 4: Peterson Ln/San Miguel Ave**

Delay (sec / veh): 8.8  
Level Of Service: A  
Volume to Capacity (v/c): 0.280

**Intersection Setup**

Name	Peterson Ln Northbound			Peterson Ln Southbound			San Miguel Ave Eastbound			San Miguel Ave Westbound		
Approach	+			+			+			+		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Peterson Ln			Peterson Ln			San Miguel Ave		
Base Volume Input [veh/h]	37	7	10	3	7	2	8	109	51
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	0	0	0	0	0	7	8	0
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	9	13	4	9	3	11	152	76
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	2	3	1	2	1	3	38	19
Total Analysis Volume [veh/h]	63	9	13	4	9	3	11	152	76
Pedestrian Volume [ped/h]	3			3			4		

**Intersection Settings**

Lanes					
Capacity per Entry Lane [veh/h]		726	728	853	807
Degree of Utilization, x		0.12	0.02	0.28	0.23
Movement, Approach, & Intersection Results					
95th-Percentile Queue Length [veh]		0.40	0.07	1.15	0.90
95th-Percentile Queue Length [ft]		9.90	1.68	28.79	22.38
Approach Delay [s/veh]		8.62	8.06	8.86	8.81
Approach LOS		A	A	A	A
Intersection Delay [s/veh]		8.76			
Intersection LOS		A			

Intersection Level Of Service Report

Intersection 5: Peterson Ln/Pinecrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 7.9  
Level Of Service: A  
Volume to Capacity (v/c): 0.138

Intersection Setup

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	4	4	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	81	21	29	74	13	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	20	5	7	19	3	2	5
Total Analysis Volume [veh/h]	13	81	21	29	74	13	7	20
Pedestrian Volume [ped/h]	1			4			1	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	854	840	822	827
Degree of Utilization, x	0.13	0.14	0.05	0.08

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.47	0.48	0.15	0.27
95th-Percentile Queue Length [ft]	11.63	11.96	3.73	6.82
Approach Delay [s/veh]	7.88	7.97	7.60	7.75
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.85			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinercrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 11.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.472

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr		Westbound	
Approach	Northbound		Southbound		Eastbound		Westbound			
Lane Configuration	+ +		+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00			
Grade [%]	0.00		0.00		0.00		0.00			
Crosswalk	Yes		No		Yes		No			

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinercrest Dr		Pinercrest Dr			
Base Volume Input [veh/h]	2	40	6	144	79	18	6	78	6	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	53	8	192	105	24	8	108	8	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	2	48	26	6	2	27	2	2
Total Analysis Volume [veh/h]	3	53	8	192	105	24	8	108	8	9
Pedestrian Volume [ped/h]	5		0		0		5		0	

Intersection Settings

Intersection Settings

Lanes					
Capacity per Entry Lane [veh/h]	644	681	658	735	
Degree of Utilization, x	0.10	0.47	0.19	0.44	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	2.54	0.69	2.29	
95th-Percentile Queue Length [ft]	8.24	63.39	17.26	57.21	
Approach Delay [s/veh]	9.21	12.92	9.74	11.74	
Approach LOS	A	B	A	B	
Intersection Delay [s/veh]	11.70				
Intersection LOS	B				

Intersection Level Of Service Report

Intersection 7: Fulton Rd/Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 30.8  
Level Of Service: C  
Volume to Capacity (v/c): 0.563

Intersection Setup

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd		
Approach	Northbound		Southbound		Eastbound		Westbound		
Lane Configuration	TIF		TIF		TIF		TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00
Speed [mph]	45.00		45.00		40.00		245.00		110.00
Grade [%]	0.00		0.00		0.00		100.00		110.00
Crosswalk	Yes		No		Yes		Yes		Yes

Volumes

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd					
Base Volume Input [veh/h]	29	611	288	144	702	35	43	82	46	238	127	185
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	0	18	9	0	0	0	0	0	0	30
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	626	288	162	711	35	43	82	46	238	127	215
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	157	72	41	178	9	11	21	12	60	32	54
Total Analysis Volume [veh/h]	29	626	288	162	711	35	43	82	46	238	127	215
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	2		0		0		0		0		3	
Bicycle Volume [bicycles/h]	2		0		0		2		2		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	27.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	15	54	0	15	55	0	14	30	0	30	46	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.90	3.90	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.90	1.90	1.90	
g, l, Effective Green Time [s]	3	71	71	14	82	82	4	12	19	27	27	27	
g / C, Green / Cycle	0.02	0.54	0.54	0.11	0.63	0.63	0.03	0.09	0.15	0.21	0.21	0.21	
(v / s), J Volume / Saturation Flow Rate	0.02	0.26	0.26	0.09	0.20	0.20	0.02	0.07	0.13	0.07	0.14	0.14	
s, saturation flow rate [veh/h]	1774	1863	1638	1774	1863	1832	1774	1735	1774	1863	1561	1561	
c, Capacity [veh/h]	37	1012	890	188	1170	1151	56	160	265	391	328	328	
d1, Uniform Delay [s]	63.38	18.32	18.43	57.20	11.26	11.26	62.53	57.87	54.36	43.56	47.07	47.07	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	12.14	1.61	1.89	4.43	0.73	0.74	7.99	3.47	4.39	0.18	0.83	0.83	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

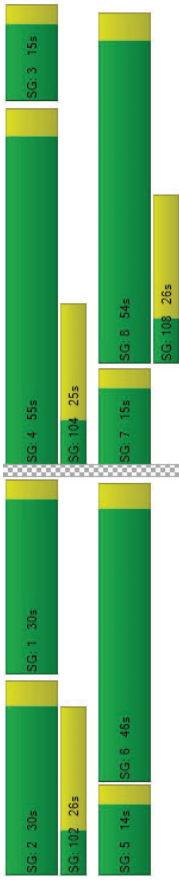
X, volume / capacity	0.78	0.48	0.49	0.86	0.32	0.32	0.77	0.80	0.90	0.32	0.66	
d, Delay for Lane Group [s/veh]	75.52	19.93	20.32	61.63	11.99	12.00	70.52	61.34	58.76	43.74	47.91	
Lane Group LOS	E	B	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/m]	1.06	8.86	8.04	5.35	4.87	4.80	1.52	4.23	7.85	3.46	6.36	
50th-Percentile Queue Length [ft/m]	26.59	221.55	200.94	133.83	121.81	119.92	37.98	105.65	196.37	86.38	159.05	
95th-Percentile Queue Length [veh/m]	1.91	13.74	12.69	9.15	8.49	8.39	2.73	7.60	12.45	6.22	10.50	
95th-Percentile Queue Length [ft/m]	47.85	343.60	317.18	228.70	212.31	209.71	68.36	189.94	311.28	155.49	262.47	

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	75.52	20.02	20.32	61.63	11.99	12.00	70.52	61.34	58.76	43.74	47.91	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d, A, Approach Delay [s/veh]	21.82				20.85			63.65		51.45		
Approach LOS	C				C			E		D		
d, I, Intersection Delay [s/veh]							30.83					
Intersection LOS							C					
Intersection V/C							0.563					

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.1  
Level Of Service: A  
Volume to Capacity (v/c): 0.347

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln				Peterson Ln				Piner Rd			
Base Volume Input [veh/h]	23	10	51	48	19	23	32	496	37	87	602	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	0	0	18	0	0	30	7
Diversified Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	10	51	52	19	23	32	514	37	87	632	77
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	13	13	5	6	8	129	9	22	158	19
Total Analysis Volume [veh/h]	23	10	51	52	19	23	32	514	37	87	632	77
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5				1				16			
Bicycle Volume [bicydes/h]	2				2				4			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	5	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	10	31	0	24	45	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearances [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C		C		L		C		R		L		C		C	
C, Cycle Length [s]		31		31		31		31		31		31		31		31	
L, Total Lost Time per Cycle [s]		3.60		4.30		4.30		4.30		4.30		4.30		4.30		4.30	
l1_p, Permitted Start-Up Lost Time [s]		2.00		2.00		0.00		0.00		2.00		0.00		0.00		0.00	
l2, Clearance Lost Time [s]		1.60		1.60		0.00		2.30		2.30		0.00		2.30		2.30	
g_l, Effective Green Time [s]		6		6		18		11		11		18		11		11	
g / C, Green / Cycle		0.19		0.19		0.56		0.34		0.34		0.56		0.37		0.37	
(v / s)_J Volume / Saturation Flow Rate		0.05		0.06		0.03		0.28		0.02		0.07		0.19		0.20	
s, saturation flow rate [veh/h]		1623		1662		1213		1863		1533		1337		1863		1782	
c, Capacity [veh/h]		447		487		642		632		520		625		686		656	
d1, Uniform Delay [s]		10.95		10.97		6.91		9.43		7.00		7.96		7.75		7.77	
k, delay calibration		0.04		0.04		0.04		0.04		0.04		0.04		0.04		0.04	
l, Upstream Filtering Factor		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
d2, Incremental Delay [s]		0.07		0.07		0.01		0.98		0.02		0.04		0.23		0.25	
d3, Initial Queue Delay [s]		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Rp, platoon ratio		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PF, progression factor		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	

Lane Group Results

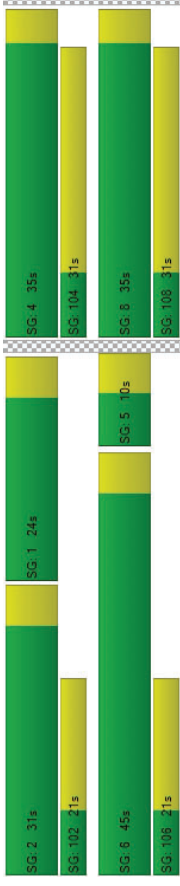
X, volume / capacity		0.19		0.19		0.05		0.81		0.07		0.14		0.53		0.53	
d, Delay for Lane Group [s/veh]		11.02		11.04		6.92		10.41		7.02		8.00		7.99		8.02	
Lane Group LOS		B		B		A		B		A		A		A		A	
Critical Lane Group		No		Yes		No		Yes		No		Yes		No		No	
50th-Percentile Queue Length [veh/in]		0.38		0.43		0.02		1.87		0.09		0.05		1.01		0.98	
50th-Percentile Queue Length [ft/in]		9.50		10.63		0.43		46.86		2.35		1.22		25.31		24.49	
95th-Percentile Queue Length [veh/in]		0.68		0.77		0.03		3.37		0.17		0.09		1.82		1.76	
95th-Percentile Queue Length [ft/in]		17.10		19.14		0.77		84.35		4.23		2.20		45.56		44.08	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		11.02		11.02		11.02		11.02		11.04		11.04		11.04		11.04		8.00		8.02	
Movement LOS		B		B		B		B		B		B		B		A		A		A	
d_A, Approach Delay [s/veh]		11.02		11.02		11.02		11.02		11.04		11.04		10.01		8.00		8.00		8.00	
Approach LOS		B		B		B		B		B		B		B		A		A		A	
d_I, Intersection Delay [s/veh]		9.10		9.10		9.10		9.10		9.10		9.10		9.10		9.10		9.10		9.10	
Intersection LOS		A		A		A		A		A		A		A		A		A		A	
Intersection V/C		0.347		0.347		0.347		0.347		0.347		0.347		0.347		0.347		0.347		0.347	

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 9: Walizer Rd/Piner Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 423.5  
Level Of Service: F  
Volume to Capacity (v/c): 1.312

Intersection Setup

Name	Walizer Rd		Walizer Rd		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ Left Thru Right		+ Left Thru Right		+ Left Thru Right		+ Left Thru Right	
Turning Movement	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	50.00	100.00	100.00	95.00	100.00
Speed [mph]	25.00		25.00		40.00		30.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		No		No	

Volumes

Name	Walizer Rd				Walizer Rd				Piner Rd			
Base Volume Input [veh/h]	4	1	3	40	2	38	25	591	6	8	783	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	22	0	0	37	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1	4	53	3	51	33	808	8	11	1078	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	13	1	13	8	202	2	3	270	15
Total Analysis Volume [veh/h]	5	1	4	53	3	51	33	808	8	11	1078	59
Pedestrian Volume [ped/h]	1				2				0			

Intersection Settings

Priority Scheme	Stop	Stop	Stop	Free	Free
Flared Lane	Yes				
Storage Area [veh]	1		0	0	0
Two-Stage Gap Acceptance	No		No		
Number of Storage Spaces in Median	0		0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.02	0.01	1.31	0.06	0.20	0.05	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	131.02	86.57	27.58	423.54	400.43	22.67	11.21	0.00	0.00	9.50	0.00	0.00
Movement LOS	F	F	D	F	F	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.58	0.58	0.58	5.62	5.62	0.73	0.17	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.56	14.56	14.56	140.45	140.45	18.29	4.26	0.00	0.00	1.03	0.00	0.00
d_A, Approach Delay [s/veh]	85.20				231.82				0.44			
Approach LOS	F				F				A			
d_I, Intersection Delay [s/veh]	12.36											
Intersection LOS	F											

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**

**Intersection 1: Fulton Rd/Tedeschi Dr**

Delay (sec / veh): 140.4  
Level Of Service: F  
Volume to Capacity (v/c): 0.837

**Intersection Setup**

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	881	23	0	8	600	54	14		
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	2.00	2.00	2.00	0.00		
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300		
In-Process Volume [veh/h]	0	0	0	0	0	0	0		
Site-Generated Trips [veh/h]	27	0	0	0	57	0	1		
Diverted Trips [veh/h]	0	0	0	0	0	0	0		
Pass-by Trips [veh/h]	0	0	0	0	0	0	0		
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0		
Other Volume [veh/h]	0	0	0	0	0	0	0		
Total Hourly Volume [veh/h]	1199	31	11	855	72	20			
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000		
Total 15-Minute Volume [veh/h]	300	8	3	214	18	5			
Total Analysis Volume [veh/h]	1199	31	11	855	72	20			
Pedestrian Volume [ped/h]	0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.01	0.84	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	11.40	0.00	140.43	106.79
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.00	5.16	5.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.47	0.00	128.93	128.93
d_A, Approach Delay [s/veh]	0.00	0.00	0.14	0.00	133.12	
Approach LOS	A	A	A	A	F	
d_I, Intersection Delay [s/veh]	5.65			F		
Intersection LOS						

Intersection Level Of Service Report

Intersection 2: Fulton Rd/New Project Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 95.2  
Level Of Service: F  
Volume to Capacity (v/c): 0.519

Intersection Setup

Name	Fulton Rd		Fulton Rd		New Project Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	1H		1H		1T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			New Project Rd		
Base Volume Input [veh/h]	943	0	0	0	672	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	25	14	1	56	39	39	2	2	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1279	14	1	950	39	39	2	2	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	320	4	0	238	10	10	1	1	1
Total Analysis Volume [veh/h]	1279	14	1	950	39	39	2	2	2
Pedestrian Volume [ped/h]	0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio				0.01				0.00				0.52				0.00			
d_M, Delay for Movement [s/veh]				0.00				0.00				11.78				95.23			
Movement LOS				A				A				B				F			
95th-Percentile Queue Length [veh/ln]				0.00				0.00				0.01				2.23			
95th-Percentile Queue Length [ft/ln]				0.00				0.00				0.14				55.81			
d_A, Approach Delay [s/veh]				0.00				0.00				0.01				95.32			
Approach LOS				A				A				A				F			
d_I, Intersection Delay [s/veh]												1.68							
Intersection LOS												F							

Control Type :  
Analysis Method :  
Analysis Period :

Intersection Level Of Service Report  
Intersection 3: Fulton Rd/San Miguel Ave

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

14.1  
B  
0.523

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	TTL		TTL		TTL	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	814	93	73	589	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	24	9	5	90	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1107	133	102	873	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	277	33	26	218	0
Total Analysis Volume [veh/h]	0	1107	133	102	873	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicyclesh]	9	0	0	13	8	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	0.0	3.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	61	120	0	25	84	0	0	45
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	0.0	2.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	0.0
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	49	49	49	49	49	49	49	49
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, l, Effective Green Time [s]	0	20	20	4	24	0	9	9
g / C, Green / Cycle	0.00	0.41	0.41	0.08	0.49	0.00	0.18	0.18
(v / s), J Volume / Saturation Flow Rate	0.00	0.34	0.34	0.06	0.25	0.00	0.09	0.12
s, saturation flow rate [veh/h]	1774	1863	1781	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	770	736	136	1736	0	325	290
d1, Uniform Delay [s]	0.00	12.72	12.79	22.12	8.44	0.00	18.02	18.60
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.23	2.46	8.14	0.23	0.00	0.48	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

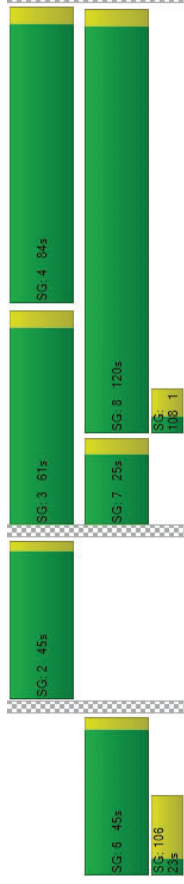
X, volume / capacity	0.00	0.82	0.83	0.75	0.50	0.00	0.52	0.67
d, Delay for Lane Group [s/veh]	0.00	14.96	15.25	30.26	8.67	0.00	18.49	19.62
Lane Group LOS	A	B	B	C	A	A	B	B
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	4.67	4.57	1.28	2.00	0.00	1.60	1.95
50th-Percentile Queue Length [ft/in]	0.00	116.73	114.28	31.69	50.04	0.00	40.10	48.82
95th-Percentile Queue Length [veh/in]	0.00	8.21	8.08	2.30	3.60	0.00	2.89	3.52
95th-Percentile Queue Length [ft/in]	0.00	205.32	201.94	57.41	90.07	0.00	72.19	87.88

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	0.00	15.08	15.25	30.26	8.67	0.00	0.00	0.00	0.00	18.49	0.00	19.62
Movement LOS	A	B	B	C	A			A	A	B		B
d, A, Approach Delay [s/veh]		15.10			10.93			0.00			19.10	
Approach LOS		B			B			A			B	
d, I, Intersection Delay [s/veh]					14.09							
Intersection LOS					B							
Intersection V/C					0.523							

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**  
**Intersection 4: Peterson Ln/San Miguel Ave**

Delay (sec / veh): 9.6  
Level Of Service: A  
Volume to Capacity (v/c): 0.364

**Intersection Setup**

Name	Peterson Ln				San Miguel Ave			
Approach	Northbound				Eastbound			
Lane Configuration	+ +				+ +			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

**Volumes**

Name	Peterson Ln				San Miguel Ave			
Base Volume Input [veh/h]	42	2	12	8	4	1	135	28
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	2	0	0	0	24	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	3	18	11	5	5	1	204
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	1	5	3	1	1	0	51
Total Analysis Volume [veh/h]	60	3	18	11	5	5	1	204
Pedestrian Volume [ped/h]	0				0			

**Intersection Settings**

Lanes					
Capacity per Entry Lane [veh/h]		650	683	814	800
Degree of Utilization, x		0.12	0.03	0.31	0.36
Movement, Approach, & Intersection Results					
95th-Percentile Queue Length [veh]		0.40	0.10	1.35	1.67
95th-Percentile Queue Length [ft]		9.92	2.38	33.73	41.82
Approach Delay [s/veh]		8.91	8.44	9.43	10.06
Approach LOS		A	A	A	B
Intersection Delay [s/veh]		9.62			
Intersection LOS		A			

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**  
**Intersection 5: Peterson Ln/Pinecrest Dr**

Delay (sec / veh): 7.8  
Level Of Service: A  
Volume to Capacity (v/c): 0.135

**Intersection Setup**

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

**Volumes**

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	2	26	60	8	47	3	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	7	14	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	39	80	18	77	4	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	20	5	19	1	2	5
Total Analysis Volume [veh/h]	3	39	80	18	77	4	7	20
Pedestrian Volume [ped/h]	2		4		0		3	

**Intersection Settings**

Lanes				
Capacity per Entry Lane [veh/h]	907	821	839	810
Degree of Utilization, x	0.13	0.12	0.06	0.11
Movement, Approach, & Intersection Results				
95th-Percentile Queue Length [veh]	0.46	0.41	0.18	0.37
95th-Percentile Queue Length [ft]	11.60	10.24	4.45	9.22
Approach Delay [s/veh]	7.59	7.98	7.55	7.99
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.70			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinecrest Dr

Control Type:  
Analysis Method:  
Analysis Period:

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

12.4  
B  
0.450

Intersection Setup

Name	Waltzer Rd				Waltzer Rd				Pinecrest Dr			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration	+ +				+ +				+ +			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				No				Yes			

Volumes

Name	Waltzer Rd				Waltzer Rd				Pinecrest Dr			
Base Volume Input [veh/h]	8	69	17	147	57	5	11	174	12	1	96	108
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	7	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	92	23	196	76	7	15	238	16	1	130	144
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	6	49	19	2	4	60	4	0	33	36
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	238	16	1	130	144
Pedestrian Volume [ped/h]	4				0				5			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	609	620	644	678
Degree of Utilization, x	0.21	0.45	0.42	0.41

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	2.33	2.06	1.97
95th-Percentile Queue Length [ft]	19.34	59.24	51.61	49.35
Approach Delay [s/veh]	10.45	13.48	12.56	11.90
Approach LOS	B	B	B	B
Intersection Delay [s/veh]	12.36			
Intersection LOS	B			



Control Type :  
Analysis Method :  
Analysis Period :

Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

34.8  
C  
0.633

Intersection Setup

Name	Fulton Rd			Fulton Rd			Piner Rd			Piner Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	TIF			TIF			TIF			TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00			45.00			40.00			40.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	Fulton Rd			Fulton Rd			Piner Rd			Piner Rd		
Base Volume Input (veh/h)	52	601	360	132	563	89	46	132	54	247	145	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	56	60	2	0	0	0	0	0	16
Diverfed Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	618	360	188	623	91	46	132	54	247	145	248
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	155	90	47	156	23	12	33	14	62	36	62
Total Analysis Volume [veh/h]	52	618	360	188	623	91	46	132	54	247	145	248
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	6			0			0			10		
Bicycle Volume [bicycles/h]	0			0			1			0		



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	Lead	-	Lead	-	Lead	-	Lead	-	Lag	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.00	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.90	1.90	
g, l, Effective Green Time [s]	5	63	63	16	74	74	4	17	20	32	32	
g / C, Green / Cycle	0.04	0.49	0.49	0.12	0.57	0.57	0.03	0.13	0.15	0.25	0.25	
(v / s), J Volume / Saturation Flow Rate	0.03	0.28	0.28	0.11	0.20	0.20	0.03	0.11	0.14	0.08	0.16	
s, saturation flow rate [veh/h]	1774	1863	1622	1774	1863	1781	1774	1756	1774	1863	1583	
c, Capacity [veh/h]	68	908	791	214	1062	1015	60	226	274	464	394	
d1, Uniform Delay [s]	62.00	23.70	23.78	56.30	14.97	14.97	62.35	55.25	54.05	39.77	43.49	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	6.66	2.63	3.07	4.59	0.89	0.93	7.49	2.89	4.42	0.14	0.62	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

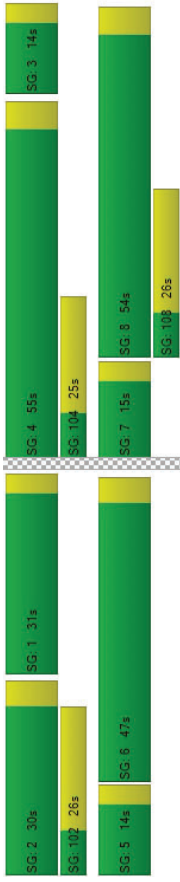
X, volume / capacity	0.77	0.57	0.58	0.88	0.34	0.34	0.77	0.82	0.90	0.31	0.63	
d, Delay for Lane Group [s/veh]	68.66	26.33	26.85	60.89	15.85	15.90	69.84	58.15	58.47	39.81	44.10	
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	1.80	11.45	10.19	6.20	5.69	5.45	1.62	6.04	8.15	3.76	7.07	
50th-Percentile Queue Length [ft/ln]	44.90	286.34	254.66	155.09	142.14	136.22	40.39	150.96	203.68	94.01	176.65	
95th-Percentile Queue Length [veh/ln]	3.23	17.00	15.42	10.29	9.60	9.28	2.91	10.07	12.83	6.77	11.43	
95th-Percentile Queue Length [ft/ln]	80.82	425.10	385.51	257.21	239.91	231.92	72.70	251.71	320.71	169.21	285.63	

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	68.66	26.41	26.85	60.89	15.87	15.90	69.84	58.15	58.47	39.81	44.10	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d, A, Approach Delay [s/veh]	28.70				25.26			60.47		48.70		
Approach LOS	C				C			E		D		
d, I, Intersection Delay [s/veh]						34.78						
Intersection LOS						C						
Intersection V/C						0.633						

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 11.0  
Level Of Service: B  
Volume to Capacity (v/c): 0.474

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Base Volume Input [veh/h]	62	54	107	79	34	45	22	564
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	13	1	0	0	56
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	54	107	92	35	45	22	620
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	27	23	9	11	6	155
Total Analysis Volume [veh/h]	62	54	107	92	35	45	22	620
Presence of On-Street Parking	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		3		5	
Bicycle Volume [bicycles/h]	0		2		1		1	



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	0	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearances [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



### Lane Group Calculations

[illegible]

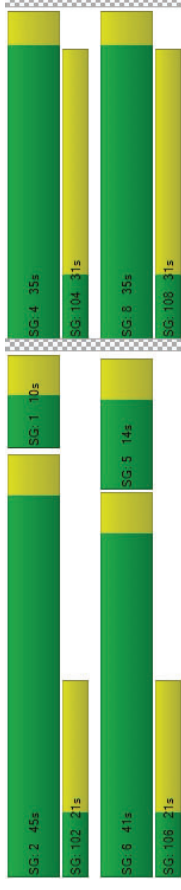
## Lane Group Results

X, volume / capacity	d, Delay for Lane Group [s/veh]											
	B				B				A			
Lane Group LOS	Critical Lane Group											
	Yes				No				Yes			
50th-Percentile Queue Length [vehlin]	1.21				0.91				0.02			
50th-Percentile Queue Length [ftlin]	30.16				22.80				0.44			
95th-Percentile Queue Length [vehlin]	2.17				1.64				0.03			
95th-Percentile Queue Length [ftlin]	54.29				41.04				0.79			
	0.48				0.40				0.03			
	12.66				12.37				6.05			
	B				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
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	12.37				12.37				6.05			
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	0.36				0.40				0.03			
	12.37				12.37				6.05			
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	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
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	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40				0.03			
	12.37				12.37				6.05			
	A				B				A			
	0.36				0.40</							

## Movement, Approach, & Intersection Results

[illegible]

## Sequence

[illegible]



Intersection Level Of Service Report

Intersection 1: Fulton Rd/Tedeschi Dr

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 228.2  
Level Of Service: F  
Volume to Capacity (v/c): 0.972

Intersection Setup

Name	Fulton Rd		Fulton Rd		Tedeschi Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	IF		TII		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			Tedeschi Dr		
Base Volume Input [veh/h]	783	60	10	1138	40	9			
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Heavy Vehicles Percentage [%]	2.00	2.00	0.00	2.00	2.00	0.00			
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300			
In-Process Volume [veh/h]	0	0	0	0	0	0			
Site-Generated Trips [veh/h]	64	0	1	47	0	0			
Diverted Trips [veh/h]	0	0	0	0	0	0			
Pass-by Trips [veh/h]	0	0	0	0	0	0			
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0			
Other Volume [veh/h]	0	0	0	0	0	0			
Total Hourly Volume [veh/h]	1105	80	14	1561	53	12			
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			
Total 15-Minute Volume [veh/h]	276	20	4	390	13	3			
Total Analysis Volume [veh/h]	1105	80	14	1561	53	12			
Pedestrian Volume [ped/h]	0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.02	0.97	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	11.19	0.00	228.15	170.10
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	0.00	4.93	4.93
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.80	0.00	123.24	123.24
d_A, Approach Delay [s/veh]	0.00		0.10		217.43	
Approach LOS	A				F	
d_I, Intersection Delay [s/veh]			5.06			
Intersection LOS			F			

Intersection Level Of Service Report

Intersection 2: Fulton Rd/New Project Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes  
Delay (sec / veh): 150.8  
Level Of Service: F  
Volume to Capacity (v/c): 0.568

Intersection Setup

Name	Fulton Rd		Fulton Rd		New Project Rd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration	II		II		T	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Fulton Rd			Fulton Rd			New Project Rd		
Base Volume Input [veh/h]	860	0	0	0	1198	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	45	3	44	27	27	2	2	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1206	45	3	1637	27	27	2	2	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	302	11	1	409	7	7	1	1	1
Total Analysis Volume [veh/h]	1206	45	3	1637	27	27	2	2	2
Pedestrian Volume [ped/h]	0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.02	0.57	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	11.56	0.00	150.82	83.45
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.02	0.01	2.21	2.21
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.41	0.20	55.34	55.34
d_A, Approach Delay [s/veh]	0.00	0.00	0.02	0.02	146.17	
Approach LOS	A	A	A	A	F	
d_I, Intersection Delay [s/veh]			1.46			
Intersection LOS			F			

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Intersection Level Of Service Report  
Intersection 3: Fulton Rd/San Miguel Ave

Delay (sec / veh): 14.6  
Level Of Service: B  
Volume to Capacity (v/c): 0.521

Intersection Setup

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	TTL		TTL		+	
Turning Movement	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	11.00
No. of Lanes in Pocket	1	0	1	0	0	1
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	Fulton Rd		Fulton Rd		San Miguel Ave	
Base Volume Input [veh/h]	0	776	96	121	1070	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	96	27	19	52	0
Diverter Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1128	155	180	1475	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	282	39	45	369	0
Total Analysis Volume [veh/h]	0	1128	155	180	1475	0
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicyde/h]	15	0	0	12	3	0

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Split	Split	Split	Split
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups	Lead	-	Lead	-	-	-	-	Lead
Minimum Green [s]	5	7	0	4	7	0	0	7
Maximum Green [s]	7	35	0	25	35	0	7	30
Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	3.0	3.6
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	43	28	0	35	20	0	0	27
Vehicle Extension [s]	1.0	3.0	0.0	3.0	3.0	0.0	1.0	0.0
Walk [s]	0	5	0	0	0	0	0	5
Pedestrian Clearances [s]	0	8	0	0	0	0	0	18
Rest In Walk	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.7	2.7	0.0	2.7	2.7	0.0	1.0	0.0
Minimum Recall	No	Yes	No	Yes	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	R
C, Cycle Length [s]	54	54	54	54	54	54	54	54
L, Total Lost Time per Cycle [s]	4.70	4.70	4.70	4.70	4.70	3.00	3.60	3.60
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60	1.60
g, l, Effective Green Time [s]	0	23	23	7	30	0	8	8
g / C, Green / Cycle	0.00	0.42	0.42	0.13	0.55	0.00	0.15	0.15
(v / s), J Volume / Saturation Flow Rate	0.00	0.35	0.36	0.10	0.42	0.00	0.04	0.06
s, saturation flow rate [veh/h]	1774	1863	1768	1774	3547	1863	1774	1583
c, Capacity [veh/h]	0	761	741	235	1958	0	274	244
d1, Uniform Delay [s]	0.00	14.16	14.28	22.81	9.38	0.00	20.37	20.81
k, delay calibration	0.04	0.11	0.12	0.11	0.11	0.04	0.04	0.04
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	2.60	3.11	5.12	0.60	0.00	0.21	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

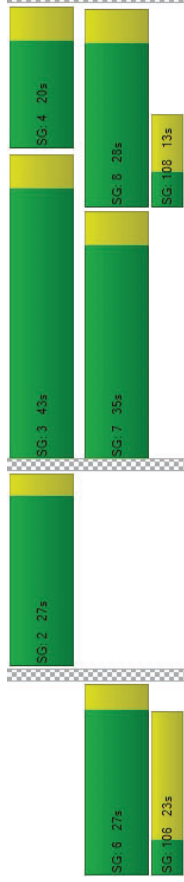
X, volume / capacity	0.00	0.84	0.85	0.76	0.75	0.00	0.28	0.41
d, Delay for Lane Group [s/veh]	0.00	16.76	17.37	27.92	9.97	0.00	20.58	21.23
Lane Group LOS	A	B	B	C	A	A	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/in]	0.00	5.82	5.73	2.25	4.22	0.00	0.83	1.12
50th-Percentile Queue Length [ft/in]	0.00	145.41	143.31	56.15	105.53	0.00	20.75	27.99
95th-Percentile Queue Length [veh/in]	0.00	9.77	9.66	4.04	7.59	0.00	1.49	2.02
95th-Percentile Queue Length [ft/in]	0.00	244.28	241.47	101.08	188.77	0.00	37.35	50.38

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	0.00	17.02	17.37	27.92	9.97	0.00	0.00	20.58	0.00	21.23
Movement LOS	A	B	B	C	A	A	A	C	C	C
d, A, Approach Delay [s/veh]	17.06				11.92	0.00	0.00	20.95		
Approach LOS	B				B	A	A	C		
d, I, Intersection Delay [s/veh]					14.55					
Intersection LOS					B					
Intersection V/C					0.521					

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-
Ring 2	6	-	7	8	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**Intersection 4: Peterson Ln/San Miguel Ave**

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.343

**Intersection Setup**

Name	Peterson Ln				San Miguel Ave			
Approach	Northbound				Eastbound			
Lane Configuration	+ + + +				+ + + +			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

**Volumes**

Name	Peterson Ln				San Miguel Ave			
Base Volume Input [veh/h]	37	7	10	3	7	2	8	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	0	10	0	0	0	53	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	9	23	4	9	3	11	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	2	6	1	2	1	3	50
Total Analysis Volume [veh/h]	63	9	23	4	9	3	11	198
Pedestrian Volume [ped/h]	3				4			



**Intersection Settings**

Lanes					
Capacity per Entry Lane [veh/h]	709	697	832	790	
Degree of Utilization, x	0.13	0.02	0.34	0.28	
Movement, Approach, & Intersection Results					
95th-Percentile Queue Length [veh]	0.46	0.07	1.53	1.14	
95th-Percentile Queue Length [ft]	11.55	1.76	38.25	28.50	
Approach Delay [s/veh]	8.87	8.29	9.57	9.31	
Approach LOS	A	A	A	A	
Intersection Delay [s/veh]	9.33				
Intersection LOS	A				



Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

**Intersection Level Of Service Report**  
**Intersection 5: Peterson Ln/Pinecrest Dr**

Delay (sec / veh): 7.9  
Level Of Service: A  
Volume to Capacity (v/c): 0.147

**Intersection Setup**

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		25.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

**Volumes**

Name	Peterson Ln		Peterson Ln		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	0	4	10	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	91	21	29	80	13	7	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	23	5	7	20	3	2	5
Total Analysis Volume [veh/h]	13	91	21	29	80	13	7	20
Pedestrian Volume [ped/h]	1		4		1		3	

**Intersection Settings**

Lanes				
Capacity per Entry Lane [veh/h]	850	837	815	819
Degree of Utilization, x	0.15	0.15	0.05	0.08

**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.51	0.51	0.15	0.28
95th-Percentile Queue Length [ft]	12.86	12.72	3.76	6.88
Approach Delay [s/veh]	7.96	8.03	7.64	7.80
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.92			
Intersection LOS	A			

Intersection Level Of Service Report

Intersection 6: Waltzer Rd/Pinecrest Dr

Control Type: All-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 11.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.472

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+ +		+ +		+ +		+ +	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		30.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		No		Yes		No	

Volumes

Name	Waltzer Rd		Waltzer Rd		Pinecrest Dr		Pinecrest Dr	
Base Volume Input [veh/h]	2	40	6	144	79	18	6	78
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	53	8	192	105	24	8	108
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	13	2	48	26	6	2	27
Total Analysis Volume [veh/h]	3	53	8	192	105	24	8	108
Pedestrian Volume [ped/h]	5		0		0		5	

Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	644	681	658	735
Degree of Utilization, x	0.10	0.47	0.19	0.44

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	2.54	0.69	2.29
95th-Percentile Queue Length [ft]	8.24	63.39	17.26	57.21
Approach Delay [s/veh]	9.21	12.92	9.74	11.74
Approach LOS	A	B	A	B
Intersection Delay [s/veh]	11.70			
Intersection LOS	B			

Control Type :  
Analysis Method :  
Analysis Period :

Intersection Level Of Service Report  
Intersection 7: Fulton Rd/Piner Rd

Delay (sec / veh):  
Level Of Service:  
Volume to Capacity (v/c):

31.4  
C  
0.583

Intersection Setup

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd		
Approach	Northbound		Southbound		Eastbound		Westbound		
Lane Configuration	TIF		TIF		TIF		TIF		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	110.00	100.00	100.00	90.00	100.00	100.00	245.00	100.00	110.00
Speed [mph]	45.00		45.00		40.00		40.00		
Grade [%]	0.00		0.00		0.00		0.00		
Crosswalk	Yes		No		Yes		Yes		

Volumes

Name	Fulton Rd		Fulton Rd		Piner Rd		Piner Rd					
Base Volume Input (veh/h)	29	611	288	144	702	35	43	82	46	238	127	185
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips (veh/h)	0	61	0	32	34	2	2	0	0	0	0	60
Diverfed Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	29	672	288	176	736	37	45	82	46	238	127	245
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	7	168	72	44	184	9	11	21	12	60	32	61
Total Analysis Volume (veh/h)	29	672	288	176	736	37	45	82	46	238	127	245
Presence of On-Street Parking	No	No	No	No	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate (/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume (ped/h)	2	2	0	0	0	0	0	0	0	0	0	3
Bicycle Volume (bicycles/h)	2	2	0	0	0	0	0	0	0	0	0	2



Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis	Protect	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lag	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	8	0
Maximum Green [s]	20	50	0	25	50	0	20	50	0	35	70	0
Amber [s]	3.0	4.3	0.0	3.0	4.3	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	14	54	0	15	55	0	14	30	0	31	47	0
Vehicle Extension [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	19	0	0	18	0	0	19	0	0	0	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	2.3	0.0	1.0	2.3	0.0	1.0	1.9	0.0	1.0	1.9	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0



Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C	L	C	R
C, Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	3.00	4.30	4.30	3.00	4.30	4.30	3.00	3.90	3.00	3.00	3.90	3.90	
l1, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	1.00	2.30	2.30	1.00	2.30	2.30	1.00	1.90	1.00	1.90	1.90	1.90	
g, l, Effective Green Time [s]	3	70	70	15	82	82	4	12	19	27	27	27	
g / C, Green / Cycle	0.02	0.54	0.54	0.11	0.63	0.63	0.03	0.09	0.15	0.21	0.21	0.21	
(v / s), j Volume / Saturation Flow Rate	0.02	0.27	0.28	0.10	0.21	0.21	0.03	0.07	0.13	0.07	0.16	0.16	
s, saturation flow rate [veh/h]	1774	1863	1648	1774	1863	1832	1774	1735	1774	1863	1561	1561	
c, Capacity [veh/h]	37	997	882	202	1170	1151	59	160	265	389	326	326	
d1, Uniform Delay [s]	63.38	19.27	19.39	56.70	11.37	11.37	62.41	57.87	54.36	43.72	48.32	48.32	
k, delay calibration	0.04	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04	
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	12.15	1.84	2.15	4.47	0.77	0.78	7.65	3.47	4.39	0.18	1.33	1.33	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

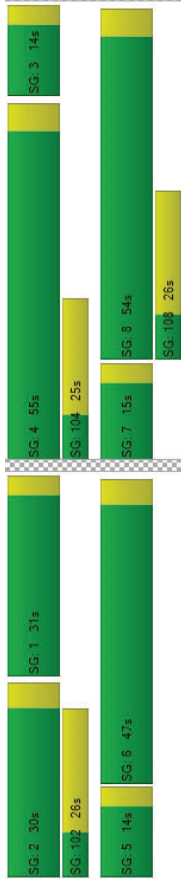
X, volume / capacity	0.78	0.51	0.52	0.87	0.33	0.33	0.77	0.80	0.90	0.33	0.75	
d, Delay for Lane Group [s/veh]	75.53	21.11	21.54	61.17	12.13	12.15	70.05	61.34	58.75	43.90	49.66	
Lane Group LOS	E	C	C	E	B	B	E	E	E	D	D	
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	1.06	9.67	8.82	5.81	5.10	5.02	1.58	4.23	7.85	3.46	7.46	
50th-Percentile Queue Length [ft/ln]	26.59	241.70	220.38	145.21	127.47	125.44	39.58	105.65	196.36	86.57	186.56	
95th-Percentile Queue Length [veh/ln]	1.91	14.77	13.68	9.76	8.80	8.69	2.85	7.60	12.45	6.23	11.94	
95th-Percentile Queue Length [ft/ln]	47.86	369.18	342.11	244.03	220.05	217.28	71.25	189.94	311.27	155.82	298.56	

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	75.53	21.22	21.54	61.17	12.14	12.15	70.05	61.34	58.75	43.90	49.66	
Movement LOS	E	C	C	E	B	B	E	E	E	D	D	
d, A, Approach Delay [s/veh]	22.91			21.23			63.61			52.01		
Approach LOS	C			C			E			D		
d, I, Intersection Delay [s/veh]				31.43								
Intersection LOS				C								
Intersection V/C				0.583								

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 8: Peterson Ln|Piner Rd

Control Type: Signalized  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 9.4  
Level Of Service: A  
Volume to Capacity (v/c): 0.358

Intersection Setup

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Approach	Northbound		Southbound		Eastbound		Westbound	
Lane Configuration	+		+		T		T	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	80.00	100.00	180.00	100.00
Speed [mph]	30.00		30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes		Yes	

Volumes

Name	Peterson Ln		Peterson Ln		Piner Rd		Piner Rd	
Base Volume Input [veh/h]	23	10	51	48	19	23	32	496
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	9	1	0	0	32
Diversified Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	11	51	57	20	23	32	528
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	13	14	5	6	8	132
Total Analysis Volume [veh/h]	23	11	51	57	20	23	32	528
Presence of On-Street Parking	No	No	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	5		1		16		6	
Bicycle Volume [bicyclesh]	2		2		4		3	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	5	5	0	5	0	0
Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Vehicle Extension [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearances [s]	0	24	0	0	24	0	0	14	0	0	14	0
Rest In Walk	No	No	No	No	No	No	No	No	No	No	No	No
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	1.6	0.0	0.0	1.6	0.0	2.3	2.3	0.0	2.3	2.3	0.0
Minimum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Maximum Recall	No	No	No	No	No	No	No	No	No	No	No	No
Pedestrian Recall	No	No	No	No	No	No	No	No	No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group		C	C	L	C	R	L	C	L	C	C
C, Cycle Length [s]		32	32	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]		3.60	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
l1_p, Permitted Start-Up Lost Time [s]		2.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30	2.30	2.30
g_l, Effective Green Time [s]		6	6	18	11	11	18	12	12	12	12
g / C, Green / Cycle		0.19	0.19	0.56	0.35	0.35	0.56	0.37	0.37	0.37	0.37
(v / s)_J Volume / Saturation Flow Rate		0.05	0.06	0.03	0.28	0.02	0.07	0.20	0.21		
s, saturation flow rate [veh/h]		1622	1656	1185	1863	1534	1321	1863	1777		
c, Capacity [veh/h]		449	489	627	644	530	613	699	667		
d1, Uniform Delay [s]		11.11	11.17	7.19	9.57	7.03	8.27	7.86	7.87		
k, delay calibration		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
d2, Incremental Delay [s]		0.08	0.08	0.01	1.58	0.02	0.04	0.25	0.26		
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		

Lane Group Results

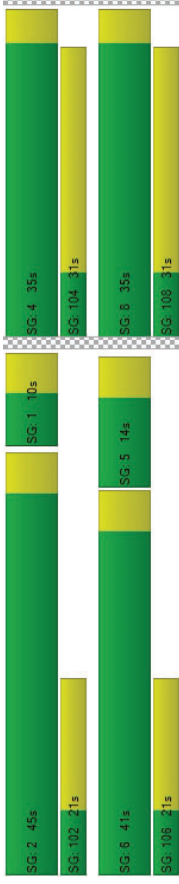
X, volume / capacity		0.19		0.20	0.05	0.82	0.07	0.14	0.55	0.55	
d, Delay for Lane Group [s/veh]		11.19		11.25	7.20	11.15	7.05	8.31	8.11	8.14	
Lane Group LOS		B		B	A	B	A	A	A	A	
Critical Lane Group		No		Yes	No	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/in]		0.40		0.47	0.02	2.11	0.10	0.06	1.12	1.08	
50th-Percentile Queue Length [ft/in]		9.92		11.71	0.49	52.68	2.42	1.38	27.88	26.90	
95th-Percentile Queue Length [veh/in]		0.71		0.84	0.04	3.79	0.17	0.10	2.01	1.94	
95th-Percentile Queue Length [ft/in]		17.85		21.07	0.88	94.83	4.36	2.49	50.18	48.43	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.19	11.19	11.19	11.19	11.25	11.25	11.25	7.20	11.15	7.05	8.31	8.12	8.14
Movement LOS	B	B	B	B	B	B	B	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	11.19				11.25			10.69				8.14	
Approach LOS	B				B			B				A	
d_I, Intersection Delay [s/veh]								9.43					
Intersection LOS								A					
Intersection V/C								0.358					

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-





Intersection Level Of Service Report

Intersection 9: Waltzer Rd/Piner Rd

Control Type: Two-way stop  
Analysis Method: HCM 2010  
Analysis Period: 15 minutes

Delay (sec / veh): 498.5  
Level Of Service: F  
Volume to Capacity (v/c): 1.448

Intersection Setup

Name	Waltzer Rd		Waltzer Rd		Piner Rd		Piner Rd		
Approach	Northbound		Southbound		Eastbound		Westbound		
Lane Configuration									
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	1	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	50.00	100.00	100.00	95.00	100.00
Speed [mph]	25.00		25.00		40.00		30.00		
Grade [%]	0.00		0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		No		

Volumes

Name	Waltzer Rd				Waltzer Rd				Piner Rd			
Base Volume Input [veh/h]	4	1	3	40	2	38	25	591	6	8	783	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300	1.3300
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	41	0	0	76	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1	4	53	3	51	33	827	8	11	1117	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	13	1	13	8	207	2	3	279	15
Total Analysis Volume [veh/h]	5	1	4	53	3	51	33	827	8	11	1117	59
Pedestrian Volume [ped/h]	1				2				0			

Intersection Settings

Priority Scheme	Stop	Stop	Stop	Free	Free
Flared Lane	Yes				
Storage Area [veh]	1	0	0	0	0
Two-Stage Gap Acceptance	No	No	No		
Number of Storage Spaces in Median	0	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.02	0.01	1.45	0.06	0.21	0.06	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	148.24	96.27	31.34	498.53	472.15	23.87	11.44	0.00	0.00	9.58	0.00	0.00
Movement LOS	F	F	D	F	F	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.65	0.65	0.65	5.91	5.91	0.78	0.18	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.28	16.28	16.28	147.78	147.78	19.46	4.42	0.00	0.00	1.05	0.00	0.00
d_A, Approach Delay [s/veh]	96.28				271.55		0.44					0.09
Approach LOS	F	F	F	F	F		A			A		A
d_I, Intersection Delay [s/veh]	14.04											
Intersection LOS	F											

# Appendix C

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## Signal Warrant Spreadsheets



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## Warrant 3: Peak-Hour Volumes and Delay

Fulton Road & New Project Street  
Santa Rosa

**Project Name:** 2220 Fulton Road Project TIS

**Intersection:** 2

	Major Street	Minor Street
<b>Street Name</b>	Fulton Road	New Project Street
<b>Direction</b>	N-S	E-W
<b>Number of Lanes</b>	2	1
<b>Approach Speed</b>	45	25

**Population less than 10,000?** No  
**Date of Count:** Tuesday, June 19, 2018  
**Scenario:** AM Existing plus Project

### Warrant 3 Met?: Met when either Condition A or B is met

Condition A: Met when conditions A1, A2, and A3 are met

#### Condition A1

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.93 vehicle-hours

#### Condition A2

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 41 vph

#### Condition A3

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches

Total Entering Volume: 2204 vph

#### Condition B

The plotted point falls above the curve

**No**

Not Met

Not Met

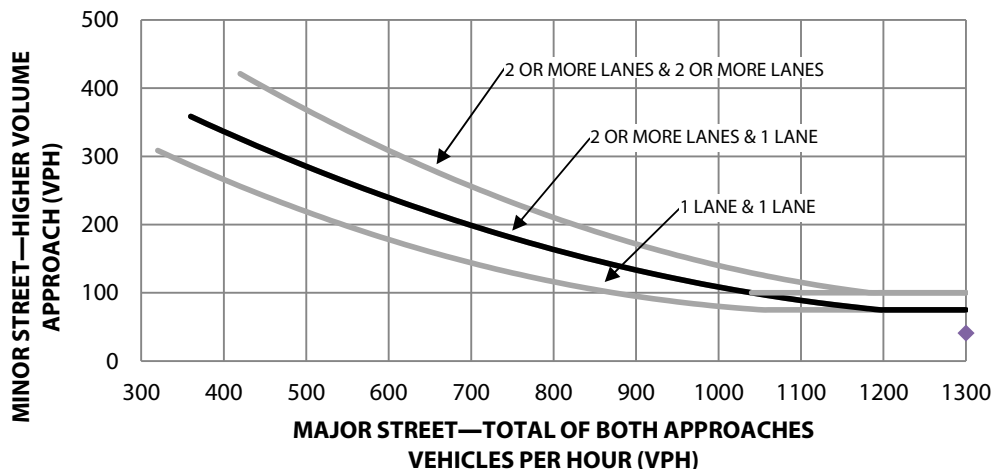
Not Met

Met

Not Met

### Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION, OR ABOVE 40 MPH ON MAJOR STREET)



## Warrant 3: Peak-Hour Volumes and Delay

Fulton Road & New Project Street  
Santa Rosa

**Project Name:** 2220 Fulton Road Project TIS

**Intersection:** 2

	<b>Major Street</b>	<b>Minor Street</b>
<b>Street Name</b>	Fulton Road	New Project Street
<b>Direction</b>	N-S	E-W
<b>Number of Lanes</b>	2	1
<b>Approach Speed</b>	45	25

**Population less than 10,000?** No  
**Date of Count:** Tuesday, June 19, 2018  
**Scenario:** PM Existing plus Project

### Warrant 3 Met?: Met when either Condition A or B is met

Condition A: Met when conditions A1, A2, and A3 are met

#### Condition A1

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.96 vehicle-hours

#### Condition A2

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 29 vph

#### Condition A3

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches

Total Entering Volume: 2814 vph

#### Condition B

The plotted point falls above the curve

**No**

Not Met

Not Met

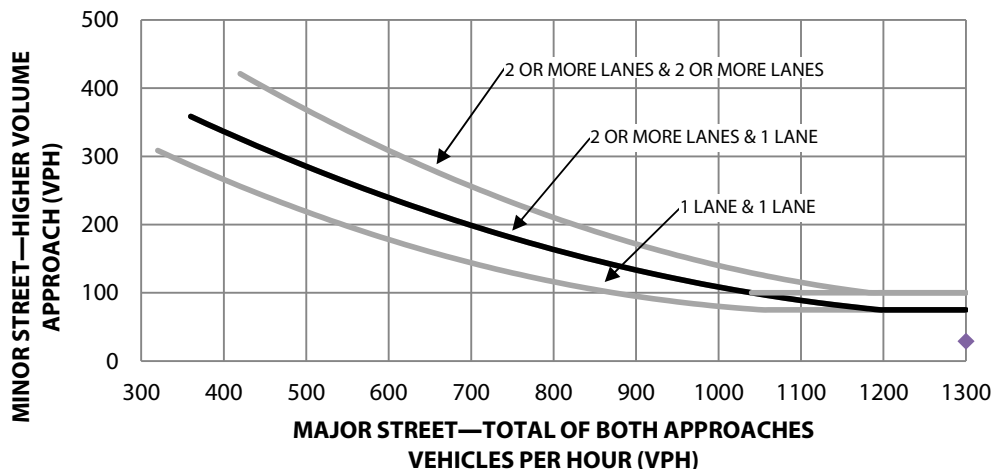
Not Met

Met

Not Met

### Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION, OR ABOVE 40 MPH ON MAJOR STREET)



## Warrant 3: Peak-Hour Volumes and Delay

Fulton Road & New Project Street  
Santa Rosa

**Project Name:** 2220 Fulton Road Project TIS

**Intersection:** 2

	Major Street	Minor Street
<b>Street Name</b>	Fulton Road	New Project Street
<b>Direction</b>	N-S	E-W
<b>Number of Lanes</b>	2	1
<b>Approach Speed</b>	45	25

**Population less than 10,000?** No  
**Date of Count:** Tuesday, June 19, 2018  
**Scenario:** AM Baseline plus Project

### Warrant 3 Met?: Met when either Condition A or B is met

Condition A: Met when conditions A1, A2, and A3 are met

#### Condition A1

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.06 vehicle-hours

#### Condition A2

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 41 vph

#### Condition A3

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches

Total Entering Volume: 2285 vph

#### Condition B

The plotted point falls above the curve

**No**

Not Met

Not Met

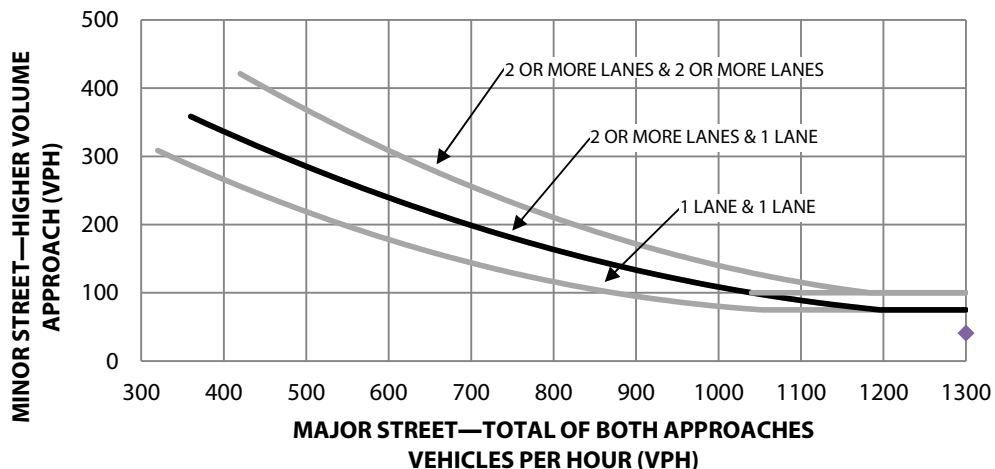
Not Met

Met

Not Met

### Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION, OR ABOVE 40 MPH ON MAJOR STREET)



## Warrant 3: Peak-Hour Volumes and Delay

Fulton Road & New Project Street  
Santa Rosa

**Project Name:** 2220 Fulton Road Project TIS

**Intersection:** 2

	Major Street	Minor Street
<b>Street Name</b>	Fulton Road	New Project Street
<b>Direction</b>	N-S	E-W
<b>Number of Lanes</b>	2	1
<b>Approach Speed</b>	45	25

**Population less than 10,000?** No  
**Date of Count:** Tuesday, June 19, 2018  
**Scenario:** PM Baseline plus Project

### Warrant 3 Met?: Met when either Condition A or B is met

Condition A: Met when conditions A1, A2, and A3 are met

#### Condition A1

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 1.18 vehicle-hours

#### Condition A2

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 29 vph

#### Condition A3

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches

Total Entering Volume: 2920 vph

#### Condition B

The plotted point falls above the curve

**No**

Not Met

Not Met

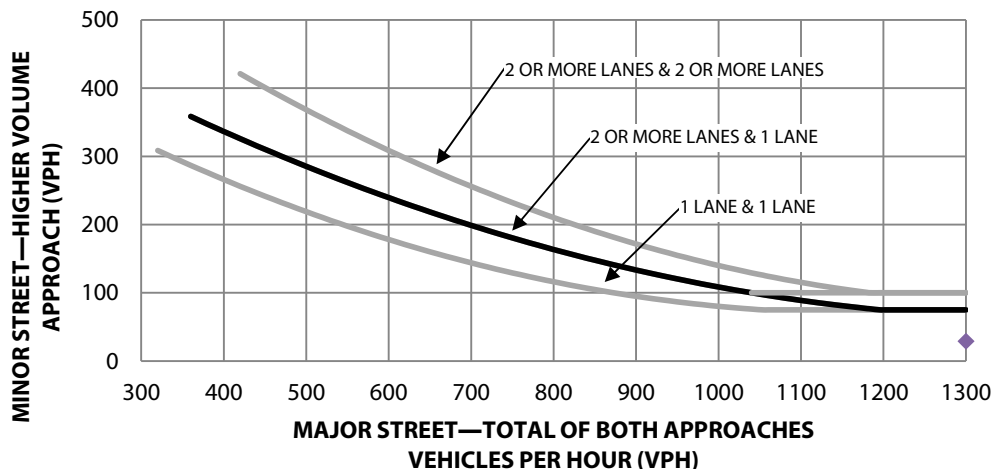
Not Met

Met

Not Met

### Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION, OR ABOVE 40 MPH ON MAJOR STREET)



# Appendix D

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## Auto-Turn Emergency Access





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