# 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

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# **Executive Summary**

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. The 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

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.

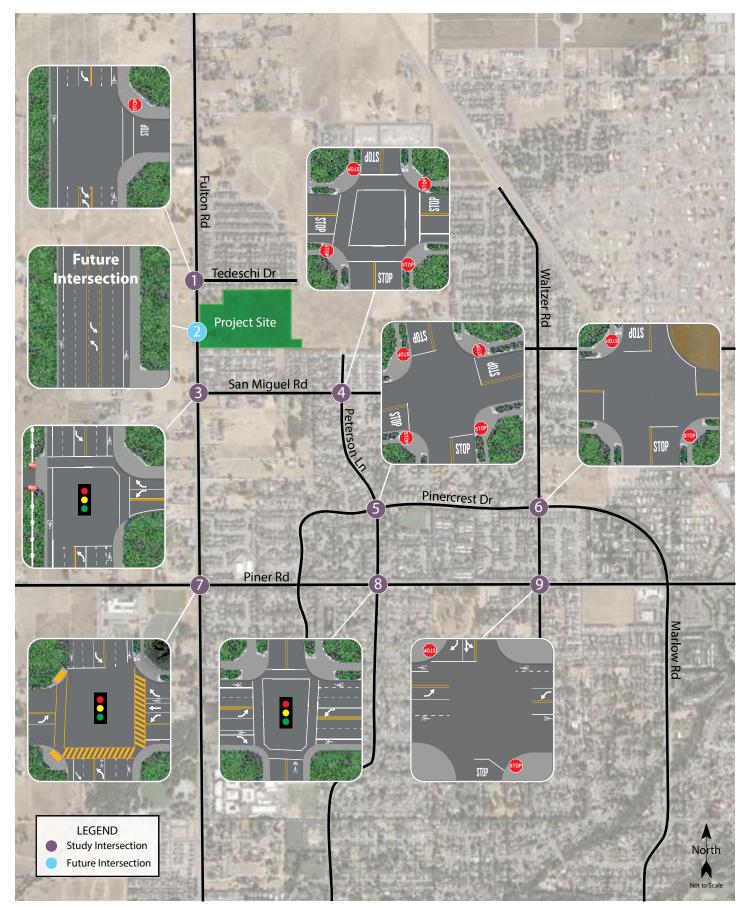
# Prelude

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.





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



# **Transportation Setting**

## **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.

Ta	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						
Existing										
Fulton Rd	П	3.95	City Limits North	Sebastopol Rd						
Piner Rd	П	1.00	Fulton Rd	Marlow Rd						
Planned										
Trail	I	0.44	Village Dr	Orleans St						
San Miguel Ave	II	0.50	Fulton Rd	Francisco Ave						
Francisco Ave	П	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.



## **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	e 3 – Intersection Level of Service C	riteria	
LOS	Two-Way Stop-Controlled	All-Way Stop-Controlled	Signalized
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.
В	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.
С	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.

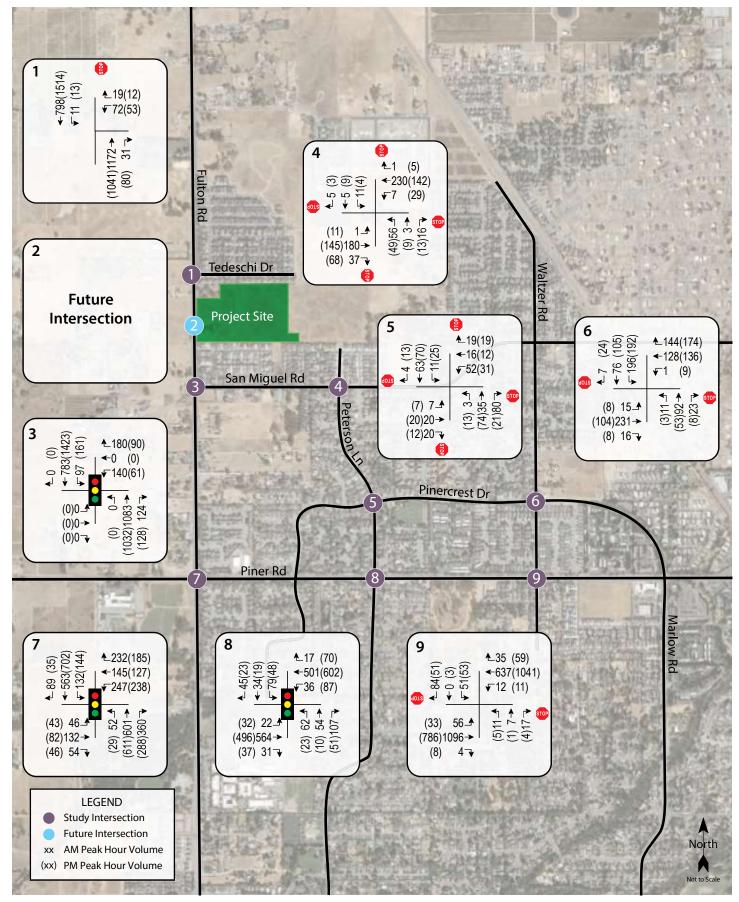
#### Intersection Levels of Service

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.

Та	Table 4 – Existing Peak Hour Intersection Levels of Service									
Stu	idy Intersection	AM F	PM Peak							
	Approach	Delay	LOS	Delay	LOS					
1.	Fulton Rd/Tedeschi Dr	4.9	А	4.0	А					
	Westbound (Tedeschi Dr) Approach	110.9	F	**	F					
2.	Fulton Rd/New Project St	-	-	-	-					
3.	Fulton Rd/San Miguel Rd	13.9	В	13.9	В					
4.	Peterson Ln/San Miguel Rd	9.0	А	8.6	А					
5.	Peterson Ln/Pinercrest Dr	7.7	А	7.8	А					
6.	Waltzer Rd/Pinercrest Dr	12.2	В	11.6	В					
7.	Fulton Rd/Piner Rd	33.3	С	30.1	С					
8.	Peterson Ln/Piner Rd	9.9	А	9.0	А					
9.	Waltzer Rd/Piner Rd	11.6	В	10.8	В					
	Northbound (Waltzer Rd) Approach	78.1	F	75.7	F					
	Southbound (Waltzer Rd) Approach	**	F	**	F					

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



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## **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.

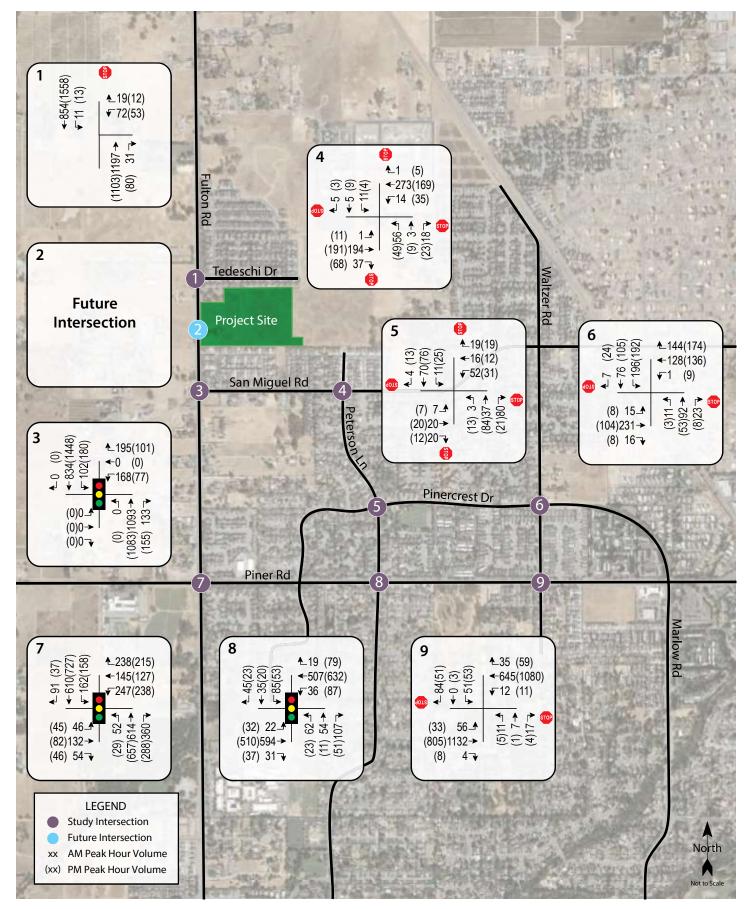
Ta	Table 5 – Baseline Peak Hour Intersection Levels of Service								
Stu	idy Intersection	AM F	Peak	PM P	eak				
	Approach	Delay	LOS	Delay	LOS				
1.	Fulton Rd/Tedeschi Dr	5.6	А	5.0	А				
	Westbound (Tedeschi Dr) Approach	**	F	**	F				
2.	Fulton Rd/New Project St	-	-	-	-				
3.	Fulton Rd/San Miguel Rd	14.1	В	14.4	В				
4.	Peterson Ln/San Miguel Rd	9.4	А	9.1	А				
5.	Peterson Ln/Pinercrest Dr	7.7	А	7.8	А				
6.	Waltzer Rd/Pinercrest Dr	12.2	В	11.6	В				
7.	Fulton Rd/Piner Rd	34.0	С	30.7	С				
8.	Peterson Ln/Piner Rd	10.5	В	9.1	А				
9.	Waltzer Rd/Piner Rd	12.9	В	12.3	А				
	Northbound (Waltzer Rd) Approach	86.4	F	85.1	F				
	Southbound (Waltzer Rd) Approach	**	F	**	F				

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





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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.

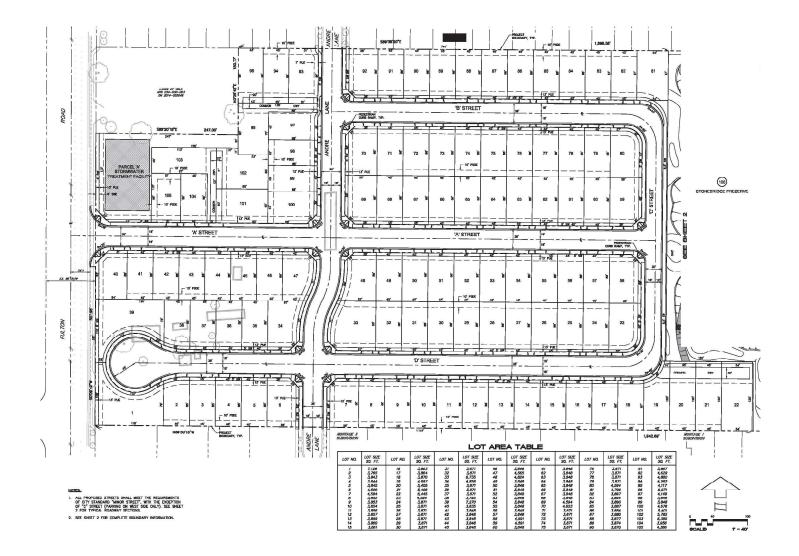
Table 6 – Trip Generation Summary											
Land Use	Units	Daily		AM Peak Hour			PM Peak Hour				
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Existing											
Single Family Detached Housing	-1 du	9.44	-9	0.74	-1	0	-1	0.99	-1	-1	0
Proposed											
Single Family Detached Housing	120 du	9.44	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**

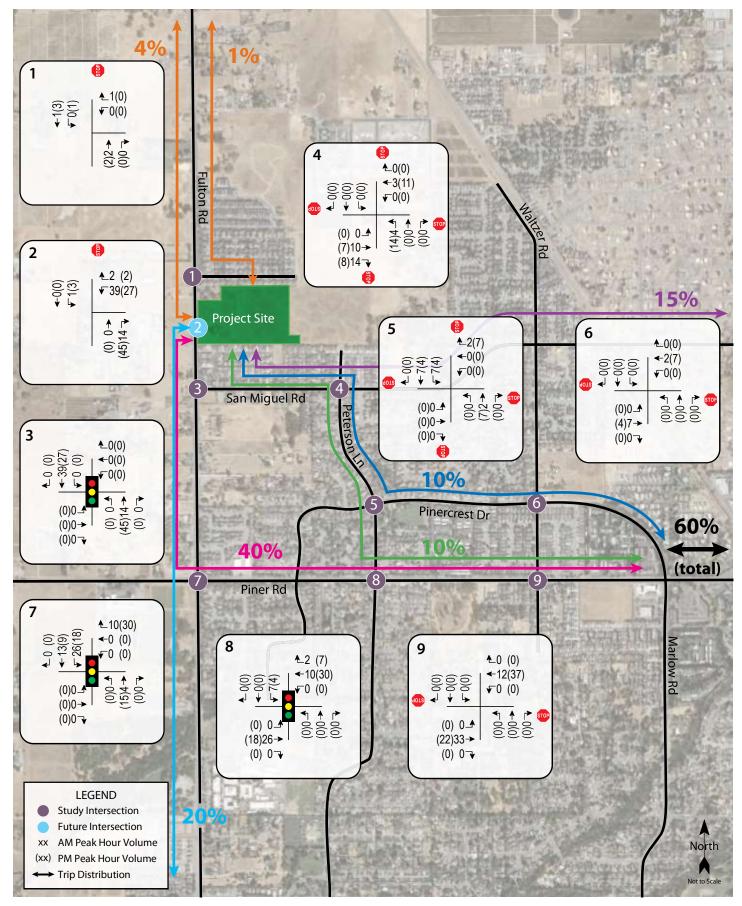
The pattern used to allocate new project trips to the street network was based on data from the 2000 Census for home-to-work trips. It should be noted that of the five percent of trips anticipated to travel to and from the north via Fulton Road, one percent of the trips were allocated to travel via Andre 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.







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



Route	Percent	<b>Daily Trips</b>	AM Trips	PM Trips
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
TOTAL	100%	1,124	89*	119*

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

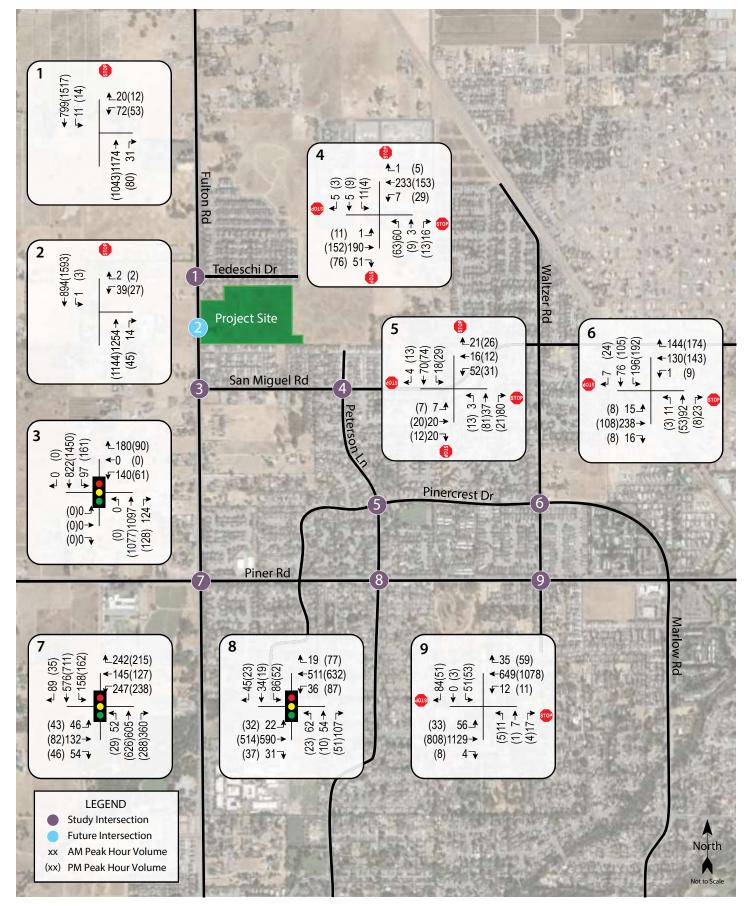
The proposed project is expected to result in a nominal number of trips through the adjacent neighborhoods because few destinations are to the north and for most of the new homes, exiting via the new project street would provide the most direct and convenient route. The project is therefore expected 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.





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



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

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

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

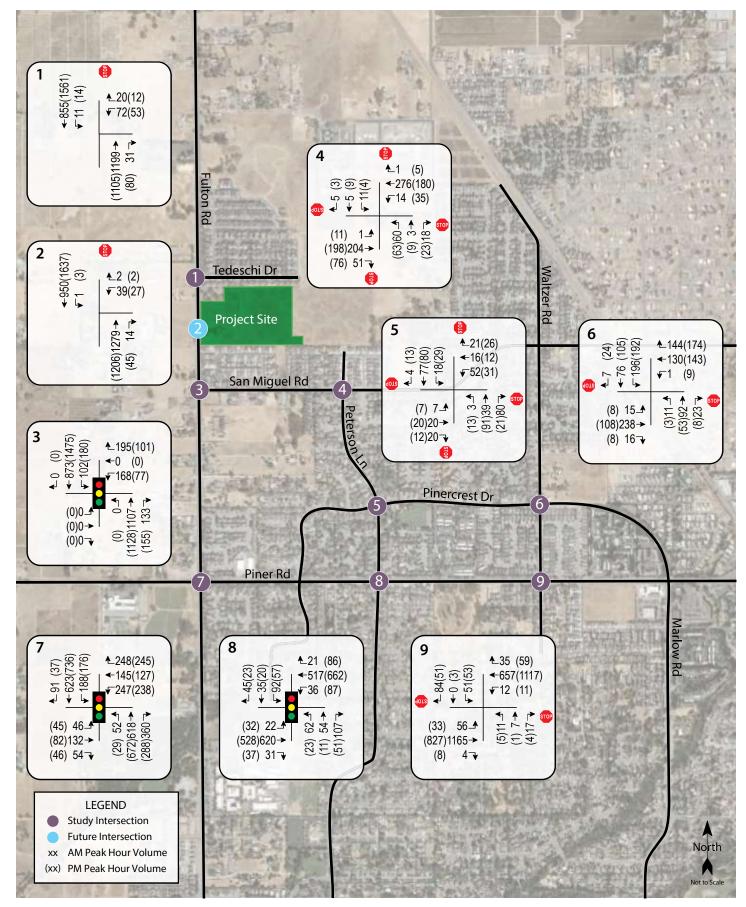
It is noted that while the minor approach at Fulton Road/Tedeschi Drive is expected to operate at LOS F, with the construction of the proposed project, existing trips from the adjacent neighborhood off Andre Lane may reroute and benefit from the proposed road connection between Andre Lane and the signalized 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.





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



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

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

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**

#### **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.



#### **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

- 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**

#### **Study Participants**

Principal in Charge
Assistant Engineer
Assistant Planner
Graphics
Editing/Formatting
Quality Control

Dalene J. Whitlock, PE, PTOE Allison Jaromin, EIT Julia Walker Katia Wolfe Alex Scrobonia Dalene J. Whitlock, PE, PTOE

#### References

2014 Collision Data on California State Highways, California Department of Transportation, 2017
California Manual on Uniform Traffic Control Devices for Streets and Highways, California Department of Transportation, 2014
City of Santa Rosa Bicycle & Pedestrian Master Plan Update 2018, City of Santa Rosa, 2018
Citywide Summary of Pending Development, City of Santa Rosa Department of Planning and Economic Development, 2019
Highway Capacity Manual, Transportation Research Board, 2010
Highway Design Manual, 6<sup>th</sup> Edition, California Department of Transportation, 2017
Santa Rosa CityBus, http://srcity.org/1661/Maps-and-Schedules
Santa Rosa General Plan 2035, City of Santa Rosa, 2014
Sonoma County Transit, http://sctransit.com/
Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol, 2013-2018
Trip Generation Manual, 10<sup>th</sup> Edition, Institute of Transportation Engineers, 2017

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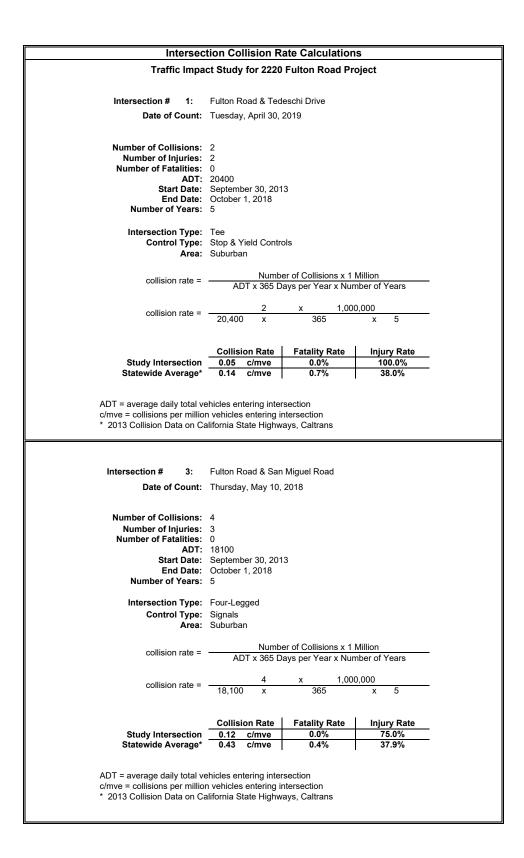
# Appendix A

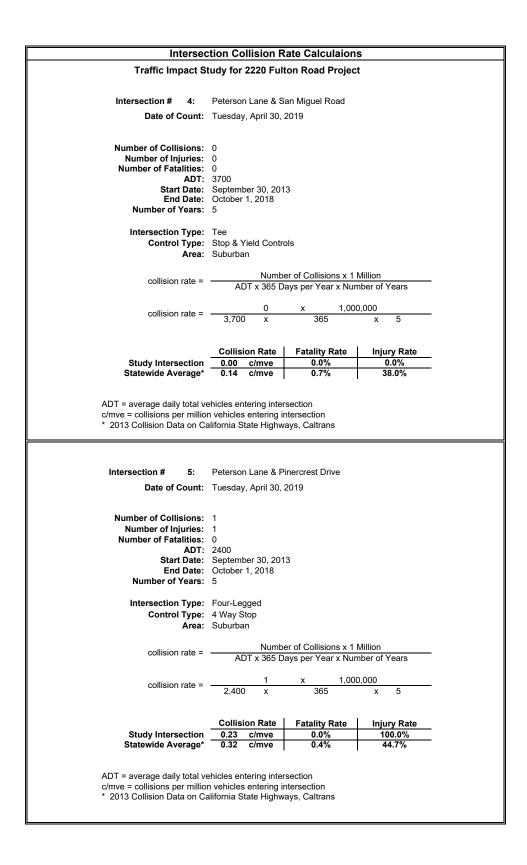
**Collision Rate Calculations** 

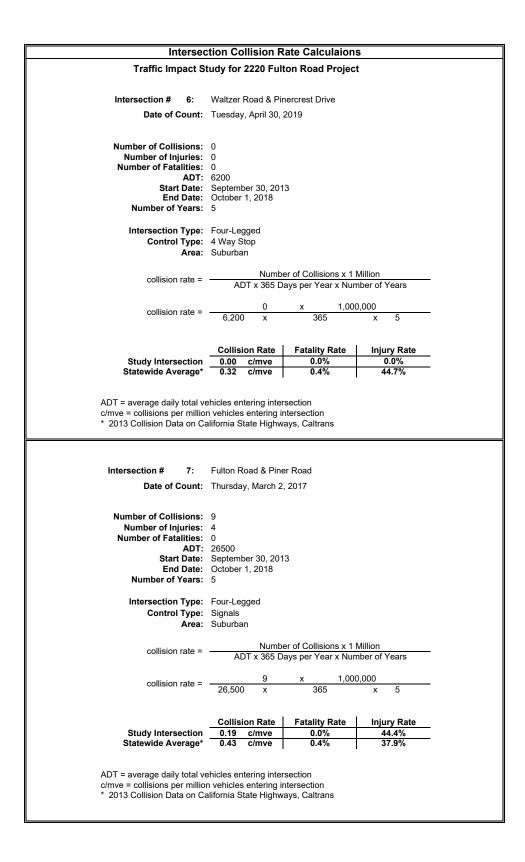




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Intersec	ction Collision R	ate Calculaion	6	
Traffic Impact S	tudy for 2220 Fult	on Road Project	t	
Intersection # 8:	Peterson Lane & P	iner Road		
Date of Count:	Thursday, March 2	2017		
Start Date:	6 0 15500 September 30, 201 October 1, 2018	3		
Intersection Type: Control Type: Area:				
collision rate =		er of Collisions x 1 l ays per Year x Nun		
collision rate =	7	x 1,000	0,000	
	15,500 x	365	x 5	
	Collision Rate	Fatality Rate	Injury Rate	
Study Intersection	0.25 c/mve	0.0% 0.4%	85.7% 37.9%	
Statewide Average*	0.43 c/mve	0.4%	37.9%	
* 2013 Collision Data on C	alitornia State Highw	ays, Caitrans		
Intersection # 9:	Waltzer Road & Pir	ner Road		
Date of Count:	Tuesday, April 30, 2	2019		
Start Date:	3 0 15500 September 30, 201 October 1, 2018	3		
	Four-Legged Stop & Yield Contro Suburban	bls		
collision rate =		er of Collisions x 1 l ays per Year x Nun		
collision rate =	3 15,500 x	<u>x 1,000</u> 365	x 5	
Study Intersection Statewide Average*	Collision Rate 0.11 c/mve 0.26 c/mve	Fatality Rate 0.0% 0.9%	Injury Rate 100.0% 37.4%	
ADT = average daily total v c/mve = collisions per millio * 2013 Collision Data on C	n vehicles entering ir	ntersection		

#### Appendix **B**

**Intersection Level of Service Calculations** 





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Control Type:	Malysis Method:	Analysis Period:
0	Anŝ	Å

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

117.2 F 0.768

### Intersection Setup

Tedeschi Dr		Westbound	t	Right	12.00	0	100.00	30.00	0.00	Yes
Tedes	0000	Westt	F	Left	12.00	0	100.00	30	0.0	¥
Fulton Rd		Southbound	II	Thru	12.00	0	100.00	45.00	0.00	No
Fulto		South	Ш۲	Left	12.00	1	50.00	45.	0.0	z
n Rd		pound	÷	Right	12.00	0	100.00	00	00	0
Fulton Rd		Northbound	11	Thru	12.00	0	100.00	45.00	00.00	Ŷ
Name	1441110	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

# 

VISTRO	
ΡΤ٧	
Generated with	

Intersection Settings Version 7.00-05

	Free	m	Free	e	Sto	Stop
Flared Lane					Ž	No
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance					Ż	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	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	11.37	0.00	117.23	86.94
Movement LOS	A	A	۵	A	ш	ш
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	00.0	4.67	4.67
95th-Percentile Queue Length [ft/In]	0.00	0.00	1.46	0.00	116.66	116.66
d_A, Approach Delay [s/veh]	00.00		0.15	5	110.91	.91
Approach LOS	A		A		Ľ	
d_I, Intersection Delay [s/veh]			4.86	9		
Intersection LOS			L			

Volumes						
Name	Fulto	Fulton Rd	Fulton Rd	n Rd	Tedeschi Dr	chi Dr
Base Volume Input [veh/h]	881	23	80	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	в	200	18	5
Total Analysis Volume [veh/h]	1172	31	11	798	72	19
Pedestrian Volume [ped/h]		0		0	0	

### 2220 Fulton Road Project TIS AM Existing Conditions

W-Trans

W-Trans 6/26/2019

2220 Fulton Road Project TIS AM Existing Conditions



VISTRO	
PTV	
Generated with	Version 7.00-05

Control Type: Analysis Method: Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

13.9 B 0.501

#### Intersection Setup

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	_
Thru         Right         Left         Thru         Right         Left         Thru           1200         12.00 <td></td>	
12:00         10:00         10:00 <td< td=""><td>Left</td></td<>	Left
0         1         0         1         0         0         0         1         1         0         1         1         0         1         1         0         1         1         0         1         1         0         1         1         0         1	12.00
100.00         100.00         50.00         100.00 </td <td>-</td>	-
45.00 25.00 0.00 0.00 Yes No	50.00
0.00 0.00 Ves No	
Yes No	

VOLUTIES												
Name	_	Fulton Rd		Ľ	Fulton Rd	_				Sar	San Miguel Ave	Ave
Base Volume Input [veh/h]	0	814	93	73	589	0	0	0	0	105	0	135
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	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	1.0000	1.3300	1.3300 1.3300 1.3300 1.3300	1.3300	1.3300	1.0000	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1083	124	67	783	0	0	0	0	140	0	180
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	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 1.0000 1.0000 1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	271	31	24	196	0	0	0	0	35	0	45
Total Analysis Volume [veh/h]	0	1083	124	67	783	0	0	0	0	140	0	180
Presence of On-Street Parking	Ŷ		No	Ŷ		Ñ	Ŷ		٩	Ñ		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]		0			0			0			0	
Bicycle Volume [bicycles/h]		6			13			œ			0	
												1

Generated with PTV VISTRO Version 7.00-05 Intersection Settings

Loaated in CBD         · · · · · · · · · · · · · · · · · · ·													
I coordination Grant Gra	Located in CBD						z	0					
Cycle tengrib (s)	Signal Coordination Group												
Contribution Type         Time of Day Patient Isolated           Actuation Type         Fully estimated           Actuation Type         Insertice Internation Type           Offset (sig)         Insertice Internation Type           Offset (sig)         Insertice Internation Type           Offset (sig)         Insertice Internation Type           Permissive Mode         Insertice Internation Type           Control Type         Insertice Internation Type           Deat (sig)         Insertice Internation I	Cycle Length [s]						6						
Actuation Type         Actuatin Type         Actuation Type         Actuatio	Coordination Type					Time (	of Day P.	attern Iso	olated				
Offset [s]         Image: control product	Actuation Type						Fully ad	ctuated					
Other Reference         Lead Green           Permissive Mode         Single Earch         Single Earch           Permissive Mode         Single Earch         Single Earch           Least Time [s]         Control Type         Single Earch           Control Type         Single Earch         Single Earch           Gondo Type         Protect         Permission         Protect         Permission         Split         Split <th>Offset [s]</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0</th> <th>0</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Offset [s]						0	0					
Permissione Mode         Important Single Band           Lots time [s]         Single Band         Single Band           Lots time [s]         Protect         Permis         Per	Offset Reference						Lead	Green					
Lost time [e]	Permissive Mode						Single	Band					
Control Type         Protect         Permis         Permis <th< th=""><th>Lost time [s]</th><th></th><th></th><th></th><th></th><th></th><th>0.0</th><th>00</th><th></th><th></th><th></th><th></th><th></th></th<>	Lost time [s]						0.0	00					
Gibble         Protect         Permis         Permis         Permis         Split         Split         Split         Split         Split         Permis           outp         3         8         7         4         7         4         7         4         7         6         7         6         7           at Goutps         1         - <th>hasing &amp; Timing</th> <th></th>	hasing & Timing												
oup         3         8         7         4         7         4         7         4         7         4         7         6         7         6         7	Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Id Goups         I<	Signal Group	e	80	0	7	4	0	2	2	0	9	0	0
agg         Lead         ·         Lead         Lead	Auxiliary Signal Groups												
eenelsi         5         7         0         4         7         0         7         0         7         0         3         0         0           reenelsi         7         35         0         25         35         0         0         7         0         30         0         0           feenelsi         7         35         0         25         35         0         0         0         36         0         30	Lead / Lag	Lead			Lead						Lead		
enerlej         7         35         0         25         35         0         7         0         36         0           [s]         4.7         4.7         6.0         0.0         0.0         0.0         36         0.0           [s]         0.0         0.0         0.0         0.0         0.0         0.0         36         0.0           [s]         0.0         0.0         0.0         0.0         0.0         0.0         27         0.0         36         0.0           [s]         0.0         0.0         0.0         0.0         0.0         0.0         27         0.0	Minimum Green [s]	5	7	0	4	7	0	0	7	0	6	0	0
[a]         1.7         1.7         0.0         1.7         1.7         0.0 <th>Maximum Green [s]</th> <td>2</td> <td>35</td> <td>0</td> <td>25</td> <td>35</td> <td>0</td> <td>0</td> <td>7</td> <td>0</td> <td>30</td> <td>0</td> <td>0</td>	Maximum Green [s]	2	35	0	25	35	0	0	7	0	30	0	0
[e]         0.0 <th>Amber [s]</th> <td>4.7</td> <td>4.7</td> <td>0.0</td> <td>4.7</td> <td>4.7</td> <td>0.0</td> <td>0.0</td> <td>3.0</td> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>0.0</td>	Amber [s]	4.7	4.7	0.0	4.7	4.7	0.0	0.0	3.0	0.0	3.6	0.0	0.0
e)         28         0         35         20         0         27         0         27         0         27         0         27         0         27         0         20         0         0         20         20         0         20         20         0         20         20         20         0         20	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
sign [ş]         1.0         3.0         0.0         3.0         0.0         1.0         2.0         2.0         0           sign         0         5         0         0         0         0         0         0         5         0           sign         0         5         0         0         0         0         0         0         5         0           sign         0         0         0         0         0         0         0         0         5         0           sign         0         0         0         0         0         0         0         0         0         5         0           sign         2.0         0         2.0         0.0         2.0         0.0         100	Split [s]	43	28	0	35	20	0	0	27	0	27	0	0
ell         D         C         D         C	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	0.0
arrance (s)         0         8         0         0         0         0         18         0           valk         No         No         No         No         No         No         18         0         18         0           valk         No         20         2	Walk [s]	0	ъ	0	0	0	0	0	0	0	2	0	0
Not         No	Pedestrian Clearance [s]	0	80	0	0	0	0	0	0	0	18	0	0
atTme [s]         2.0         1.6         0.0         2.0         2.0         1.6         0.0         2.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         0.0         1.6         0.0         0.0         1.6         0.0         0.0         1.6         0.0         0.0         0.0         1.6         0.0         0.0         0.0         1.6         0.0         0	Rest In Walk		Ŷ			٩			٩		Ŷ		
Stattmelsj         2.7         2.7         2.7         2.7         2.7         2.7         2.7         0.0         1.0         1.6         0.0           Realt         No         Yes         No         Yes         No         No <thn< th=""><th>11, Start-Up Lost Time [s]</th><td>2.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>0.0</td></thn<>	11, 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	0.0
accalit         No         Yes         No         Yes         No	12, 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	0.0
Recall         No         No <th< th=""><th>Minimum Recall</th><td>Ŷ</td><td>Yes</td><td></td><td>Ŷ</td><td>Yes</td><td></td><td></td><td>٩</td><td></td><td>Ŷ</td><td></td><td></td></th<>	Minimum Recall	Ŷ	Yes		Ŷ	Yes			٩		Ŷ		
Recail         No         No <th< th=""><th>Maximum Recall</th><td>Ŷ</td><td>Ŷ</td><td></td><td>Ŷ</td><td>٩</td><td></td><td></td><td>٩</td><td></td><td>٩</td><td></td><td></td></th<>	Maximum Recall	Ŷ	Ŷ		Ŷ	٩			٩		٩		
ation (fg)         0.0	Pedestrian Recall	Ñ	Ŷ		No	No			No		°N		
optifit         0.0	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
sing Factor         1.00	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
nal Group Maik [s] arance [s]	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
	cclusive Pedestrian Phase												
	Pedestrian Signal Group												
	Pedestrian Walk [s]												
	Pedestrian Clearance [s]												

2220 Fulton Road Project TIS AM Existing Conditions

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### Lane Group Calculations

Lane Group	_	υ	o	_	o	U	_	۲
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	00:0	0.00	0.00
12, 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	e	23	0	6	6
g / C, Green / Cycle	0.00	0.40	0.40	0.07	0.48	0.00	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.33	0.05	0.22	00:0	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	00:0	0.32	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	00.0	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

0.61	18.54	ш	Yes	1.70	42.61	3.07	76.70
0.42	17.43	в	No	1.26	31.46	2.26	56.62
00.00	00.00	A	No	0.00	0.00	00.00	0.00
0.46	8.54	A	No	1.73	43.17	3.11	77.71
0.76	30.32	υ	Yes	1.20	30.01	2.16	54.02
0.82	5 15.01	ß	Yes	4.30	107.47	7.70	192.47
0.81	0.00 14.75	æ	No	4.39	109.82 107.47	7.83	0.00 195.75 192.47
0.00	0.00	۷	No	0.00	0.00	0.00	0.00
X, volume / capacity	d, Delay for Lane Group [s/veh]	Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/In]	50th-Percentile Queue Length [ft/In]	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/ln]

## Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

18.54	ш						
0.00		18.06	в				
0.00 0.00 0.00 0.00 17.43 0.00 18.54	в						
0.00	٨						
0.00	A	0.00	A				
0.00	A			13.86	в	0.501	
0.00				13	-	0.5	
2 8.54	A	10.94	в				
30.32	с						
15.01	в						
14.87 15.01 30.32	в	14.88	в				
0.00	A						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 - 2 3 4 Bind 2 7 8

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•			SG: 4 20s			3s
,					SG: 8 28s	SG: 108 13s
,					SG	SG
,						
,						
,			3 43s		7 355	
,			 SG: 3		SG: 7	
,	,			0		
,						
œ			27s			
7			 SG: 2			
•	•					
9	•					
Ring 2	Ring 3	Ring 4			SG: 6 27s	SG: 106 235
_						

### 2220 Fulton Road Project TIS AM Existing Conditions

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2220 Fulton Road Project TIS AM Existing Conditions



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Control Type:	Malysis Method:	Analysis Period:
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Intersection Level Of Service Report Intersection 4: Peterson LntSan Miguel Awe Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

9.0 A 0.293

#### Intersection Setup

Name	Pe	Peterson Ln	c	Å	Peterson Ln	c.	Sar	San Miguel Ave	Ave	San	San Miguel Ave	Ave
Approach	ž	Northbound	7	Š	Southbound	p	ш	Eastbound		\$	Westbound	5
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	Å	Peterson Ln	c	Å	Peterson Ln	u.	San	San Miguel Ave	Ave	Sar	San Miguel Ave	Ave
Base Volume Input [veh/h]	42	2	12	80	4	4	-	135	28	5	173	-
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]	56	e	16	4	5	5	-	180	37	7	230	-
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]	14	-	4	е	-	1	0	45	6	2	58	0
Total Analysis Volume [veh/h]	56	ю	16	11	5	5	-	180	37	7	230	۲

0

0

Pedestrian Volume [ped/h]

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Version / .UU-UD

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	718	715	828
Degree of Utilization, x	0.10	0.03	0.26
nt, Approach, & Intersection Results			
Of the Descentile Oticite Length Fuch1	30.0	000	a0 F

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]		œ	8.98	
Intersection LOS			4	

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2220 Fulton Road Project TIS AM Existing Conditions



W-Trans 6/26/2019

Control Type:	Analysis Method:	Analysis Period:	
0	Ana	Ä	

All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

7.7 A 0.129

#### Intersection Setup

4

0 0 c 0 0

0 0 0 0 0 0

#### 200 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 1.3300</ 1.0000< Pinercrest Dr 39 12 1.0000 1.0000 52 13 0 0 0 0 0 1.0000 1.0000 5 15 15 1.0000 1.0000 20 0 ß 0 c 0 0 0 Pinercrest Dr 20 0 0 0 0 ß 0 c 1.0000 1.0000 0 0 1.0000 1.0000 e 0 0 0 0 0 Peterson Ln 1.0000 8 47 1.0000 1.0000 63 16 0 0 0 0 0 0 1.0000 0 0 0 £ 0 0 0 e 1.0000 1.0000 2 26 60 80 20 0 0 0 0 c Peterson Ln 1.0000 1.0000 1.0000 1.0000 35 0 0 c 0 0 0 б 00 0 0 0 0 e Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Heavy Vehicles Percentage [%] Base Volume Adjustment Factor Total 15-Minute Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

1.0000 1.0000 1.0000 1.0000

ß 19

4

16

52

20

20

63

7

80

35

Total Analysis Volume [veh/h]

Pedestrian Volume [ped/h]

0 19

16

VISTRO	
ed with PTV	2000
Generated	Voreion 7

### 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	62.7	4.38	8.88
Approach Delay [s/veh]	7.50	7.81	7.48	7.92
Approach LOS	¥	A	A	A
Intersection Delay [s/veh]		2.6	7.68	
Intersection LOS		4	4	

2220 Fulton Road Project TIS AM Existing Conditions



Control Type:	Inalysis Method:	Analysis Period:	
ö	Anal	Ana	

All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

12.2 B 0.448

### Intersection Setup

			_	_	_	_		_
p		Right	12.00	0	100.00			
/estboun	÷	Thru	12.00	0	100.00	30.00	0.00	g
\$		Left	12.00	0	100.00			
_		Right	12.00	0	100.00			
astbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ш		Left	12.00	0	100.00			
q		Right	12.00	0	100.00			
outhboun	÷	Thru	12.00	0	100.00	25.00	0.00	٩
Š		Left	12.00	0	100.00			
P		Right	12.00	0	100.00			
orthboun	+	Thru	12.00	0	100.00	25.00	0.00	Yes
Ż		Left	12.00	0	100.00			
Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk
	Approach Northbound Southbound Eastbound Westbound	Northbound Southbound Eastbound	Northbound         Southbound         Eastbound         Westbound           Image: South Sou	Northbound         Southbound         Eastbound         Meetbound           Left         Thru         Right         Left	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$

Volumes												
Name	5	Waltzer Rd	-	5	Waltzer Rd	-	Ē	Pinercrest Dr	لط ح			
Base Volume Input [veh/h]	80	69	17	147	57	5	1	174	12	-	96	108
Base Volume Adjustment Factor	1.0000	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]	11	92	23	196	76	7	15	231	16	-	128	144
Peak Hour Factor	1.0000	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]	e	23	9	49	19	2	4	58	4	0	32	36
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	231	16	1	128	144
Pedestrian Volume [ped/h]		4			0			5			0	

## Generated with PTV VISTRO Version 7.00-05

Lanes				
Capacity per Entry Lane [veh/h]	612	623	645	681
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	в	æ	æ	æ
Intersection Delay [s/veh]		12	12.23	
Intersection LOS			8	

2220 Fulton Road Project TIS AM Existing Conditions



2220 Fulton Road Project TIS AM Existing Conditions

W-Trans

VISTRO	
PTV	
Generated with	Version 7.00-05

Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

33.3 C 0.597

#### Intersection Setup

			Ħ	0		8			
-	p		Right	12.00	-	110.00			
Piner Rd	Westbound	- F	Thru	12.00	0	100.00	40.00	0.00	Yes
	5		Left	12.00	-	245.00			
	_		Right	12.00	0	100.00			
Piner Rd	Eastbound	÷	Thru	12.00	0	100.00	40.00	0.00	Yes
	ш		Left	12.00	-	70.00			
	70		Right	12.00	0	100.00			
Fulton Rd	Southbound	4 -	Thru	12.00	0	100.00	45.00	0.00	No
ш	S	•	Left	12.00	1	90.00			
			Right	12.00	0	100.00			
Fulton Rd	Northbound	4  -	Thru	12.00	0	100.00	45.00	0.00	Yes
ш	ž	•	Left	12.00	1	110.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name		Fulton Rd		Ľ	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 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 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]	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 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   1.00000   1.0000   1.0000   1.0000   1.00000   1.00000   1.00000   1.00000   1.00000   1.00000   1.0000   1.0000   1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	150	60	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	٥N		No	٥N		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]		9			0			0			10	
Bicycle Volume [bicycles/h]		0			0			+			0	

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Intersection Settings

Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						\$	130					
Coordination Type					Time of	Time of Day Pattern Coordinated	ern Cool	dinated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						85	85.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						SingleBand	Band					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Protect Permis Permis Protect Permis	Protect	Permis	Permis Protect	Protect	Permis	Permis Permis Protect Permis Permis	Protect	Permis	Permis
Signal Group	e	80	0	7	4	0	5	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	@	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			٥N			Ŷ			٩	
11, 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
12, 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	Ň	٩		No	Ŷ		Ŷ	Ŷ		No	٩	
Maximum Recall	٥N	No		No	٩N		Ŷ	No		No	٩	
Pedestrian Recall	٥N	No		No	Ŷ		Ŷ	Ŷ		No	Ŷ	
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					
												ſ

c

Pedestrian Clearance [s]

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### Lane Group Calculations

Lare droup calculations											
Lane Group	_	υ	С	_	с	U	_	υ	_	U	Ľ
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	2	68	68	12	74	74	4	17	20	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
(v / s)_i 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
s, saturation flow rate [veh/h]	1774	1863	1619	1774	1863	1775	1774	1756	1774	1863	1583
c, Capacity [veh/h]	68	967	840	158	1062	1012	60	226	274	464	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
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
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
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
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											

0.59	43.49	٥	No	6.53	163.16	10.72	267.90
0.31	39.91	٥	R	3.76	94.01	6.77	169.22
06.0	58.47	ш	Yes	8.15	203.68	12.83	320.71
0.82	58.15	ш	Yes	6.04	150.96	10.07	251.71
0.77	69.84	ш	No	1.62	40.39	2.91	72.70
0.31	15.48	ю	No	4.87	121.66	8.48	212.10
0.31	15.43	ш	No	5.08	257.45 228.19 109.50 127.10 121.66	8.78	389.02 352.06 195.31 219.55 212.10
0.84	62.77	ш	Yes	4.38	109.50	7.81	195.31
0.53	23.24	U	Yes	9.13	228.19	14.08	352.06
0.53	22.83	ပ	No	10.30	257.45	15.56	389.02
0.77	68.66	ш	No	1.80	44.90	3.23	80.82
X, volume / capacity	d, Delay for Lane Group [s/veh]	Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/ln]	50th-Percentile Queue Length [ft/In]	95th-Percentile Queue Length [veh/ln]	95th-Percentile Queue Length [ft/In]

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## Movement, Approach, & Intersection Results

43.49	۵						
39.91	۵	48.59	۵				
58.47	Ш						
58.15	ш						
58.15	ш	60.47	ш				
68.66 22.89 23.24 62.77 15.45 15.48 69.84 58.15 58.15 58.47	ш			33.32	U	265	
15.48	В			33.	0	0.597	
15.45	в	23.42	U				
62.77	ш						
23.24	ပ						
22.89	U	25.36	U				
68.66	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

			_				 	
	•							
	•	•	•		n :50			
	•							
ī								
	•	,						6s
	•						SG: 8 54s	SG: 108 26s
ī						S		SC
	•				SCC + 1	SG: 104 25s	SG: 7 15s	
					, 	8	 S S	
	•							
,	•	,	•					
4	œ	•			<u>0</u>			
ო	7	•	•	• • •	- 90			
2	9	•	,				47s	
-	5	•	•				SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4		Shc 7 Shc	SG: 102 26s	SG: 5 14s	

### 2220 Fulton Road Project TIS AM Existing Conditions

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2220 Fulton Road Project TIS AM Existing Conditions

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Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 8: Peterson LnPIner Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

9.9 A 0.442

### Intersection Setup

Name	Pe	Peterson Ln	ų	Å	Peterson Ln	c,		Piner Rd			Piner Rd	
Approach	ž	Northbound	q	ŭ	Southbound	P	ш	Eastbound	_	5	Westbound	5
Lane Configuration		÷			÷		Ť	L F			÷	
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	1	0	1	-	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00	100.00	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	

												1
Volumes												
Name	ď.	Peterson Ln	5	ď	Peterson Ln	c.		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	62	54	107	62	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 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	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]	62	54	107	62	34	45	22	564	31	36	501	17
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 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   1.00000   1.00000   1.00000   1.00000   1.00000   1.00000   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	20	6	11	9	141	8	6	125	4
Total Analysis Volume [veh/h]	62	54	107	62	34	45	22	564	31	36	501	17
Presence of On-Street Parking	Ň		No	٩N		No	No		No	٥N		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]		ъ			-			e			2	
Bicycle Volume [bicycles/h]		0			2			-			-	
												1

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Intersection Settings

Located in CBD         · · · · · · · · · · · · · · · · · · ·													
Ideal Group         Type         Time           Type         Type         Type           Type         Type         Type           Type         Emile         Emile           Type         Emile         Emile           Mode         Emile         Emile           Mode         Emile         Emile           Mode         Emile         Emile           Second         0         8         0         7           Second         0         8         0         7         7           Second         0         8         0         7         7           Seconds         0         7         0         7         7           Seconds         0         0         0         0													
n1 (s)         International (s)         Internation (s)         Internation (s)         Internat	Signal Coordination Group												
Type         Time           Type         Time           Type         Time           Type         Time           Series         Time           Mode         Time           Opp         Permis         Permis           Mode         Time           Series         Permis         Permis           Mode         Time         Permis         Permis           Series         Permis         Permis         Permis           Opp         D         Series         Permis         Permis           Opp         D         Series         D         O         D           Series         D         D         D         D         D         D           Series         D         D         D         D         D         D         D           Series         D         D         D         D <thd< th="">         D         D</thd<>	Cycle Length [s]						6	0					
Type	Coordination Type					Time	of Day P	attern Iso	olated				
[e]	Actuation Type						Fully a	ctuated					
rence         mode           Mode         mode           Mode         mode           Pipe         Permis         Permis         Permis         Permis           Pipe         Permis         Permis         Permis         Permis         Permis           Opp         0         8         0         0         1           al Groups         0         8         0         7         2           al Groups         0         7         0         7         2           al Groups         0         7         0         7         2           al Groups         0         7         0         7         7           al Groups         0         0         10         0         7	Offset [s]						0	0					
Mode         Fermine         Permine         P	Offset Reference						Lead	Green					
I         I	Permissive Mode						Single	Band					
ype         Permis         Permis <th>Lost time [s]</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.0</th> <th>00</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Lost time [s]						0.0	00					
ype         Permis         Permis <th>Phasing &amp; Timing</th> <th></th>	Phasing & Timing												
oup         0         8         0         4         0         5         2         0         1         6           af Grouss         1         - <td< th=""><th>Control Type</th><th>Permis</th><th>Permis</th><th>Permis</th><th>Permis</th><th></th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th></td<>	Control Type	Permis	Permis	Permis	Permis		Permis	ProtPer	Permis	Permis	ProtPer	Permis	Permis
Identified         Identif	Signal Group	0	80	0	0	4	0	5	2	0	-	9	0
ag         :         :         :         :         :         :         i	Auxiliary Signal Groups												
eerole)         0         7         0         7         0         5         5         0         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40         5         40	Lead / Lag							Lag			Lag		
enerlej         0         20         0         20         10         20         10         15         40         15         40           [s]         0.0         36         0.0         36         0.0         36         0.0         43         43         43         43           [s]         0.0         36         0.0         0.0         36         0.0         43         43         43         43           [s]         0.0         0.0         0.0         0.0         0.0         20         20         23         43           [s]         0.0         0.0         0.0         0.0         0.0         20         20         23         43           [s]         0.0         0.0         0.0         20 <td< th=""><th>Minimum Green [s]</th><th>0</th><th>7</th><th>0</th><th>0</th><th>7</th><th>0</th><th>5</th><th>2</th><th>0</th><th>2</th><th>2</th><th>0</th></td<>	Minimum Green [s]	0	7	0	0	7	0	5	2	0	2	2	0
[e]         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.4         3.3         4.3 <th>Maximum Green [s]</th> <th>0</th> <th>20</th> <th>0</th> <th>0</th> <th>20</th> <th>0</th> <th>15</th> <th>40</th> <th>0</th> <th>15</th> <th>40</th> <th>0</th>	Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
[e]         0.0 <th>Amber [s]</th> <th>0.0</th> <th>3.6</th> <th>0.0</th> <th>0.0</th> <th>3.6</th> <th>0.0</th> <th>4.3</th> <th>4.3</th> <th>0.0</th> <th>4.3</th> <th>4.3</th> <th>0.0</th>	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
j         1         35         0         35         0         35         0         36         0         36         10         45         10         45         10         41         45         10         41	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
vsion [sj]         0.0         2.0         0.0         2.0	Split [s]	0	35	0	0	35	0	14	45	0	10	41	0
Image         Image <th< th=""><th>Vehicle Extension [s]</th><th>0.0</th><th>2.0</th><th>0.0</th><th>0.0</th><th>2.0</th><th>0.0</th><th>2.0</th><th>2.0</th><th>0.0</th><th>2.0</th><th>2.0</th><th>0.0</th></th<>	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
arance (s)         0         24         0         24         0         14         0         14         0         14         0         14         0         14         0         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         10         14         10<	Walk [s]	0	4	0	0	7	0	0	7	0	0	7	0
Indic         No	Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
Itme(s)         0.0         2.0         0.0         2.0	Rest In Walk		Ŷ			Ŷ			No			Ŷ	
str         metal         0.0         16         0.0         16         0.0         13         23	11, 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
accalit         No         No         No         No         Yes         No         Yes           Recalit         N         No         No         No         No         No         No         Yos           Recalit         N         No         No         No         No         No         No         No         No           Recalit         N         No         No         No         No         No         No         No         No           Recalit         N         No         No<	12, 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
accali         No         No <th< th=""><th>Minimum Recall</th><th></th><th>Ŷ</th><th></th><th></th><th>Ŷ</th><th></th><th>g</th><th>Yes</th><th></th><th>Ŷ</th><th>Yes</th><th></th></th<>	Minimum Recall		Ŷ			Ŷ		g	Yes		Ŷ	Yes	
Recail         No         No <th< th=""><th>Maximum Recall</th><th></th><th>٩</th><th></th><th></th><th>Ŷ</th><th></th><th>g</th><th>٩</th><th></th><th>٩</th><th>Ŷ</th><th></th></th<>	Maximum Recall		٩			Ŷ		g	٩		٩	Ŷ	
alion (1)         0.0         0	Pedestrian Recall		Ŷ			°N N		Ŷ	No		°N	Ŷ	
gath (t)         0.0         0.	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
wing Factor         1.00	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
nal Group Valk [s] arance [s]	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
	xclusive Pedestrian Phase												
	Pedestrian Signal Group												
	Pedestrian Walk [s]												
	Pedestrian Clearance [s]												

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### Lane Group Calculations

Lane Group	U	U	_	υ	۲	_	ပ	υ
C, Cycle Length [s]	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
12, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, 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)_i 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	619	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	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	æ	в	۲	m	A	۶	A	۲
0	11	:	-	;			:	1

## Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

7.20	A						
7.19	A	7.32	٨				
9.16 7.19	A						
6.60	A						
11.64	в	11.19	в				
6.16	٨			91	4	42	
11.81 11.81 11.81 11.29 11.29 11.29 6.16 11.64 6.60	в			9.91	4	0.442	
11.29	в	11.29	в				
11.29	в						
11.81	в						
11.81	в	11.81	в				
11.81	в						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

Sequence													
Ring 1	-	2	4		,	,							
Ring 2	2	9	∞	,			,						
Ring 3							,						
Ring 4		•					,						
SG: 2 45s						U	SG: 1 10s	 SG: 4 35s	Ss				
SG: 102 215								SG: 104 31s	31s				
SG: 6 41s						SG: 5 14s	45	 SG: 8 35s	Ss				
SG: 106 21s								 SG: 108	31s			2000	

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Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

367.6 F 1.228

### Intersection Setup

_	_		_	_	_		_	_	
_	Ð		Right	12.00	0	100.00			
Piner Rd	Westbound	÷	Thru	12.00	0	100.00	30.00	0.00	N
	\$		Left	12.00	-	95.00			
			Right	12.00	0	100.00			
Piner Rd	Eastbound	÷	Thru	12.00	0	100.00	40.00	0.00	No
Ľ	ш		Left	12.00	-	100.00			
-			Right	12.00	-	50.00			
Waltzer Rd	Southbound	Ļ	Thru	12.00	0	100.00	25.00	0.00	Yes
>	S		Left	12.00	0	100.00			
_	77		Right	12.00	0	100.00			
Waltzer Rd	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
>	ž		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name	5	Waltzer Rd	_	5	Waltzer Rd	_		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	8	5	13	88	0	63	42	824	°	6	479	26
Base Volume Adjustment Factor	1.0000	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]	11	7	17	51	0	84	56	1096	4	12	637	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]	e	2	4	13	0	21	14	274	-	e	159	6
Total Analysis Volume [veh/h]	11	7	17	51	0	84	56	1096	4	12	637	35
Pedestrian Volume [ped/h]		2			2			0			0	

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Intersection Settings

Priority Scheme		Stop			Stop			Free			Free	
Flared Lane		Yes										
Storage Area [veh]		-			0			0			0	
Two-Stage Gap Acceptance		Ñ			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	0.27 0.11 0.07 1.23 0.00 0.18 0.06 0.01 0.00 0.02 0.01 0.00	1.23	0.00	0.18	0.06	0.01	0.00	0.02	0.01	0.00

	•	0					
<	-	0.0					
۲	0.00	0.00	0.19	۷			
œ	0.06	1.45					
٨	0.00	0.00					
A	0.00	0.00	0.45	A			
۲	0.20	4.91			61		
æ	0.66	16.48			11.	Ľ	
ш.	5.00	125.10	147.90	ш			
u.	5.00	125.10					
ш	1.66	41.56					
u.	1.66	41.56	78.10	ш			
ш	1.66	41.56					
Movement LOS	95th-Percentile Queue Length [veh/ln]	95th-Percentile Queue Length [ft/In]	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	•
	F F F F B A A	F         F         E         F         B         A         A         B         A         A         B         A         A         B         A         A         B         A         A         B         A         A         B         A         A         B         A         A         B         B         A         A         B         B         A         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B         B         A         B	F         F         E         F         F         F         B         A         A         A         B         A         A           1.66         1.66         1.66         5.00         5.00         0.66         0.20         0.00         0.06         0.00         1.06         0.00         1.06         0.00         1.06         0.00         1.06         0.00         1.45         1.45         1.51.10         1.51.10         16.48         4.91         0.00         0.00         1.45         0.00         0.00         1.45         0.00		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	F         E         F         E         F         B         A         A         B         B         A           166         166         166         500         500         056         020         000         000         000         000         000         000         000         000         000         000         000         000         000         000         000         000         000         001         145         000         000         145         000         000         145         000         000         145         001         001         145         001         001         145         001         010         145         001         011         145         001         011         145         011         141         011         145         011         141	F         E         F         E         F         B         A         A         B         B         A           166         166         166         500         500         056         020         000         000         000         000         000         000         001         145         010         011

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Control Type:	Malysis Method:	Analysis Period:
0	Anŝ	Å

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

173.0 F 0.843

#### Intersection Setup

Fulton Rd Fulton Rd	Northbound Southbound	11r - 11	Thru Right Left	12.00 12.00 12.00	0	100.00 100.00 50.00	45.00 45.00	0.00 0.00	No
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

### mes

Name	Fulto	Fulton Rd	Fulto	Fulton Rd	Tedeschi Dr	chi Dr
Base Volume Input [veh/h]	783	60	10	1138	40	6
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	9	379	13	ю
Total Analysis Volume [veh/h]	1041	80	13	1514	53	12
Pedestrian Volume [ped/h]		-			-	

### Generated with PTV VISTRO

Version 7.00-05

#### 0.03 123.39 F 4.36 109.02 No Stop 0.84 173.01 F 4.36 0.02 **A** 0.00 Free 0.02 10.95 B 0.06 0.00 A 0.00 Free 0.01 0.00 0.00 Phonty Scheme Flared Lane Storage Area [veh] Two-Stage Gap Acceptance Number of Storage Spaces in Median V/C, Movement V/C Ratio \_\_\_\_M, Delay for Movement [s/veh] Movement LOS S6th-Percentile Queue Length [veh/in] Movement, Approach, & Intersection Results Intersection Settings

95h-Percentie Queue Lengh It/inf         0.00         1.61         0.00         169.02           d_A Approach Delay [s/veh]         0.00         0.09         165         165           Approach Delay [s/veh]         0.00         0.09         165         165           d_L Intersection Delay [s/veh]         A         336         165         165           intersection Delay [s/veh]         A         336         165         165	_	163.85	ш			
0.00 0.00 1.61 0.00 0.09 0.09 0.09 0.09 0.09 0.09 0.0	109.02	163				
0.00   0.00 1.61		60		96		
		0.0	٩	3.6	Ľ	
8000	0.00	00				
95h-Percentie Queue Length (thn) d_A Approach Delay (e/veh) Approach LOS d_I, Intersection Delay (e/veh) Intersection LOS	0.00	0.0	٩			
	95th-Percentile Queue Length [ft/ln]	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	

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2220 Fulton Road Project TIS PM Existing Conditions



VISTRO	
PTV	
Generated with	Version 7.00-05

Control Type: Analysis Method: Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

13.8 B 0.468

#### Intersection Setup

Laio	FUITON KG		Fulton Rd					Sar	San Miguel Ave	Ave
Northbound	punoc	ÿ	Southbound	q	ш	Eastbound	7	5	Westbound	q
416	÷		۳			÷			F	
Left Thr	Thru Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
12.00 12.00	00 12.00	12.00	12.00	12.00	12.00	12.00	12.00	11.00	12.00	11.00
1	0	٢	0	0	0	0	0	ł	0	0
50.00 100	00.00 100.00	50.00	100.00	100.00	100.00	100.00 100.00	100.00	60.00	100.00	100.00
45.00	00		45.00			25.00			25.00	
00.00	00		0.00			0.00			0.00	
N	0		Yes			٩			Yes	

Volunes		Fulton Rd			Fulton Rd					Sar	San Miguel Ave	qve
Base Volume Input [veh/h]	0	776	96	121	1070	0	0	0	0	46	0	68
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	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	1.0000		1.3300 1.3300 1.3300	1.3300	1.3300	1.0000	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
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1032	128	161	1423	0	0	0	0	61	0	06
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	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	1.0000	1.0000 1.0000 1.0000 1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	258	32	40	356	0	0	0	0	15	0	23
Total Analysis Volume [veh/h]	0	1032	128	161	1423	0	0	0	0	61	0	90
Presence of On-Street Parking	٥N		No	٩		No	٥N		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]		0			0			0			0	
Bicycle Volume [bicycles/h]		15			12			3			0	

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Located in CBD						Z	No					
Signal Coordination Group												
Cycle Length [s]						6	06					
Coordination Type					Time	Time of Day Pattern Isolated	attern Is	olated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0	0.00					
Phasing & Timing												
Control Type	Protect	Protect Permis	Permis Protect Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	m	80	0	7	4	0	ŝ	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	2	2	0	4	7	0	0	7	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	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	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]	43	28	0	35	20	0	0	27	0	27	0	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	0.0
Walk [s]	0	2	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	@	0	0	0	0	0	0	0	18	0	0
Rest In Walk		Ŷ			Р			No		٩		
11, 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	0.0
<ol> <li>Clearance Lost Time [s]</li> </ol>	2.7	2.7	0.0	2.7	2.7	0.0	0.0	1.0	0.0	1.6	0.0	0.0
Minimum Recall	Ŷ	Yes		Ŷ	Yes			Ŷ		Ŷ		
Maximum Recall	Ŷ	٩		٩	Ŷ			No		٩		
Pedestrian Recall	Ŷ	Ŷ		Ŷ	Ŷ			Ŷ		Ŷ		
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

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



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### Lane Group Calculations

Lane Group	_	υ	υ	-	U	U	_	Ж
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12, 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	9	25	0	8	8
g / C, Green / Cycle	0.00	0.39	0.39	0.12	0.51	00:0	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.32	0.09	0.40	00:0	0.03	0.06
s, saturation flow rate [veh/h]	1774	1863	1776	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	00:0	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	00:0	0.14	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	00.0	00:0	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	00:0	0.21	0.35

X, volume / capacity	0.00 0.81	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	в	æ	υ	в	A	в	в
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	4.52	4.41	1.79	3.83	00.00	0.56	0.85
50th-Percentile Queue Length [ft/ln]	0.00	112.94	110.28	44.75	95.84	0.00	14.03	21.33
95th-Percentile Queue Length [veh/ln]	0.00	8.00	7.86	3.22	6.90	00.00	1.01	1.54
95th-Percentile Queue Length [ft/ln]	0.00	0.00 200.08 196.39	196.39	80.54	172.52	0.00	25.26	38.40

## Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

18.56	в						
0.00		18.32	в				
17.96	в						
0.00	A						
0.00	A	0.00	A				
0.00 0.00 0.00 0.00 17.96 0.00	A			13.85	m	0.468	
0.00				13	-	7.0	
10.50	ю	12.08	в				
15.66 15.83 25.99 10.50	ပ						
15.83	В						
15.66	в	15.67	в				
0.00	A						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

## Sequence Ring 1 - 2 3 Ring 2 - 7

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,			SG: 4 20s		
,			S.	3 28s	SG: 108 13s
,				SG: 8	US S
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,	,				
,	,		SG: 3 435	SG: 7 35s	
,	,			SG 7	
,	,				
,	,				
œ	,		27s		
2	,		S. 2		
,				-	
9					
Ring 2	Ring 3	Ring 4		SG: 6 27s	SG: 106 23s
_	L		1	0	01

### 2220 Fulton Road Project TIS PM Existing Conditions

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W-Trans 6/26/2019

2220 Fulton Road Project TIS PM Existing Conditions



Control Type:	malysis Method:	Analysis Period:
Cont	Analys	Analys

Intersection Level Of Service Report Intersection 4: Peterson LnSan Miguel Awe Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

#### Intersection Setup

			Right	12.00		00.			
Ave	pur			<u> </u>	_	100.00	_		
San Miguel Ave	Westbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
Sar	5		Left	12.00	0	100.00			
Ave	77		Right	12.00	0	100.00			
San Miguel Ave	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
Sar	ш		Left	12.00	0	100.00			
c	þ		Right	12.00	0	100.00			
Peterson Ln	Southbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ď	Š		Left	12.00	0	100.00			
5	q		Right	12.00	0	100.00			
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ď	z		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

### San Miguel Ave San Miguel Ave Peterson Ln Peterson Ln Base Volume Input [veh/h] Name

Volumes

AVC.	4	1.0000	2.00	1.3300	0	0	0	0	0	0	5	1.0000	1.0000	-	5	
oari iviiguei Ave	107	1.0000	2.00	1.3300	0	0	0	0	0	0	142	1.0000	1.0000	98	142	+
0	22	1.0000	2.00	1.3300	0	0	0	0	0	0	29	1.0000	1.0000	7	29	
aw	51	1.0000	2.00	1.3300	0	0	0	0	0	0	68	1.0000	1.0000	17	68	
oan iniguei Ave	109	1.0000	2.00	1.3300	0	0	0	0	0	0	145	1.0000	1.0000	36	145	4
00	80	1.0000	2.00	1.3300	0	0	0	0	0	0	#	1.0000	1.0000	e	11	
_	2	1.0000	2.00	1.3300	0	0	0	0	0	0	e	1.0000	1.0000	-	3	
	7	1.0000	2.00	1.3300	0	0	0	0	0	0	6	1.0000	1.0000	2	6	3
Ľ	e	1.0000	2.00	1.3300	0	0	0	0	0	0	4	1.0000	1.0000	-	4	
_	10	1.0000	2.00	1.3300	0	0	0	0	0	0	13	1.0000	1.0000	e	13	
	7	1.0000	2.00	1.3300	0	0	0	0	0	0	6	1.0000	1.0000	2	6	3
Ľ	37	1.0000	2.00	1.3300	0	0	0	0	0	0	49	1.0000	1.0000	12	49	
Nallie	Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Factor	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Other Adjustment Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]	Pedestrian Volume [ped/h]

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Version 7.00-05

Intersection Settings

Lanes

8.6 A 0.260

818	0.22		0.81	20.36	8.61	A		
862	0.26		1.04	25.98	8.63	A	8.56	A
741	0.02		0.07	1.65	7.96	A	8	
740	0.10		0.32	7.93	8.38	A		
Capacity per Entry Lane [veh/h]	Degree of Utilization, x	Movement, Approach, & Intersection Results	95th-Percentile Queue Length [veh]	95th-Percentile Queue Length [ft]	Approach Delay [s/veh]	Approach LOS	Intersection Delay [s/veh]	Intersection LOS

2220 Fulton Road Project TIS PM Existing Conditions



W-Trans

Control Type:	All-wa
Analysis Method:	HON
Analysis Period:	15 m

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): vay stop M 2010 minutes

7.8 A 0.128

Intersection Setup

Name	Pe	Peterson Ln	<u>د</u>	ď.	Peterson Ln	c.	Ξ.	Pinercrest Dr	ň	Ē	Pinercrest Dr	ň
Approach	ž	Northbound	5	ŭ	Southbound	p	ш	Eastbound	-	2	Westbound	5
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	Pe	Peterson Ln	c	Å	Peterson Ln	c	Pir	Pinercrest Dr	ň	Pir	Pinercrest Dr	'n
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15	6	23	6	14
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]	13	74	21	25	70	13	7	20	12	31	12	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	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 1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	e	19	5	9	18	e	2	2	з	80	e	5
Total Analysis Volume [veh/h]	13	74	21	25	20	13	7	20	12	31	12	19
Pedestrian Volume [ped/h]		+			4			+			3	

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Intersection Settings

860 Capacity per Entry Lane [veh/h] 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.	7.78	
Intersection LOS			4	

2220 Fulton Road Project TIS PM Existing Conditions



Control Type:	Inalysis Method:	Analysis Period:
ŏ	Ana	Ana

All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

11.6 B 0.469

#### Intersection Setup

Southbound         Eattbound           Left         Thru         Right         Left         Thru           12.00         12.00         12.00         12.00         12.00         12.00           0
Thru         Right         Left           12.00         12.00         12.00         12.00           1         0         0         0         0           100.00         100.00         100.00         25.00         000
Thru         Right         Left           12.00         12.00         12.00           0         0         0           100.00         100.00         25.00           25.00         0.00         0.00
12.00         12.00         12.00           0         0         0           100.00         100.00         100.00           25.00         0.00         100.00
0 0 100.00 100.00
100.00
No

Name	5	Waltzer Rd	-
Base Volume Input [veh/h]	2	40	9
Base Volume Adjustment Factor	1.0000	1.0000 1.0000 1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00
Growth Factor	1.3300	1.3300 1.3300 1.3300	1.3300
In Descent Volumo (vich/h)	0	0	0

Volumes

Name	5	Waltzer Rd		5	Waltzer Rd		Pir	Pinercrest Dr	ă			
Base Volume Input [veh/h]	2	40	9	144	62	18	9	78	9	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]	e	53	89	192	105	24	80	104	80	6	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]	-	13	2	48	26	9	2	26	2	2	8	44
Total Analysis Volume [veh/h]	3	53	8	192	105	24	8	104	80	6	136	174
Pedestrian Volume [ped/h]		5			0			5			0	

### Generated with PTV VISTRO

Version 7.00-05

Intersection Settings

### 649 Capacity per Entry Lane [veh/h] 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	в
Intersection Delay [s/veh]		11	11.57	
Intersection LOS				

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2220 Fulton Road Project TIS PM Existing Conditions

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Generated with	Version 7.00-05

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Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

30.1 C 0.549

#### Intersection Setup

	Ē	Fulton Rd			Fulton Rd	73		Piner Rd			Piner Rd	
	Ž	Northbound		ŏ	Southbound	p	ш	Eastbound		>	Westbound	q
	ŧ	4   L		•	4   L			÷			ц Ч	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
	-	0	0	1	0	0	-	0	0	1	0	+
-	110.00	100.00	100.00	90.00	100.00	100.00	70.00	100.00	100.00	245.00	100.00	110.00
		45.00			45.00			40.00			40.00	
		0.00			0.00			0.00			0.00	
		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	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 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]	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 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 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	6	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	٥N		No	No		No	Ň		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]		7			0			0			e	
Bicycle Volume [bicycles/h]		2			0			2			5	
												1

## Generated with PTV VISTRO Version 7.00-05

											Permis	9			8	70	3.9	0.0	46
											Protect Permis Permis Protect Permis Permis Protect Permis Permis Protect Permis	-		Lag	4	35	3.0	0.0	30
											Permis	0			0	0	0.0	0.0	0
				rdinated							Permis	2			80	50	3.9	0.0	30
	No		130	ern Cool	Fully actuated	27.0	LeadGreen	SingleBand	0.00		Protect	5		Lead	4	20	3.0	0.0	14
	z		\$	Time of Day Pattern Coordinated	Fully a	27	Lead	Single	0.0		Permis	0			0	0	0.0	0.0	0
				Time of							Permis	4			80	50	4.3	0.0	55
											Protect	7		Lead	4	25	3.0	0.0	15
											Permis	0			0	0	0.0	0.0	0
											Permis	80			8	50	4.3	0.0	54
											Protect	3		Lag	4	20	3.0	0.0	15
Intersection Settings	Located in CBD	Signal Coordination Group	Cycle Length [s]	Coordination Type	Actuation Type	Offset [s]	Offset Reference	Permissive Mode	Lost time [s]	Phasing & Timing	Control Type	Signal Group	Auxiliary Signal Groups	Lead / Lag	Minimum Green [s]	Maximum Green [s]	Amber [s]	All red [s]	Split [s]

Phasing & Timing												
Control Type	Protect	Protect Permis Permis Protect	Permis	Protect	Permis	Permis	Permis Protect Permis	Permis		Permis Protect	Permis	Permis
Signal Group	e	80	0	7	4	0	2	2	0	+	9	0
Auxiliary Signal Groups												
Lead / Lag	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		Ŷ			No			Ŷ			No	
11, 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
12, 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	٥N	Ŷ		Ŷ	No		۶	Ŷ		٥N	Ŷ	
Maximum Recall	Ŷ	Ŷ		Ŷ	No		۶	Ŷ		Ŷ	٩	
Pedestrian Recall	٥N	٥N		٥N	No		٩ N	°N N		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					
												1

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### Lane Group Calculations

Lane Group Calculations											
Lane Group	_	υ	U	_	υ	υ	_	U	_	υ	ĸ
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	e	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)_i 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
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
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	ш	m	в	ш	в	ю	ш	ш	ш	۵	٥
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	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/ln]	26.59	210.54 190.62 119.21	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	12.15	8.35	8.39	8.29	2.73	7.60	12.45	6.22	9.13
95th-Percentile Queue Length [ft/ln]	47.85	329.52 303.84 208.74 209.78 207.20	303.84	208.74	209.78	207.20	68.36	189.94	311.29	311.29 155.49	228.34

## Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

		_		_			
46.62							
43.74	D	51.21	۵				
58.76	ш						
61.34	ш						
18.98 19.27 62.26 11.95 11.95 70.52 61.34 61.34 58.76 43.74 46.62	ш	63.65	ш				
70.52	ш			30.10	0	0.549	
11.95	В			30.	0	0.5	
11.95	в	20.17	o				
62.26	ш						
19.27	в						
18.98	ю	20.84	U				
75.52	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 1 2 3 4 -

•	•	•	•	SG: 3 155			
•	,	,	,				
ŀ	•	•	•				
·	•	'	•				265
·	'	'	'			SG: 8 54s	SG: 108 26s
•	•	•	•		25s		
•	•	1	•	G: 4 55:	SG: 104 25s	SG: 7 15s	
Ŀ	•	•	•		••••••••••••••••••••••••••••••••••••••		
•	•	'	•				
ŀ	•	•	•				
4	œ	'	•	SG: 1 30s			
e	2	•	•	S			
2	9	'	•			46s	
-	2	'	•			SG: 6 46s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s	SG: 102 265	SG: 5 14s	

W-Trans

2220 Fulton Road Project TIS PM Existing Conditions

Control Type: Analysis Method: Analysis Period:
---

Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 8: Peterson Ln/Piner Rd

9.0 A 0.335

### Intersection Setup

Name	Å	Peterson Ln	c	Pe	Peterson Ln	L.		Piner Rd			Piner Rd	
Approach	ž	Northbound	5	S	Southbound	p	ш	Eastbound		\$	Westbound	5
Lane Configuration		÷			÷			- F			÷	
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	٢	0	-	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00	100.00	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	_	ď	Peterson Ln	-		Piner Rd			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 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	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 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	1.0000	1.0000	1.0000 1.0000 1.0000 1.0000 1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	3	13	12	5	9	8	124	6	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	Ŷ		Ŷ	No		Р	No		Ñ	Ñ		°N N
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			-			16			9	
Bicycle Volume [bicycles/h]		2			2			4			e	

### Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Iotup         Image         Image <th< th=""><th>Located in CBD</th><th></th><th></th><th></th><th></th><th></th><th></th><th>No</th><th></th><th></th><th></th><th></th><th></th></th<>	Located in CBD							No					
tion Group Type Type Type Type Type Type Type Typ													
Interest Interest         Time           Interest         Interest           Interest         Interest           Interest         Interest           Interest         Interest           Mode         Interest           Interest         Interest	Signal Coordination Group												
Type         Time           Type         Time           Type         Time           Type         Time           Sign         Time           Sign         Time           Mode         Time           Mode         Time           Sign         Time           Sign         Firm           Sign         Firm           Sign         Sign         Firm           Sign         Sign         Firm           Sign         Sign         Sign         Firm           Sign         Sign         Sign         Sign         Sign           Sign         Sign         Sign         Sign         Sign         Sign           Sign         Sign         Sign         Sign         Sign         Sign           Sign         Sign         Sign         Sign         Sign         Sign           Sign         Sign         Sign         Sign	Cycle Length [s]						6	0					
Type         Type           Isi         Fermis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Upp         0         8         0         4           Isi         0         8         0         4           Isi         1         2         2         2         2           Jag         0         7         0         0         2         2           Isi         0         1         7         0         2         2           Isi         0         0         3         0         2         2           Isi         0         0         3         0         2         2           Isi         0         1         0         2         2         2           Ision(s)         0         2         0         2         2         2           Ision(s)         0         1         0         1         2<	Coordination Type					Time	of Day P	attern Iso	lated				
[6]	Actuation Type						Fully a	ctuated					
rence         Andee           Mode         Andee           Mode         Andee           Piernis         Permis         Permis         Permis         Permis           Opp         0         0         0         0         4           Opp         0         8         0         0         4           Opp         0         7         0         4         4           al Groups         -         -         -         -         -         -           al Groups         -         -         -         -         -         -         -         -           al Groups         0         0         7         0         0         7         -           al Groups         -         -         -         -         -         -         -         -           al Groups         0	Offset [s]						0	0					
Mode         Fermis         Permis         Permis <th>Offset Reference</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Lead</th> <th>Green</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Offset Reference						Lead	Green					
I el         I el <th< th=""><th>Permissive Mode</th><th></th><th></th><th></th><th></th><th></th><th>Single</th><th>Band</th><th></th><th></th><th></th><th></th><th></th></th<>	Permissive Mode						Single	Band					
ype         Permis         Permis         Permis         Permis         Permis           oup         0         8         0         0         4            al Goups         0         8         0         0         4            al Goups         -         -         -         -         -         -         -           al Goups         0         7         0         0         7         0         0         36           eersis         0         0         36         0         00         36	Lost time [s]						0.0	00					
ype         Permis         Permis <th>nasing &amp; Timing</th> <th></th>	nasing & Timing												
oup         0         8         0         6         4         0         5         2         0         1         6         6           al Grouss         1 <td< th=""><th>Control Type</th><th>Permis</th><th>Permis</th><th>Permis</th><th></th><th>Permis</th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th></td<>	Control Type	Permis	Permis	Permis		Permis	Permis	ProtPer	Permis	Permis	ProtPer	Permis	Permis
Identify	Signal Group	0	80	0	0	4	0	2	2	0	-	9	0
add         i	Auxiliary Signal Groups												
eenels)         0         7         0         7         0         5 </th <th>Lead / Lag</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Lag</th> <th></th> <th></th> <th>Lag</th> <th></th> <th></th>	Lead / Lag							Lag			Lag		
enerlej         0         20         0         20         10         20         10 <th1< th=""><th>Minimum Green [s]</th><td>0</td><td>7</td><td>0</td><td>0</td><td>7</td><td>0</td><td>2</td><td>2</td><td>0</td><td>2</td><td>ъ</td><td>0</td></th1<>	Minimum Green [s]	0	7	0	0	7	0	2	2	0	2	ъ	0
[e]         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.6         3.3         4.3 <th>Maximum Green [s]</th> <td>0</td> <td>20</td> <td>0</td> <td>0</td> <td>20</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td>	Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
[e]         0.0 <th>Amber [s]</th> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td>	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
j         1         35         0         35         0         35         0         36         37         36	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
sion [s]         0.0         2.0         0.0         2.0         7         0         7         0         7         0         7         0         7         0         7         0         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10	Split [s]	0	35	0	0	35	0	10	31	0	24	45	0
Image         Image <th< th=""><th>Vehicle Extension [s]</th><td>0.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td></th<>	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
arance (s)         0         24         0         24         0         14         0         14         0         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10	Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Indic         No	Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
attmetej         0.0         2.0         0.0         2.	Rest In Walk		Ñ			No			Ŷ			Ŷ	
str         metal         0.0         16         0.0         16         0.0         13         23	11, 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
accalit         No         No         No         No         Yes         No         Yes           Recalit         N         No         No         No         No         No         No         Yos           Recalit         N         No         No         No         No         No         No         No         No           Recalit         N         No         No <th>12, Clearance Lost Time [s]</th> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td>	12, 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
aceal         No         No <thn< th=""><th>Minimum Recall</th><td></td><td>Ŷ</td><td></td><td></td><td>No</td><td></td><td>g</td><td>Yes</td><td></td><td>Ŷ</td><td>Yes</td><td></td></thn<>	Minimum Recall		Ŷ			No		g	Yes		Ŷ	Yes	
Recail         No         No <th< th=""><th>Maximum Recall</th><td></td><td>Ŷ</td><td></td><td></td><td>Р</td><td></td><td>g</td><td>Ŷ</td><td></td><td>Ŷ</td><td>Ŷ</td><td></td></th<>	Maximum Recall		Ŷ			Р		g	Ŷ		Ŷ	Ŷ	
alion (10         0.0         0	Pedestrian Recall		Ñ			No		Ŷ	Ŷ		°N	Ŷ	
gth         fth         0.0         1.00	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
ring Factor         1.00	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
nal Group Valk [s] arance [s]	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
	clusive Pedestrian Phase												
	Pedestrian Signal Group												
	Pedestrian Walk [s]												
	Pedestrian Clearance [s]												

2220 Fulton Road Project TIS PM Existing Conditions

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2220 Fulton Road Project TIS PM Existing Conditions

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### Lane Group Calculations

				_				
C, Cycle Length [s]	31	31	31	31	31	31	31	31
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, Effective Green Time [s]	9	9	17	10	10	17	11	4
g / C, Green / Cycle	0.18	0.18	0.56	0.33	0.33	0.56	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.03	0.27	0.02	0.06	0.18	0.18
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
, 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
X, volume / capacity	0.19	0.18	0.05	0.80	0.07	0.14	0.51	0.51
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	в	8	۷	8	۲	A	A	۷
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	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
35th-Percentile Queue Length [veh/ln]	0.66	0.71	0.03	3.13	0.17	0.08	1.66	1.61
95th-Percentile Queue Lenath [ft/ln]	16.54	17.68	0.70	78.36	4 13	1 98	4152	40.25

#### Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

		_		_			
7.91	A						
7.89	A	7.88	A				
7.71	A						
7.03	A						
6.66 10.26 7.03 7.71 7.89 7.91	в	9.85	٨				
	A			8.96	_	0.335	
10.83 10.83 10.83 10.82 10.82 10.82	в			8.9	4	0.3	
10.82	в	10.82	в				
10.82	в						
10.83	в						
10.83	в	10.83	в				
10.83	в						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

#### Sequence

	-							
		,						
			•					
•			•		35s	31s	35e	31s
•					SG: 4 355	SG: 104 315	80 05	SG: 108 31
•	,	,	•	1				
		•					SG-5 10c	
	,	,	•					
•	,	,			24s			
·	,	,	•		SG: 1 24s			
4	8	,						
•	,	•	•					
5	9	•	,					
-	5							
Ring 1	Ring 2	Ring 3	Ring 4		SG: 2 31s	SG: 102 215	SG: 6 45e	SG: 106 215

2220 Fulton Road Project TIS PM Existing Conditions

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2220 Fulton Road Project TIS PM Existing Conditions



Control Type:	Analysis Method:	Analysis Period:	
ŏ	Ana	Ana	

Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

356.5 F 1.188

#### Intersection Setup

Name	\$	Waltzer Rd	7	>	Waltzer Rd	73		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	4	-	e	40	2	38	25	591	9	80	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	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	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]	2	-	4	53	e	51	33	786	80	ŧ	1041	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	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 1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	-	0	-	13	-	13	8	197	2	e	260	15
Total Analysis Volume [veh/h]	5	-	4	53	3	51	33	786	80	1	1041	59
Pedestrian Volume [ped/h]		-			2			0			0	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

-6				
Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes			
Storage Area [veh]	1	0	0	0
Two-Stage Gap Acceptance	oN	No		
Number of Storage Spaces in Median	0	0	0	0
Movement, Approach, & Intersection Results				

V/C, Movement V/C Ratio	0.14	0.02	0.01	1.19	0.05	0.19	0.05	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	116.10	78.07	24.56	356.47	356.47 336.30 21.62	21.62	11.01	0.00	0.00	9.42	0.00	0.00
Movement LOS	ш	ш	U	ш	ш	U	æ	٨	۹	A	٨	۷
95th-Percentile Queue Length [veh/ln]	0.52	0.52	0.52	5.30	5.30	0.69	0.16	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.00	13.00	13.00	13.00 13.00 13.00 132.61 132.61	132.61	17.25	4.12	0.00	0.00	1.01	0.00	0.00
d_A, Approach Delay [s/veh]		75.68			196.30			0.44			0.09	
Approach LOS		ш			ш			A			٨	
d_I, Intersection Delay [s/veh]						10.	10.82					
Intersection LOS												

2220 Fulton Road Project TIS PM Existing Conditions

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Control Type:	Malysis Method:	Analysis Period:
0	Ana	Ä

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

139.2 F 0.834

#### Intersection Setup

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

### Volumes

	_															
chi Dr	14	1.0000	0.00	1.3300	0	0	0	0	0	0	19	1.0000	1.0000	5	19	
Tedeschi Dr	54	1.0000	2.00	1.3300	0	0	0	0	0	0	72	1.0000	1.0000	18	72	0
Rd	600	1.0000	2.00	1.3300	0	56	0	0	0	0	854	1.0000	1.0000	214	854	
Fulton Rd	80	1.0000	00.0	1.3300	0	0	0	0	0	0	11	1.0000	1.0000	e	11	0
Rd	23	1.0000	2.00	1.3300	0	0	0	0	0	0	31	1.0000	1.0000	æ	31	
Fulton Rd	881	1.0000	2.00	1.3300	0	25	0	0	0	0	1197	1.0000	1.0000	299	1197	0
Name	Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Factor	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Other Adjustment Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]	Pedestrian Volume [ped/h]

### Generated with PTV VISTRO Version 7.00-05

### No ON Free Free 0 Jon Setting-Priority Scheme Flaced Lane Storage Area (veh) Two-Stage Gap Acceptance Number of Storage Spaces in Median Intersection Settings

	Re
-	Intersection
	ంర
	Movement, Approach,

Movement, Approacn, & Intersection Results						
V/C, Movement V/C Ratio	0.01	00:00	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	۷	۷	8	۷	з	L
95th-Percentile Queue Length [veh/In]	0.00	00.00	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]	0.0	0.00	0.14	14	132.20	20
Approach LOS	1		1	1	Ľ	
d_I, Intersection Delay [s/veh]			5.5	5.57		
Intersection LOS						

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VISTRO		
PTV		
Generated with	Version 7.00-05	

Control Type:	Analysis Method:	Analysis Period:
0	Ä	An

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

14.1 B 0.519

#### Intersection Setup

Northhold
니다
Thru Right
12.00 12.00
0
00.00 100.00
45.00
0.00
No

	L.	Fulton Rd			Fulton Rd	_				Sar	San Miguel Ave	qve
Base Volume Input [veh/h]	0	814	93	73	589	0	0	0	0	105	0	135
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	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	1.0000	1.3300		1.3300 1.3300	1.3300	1.0000	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	10	6	5	51	0	0	0	0	28	0	15
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
[otal Hourly Volume [veh/h]	0	1093	133	102	834	0	0	0	0	168	0	195
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 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	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	273	33	26	209	0	0	0	0	42	0	49
Total Analysis Volume [veh/h]	0	1093	133	102	834	0	0	0	0	168	0	195
Presence of On-Street Parking	٩		No	No		Ñ	Ŷ		٩	Ŷ		Ŷ
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
_ocal Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		6			13			80			0	

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Intersection Settings

Located in CBD						z	٩					
Signal Coordination Group												
Cycle Length [s]						10	190					
Coordination Type					Time (	Time of Day Pattern Isolated	attern Is	olated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Permis Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	@	0	7	4	0	ŝ	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	5	7	0	4	7	0	0	2	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	0	2	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	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]	61	120	0	25	84	0	0	45	0	45	0	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	0.0
Walk [s]	0	2	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	@	0	0	0	0	0	0	0	18	0	0
Rest In Walk		Ñ			Р			Ŷ		٩		
11, 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	0.0
12, 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	0.0
Minimum Recall	Ň	Yes		Ŷ	Yes			Ŷ		No		
Maximum Recall	Ŷ	٩		Ŷ	٩			Ŷ		Ŷ		
Pedestrian Recall	٥N	N		٥N	No			Ñ		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					

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### Lane Group Calculations

Lane Group	_	υ	υ	_	U	U	_	2
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12, 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	4	24	0	6	6
g / C, Green / Cycle	0.00	0.41	0.41	0.08	0.49	0.00	0.18	0.18
(v / s)_i 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
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	2.22	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	00.0	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
and Ground Boerike								

### 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	×	m	m	υ	A	A	в	в
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/ln]	0.00	114.65	114.65 112.15	31.67	47.09	00.0	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	198.99	57.00	84.76	00.0	71.39	86.89
						-		

### Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

19.41	в						
0.00		18.90	в				
18.31	В						
0.00 0.00 0.00 0.00 18.31 0.00 19.41	A						
0.00	A	0.00	A				
0.00	٨			14.09	m	0.519	
0.00				14.		0.5	
8.59	A	10.94	в				
30.11	υ						
0.00 15.06 15.22 30.11 8.59	в						
15.06	в	15.08	в				
0.00	A						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

### Sequence Ring 1 - 2 Ring 2 6 -

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, 4

1 00

			0000000	000000000000
•	'	'		
•				
		1	SG: 4 84s	
	•		UN	
•	•	•		120s
				SG:8 120s SG:108
			61s	255
			sg: 3	sc. 7 25s
•		-		
ø			10	
-	•	•	SG: 2 45s	
•	•		•	
0	•	•		
KING Z	Ring 3	Ring 4		SG: 6 45s SG: 106 205
			-	

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Intersection Level Of Service Report Intersection 4: Peterson LntSan Miguel Awe Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

9.4 A 0.357

Intersection Setup

Approach         Northbound           Lane Configuration	Sou Sou Sou	thbound Thru Right	Left	Eastbound				
Left Thru Right 12.00 12.00 12.00 0 0 0 100.00 10000	Left 12.00		Left	+		>	Westbound	P
Left Thru Right 12.00 12.00 12.00 0 0 0	Left 12 00	$\vdash$	Left	F			÷	
12.00         12.00         12.00           0         0         0           100.00         100.00         100.00	12 00	⊢		Thru	Right	Left	Thru	Right
0 0 0 100.00 10	2	-	12.00	12.00	12.00	12.00	12.00	12.00
100.00 100.00 1	0	0	0	0	0	0	0	0
	100.00 10	00.00 100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph] 25.00	25.00	8		25.00			30.00	
Grade [%] 0.00	0.0	0.00		0.00			0.00	
Crosswalk Yes	¥	Yes		Yes			Yes	

Volumes												
Name	ď	Peterson Ln	<u>د</u>	æ	Peterson Ln	c	San	San Miguel Ave	we	San	San Miguel Ave	we
Base Volume Input [veh/h]	42	2	12	80	4	4	-	135	28	5	173	-
Base Volume Adjustment Factor	1.0000	.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	2	0	0	0	0	14	0	7	43	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]	56	e	18	4	2	5	-	194	37	14	273	-
Peak Hour Factor	1.0000	.0000 1.0000 1.0000	1.0000	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 1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	-	5	m	-	-	0	49	6	4	88	0
Total Analysis Volume [veh/h]	56	e	18	7	2	5	-	194	37	14	273	-

0

Pedestrian Volume [ped/h]

VISTRO	
h PTV	Ľ
Generated witl	Version 7 00-05

CO-00. / 11018 IAA

Intersection Settings Lanes

_	_		_	_	_	_	_	_
807	0.36		1.62	40.61	9.92	A		
814	0.28		1.18	29.42	9.18	A	9.44	A
693	0.03		0.09	2.34	8.36	A	67	4
700	0.11		0.37	9.23	8.78	A		
Capacity per Entry Lane [veh/h]	Degree of Utilization, x	Movement, Approach, & Intersection Results	95th-Percentile Queue Length [veh]	95th-Percentile Queue Length [ft]	Approach Delay [s/veh]	Approach LOS	Intersection Delay [s/veh]	Intersection LOS

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Control Type:	All-
Analysis Method:	H
Analysis Period:	15

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): ll-way stop ICM 2010 5 minutes

7.7 A 0.131

### Intersection Setup

Name	Pe	Peterson Ln	5	Å	Peterson Ln	5	Ē	Pinercrest Dr	ک	Ē	Pinercrest Dr	ň
Approach	ž	Northbound	7	Ň	Southbound	p		Eastbound	_	\$	Westbound	5
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	

Name	4	Peterson Ln	_	ď	Peterson Ln	c	Ē	Pinercrest Dr	ď	ā	Pinercrest Dr	
Base Volume Input [veh/h]	2	26	60	80	47	e	2	15	15	39	12	14
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	2	0	0	7	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]	e	37	80	4	20	4	7	20	20	52	16	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]	-	6	20	e	18	-	2	5	2	13	4	2
Total Analysis Volume [veh/h]	e	37	80	7	20	4	7	20	20	52	16	19
Pedestrian Volume [ped/h]		2			4			0			e	

## Generated with PTV VISTRO Version 7.00-05

### Intersection Settings

Lanes				
Capacity per Entry Lane [veh/h]	914	826	847	815
Degree of Utilization, x	0.13	0.10	0.06	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	7.72	
Intersection LOS			A	

2220 Fulton Road Project TIS AM Baseline Conditions



All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

12.2 B 0.448

#### Intersection Setup

_				_					_	I		
ň	p		Right	12.00	0	100.00						
Pinercrest Dr	Westbound	÷	Thru	12.00	0	100.00	30.00	0.00	Ŷ			
Ē	\$		Left	12.00	0	100.00						
ň	_		Right	12.00	0	100.00	0					
Pinercrest Dr	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes			
Pir	ш		Left	12.00	0	100.00						
73	q		Right	12.00	0	100.00						
Waltzer Rd	Southbound	÷	Thru	12.00	0	100.00	25.00	0.00	No			
s	Š		Left	12.00	0	100.00						
7	q		Right	12.00	0	100.00	25.00					
Waltzer Rd	Northbound	÷	Thru	12.00	0	100.00		25.00	25.00	25.00	0.00	Yes
s	Ż		Left	12.00	0	100.00						
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk			

Volumes												
Name	5	Waltzer Rd	-	5	Waltzer Rd	_	Ē	Pinercrest Dr	ň	ä	Pinercrest Dr	ľ
Base Volume Input [veh/h]	8	69	17	147	57	5	11	174	12	-	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	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]	11	92	23	196	76	7	15	231	16	-	128	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	.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]	e	23	9	49	19	2	4	58	4	0	32	36
Total Analysis Volume [veh/h]	1	92	23	196	76	7	15	231	16	-	128	144

Pedestrian Volume [ped/h]

VISTRO	
ΡTV	
Generated with	1000 T aciara

Version 7.00-05

Intersection Settings

Lanes

645	0.41		1.97	49.29
623	0.45		2.31	57.72
612	0.21		0.77	19.19
Capacity per Entry Lane [velvh]	Degree of Utilization, x	Movement, Approach, & Intersection Results	95th-Percentile Queue Length [veh]	95th-Percentile Queue Length [ft]

acity per Entry Lane [veh/h]	612	623	645	681
Degree of Utilization, x	0.21	0.45	0.41	0.40
oroach, & Intersection Results				
Percentile Queue Length [veh]	0.77	2.31	1.97	1.94
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	в	в	в	æ
ntersection Delay [s/veh]		12	12.23	
Intersection LOS				

2220 Fulton Road Project TIS AM Baseline Conditions



VISTRO	
PTV	
Generated with	Version 7.00-05

Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

34.0 C 0.617

#### Intersection Setup

Piner Rd Piner Rd	Eastbound Westbound	거 <b>Ի</b>	Thru Right Left Thru Right	12.00 12.00 12.00 12.00 12.00	0 1 0 1	00.00 100.00 245.00 100.00 110.00	40.00 40.00	0.00 0.00	Van
Ľ	ŭ	Ť	Left	12.00	-	70.00			
gd	pur		Right	12.00	0	100.00			
Fulton Rd	Southbound	<u>+</u>	Thru	12.00	0	100.00	45.00	0.00	No
			Left	12.00	-	90.00			
P	P		Right	12.00	0	100.00			
Fulton Rd	Northbound	4-	Thru	12.00	0	100.00	45.00	0.00	Yes
	z		Left	12.00	-	110.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

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	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	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	9
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]	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	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 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	1.0000	1.0000
Total 15-Minute Volume [velvh]	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	٥		No	No		No	٥N		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]		9			0			0			10	
Bicycle Volume [bicycles/h]		0			0			-			0	
												1

Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						10	130					
Coordination Type					Time of	Day Patt	Time of Day Pattern Coordinated	dinated				
Actuation Type						Fully ad	Fully actuated					
Offset [s]						85	85.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Permis Permis	Protect	Permis	Permis	Permis Protect	Permis	Permis	Permis Protect	Permis	Permis
Signal Group	e	80	0	7	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	80	0	4	∞	0	4	8	0	4	∞	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			٩			No			٩	
11, 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
12, 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	Ŷ	Ŷ		Ŷ	Ŷ		R	Ŷ		Ŷ	Ŷ	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		g	No		No	٩	
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						

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### Lane Group Calculations

raile of out calculations											
Lane Group	_	υ	U	_	υ	υ	_	υ	_	U	۲
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	2	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)_i 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
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
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	00.0	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	0:00	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	39.91	43.72
Lane Group LOS	ш	υ	υ	ш	в	в	ш	ш	ш	۵	۵
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	No
50th-Percentile Queue Length [veh/ln]	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/ln]	44.90	274.31	44.90 274.31 243.71 133.86 138.95 133.10	133.86	138.95	133.10	40.39	150.96	203.68	94.01	168.17
95th-Percentile Queue Length [veh/ln]	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/ln]	80.82	410.12	80.82 410.12 371.72 228.74 235.61	228.74	235.61	227.71	72.70	251.71	320.71	169.22	274.51

## Generated with PTV VISTRO Version 7.00-05

## Movement, Approach, & Intersection Results

43.72	۵						
39.91	۵	48.63	۵				
58.47	ш						
58.15	ш						
58.15	ш	60.47	ш				
68.66 24.80 25.20 61.66 15.78 15.81 69.84 58.15 58.15 58.47	ш			34.02	U	17	
15.81	В			34.	0	0.617	
15.78	в	24.40	U				
61.66	ш						
25.20	ပ						
24.80	ပ	27.17	U				
68.66	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

				14s			
	,			SG: 3 1			
	,	•	•				
			•				8 26s
		•	•			SG: 8 54s	SG: 108 2
					Ss		S
				SG: 4 55s	SG: 104 25s	SG: 7 15s	
					 <u> </u>	S S	
,	,	•	•				
4	8	•		31s			
e	2	•	•	SG: 1			
2	9	•	•			47s	
-	5	•	•			SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s	SG: 102 265	SG: 5 14s	

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2220 Fulton Road Project TIS AM Baseline Conditions

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

Intersection Level Of Service Report Intersection 3: Peterson Ln/Piner Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

10.5 B 0.459

#### Intersection Setup

Name	Peter	Peterson Ln	_	Pe	Peterson Ln	n		Piner Rd			Piner Rd	
Approach	Nort	Northbound		ÿ	Southbound	d	ш	Eastbound	-	*	Nestbound	q
Lane Configuration	•	+			÷			L F			4 F	
Turning Movement	-eft T	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft] 12	12.00 1:	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	+	۲	0	0
Pocket Length [ft] 10	00.00 10	00'00	100.00	100.00	100.00	100.00	80.00	100.00	00.00 180.00	80.00	100.00	100.00
Speed [mph]	3	30.00			30.00			40.00			40.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		Yes			Yes			Yes			Yes	

Volumes												
Name	ď	Peterson Ln	5	ď	Peterson Ln	c.		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	62	54	107	62	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 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 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	9	-	0	0	30	0	0	9	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	85	35	45	22	594	31	36	507	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 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   1.00000   1.0000   1.0000   1.0000   1.00000   1.00000   1.00000   1.00000   1.00000   1.00000   1.0000   1.0000   1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	14	27	21	6	11	9	149	8	6	127	5
Total Analysis Volume [veh/h]	62	54	107	85	35	45	22	594	31	36	507	19
Presence of On-Street Parking	٥N		No	٥N		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]		ŝ			-			e			5	
Bicycle Volume [bicycles/h]		0			2			+			-	

### Generated with PTV VISTRO Version 7.00-05

Located in CBD Intersection Settings

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Cycle Length [s]	Signal Coordination Group													
Contration Type         Time of Day Pattern Isolated           Actuation Type         .           Actuation Type         .           Offset (B)         .           Optime (B)         .           Optime (B)         .         .           Optime (B)         .         .           Optime (B)         .         .         .            Optime	Cycle Length [s]						6	0						
Actuation Type         Environment of the function to the functiont to the	Coordination Type					Time (	of Day Pa	attern Isc	lated					
Offset [s]         00           Offset Faderence         EnadiSterent           Permissive Mode         EnadiSterent           Lost Inte [s]	Actuation Type						Fully ac	ctuated						
Other Reference         Lead Green           Permissione Indole         Single Band           Lost Time Isj         Control Type         Control Type           Control Type         Permis	Offset [s]						0	0						
Permissive Mode         Single Band           Lots time [s]	Offset Reference						Lead	Green						
Lost time [e]         not time [e]         not time [e]         not time [emis]         permis         per	Permissive Mode						Single	Band						
Control Type         Permis          Permis <th colspan<="" th=""><th>Lost time [s]</th><th></th><th></th><th></th><th></th><th></th><th>0.0</th><th>0</th><th></th><th></th><th></th><th></th><th></th></th>	<th>Lost time [s]</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.0</th> <th>0</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Lost time [s]						0.0	0					
ype         Permis         Permis <th>Phasing &amp; Timing</th> <th></th>	Phasing & Timing													
oup         0         2         2         0         1         6         6         1         6         1         6         1         6         1         1         6         1         1         6         1         1         6         1	Control Type			Permis		Permis	Permis	ProtPer	Permis	Permis	ProtPer	Permis	Permis	
Idenoise	Signal Group	0	80	0	0	4	0	5	2	0	-	9	0	
add         i	Auxiliary Signal Groups													
eerele)         0         7         0         7         0         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5         4         5 </th <td>Lead / Lag</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Lag</td> <td></td> <td></td> <td>Lag</td> <td></td> <td></td>	Lead / Lag							Lag			Lag			
eerelej         0         20         0         20         10         20         10         15         40         15         40           91         0.0         36         0.0         36         0.0         36         0.0         43         43         43         43           91         0.0         0.0         36         0.0         36         0.0         43         43         43         43           91         0.0         0.0         0.0         0.0         0.0         0.0         43         43         43           91         0.0         0.	Minimum Green [s]	0	7	0	0	7	0	2	2	0	2	2	0	
[e]         [00         36         [00         36         00         36         43	Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0	
el         0.0	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	
j         0         35         0         36         0         36         0         45         0         10         41           sison(s)         0         20         0         20         20         20         20         20         20           sison(s)         0         2         7         0         7         7         20	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	
sign [ş]         0.0         2.0         0.0         2	Split [s]	0	35	0	0	35	0	4	45	0	10	41	0	
j         j	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	
anamoe[s]         0         24         0         24         0         14         0         14         0         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         14         10         10         14         10         1	Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0	
(ink         No         N	Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0	
Itmme (s)         0.0         2.0         0.0         2	Rest In Walk		Ŷ			٩			Р			Ŷ		
atTme [s]         0.0         1.6         0.0         1.6         0.0         2.3         2	11, 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	
accalit         No         No         No         No         Veso         No         No </th <td>12, Clearance Lost Time [s]</td> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td>	12, 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	
accali         No         No <th< th=""><td>Minimum Recall</td><td></td><td>N</td><td></td><td></td><td>Ŷ</td><td></td><td>Ŷ</td><td>Yes</td><td></td><td>٥N</td><td>Yes</td><td></td></th<>	Minimum Recall		N			Ŷ		Ŷ	Yes		٥N	Yes		
Recall         No         No <th< th=""><td>Maximum Recall</td><td></td><td>٩</td><td></td><td></td><td>Ŷ</td><td></td><td>g</td><td>٩</td><td></td><td>٩</td><td>Ŷ</td><td></td></th<>	Maximum Recall		٩			Ŷ		g	٩		٩	Ŷ		
ation (11) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Pedestrian Recall		Ŷ			Ŷ		g	Ŷ		Ŷ	Ŷ		
gth         T         0	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	
ring Factor         1.00	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	
tal Group Valk [s] arance [s]	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	
	clusive Pedestrian Phase													
	Pedestrian Signal Group													
	Pedestrian Walk [s]						0							
	Pedestrian Clearance [s]													

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### Lane Group Calculations

	0	נ	-	ر	Ľ	_	כ	נ
C, Cycle Length [s]	33	33	33	33	33	33	8	33
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, 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)_i Volume / Saturation Flow Rate	0.14	0.12	0.02	0.32	0.02	0.03	0.14	0.14
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	60.9	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
, 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	0.36
Delay for Lane Group [s/veh]	12.25	11.82	6.09	12.86	6.48	9.54	7.07	7.08
Lane Group LOS	в	в	۷	m	۲	۷	۷	٨
Critical Lane Group	Yes	No	Ñ	Yes	No	Yes	N	No
50th-Percentile Queue Length [veh/ln]	1.15	0.82	0.02	2.71	0.08	0.03	0.69	0.68
50th-Percentile Queue Length [ft/In]	28.79	20.59	0.43	67.78	1.88	0.72	17.17	17.02
95th-Percentile Queue Length [veh/In]	2.07	1.48	0.03	4.88	0.14	0.05	1.24	1.23
05th Dercentile Orierie Lenoth [ft/ln]	5183	37.07	77.0	100 001	00 0	00.1	1000	0000

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### Version 7.00-05

## Movement, Approach, & Intersection Results

7.08	A						
7.08	A	7.23	A				
9.54	A						
6.48	A						
6.09 12.86 6.48	в	12.33	в				
	٨			10.47	æ	0.459	
11.82 11.82 11.82	В			10			
11.82	в	11.82	в				
11.82	в						
12.25	в						
12.25	в	12.25	в				
12.25	в						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

#### Sequence

				2				
		,						
	ī							
	ī	,			35s	31s	355	31s
					SG: 4	SG: 104 31s	SG: 8 35s	SG. 108
				Ĩ				
			•		SG: 1 105		14s	
							SG: 5 14s	
	,	,						
4	8	,						
								_
2	9	•	•					
-	5		•					
Ring 1	Ring 2	Ring 3	Ring 4		SG: 2 45s	SG: 102 21s	SG: 6 41s	SG: 106 215

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Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

423.4 F 1.334

### Intersection Setup

Name	5	Waltzer Rd	-	\$	Waltzer Rd			Piner Rd			Piner Rd	
Approach	ž	Northbound	-	Ň	Southbound	p	ш	Eastbound		5	Westbound	5
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	0	ł	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	00.00 100.00	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			Å	

	5	Waltzer Rd	-	5	Waltzer Rd	7		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	8	5	13	88	0	63	42	824	e	6	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
	1.3300	1.3300	1.3300		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	36	0	0	~	0
	0	0	0	0	0	0	0	0	0	0	0	0
	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
	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	#	7	17	51	0	84	56	1132	4	12	645	35
	1.0000	1.0000	1.0000	.0000 1.0000 1.0000 1.0000 1.0000 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	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	283	-	3	161	6
[otal Analysis Volume [veh/h]	11	7	17	51	0	84	56	1132	4	12	645	35
Pedestrian Volume [ped/h]		2			5			0			0	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings				
Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes			
Storage Area [veh]	-	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0
Movement, Approach, & Intersection Results				

## Mo

V/C, Movement V/C Ratio	0.29	0.12	0.0	7 1.33	0.00	0.18	0.06	0.01	0.00	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	132.01	99.01	51.72	99.01 51.72 423.42	389.88	14.66	9.24	0.00	0.00	10.99	0.00	0.00
Movement LOS	u.	ш	u.	ш	ш.	m	۲	٨	٨	ш	۷	۷
95th-Percentile Queue Length [veh/In]	1.80	1.80	1.80	5.24	5.24	0.67	0.20	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	44.91	44.91	44.91	44.91 44.91 131.06	131.06	16.68	4.94	0.00	0.00	1.50	0.00	0.00
d_A, Approach Delay [s/veh]		86.41			169.08			0.43			0.19	
Approach LOS		ш			ш			۲			۲	
d_I, Intersection Delay [s/veh]						12.	12.90					
Intersection LOS												

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Control Type:	Malysis Method:	Analysis Period:
0	Anŝ	Å

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Two-way stop HCM 2010 15 minutes

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

223.6 F 0.962

### Intersection Setup

Tedeschi Dr	Westbound	t	Right	12.00	0	100.00	30.00	0.00	Yes
Tedes	Westt	H	Left	12.00	0	100.00	30	0.0	*
Fulton Rd	Southbound	_	Thru	12.00	0	100.00	30.00	0.00	No
Fulto	South	١٢	Left	12.00	Ļ	50.00	30	0.0	z
Fulton Rd	puno	<b>_</b>	Right	12.00	0	100.00	45.00	00	N
Fulto	Northbound	Ξ	Thru	12.00	0	100.00	45.	00.00	z
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

	Tedes	40	1.0000	2.00	1.3300	0	0	0	0	0	0	53	1.0000	1.0000	13	53
	n Rd	1138	1.0000	2.00	1.3300	0	44	0	0	0	0	1558	1.0000	1.0000	390	1558
	Fulton Rd	10	1.0000	00.0	1.3300	0	0	0	0	0	0	13	1.0000	1.0000	6	13
	h Rd	60	1.0000	2.00	1.3300	0	0	0	0	0	0	80	1.0000	1.0000	20	80
	Fulton Rd	783	1.0000	2.00	1.3300	0	62	0	0	0	0	1103	1.0000	1.0000	276	1103
Volumes	Name	Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Factor	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Other Adjustment Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]

0.00 1.3300

0

0

1.0000

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Tedeschi Dr

0 12 1.0000 1.0000

0

e 9

> Total Analysis Volume [veh/h] Pedestrian Volume [ped/h]

## Generated with PTV VISTRO

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Intersection Settings

Priority Scheme	F	Free	F	Free	Stop	do
Flared Lane					No	0
Storage Area [veh]				-	0	
Two-Stage Gap Acceptance					N	
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	96.0	0.03
d_M, Delay for Movement [s/veh]	00.0	0.00	11.17	00.00	223.64	166.26
Movement LOS	A	۷	B	A	ш	L
95th-Percentile Queue Length [veh/In]	0.00	0.00	0.07	0.00	4.89	4.89
95th-Percentile Queue Length [ft/In]	00.0	0.00	1.67	00.0	122.21	122.21
d_A, Approach Delay [s/veh]	0.0	0.00	0.0	0.09	213.04	.04
Approach LOS	1	A	1	A	LL.	
d_I, Intersection Delay [s/veh]			4.	4.96		
Intersection LOS				ш		

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Control Type: Analysis Method: Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

14.4 B 0.509

### Intersection Setup

Nallo	Fult	Fulton Rd		ш	Fulton Rd	_				Sar	San Miguel Ave	Ave
Approach	Nort	Northbound		Ň	Southbound	p		Eastbound	P	>	Westbound	p
Lane Configuration	L	4   L			Ē			÷			F	
Turning Movement	Left T	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft] 1:	12.00 1	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	11.00	12.00	11.00
No. of Lanes in Pocket	-	0	0	-	0	0	0	0	0	-	0	0
Pocket Length [ft] 5	50.00 10	0.00	00.00	50.00	100.00	100.00	100.00	100.00	100.00	60.00	100.00	100.00
Speed [mph]	4	45.00			45.00			25.00			25.00	
Grade [%]	0	0.00			0.00			0.00			0.00	
Crosswalk		No			Yes			No			Yes	

Volumes												
Name		Fulton Rd		ш.	Fulton Rd					San	San Miguel Ave	We
Base Volume Input [veh/h]	0	776	96	121	1070	0	0	0	0	46	0	68
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	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	.3300 1.3300	1.3300	1.3300 1.3300 1.3300	1.3300	1.0000	1.3300	1.3300	1.3300 1.3300	1.3300	1.0000	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	51	27	19	25	0	0	0	0	16	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]	0	1083	155	180	1448	0	0	0	0	27	0	101
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 1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	.0000 1.0000 1.0000 1.0000 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]	0	271	39	45	362	0	0	0	0	19	0	25
Total Analysis Volume [veh/h]	0	1083	155	180	1448	0	0	0	0	17	0	101
Presence of On-Street Parking	No		No	No		Ň	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]		0			0			0			0	
Bicycle Volume [bicycles/h]		15			12			ъ			0	

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Intersection Settings												
Located in CBD						Z	No					
Signal Coordination Group												
Cycle Length [s]						6	06					
Coordination Type					Time	of Day P	Time of Day Pattern Isolated	olated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Protect Permis Permis Protect Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	8	0	7	4	0	2	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	2	7	0	4	7	0	0	7	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	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	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]	43	28	0	35	20	0	0	27	0	27	0	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	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	8	0	0	0	0	0	0	0	18	0	0
Rest In Walk		No			Ŷ			N		Ŷ		
11, 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	0.0
12, 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	0.0
Minimum Recall	No	Yes		No	Yes			No		No		
Maximum Recall	No	No		No	No			No		No		
Pedestrian Recall	оN	No		٥N	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					

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### Lane Group Calculations

Lane Group Calculations							
Lane Group	_	U	ပ	_	υ	υ	_
C, Cycle Length [s]	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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	00.00	00.00
12, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60
g_i, Effective Green Time [s]	0	22	22	7	29	0	8
g / C, Green / Cycle	0.00	0.41	0.41	0.13	0.54	0.00	0.16
(v / s)_i Volume / Saturation Flow Rate	0.00	0.34	0.34	0.10	0.41	00:0	0.04
s, saturation flow rate [veh/h]	1774	1863	1765	1774	3547	1863	1774
c, Capacity [veh/h]	0	761	721	236	1921	0	279
d1, Uniform Delay [s]	0.00	14.07	14.17	22.24	9.44	00:0	19.73
k, delay calibration	0.04	0.11	0.11	0.11	0.11	0.04	0.04
I, Upstream Filtering Factor	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	00:0	0.20
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
and Groun Boentte							

### Lane Group Results

0.41	20.56	υ	Yes	1.08	27.01	1.94	48.62
0.28	19.93	в	No	08.0	20.02	1.44	36.04
0.00	00.00	A	No	00.00	0.00	00.00	0.00
0.75	10.06	в	No	4.08	102.06	7.35	183.71
0.76	27.28	υ	Yes	2.18	54.45	3.92	98.00
0.84	16.91	m	Yes	5.32	132.90	9.10	227.43
0.83	16.49	æ	No	5.44	0.00 136.05 132.90	9.27	0.00 231.70 227.43
0.00	0.00	A	No	0.00	0.00	0.00	0.00
X, volume / capacity	d, Delay for Lane Group [s/veh]	Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/In]	50th-Percentile Queue Length [ft/In]	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/In]

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

53 3.60 0.00 1.60

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20.56	υ					
0.00		20.29	o			
0.00 19.93	в					
0.00	٨					
0.00	A	0.00	A			
0.00 0.00 0.00	٨			14.37	m	0.509
				14.		0.5
10.06	в	11.96	в			
16.91 27.28 10.06	υ					
16.91	в					
16.67	в	16.70	в			
0.00	A					
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C

# Sequence Ring 1 - 2 3 4

8 0.16 0.06 1583 249 249 2016 0.04 1.00 0.039 0.339 0.339 1.00 1.00 1.00 1.00

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			in		
			SG: 4 20s		
		•		SG: 8 285	
				S	-
		•			
		•			
		•			
			SG: 3 43s	SG: 7 35s	
	•			S	00
		•			
		•			
œ		•	2 27s		
7			8G: 2		00
•	•	•			
9	•	•			
Ring 2	Ring 3	Ring 4		SG: 6 27s	



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Intersection Level Of Service Report Intersection 4: Peterson Ln/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (vrc): All-way stop HCM 2010 15 minutes

9.1 A 0.321

### Intersection Setup

						0			
	p		Right	12.00	0	100.00			
	Westbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes
	\$		Left	12.00	0	100.00			
we			Right	12.00	0	100.00			
San Miguel Ave	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
San	ш		Left	12.00	0	100.00			
c	P		Right	12.00	0	100.00			
Peterson Ln	Southbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
Pe	Sc		Left	12.00	0	100.00			
5	P		Right	12.00	0	100.00			
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ų,	Ż		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Name	Å	Peterson Ln	<u>د</u>	Å,	Peterson Ln		Sar	San Miguel Ave	4ve			
Base Volume Input [veh/h]	37	7	10	e	7	2	8	109	51	22	107	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	.0000 1.0000 1.0000 1.0000 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	9	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	6	23	4	6	3	1	191	68	35	169	2
Peak Hour Factor	1.0000	1.0000	1.0000	.0000 1.0000 1.0000 1.0000 1.0000 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	9	-	2	1	3	48	17	6	42	-
Total Analysis Volume [veh/h]	49	6	23	4	6	3	11	191	68	35	169	2
Pedestrian Volume [ped/h]		e			e			4			-	

## Generated with PTV VISTRO Version 7.00-05

### Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]

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Control Type:	All-
Analysis Method:	H
Analysis Period:	15

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): II-way stop ICM 2010 5 minutes

7.8 A 0.138

Intersection Setup

Approach         Northbound         Southbound           Lare Configuration         Image Configuration         Image Configuration         Image Configuration           Turing Movement         Left         Thru         Right         Left         Thru           Lame Widh [ft]         12.00         10.00         <			Pinercrest Dr	Finerc	Pinercrest Dr
Tent         Right         Left         Thru         Right         Left         Thru         Right         Left         Thru         Right         Right<	Southbound	Eastbound	pund	Westt	Westbound
Left         Thru         Right         Left         Thru         I           12.00         12.00         12.00         12.00         12.00         13.00	÷	+	•	÷	.t.
12.00         12.00         12.00         12.00         12.00         12.00         12.00         13.00 <th< td=""><td>Left</td><td>t Left Thru</td><td>u Right</td><td>Left Th</td><td>Thru Right</td></th<>	Left	t Left Thru	u Right	Left Th	Thru Right
0         0         0         0         0         0         0         0         0         10000         10000         10000         10000         125.00<	12.00	0 12.00 12.00	0 12.00	12.00 12	12.00 12.00
100.00         100.00         100.00         100.00         100.00         1           25.00         25	0	0	0	0	•
25.00		100.00	00.00 100.00	100.00 100	00.00 100.00
	25.00	25.00	0	25	25.00
Grade [%] 0.00 0.00	00.0	00:0		0	0.00
Crosswalk Yes Yes	Yes	Yes	(0	×	res

Volumes												
Name	Å	Peterson Ln	c	Å	Peterson Ln	c	Pir	Pinercrest Dr	Ъ	ïđ	Pinercrest Dr	ŗ
Base Volume Input [veh/h]	10	56	16	19	53	10	5	15	6	23	6	14
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	10	0	0	9	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]	13	84	21	25	76	13	7	20	12	31	12	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	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	1.0000
Total 15-Minute Volume [veh/h]	е	21	5	9	19	3	2	5	3	80	3	2
Total Analysis Volume [veh/h]	13	84	21	25	76	13	7	20	12	31	12	19
Pedestrian Volume [ped/h]		-			4			-			e	

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Version 7.00-05

Intersection Settings Lanes

_	_		_	_	_	_	_	_
816	0.08		0.25	6.15	77.7	A		
823	0.05		0.15	3.72	7.59	A	7.84	
844	0.14		0.47	11.66	7.93	A	3.7	4
857	0.14		0.48	11.92	7.87	A		
Capacity per Entry Lane [veh/h]	Degree of Utilization, x	Movement, Approach, & Intersection Results	95th-Percentile Queue Length [veh]	95th-Percentile Queue Length [ft]	Approach Delay [s/veh]	Approach LOS	Intersection Delay [s/veh]	Intersection LOS

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Control Type: Analveis Method:	Analysis Period:

All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (seo / veh): Level Of Service: Volume to Capacity (v/c):

11.6 B 0.469

### Intersection Setup

Name	\$	Waltzer Rd	_	5	Waltzer Rd	9	μ	Pinercrest Dr	ň	Pir	Pinercrest Dr	ľ
Approach	ž	Northbound	q	Š	Southbound	g	ш	Eastbound		\$	Westbound	q
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			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		Yes			No			Yes			Ŷ	

### Som

		Waltzer Rd	7	5	Waltzer Rd		Ē	Pinercrest Dr	ň	Ρ	Pinercrest Dr	ň
	2	40	9	144	79	18	9	78	9	7	102	131
÷	0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
~	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
-	3300	1.3300	1.3300	1.3300	1.3300 1.3300	1.3300	1.3300		1.3300 1.3300	1.3300	1.3300	1.3300
	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0
-	0	0	0	0	0	0	0	0	0	0	0	0
_	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	~	53	8	192	105	24	8	104	80	6	136	174
	0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
÷.	0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
	-	13	2	48	26	9	2	26	2	2	\$	44
	e	53	8	192	105	24	8	104	80	6	136	174
		2			0			2			0	

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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	æ	A	æ
Intersection Delay [s/veh]		11	11.57	
Intersection LOS				

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Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

30.7 C 0.569

### Intersection Setup

Futuon Rd         Futuon Rd         Primer Rd           Anthound         Southbound         Eatbound           Thu         Right         Left         Thu           Thu         Right         Left         Thu           Tool         12.00         12.00         12.00         12.00           0         0         0         0         1         0         0           45.00         -45.00         -40.00         0.00         100.00         0.00         100.00
Southbound         Eastbound           Right         Left         Thru         Right         FTru           72.00         12.00         12.00         12.00         12.00         12.00           0         1         0         0         1         0         1         0           00000         90.00         100.00         700.00         100.00         100.00         100.00
The         Right         Left         Thu           Left         Thu         Right         Left         Thu           12:00         12:00         12:00         12:00         12:00           1         0         1         0         1         0           90:00         100:00         100:00         100:00         40:00
Left         Thru         Right         Left         Thru           12:00         12:00         12:00         12:00         12:00           1         0         0         1         0         10:00           1         0         0         1         0         10:00           90:00         10:00         10:00         70:00         10:00           45:00         10:00         10:00         40:00         10:00
12:00         12:00         12:00         12:00           1         0         0         1         0           90:00         100:00         100:00         100:00         100:00           45:00         100:00         100:00         100:00         100:00
1         0         0         1           90.00         100.00         70.00         70.00           45.00         0.00         70.00         70.00
90.00 100.00 100.00 70.00

Volumes												
Name		Fulton Rd		Ľ	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	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		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
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]	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	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	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	6	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	٥N		No	٩		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			в	
Bicycle Volume [bicycles/h]		2			0			2			2	

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ed with PTV	7.00-05
Generated	Version 7

Intersection Settings

Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						10	130					
Coordination Type					Time of	Time of Day Pattern Coordinated	ern Coor	dinated				
Actuation Type						Fully ad	Fully actuated					
Offset [s]						85	85.0					
Offset Reference						LeadGreen	Green					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Permis	Protect Permis Permis Protect Permis Permis Protect Permis Protect Permis Protect Permis	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	m	80	0	2	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	8	0	4	80	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			N			No			No	
11, 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
12, 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

	<u>.</u>	v.	0.0	<u>.</u>	л С.	0.0	<u>.</u>	<u>.</u>	0.0	<u>.</u>	<u>.</u>	0.0
Minimum Recall	Ŷ	Ŷ		No	N		ø	N		Ŷ	Ŷ	
Maximum Recall	Ŷ	Ŷ		N	Ŷ		ð	٩		Ŷ	Ŷ	
Pedestrian Recall	Ŷ	Ŷ		No	Ŷ		Ŷ	No		Ŷ	Ŷ	
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 Fittering 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					



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### Lane Group Calculations

Lane Group Calculations											
Lane Group	_	υ	υ	_	υ	U	-	U	_	ပ	ĸ
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	e	71	71	13	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)_i 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
s, saturation flow rate [veh/h]	1774	1863	1645	1774	1863	1831	1774	1735	1774	1863	1561
c, Capacity [veh/h]	37	1016	897	184	1170	1150	59	160	265	389	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
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
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
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
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	00.0	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	0.49	0.50	0.86	0.33	0.33	0.77	0.80	0:00	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	ш	υ	υ	ш	8	в	ш	ш	ш	٥	۵
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	No
50th-Percentile Queue Length [veh/ln]	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/ln]	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	47.86 354.39	328.00	328.00 224.26 217.49 214.73	217.49	214.73	71.25	189.94	311.28	155.82	262.96

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# Movement, Approach, & Intersection Results

48.11	۵						
43.90	۵	51.55	۵				
58.75	ш						
61.34	ш						
75.53 20.14 20.44 61.75 12.09 12.10 70.05 61.34 61.34 58.75	ш	63.61	ш				
70.05	ш			30.66	~	69	
12.10	в			30.	0	0.569	
12.09	в	20.60	U				
61.75	ш						
20.44	с						
20.14	с	21.87	U				
75.53	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

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		•		14s				
				SG: 3 1				
	•							
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ī								
								8 26s
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ī						255		SC
	•		•	SG: 4 55s		SG: 104 2	SG: 7 15s	
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	•		•					
,	•	•	•					
4	œ		•	SG: 1 31s				
ო	7	•	•	SG: 1				
2	9	,	'				47s	
~	2	•	•				SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s		SG: 102 26s	SG: 5 14s	

## 2220 Fulton Road Project TIS PM Baseline Conditions

W-Trans

W-Trans 6/26/2019

2220 Fulton Road Project TIS PM Baseline Conditions

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Control Type:	Analysis Method:	Analysis Period:	
0	Å	A	

Intersection Level Of Service Report Intersection 8: Peterson Ln/Piner Rd Signalized HCM 2010 15 minutes

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

9.1 A 0.346

### Intersection Setup

Name	Pe	Peterson Ln	5	Pe	Peterson Ln	c		Piner Rd			Piner Rd	
Approach	ž	Northbound	7	S	Southbound	P	ш	Eastbound	_	2	Westbound	_
Lane Configuration		÷			÷			ц Ч			4   L	
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
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00	100.00	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	ď	Peterson Ln	<u>د</u>	ď	Peterson Ln	5		Piner Rd			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 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 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	5	-	0	0	14	0	0	30	6
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	1	51	53	20	23	32	510	37	87	632	79
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	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   1.00000   1.0000   1.0000   1.0000   1.00000   1.00000   1.00000   1.00000   1.00000   1.00000   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]	9	3	13	13	5	9	8	128	6	22	158	20
Total Analysis Volume [veh/h]	23	11	51	53	20	23	32	510	37	87	632	79
Presence of On-Street Parking	Ŷ		٩	Ŷ		٩	оN		٩	٩		Ň
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			-			16			9	
Bicycle Volume [bicycles/h]		2			2			4			e	

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Intersection Settings

1												
Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						6	06					
Coordination Type					Time (	of Day P.	Time of Day Pattern Isolated	olated				
Actuation Type						Fully ac	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Permis	Permis	Permis Permis	Permis	Permis Permis		ProtPer	Permis	Permis ProtPer Permis Permis ProtPer Permis Permis	ProtPer	Permis	Permis
Signal Group	0	80	0	0	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag							Lag			Lag		
Minimum Green [s]	0	7	0	0	7	0	2	5	0	5	2	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	4	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	4	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		Ñ			Р			Ŷ			Ŷ	
11, 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
12, 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		Ŷ			Ŷ		g	Yes		Ŷ	Yes	
Maximum Recall		٩			°N		۶	Ŷ		Ŷ	Ŷ	
Pedestrian Recall		Ŋ			QN		q	No		No	N	

Pedestrian Recall		Ŷ			N		Ŷ	°N N		٩	Ŷ	
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												
Pedestrian Walk [s]												
Pedestrian Clearance [s]												



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### Lane Group Calculations

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$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
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180         0.00         2.30         2.30         0.00         2.30           0.19         0.15         0.11         11         11         11         11           11         11         11         11         11         11         11         11           0.19         0.25         0.23         0.24         0.26         0.35           1662         1214         1863         1533         1341         1863           1662         1241         1863         1533         1341         1863           1083         640         628         617         526         682           1093         647         0.46         0.40         0.40         0.40           1004         0.04         0.04         0.04         0.40         0.40           1007         0.01         0.01         100         100         100           1000         0.00         0.00         0.00         0.00         0.00           1000         100         100         100         100         100           1000         100         100         100         100         100           1000         100	
6         17         11         11         11         11         11           0.19         0.56         0.34         0.36         0.36         0.36           1006         0.27         0.27         0.26         0.36         0.36           1602         127         153         141         1863         141         1863           1602         129         145         517         626         626         628           10.38         631         640         624         629         703         704         1063           10.30         10.3         0.41         10.3         0.41         1083         703         704         1063           10.30         0.31         0.31         0.31         0.31         100         100           10.30         0.31         0.31         0.31         0.31         103         104           10.30         0.31         0.31         0.31         0.31         103         104           10.30         0.30         0.30         0.30         0.30         103         103           10.30         1.30         1.30         1.30         1.30         1.30	
0130         0.56         0.34         0.34         0.56         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.36         0.33         1341         1863         133         1341         1863         1353         1341         1863         1363         1341         1863         1363	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
1662 $1214$ $1863$ $1534$ $1341$ $1863$ $490$ $60$ $628$ $517$ $628$ $824$ $001$ $024$ $040$ $024$ $070$ $076$ $078$ $001$ $010$ $010$ $010$ $010$ $010$ $010$ $0007$ $010$ $100$ $100$ $100$ $100$ $010$ $0007$ $001$ $000$ $000$ $000$ $000$ $000$ $0007$ $000$ $000$ $000$ $000$ $000$ $000$ $0007$ $000$ $000$ $000$ $000$ $000$ $000$ $0007$ $000$ $000$ $000$ $000$ $000$ $000$ $1000$ $100$ $100$ $100$ $100$ $100$ $100$ $0000$ $100$ $100$ $100$ $100$ $100$ $100$ $1000$ $100$ $100$ $100$ <	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
10.36         6.37         9.45         7.03         7.36         7.36         7.30         7.36         7.30         7.30         7.30         7.31 <th7.31< th="">         7.31         7.31         <th< td=""><td></td></th<></th7.31<>	
0.04         0.04 <th< td=""><td></td></th<>	
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0.00         0.00 <th< td=""><td></td></th<>	
100         100 <td></td>	
100         100 <td></td>	
020         0.05         0.81         0.07         0.14         0.53           11.00         6.98         10.43         7.06         7.98         8.04           B         A         B         A         B         A         A           Ves         No         Ves         No         Yes         No         Yes         No           0.43         1.64         6.53         10.43         7.06         7.90         8.04         A           Yes         No         Yes         No         Yes         No         Yes         No           0.43         0.02         1.64         6.15         2.06         0.05         1.02           0.43         0.02         0.03         3.35         0.17         0.09         1.42           0.78         0.03         3.35         0.17         0.01         1.44           19.47         0.79         83.83         3.25         46.01	
020         0.05         0.81         0.07         0.14         0.53           11.00         6.98         10.43         7.96         7.99         8.04           B         A         B         A         B         A         A           Yes         No         Yes         No         Yes         No         Yes         No           Yes         0.02         19.64         1.96         0.09         0.05         1.02           0.03         19.65         0.03         3.55         1.26         2.56           0.78         0.03         3.55         1.26         1.02           0.78         0.03         3.55         1.26         1.26           0.78         0.03         3.55         1.26         1.26           0.79         0.35         0.35         1.26         1.26           19.47         0.79         8.38         4.25         2.55         46.01	
11.00         6.98         10.43         7.06         7.99         8.04           B         A         B         A         B         A         A           Yes         No         Yes         No         Yes         No         Yes         No           Yes         No         Yes         No         Yes         10.2         10.2         10.2           10.82         0.02         1.86         0.03         0.05         1.02         10.2           10.82         0.03         3.55         0.7         0.09         1.2         25.65           0.78         0.03         3.55         0.7         0.09         1.4         10.2           10.82         0.03         3.55         0.7         0.09         1.4         10.4           19.47         0.79         83.83         3.25         46.01         10.1	
B         A         B         A         A         A         A         A           Yes         No         Yes         No         Yes         No         Yes         No           0.43         0.02         1.86         0.03         0.05         1.02           0.102         0.12         1.86         0.09         0.05         1.02           10.82         0.43         6.57         0.43         6.57         2556           0.78         0.03         35.63         0.77         0.79         16.45           19.47         0.79         83.83         4.25         2.25         46.01	
Yes         No         Yes         No         Yes         No           0.43         0.02         1.86         0.09         0.05         1.02           0.10         0.14         0.02         1.46         0.09         0.05         1.02           0.10         0.13         3.16         0.14         0.14         0.17         102           0.10         0.13         3.35         0.17         0.09         1.24         55.56           0.18         0.13         3.35         0.17         0.09         1.84           19.47         0.79         83.83         4.25         2.25         46.01	
043         0.02         1.86         0.09         0.05         1.02           10.82         0.44         46.57         2.36         1.25         2556           0.78         0.03         3.35         0.17         0.09         1.84           19.47         0.79         83.83         4.25         2.25         46.01	
10.82         0.44         46.57         2.36         1.25         2556           0.78         0.03         3.35         0.17         0.09         1.84           19.47         0.79         83.83         4.25         2.26         46.01	
0.78 0.03 3.35 0.17 0.09 1.84 19.47 0.79 83.83 4.25 46.01	
19.47 0.79 83.83 4.25 2.25 46.01	

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### Version 7.00-05

# Movement, Approach, & Intersection Results

8.07	A											
8.05	A	8.05	A									
7.99	A											
7.06	٨											
6.98 10.43 7.06 7.99	в	10.02	в									
6.98	A			9.12	-	346						
10.97 10.97 11.00 11.00 11.00	В			9.	۷	0.346						
11.00	в	11.00	в									
11.00	в											
10.97	В	10.97	10.97	10.97	10.97	10.97	10.97					
10.97	ю							10.97	10.97	10.97	10.97	в
10.97	в											
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C						

#### Sequence

	_				 			
								20002
		ī	,					
		ī	,		35s	31s	355	31s
					SG: 4 35s	SG: 104 315	SG: 8 35s	SG: 108
		ī						2000
					SG: 1 10s		14s	
		ī			U)		SG: 5 14s	
			,					
	4	8	,					
								_
	2	9		•				
	-	5		•				
-	Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 45s	SG: 102 215	SG: 6 41s	SG: 106 21s

# Critical Lane Group 50th-Percentie Queue Length [veh/in] 50th-Percentie Queue Length [(t/in] 95th-Percentie Queue Length [veh/in] 95th-Percentie Queue Length [t/in]

2220 Fulton Road Project TIS PM Baseline Conditions

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2220 Fulton Road Project TIS PM Baseline Conditions

W-Trans 6/26/2019

Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

422.4 F 1.310

### Intersection Setup

Name	\$	Waltzer Rd	9	\$	Waltzer Rd			Piner Rd			Piner Rd	
Approach	ž	Northbound	p	Х	Southbound	p	ш	Eastbound	-	5	Westbound	5
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
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			Ŷ	

Name	5	Waltzer Rd	-	5	Waltzer Rd	7		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	4	٢	е	40	2	38	25	591	9	80	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 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	19	0	0	30	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	-	4	53	e	51	33	805	80	5	1080	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]	-	0	-	13	-	13	œ	201	2	e	270	15
Total Analysis Volume [veh/h]	5	-	4	53	e	51	33	805	∞	1	1080	59
Pedestrian Volume [ped/h]		-			2			0			0	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes			
Storage Area [veh]	+	0	0	0
Two-Stage Gap Acceptance	No	oN		
Number of Storage Spaces in Median	0	0	0	0
Movement, Approach, & Intersection Results				

0.00	0.00	٨	0.00	0.00										
0.01	0.00	A	0.00	0.00	0.09	A								
0.01	9.49	A	0.04	1.03	0.00 0.00 1.03 1.03 A A									
0.00	0.00	A	0.00	0.00										
0.01	0.00	A	0.00	0.00		A								
0.05	11.23	в	0.17	4.27			12.34							
0.20	22.73	С	0.73	18.35			12.							
0.05	399.31	ш	5.61	140.33	231.24	L								
1.31	130.88 86.44 27.52 422.36 399.31	ш	5.61	14.55 140.33 140.33										
0.01	27.52	D	0.58	14.55	85.09	85.09	85.09	85.09	85.09	85.09				
0.02	86.44	ш	0.58	14.55 1							ш			
0.16	130.88	ш	0.58	14.55										
V/C, Movement V/C Ratio	d_M, Delay for Movement [s/veh]	Movement LOS	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/ln]	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS						

2220 Fulton Road Project TIS PM Baseline Conditions

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2220 Fulton Road Project TIS PM Baseline Conditions

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Control Type:	malysis Method:	Analysis Period:
ပိ	Anal	Anal

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

118.3 F 0.771

### Intersection Setup

Tedeschi Dr	Westbound	t	Right	12.00	0	100.00	30.00	0.00	Yes
Tedes	Westt	H	Left	12.00	0	100.00	30	õ	X
Fulton Rd	Southbound		Thru	12.00	0	100.00	45.00	0.00	No
Fulto	South	F	Left	12.00	1	50.00	45	Ö	Z
Fulton Rd	Northbound	<u>+</u>	Right	12.00	0	100.00	45.00	0.00	No
Fulto	North	Ξ	Thru	12.00	0	100.00	45.	0.0	Z
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

#### 1.0000 799 1.0000 1.0000 200 1.3300 600 0 Fulton Rd 2.00 1.0000 1.0000 ÷ 0 œ c 23 1.0000 2.00 1.3300 1.0000 31 0 0 0 Fulton Rd 1.0000 2.00 1.3300 1.0000 1.0000 294 1174 0 1174 881 0 0 Pass-tay Trips [velvh] Existing Site Adjustment Volume [velvh] Other Volume [velvh] Total Hourty Volume [velvh] Peak Hour Factor Heavy Vehicles Percentage [%] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Diverted Trips [veh/h] Base Volume Adjustment Factor Base Volume Input [veh/h] Growth Factor Name

2.00 1.3300

1.0000 2.00 1.3300 54

0

0 0 0 0

1.0000

4

Tedeschi Dr

Volumes

1.0000

£ 20

18

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Total 15-Minute Volume [veh/h] Total Analysis Volume [veh/h]

Other Adjustment Factor

Pedestrian Volume [ped/h]

72

799

20

0 72 1.0000 1.0000

0 0

VISTRO	
PTV	
Generated with	

Intersection Settings Version 7.00-05

Priority Scheme	E	Free	Fn	Free	Stop	do
Flared Lane					N	0
Storage Area [veh]					0	
Two-Stage Gap Acceptance					No	0
Number of Storage Spaces in Median					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]	00.00	0.00	11.38	0.00	118.25	87.82
Movement LOS	A	A	в	۷	L	ш
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.00	4.72	4.72
95th-Percentile Queue Length [ft/In]	0.00	0.00	1.46	0.00	118.06	118.06
d_A, Approach Delay [s/veh]	00	0.00	Ö	0.15	111.64	.64

111.64 u.

0.15 A 4.93 ш

0.00 <

Approach LOS d\_I, Intersection Delay [s/veh]

Intersection LOS

2220 Fulton Road Project TIS AM Existing plus Project Condition	
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2220 Fulton Road Project TIS AM Existing plus Project Conditions

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Control Type:	Analysis Method:	Analysis Period:
Cont	Analys	Analys

Intersection Level Of Service Report Intersection 2: Fulton Rd/New Project Rd Delay (96ec / veh): Level Of Service: Volume to Capacity (v/c): Two-way stop HCM 2010 15 minutes

83.7 F 0.478

#### Intersection Setup

New Project Rd	Westbound	t	Right	12.00	0	100.00	25.00	0.00	Yes	
New Pr	West	H	Left	12.00	0	100.00	25	0.	>	
Fulton Rd	Southbound	-	Thru	12.00	0	100.00	45.00	0.00	Yes	
Fulto	South	Ŧ	Left	12.00	0	100.00	45	Ö	×	
Fulton Rd	Northbound	<u>+</u>	Right	12.00	0	100.00	45.00	0.00	Yes	
Fulto	Northt	Ξ	Thru	12.00	0	100.00	45.	0.0	¥	
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk	

# Volumes

	Fulto	Fulton Rd	Fulton Rd	n Rd	New Project Rd	oject Rd
Base Volume Input [veh/h]	943	0	0	672	0	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	39	2
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]	1254	14	+	894	39	2
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]	314	4	0	224	10	+
Total Analysis Volume [veh/h]	1254	14	1	894	39	2
Pedestrian Volume [ped/h]	0	0	0		0	-

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings						
Priority Scheme	Free	36	Free	ae	Stop	d
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	00.0	0.01	0.48	

Intersection
۰ð
Movement, Approach,

Γ

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]	00.0	0.00	11.63	00.0	83.69	48.06
Movement LOS	A	A	в	A	ш	ш
95th-Percentile Queue Length [veh/In]	00.0	0.00	0.01	00:0	2.04	2.04
95th-Percentile Queue Length [ft/In]	00.0	0.00	0.14	0.07	51.07	51.07
d_A, Approach Delay [s/veh]	00.00	00	õ	0.01	81.	81.95
Approach LOS	<			4	Ľ	
d_l, Intersection Delay [s/veh]			1.	1.53		
Intersection LOS			-	u.		

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2220 Fulton Road Project TIS AM Existing plus Project Conditions



VISTRO		
PTV		
Generated with	Version 7.00-05	

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Control Type:	Analysis Method	Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

13.9 B 0.505

### Intersection Setup

	_		_	_	_			_	
Ave	P		Right	11.00	0	100.00			
San Miguel Ave	Westbound	F	Thru	12.00	0	100.00	25.00	0.00	Yes
San	\$		Left	11.00	-	60.00			
			Right	12.00	0	100.00			
	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Ŷ
	ш		Left	12.00	0	100.00			
			Right	12.00	0	100.00			
Fulton Rd	Southbound	Ē	Thru	12.00	0	100.00	45.00	0.00	Yes
ш	S		Left	12.00	1	50.00			
	_		Right	12.00	0	100.00			
Fulton Rd	Northbound	4  -	Thru	12.00	0	100.00	45.00	0.00	Ŷ
ш. 	ž	•	Left	12.00	1	50.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name		Fulton Rd		Ľ	Fulton Rd	_				Sar	San Miguel Ave	٩ve
Base Volume Input [veh/h]	0	814	93	73	589	0	0	0	0	105	0	135
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 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	1.0000	1.3300	1.3300	1.3300	1.3300 1.3300 1.3300 1.3300	1.0000	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	14	0	0	39	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]	0	1097	124	26	822	0	0	0	0	140	0	180
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	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 1.0000 1.0000 1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	274	31	24	206	0	0	0	0	35	0	45
Total Analysis Volume [veh/h]	0	1097	124	26	822	0	0	0	0	140	0	180
Presence of On-Street Parking	٥N		No	٥N		Ň	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]		0			0			0			0	
Bicycle Volume [bicycles/h]		6			13			8			0	

## Generated with PTV VISTRO Version 7.00-05

Located in CBD Signal Coordination Group Oyde Length [s] Coordination Type												
Signal Coordination Group Cycle Length [s] Coordination Type						No	0					
Cycle Length [s] Coordination Type						ľ						
Coordination Type						06						
					Time o	Time of Day Pattern Isolated	attern Iso	olated				
Actuation Type						Fully actuated	tuated					
Offset [s]						0.0	0					
Offset Reference						LeadGreen	sreen					
Permissive Mode						SingleBand	Band					
Lost time [s]						0.00	0					
Phasing & Timing												
Control Type	Protect	Permis	Permis Permis Protect Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	80	0	7	4	0	ß	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	2 2	2	0	4	7	0	0	7	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	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	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]	43	28	0	35	20	0	0	27	0	27	0	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	0.0
Walk [s]	0	2	0	0	0	0	0	0	0	ъ	0	0
Pedestrian Clearance [s]	0	80	0	0	0	0	0	0	0	18	0	0
Rest In Walk		Ŷ			Ŷ			N		Ŷ		
11, 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	0.0
12, 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	0.0
Minimum Recall	Ŷ	Yes		Ŷ	Yes			٩		Ŷ		
Maximum Recall	٩	٩		٩	Ŷ			٩		Ŷ		
Pedestrian Recall	Ŷ	Ŷ		Ŷ	Ŷ			No		٩		
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

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

W-Trans 6/26/2019

2220 Fulton Road Project TIS AM Existing plus Project Conditions

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### Lane Group Calculations

Lane Group	_	υ	ပ	_	v	U	_	æ
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12, 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	3	23	0	6	6
g / C, Green / Cycle	0.00	0.41	0.41	0.07	0.48	00:0	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.34	0.05	0.23	00:0	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
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	2.20	2.40	8.64	0.21	00:0	0.33	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	00.0	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

0.61	18.74	ш	Yes	1.72	43.09	3.10	77.56
0.43	17.60	в	No	1.27	31.81	2.29	57.25
0.00	00.00	A	No	0.00	0.00	00.00	0.00
0.48	8.62	A	No	1.84	46.00	3.31	82.81
0.75	30.46	υ	Yes	1.21	30.22	2.18	54.40
0.82	15.04	в	Yes	4.38	109.52	7.81	195.33
0.82	0.00 14.78 15.04	m	No	4.47	0.00 111.82 109.52	7.94	0.00   198.54   195.33
0.00	0.00	¥	No	0.00	0.00	0.00	0.00
X, volume / capacity	d, Delay for Lane Group [s/veh]	Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/In]	50th-Percentile Queue Length [ft/ln]	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/In]

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

18.74	ш									
0.00		18.24	в							
17.60	в									
0.00	A									
0.00	A	0.00	٨							
0.00 0.00 0.00 0.00 17.60 0.00	٨			13.85	m	505				
0.00						0.505				
8.62	A	10.92	в							
0.00 14.89 15.04 30.46 8.62	с									
15.04	в									
14.89	ю	14.90	в							
0.00	A									
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C				

# Sequence Ring 1 - 2 3 4 Bind 2 7 8

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•	,		SG: 3 43s	SG: 7 35s	
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,					
×			2 27s		
7			20 20 20		
,	•	•		-	
9	•	•			
Ring 2	Ring 3	Ring 4		SG: 6 27s	SG: 106 23s
_					

## 2220 Fulton Road Project TIS AM Existing plus Project Conditions

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2220 Fulton Road Project TIS AM Existing plus Project Conditions

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Intersection Level Of Service Report Intersection 4: Peterson LntSan Miguel Awe Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

9.1 A 0.299

### Intersection Setup

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		_		_	_	_		_				
$ \begin{tabular}{ c c c c c c c } \hline Peterson Ln & San Miguel Avelocic San Avelocic Avelocic San $	Ave	Ð		Right	12.00	0	100.00					
$ \begin{tabular}{ c c c c c c c } \hline Peterson Ln & San Miguel Avelocic San Avelocic Avelocic San $	Miguel	estboun	÷	Thru	12.00	0	100.00	25.00	0.00	Yes		
Peterson Ln         Peterson Ln         Sam Mguel A           Northbound         Suthbound         Sam Mguel A           Left         Thru         Right         Eastronnoid           Loon         Thru         Right         Left         Thru           100         12.00         12.00         12.00         12.00           100         0         0         0         0         0         0           25:00         25:00         10:00         10:00         10:00         10:00         10:00           Yes         Yes         Yes         Yes         26:00         10:00 </td <td>San</td> <td>8</td> <td></td> <td>Left</td> <td>12.00</td> <td>0</td> <td>100.00</td> <td></td> <td></td> <td></td>	San	8		Left	12.00	0	100.00					
Peterson Ln         Peterson Ln         Peterson Ln           Anthound         Southound         Southound           Left         Thru         Right         Left         Thru           12:00         12:00         12:00         12:00         12:00         10:00           10:00         10:00         10:00         10:00         10:00         10:00         10:00           25:00         25:00         25:00         25:00         25:00         10:00         10:00           Yets         Yets         Yets         Yets         Yets         10:00         10:00	we			Right	12.00	0	100.00					
Peterson Ln         Peterson Ln         Peterson Ln           Anthound         Southound         Southound           Left         Thru         Right         Left         Thru           12:00         12:00         12:00         12:00         12:00         10:00           10:00         10:00         10:00         10:00         10:00         10:00         10:00           25:00         25:00         25:00         25:00         25:00         10:00         10:00           Yets         Yets         Yets         Yets         Yets         10:00         10:00	Miguel A	astbound	÷			0.00	Yes					
Peterson Ln         Peterson Ln         Peterson Ln           Northbound         Southbound         Southboundurin           Left         Tmu         Right         Left         Tmu           12.00         12.00         12.00         12.00         12.00         12.00           0 <td>San</td> <td>ш</td> <td></td> <td>Left</td> <td>12.00</td> <td>0</td> <td>100.00</td> <td></td> <td></td> <td></td>	San	ш		Left	12.00	0	100.00					
Petersor Ln         Petersor Ln           Anthbund         Southbunden           International         Southbunden           Left         Thu         Right         Ent           12:00         12:00         12:00         12:00           10         0         0         0         0           10:00         10:00         10:00         10:00         25:00           25:00         Yes         Yes         Yes         Yes	c	σ		Right	12.00	0	100.00					
Peterson Ln           Anthound           I.ent         Thru           12:00         12:00         12:00           12:00         12:00         12:00           10:00         100:00         100:00         100:00           25:00         -         -         -           -         -         0:00         100:00         100:00	eterson L	outhboun	÷	Thru		0	100.00	25.00	25.00	25.00	00.0	Yes
Peterson Ln           Northbound           1	Å.	Х		Left		0	100.00					
12.00 0 0	5	5		Right	12.00	0	100.00					
12.00 0 0	eterson L	orthboun	÷	Thru	12.00	0		25.00	0.00	Yes		
Name Approach Lane Configuration Turning Movement Lane Width (ft] Lane Width (ft] No. of Lanes in Pocket Pocket Langth (ft] Speed (imph) Grade (%) Grade (%) Crosswalk	ď	Ż		Left	12.00	0	100.00					
	Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk		

Volumes

	_	_		_		_			_		_			_	_
-	1.0000	2.00	1.3300	0	0	0	0	0	0	-	1.0000	1.0000	0	-	
173	1.0000	2.00	1.3300	0	e	0	0	0	0	233	1.0000	1.0000	28	233	
5	1.0000	2.00	1.3300	0	0	0	0	0	0	7	1.0000	1.0000	2	7	
28		2.00	1.3300	0	14	0	0	0	0	51	1.0000	1.0000	13	51	
135		2.00		0	10	0	0	0	0	190	1.0000	1.0000	48	190	0
-	1.0000	2.00	1.3300	0	0	0	0	0	0	-	1.0000		0	-	
4	1.0000	2.00	1.3300	0	0	0	0	0	0	5		1.0000	1	5	
4	1.0000	2.00	1.3300	0	0	0	0	0	0	5	1.0000	1.0000	-	5	2
80	1.0000	2.00	1.3300	0	0	0	0	0	0	7	1.0000	1.0000	e	7	
12	1.0000	2.00	1.3300	0	0	0	0	0	0	16		1.0000	4	16	
2	1.0000	2.00	1.3300	0	0	0	0	0	0	e		1.0000	-	3	0
42	1.0000	2.00	1.3300	0	4	0	0	0	0	60	1.0000	1.0000	15	60	
Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Factor	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Other Adjustment Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]	Pedestrian Volume [ped/h]
	42 2 12 8 4 4 1 135 28 5	42         2         12         8         4         4         1         135         28         5         173           1.00000         1.00000         1.0000 <td>42         2         12         8         4         4         1         135         28         5         173           1.0000</td> <td>42         2         12         8         4         4         1         135         28         5         173           10000         1.0000</td> <td>42         2         12         8         4         1         135         28         5         173           1000         1.000</td> <td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block"> \begin{array}{c c c c c c c c c c c c c c c c c c c </math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block"> \begin{array}{ c c c c c c c c c c c c c c c c c c c</math></td>	42         2         12         8         4         4         1         135         28         5         173           1.0000	42         2         12         8         4         4         1         135         28         5         173           10000         1.0000	42         2         12         8         4         1         135         28         5         173           1000         1.000	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$

## Generated with PTV VISTRO Version 7.00-05

### Intersection Settings

	Capacity per Entry Lane [velvh] 708	Degree of Utilization, x 0.11
Sall	Capacity per Entry	Degree of Uti

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]		6	9.13	
Intersection LOS			A	

2220 Fulton Road Project TIS AM Existing plus Project Conditions





W-Trans

W-Trans 6/26/2019

Control Type:	All-way
Analysis Method:	HCM 2
Analysis Period:	15 min

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): y stop 2010 inutes

7.8 A 0.132

Intersection Setup

Northbound         Institute           on         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         0	Right 12.00	Southbound Thru 12.00	Right Left	Eastbound			
Left Thru Right Left 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 12.00 10.	Right 12.00	12.00				Westbound	pur
Left         Thru         Right         Left           12:00         12:00         12:00         12:00           0         0         0         0         0           10:00         100:00         100:00         100:00         100:00	Right 12.00	12.00		÷		÷	
12.00         12.00         12.00         12.00         12.00         12.00         10.00         10.00         10.00         10.00         10.00         10.00         10.00         10.00         100.00         <	12.00	12.00		Thru	Right	Left Thru	Right
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	c		12.00 12.00	12.00	12.00 1	12.00 12.00	12.00
100.00 100.00 100.00 100.00	<b>•</b>	0	0	0	0	°	0
Or OO	100.00 100.00 100.0	100.00	100.00 100.00	100.00	00.00 10	00.00 100.00	100.00
	25.00	25.00		25.00		25.00	_
Grade [%] 0.00 0.1	0.00	0.00		00.0		00.00	
Crosswalk Yes Ye	Yes	Yes		Yes		Yes	

Volumes												
Name	Pe	Peterson Ln	c	Å	Peterson Ln	c,	Pir	Pinercrest Dr	Ъ	ä	Pinercrest Dr	Dr.
Base Volume Input [veh/h]	2	26	60	80	47	e	5	15	15	39	12	14
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	2	0	7	7	0	0	0	0	0	0	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
Total Hourly Volume [veh/h]	e	37	80	18	70	4	7	20	20	52	16	21
Peak Hour Factor	1.0000	.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	1.0000	1.0000
Total 15-Minute Volume [veh/h]	+	6	20	5	18	-	2	2	5	13	4	5
Total Analysis Volume [veh/h]	3	37	80	18	20	4	7	20	20	52	16	21
Pedestrian Volume [ped/h]		2			4			0			e	

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Version 7.00-05

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.	7.75	
Intersection LOS			A	

2220 Fulton Road Project TIS AM Existing plus Project Conditions



All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

12.4 B 0.450

### Intersection Setup

Southbound	Northbound Thru F
+	
i	1
Right   Left   Thru   Right	
12.00 12.00 12.00 12.00 12.00	12
0 0 0	
100.00 100.00 100.00 100.00 1	10
25.00	
0:00	
No	

volumes												
Name	>	Waltzer Rd	7	>	Waltzer Rd	7	Ë	Pinercrest Dr	ň			
Base Volume Input [veh/h]	80	69	17	147	57	5	1	174	12	-	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	-	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]	e	23	9	49	19	2	4	60	4	0	33	36
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	238	16	Ļ	130	144
Pedestrian Volume [ped/h]		4			0			2			0	

## Generated with PTV VISTRO Version 7.00-05

e Ri ini	
	anes

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	58.24	51.61	49.35
Approach Delay [s/veh]	10.45	13.48	12.56	11.90
Approach LOS	в	ш	в	m
Intersection Delay [s/veh]		12	12.36	
Intersection LOS				

2220 Fulton Road Project TIS AM Existing plus Project Conditions



2220 Fulton Road Project TIS AM Existing plus Project Conditions

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VISTRO	
PTV	
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Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

34.1 C 0.613

#### Intersection Setup

					6			
p		Right	12.00	-	110.00			
estbour	÷	Thru	12.00	0	100.00	40.00	0.00	Yes
2	Ť	Left	12.00	-	245.00			
		Right	12.00	0	100.00			
astbound	÷	Thru	12.00	0	100.00	40.00	0.00	Yes
ш		Left	12.00	٢	70.00			
70		Right	12.00	0	100.00			
outhboun	÷	Thru	12.00	0	100.00	45.00	0.00	No
S	•	Left	12.00	1	90.00			
-		Right	12.00	0	100.00			
orthboun	÷	Thru	12.00	0	100.00	45.00	0.00	Yes
ž	Ť	Left	12.00	-	110.00			
	E	ť		ket				
Approach	Lane Configuratio	Turning Movemen	Lane Width [ft]	No. of Lanes in Pocl	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk
	Approach Northbound Southbound Eastbound Westbound	ation 11 P 11 P 11 P 11 P	Nontribund         Southound         Eastbound         Westbound           Jlh         Jlh </td <td>Northbound         Southbound         Eastbound         Westbound           11</td> <td><math display="block">\begin{tabular}{ c c c c c c c c c c c c c c c c c c c</math></td> <td>Northbound         Southbound         Eastbound         Westbound           1</td> <td><math display="block">\begin{tabular}{ c c c c c c c c c c c c c c c c c c c</math></td> <td><math display="block">\begin{tabular}{ c c c c c c c c c c c c c c c c c c c</math></td>	Northbound         Southbound         Eastbound         Westbound           11	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Northbound         Southbound         Eastbound         Westbound           1	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$

Volumes												
Name		Fulton Rd		L.	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 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 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
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]	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	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   1.00000   1.0000   1.0000   1.0000   1.00000   1.00000   1.00000   1.00000   1.00000   1.00000   1.0000   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	٥N		No	No		No	No		No	٥N		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]		9			0			0			10	
Bicycle Volume [bicycles/h]		0			0			+			0	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

							4					
						2						
Signal Coordination Group												
Cycle Length [s]						10	130					
Coordination Type					Time of	Time of Day Pattern Coordinated	ern Cool	rdinated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						85	85.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect Permis	Permis		Permis Protect	Permis	Permis	Permis Protect	Permis		Protect	Permis Protect Permis Permis	Permis
Signal Group	e	8	0	7	4	0	5	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead		1	Lag		
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	@	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		Ŷ			N			Ŷ			٩	
11, 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
12, 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	Ŷ	Ŷ		Ŷ	٩		g	Ŷ		Ŷ	Ŷ	
Maximum Recall	Ŷ	٩		٩	No		ø	Ŷ		٩	٩	
Pedestrian Recall	Ŷ	Ŷ		٥N	٩		g	Ŷ		Ŷ	Ŷ	
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	0					

2220 Fulton Road Project TIS AM Existing plus Project Conditions

Pedestrian Clearance [s]

W-Trans

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### Lane Group Calculations

card of out cardiations											
Lane Group	_	υ	U	_	υ	υ	_	υ	_	U	۲
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	2	99	99	13	74	74	4	17	20	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
(v / s)_i 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
s, saturation flow rate [veh/h]	1774	1863	1619	1774	1863	1777	1774	1756	1774	1863	1583
c, Capacity [veh/h]	68	939	817	184	1062	1013	60	226	274	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
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
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
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
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	00.0	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	0.55	0.86	0.32	0.32	0.77	0.82	0.90	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	39.91	43.87
Lane Group LOS	ш	υ	υ	ш	m	œ	ш	ш	ш	٥	۵
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	No
50th-Percentile Queue Length [veh/ln]	1.80	10.77	9.56	5.22	5.21	4.99	1.62	6.04	8.15	3.76	6.86
50th-Percentile Queue Length [ft/In]	44.90	269.33	238.95	269.33 238.95 130.62 130.21	130.21	124.64	40.39	150.96	203.68	94.01	171.55
95th-Percentile Queue Length [veh/ln]	3.23	16.16	14.63	8.97	8.95	8.65	2.91	10.07	12.83	6.77	11.16
95th-Percentile Queue Length [ft/In]	80.82	403.91	365.70	224.33	365.70 224.33 223.78 216.19	216.19	72.70	251.71	320.71	169.22	278.95

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# Movement, Approach, & Intersection Results

.87							
43.87	_						
39.91	٥	48.65					
58.47	ш						
58.15	ш						
69.84 58.15 58.15	ш	60.47	ш				
69.84	ш			34.10	U	0.613	
15.56	В			34.	0	0.6	
15.54	ю	24.42	U				
61.80	Ш						
68.66 24.45 24.84 61.80 15.54	с						
24.45	с	26.85	U				
68.66	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

		_	_	 			~~~
		•		14s			
			•	SG: 3 1			
			•				
			•				8 26s
		•				SG:8 54s	SG: 108 2
					Ss		S
				SG: 4 55s	SG: 104 25s	SG: 7 15s	
						S	
	-						
,	,	•	•				
4	8		•	31s			
ო	7	•	•	SG: 1 31s			
2	9	•	•			47s	
-	5	•	•			SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s	SG: 102 265	SG: 5 14s	

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Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 8: Peterson LnPIner Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

10.4 B 0.457

### Intersection Setup

Name	Å	Peterson Ln	<u>د</u>	A.	Peterson Ln	c		Piner Rd			Piner Rd	
Approach	ž	Northbound	-	Ň	Southbound	P	ш	Eastbound		5	Westbound	5
Lane Configuration		+			÷			ц Ч			÷	
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	-	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	00.00 180.00	80.00	100.00	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	ď	Peterson Ln	5	ď	Peterson Ln	c.		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	62	54	107	62	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 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	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	98	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 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   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	6	11	9	148	80	6	128	5
Total Analysis Volume [veh/h]	62	54	107	98	34	45	22	590	31	36	511	19
Presence of On-Street Parking	Ŷ		No	٥N		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			-			в			2	
Bicycle Volume [bicycles/h]		0			2			-			1	

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Intersection Settings

Signal Coordination (Study Signal Coordination (Study Coordination (Type)         · · · · · · · · · · · · · · · · · · ·													
Inductory         Three           Type         Type           Type         Type           Type         Type           Type         Type           Type         Type           File         Type           F													
Interest of Type         Time           n Type         -           n The         -	Signal Coordination Group												
Type         Time           Type         Time           Type         Time           Type         Time           Type         Time           Time         Time           Mode         Time           Mode         Time           Mode         Time           Time         Permis         Permis         Permis           Permis         Permis         Permis         Permis           Opp         0         8         0         4           Opp         1         2         2         2         2           Second         0         2         0         0         3         3           Second         0         3         2 <t< th=""><td>Cycle Length [s]</td><td></td><td></td><td></td><td></td><td></td><td>6</td><td>0</td><td></td><td></td><td></td><td></td><td></td></t<>	Cycle Length [s]						6	0					
Type         Type           Isi         Fermis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Isi         Permis         Permis         Permis           Upp         0         8         0         4           Isi         0         8         0         4           Isi         0         7         0         7         2           Jag         0         7         0         0         2         2           Jag         0         2         0         0         2         2         2           Situation         0         0         0         0         2         2         2           Situation         0         0         2         0         2         2         2           Situation         0         2         2         0         2         2         2           Situation         0         2         2         0         2         2         2	Coordination Type					Time	of Day P	attern Is	olated				
[e]	Actuation Type						Fully a	ctuated					
rence         mode           Mode         mode           Piernis         Permis         Permis         Permis         Permis           Opp         0         0         0         4           Opp         0         8         0         0         4           Opp         0         8         0         0         4           Opp         0         7         0         7         0         4           al Groups         -         -         -         -         -         -         -           al Groups         0         0         7         0         0         7         0         7           al Groups         -         -         -         -         -         -         -         -           al Groups         0         0         7         0         7         0         20           al Groups         0         0         3         0         0         0         20         20           al Groups         0         0         2         0         2         20         20           al Groups         0         0         0	Offset [s]						0	0.					
Mode         Fermis         Permis         Permis <th>Offset Reference</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Lead</th> <th>Green</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Offset Reference						Lead	Green					
I el         I el           Spe         Permis         Permis         Permis         Permis           Spe         0         8         0         0         4           Oup         0         8         0         0         4           al Goups         0         7         0         0         4           al Goups         0         7         0         0         4           een [s]         0         2         0         0         2           een [s]         0         3         6         0         0         3           [s]         0         0         3         0         0         0         3           [s]         0         0         3         0         0         3         3           [s]         0         3         0         3         0         3         3           [s]         0         3         0         3         0         3         3           [s]         0         3         0         3         3         3           [s]         0         3         0         3         3         3 <th>Permissive Mode</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Single</th> <th>Band</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Permissive Mode						Single	Band					
ype         Permis         Permis <th>Lost time [s]</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.0</th> <th>00</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Lost time [s]						0.0	00					
ype         Permis         Permis <th>sing &amp; Timing</th> <th></th>	sing & Timing												
oup         0         8         0         4         0         5         2         0         1         6           af Groups         1         - <td< th=""><th>Control Type</th><th>Permis</th><th>Permis</th><th>Permis</th><th>Permis</th><th>Permis</th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th><th>ProtPer</th><th>Permis</th><th>Permis</th></td<>	Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis	ProtPer	Permis	Permis
al Gaups         :	Signal Group	0	80	0	0	4	0	2	2	0	-	9	0
ag         :         :         :         :         :         :         i	Auxiliary Signal Groups												
een(s)         0         7         0         7         0         5         5         6         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         40         7         7         0 </th <td>Lead / Lag</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Lag</td> <td></td> <td></td> <td>Lag</td> <td></td> <td></td>	Lead / Lag							Lag			Lag		
even lej         0         20         0         20         10         20         10         15         40         15         40         15         40           [e]         0.0         36         0.0         36         0.0         43         43         43         43           [e]         0.0         0.0         0.0         0.0         10         10         13         43         43           [e]         0.0         0.0         0.0         0.0         10         10         13         43           [e]         0.0         0.0         0.0         10 <td>Minimum Green [s]</td> <td>0</td> <td>7</td> <td>0</td> <td>0</td> <td>7</td> <td>0</td> <td>2</td> <td>5</td> <td>0</td> <td>5</td> <td>5</td> <td>0</td>	Minimum Green [s]	0	7	0	0	7	0	2	5	0	5	5	0
[e]         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.4         3.3         4.3 <td>Maximum Green [s]</td> <td>0</td> <td>20</td> <td>0</td> <td>0</td> <td>20</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td>	Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
[e]         0.0 <td>Amber [s]</td> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td>	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
j         0         35         0         36         0         36         0         36         0         45         0         46         46         0         46         47	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
reion [s]         0.0         2.0         0.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         2.0         7         0         0         7         0         0         7         0         0         7         0         7         0         7         0         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10         7         10 <td>Split [s]</td> <td>0</td> <td>35</td> <td>0</td> <td>0</td> <td>35</td> <td>0</td> <td>4</td> <td>45</td> <td>0</td> <td>10</td> <td>41</td> <td>0</td>	Split [s]	0	35	0	0	35	0	4	45	0	10	41	0
91         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         0         7         10         7         10 <th< th=""><td>Vehicle Extension [s]</td><td>0.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td></th<>	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
arance [s]         0         24         0         24         0         14         0         14         0         14         0         14         0         14         0         14         16<	Walk [s]	0	7	0	0	7	0	0	2	0	0	7	0
Indic         No	Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
attmetej         0.0         2.0         0.0         2.	Rest In Walk		Ñ			No			Ŷ			Ŷ	
str         metel         0.0         1.6         0.0         1.6         0.0         2.3 </th <td>11, Start-Up Lost Time [s]</td> <td>0.0</td> <td>2.0</td> <td>0.0</td> <td>0.0</td> <td>2.0</td> <td>0.0</td> <td>2.0</td> <td>2.0</td> <td>0.0</td> <td>2.0</td> <td>2.0</td> <td>0.0</td>	11, 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
accalit         No         No         No         No         Yes         No         Yes           Recalit         N         No         No         No         No         No         No         Yos           Recalit         N         No         No         No         No         No         No         No         No           Recalit         N         No         No <td>12, Clearance Lost Time [s]</td> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>0.0</td> <td>1.6</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td> <td>2.3</td> <td>2.3</td> <td>0.0</td>	12, 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
accali         No         No <th< th=""><td>Minimum Recall</td><td></td><td>Ŷ</td><td></td><td></td><td>N</td><td></td><td>z</td><td>Yes</td><td></td><td>Ŷ</td><td>Yes</td><td></td></th<>	Minimum Recall		Ŷ			N		z	Yes		Ŷ	Yes	
Recail         No         No <th< th=""><td>Maximum Recall</td><td></td><td>Ŷ</td><td></td><td></td><td>N</td><td></td><td>۶</td><td>Ŷ</td><td></td><td>٩</td><td>Ŷ</td><td></td></th<>	Maximum Recall		Ŷ			N		۶	Ŷ		٩	Ŷ	
alion (1)         0.0         0	Pedestrian Recall		Ñ			No		Ŷ	Ŷ		٩N	٩	
gath         R1         0.0         1.00	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
ring Factor         1.00	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
nal Group Valk [s] arance [s]	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
	lusive Pedestrian Phase												
	Pedestrian Signal Group												
	Pedestrian Walk [s]												
	Pedestrian Clearance [s]												

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 1.00 1.00 1.00 1.00 1.00	1.00	1.00
Exclusive Pedestrian Phase												
Pedestrian Signal Group												
Pedestrian Walk [s]						0						
Pedestrian Clearance [s]						0						



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2220 Fulton Road Project TIS AM Existing plus Project Conditions



### Lane Group Calculations

Lane Group	U	U	_	υ	۲	_	ပ	υ
C, Cycle Length [s]	33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
12, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, 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)_i 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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	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	æ	в	۲	m	A	۶	A	۲
		-14	-14	~~~~	- 14		- 14	-14

## Generated with PTV VISTRO Version 7.00-05

ults	] 12.19 12.19	_
Movement, Approach, & Intersection Results	d_M, Delay for Movement [s/veh]	

7.11	۷						
7.10	۷	7.26	۷				
9.49	A						
6.50	A						
12.70	В	12.17	в				
6.13	A			39		22	
11.77	в			10.39	Β	0.457	
12.19 12.19 12.19 11.77 11.77 11.77 6.13 12.70 6.50 9.49 7.10 7.11	ю	11.77	в				
11.77	в						
12.19	в						
12.19	в	12.19	в				
12.19	ю						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

## Sequence Ring 1 1 2 -

,						000	20		
ī	ī								
	ī	,							
ī	ī								
	ī	,		355		31s		355	31s
				SG: 4 35s		SG: 104 315		SG: 8 35s	SG: 108
					Ī		Ĩ		
				SG: 1 10s			1	14s	
								SG: 5 14s	
4	8	,							
			•						
2	9	•	•						
-	5		•						
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 45s		SG: 102 215		SG: 6 41s	SG: 106 215

۷	No	0.69	17.15	1.23	30.87	
۷	No	0.69	17.31	1.25	31.15	
۷	Yes	0.03	0.72	0.05	1.30	
٨	No	0.08	1.88	0.14	3.39	
ш	Yes	2.65	66.36	4.78	119.46	
۷	No	0.02	0.43	0.03	0.77	
в	No	0.82	20.46	1.47	36.83	
в	Yes	1.14	28.60	2.06	51.48	
Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/ln]	50th-Percentile Queue Length [ft/In]	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/In]	

## 2220 Fulton Road Project TIS AM Existing plus Project Conditions

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2220 Fulton Road Project TIS AM Existing plus Project Conditions

< ≺	Control Type:	Inalysis Method:	Analysis Period:	
	ŏ	Ana	Ana	

Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

424.6 F 1.336

#### Intersection Setup

Name	3	Waltzer Rd	-	5	Waltzer Rd	-		Piner Rd			Piner Rd	
Approach	ž	Northbound	7	Ň	Southbound	p	ш	Eastbound		5	Westbound	5
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	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			N			å	

#### 1.0000 1.0000 1.0000 1.0000 1, 9 479 26 Piner Rd 649 0 649 162 1.0000 1.0000 12 12 0 0 0 0 0 c 1.0000 1.0000 1.0000 1.0000 e 0 0 c 0 0 0 4 Piner Rd 42 824 1129 1129 0 282 33 0 0 0 0 1.0000 1.0000 56 56 4 0 0 0 c 0 0 1.0000 1.0000 38 0 63 84 21 84 0 0 0 0 0 Waltzer Rd 1.0000 1.0000 1.0000 1.0000 0 0 0 0 0 0 0 0 0 51 0 0 51 13 c 0 0 0 1.0000 1.0000 5 13 0 0 0 0 17 4 17 c 0 Waltzer Rd 1.0000 1.0000 1.0000 1.0000 0 0 c 0 0 0 2 œ 0 0 4 0 0 0 7 e 0 Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Base Volume Adjustment Factor Heavy Vehicles Percentage [%] Total 15-Minute Volume [veh/h] Total Analysis Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

0

0 c 0 0

5 0 0 0 0 35 35

4

Pedestrian Volume [ped/h]

6

Generated with PTV VISTRO

### Version 7.00-05

Intersection Settings

- <b>R</b>				
Priority Scheme	Stop	Stop	Free	Free
Flared Lane	Yes			
Storage Area [veh]	٢	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	0.29	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	132.45 99.28 51.82 424.56 390.97	390.97	14.72	9.26	0.00	0.00	10.98	0.00	0.00
Movement LOS	ш	u.	u.	ш	LL.	в	۷	٨	٨	m	٨	٨
95th-Percentile Queue Length [veh/In]	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/In]	45.01	45.01	45.01	45.01 45.01 45.01 131.18 131.18	131.18	16.79	4.96	4.96 0.00	0.00	0.00 1.49	0.00	0.00
d_A, Approach Delay [s/veh]		86.65			169.55			0.44			0.19	
Approach LOS		ш			ш			۲			۲	
d_I, Intersection Delay [s/veh]						12.	12.93					
Intersection LOS												

2220 Fulton Road Project TIS AM Existing plus Project Conditions

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Control Type:	Malysis Method:	Analysis Period:
0	Anŝ	Å

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Two-way stop HCM 2010 15 minutes

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

176.5 F 0.852

### Intersection Setup

Rd Tedeschi Dr	ound Westbound	4	Thru Left Right	12.00 12.00 12.00	0 0 0	100.00 100.00 100.00	30.00	0.00	Yes	
Fulton Rd	Southbound	L	Left	12.00	+	50.00	45.00	0.00	No	
Fulton Rd	Northbound	<u>+</u>	Right	12.00	0	100.00	45.00	0.00	No	
Fult	North	-	Thru	12.00	0	100.00	46	0		
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk	

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

Pedestrian Volume [ped/h]

VISTRO	
PTV	
Generated with	Version 7 00-05

#### CD-DD' VEI SIO

Intersection Settings

Priority Scheme	F	Free	F	Free	Stop	d
Flared Lane					No	
Storage Area [veh]	0		0	-	0	
Two-Stage Gap Acceptance					N	~
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	0.85	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	10.97	00:0	176.52	126.33
Movement LOS	۷	A	ш	۷	L	ш
95th-Percentile Queue Length [veh/In]	0.00	0.00	0.07	0.00	4.40	4.40
95th-Percentile Queue Length [ft/In]	0.00	0.00	1.74	00:0	110.05	110.05
d_A, Approach Delay [s/veh]	0	00.00	0.	0.10	167.25	25
Approach LOS		A		A	L	
d_I, Intersection Delay [s/veh]			4.	4.05		

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Intersection LOS Approach LOS

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Control Type:	Analysis Method:	Analysis Period:
Control	Analysis	Analysis

Intersection Level Of Service Report Intersection 2: Fulton RuNew Project Rd Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Two-way stop HCM 2010 15 minutes

122.7 F 0.498

#### Intersection Setup

					_				
New Project Rd	Westbound	t	Right	12.00	0	100.00	25.00	0.00	Yes
New Pro	Westt	H	Left	12.00	0	100.00	25.	0.0	¥
Fulton Rd	Southbound	-	Thru	12.00	0	100.00	45.00	0.00	Yes
Fulto	South	Ŧ	Left	12.00	0	100.00	45.	0.0	Ye
n Rd	puno	.t	Right	12.00	0	100.00	00	00	Yes
Fulton Rd	Northbound	Ξ	Thru	12.00	0	100.00	45.00	0.00	Ye
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes						
Name	Fulton Rd	n Rd	Fulto	Fulton Rd	New Pro	New Project Rd
Base Volume Input [veh/h]	860	0	0	1198	0	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	ю	0	27	2
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]	1144	45	ю	1593	27	2
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]	286	11	-	398	7	-
Total Analysis Volume [veh/h]	1144	45	ю	1593	27	2
Pedestrian Volume [ped/h]						

## Generated with PTV VISTRO

Version 7.00-05

#### 0.00 64.35 F 1.96 49.01 No Stop 0.50 122.74 F 1.96 49.01 0.00 A 0.01 0.19 Free 0.01 B 0.02 0.39 0.00 0.00 0.00 Free 0.00 0.00 0.00 0.01 V/C: Movement V/C Ratio d\_M. Delay for Movement (s/weh) Movement LOS S6th-Percentile Queue Length (ph/h) 95th-Percentile Queue Length (ph/h) d\_A. Approach Delay (s/weh) Approach LOS Phonty Scheme Flared Lane Storage Area [veh] Two-Stage Gap Acceptance Number of Storage Spaces in Median Movement, Approach, & Intersection Results Intersection Settings

118.72

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0.02 A 1.24

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> d\_I, Intersection Delay [s/veh] Intersection LOS

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PTV	5
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Control Type: Analysis Method: Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fulton Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

13.9 B 0.480

#### Intersection Setup

Name	_	Fulton Rd	_	ш	Fulton Rd	_				Sar	San Miguel Ave	Ave
Approach	Ż	Northbound	q	Х	Southbound	P	ш	Eastbound		\$	Westbound	p
Lane Configuration	-	4   L			Ē			÷			F	
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	11.00	12.00	11.00
No. of Lanes in Pocket	٢	0	0	-	0	0	0	0	0	1	0	0
Pocket Length [ft]	50.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00 100.00	100.00	60.00	100.00	100.00
Speed [mph]		45.00			45.00			25.00			25.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		Ŷ			Yes			٩			Yes	

Volumes												
Name		Fulton Rd	_	Ľ	Fulton Rd					Sar	San Miguel Ave	Ave
Base Volume Input [veh/h]	0	776	96	121	1070	0	0	0	0	46	0	68
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	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	1.0000	1.3300	1.3300	1.3300 1.3300	1.3300	1.0000	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	45	0	0	27	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]	0	1077	128	161	1450	0	0	0	0	61	0	90
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	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	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	269	32	40	363	0	0	0	0	15	0	23
Total Analysis Volume [veh/h]	0	1077	128	161	1450	0	0	0	0	61	0	90
Presence of On-Street Parking	Ŷ		Ŷ	Ŷ		٩	Ŷ		Ŷ	No		N
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]		0			0			0			0	
Bicycle Volume [bicycles/h]		15			12			e			0	

## Generated with PTV VISTRO Version 7.00-05

Located in CBD						Z	No					
Signal Coordination Group												
Cycle Length [s]						6	06					
Coordination Type					Time	Time of Day Pattern Isolated	attern Is	olated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Permis	Protect	Permis	Protect Permis Permis Protect Permis Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	80	0	~	4	0	ŝ	7	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		•
Minimum Green [s]	2	7	0	4	2	0	0	2	0	6	0	0
Maximum Green [s]	2	35	0	25	35	0	0	2	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	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
Splif [s]	43	28	0	35	20	0	0	27	0	27	0	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	0.0
Walk [s]	0	2	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	80	0	0	0	0	0	0	0	18	0	0
Rest In Walk		٩			٩			Ŷ		Ŷ		
			-									1

Rest In Walk         No		>	2	>	>	>	2	>	>	>	2	>	2	
atTme [s]         2.0         2	Rest In Walk		Ŷ			No			Ŷ		Ŷ			_
ast Tme [s]         2.7         2.7         2.7         2.7         2.7         0.0         1.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         0.0         1.6         1.0         1.6         1.0         1.6 <th< td=""><td>11, Start-Up Lost Time [s]</td><td>2.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>_</td></th<>	11, 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	0.0	_
accalit         No         Yes         No         Yes         No	12, 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	0.0	_
aceal         No         No <thn< td=""><td>Minimum Recall</td><td>Ŷ</td><td>Yes</td><td></td><td>٩</td><td>Yes</td><td></td><td></td><td>Ŷ</td><td></td><td>Ŷ</td><td></td><td></td><td>_</td></thn<>	Minimum Recall	Ŷ	Yes		٩	Yes			Ŷ		Ŷ			_
Recail         No         No <th< td=""><td>Maximum Recall</td><td>Ŷ</td><td>Ŷ</td><td></td><td>٩</td><td>N</td><td></td><td></td><td>Ŷ</td><td></td><td>٩</td><td></td><td></td><td>_</td></th<>	Maximum Recall	Ŷ	Ŷ		٩	N			Ŷ		٩			_
ation (1) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Pedestrian Recall	Ŷ	Ŷ		No	No			٩		°N			_
induction         0.0         0	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	_
ning Factor         1.00	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	_
nal Group Valk [s] arance [s]	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													_
	Pedestrian Walk [s]							_						_
	Pedestrian Clearance [s]													_

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### Lane Group Calculations

Lane Group	_	υ	с	_	υ	U	_	۲
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12, 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	9	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)_i Volume / Saturation Flow Rate	0.00	0.33	0.33	0.09	0.41	00.0	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	18.83
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	00.0	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

X, volume / capacity	0.00	0.82	0.83	0.75	0.78	00.00	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	۷	в	æ	υ	в	A	в	8
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	00.00	0.58	0.88
50th-Percentile Queue Length [ft/In]	0.00	0.00 120.43 117.90	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	00.00	1.05	1.59
95th-Percentile Queue Length [ft/In]	0.00	0.00 210.42 206.93	206.93	83.04	178.57	0.00	26.18	39.81

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

0.00 19.15	в					
		18.90	в			
18.53	в					
0.00 0.00 18.53	٨					
0.00	A	0.00	A			
0.00	A			13.91	в	0.480
10.41 0.00				13	-	7.0
10.41	в	12.03	в			
15.97 26.57	С					
15.97	В					
15.79	ю	15.81	в			
00.0	A					
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C

# Sequence Ring1 - 2 3 4 Rinc7 6 - 7 8

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,			200000		1	CK.
	,	,	SG: 4 20s		in the second se	
				SG: 8 28s	SG: 108 13s	
,				SG	S	
,						
,						
,						
,			3 43s	SG: 7 35s		
,			S. S. S.	 		22
,						
,						
œ			27s			
7			SG: 2	 		2
•	•	•		-		
9	•					
Ring 2	Ring 3	Ring 4		SG: 6 27s	SG: 106 235	
_				en en	0	

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Ē	stop	010	ltes	
	All-way stop	HCM 2010	15 minutes	
	-			
	:ed	thod:	riod:	
	Control Type:	Analysis Method:	Analysis Period:	
	Š	Analy	Anal	

Intersection Level Of Service Report Intersection 4: Peterson LntSan Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

8.8 A 0.280

### Intersection Setup

Name	Pe	Peterson Ln	'n	Pe	Peterson Ln	n	San	San Miguel Ave	Ave	San	San Miguel Ave	we
	ž	Northbound	q	Š	Southbound	d	ш	Eastbound	-	\$	Westbound	71
ane Configuration		÷			÷			÷			÷	
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
	12.00	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
		25.00			25.00			25.00			25.00	
		0.00			0.00			0.00			0.00	
		Yes			Yes			Yes			Yes	

Volumes												
Name	Pe	Peterson Ln	c	ď	Peterson Ln	c	San	San Miguel Ave	we	San	San Miguel Ave	we
Base Volume Input [veh/h]	37	7	10	3	7	2	80	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]	14	0	0	0	0	0	0	7	8	0	11	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]	63	6	13	4	6	e	1	152	76	29	153	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 1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	.0000 1.0000 1.0000 1.0000 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	2	3	1	2	-	3	38	19	7	88	-
Total Analysis Volume [veh/h]	63	6	13	4	6	3	11	152	76	29	153	5
Pedestrian Volume [ped/h]		3			3			4			-	

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### CO-00. / 11018 IAA

Intersection Settings

### Capacity per Entry I ane [veh/h] Lanes

Degree of Utilization, x 0.12 Movement, Approach, & Intersection Results	0.02	0.28	
section Results	0.07		0.23
	0.07		
95th-Percentile Queue Length [veh] 0.40		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	8.78	
Intersection LOS		A	

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Control Type:	All-v
Analysis Method:	HO
Analysis Period:	151

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): way stop CM 2010 5 minutes

7.9 A 0.138

#### Intersection Setup

ň	-		Righ	12.00	0	100.0			
Pinercrest Dr	Westbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
Ë	\$		Left	12.00	0	100.00			
Ъ	77		Right	12.00	0	100.00			
Pinercrest Dr	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
μ	ш		Left	12.00	0	100.00			
5	Ð		Right	12.00	0	100.00			
Peterson Ln	Southbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ď	ŭ		Left	12.00	0	100.00			
ų	p		Right	12.00	0	100.00			
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
ď	z		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Right 12.00 0

4

0 c 0 0

0 0 0 0

#### 12 26 1.0000 1.0000 1.0000 1.0000 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 1.300 1.3300</ 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 Pinercrest Dr 23 9 1.0000 1.0000 31 0 0 0 0 33 œ c 0 1.0000 1.0000 1.0000 1.0000 6 12 12 0 e 0 C 0 0 0 Pinercrest Dr 5 15 20 0 50 0 0 0 0 ß 0 1.0000 0 0 0 c 0 0 1.0000 1.0000 19 53 10 13 13 0 0 0 0 0 0 ო Peterson Ln 1.0000 1.0000 74 0 4 0 19 0 0 0 1.0000 1.0000 29 0 29 0 4 0 0 ~ 1.0000 1.0000 10 56 16 5 0 0 c 0 0 0 21 ß Peterson Ln 1.0000 1.0000 1.0000 1.0000 81 81 20 0 0 c 0 0 13 0 0 0 0 0 13 e Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Base Volume Adjustment Factor Total 15-Minute Volume [veh/h] Heavy Vehicles Percentage [%] Total Analysis Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

0

4 0 0

26

5

Pedestrian Volume [ped/h]

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### Intersection Settings

	Consists nor Entry   one
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	7.85	
Intersection LOS			A	

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Control Type:	All-
Analysis Method:	H
Analysis Period:	15

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr l-way stop ICM 2010 5 minutes

11.7 B 0.472

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

#### Intersection Setup

Name	>	Waltzer Rd	-	\$	Waltzer Rd	5	Ē	Pinercrest Dr	ň			
Approach	ž	Northbound	5	й	Southbound	Ð	ш	Eastbound		\$	Westbound	5
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			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		Yes			°N			Yes			°N N	

#### 200 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 1.3300</ 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 9 0 0 C 0 0 0 œ Pinercrest Dr 6 78 0 0 27 4 0 0 0 1.0000 1.0000 0 0 0 œ c 0 0 1.0000 1.0000 144 79 18 24 0 0 0 0 0 Waltzer Rd 1.0000 1.0000 0 0 26 0 0 0 0 1.0000 1.0000 0 192 48 0 0 0 0 1.0000 1.0000 2 40 6 0 0 c 0 0 0 œ Waltzer Rd 1.0000 1.0000 1.0000 1.0000 53 13 0 0 c 0 0 0 00 0 0 0 0 e Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Heavy Vehicles Percentage [%] Base Volume Adjustment Factor Total 15-Minute Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

1.0000 1.0000

0 0

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1.0000 1.0000 1.0000 1.0000

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108

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24

105

192

53

Total Analysis Volume [veh/h]

Pedestrian Volume [ped/h]

9

2 œ

174

0 143

0 0 თ

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#### 

Intersection Settings

### Canacity her Entry I and Mah/h] Lanes

Capacity per Entry Lane [veh/h]
0.10
0.33
8.24
9.21
1

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Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd Signalized HCM 2010 15 minutes

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

30.8 C 0.563

### Intersection Setup

			_	_	_	_	_	_			
	Ð		Right	12.00	-	110.00					
Piner Rd	Westbound	ц Ч	Thru	12.00	0	100.00	40.00	0.00	Yes		
-	8	•	Left	12.00	1	245.00					
			Right	12.00	0	100.00					
Piner Rd	Eastbound	÷	Thru	12.00	0	100.00	40.00	0.00	Yes		
	ш		Left	12.00	-	70.00					
	5		Right	12.00	0	100.00					
Fulton Rd	Southbound	4 -	Thru	12.00	0	100.00	45.00	0.00	Ŷ		
L	Sol	°S   ♥		Left	12.00	٢	90.00				
			Right	12.00	0	100.00					
Fulton Rd	orthboun	Northbound	Thru	12.00	0	100.00	45.00	0.00	Yes		
LL.	ž	•	Left	12.00	-	110.00					
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk		

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	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	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	6	0	0	0	0	0	0	30
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]	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	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   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	6	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
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]		7			0			0			e	
Bicycle Volume [bicycles/h]		2			0			2			2	
												1

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Located in CBD						z	No					
Signal Coordination Group						·						
Cycle Length [s]						130	0					
Coordination Type					Time of	Day Patt	Time of Day Pattern Coordinated	dinated				
Actuation Type						Fully ac	Fully actuated					
Offset [s]						27	27.0					
Offset Reference						LeadGreen	Green					
Permissive Mode						SingleBand	Band					
Lost time [s]						00.0	0					
Phasing & Timing												
Control Type	Protect Permis	Permis	Permis Protect Permis	Protect	Permis	Permis Protect	Protect	Permis	Permis	Protect	Permis Protect Permis Permis	Permis
Signal Group	e	80	0	7	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	80	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	4	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			٩			Ŷ			Ŷ	
11, 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
12, 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	٥N	٩		Ŷ	Ŷ		Ŷ	No		No	No	
Maximum Recall	Ŷ	Ŷ		Ŷ	Ŷ		g	٩		٩	٩	
Pedestrian Recall	Ŷ	No		Ŷ	Ŷ		g	Ŷ		Ŷ	Ŷ	
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						

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Pedestrian Clearance [s]

### Lane Group Calculations

Lane Group Calculations											
Lane Group	_	υ	U	_	υ	υ	_	υ	_	ပ	ĸ
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	e	71	71	14	82	82	4	12	19	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
(v / s)_i 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
s, saturation flow rate [veh/h]	1774	1863	1638	1774	1863	1832	1774	1735	1774	1863	1561
c, Capacity [veh/h]	37	1012	890	188	1170	1151	56	160	265	391	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
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
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
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
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											

V valiance / according	0 7 0	0 40	010	0 00	000	000	0.77	000	000	000	22.0
v, volutile / capacity	0.70	0.40	0.40	00.0	70.0	70.02	11.0	0.00	0.90	70.02	00.0
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	ш	в	ပ	ш	ю	ю	ш	ш	ш	۵	٥
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	No
50th-Percentile Queue Length [veh/ln]	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/ln]	26.59	221.55	200.94	221.55 200.94 133.83 121.81	121.81	119.92	37.98	105.65	196.37	86.38	159.05
95th-Percentile Queue Length [veh/ln]	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/ln]	47.85	343.60	317.18	47.85 343.60 317.18 228.70 212.31	212.31	209.71	68.36	189.94	311.28	155.49	262.47

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# Movement, Approach, & Intersection Results

47.91	۵						
43.74	۵	51.45	۵				
58.76	ш						
75.52 20.02 20.32 61.63 11.99 12.00 70.52 61.34 61.34 58.76 43.74	ш						
61.34	ш	63.65	ш				
70.52	ш			30.83	U	63	
12.00	В			30.	0	0.563	
11.99	в	20.85	U				
61.63	ш						
20.32	ပ	21.82					
20.02	υ		21.82	U			
75.52	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

		_	_		 			
		•						
	•		•	SG: 3 15s				
	•		•					
							s+c o	SG: 108 26s
						8	'n	SG
				t 55s	SG: 104 25s	. 461	501	
				ÿ	 ġ		; 	
,								
4	œ			30=				
e	7			SG: 1 30s				
2	9	1	•				102	
-	5		,			0100	0	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s	SG: 102 26s		5+ C 50C	

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2220 Fulton Road Project TIS PM Existing plus Project Conditions

Intersection Level Of Service Report Intersection 8: Peterson Ln/Piner Rd Signalized HCM 2010 15 minutes

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

9.1 A 0.347

### Intersection Setup

Name	ď	Peterson Ln	c	ď	Peterson Ln	c.		Piner Rd			Piner Rd	
Approach	ž	Northbound	-	Ň	Southbound	p	ш	Eastbound	_	5	Westbound	5
Lane Configuration		÷			÷		Ť	ц Т			÷	
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
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00 180.00		80.00	100.00	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	ď	Peterson Ln	5	ď	Peterson Ln	5		Piner Rd			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	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 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
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	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	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	0000 1.0000 1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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]	9	3	13	13	5	9	8	129	6	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	٥N		No	٥N		No	٥N		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			-			16			9	
Bicycle Volume [bicycles/h]		2			2			4			3	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Signal Coordination Type	Located in CBD						z	No					
9th (a) Type Type Type Type Type The AL and Chay Pattern isolated The AL and Chan Pattern isolated T	Signal Coordination Group						Ľ						
The of Day Pattern Isolated           Type	Cycle Length [s]						6						
Type	Coordination Type					Time	of Day P.	attern Iso	olated				
eli         0.0	Actuation Type						Fully ad	ctuated					
mode         Image	Offset [s]						0	0					
Mode	Offset Reference						Lead	Green					
I eli         I eta ite	Permissive Mode						Single	Band					
ype         Permis         Permis <th>Lost time [s]</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>0.0</th> <th>00</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Lost time [s]						0.0	00					
ype         Permis         Permis <th>asing &amp; Timing</th> <th></th>	asing & Timing												
oup         0         8         0         6         4         0         5         2         0         1         6           al Grouss         1 <th< th=""><th>Control Type</th><th>Permis</th><th>Permis</th><th>Permis</th><th>Permis</th><th></th><th>Permis</th><th>ProtPer</th><th>Permis</th><th></th><th>ProtPer</th><th>Permis</th><th>Permis</th></th<>	Control Type	Permis	Permis	Permis	Permis		Permis	ProtPer	Permis		ProtPer	Permis	Permis
al Gaups         i	Signal Group	0	80	0	0	4	0	5	2	0	-	9	0
adject         i <th>Auxiliary Signal Groups</th> <th></th>	Auxiliary Signal Groups												
een(s)         0         7         0         7         0         5         5         6         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         6         5         5         40         7         7         0 </th <th>Lead / Lag</th> <th></th> <th></th> <th></th> <th>1</th> <th></th> <th></th> <th>Lag</th> <th></th> <th></th> <th>Lag</th> <th></th> <th></th>	Lead / Lag				1			Lag			Lag		
even lej         0         20         0         20         10         20         10         15         40         15         40           [e]         0.0         36         0.0         36         0.0         43         43         43         43           [e]         0.0         0.0         0.0         0.0         0.0         0.0         43         43         43         43           [e]         0.0         0.0         0.0         0.0         0.0         0.0         24         43         43           [e]         0.0         0.0         0.0         0.0         0.0         0.0         24         43         43           [e]         0.0         0.0         0.0         0.0         20         20         24         43           [e]         0.0         0.0         0.0         20         20         20         24         43           [e]         0.0         24         0.0         24         24         23         23         23         23         23         23         23         23         23         23         23         23         23         23         23         23	Minimum Green [s]	0	2	0	0	7	0	5	5	0	2	5	0
[e]         0.0         3.6         0.0         3.6         0.0         3.6         0.0         3.4         3.3         3.3         4.3 <th>Maximum Green [s]</th> <td>0</td> <td>20</td> <td>0</td> <td>0</td> <td>20</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td> <td>15</td> <td>40</td> <td>0</td>	Maximum Green [s]	0	20	0	0	20	0	15	40	0	15	40	0
[e]         0.0 <th>Amber [s]</th> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>0.0</td> <td>3.6</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td> <td>4.3</td> <td>4.3</td> <td>0.0</td>	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
j         0         35         0         36         0         36         10         31         00         24         45           sion(s)         0         7         0         20         20         20         20         20         20           sion(s)         0         7         0         7         0         7         0         20	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
relaction         0.0         2.0         0.0         2.0         7         0         0         7         0         7         0         7         0         7         0         7         0         7         10         12         14           attenedity         0         0         14         0         2.0         2.0         14         0         0         14         0         0         14           attenedity         0         0         16         10         2.0         2.0         2.0         2.3         2.3         2.3           attenedity         0         0         16 </th <th>Split [s]</th> <td>0</td> <td>35</td> <td>0</td> <td>0</td> <td>35</td> <td>0</td> <td>10</td> <td>31</td> <td>0</td> <td>24</td> <td>45</td> <td>0</td>	Split [s]	0	35	0	0	35	0	10	31	0	24	45	0
Image         Image <th< th=""><th>Vehicle Extension [s]</th><td>0.0</td><td>2.0</td><td>0.0</td><td>0.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td><td>2.0</td><td>2.0</td><td>0.0</td></th<>	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
arance (s)         0         24         0         24         0         14         0         14         0         14         16         16         14         16	Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Indic         No	Pedestrian Clearance [s]	0	24	0	0	24	0	0	14	0	0	14	0
atTme [s]         0.0         2.0         0.0         2.0         0	Rest In Walk		Ñ			°N N			No			Ŷ	
Str         Time (s)         0.0         1.6         0.0         1.6         0.0         2.3         2.	11, 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
accalit         No         No         No         No         No         Yes         No         Yes           Recalit         N         No	12, 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
accali         No         No <th< th=""><th>Minimum Recall</th><th></th><th>Ŷ</th><th></th><th></th><th>Ŷ</th><th></th><th>Ŷ</th><th>Yes</th><th></th><th>Ŷ</th><th>Yes</th><th></th></th<>	Minimum Recall		Ŷ			Ŷ		Ŷ	Yes		Ŷ	Yes	
Recail         No         No <th< th=""><th>Maximum Recall</th><th></th><th>Ŷ</th><th></th><th></th><th>Ŷ</th><th></th><th>Å</th><th>٩</th><th></th><th>Ŷ</th><th>Ŷ</th><th></th></th<>	Maximum Recall		Ŷ			Ŷ		Å	٩		Ŷ	Ŷ	
alion (1)         0.0         0	Pedestrian Recall		Ŷ			Ŷ		Ŷ	Ŷ		Ŷ	Ŷ	
gath         R1         0.0         1.00	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
ring Factor         1.00	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
nal Group Valk [s] arance [s]	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
	clusive Pedestrian Phase												
	Pedestrian Signal Group												
	Pedestrian Walk [s]												
	Pedestrian Clearance [s]						0						

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### Lane Group Calculations

C. Cycle Length [s]         31           L. Total Lost Time per Cycle [s]         3.60           I	31 3.60 2.00 1.60 6 6 0.19 0.19 0.06 1662 1662	31 4.30 2.00 0.00 18	31	31	31	31	31
	3.60 2.00 1.60 6 6 0.19 0.19 0.06 1662 487	4.30 2.00 0.00 18			-	-	
	2.00 1.60 6 0.19 0.06 1662 487	2.00 0.00	4.30	4.30	4.30	4.30	4.30
	1.60 6 0.19 0.06 1662 487	0.00	0.00	0.00	2.00	0.00	0.00
	6 0.19 0.06 1662 487 40 07	18	2.30	2.30	0.00	2.30	2.30
	0.19 0.06 1662 487	2	5	1	18	7	1
	0.06 1662 487 40 07	0.56	0.34	0.34	0.56	0.37	0.37
1623 1623 0.095 0.04 1.00 0.07 0.00 1.00 1.00	1662 487 10 07	0.03	0.28	0.02	0.07	0.19	0.20
447 447 10.85 10.04 1.00 0.07 0.00 1.00 1.00	487 10 07	1213	1863	1533	1337	1863	1782
10.95 0.04 1.00 0.07 0.07 1.00 1.00 0.00	10 07	642	632	520	625	686	656
0.04 1.00 0.07 1.00 1.00 1.00	10.01	6.91	9.43	7.00	7.96	7.75	7.77
1.00 0.07 1.00 1.00 0.19	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.07 1.00 1.00 0.10 0.10 0.10 0.10 0.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00
000 1100 000 0000	0.07	0.01	0.98	0.02	0.04	0.23	0.25
1.00 1.00 0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.19							
0	0.19	0.05	0.81	0.07	0.14	0.53	0.53
11.02	11.04	6.92	10.41	7.02	8.00	7.99	8.02
В	в	×	æ	A	۷	×	A
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/ln] 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
35th-Percentile Queue Length [ft/ln] 17.10	19.14	0.77	84.35	4.23	2.20	45.56	44.08

## Generated with PTV VISTRO

### Version 7.00-05

# Movement, Approach, & Intersection Results

8.02	A						
8.00	A	8.00	۷				
8.00	A						
7.02	A						
10.41	в	10.01	в				
6.92	٨			9.10	7	47	
11.02 11.02 11.02 11.04 11.04 11.04 6.92 10.41 7.02 8.00 8.00	в				4	0.347	
11.04	в	11.04	в				
11.04	в						
11.02	в						
11.02	в	11.02	в				
11.02	в						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

#### Ring 1 1 2 -Sequence

	•						
	•			35s	31s	355	315
	•	•		SG: 4	SG: 104	SG 8 35s	SG. 108
	•		•				
	•	•				SG: 5 10s	
	•	•					
	•	•		24s			
	•	•	•	SG: 1 24s			
4	œ	•	•				
	•	•					_
2	9	•	•				
-	5	•	•				
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 31s	SG: 102 21s	SG: 6 45s	SG: 106 21s

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Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

423.5 F 1.312

#### Intersection Setup

Name	5	Waltzer Rd		5	Waltzer Rd			Piner Rd			Piner Rd	
Approach	ž	Northbound	7	Х	Southbound	P	ш	Eastbound	_	5	Westbound	5
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	0	ł	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			٩			g	

#### 2.00 1.3300 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 8 783 44 1.0000 1.0000 ÷ 0 0 c 0 0 0 1.0000 1.0000 1.0000 1.0000 9 0 0 0 0 0 0 œ 2 Piner Rd 25 591 0 0 0 808 0 22 202 1.0000 33 0 0 0 0 0 0 ω 1.0000 1.0000 40 2 38 13 51 0 0 0 0 0 0 Waltzer Rd 1.0000 1.0000 1.0000 1.0000 0 0 0 0 0 0 e 0 0 0 83 0 0 0 13 1.0000 1.0000 e 0 0 0 0 0 0 4 Waltzer Rd -1.0000 1.0000 1.0000 1.0000 0 0 0 0 0 0 0 4 0 0 0 2000 Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Base Volume Adjustment Factor Heavy Vehicles Percentage [%] Total 15-Minute Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

0 0

Piner Rd

0 0

37 0 0 1.0000 1.0000 1.0000 1.0000

15 [20]

270

1078

7

œ

33 808

51

53

4

ß

Total Analysis Volume [veh/h]

Pedestrian Volume [ped/h]

0 59

0 0 1078

VISTRO	
PTV	
Generated with	Vision 7 00 0E

Intersection Settings Version 7.00-05

Priority Scheme	Stop	d	Stop	do	Free	ø		Free
Flared Lane	Yes	s						
Storage Area [veh]	-				0			0
Two-Stage Gap Acceptance	No	0	z	0				
Number of Storage Spaces in Median	0				0			0
Movement, Approach, & Intersection Results								
VIC Meroment VIC Detio	0.16	000	1 0 1 0 1	000	0.06	0000	0.0	

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	131.02 86.57	27.58	27.58 423.54 400.43	400.43	22.67	11.21	0.00	0.00	9.50	0.00	0.00
Movement LOS	ш	ш	۵	u.	ш	υ	æ	٨	٨	۲	۲	٨
95th-Percentile Queue Length [veh/In]	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	14.56 14.56 14.56 140.45 140.45 18.29 4.26	140.45	18.29		0.00	0.00	1.03	0.00	0.00
d_A, Approach Delay [s/veh]		85.20			231.82			0.44			0.09	
Approach LOS		ш			ш			A			۲	
d_I, Intersection Delay [s/veh]						12.	12.36					
Intersection LOS												

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2220 Fulton Road Project TIS PM Existing plus Project Conditions

Control Type:	Malysis Method:	Analysis Period:
0	Ana	Ä

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

140.4 F 0.837

### Intersection Setup

Name	Fulto	Fulton Rd	Fulto	Fulton Rd	Tedeschi Dr	shi Dr
Approach	Northbound	punoc	South	Southbound	Westbound	puno
Lane Configuration	±	.t.	١٢	_	H	•
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.	45.00	30.	30.00	30.00	00
Grade [%]	0.00	8	0.0	0.00	00.00	0
Crosswalk	z	No	z	No	¥	Yes

#### 0.00 1.3300 1.0000 1.0000 20 4 £ 20 0 0 0 Tedeschi Dr 0 72 1.0000 1.0000 1.0000 2.00 1.3300 54 18 0 0 0 72 0 1.0000 855 1.0000 1.0000 214 855 1.3300 600 0 57 Fulton Rd 0.00 1.0000 1.0000 ÷ 0 ო 7 œ 23 1.0000 2.00 1.3300 1.0000 31 0 0 ω č Fulton Rd 1.0000 2.00 1.3300 1199 1.0000 1.0000 300 1199 881 0 27 0 0 Pass-tay Trips [velvh] Existing Site Adjustment Volume [velvh] Other Volume [velvh] Total Hourty Volume [velvh] Peak Hour Factor Heavy Vehicles Percentage [%] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Diverted Trips [veh/h] Base Volume Adjustment Factor Total 15-Minute Volume [veh/h] Total Analysis Volume [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Growth Factor Name Volumes

Pedestrian Volume [ped/h]

VISTRO	
th PTV	20
Generated wit	Version 7 00 0E

Intersection Settings Version 7.00-05

Priority Scheme	E	Free	Ľ	Free	Stop	d
Flared Lane					Ż	No
Storage Area [veh]	0			-	0	
Two-Stage Gap Acceptance					Ž	No
Number of Storage Spaces in Median	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	ш	A	L	ш
95th-Percentile Queue Length [veh/In]	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]	0.0	0.00	0	0.14	133.12	.12

u.

0.14 A 5.65 F

0.00 <

Approach LOS d\_I, Intersection Delay [s/veh] d\_A, Approach Delay [s/veh]

Intersection LOS

2220 Fulton Road Project TIS AM Baseline plus Project Condition

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Control Type:	Analysis Method:	Analysis Period:
Control	Analysis	Analysis

Intersection Level Of Service Report Intersection 2: Fulton Rd/New Project Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vrc): Two-way stop HCM 2010 15 minutes

95.2 F 0.519

### Intersection Setup

Project Project 0.00 0.00	Yes
New Project Rat           Vrestbound           Vestbound           12.00           12.00           12.00           12.00           25.00           0.000	
Euten Rd sutribound autibound Thru 12.00 12.00 45.00 000 000	Yes
Fution Rd Southbound Left 12.00 1 12.00 1 100.00 1 145.00 0.00	Υ
Iten Rd Itheound Right 12.00 100.00 100.00 0.00 0.00	s
Futtern Rd           Northbound           Northbound           1           1           0           1           10           0           1           1           0           1           1           0           1           0           0           0           0           0           0           0           0           0           0           0           0           0	Yes
Name Approach Lane Configuration Turring Movement Lane Width (ft) Lane Width (ft) Lane Width (ft) No. of Lanes in Procket Pooket Length (ft) Speed (fnoh)] Grade (%)	Crosswalk

#### 0 39 1.0000 1.0000 2.00 1.3300 1.0000 2.00 950 1.0000 238 950 1.3300 672 0 20 Fulton Rd 2.00 1.0000 1.0000 0 1.0000 2.00 1.3300 1.0000 14 4 0 0 0 Fulton Rd 1.0000 2.00 1.3300 1.0000 1.0000 320 1279 1279 943 0 25 0 0 Pass-tay Trips [veh/h] Existing Sile Adjustment Volume [veh/h] Other Volume [veh/h] Total Hourty Volume [veh/h] Peak Hour Factor Base Volume Adjustment Factor Heavy Vehicles Percentage [%] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Growth Factor Name Volumes

2.00 1.3300

0

0 39 0 0

1.0000

1.0000

0 New Project Rd

0

1.0000 1.0000

9

~

4

Total 15-Minute Volume [veh/h] Total Analysis Volume [veh/h]

Pedestrian Volume [ped/h]

4

39

0 2

## Generated with PTV VISTRO

### Version 7.00-05

Intersection Settings

Priority Scheme	Ľ.	Free	Fr	Free	St	Stop
Flared Lane					z	No
Storage Area [veh]	0					
Two-Stage Gap Acceptance					z	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	0.52	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	11.78	0.00	95.23	56.00
Movement LOS	A	A	в	٨	ш	u.
95th-Percentile Queue Length [veh/In]	0.00	0.00	0.01	0.00	2.23	2.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.14	0.07	55.81	55.81
d_A, Approach Delay [s/veh]	0.0	0.00	-0	0.01	93.32	32
Approach LOS	1	A	1	A	L	
d_I, Intersection Delay [s/veh]			-1-	1.68		

ш

Intersection LOS Approach LOS

2220 Fulton Road Project TIS AM Baseline plus Project Conditions



rV VISTRO	
Generated with P <sup>-</sup>	Vareion 7 00-05

_ype:	lethod:	eriod:
Control Type:	Analysis Methoc	Analysis Period:

Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

14.1 B 0.523

### Intersection Setup

_	_		_	_	_			_	
Ave	Ð		Right	11.00	0	100.00			
San Miguel Ave	Westbound	F	Thru	12.00	0	100.00	25.00	0.00	Yes
Sar	\$		Left	11.00	-	60.00			
			Right	12.00	0	100.00			
	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	No
	ш		Left	12.00	0	100.00			
	77		Right	12.00	0	100.00			
Fulton Rd	Southbound	핕	Thru	12.00	0	100.00	45.00	0.00	Yes
ш	S		Left	12.00	-	50.00			
	77		Right	12.00	0	100.00			
Fulton Rd	Northbound	4-	Thru	12.00	0	100.00	45.00	0.00	No
LL.	ž	Ť	Left	12.00	-	50.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name		Fulton Rd	_		Fulton Rd					San	San Miguel Ave	we
Base Volume Input [veh/h]	0	814	93	73	589	0	0	0	0	105	0	135
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 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	1.0000	1.3300	1.3300	1.3300	1.3300	1.0000	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	24	6	5	90	0	0	0	0	28	0	15
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]	0	1107	133	102	873	0	0	0	0	168	0	195
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 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 1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	277	33	26	218	0	0	0	0	42	0	49
Total Analysis Volume [veh/h]	0	1107	133	102	873	0	0	0	0	168	0	195
Presence of On-Street Parking	Ŷ		No	Ŷ		٩	Ŷ		No	Ŷ		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]		0			0			0			0	
Bicycle Volume [bicycles/h]		6			13			~			0	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						16	190					
Coordination Type					Time	Time of Day Pattern Isolated	attern Iso	olated				
Actuation Type						Fully ac	Fully actuated					
Offset [s]						0	0.0					
Offset Reference						LeadGreen	Green					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Protect Permis Permis Protect Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	80	0	7	4	0	5	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	5	7	0	4	7	0	0	7	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	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	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]	61	120	0	25	84	0	0	45	0	45	0	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	0.0
Walk [s]	0	2	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	8	0	0	0	0	0	0	0	18	0	0
Rest In Walk		٩			٩			No		Ŷ		
11, 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	0.0
12, 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	0.0
Minimum Recall	No	Yes		Ŷ	Yes			٩		Ŷ		
Maximum Recall	No	Ŷ		٩	Ŷ			N		Ŷ		
Pedestrian Recall	No	Ŷ		Ŷ	°N N			٩		Ŷ		
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						
Bodontrian Closropoo [e]												

0	
Pedestrian Clearance [s]	

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## Lane Group Calculations

Lane Group	_	υ	υ	_	o	υ	_	ĸ
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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12, 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	4	24	0	6	6
g / C, Green / Cycle	0.00	0.41	0.41	0.08	0.49	0.00	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.34	0.34	0.06	0.25	00.0	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	00'0	18.02	18.60
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	2.23	2.46	8.14	0.23	00.00	0.48	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	00.0	0.00	0.00	00.0	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	00.0	0.52	0.67

0.07	19.62	в	Yes	1.95	48.82	3.52	87.88	
ZG:0	18.49	в	No	1.60	40.10	2.89	72.19	
0.00	0.00	A	No	0.00	0.00	0.00	0.00	
06.0	8.67	A	No	2.00	50.04	3.60	90.07	
G/ .0	30.26	υ	Yes	1.28	31.89	2.30	57.41	
0.83	15.25	в	Yes	4.57	114.28	8.08	201.94	
0.00 0.82	14.96	в	No	4.67	116.73 114.28	8.21	0.00 205.32 201.94	
0.00	0.00	A	No	0.00	0.00	0.00	0.00	
X, volume / capacity	d, Delay for Lane Group [s/veh]	Lane Group LOS	Critical Lane Group	50th-Percentile Queue Length [veh/In]	50th-Percentile Queue Length [ft/In]	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/In]	

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

19.62	ш						
0.00		19.10	в				
18.49	в	-					
0.00	A						
0.00	A	0.00	A				
0.00 0.00 0.00 18.49 0.00	٨			14.09	m	0.523	
0.00				14.		0.5	
8.67	A	10.93 B	в				
30.26	ပ						
15.25	В						
15.08 15.25 30.26 8.67	в	15.10	в				
0.00	A						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

## Sequence Ring 1 - 2 3 Ring 2 6 - 7

_	_				0000	0000	000000
	•						
		,					
	•	,	•	SG: 4 84s			
	•			Ŭ.			
	•		-			1205	
	•					SG:8 120≊	SG: 108 1
	•		-	61s		25s	
		,		SG: 3		SG. 7	
	•		-				
4	œ			-			
e	7			SG: 2 45s			
2	•	•	•				
	9		•				
Ring 1	Ring 2	Ring 3	Ring 4			SG: 6 45s	SG: 106 23s

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Intersection Level Of Service Report Intersection 4: Peterson LnSan Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (vic): All-way stop HCM 2010 15 minutes

9.6 A 0.364

### Intersection Setup

Ave	p		Right	12.00	0	100.00				
San Miguel Ave	Westbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes	
Sar	\$		Left	12.00	0	100.00				
Ave			Right	12.00	0	100.00				
San Miguel Ave	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes	
San	ш		Left	12.00	0	100.00				
L.	p		Right	12.00	0	100.00				
Peterson Ln	Southbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes	
Å	ŭ		Left	12.00	0	100.00				
c	5		Right	12.00	0	100.00				
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes	
Å	ž		Left	12.00	0	100.00				
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk	

Right 12.00 0

#### 1.0000 1.0000 1.0000 1.0000 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 2.00 1.300 1.3300</ 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 San Miguel Ave 5 173 276 46 0 0 276 69 0 0 0 1.0000 1.0000 14 4 0 0 0 4 c 0 1.0000 1.0000 1.0000 1.0000 1 135 28 4 13 0 51 51 San Miguel Ave 0 0 0 0 0 204 24 51 0 0 0 0 1.0000 1.0000 0 0 0 c 0 0 c 1.0000 1.0000 4 0 0 0 0 0 0 ß ß Peterson Ln 1.0000 8 1.0000 0 0 ഹ 0 0 0 0 ഹ 1.0000 1.0000 7 0 0 0 0 00 £ e 1.0000 1.0000 42 2 12 18 0 2 c 0 0 0 18 ß Peterson Ln 1.0000 1.0000 1.0000 1.0000 0 0 c 0 0 0 ო ო 60 0 4 0 0 0 0 15 0 Pass-tay Trips (ve/th) Existing Sile Adjustment Volume (ve/th) Other Volume (ve/th) Total Hourty Volume (ve/th) Base Volume Adjustment Factor Total 15-Minute Volume [veh/h] Heavy Vehicles Percentage [%] Total Analysis Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Peak Hour Factor Growth Factor Name Volumes

0 0 c 0 0 0

0

Pedestrian Volume [ped/h]

VISTRO	
PTV	
Generated with	Version 7.00-05

Intersection Settings

### 690 Capacity per Entry Lane [veh/h] Lanes

800

814

683

Capacity per Linity Larie [Vervit]	000	000	to	000
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	в
Intersection Delay [s/veh]		6	9.62	
Intersection LOS			×	

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Control Type:	All-wa
Analysis Method:	HCM
Analysis Period:	15 m

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): vay stop M 2010 minutes

Intersection Setup

Name	P	Peterson Ln		P	Peterson Ln	5	ā	Pinercrest Dr	à	ā	Pinercrest Dr	ŗ
Approach	ž	Northbound	7	ŭ	Southbound	p	ш	Eastbound	5	5	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	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	Pe	Peterson Ln	c	Å	Peterson Ln	c,	Pir	Pinercrest Dr	Ъ	ïđ	Pinercrest Dr	ň
Base Volume Input [veh/h]	2	26	60	80	47	e	5	15	15	39	12	14
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	4	0	7	14	0	0	0	0	0	0	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
Total Hourly Volume [veh/h]	e	39	80	18	22	4	7	20	20	52	16	21
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	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	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	20	2	19	-	2	5	5	13	4	2
Total Analysis Volume [veh/h]	3	39	80	18	22	4	7	20	20	52	16	21
Pedestrian Volume [ped/h]		2			4			0			e	

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enerated with PTV	arsion 7 00-05
ted	Version 7 00-05

CO-00. / 11018 IAA

Intersection Settings

Lanes

7.8 A 0.135

810	0.11		0.37	9.22	7.99	A		
839	0.06		0.18	4.45	7.55	A	7.79	A
821	0.12		0.41	10.24	7.98	A	1.7	4
206	0.13		0.46	11.60	7.59	A		
Capacity per Entry Lane [veh/h]	Degree of Utilization, x	Movement, Approach, & Intersection Results	95th-Percentile Queue Length [veh]	95th-Percentile Queue Length [ft]	Approach Delay [s/veh]	Approach LOS	Intersection Delay [s/veh]	Intersection LOS

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Control Type:	Analysis Method:	Analysis Period:	
0	Ån	Ą	

All-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

12.4 B 0.450

### Intersection Setup

			W,	Waltzer Rd	_	Ē	Pinercrest Dr	٦ ۲	ī	Pinercrest Dr	ň
	Northbound		S	Southbound	5	μ.	Eastbound		2	Westbound	5
	÷			÷			÷			÷	
Turning Movement Left T	Thru R	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft] 12.00 12	12.00 12	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	100.00 10	100.00	00.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph] 25.	25.00			25.00			25.00			30.00	
Grade [%] 0.0	0.00			0.00			0.00			0.00	
Crosswalk Ye	Yes			No			Yes			Å	

#### mes

Name	5	Waltzer Rd	77	5	Waltzer Rd		Ē	Pinercrest Dr	à	ē	Pinercrest Dr	ň
Base Volume Input [veh/h]	00	69	17	147	57	5	11	174	12	-	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]	=	92	23	196	76	2	15	238	16	-	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	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
[otal 15-Minute Volume [veh/h]	e	23	9	49	19	2	4	60	4	0	æ	36
Total Analysis Volume [veh/h]	11	92	23	196	76	7	15	238	16	-	130	144
Pedestrian Volume [ped/h]		4			0			5			0	

## Generated with PTV VISTRO Version 7.00-05

### 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	58.24	51.61	49.35
Approach Delay [s/veh]	10.45	13.48	12.56	11.90
Approach LOS	в	в	в	ß
Intersection Delay [s/veh]		12.	12.36	
Intersection LOS			B	

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Generated with	Version 7.00-05

0

Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

34.8 C 0.633

### Intersection Setup

Name		Fulton Rd		ш. 	Futton Rd	_		Piner Rd			Piner Rd	
Approach	ž	Northbound	-	Ň	Southbound	p	ш	Eastbound	-	\$	Westbound	_
Lane Configuration	•	4-		•	4 -			÷		Ť	ц Т	
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	1	0	0	1	0	-
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			٩			Yes			Yes	

												1
Volumes												
Name		Fulton Rd		Ľ	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 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 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
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]	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 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   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	06	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	٥N		No	٥N		No	No		No	٥N		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]		9			0			0			10	
Bicycle Volume [bicycles/h]		0			0			-			0	

#### Generated with PTV VISTRO Version 7.00-05

I accepted in CDD												
						z	No					
Signal Coordination Group												
Cycle Length [s]						10	130					
Coordination Type					Time of	Day Patt	Time of Day Pattern Coordinated	rdinated				
Actuation Type						Fully ad	Fully actuated					
Offset [s]						85	85.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						SingleBand	Band					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Protect Permis Permis Protect Permis Permis Protect Permis Permis Protect	Protect	Permis	Permis	Protect	Permis	Permis		Permis	Permis
Signal Group	e	œ	0	7	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	∞	0	4	80	0	4	80	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	4	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	2	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		Ŷ			No			No			No	
11, 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
12, 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	Ŷ	Ŷ		Ŷ	No		Ŷ	No		Ŷ	No	

		2			2			2			2	
11, 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
12, 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	Ŷ	Ŷ		No	No		Ŷ	N		٩	٩	
Maximum Recall	Ŷ	Ŷ		N	٩		g	٩		Ŷ	٩	
Pedestrian Recall	Ň	Ŷ		No	No		Ŷ	No		٩	٩N	
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 Fittering 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					



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## Lane Group Calculations

Lane Group	_	υ	υ	_	υ	υ	_	υ	_	υ	۲
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	2	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)_i 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
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
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	39.91	44.10
Lane Group LOS	ш	υ	υ	ш	в	в	ш	ш	ш	٥	٥
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	No
50th-Percentile Queue Length [veh/In]	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	254.66	155.09	155.09 142.14	136.22	40.39	150.96	203.68	94.01	176.65
95th-Percentile Queue Length [veh/In]	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	425.10 385.51 257.21 239.91	239.91	231.92	72.70	251.71	320.71	169.21	285.63

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# Movement, Approach, & Intersection Results

		_		_			
44.10	٥						
	۵	48.70	۵				
58.47	ш						
58.15	ш						
60.89         15.87         15.90         69.84         58.15         58.15         58.47         39.91	ш	60.47	ш				
69.84	ш			34.78	U	0.633	
15.90	В			34.	0	0.6	
15.87	ю	25.26	U				
60.89	ш						
68.66 26.41 26.85	c						
26.41	с	28.70	U				
68.66	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence 3 4 3 4 3 3 4 3<

,	,		•				
				SG: 3 14s			
	-		•				
	,		•				
,	,	,	•				6s
,	,	,	•			SG: 8 54s	SG: 108 26s
•	•	•	•		25s		Š
,	,	,		SG: 4 55s	3: 104 2	SG: 7 15s	
,	,	'	•				
ŀ		•	•		P.,		
,	,	•	•				
4	8	•	•	SG: 1 31s			
e	2	•	•	SG: 1			
2	9	•	•			47s	
~	5	•	•			SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s	SG: 102 265	SG: 5 14s	

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Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 8: Peterson LnPIner Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

11.0 B 0.474

### Intersection Setup

_	<u> </u>		_	_	_	_	_	_	_
	P		Right	12.00	0	100.00			
Piner Rd	Westbound	÷	Thru	12.00	0	100.00	40.00	0.00	Yes
	2		Left	12.00	-	80.00			
			Right	12.00	-	180.00			
Piner Rd	Eastbound	니	Thru	12.00	0	100.00	40.00	0.00	Yes
-	ш		Left	12.00	1	80.00			
c	P		Right	12.00	0	100.00			
Peterson Ln	Southbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes
Å	Х		Left	12.00	0	100.00			
5	7		Right	12.00	0	100.00			
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes
Å	ž		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name	ď	Peterson Ln	_	æ	Peterson Ln	c.		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	62	54	107	62	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 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 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	13	-	0	0	56	0	0	16	4
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	92	35	45	22	620	31	36	517	21
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	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	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	23	6	11	9	155	8	6	129	5
Total Analysis Volume [veh/h]	62	54	107	92	35	45	22	620	31	36	517	21
Presence of On-Street Parking	Ŷ		No	No		No	No		No	٥N		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			-			3			5	
Bicycle Volume [bicycles/h]		0			2			-			-	

## Generated with PTV VISTRO Version 7.00-05

Intersection Settings

Located in CBD						-	NC					
Signal Coordination Group												
Cycle Length [s]						6	06					
Coordination Type					Time	Time of Day Pattern Isolated	attern Iso	olated				
Actuation Type						Fully actuated	ctuated					
Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						SingleBand	Band					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis Permis Permis Permis Permis Permis ProtPer Permis Permis ProtPer Permis	ProtPer	Permis	Permis
Signal Group	0	80	0	0	4	0	5	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag							Lag			Lag		
Minimum Green [s]	0	2	0	0	7	0	5	5	0	2	2	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	2	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		Ñ			Ŷ			Ñ			Ŷ	
11, 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
<ol> <li>Clearance Lost Time [s]</li> </ol>	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		Ŷ			Ŷ		Ŷ	Yes		Ŷ	Yes	
Maximum Recall		Ŷ			Ŷ		g	٩		Ŷ	Ŷ	
Pedestrian Recall		Ñ			°N N		Ŷ	No		No	Ŷ	
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	0					

0	0	
Pedestrian Walk [s]	Pedestrian Clearance [s]	



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## Lane Group Calculations

	ر	ر		>	2	_	כ	כ
C, Cycle Length [s]	33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	00.0	0.00	2.00	0.00	0.00
2, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, Effective Green Time [s]	7	7	19	13	13	19	14	14
g / C, Green / Cycle	0.20	0.20	0.56	0.39	0.39	0.56	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.14	0.13	0.02	0.33	0.02	0.03	0.15	0.15
saturation flow rate [veh/h]	1639	1304	1211	1863	1540	1203	1863	1834
c, Capacity [veh/h]	466	426	657	727	601	523	761	749
d1, Uniform Delay [s]	12.38	12.14	6.05	9.36	6.37	9.86	6.88	6.88
k, delay calibration	0.04	0.04	0.04	0.17	0.04	0.04	0.04	0.04
, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.28	0.23	0.01	4.68	0.01	0.02	0.10	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
X, volume / capacity	0.48	0.40	0.03	0.85	0.05	0.07	0.36	0.36
Delay for Lane Group [s/veh]	12.66	12.37	6.05	14.04	6.38	9.88	6.98	6.99
Lane Group LOS	в	B	۷	в	۲	A	A	۷
Critical Lane Group	Yes	No	Ñ	Yes	No	Yes	N	No
50th-Percentile Queue Length [veh/In]	1.21	0.91	0.02	3.12	0.08	0.03	0.71	0.70
50th-Percentile Queue Length [ft/ln]	30.16	22.80	0.44	77.90	1.90	0.74	17.78	17.60
95th-Percentile Queue Length [veh/In]	2.17	1.64	0.03	5.61	0.14	0.05	1.28	1.27
Deth Derecatile Oticite Length [ft/lb]	54.20	44 04	010	40.00	4		10.00	00.00

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# Movement, Approach, & Intersection Results

6.99	A						
6.99	A	7.17	A				
9.88	A						
6.38	٨						
6.05 14.04 6.38 9.88	в	13.43	в				
	A			11.02	~	0.474	
12.66 12.37 12.37 12.37	В			1		0.4	
12.37	в	12.37	в				
12.37	в						
12.66	в						
12.66 12.66	в	12.66	в				
12.66	В						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

#### Sequence

	,			,				2000
		,	,					
					35s	31s	355	31s
					SG: 4 355	SG: 104	SG: 8 35s	SG: 108
		ī						2000
					SG: 1 10s		14s	
		ī			4,		SG: 5 14s	
			,					
	4	8	,					
	2	9		•				
	-	5		•				
-	Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 45s	SG: 102 21s	SG: 6 41s	SG: 106 215

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Control Type:	vnalysis Method:	Analysis Period:
ŏ	Ana	Ana

Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd Two-way stop HCM 2010 15 minutes

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

487.4 F 1.452

### Intersection Setup

Name	\$	Waltzer Rd	77	>	Waltzer Rd	p		Piner Rd			Piner Rd	
Approach	ž	Northbound	p	Ň	Southbound	p	ш	Eastbound		\$	Westbound	5
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
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			٩			g	
Volumes												

Name	5	Waltzer Rd	7	>	Waltzer Rd	-		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	8	5	13	88	0	63	42	824	e	6	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	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	69	0	0	20	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]	1	7	17	51	0	84	56	1165	4	12	657	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]	e	2	4	13	0	21	14	291	-	e	164	6
Total Analysis Volume [veh/h]	1	7	17	51	0	84	56	1165	4	12	657	35
Pedestrian Volume [ped/h]		2			5			0			0	

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### Free Free Stop ⊳ 2 Stop 1 1 No Phonty Scheme Flared Lane Storage Area [veh] Two-Stage Gap Acceptance Number of Storage Spaces in Median Intersection Settings

# Movement, Approach, & Intersection Results

0				0					
0.00	0.00	×	0.00	0.00					
0.01	0.00	۷	0.00	0.00	0.19	۷			
0.02	11.17	ю	0.06	1.54					
0.00	0.00	A	0.00	0.00					
0.01	0.00	A	0.00	0.00	0.42	٨			
0.06	9.29	A	0.20	5.00			14.35		
0.19	14.85	в	0.68	17.00			14.		
0.00		ш	<b>5.48</b> 5.48	36.93	193.36	ш			
1.45	146.00 109.52 58.62 487.39 449.64	ш		48.56 48.56 48.56 136.93					
0.07	58.62	ш	1.94	48.56					
0.13	109.52	ш	1.94	48.56	96.26	ш			
0.31	146.00	ш	1.94	48.56					
V/C, Movement V/C Ratio	d_M, Delay for Movement [s/veh]	Movement LOS	95th-Percentile Queue Length [veh/In]	95th-Percentile Queue Length [ft/ln]	d_A, Approach Delay [s/veh]	Approach LOS	d_l, Intersection Delay [s/veh]	Intersection LOS	

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Control Type:	malysis Method:	Analysis Period:
0	Ä	Ą

Two-way stop HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 1: Fulton Rd/Tedeschi Dr Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

228.2 F 0.972

### Intersection Setup

puno	t	Right	12.00	0	100.00	00	00	Yes
Westb	F	Left	12.00	0	100.00	30.	0.0	Ye
punoc	_	Thru	12.00	0	100.00	00	00	No
South	F	Left	12.00	1	50.00	30	0.0	z
punoc	_t_	Right	12.00	0	100.00	00	00	No
North	=	Thru	12.00	0	100.00	45	0	z
Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk
	Approach Northbound Southbound Westbound Westbound	Notthbound Southbound	Northbound         Southbound         Mestbound           III-         III-         III-         III-           Thru         Right         Left         Thru         Left	Northbound         Southbound         Westbound           Image: South SouthA	Northbound         Southbound         Westbound           Item         Item <td>Northbound         Southbound         Westbound           Ith         Ith         Ith         Ith         Nestbound           Thru         Right         Left         Thru         Ith         Ith           12.00<td>Northbound         Southbound         Nextbound           Ibu         Ibu         Ibu         Ibu         Nextbound           Thru         Right         Left         Thru         Left         Ibu           12.00&lt;</td><td>Monthbound         Southbound         Southbound         Mestbound           Thru         Fight         Left         Thru         Left         Thru           Thru         Right         Left         Thru         Left         Thru         Left         Thru           12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         10.</td></td>	Northbound         Southbound         Westbound           Ith         Ith         Ith         Ith         Nestbound           Thru         Right         Left         Thru         Ith         Ith           12.00 <td>Northbound         Southbound         Nextbound           Ibu         Ibu         Ibu         Ibu         Nextbound           Thru         Right         Left         Thru         Left         Ibu           12.00&lt;</td> <td>Monthbound         Southbound         Southbound         Mestbound           Thru         Fight         Left         Thru         Left         Thru           Thru         Right         Left         Thru         Left         Thru         Left         Thru           12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         10.</td>	Northbound         Southbound         Nextbound           Ibu         Ibu         Ibu         Ibu         Nextbound           Thru         Right         Left         Thru         Left         Ibu           12.00<	Monthbound         Southbound         Southbound         Mestbound           Thru         Fight         Left         Thru         Left         Thru           Thru         Right         Left         Thru         Left         Thru         Left         Thru           12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         12.00         10.

### nec

		_	_							_	_	_			_		_
	shi Dr	6	1.0000	0.00	1.3300	0	0	0	0	0	0	12	1.0000	1.0000	e	12	
	Tedeschi Dr	40	1.0000	2.00	1.3300	0	0	0	0	0	0	53	1.0000	1.0000	13	53	-
	Rd	1138	1.0000	2.00	1.3300	0	47	0	0	0	0	1561	1.0000	1.0000	390	1561	
	Fulton Rd	10	1.0000	00.00	1.3300	0	-	0	0	0	0	14	1.0000	1.0000	4	14	0
	h Rd	60	1.0000	2.00	1.3300	0	0	0	0	0	0	80	1.0000	1.0000	20	80	
	Fulton Rd	783	1.0000	2.00	1.3300	0	64	0	0	0	0	1105	1.0000	1.0000	276	1105	0
Volumes	Name	Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Factor	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Other Adjustment Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]	Pedestrian Volume [ped/h]

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#### 0.03 170.10 F 4.93 123.24 No Stop 0.97 228.15 F 4.93 123.24 0.00 0.00 0.00 Free 0.02 11.19 B 0.07 1.80 0.00 0.00 Free 0.00 0.00 0.00 0.01 V/C: Movement V/C Ratio d\_M. Delay for Movement (s/weh) Movement LOS S6th-Percentile Queue Length (ph/h) 95th-Percentile Queue Length (ph/h) d\_A. Approach Delay (s/weh) Approach LOS Phonty Scheme Flared Lane Storage Area [veh] Two-Stage Gap Acceptance Number of Storage Spaces in Median Movement, Approach, & Intersection Results Intersection Settings

5.06	L	
d_I, Intersection Delay [s/veh]	Intersection LOS	

217.43

0.10 <

0.00 <

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Control Type:	Analysis Method:	Analysis Period:	
õ	Analy	Anal	

Intersection Level Of Service Report Intersection 2: Fulton Rd/New Project Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vrc): Two-way stop HCM 2010 15 minutes

150.8 F 0.568

### Intersection Setup

t Rd	pr		Right	12.00	0	100.00			
New Project Rd	Westbound	H	Left	12.00	0	100.00	25.00	0.00	Yes
n Rd	puno	ļ	Thru	12.00	0	100.00	00	00	S
Fulton Rd	Southbound	Ŧ	Left	12.00	0	100.00	45.00	0.00	Yes
Rd	ound	•	Right	12.00	0	100.00	00	0	s
Fulton Rd	Northbound	4	Thru	12.00	0	100.00	45.00	0.00	Yes
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

#### 2.00 1.3300 1.0000 1.0000 1.0000 0 0 2 New Project Rd 2.00 1.3300 0 27 1.0000 1.0000 1.0000 0 0 27 0 0 ~ 27 1.0000 2.00 1637 1.0000 1.0000 409 1.3300 1198 1637 4 0 0 Fulton Rd 2.00 1.0000 1.0000 0 0 ო 1.0000 2.00 1.3300 45 1.0000 1.0000 7 45 45 0 0 0 0 Fulton Rd 1.0000 2.00 1.3300 1206 1.0000 1.0000 302 1206 860 0 62 0 c 0 0 Pass-tay Trips [velvh] Existing Site Adjustment Volume [velvh] Other Volume [velvh] Total Hourty Volume [velvh] Peak Hour Factor Base Volume Adjustment Factor Heavy Vehicles Percentage [%] Total 15-Minute Volume [veh/h] Total Analysis Volume [veh/h] In-Process Volume [veh/h] Site-Generated Trips [veh/h] Base Volume Input [veh/h] Other Adjustment Factor Diverted Trips [veh/h] Growth Factor Name Volumes

Pedestrian Volume [ped/h]

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Intersection Settings Version 7.00-05

Priority Scheme	Fre	Free	F	Free	Stop	do
Flared Lane					No	0
Storage Area [veh]	0			-	0	
Two-Stage Gap Acceptance					N	0
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	ш	A	L	u.
95th-Percentile Queue Length [veh/In]	0.00	0.00	0.02	0.01	2.21	2.21
95th-Percentile Queue Length [ft/In]	00.0	0.00	0.41	0.20	55.34	55.34
d_A, Approach Delay [s/veh]	0.0	0.00	0	0.02	146.17	.17

A 1.46

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d\_I, Intersection Delay [s/veh]

Intersection LOS Approach LOS

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Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 3: Fution Rd/San Miguel Ave Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

14.6 B 0.521

### Intersection Setup

Name		Fulton Rd	-		Fulton Rd	-				Sar	San Miguel Ave	Ave
Approach	ž	Northbound	p	<i>i</i>	Southbound	p	ш	Eastbound	5	5	Westbound	
Lane Configuration	•	4  -			Ē			÷			F	
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	11.00	12.00	11.00
No. of Lanes in Pocket	+	0	0	1	0	0	0	0	0	ł	0	0
Pocket Length [ft]	50.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	60.00	100.00	100.00
Speed [mph]		45.00			45.00			25.00			25.00	
Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk		٩			Yes			٩			Yes	

Volumes												
Name		Fulton Rd		Ľ	Fulton Rd					San	San Miguel Ave	Ave
Base Volume Input [veh/h]	0	776	96	121	1070	0	0	0	0	46	0	68
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 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	1.0000 1.3300 1.3300 1.3300 1.3300	1.0000	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	96	27	19	52	0	0	0	0	16	0	11
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]	0	1128	155	180	1475	0	0	0	0	27	0	101
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 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	1.0000	1.0000 1.0000 1.0000 1.0000 1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	282	39	45	369	0	0	0	0	19	0	25
Total Analysis Volume [veh/h]	0	1128	155	180	1475	0	0	0	0	17	0	101
Presence of On-Street Parking	No		No	٥N		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]		0			0			0			0	
Bicycle Volume [bicycles/h]		15			12			3			0	

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90 Time of Day Pattern Isolated Fully actuated ٩ Located in CBD Signal Coordination Group Cycle Length [s] Coordination Type Actuation Type Intersection Settings

Offset [s]						0	0.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					
Phasing & Timing												
Control Type	Protect	Permis	Protect Permis Permis Protect Permis	Protect	Permis	Permis	Split	Split	Split	Split	Permis	Split
Signal Group	e	80	0	7	4	0	2	2	0	9	0	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead						Lead		
Minimum Green [s]	2	7	0	4	7	0	0	7	0	6	0	0
Maximum Green [s]	7	35	0	25	35	0	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	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]	43	28	0	35	20	0	0	27	0	27	0	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	0.0
Walk [s]	0	5	0	0	0	0	0	0	0	5	0	0
Pedestrian Clearance [s]	0	8	0	0	0	0	0	0	0	18	0	0
Rest In Walk		No			No			No		٩		
<ol> <li>Start-Up Lost Time [s]</li> </ol>	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
12, 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	0.0
Minimum Recall	No	Yes		No	Yes			No		Ŷ		
Maximum Recall	No	No		No	No			No		No		
Pedestrian Recall	No	No		No	No			No		٩		
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 Fittering 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					

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## Lane Group Calculations

Lane Group Calculations							
Lane Group	_	υ	υ	_	o	U	_
C, Cycle Length [s]	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
11_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	00.00	00.0	0.00	0.00
12, Clearance Lost Time [s]	2.70	2.70	2.70	2.70	2.70	1.00	1.60
g_i, Effective Green Time [s]	0	23	23	7	30	0	80
g / C, Green / Cycle	0.00	0.42	0.42	0.13	0.55	0.00	0.15
(v / s)_i Volume / Saturation Flow Rate	0.00	0.35	0.36	0.10	0.42	0.00	0.04
s, saturation flow rate [veh/h]	1774	1863	1768	1774	3547	1863	1774
c, Capacity [veh/h]	0	781	741	235	1958	0	274
d1, Uniform Delay [s]	0.00	14.16	14.26	22.81	9.36	00.00	20.37
k, delay calibration	0.04	0.11	0.12	0.11	0.11	0.04	0.04
I, Upstream Filtering Factor	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	09.0	0.00	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	00.0	0.00
Rp, platoon ratio	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
Lano Groun Boentke							

### Lane Group Results

List         3.37         0.00         20.00           C         A         A         A         C         C           Yes         No         No         No         No         No	asr 000 A A 000 No No 422 000 105.53 0.00 7.59 0.00
A N	A No 4.22 105.53 7.59
Yes	Yes 2.25 56.15 4.04
-	
Yes	Yes 5.73 143.31 9.66
No	
No	0.00 0.00 0.00
Critical Lane Group	Critical Lane Group 50th-Percentile Queue Length [fvh/ln] 50th-Percentile Queue Length [fvl/l] 95th-Percentile Queue Length [veh/ln]
	0.00 5.82 0.00 145.41 0.00 9.77
	0.00 9.77
0.00	

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

54 3.60 0.00 1.60

۲

21.23	υ						
0.00		20.95	U				
0.00 20.58	ပ						
0.00	A						
0.00	A	0.00	A				
0.00 0.00 0.00	A			14.55	m	521	
0.00				14.		0.521	
9.97	A	11.92	11.92 B				
27.92	с						
17.37	в						
17.02 17.37 27.92	в	17.06	в				
0.00	A						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

## Sequence Ring 1 - 2 Ring 2 6 -

8 0.15 1583 1583 244 20.81 0.04 0.04 0.00 0.00 1.00 0.00 1.00

		_	_	2000000		00000
•	•	•	•			
				10		
				SG: 4 20s		3s
					SG: 8 28s	SG: 108 13s
					Sec	S.
,		,				
•	•					
,						
	•			SG: 3 43s	.7 35s	
					SG: 7	
					1	
4	œ			2 27s		
m	7			<u> </u>		
2	•	•				
•	9	•				
Ring 1	Ring 2	Ring 3	Ring 4		SG: 8 27s	SG: 106 235

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	Control Type:	Analysis Method:	Analysis Period:	
		A	<	

Intersection Level Of Service Report Intersection 4: Peterson LntSan Miguel Awe Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

9.3 A 0.343

### Intersection Setup

_				_	_	_	_		_
	p		Right	12.00	0	100.00			
	Westbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes
	3		Left	12.00	0	100.00			
We	_		Right	12.00	0	100.00			
San Miguel Ave	Eastbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
San	ш		Left	12.00	0	100.00			
c	q		Right	12.00	0	100.00			
Peterson Ln	Southbound	÷	Thru		0	100.00	25.00	0.00	Yes
Å	Š		Left	12.00 12.00	0	100.00			
c	P		Right	12.00	0	100.00			
Peterson Ln	Northbound	÷	Thru	12.00	0	100.00	25.00	0.00	Yes
Å	Ż		Left	12.00	0	100.00			
Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk

Volumes												
Name	ď	Peterson Ln	<u>د</u>	Å.	Peterson Ln	c	San	San Miguel Ave	Ave			
Base Volume Input [veh/h]	37	7	10	e	2	2	80	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	.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]	14	0	10	0	0	0	0	53	8	9	8	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]	63	6	23	4	6	3	£	198	76	35	180	5
Peak Hour Factor	1.0000	.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	.0000 1.0000 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	2	9	-	2	1	3	50	19	6	45	-
Total Analysis Volume [veh/h]	63	6	23	4	6	з	11	198	76	35	180	5

Pedestrian Volume [ped/h]

#### Generated with PTV VISTRO Version 7.00-05

### Intersection Settings

	709	0.13	
Ies	Capacity per Entry Lane [velvh]	Degree of Utilization, x	

Lanes				
Capacity per Entry Lane [veh/h]	709	697	832	290
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]		6	9.33	
Intersection LOS			A	





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Control Type:	Inalysis Method:	Analysis Period:	
S	Analy	Anal	

Intersection Level Of Service Report Intersection 5: Peterson Ln/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): All-way stop HCM 2010 15 minutes

7.9 A 0.147

### Intersection Setup

Name	Å	Peterson Ln	L	P	Peterson Ln	L	Pir	Pinercrest Dr	ň	ā	Pinercrest Dr	ň
Approach	ž	Northbound	P	Š	Southbound	þ	ш	Eastbound		*	Westbound	g
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	

## Generated with PTV VISTRO Version 7.00-05

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	×
Intersection Delay [s/veh]		52	7.92	
Intersection LOS		1	A	

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

Intersection Level Of Service Report Intersection 6: Waltzer Rd/Pinercrest Dr Delay (sec / veh): Level Of Service: Volume to Capacity (v/c):

11.7 B 0.472

### Intersection Setup

Name	ÿ	Waltzer Rd		>	Waltzer Rd	To To	Ϊ	Pinercrest Dr	ň	Ē	Pinercrest Dr	ň
Approach	Ň	Northbound	q	Ň	Southbound	p	ш	Eastbound	-	\$	Westbound	g
_ane 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			30.00	
Grade [%]		0.00			00.0			0.00			0.00	
Crosswalk		Yes			No			Yes			Ŷ	

#### 000

Name	5	Waltzer Rd	7	4	Waltzer Rd	_	Ē	Pinercrest Dr	ъ	Ē	Pinercrest Dr	ň
Base Volume Input [veh/h]	2	40	9	144	79	18	9	78	9	7	102	131
Base Volume Adjustment Factor	1.0000	.0000 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	.3300 1.3300	1.3300	1.3300	1.3300 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	4	0	0	7	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]	e	53	8	192	105	24	8	108	80	6	143	174
Peak Hour Factor	1.0000	.0000 1.0000	1.0000	1.0000 1.0000 1.0000 1.0000 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	.0000 1.0000	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	2	48	26	9	2	27	2	2	36	44
Total Analysis Volume [veh/h]	3	53	8	192	105	24	8	108	8	6	143	174
Pedestrian Volume [ped/h]		5			0			5			0	

## Generated with PTV VISTRO Version 7.00-05

### Intersection Settings

	[veh/h]	
	Capacity per Entry Lane [veh/h]	
nes	Capacity	

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	в	A	в
Intersection Delay [s/veh]		11	11.70	
Intersection LOS				

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VISTRO	
PTV	
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Signalized HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 7: Fulton Rd/Piner Rd

31.4 C 0.583

### Intersection Setup

Name		Fulton Rd		L.	Fulton Rd	_		Piner Rd			Piner Rd	
Approach	ž	Northbound	-	Ň	Southbound	p	ш	Eastbound		\$	Westbound	5
Lane Configuration	•	ᆂ		•	4   F			÷			Ļ	
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	٢	0	0	-	0	0	1	0	0	-	0	-
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			٩			Yes			Yes	

Volumes												
Name		Fulton Rd	_	Ľ	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 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
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]	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	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	1.0000 1.0000 1.0000	1.0000	1.0000 1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	168	72	4	184	6	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
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]		7			0			0			3	
Bicycle Volume [bicycles/h]		2			0			2			2	

VISTRO		
Generated with PTV	Version 7.00-05	Intersection Settings

	_											
Located in CBD						z	No					
Signal Coordination Group												
Cycle Length [s]						₩	130					
Coordination Type					Time of	Time of Day Pattern Coordinated	tern Cool	dinated				
Actuation Type						Fully a	Fully actuated					
Offset [s]						86	85.0					
Offset Reference						Lead	LeadGreen					
Permissive Mode						Single	SingleBand					
Lost time [s]						0	0.00					
Phasing & Timing	-											
Control Type	Protect	Permis	Permis	Protect Permis Permis Protect Permis	Permis		Protect	Permis Protect Permis Permis Protect Permis Permis	Permis	Protect	Permis	Permis
Signal Group	e	80	0	7	4	0	5	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	Lag			Lead			Lead			Lag		
Minimum Green [s]	4	8	0	4	8	0	4	8	0	4	80	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			Ŷ			Ŷ			Ŷ	
<ol> <li>Start-Up Lost Time [s]</li> </ol>	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
12, 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		٥N	Ŷ		Ŷ	Ŷ		٥N	٥N	
Maximum Recall	Ŷ	No		Ŷ	٩		۶	٩		٩	٩	
Pedestrian Recall	Ŷ	No		Ñ	Ŷ		g	Ŷ		Ŷ	Ŷ	
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					

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0

Pedestrian Clearance [s]

-

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## Lane Group Calculations

Lare Group Calculations											
Lane Group	_	υ	U	_	υ	υ	_	U	_	U	۲
C, Cycle Length [s]	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
11_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
12, 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_i, Effective Green Time [s]	e	20	70	15	82	82	4	12	19	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
(v / s)_i 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
s, saturation flow rate [veh/h]	1774	1863	1648	1774	1863	1832	1774	1735	1774	1863	1561
c, Capacity [veh/h]	37	662	882	202	1170	1151	59	160	265	389	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
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
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
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
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00.0	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	0.51	0.52	0.87	0.33	0.33	0.77	0.80	0:00	0.33	0.75
d, Delay for Lane Group [s/veh]	75.53	21.11	21.54	21.54 61.17 12.13	12.13	12.15	70.05	61.34	58.75	43.90	49.66
Lane Group LOS	ш	υ	υ	ш	m	œ	ш	ш	ш	۵	٥
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	N	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	241.70 220.38	145.21	127.47 125.44	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	369.18 342.11 244.03 220.05 217.28	220.05	217.28	71.25	189.94	311.27	311.27 155.82	298.56

## Generated with PTV VISTRO Version 7.00-05

# Movement, Approach, & Intersection Results

49.66	۵						
43.90	۵	52.01	۵				
58.75	ш						
61.34	ш						
75.53 21.22 21.54 61.17 12.14 12.15 70.05 61.34 61.34 58.75	ш	63.61	ш				
70.05	ш			31.43	U	0.583	
12.15	ш			31		0.5	
12.14	в	21.23	o				
61.17	ш						
21.54	ပ						
21.22	υ	22.91	U				
75.53	ш						
d_M, Delay for Movement [s/veh]	Movement LOS	d_A, Approach Delay [s/veh]	Approach LOS	d_I, Intersection Delay [s/veh]	Intersection LOS	Intersection V/C	

# Sequence Ring 1 | 2 | 3 | 4 | -

			_					
				14s				
				SG: 3 1				
ī	ī							
								S.
							SG: 8 54s	SG: 108 26s
						S		SC
			•	SG: 4 55s		SG: 104 25s	SG: 7 15s	
				s S S S S S S S S S S S S S S S S S S S	-	8	S	
	-							
	,							
4	8		•	SG: 1 31s				
ო	7	•	•	SG: 1				
2	9	•	•	1			47s	
-	5	,	•				SG: 6 47s	
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 30s		SG: 102 26s	SG: 5 14s	

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Signalized HCM 2010 15 minutes

Intersection Level Of Service Report Intersection 8: Peterson LnPIner Rd Delay (sec / veh): Level Of Service: Volume to Capacity (vic):

9.4 A 0.358

### Intersection Setup

Peterson Ln         Peterson Ln         Pener Rd         Northbound         Southbound         Eastbound         v           Northbound         Southbound         Southbound         Eastbound         Eastbound         v           Image         Image         Image         Image         Image         Image         v           Image         Image         Image         Image         Image         Image         v           Image         Image         Image         Image         Image         Image         Image         Image           Image<		P		ž	12.		100				
Feterson Ln         Peterson Ln         Piner Rd         Inser Rd	Piner Rd	Vestbour	4  -	Thru	12.00	0	100.00	40.00	0.00	Yes	
Felerson Ln         Pelerson Ln         Piner Ra           Northbound         Southbound         Eastbound           Northbound         Southbound         Eastbound           Image: Southbound         Image: Southbound         Eastbound           Image: Southbound         Image: Southbound         Image: Southbound           Image: Southbound         Image: Southb		>	-	Left	12.00	-	80.00				
Felerson Ln         Pelerson Ln         Piner Ra           Northbound         Southbound         Eastbound           Left         Tnu         Right         Left         Tnu           12.00         12.00         12.00         12.00         12.00         12.00           0         0         0         0         0         0         10.00         100.00           100.01         100.00         100.00         100.00         100.00         100.00         100.00           0.00         0         0         0         0         10.00         100.00         100.00           0.00         0.00         0.00         0.00         0.00         0.00         100.00				Right	12.00	-	180.00				
Feterson Ln         Peterson Ln         Peterson Ln           Northbound         Southbound         Southbound         Lan           Lent         Thu         Right         Lent         Thu         Right         Lent         Thu           12.00	Piner Rd	astbound	÷	Thru		0	100.00	40.00	0.00	Yes	
Peterson Ln         Peterson Ln           Northbound         Southbound           Northbound         Southbound           Left         Thu         Right         Left         Thu           12.00         12.00         12.00         12.00         12.00         12.00           10         0	ľ	ű	•	Left		-	80.00				
Peterson Ln         Peterson Ln           Northbound         Northbound           1000000000000000000000000000000000000	_			Right	12.00	0	100.00				
Peterson Ln         Peterson Ln           Northbound         Northbound           1000000000000000000000000000000000000	terson Lr	uthbound	÷	Thru	12.00	0	100.00	30.00	0.00	Yes	
Peterson L Northbourk Left Thru 12.00 12.00 12.00 0 100.00 100.00 0000	Pe	S		Left		0	100.00				
Peterson L Northbourk Left Thru 12.00 12.00 12.00 0 100.00 100.00 0000	_	_		Right	12.00	0	100.00				
Left 12.00 0 00.01	terson Lr	rthbound	+	Thru	<u> </u>	0	100.00	30.00	0.00	Yes	
he aach iguration overnent didh [ŋ] s in Pocket ngth [[ŋ] [[mph]]	Pe	Ž		Left	12.00	0	100.00				
Aar Appro Lane Conf Lane W Lane W No. of Lane Pocket Le Pocket Le Grade	Name	Approach	Lane Configuration	Turning Movement	Lane Width [ft]	No. of Lanes in Pocket	Pocket Length [ft]	Speed [mph]	Grade [%]	Crosswalk	

		-			-							
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
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	180.00	80.00	100.00	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	Å	Peterson Ln	5	P	Peterson Ln	c		Piner Rd			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	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	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	6	-	0	0	32	0	0	09	16
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	11	51	22	20	23	32	528	37	87	662	86
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	1.0000 1.0000 1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	3	13	14	5	9	8	132	6	22	166	22
Total Analysis Volume [veh/h]	23	1	51	22	20	23	32	528	37	87	662	86
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	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			-			16			9	
Bicycle Volume [bicycles/h]		2			2			4			3	

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											Permis ProtPer Permis Permis ProtPer Permis	0			5	40 0	4.3 0.0
											ProtPe	-		Lag	2	15	4.3
											Permis	0		•	0	0	0.0
				olated							Permis	2			ъ	40	4.3
	No		90	attern Iso	Fully actuated	0.0	Green	Band	0.00		ProtPer	5		Lag	2	15	4.3
	Ž		6	Time of Day Pattern Isolated	Fully ac	0	LeadGreen	SingleBand	0.0		Permis	0			0	0	0.0
				Time							Permis	4			7	20	3.6
											Permis	0			0	0	0.0
											Permis	0			0	0	0.0
											Permis	80			7	20	3.6
											Permis Permis Permis Permis	0			0	0	0.0
Intersection Settings	Located in CBD	Signal Coordination Group	Cycle Length [s]	Coordination Type	Actuation Type	Offset [s]	Offset Reference	Permissive Mode	Lost time [s]	Phasing & Timing	Control Type	Signal Group	Auxiliary Signal Groups	Lead / Lag	Minimum Green [s]	Maximum Green [s]	Amber [s]

						LCGG						
Permissive Mode						Single	SingleBand					
Lost time [s]						0.0	0.00					$\square$
Phasing & Timing												
Control Type	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis ProtPer Permis		Permis ProtPer Permis	Permis	Permis
Signal Group	0	80	0	0	4	0	2	2	0	-	9	0
Auxiliary Signal Groups												
Lead / Lag	1						Lag			Lag		
Minimum Green [s]	0	7	0	0	7	0	5	2	0	5	2	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		٩			No			No			Ŷ	
<ol> <li>Start-Up Lost Time [s]</li> </ol>	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
12, 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		٩			No		ø	Yes		٩	Yes	
Maximum Recall		٩			No		۶	No		٩N	٩	
Pedestrian Recall		٩			No		Ŷ	No		No	٩	
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					
												ſ

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Pedestrian Clearance [s]

## Lane Group Calculations

	,	>	-	ر	r	_	ر	כ
C, Cycle Length [s]	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]	3.60	3.60	4.30	4.30	4.30	4.30	4.30	4.30
11_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
12, Clearance Lost Time [s]	1.60	1.60	0.00	2.30	2.30	0.00	2.30	2.30
g_i, Effective Green Time [s]	9	9	18	7	7	18	12	12
g / C, Green / Cycle	0.19	0.19	0.56	0.35	0.35	0.56	0.37	0.37
(v / s)_i 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	669	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	0.06	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
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	۷	m	A	۷	۷	۲
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

## Generated with PTV VISTRO

### Movement, Approach, & Intersection Results Version 7.00-05

d_M, Delay for Movement [s/veh]	11.19	11.19	11.19 11.19 11.19 11.25 11.25 11.25 7.20 11.15 7.05	11.25	11.25	11.25	7.20	11.15	7.05	8.31	8.12 8.14	8.14
Movement LOS	ß	в	ш	ю	ю	в	A	в	A	A	۷	۷
d_A, Approach Delay [s/veh]		11.19			11.25			10.69			8.14	
Approach LOS		в			в			в			٨	
d_I, Intersection Delay [s/veh]						9.43						
Intersection LOS						4	_					
Intersection V/C						0.358	88					

#### Sequence

_						 	
		,					
		,					
	•		•				
	•		•	35s	31s	355	31s
	•			SG: 4	SG: 104 315	SG: 8	SG. 108
	•		•				
	•			SG: 1 10s		14s	
•	•	,	•			SG: 5 14s	
	•						
	•						
4	8						
	•						_
2	9	•	,				
-	5						
Ring 1	Ring 2	Ring 3	Ring 4	SG: 2 45s	SG: 102 21s	SG: 6 41s	SG: 106 21s

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Control Type:	Analysis Method:	Analysis Period:	
Con	Analy	Analy	

Two-way stop HCM 2010 15 minutes

Delay (sec / veh): Level Of Service: Volume to Capacity (v/c): Intersection Level Of Service Report Intersection 9: Waltzer Rd/Piner Rd

498.5 F 1.448

### Intersection Setup

$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Nama												
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	1401110	Ŵ	altzer Rc	-	\$	/altzer Ro	-		Piner Rd			Piner Rd	
Image         Image <th< td=""><td>Approach</td><td>Ň</td><td>rthboun</td><td>77</td><td>Š</td><td>outhboun</td><td>p</td><td>ш</td><td>Eastbound</td><td>77</td><td>5</td><td>Westbound</td><td>T</td></th<>	Approach	Ň	rthboun	77	Š	outhboun	p	ш	Eastbound	77	5	Westbound	T
Left         Thru         Right         Left         Thru         Right           12.00         12.00         12.00         12.00         12.00           0         0         0         0         0         12.00           100.01         100.00         100.00         100.00         1         1           100.02         100.00         100.00         100.00         0         1           25.00         25.00         35.00         35.00         35.00         35.00	Lane Configuration		+			÷			÷			÷	
12.00         12.00 <th< td=""><td>Turning Movement</td><td>Left</td><td>Thru</td><td>Right</td><td>Left</td><td>Thru</td><td>Right</td><td>Left</td><td>Thru</td><td>Right</td><td>Left</td><td>Thru</td><td>Right</td></th<>	Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0         0         0         0         0         1           100.00         100.00         100.00         100.00         500.00         500.00           25.00         25.00         35.00         35.00         35.00         35.00         35.00		12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
100.00 100.00 100.00 100.00 50.00 25.00 25.00	No. of Lanes in Pocket	0	0	0	0	0	-	-	0	0	ł	0	0
25.00	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	Grade [%]		0.00			0.00			0.00			0.00	
Crosswalk Yes Yes Yes	Crosswalk		Yes			Yes			No			Ŷ	

Name	5	Waltzer Rd	-	5	Waltzer Rd	_		Piner Rd			Piner Rd	
Base Volume Input [veh/h]	4	-	e	4	2	38	25	591	9	8	783	44
Base Volume Adjustment Factor	1.0000	1.0000	.0000 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	-	4	8	e	51	33	827	80	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	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]	-	0	-	13	-	13	8	207	2	3	279	15
Total Analysis Volume [veh/h]	5	-	4	53	e	51	33	827	80	11	1117	59
Pedestrian Volume [ped/h]		-			2			0			0	

## Generated with PTV VISTRO Version 7.00-05

### Stop Stop Yes Priority Scheme Flared Lane Intersection Settings

Free

Free

Storage Area [veh]		-			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	0.18 0.02 0.01 1.45 0.06 0.21 0.06 0.01 0.00 0.01 0.01	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	96.27	3134	498.53	472.15	23.87	11 44	0.00	0.00	9.58	00.0	0.00

							5		0			0	
d_M, Delay for Movement [s/veh]	148.24	96.27	31.34	148.24 96.27 31.34 498.53 472.15 23.87	472.15	23.87	11.44	0.00	0.00	9.58	0.00	0.00	
Movement LOS	ш	ш	۵	ш	ш	υ	ш	٨	A	A	۷	۷	
95th-Percentile Queue Length [veh/In]	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/In]	16.28	16.28	16.28	16.28 16.28 16.28 147.78 147.78 19.46 4.42 0.00	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		ш			u.			۲			۲		
d_l, Intersection Delay [s/veh]						14	14.04						
Intersection LOS													





2220 Fulton Road Project TIS PM Baseline plus Project Conditions

W-Trans 6/26/2019

#### Appendix C

Signal Warrant Spreadsheets



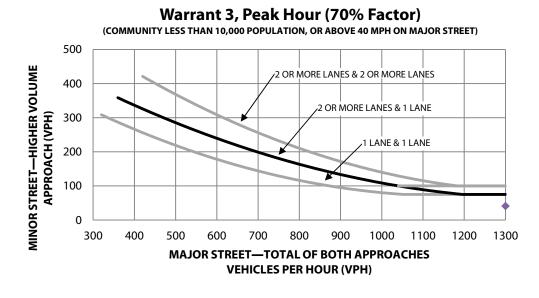


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Fulton Road & New Project Street	
Santa Rosa	

Project Name: 2220 Fulton Road Project TIS

		Intersecti	i <b>on:</b> 2	
	Major Stre	eet	Minor Street	
Street Name	Fulton Ro	ad	New Project Street	
Direction	N-S		E-W	
Number of Lanes	2		1	
Approach Speed	45		25	
Population less than 10,000?	No			
Date of Count:	Tuesday, June 1	9, 2018		
Scenario:	AM Existing plus	s Project		
Warrant 3 Met?: Met when eithe	r Condition A or B i	is met		No
Condition A: Met when conditi	ons A1, A2, and A3 a	are met		Not Met
Condition A1				Not Met
	sign equals or excee	eds four vehicle-h	approach (one direction only) ours for a one lane approach,	
Minor A	pproach Delay:	0.93 vehicle-	hours	
Condition A2				Not Met
The volume on the sa 100 vph for one movi	••		tion only) equals or exceeds noving lanes	
Minor Ap	proach Volume:	41 vph		
Condition A3		·		Met
		<b>S</b> 1	or exceeds 800 vph for ntersections with three	
Total Er	ntering Volume:	2204 vph		
Condition B	-			Not Met
The plotted point falls	above the curve			

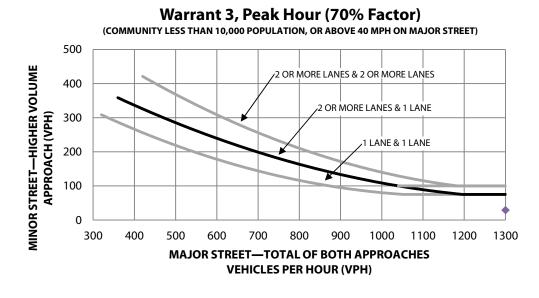




Fulton Road & New Project Street	
Santa Rosa	

Project Name: 2220 Fulton Road Project TIS

		Intersect	ion: 2	
	Major Stre	eet	Minor Street	
Street Name	Fulton Ro	ad	New Project Street	
Direction	N-S		E-W	
Number of Lanes	2		1	
Approach Speed	45		25	
Population less than 10,000?	No			
Date of Count:	Tuesday, June 1	9, 2018		
Scenario:	PM Existing plus	Project		
Warrant 3 Met?: Met when eithe	r Condition A or B i	s met		No
Condition A: Met when conditi	ons A1, A2, and A3 a	are met		Not Met
Condition A1				Not Met
	sign equals or excee	ds four vehicle-h	approach (one direction only) nours for a one lane approach,	
Minor A	pproach Delay:	0.96 vehicle	-hours	
Condition A2	,			Not Met
The volume on the sa 100 vph for one movi			tion only) equals or exceeds noving lanes	
Minor Ap	oroach Volume:	29 vph		
Condition A3		•		Met
			s or exceeds 800 vph for ntersections with three	
Total Er	ntering Volume:	2814 vph		
Condition B	2	•		Not Met
The plotted point falls	above the curve			

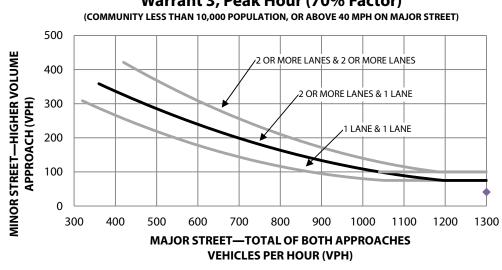




Fulton Road & New Project Street	
Santa Rosa	

Project Name: 2220 Fulton Road Project TIS

		Intersect	ion: 2	
	Major Stre	eet	Minor Street	
Street Name	Fulton Ro	ad	New Project Street	
Direction	N-S		E-W	
Number of Lanes	2		1	
Approach Speed	45		25	
Population less than 10,000?	No			
Date of Count:	Tuesday, June 1	9, 2018		
Scenario:	AM Baseline plu	s Project		
Warrant 3 Met?: Met when eithe	r Condition A or B i	is met		No
Condition A: Met when conditi				Not Met
Condition A1	- , ,			Not Met
	sign equals or excee	eds four vehicle-h	approach (one direction only) ours for a one lane approach,	
Minor A	pproach Delay:	1.06 vehicle	-hours	
Condition A2				Not Met
The volume on the sa 100 vph for one movi			tion only) equals or exceeds noving lanes	
Minor Ap	oroach Volume:	41 vph		
Condition A3				Met
5		<b>.</b> .	or exceeds 800 vph for ntersections with three	
Total Er	ntering Volume:	2285 vph		
Condition B	5	•		Not Met
The plotted point falls	above the curve			



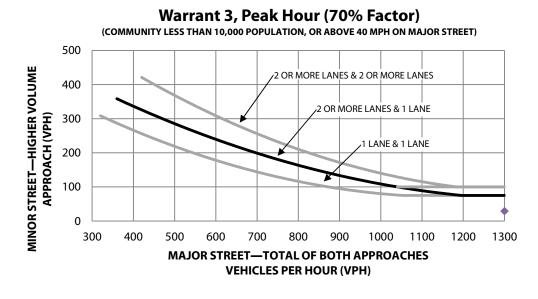
#### Warrant 3, Peak Hour (70% Factor)



Fulton Road & New Project Street	
Santa Rosa	

Project Name: 2220 Fulton Road Project TIS

		Intersec	tion: 2	
	Major Stre	eet	Minor Street	
Street Name	Fulton Roa	ad	New Project Street	
Direction	N-S		E-W	
Number of Lanes	2		1	
Approach Speed	45		25	
Population less than 10,000?	No			
Date of Count:	Tuesday, June 19	9, 2018		
Scenario:	PM Baseline plus	s Project		
Warrant 3 Met?: Met when eithe	r Condition A or B i	s met		No
Condition A: Met when conditi	ons A1, A2, and A3 a	are met		Not Met
Condition A1				Not Met
	sign equals or excee	eds four vehicle-	t approach (one direction only) hours for a one lane approach,	
Minor 4				
	Approach Delay:	1.18 vehicle	e-hours	
Condition A2	Approach Delay:	1.18 vehicle	e-hours	Not Met
Condition A2	me minor street app	proach (one dire	ection only) equals or exceeds	Not Met
<i>Condition A2</i> The volume on the sa 100 vph for one movi	me minor street app	proach (one dire	ection only) equals or exceeds	Not Met
<i>Condition A2</i> The volume on the sa 100 vph for one movi	me minor street app ng lane of traffic of 1	proach (one dire 150 vph for two	ection only) equals or exceeds	Not Met
<i>Condition A2</i> The volume on the sa 100 vph for one movi Minor Ap <i>Condition A3</i> The total entering vol	me minor street app ng lane of traffic of 1 proach Volume: ume serviced during	proach (one dire 150 vph for two 29 vph g the hour equa	ection only) equals or exceeds	
Condition A2 The volume on the sa 100 vph for one movi Minor Ap Condition A3 The total entering vol intersections with fou approaches	me minor street app ng lane of traffic of 1 proach Volume: ume serviced during ir or more appraches	proach (one dire 150 vph for two 29 vph g the hour equa s or 650 vph for	ection only) equals or exceeds moving lanes Is or exceeds 800 vph for	
Condition A2 The volume on the sa 100 vph for one movi Minor Ap Condition A3 The total entering vol intersections with fou approaches	me minor street app ng lane of traffic of 1 proach Volume: ume serviced during	proach (one dire 150 vph for two 29 vph g the hour equa	ection only) equals or exceeds moving lanes Is or exceeds 800 vph for	





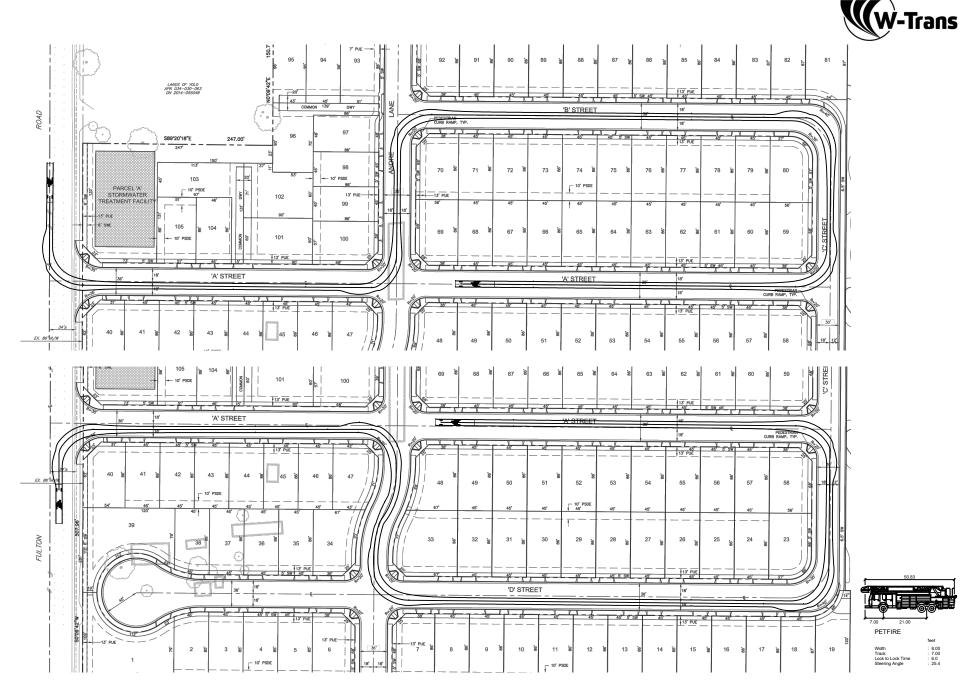
#### Appendix D

#### **Auto-Turn Emergency Access**





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SRO497

Fire Truck Access

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