Alameda de las Pulgas Corridor Traffic Study

Prepared for the
Town of Atherton
January 25, 2019

AMG ADVANCED MOBILITY GROUP

THIS PAGE LEFT INTENTIONALLY BLANK

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

The Town of Atherton has concerns regarding traffic flow and operations along the entire length of the Alameda de las Pulgas (ADLP) corridor through the Town from Stockbridge Avenue to Camino Al Lago. The previous traffic study for a school along the corridor – Las Lomitas Elementary School identified some potential improvements along the corridor, including installation of a traffic signal / roundabout at the intersection of ADLP and Atherton Avenue and a signal at the intersection of Walsh Road/school driveway.[1] However, according to the encroachment permit application that was submitted on June 11, 2018, the school is no longer proposing to re-align the existing ADLP driveway to form a four-way intersection with Walsh Road for a new signal anymore as assumed in the previous school study. [2]

The purpose of this corridor traffic study is to investigate other potential improvements along the corridor that would improve the traffic flow[3] and enhance safety along the corridor.

SUMMARY

Alameda de las Pulgas is a minor arterial which spans the length of the Town limits, from Stockbridge Avenue to Camino al Lago. ADLP is a regional roadway, spanning from San Carlos Avenue in San Carlos to the north, to Santa Cruz Avenue in Menlo Park to the south. Within the Town limits, ADLP is one lane in each direction, with left turn pockets at key intersections. Class II bike lanes are present along the length of the roadway within the Town limits. Based on the Assessor's Map for the County of San Mateo, the typical right of way available for the roadway is approximately 60 feet with a curb to curb width of approximately 42-44 feet. The posted speed limit is 30 miles per hour.

There are no signals along ADLP within the Town limits under the jurisdiction of the Town of Atherton. There are three signals studied as part of this corridor traffic study, located in the jurisdictional authority of other agencies (Caltrans and County). All three signalized study intersections do not have any reported collisions within the most recent five years. One unsignalized study intersection has a higher collision rate than the statewide average rate. The majority of the collisions are correctable by installing an all-way stop control, a roundabout, or a signal.

[1] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017
[2] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017
[3] A concurrent study "Local Traffic Flow / Long Range Planning Solutions" found that the pass through traffic accounts for 60% to 89% of traffic along the corridor.

All the study intersections currently operate at acceptable LOS D or better except for the Intersection of ADLP and Stockbridge Avenue and the intersection of ADLP and Atherton Avenue, which operate at LOS E & F, respectively.

The intersections of ADLP / Stockbridge Avenue, ADLP / Atherton Avenue, and ADLP / Camino Al Lago meet signal warrants.

For the intersection of ADLP / Valparaiso Avenue, the southbound Left-turn movement meets the warrant for a protected left-turn signal during both a.m. and p.m. peak hours. Note, this intersection is outside the jurisdictional authority of the Town.

Through Intersection Control Evaluation (ICE) process, an improvement list has been developed along the corridor that would achieve the maximum benefit for the corridor.

- Intersection of ADLP and Woodside Road – It is recommended to update signal timing and provide traffic signal coordination between Woodside Road and Hull Avenue. This would potentially minimize the northbound traffic queues from spilling over into the intersection of ADLP and Hull Avenue. It is noted that this intersection is outside the jurisdictional authority of the Town.

- Intersection of ADLP and Hull Avenue – It is recommended to provide traffic signal coordination between Woodside Road and Hull Avenue, and it is recommended to reconstruct all the corner ramps to meet current ADA standards. Traffic signal coordination between the intersections of ADLP/Woodside and ADLP/Hull would potentially reduce the traffic backup in the northbound direction. It is noted that this intersection is outside the jurisdictional authority of the Town.

- Intersection of ADLP and Stockbridge Avenue –Installing a roundabout or a traffic signal is expected to reduce traffic delay at the intersection. However, due to restricted right of way, it is recommended to install a traffic signal.

- Intersection of ADLP and Atherton Avenue – Installing a roundabout or a traffic signal at this intersection is expected to improve traffic operations and intersection LOS from existing conditions. However, due to restricted right of way and the need for property acquisition to install a roundabout, installing a signal is more feasible.

- Intersection of ADLP and Walsh Road / Las Lomitas School Driveway – No changes from what are proposed by the Las Lomitas Elementary School.

- Intersection of ADLP and Camino Al Lago – It is recommended to install a traffic signal at this intersection and remove the existing mid-block crosswalk and signal on ADLP approximately 150 feet south of this intersection; and, it is recommended to redesign the intersection to shorten the crossing distance for all approaches. The jurisdiction of the intersection is shared with the County of San Mateo and therefore would require their approval to signalize the intersection.

- Intersection of ADLP and Valparaiso Avenue – It is recommended to install protected left-turn phases for the ADLP approaches at this intersection. It is noted that this intersection is outside the jurisdictional authority of the Town.

In addition, the following general improvements on the corridor are recommended. The Town may need to work with its partners, including Caltrans, the County, or SamTrans, to accomplish some of these improvements, due to jurisdictional authority.

- Review bicycle timing and pedestrian change interval timing per the 2014 edition of the CAMUTCD at intersections;
- Review the red and yellow clearance intervals using guidance provided in the 2014 edition of the CAMUTCD and NCHRP Report 81;
- Provide green color surface treatment in bike lanes where potential bike/vehicle conflicts could occur;
- Move bus stops from near-side to far-side (e.g. northbound at Hull Avenue);
- Replace 8-inch signal head with 12-inch head;

2.0 STUDY APPROACH

The Intersection Control Evaluation (ICE) Process, adopted by Caltrans in August of 2013, is a process of developing intersection control alternatives in order to find the most cost-effective improvement over the life cycle of the project.[4] In this study, AMG deployed the ICE Process to establish an improvement list for installation of a signal, all-way-stop-control, roundabout, and protected left turn phasing along the corridor that would achieve the maximum benefit for the corridor. The Town is conducting a separate Town wide Local Traffic Flow/Long Range Planning Study, which also identifies certain improvements along the ADLP corridor. The findings from the two studies would be consolidated to determine the overall solutions for the study intersections.

This study includes major intersections along the ADLP corridor through the Town as listed below. The type of intersection control and jurisdictional authority are indicated for each.

1. ADLP / Woodside Road (Signalized) - Caltrans
2. ADLP / Hull Avenue (Signalized) - County
3. ADLP / Stockbridge Avenue (Two-Way Stop Control) - Town
4. ADLP / Atherton Avenue (All-Way Stop Control) - Town
5. ADLP / Walsh Road (One-Way Stop Control) - Town
6. ADLP / Camino Al Lago (Two-Way Stop Control) – Town/County (shared)
7. ADLP / Valparaiso Avenue (Signalized) - County

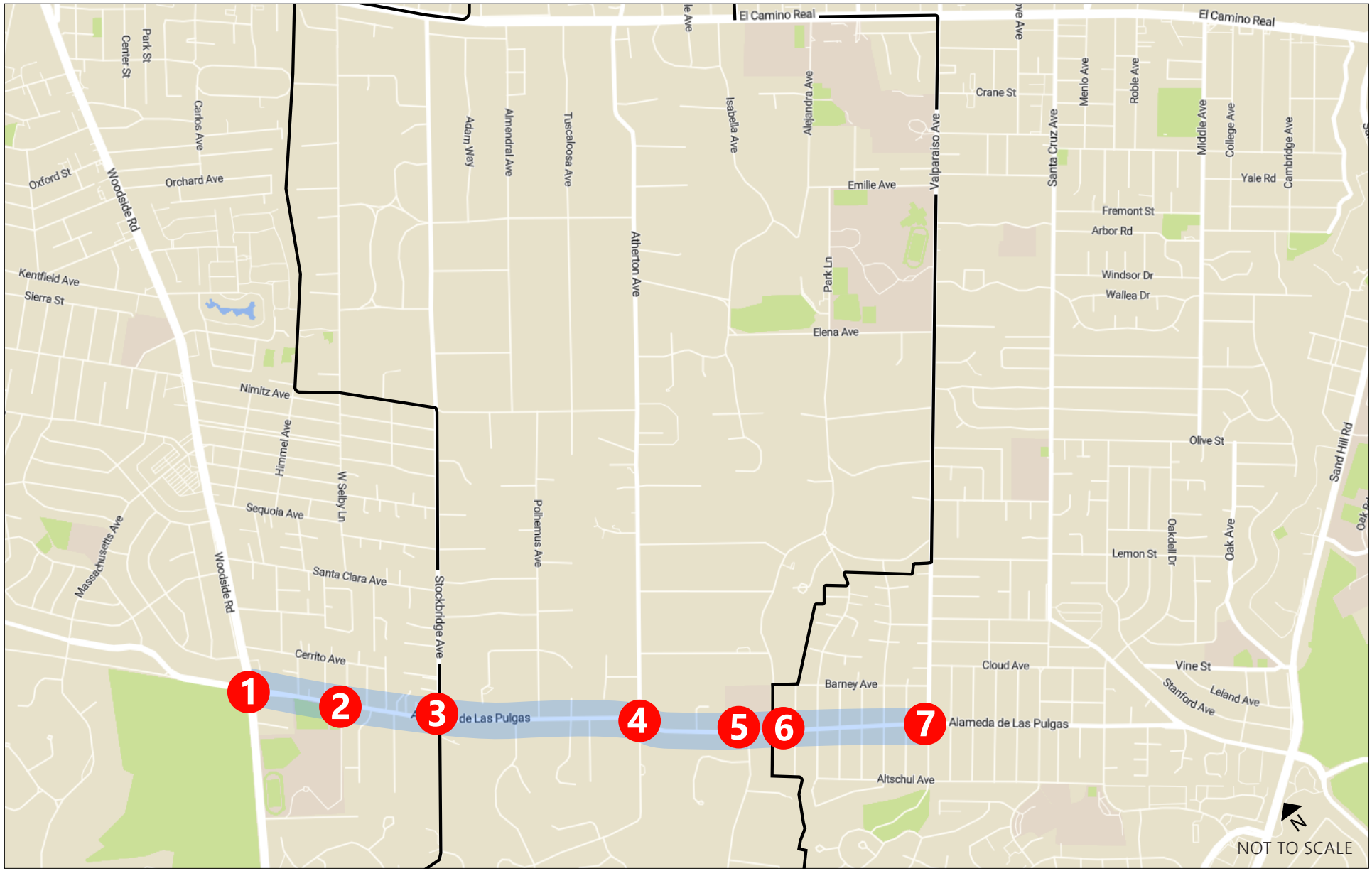
The study intersections and vicinity map are shown in **Figure 1**.

This study evaluated the safety status, operation conditions and accommodation of other alternatives for the study intersections.

[4] Intersection Control Evaluation, Caltrans, August 23, 2013, http://dot.ca.gov/trafficops/ice.html, access April, 3, 2018.

FIGURE 1
Site Vicinity and Study Intersections

Alameda de las Pulgas Corridor Traffic Study
Town of Atherton



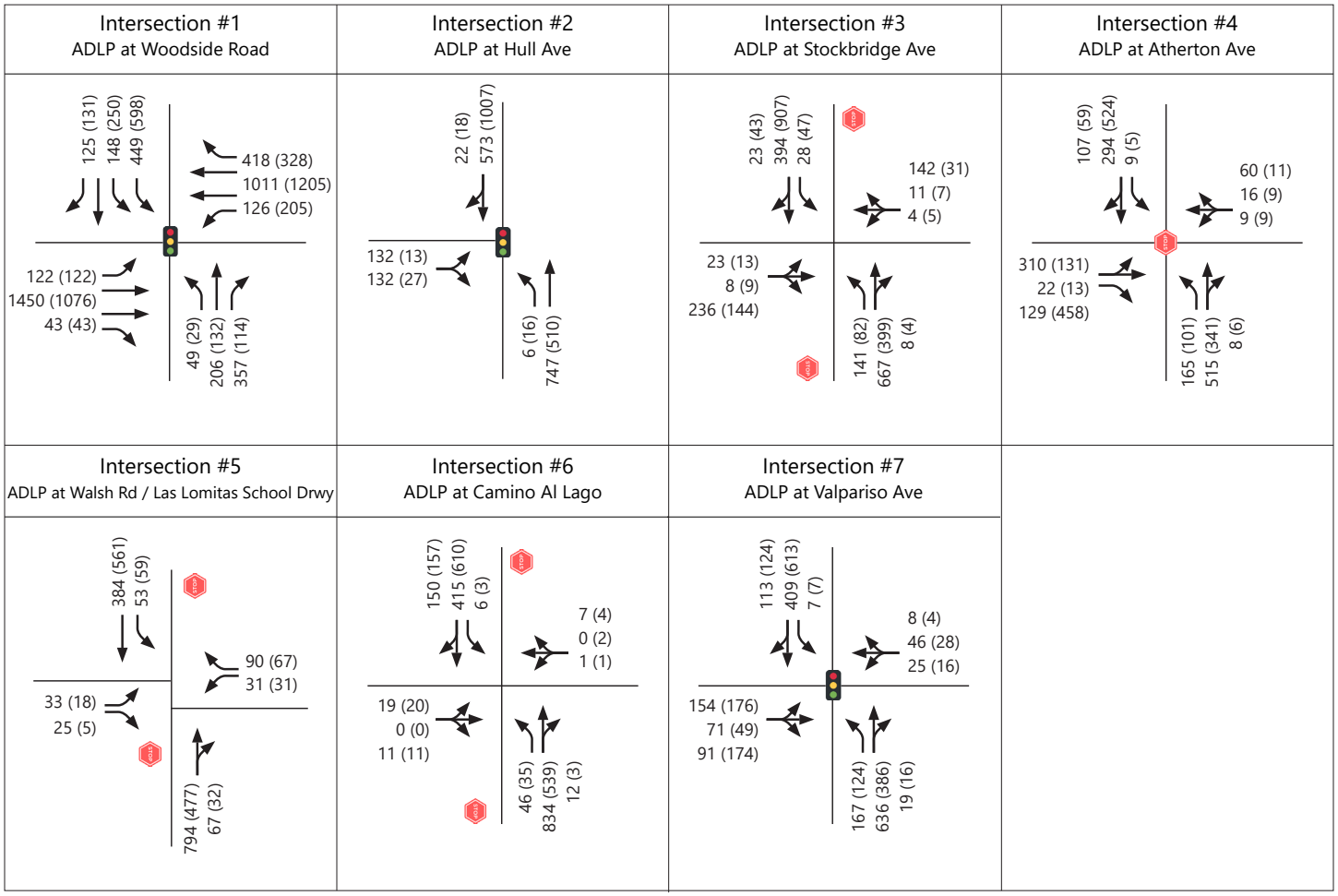
LEGEND

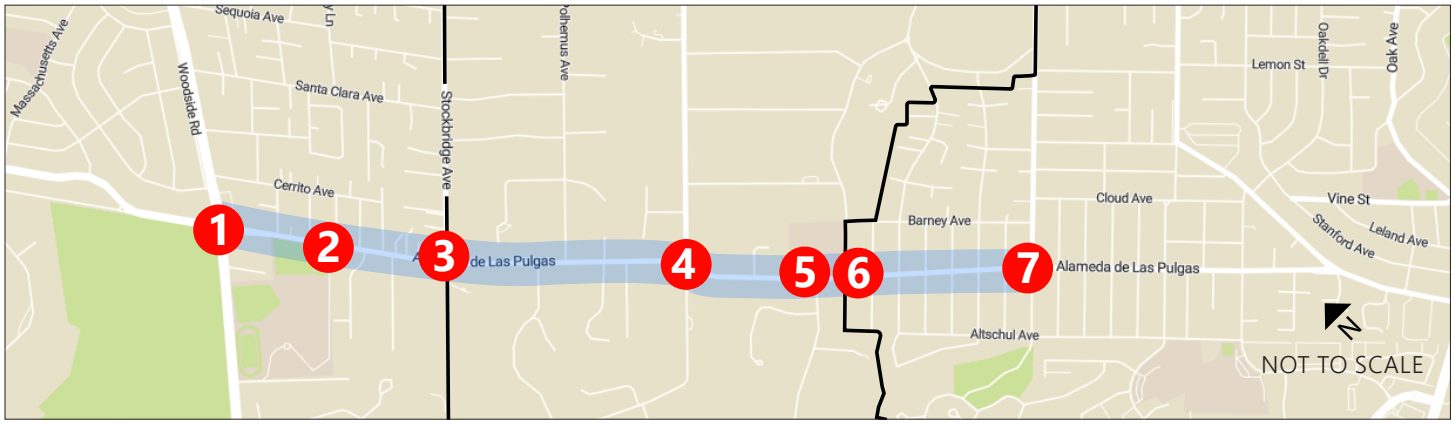
- Study Intersection
- Study Area
- Town Boundary

AMG ADVANCED MOBILITY GROUP

FIGURE 2
Existing Traffic Control, Lane Geometry and Turning Movement Volumes

Alameda de las Pulgas Corridor Traffic Study
Town of Atherton





STUDY INTERSECTIONS

1. ADLP / Woodside Road
2. ADLP / Hull Avenue
3. ADLP / Stockbridge Avenue
4. ADLP / Atherton Avenue
5. ADLP / Walsh Road / Las Lomitas School
6. 6. ADLP / Camino Al Lago (Two-Way Stop Control)
7. 7. ADLP / Valpraiso Avenue (Signalized)

LEGEND

- Study Intersection
- Signal Control
- Stop Control
- xx (xx) AM (PM) Peak Hour Turning Movement Volumes
- Town Boundary

AMG ADVANCED MOBILITY GROUP

2.1 DATA COLLECTION AND FIELD OBSERVATIONS

The intersection turning movement counts were collected at each study intersection during the morning (7:00 a.m. – 9:00 a.m.) and afternoon (4:00 p.m. – 6:00 p.m.) peak periods on Thursday, April 26, 2018.

In addition, 24-hour tube classification counts were collected at each approach of the following intersections on Thursday, April 26, 2018:

- ADLP / Stockbridge Avenue (Two-Way Stop Control)
- ADLP / Camino Al Lago (Two-Way Stop Control)

The detailed counts are included in Appendix A. **Figure 2** illustrates the intersection traffic control, lane geometry and turning movement volumes.

Also, field observations of the corridor were conducted on Friday, May 18, 2018.

2.2 COLLISION ANALYSIS

Five-year (2013 – 2017) collision history data at each study intersection was collected from the Statewide Integrated Traffic Records System (SWITRS) database. The intersection collision rates at each intersection were calculated for all collisions, and fatal plus injury collisions based on the methodology suggested by FHWA.[5] These rates were then compared with the statewide collision rates.[6]

In addition, a collision diagram was prepared for each unsignalized study intersection. Based on the diagram, the primary collision factors and the primary collision types for each intersection were determined. AMG also identified the collisions that could be corrected by installation of a signal/roundabout/all-way stop control, which was used for the warrant analysis.

2.3 SIGNAL WARRANT

For the existing un-signalized study intersections that was not included in the previous study,[7] this study conducted signal warrant analysis based on the guidelines included in the California Manual on Uniform Traffic Control Devices (CAMUTCD).[8] Since signal warrant analysis was conducted for ADLP intersections at Atherton Avenue and Walsh Road in the previous study for the Las Lomitas Elementary School,[9] in this analysis, the signal warrant analysis was only conducted for the following two existing unsignalized study intersections:

- ADLP / Stockbridge Avenue (Two-Way Stop Control)

[5] Roadway Safety Information Analysis: A Manual for Local and Rural Road User, https://safety.fhwa.dot.gov/local_rural/training/fhwasaxx1210/s3.cfm, accessed April 3, 2018.
[6] 2014 Collision Data on California State Highway (road miles, travel, collision, collision rates), Caltrans and FHWA, March 6, 2017.
[7] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017
[8] California Manual on Uniform Traffic Control Devices, 2014 Edition, Revision 3, March 9, 2018
[9] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017

- ADLP / Camino Al Lago (Two-Way Stop Control)

Per CAMUTCD, the investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants:

Warrant 1, Eight-Hour Vehicular Volumes
Warrant 2, Four-Hour Vehicular Volumes
Warrant 3, Peak Hour
Warrant 4, Pedestrian Volumes
Warrant 5, School Crossing
Warrant 6, Coordinated Signal System
Warrant 7, Crash Experience
Warrant 8, roadway Network
Warrant 9, Intersection near a Grade Crossing

2.4 PROTECTED LEFT-TURN PHASE WARRANT

For all the existing signalized intersections that do not have the protected left-turn phase along ADLP and the existing un-signalized intersections that meets at least one signal warrant, a protected left-turn phase warrant analysis was conducted in this study based on the guidelines included in the CAMUTCD.[10] Per CAMUTCD, protected left-turn phases should be considered when one or more of the following conditions exist:

1. Collisions – Five or more left turn collisions for a particular left turn movement during a recent 12-month period.
2. Delay – Left-turn delay of one or more vehicles, which were waiting at the beginning of the green interval and are still remaining in the left turn lane after at least 80% of the total number of cycles for one hour.
3. Volume – At new intersections where only estimated volumes are available, the following criteria may be used. For pre-time signal or a background-cycle-controlled actuated signal, a left turn volume of more than two vehicles per approach per cycle for a peak hour, or for a traffic-actuated signal, 50 or more left turning vehicles per hour in one direction with the product of the turning and conflicting through traffic during the peak hour of 100,000 or more.
4. Miscellaneous. Other factors that might be considered include but are not limited to: impaired sight distance due to horizontal or vertical curvature, or where there are a large percentage of buses and trucks.

The preliminary study intersections for protected left-turn phase analysis are listed below:

- ADLP / Hull Avenue (Signalized) - County

[10] California Manual on Uniform Traffic Control Devices, 2014 Edition, Revision 3, March 9, 2018

- ADLP / Stockbridge Avenue (Two-Way Stop Control) – Only if the signal warrant is met - Town
- ADLP / Atherton Avenue (All-Way Stop Control) - Town
- ADLP / Walsh Road (One-Way Stop Control) - Town
- ADLP / Camino Al Lago (Two-Way Stop Control) – Only if the signal warrant is met – Town/County (shared)
- ADLP / Valparaiso Avenue (Signalized) - County

2.5 CORRIDOR OPERATING ANALYSIS

2.5.1 Intersection Level of Service (LOS)

The LOS analysis based on the 2000 HCM methodology was conducted for each study intersection using Synchro software.

2.5.2 Significance Criteria

The Town of Atherton's General Plan does not present a delay or Level of Service threshold for intersection operations. However, LOS E is generally considered the threshold of capacity for roadway facilities.

2.6 INTERSECTION CONTROL EVALUATION (ICE) ANALYSIS

For the unsignalized study intersections that meet the signal warrant, AMG conducted operational analysis for the conditions with a signal, an all-way stop control and a roundabout to compare traffic operations with the existing conditions.

For the unsignalized intersections that do not meet the signal warrant, AMG conducted operational analysis for the conditions with an all-way stop control and a roundabout to compare traffic operations with the existing conditions.

For the intersections that meet the left turn phasing warrant, AMG conducted operational analyses for the conditions with a protected left turn phase to compare traffic operations with the existing conditions.

3.0 COLLISION ANALYSIS

Five-year (2013 – 2017) collision history data at each study intersection was collected from the Statewide Integrated Traffic Records System (SWITRS) database. The intersection collision rates were calculated for each study intersection and compared with the statewide collision rates, [11] as shown in **Table 1**.

Table 1: Collision Rates

ID	Intersection Name	Traffic Control	Total			Injury + Fatal				
			#	Collision Rate (per million entering vehicles)	Statewide Avg Rate (per million entering vehicles)	Injury #	Fatal #	Injury + Fatal #	Collision Rate (per million entering vehicles)	Statewide Avg Rate (per million entering vehicles)
1	ADLP / Woodside Road	Signalized	0	0.00	0.27	0	0	0	0.00	0.114
2	ADLP / Hull Avenue	Signalized	0	0.00	0.27	0	0	0	0.00	0.114
3	ADLP / Stockbridge Avenue	TWSC	4	0.13	0.15	2	0	2	0.06	0.064
4	ADLP / Atherton Avenue	AWSC	9	**0.30**	0.21	2	0	2	0.07	0.076
5.a	ADLP / Walsh Road	OWSC	3	0.12	0.15	1	0	1	0.04	0.064
5.b	ADLP / Las Lomitas School Driveway	OWSC	1	0.04	0.15	0	0	0	0.00	0.064
6	ADLP / Camino Al Lago	TWSC	2	0.08	0.15	1	0	1	0.04	0.064
7	ADLP / Valparaiso Avenue	Signalized	0	0.00	0.27	0	0	0	0.00	0.114

Notes:
OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control
Bold indicates collision rates higher than the statewide average.
Source: AMG, 2018

As shown, one unsignalized study intersection has a higher collision rate than the statewide average rate. **Figures 3** to **6** illustrate the collision diagrams as well as type of collision and primary collision factor for study intersections 3 to 6, respectively.

As shown, for the intersections at Stockbridge Avenue and Walsh Road/Las Lomitas School Driveway, which are currently one-way or two-way stop-controlled, the primary collision type was broadside and the main cause was automobile right of way. This is a type of collision that could be corrected by installing an all-way stop control, a roundabout or a signal. For the Camino Al Lago intersection, which is also two-way-stop-controlled, there were two collision types within the most recent five years, including the types that are correctable by installing an all-way stop control or a signal/roundabout (e.g., collisions caused by unsafe speed or improper turning). In addition, for the intersection at Atherton Avenue, which is an all-way-stop-controlled intersection, the reasons for collisions were unsafe speed, improper turning and automobile right of way, which can be correctable with a roundabout or signal.

[11] 2014 Collision Data on California State Highway (road miles, travel, collision, collision rates), Caltrans and FHWA, March 6, 2017.

4.0 SIGNAL WARRANT ANALYSIS

Since signal warrant analysis has been conducted for ADLP intersections at Atherton Avenue and Walsh Road in the previous study for the Las Lomitas Elementary School,[12] in this analysis, the signal warrant analysis was only conducted for the following two existing unsignalized study intersections:

- ADLP / Stockbridge Avenue (Two-Way Stop Control)
- ADLP / Camino Al Lago (Two-Way Stop Control)

The detailed warrant analyses are included in Appendix B. As shown in the Appendix B, the intersection of ADLP / Stockbridge Avenue met the 8-hour volume signal warrant, the 4-hour volume signal warrant, and the peak hour signal warrant during both a.m. and p.m. peak hours.

The intersection of ADLP / Camino Al Lago does not meet the 8-hour volume signal warrant, 4-hour volume signal warrant, or the peak hour signal warrant during either a.m. or p.m. peak hour. However, there is an existing signal for mid-block crossing approximately 150 feet south of Camino Al Lago; therefore, it is assumed the pedestrian warrant is met in this area.

Based on the previous study for the Las Lomitas Elementary School, the intersection of ADLP / Atherton Avenue met the signal warrants. Therefore, for our analysis, it is assumed that a signal could be installed at the ADLP / Stockbridge Avenue intersection, ADLP / Atherton Avenue, and the ADLP / Camino Al Lago intersection.

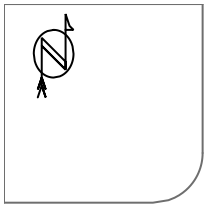
[12] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017

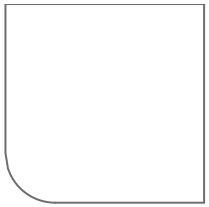
Figure 3

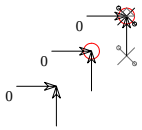
03.00 ADLP & Stockbridge Ave
1/1/2013 - 12/31/2017

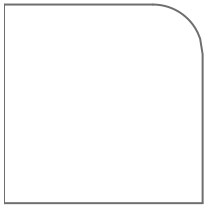
4 Crashes

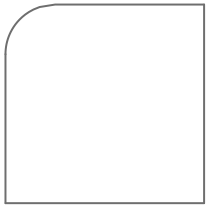
Distance less than 300











(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

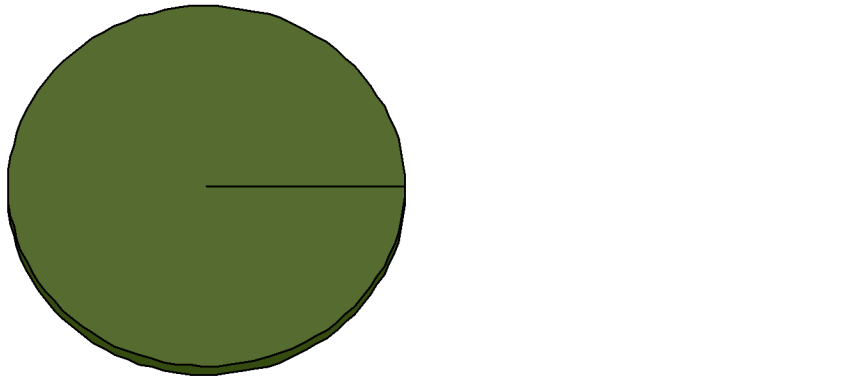
Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Pd' Programming, Inc. 11/28/2018

PCF Category



Type of Collision

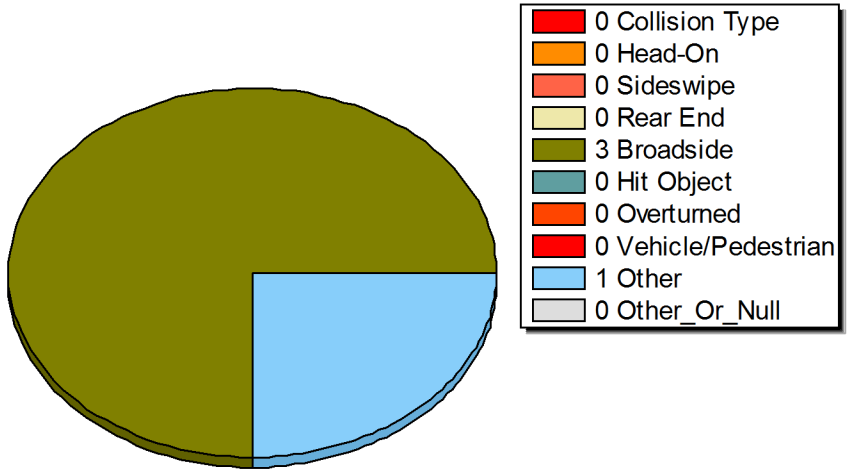


Figure 4

04.00 ADLP & Atherton Ave
1/1/2013 - 12/31/2017

9 Crashes

Distance less than 300

(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

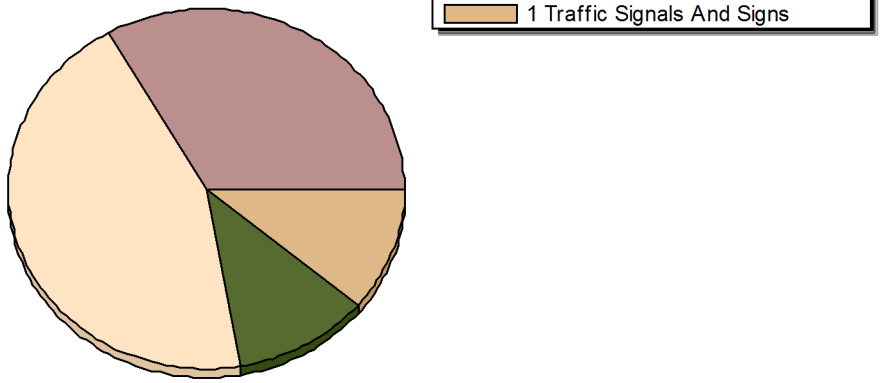
Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Pd' Programming, Inc. 11/28/2018

PCF Category



Type of Collision

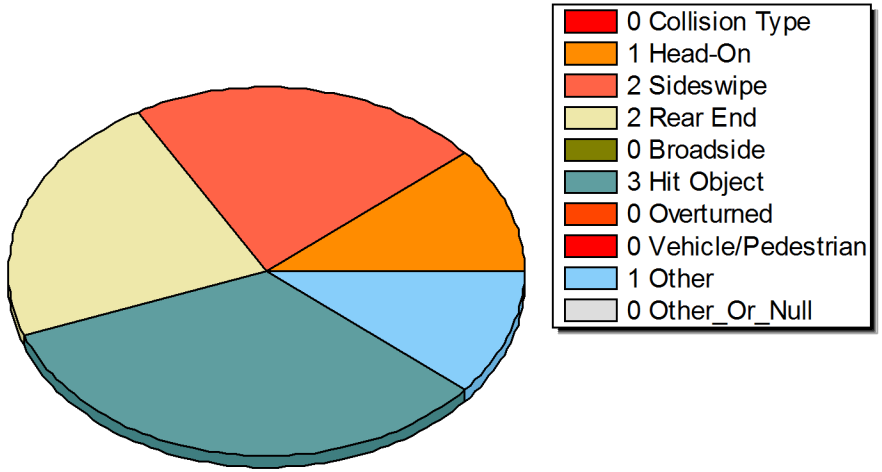
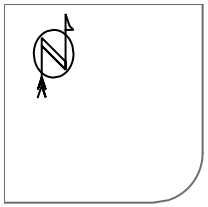


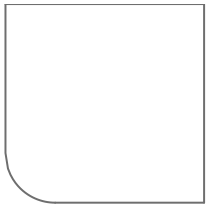
Figure 5.a

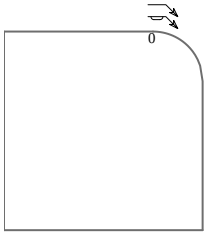
05.a ADLP & Walsh Rd
1/1/2013 - 12/31/2017

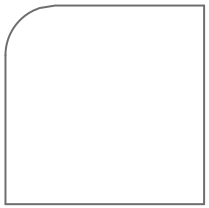
3 Crashes

Clear









(0) crashes could not be placed in this schematic

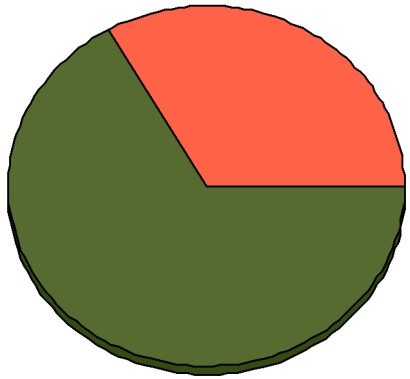
- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

PCF Category



Type of Collision

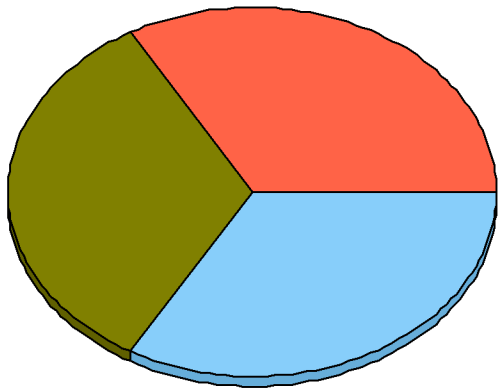


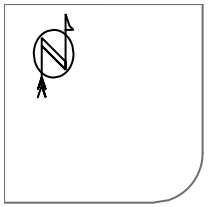
Figure 5.b

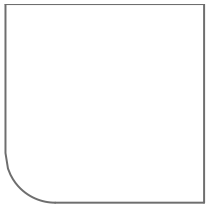
05.b ADLP & Las Lomitas School Drvwy

1/1/2013 - 12/31/2017

1 Crashes

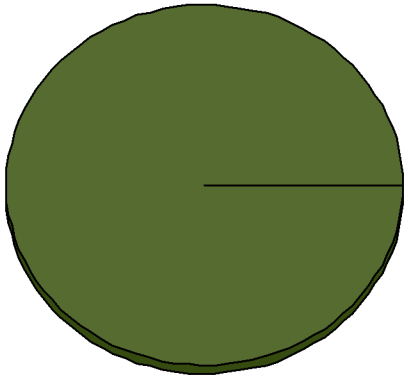
Clear



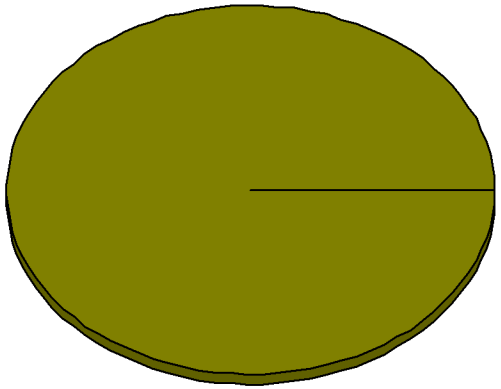


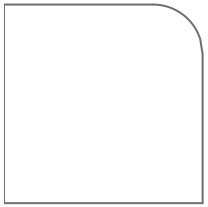
80 South

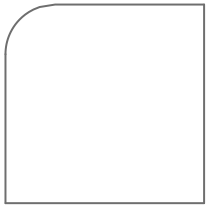
PCF Category



Type of Collision







(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

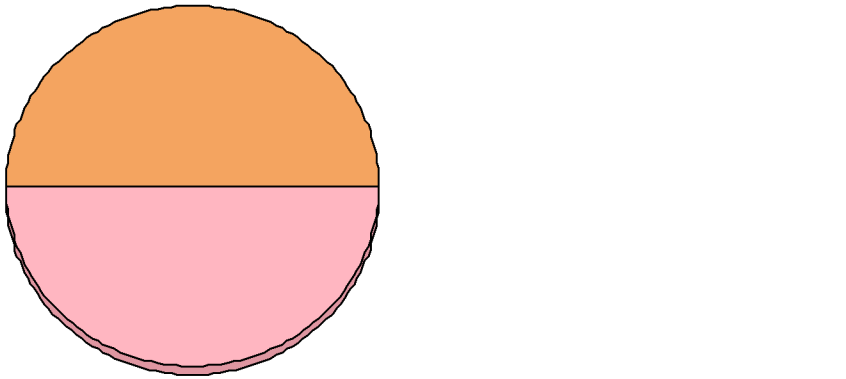
Figure 6

06.00 ADLP & Camino Al Lago
1/1/2013 - 12/31/2017

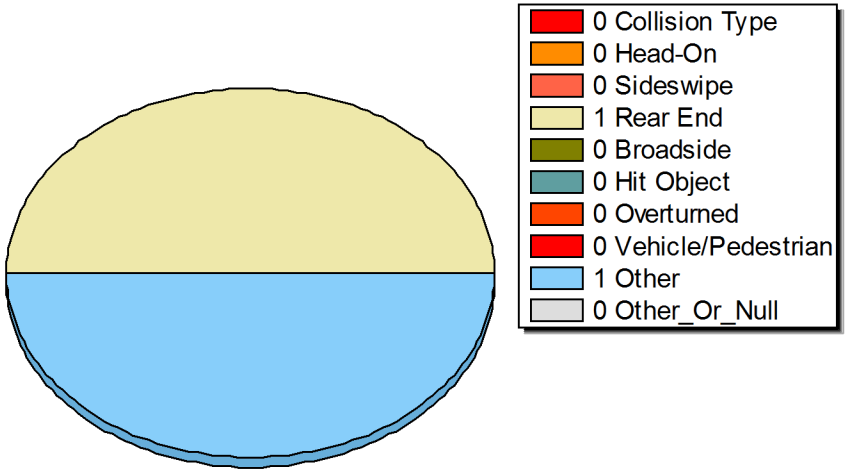
2 Crashes

Clear

PCF Category



Type of Collision



(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

5.0 LEFT-TURN SIGNAL WARRANT ANALYSIS

Since Las Lomitas Elementary School decided not to create a new four-leg intersection at Walsh Road, the left-turn signal warrant analysis was conducted for the following intersections:

- ADLP / Hull Avenue (Signalized) - County
- ADLP / Stockbridge Avenue (Two-Way Stop Control) - Town
- ADLP / Atherton Avenue (All-Way Stop Control) - Town
- ADLP / Camino Al Lago (Two-Way Stop Control) – Town/County (shared)
- ADLP / Valparaiso Avenue (Signalized) - County

Table 2: Protected Left-Turn Warrant Analysis

ID	Int Name	Traffic Control	AM Peak Hour						PM Peak Hour					
			WBLT	WBLT x EBT	Met or Not	EBLT	EBLT x WBT	Met or Not	WBLT	WBLT x EBT	Met or Not	EBLT	EBLT x WBT	Met or Not
2	Hull Ave / ADLP	Signal (Free)	-	-	-	6	3,438	N	-	-	-	16	16,112	N
3	Stockbridge Ave / ADLP	TWSC	28	18,676	N	141	55,554	N	47	18,753	N	82	74,374	N
4	Atherton Ave / ADLP	AWSC	9	4,635	N	165	48,510	N	5	1,705	N	101	52,924	N
6	Camino Al Lago / ADLP	TWSC	6	5,004	N	46	19,090	N	3	1,617	N	35	21,350	N
7	Valparaiso Ave / ADLP *	Signal (Actd-Coord)	7		N	167		**Y**	7		N	124		**Y**

Note: *Cycle Length = 90 seconds and the left-turn volume threshold = 3600/90*2=80/hour
Source: AMG, 2018

As shown, only for the intersection of ADLP / Valparaiso Avenue, the southbound Left-turn movement meets the warrant for a protected left-turn signal during both a.m. and p.m. peak hours. Therefore, in the following analysis, it is assumed that protected left-turn phases could be installed at the ADLP / Valparaiso Avenue intersection.

6.0 CORRIDOR OPERATION ANALYSIS

This section summarizes the current operation conditions along the study corridor during the morning and afternoon commute peak hours.

6.1 FIELD OBSERVATIONS

Field observations of the corridor were conducted on Friday, May 18, 2018. During the field observations, excessive queuing and other issues were observed at the following three intersections:

- ADLP / Atherton Avenue - Town
- ADLP / Hull Avenue - County
- ADLP / Woodside Avenue - Caltrans

6.1.1 Peak hour congestion at ADLP / Atherton Avenue Intersection

The intersection of ADLP / Atherton Avenue had excessive queuing and delay during the peak periods. As shown in the photos, the congestion occurs on the westbound and northbound approaches at the intersection during the p.m. peak periods. The directions are reversed during the a.m. peak periods.

In addition to congestion, the westbound right turn lane and the stop control on the lane results in drivers' confusion. During the field visit, AMG staff observed a few near miss collisions at the intersection.

The Las Lomitas Elementary school traffic study concludes that a traffic signal or roundabout is justified at this intersection. However, there are multiple overhead wires that would limit the placements of the traffic signal poles at this intersection. Existing right-of-way is insufficient to accommodate a roundabout and property acquisition will be required for construction, in addition to relocation of utilities near the intersection.

6.1.2 Peak hour congestion at ADLP / Hull Avenue Intersection

During the field review, queuing and congestion was observed at the intersection of ADLP / Hull Avenue during the p.m. peak period.

Tweaking the signal timing could potentially improve the overall performance at the intersection. In addition, to the signal timing modifications, the crosswalk ramps at the intersection are not ADA compliant.

6.1.3 Peak hour congestion at ADLP / Woodside Avenue Intersection

The intersection of ADLP / Woodside Avenue is located in close proximity to the Hull Avenue intersection. The northbound queues from the intersection of ADLP / Woodside Avenue was observed to spill over into and beyond the intersection of Hull Avenue. Closely spaced intersections with traffic spillovers should typically be avoided. If it cannot be avoided, efforts should be made to minimize spillover between the

intersections, which can be achieved through improved signal timing and coordination between the intersections.

During the field visit, it was also observed that the corridor is extensively used by bicyclists. However, the minimum green time as observed in the field seems shorter than as required to meet the bicycle requirements.

6.2 INTERSECTION LEVEL OF SERVICE (LOS)

Table 3 shows the intersection level of service under Existing Conditions. The detailed calculation sheets from Synchro software are included in Appendix C. As shown, all the study intersections currently operate at acceptable LOS D or better except for the following two intersections:

- Intersection of ADLP and Stockbridge Avenue – LOS E during both a.m. and p.m. peak hours
- Intersection of ADLP and Atherton Avenue – LOS F during both a.m. and p.m. peak hours

Table 3 also shows whether the unsignalized study intersections meet signal warrant or not, as a summary for the analysis results in Section 4. In addition, as a summary for the analysis results in Section 5, **Table 3** shows whether a protected left-turn phase is warranted for the southbound and northbound left-turns along ADLP at the existing signalized study intersections or study intersections that meet the signal warrant, if no protected left-turn phase exists.

Table 3: Intersection Level of Service – Existing Conditions

ID	Int Name	Traffic Control	AM Peak Hour				PM Peak Hour			
			Delay (sec/veh)	LOS	Signal Warrant?	Protected LT Warrant?	Delay (sec/veh)	LOS	Signal Warrant?	Protected LT Warrant?
1	ADLP / Woodside Road	Signal	46.5	D	-	-	46.5	D	-	-
2	ADLP / Hull Avenue	Signal (Free)	11.8	B	-	N	3.7	A	-	N
3	ADLP / Stockbridge Avenue	TWSC	49.3	**E**	Y	N **	37.9	**E**	Y	N **
4	ADLP / Atherton Avenue	AWSC	87.2	**F**	Y	N **	91.9	**F**	Y	N **
5*	ADLP / Walsh Road	OWSC	17.8	C	-	-	13.5	B	-	-
	ADLP / Las Lomitas School Driveway	OWSC	14.0	B	-	-	14.1	B	-	-
6	ADLP / Camino Al Lago	TWSC	18.0	C	Y	N **	16.7	C	Y	N **
7	ADLP / Valparaiso Avenue	Signal (Actd-Coord)	18.2	B	-	NBL	23.8	C	-	NBL

Notes:
OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control
Bold indicates unacceptable level of service.
*Per Las Lomitas School, the existing Las Lomitas School Driveway will not be realigned with Walsh Road to form a new four-way intersection for a new signal.
** Assuming the traffic-actuated signal is installed.
Source: AMG, 2018

7.0 INTERSECTION CONTROL EVALUATION (ICE) ANALYSIS

In this study, AMG deployed the ICE Process to establish an improvement list for installation of a signal, all-way-stop-control, roundabout, and protected left turn phasing along the corridor that would achieve the maximum benefit for the corridor. The detailed ICE analysis for each study intersection is described below. The detailed LOS calculation sheets are included in Appendices D through F for installing a signal control/protected left-turn phases, a roundabout and an all-way stop control, respectively.

7.1 ADLP AND WOODSIDE ROAD

The intersection of ADLP and Woodside Road is currently a signalized intersection, under Caltrans' jurisdiction. There are currently protected left-turn phases for the ADLP approaches. As shown in **Table 3**, the intersection currently operates at an acceptable LOS D during both a.m. and p.m. peak hours. However, as described in Section 6, the northbound queues were observed to spill over into and beyond the intersection of Hull Avenue.

AMG recommends updating signal timing and providing traffic signal coordination between Woodside Road and Hull Avenue.

7.2 ADLP AND HULL AVENUE

The intersection of ADLP and Hull Avenue is currently a signalized intersection within the Town limit. It does not include protected left-turn phases for the ADLP approaches. However, as shown in **Table 3**, it does not meet the warrant to install protected left-turn phases for ADLP approaches. The intersection currently operates at acceptable LOS B and LOS A during the a.m. and p.m. peak hour, respectively.

AMG recommends providing traffic signal coordination between Woodside Road and Hull Avenue. In addition, it is recommended to reconstruct all the corner ramps at this intersection to meet current ADA standards.

7.3 ADLP AND STOCKBRIDGE AVENUE

The intersection of ADLP and Stockbridge Avenue is currently two-way stop controlled on the Stockbridge Avenue approaches. As shown in **Table 3**, it meets the signal warrant. However, assuming a traffic-actuated signal installed at this intersection, it does not meet the warrant for the protected-LT phases on the ADLP approaches. Therefore, traffic operation conditions with a signal control, a roundabout, and an all-way stop control were analyzed and compared at this intersection.

Table 4 summarizes the intersection level of service with different traffic control. As shown, the intersection would operate at LOS A during both a.m. and p.m. peak hours with a signal, compared with LOS B/D with a roundabout and unacceptable LOS F/F with an all-way stop control and unacceptable LOS E/E with the existing two-way stop control. In addition, considering the limited right-of-way for installing a roundabout at this intersection, **AMG recommends installing a traffic signal at this intersection**.

Table 4: Intersection Level of Service – Intersection of ADLP and Stockbridge Avenue

Traffic Control	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
TWSC (Existing)	49.3	**E**	37.9	**E**
Alt 1 – Signal	9.8	A	9.6	A
Alt 2 – Roundabout	12.8	B	31.6	D
Alt 3 - AWSC	144.1	**F**	186.0	**F**

Notes:
TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control
Bold indicates unacceptable level of service.
Source: AMG, 2018

7.4 ADLP AND ATHERTON AVENUE

The intersection of ADLP and Atherton Avenue is currently all-way stop controlled. As shown in **Table 3**, it operates at LOS F during both a.m. and p.m. peak hours. The intersection meets the signal warrant. However, assuming a traffic-actuated signal installed at this intersection, it does not meet the warrant for the protected-LT phases on the ADLP approaches. As part of this study, traffic operating conditions with a signal control and a roundabout were analyzed and compared at this intersection.

Table 5: Intersection Level of Service – Intersection of ADLP and Atherton Avenue

Traffic Control	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
AWSC (Existing)	87.2	**F**	91.9	**F**
Alt 1 – Signal	17.6	B	16.8	B
Alt 2 – Roundabout	12.3	B	7.1	A

Notes:
AWSC = All-Way Stop Control
Bold indicates unacceptable level of service.
Source: AMG, 2018

Table 5 summarizes the intersection level of service with different traffic control. As shown, the intersection would operate at LOS B during both a.m. and p.m. peak hours with a signal, compared with unacceptable LOS F/F with the existing all-way stop control.

With a roundabout, the intersection would operate at LOS B/A with minor improvements in the average vehicle delay from the conditions with a signal. In addition, a roundabout or a signal could reduce overall crashes at intersections where stop signs were previously used for traffic control. Considering the high historical collision rate at this intersection, as shown in **Table 1,** and the limited right-of-way for installing a roundabout at this intersection**, AMG recommends installing a traffic signal at this intersection.**

7.5 ADLP AND WALSH ROAD/LAS LOMITAS SCHOOL DRIVEWAY

Both the intersection of ADLP and Walsh Road and the intersection of ADLP and Las Lomitas School Driveway are currently one-way stop-controlled intersections, which are approximately 80 feet apart. Due to the proposed new Las Lomitas school development, the existing driveway on ADLP is supposed to have some changes. However, as shown in **Figure 7**, according to the encroachment permit application that was submitted on June 11, 2018, the school is no longer proposing to re-align the existing ADLP driveway to form a four-way intersection with Walsh Road as assumed in the school study[13]. Instead, the school proposes to keep the existing school driveway on ADLP. In addition, an existing driveway to the north of Walsh Road is proposed to be a right-turn-out only driveway for the school use.

Since the encroachment permit application was based on safety analysis conducted by the Town, **AMG is not recommending any changes in this area from what are proposed by the school**.

7.6 ADLP AND CAMINO AL LAGO

The intersection of ADLP and Camino Al Lago is currently two-way stop controlled on the Camino Al Lago approaches. As described in Section 4, this intersection does not meet any of the 8-hour volume signal warrant, 4-hour volume signal warrant, or the peak hour signal warrant during either a.m. or p.m. peak hour. However, there is an existing signal for mid-block crossing approximately 150 feet south of Camino Al Lago, it is assumed the pedestrian warrant is met in this area. Therefore, traffic operation conditions with a signal control, a roundabout, and an all-way stop control were analyzed and compared at this intersection.

Table 6: Intersection Level of Service – Intersection of ADLP and Camino Al Lago

Traffic Control	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
TWSC (Existing)	18.0	C	16.7	C
Alt 1 – Signal	3.5	A	3.6	A
Alt 2 – Roundabout	16.3	C	13.7	B
Alt 3 - AWSC	95.3	**F**	66.4	**F**

Notes:
TWSC = Two-Way Stop Control; AWSC = All-Way Stop Control
Bold indicates unacceptable level of service.
Source: AMG, 2018

[13] Las Lomitas Elementary School Traffic Analysis, Parisi Transportation Consulting, April 10, 2017

FIGURE 7
Traffic-Related Changed for Las Lomitas Elementary School Development

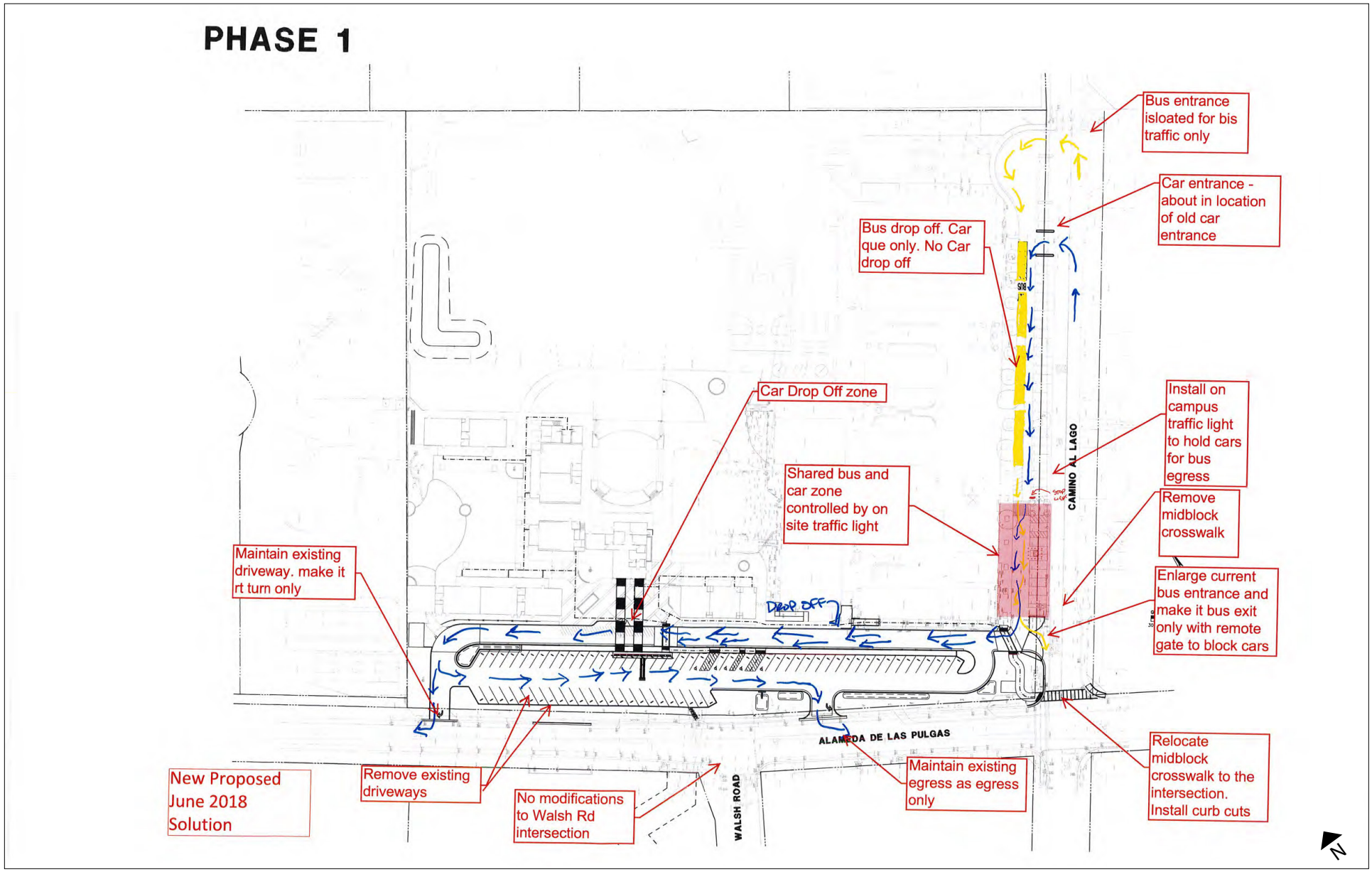


Table 6 summarizes the intersection level of service with different traffic control. As shown, the intersection would operate at LOS A during both a.m. and p.m. peak hours with a signal, compared with LOS C/B with a roundabout, unacceptable LOS F/F with an all-way stop control, and LOS C/C with the existing two-way stop control. Considering the proximity to the school and high pedestrian crossing volumes during the school peak periods, **AMG recommends installing a traffic signal at this intersection and removal of the existing mid-block crosswalk and signal on ADLP approximately 150 feet south of this intersection.**

In addition, as shown in **Figure 7**, the existing mid-block crosswalk on Camino Al Lago is proposed to be moved to the intersection, **it is recommended to redesign the intersection to shorten the crossing distance for all approaches**.

7.7 ADLP AND VALPRAISO AVENUE

The intersection of ADLP and Valparaiso Avenue is currently a signalized intersection outside of Atherton town limit. As shown in **Table 3**, this intersection meets the warrant to install a protected left-turn phase for the southbound approach on ADLP. Therefore, traffic operation conditions with and without protected left-turn phases for the southbound/northbound approaches were analyzed and compared at this intersection.

Table 7: Intersection Level of Service – Intersection of ADLP and Valparaiso Avenue

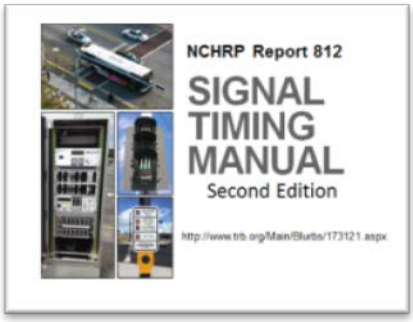
Traffic Control	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Signal No Protected LTs (Existing)	18.2	B	23.8	C
Alt 1 – Signal with Protected LTs	28.7	C	40.7	D

Source: AMG, 2018

Table 7 summarizes the intersection level of service with different traffic control. As shown, the intersection would operate at LOS C/D during a.m. and p.m. peak hour, respectively with protected southbound/northbound left-turn phases, compared with LOS B/C without protected phases.

Even though the LOS would get worse with protected left-turn phases, the traffic conditions meet acceptable level of services with or without protected left-turn phases. Considering that the protected left-turn phases would improve the safety for the left-turn traffic, **AMG recommends installing protected left-turn phases for the ADLP approaches at this intersection**.

7.8 GENERAL RECOMMENDATIONS



In addition to the recommendations made for each study intersection as described above, AMG recommends the following overall improvements on the corridor. The Town may need to work with its partners, including Caltrans, the County, or SamTrans, to accomplish some of these improvements, due to jurisdictional authority.

- **Review bicycle timing and pedestrian change interval timing per the 2014 edition of the CAMUTCD at intersections;**
- **Review the red and yellow clearance intervals using guidance provided in the 2014 edition of the CAMUTCD and NCHRP Report 81;**
- **Provide green color surface treatment in bike lanes where potential bike/vehicle conflicts could occur;**
- **Move bus stops from near-side to far-side (e.g. northbound at Hull Avenue);**
- **Replace 8-inch signal head with 12-inch head;**

8.0 CONCLUSION

Based on the results of the analysis, the following is a summary of our findings:

- All three signalized study intersections do not have any reported accidents within the most recent five years. One unsignalized study intersection has higher collision rates than the statewide average rates. The majority of the collisions are correctable by installing an all-way stop control, a roundabout, or a signal.
- The intersections of ADLP / Stockbridge Avenue, ADLP / Atherton Avenue, and ADLP / Camino Al Lago meet signal warrants.
- For the intersection of ADLP / Valparaiso Avenue, the southbound Left-turn movement meets the warrant for a protected left-turn signal during both a.m. and p.m. peak hours.
- All the study intersections currently operate at an acceptable LOS D or better except for the intersection of ADLP and Stockbridge and the intersection of ADLP and Atherton Avenue.
- Through Intersection Control Evaluation (ICE) process, an improvement list has been established along the corridor that would achieve the maximum benefit for the corridor.
    - Intersection of ADLP and Woodside Road – It is recommended to update signal timing and provide traffic signal coordination between Woodside Road and Hull Avenue to reduce the northbound traffic backup.
    - Intersection of ADLP and Hull Avenue – It is recommended to provide traffic signal coordination between Woodside Road and Hull Avenue, and it is recommended to reconstruct all the curb ramps to meet current ADA standards. Traffic signal coordination is expected to reduce the northbound traffic backup.
    - Intersection of ADLP and Stockbridge Avenue – It is recommended to install a traffic signal to improve traffic operations and LOS at the intersection.
    - Intersection of ADLP and Atherton Avenue – Installing a roundabout or a traffic signal at this intersection is expected to improve traffic operations and intersection LOS from existing conditions. However, due to restricted right of way and the need for property acquisition to install a roundabout, installing a signal is more feasible.
    - Intersection of ADLP and Walsh Road / Las Lomitas School Driveway – No changes from what are proposed by the Las Lomitas Elementary School.

  - Intersection of ADLP and Camino Al Lago – It is recommended to install a traffic signal at this intersection and remove the existing mid-block crosswalk and signal on ADLP approximately 150 feet south of this intersection; and, it is recommended to redesign the intersection to shorten the crossing distance for all approaches. The jurisdiction of the intersection is shared with the County of San Mateo and therefore would require their approval to signalize the intersection.

  - Intersection of ADLP and Valparaiso Avenue – It is recommended to install protected left-turn phases for the ADLP approaches at this intersection. It is noted that this intersection is outside the jurisdictional authority of the Town.

- In addition, the following general improvements on the corridor are recommended. The Town may need to work with its partners, including Caltrans, the County, or SamTrans, to accomplish some of these improvements, due to jurisdictional authority:

  - Review bicycle timing and pedestrian change interval timing per the 2014 edition of the CAMUTCD at intersections;

  - Review the red and yellow clearance intervals using guidance provided in the 2014 edition of the CAMUTCD and NCHRP Report 81;

  - Provide green color surface treatment in bike lanes where potential bike/vehicle conflicts could occur;

  - Move bus stops from near-side to far-side (e.g. northbound at Hull Avenue);

  - Replace 8-inch signal head with 12-inch head;

Appendix A Traffic Volume Counts

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

File Name : 18-08148-001
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	33	293	3	0	329	52	4	17	0	73	12	155	73	0	240	6	32	12	0	50	692	0
7:15	48	352	5	3	408	74	12	10	0	96	12	191	107	0	310	2	49	25	0	76	890	3
7:30	21	386	8	5	420	105	33	24	0	162	23	239	118	1	381	8	41	99	0	148	1111	6
7:45	33	401	13	1	448	97	49	38	0	184	35	256	76	0	367	17	65	95	0	177	1176	1
Total	135	1432	29	9	1605	328	98	89	0	515	82	841	374	1	1298	33	187	231	0	451	3869	10
8:00	22	342	11	0	375	160	35	30	0	225	39	281	120	3	443	13	42	73	0	128	1171	3
8:15	40	321	11	0	372	87	31	33	0	151	24	235	104	1	364	11	58	90	0	159	1046	1
8:30	35	326	7	2	370	83	20	31	0	134	17	274	106	0	397	7	67	64	0	138	1039	2
8:45	32	323	6	2	363	66	28	33	0	127	22	266	118	0	406	16	64	62	0	142	1038	2
Total	129	1312	35	4	1480	396	114	127	0	637	102	1056	448	4	1610	47	231	289	0	567	4294	8
16:00	32	231	11	2	276	159	61	42	0	262	46	305	67	0	418	11	34	24	0	69	1025	2
16:15	27	262	10	6	305	165	51	34	0	250	24	299	57	0	380	11	41	19	0	71	1006	6
16:30	21	285	5	1	312	154	61	42	0	257	33	345	81	1	460	9	27	31	0	67	1096	2
16:45	34	266	4	1	305	190	58	35	0	283	40	256	72	1	369	15	35	21	0	71	1028	2
Total	114	1044	30	10	1198	668	231	153	0	1052	143	1205	277	2	1627	46	137	95	0	278	4155	12
17:00	24	286	8	4	322	137	60	36	0	233	47	347	63	0	457	6	22	28	0	56	1068	4
17:15	18	251	8	3	280	164	59	27	0	250	48	298	80	0	426	8	41	22	0	71	1027	3
17:30	29	258	10	5	302	163	73	27	0	263	43	290	87	2	422	9	30	29	0	68	1055	7
17:45	37	281	17	2	337	134	58	41	0	233	55	270	98	10	433	6	39	35	0	80	1083	12
Total	108	1076	43	14	1241	598	250	131	0	979	193	1205	328	12	1738	29	132	114	0	275	4233	26
Grand Total	486	4864	137	37	5524	1990	693	500	0	3183	520	4307	1427	19	6273	155	687	729	0	1571	16551	56
Apprch %	8.8%	88.1%	2.5%	0.7%		62.5%	21.8%	15.7%	0.0%		8.3%	68.7%	22.7%	0.3%		9.9%	43.7%	46.4%	0.0%			
Total %	2.9%	29.4%	0.8%	0.2%	33.4%	12.0%	4.2%	3.0%	0.0%	19.2%	3.1%	26.0%	8.6%	0.1%	37.9%	0.9%	4.2%	4.4%	0.0%	9.5%	100.0%	

AM PEAK HOUR	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	21	386	8	5	420	105	33	24	0	162	23	239	118	1	381	8	41	99	0	148	1111
7:45	33	401	13	1	448	97	49	38	0	184	35	256	76	0	367	17	65	95	0	177	1176
8:00	22	342	11	0	375	160	35	30	0	225	39	281	120	3	443	13	42	73	0	128	1171
8:15	40	321	11	0	372	87	31	33	0	151	24	235	104	1	364	11	58	90	0	159	1046
Total Volume	116	1450	43	6	1615	449	148	125	0	722	121	1011	418	5	1555	49	206	357	0	612	4504
% App Total	7.2%	89.8%	2.7%	0.4%		62.2%	20.5%	17.3%	0.0%		7.8%	65.0%	26.9%	0.3%		8.0%	33.7%	58.3%	0.0%		
PHF	.725	.904	.827	.300	.901	.702	.755	.822	.000	.802	.776	.899	.871	.417	.878	.721	.792	.902	.000	.864	.957

PM PEAK HOUR	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	24	286	8	4	322	137	60	36	0	233	47	347	63	0	457	6	22	28	0	56	1068
17:15	18	251	8	3	280	164	59	27	0	250	48	298	80	0	426	8	41	22	0	71	1027
17:30	29	258	10	5	302	163	73	27	0	263	43	290	87	2	422	9	30	29	0	68	1055
17:45	37	281	17	2	337	134	58	41	0	233	55	270	98	10	433	6	39	35	0	80	1083
Total Volume	108	1076	43	14	1241	598	250	131	0	979	193	1205	328	12	1738	29	132	114	0	275	4233
% App Total	8.7%	86.7%	3.5%	1.1%		61.1%	25.5%	13.4%	0.0%		11.1%	69.3%	18.9%	0.7%		10.5%	48.0%	41.5%	0.0%		
PHF	.730	.941	.632	.700	.921	.912	.856	.799	.000	.931	.877	.868	.837	.300	.951	.806	.805	.814	.000	.859	.977

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-001
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	5	2	0	7	11	0
7:15	0	0	0	15	0	0	1	0	0	1	1	0	0	1	1	0	4	0	0	4	6	16
7:30	0	0	0	6	0	1	4	0	0	5	0	0	1	0	1	0	3	0	0	3	9	6
7:45	0	0	1	18	1	0	3	0	3	3	0	1	0	7	1	0	8	0	3	8	13	31
Total	0	0	3	39	3	1	10	0	3	11	1	1	1	8	3	0	20	2	3	22	39	53
8:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8	0
8:15	0	0	0	5	0	0	2	0	1	2	0	0	1	0	1	0	9	0	0	9	12	6
8:30	1	0	2	4	3	0	4	0	0	4	0	0	2	0	2	0	7	0	4	7	16	8
8:45	0	0	2	13	2	0	3	0	0	3	1	1	2	0	4	0	8	0	1	8	17	14
Total	1	0	4	22	5	0	12	0	1	12	1	1	5	0	7	0	29	0	5	29	53	28
16:00	0	0	0	2	0	0	4	0	0	4	4	0	0	0	4	0	0	0	2	0	8	4
16:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3	0
16:30	0	0	0	2	0	0	2	0	0	2	2	0	0	0	2	0	1	1	1	2	6	3
16:45	0	0	0	1	0	0	4	0	1	4	0	1	0	0	1	0	3	1	1	4	9	3
Total	0	0	1	5	1	0	10	0	1	10	6	1	0	0	7	0	6	2	4	8	26	10
17:00	0	0	0	1	0	0	4	0	1	4	1	0	0	1	1	0	1	1	0	2	7	3
17:15	0	0	1	0	1	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	6	0
17:30	0	0	1	1	1	0	4	0	0	4	0	0	1	0	1	0	5	0	0	5	11	1
17:45	0	0	0	2	0	2	11	1	0	14	0	0	0	0	0	0	1	0	0	1	15	2
Total	0	0	2	4	2	2	22	3	1	27	1	0	1	1	2	0	7	1	0	8	39	6
Grand Total	1	0	10	70	11	3	54	3	6	60	9	3	7	9	19	0	62	5	12	67	157	97
Apprch %	9.1%	0.0%	90.9%			5.0%	90.0%	5.0%			47.4%	15.8%	36.8%			0.0%	92.5%	7.5%				
Total %	0.6%	0.0%	6.4%		7.0%	1.9%	34.4%	1.9%		38.2%	5.7%	1.9%	4.5%		12.1%	0.0%	39.5%	3.2%		42.7%	100.0%	

AM PEAK HOUR	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	0	0	6	0	1	4	0	0	5	0	0	1	0	1	0	3	0	0	3	9
7:45	0	0	1	18	1	0	3	0	3	3	0	1	0	7	1	0	8	0	3	8	13
8:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
8:15	0	0	0	5	0	0	2	0	1	2	0	0	1	0	1	0	9	0	0	9	12
Total Volume	0	0	1	29	1	1	12	0	4	13	0	1	2	7	3	0	25	0	3	25	42
% App Total	0.0%	0.0%	100.0%			7.7%	92.3%	0.0%			0.0%	33.3%	66.7%			0.0%	100.0%	0.0%			
PHF	.000	.000	.250		.250	.250	.750	.000		.650	.000	.250	.500		.750	.000	.694	.000		.694	.808

PM PEAK HOUR	Woodside Rd Southbound					Alameda de las Pulgas Westbound					Woodside Rd Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	1	0	0	4	0	1	4	1	0	0	1	1	0	1	1	0	2	7
17:15	0	0	1	0	1	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	6
17:30	0	0	1	1	1	0	4	0	0	4	0	0	1	0	1	0	5	0	0	5	11
17:45	0	0	0	2	0	2	11	1	0	14	0	0	0	0	0	0	1	0	0	1	15
Total Volume	0	0	2	4	2	2	22	3	1	27	1	0	1	1	2	0	7	1	0	8	39
% App Total	0.0%	0.0%	100.0%			7.4%	81.5%	11.1%			50.0%	0.0%	50.0%			0.0%	87.5%	12.5%			
PHF	.000	.000	.500		.500	.250	.500	.375		.482	.250	.000	.250		.500	.000	.350	.250		.400	.650

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-002
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	5	0	12	0	17	0	71	0	0	71	0	0	0	0	0	1	136	0	0	137	225	0
7:15	11	0	24	0	35	0	79	2	0	81	0	0	0	0	0	1	190	0	0	191	307	0
7:30	36	0	36	0	72	0	113	2	0	115	0	0	0	0	0	1	179	0	0	180	367	0
7:45	59	0	52	0	111	0	150	13	0	163	0	0	0	0	0	1	172	0	0	173	447	0
Total	111	0	124	0	235	0	413	17	0	430	0	0	0	0	0	4	677	0	0	681	1346	0
8:00	24	0	30	0	54	0	177	3	1	181	0	0	0	0	0	3	185	0	0	188	423	1
8:15	13	0	14	0	27	0	133	4	0	137	0	0	0	0	0	1	211	0	0	212	376	0
8:30	7	0	14	0	21	0	126	3	0	129	0	0	0	0	0	4	199	0	0	203	353	0
8:45	10	0	20	0	30	0	111	4	0	115	0	0	0	0	0	3	204	0	0	207	352	0
Total	54	0	78	0	132	0	547	14	1	562	0	0	0	0	0	11	799	0	0	810	1504	1
16:00	2	0	8	0	10	0	241	3	0	244	0	0	0	0	0	5	129	0	0	134	388	0
16:15	3	0	6	0	9	0	252	4	0	256	0	0	0	0	0	1	121	0	0	122	387	0
16:30	3	0	6	0	9	0	259	5	0	264	0	0	0	0	0	7	124	0	0	131	404	0
16:45	5	0	7	0	12	0	255	6	0	261	0	0	0	0	0	3	136	0	0	139	412	0
Total	13	0	27	0	40	0	1007	18	0	1025	0	0	0	0	0	16	510	0	0	526	1591	0
17:00	2	0	8	0	10	0	243	5	0	248	0	0	0	0	0	4	102	0	0	106	364	0
17:15	4	0	7	0	11	0	250	3	0	253	0	0	0	0	0	5	136	0	0	141	405	0
17:30	1	0	10	0	11	0	224	4	0	228	0	0	0	0	0	2	153	0	0	155	394	0
17:45	3	0	7	0	10	0	239	6	0	245	0	0	0	0	0	7	160	0	0	167	422	0
Total	10	0	32	0	42	0	956	18	0	974	0	0	0	0	0	18	551	0	0	569	1585	0
Grand Total	188	0	261	0	449	0	2923	67	1	2991	0	0	0	0	0	49	2537	0	0	2586	6026	1
Apprch %	41.9%	0.0%	58.1%	0.0%		0.0%	97.7%	2.2%	0.0%		0.0%	0.0%	0.0%	0.0%		1.9%	98.1%	0.0%	0.0%			
Total %	3.1%	0.0%	4.3%	0.0%	7.5%	0.0%	48.5%	1.1%	0.0%	49.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	42.1%	0.0%	0.0%	42.9%	100.0%	

AM PEAK HOUR	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	36	0	36	0	72	0	113	2	0	115	0	0	0	0	0	1	179	0	0	180	367
7:45	59	0	52	0	111	0	150	13	0	163	0	0	0	0	0	1	172	0	0	173	447
8:00	24	0	30	0	54	0	177	3	1	181	0	0	0	0	0	3	185	0	0	188	423
8:15	13	0	14	0	27	0	133	4	0	137	0	0	0	0	0	1	211	0	0	212	376
Total Volume	132	0	132	0	264	0	573	22	1	596	0	0	0	0	0	6	747	0	0	753	1613
% App Total	50.0%	0.0%	50.0%	0.0%		0.0%	96.1%	3.7%	0.2%		0.0%	0.0%	0.0%	0.0%		0.8%	99.2%	0.0%	0.0%		
PHF	.559	.000	.635	.000	.595	.000	.809	.423	.250	.823	.000	.000	.000	.000	.000	.500	.885	.000	.000	.888	.902

PM PEAK HOUR	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	2	0	8	0	10	0	241	3	0	244	0	0	0	0	0	5	129	0	0	134	388
16:15	3	0	6	0	9	0	252	4	0	256	0	0	0	0	0	1	121	0	0	122	387
16:30	3	0	6	0	9	0	259	5	0	264	0	0	0	0	0	7	124	0	0	131	404
16:45	5	0	7	0	12	0	255	6	0	261	0	0	0	0	0	3	136	0	0	139	412
Total Volume	13	0	27	0	40	0	1007	18	0	1025	0	0	0	0	0	16	510	0	0	526	1591
% App Total	32.5%	0.0%	67.5%	0.0%		0.0%	98.2%	1.8%	0.0%		0.0%	0.0%	0.0%	0.0%		3.0%	97.0%	0.0%	0.0%		
PHF	.650	.000	.844	.000	.833	.000	.972	.750	.000	.971	.000	.000	.000	.000	.000	.571	.938	.000	.000	.946	.965

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-002
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	1	1	1	2	0	0	0	0	0	0	5	0	0	5	7	2
7:15	1	0	1	0	2	0	2	0	15	2	0	0	0	0	0	0	4	0	2	4	8	17
7:30	0	0	3	3	3	0	2	1	28	3	0	0	0	0	0	0	4	0	8	4	10	39
7:45	0	0	11	0	11	0	0	0	63	0	0	0	0	0	0	0	7	0	18	7	18	81
Total	1	0	15	4	16	0	5	2	107	7	0	0	0	0	0	0	20	0	28	20	43	139
8:00	0	0	1	3	1	0	2	0	21	2	0	0	0	0	0	0	9	0	4	9	12	28
8:15	0	0	1	0	1	0	0	0	11	0	0	0	0	0	0	1	7	0	1	8	9	12
8:30	1	0	1	0	2	0	2	0	7	2	0	0	0	0	0	1	10	0	0	11	15	7
8:45	0	0	0	5	0	0	1	0	29	1	0	0	0	0	0	0	6	0	3	6	7	37
Total	1	0	3	8	4	0	5	0	68	5	0	0	0	0	0	2	32	0	8	34	43	84
16:00	0	0	0	0	0	0	1	0	7	1	0	0	0	0	0	0	0	0	0	0	1	7
16:15	0	0	0	0	0	0	2	1	8	3	0	0	0	0	0	0	0	0	0	0	3	8
16:30	0	0	0	0	0	0	2	0	4	2	0	0	0	0	0	0	1	0	0	1	3	4
16:45	0	0	0	0	0	0	4	0	2	4	0	0	0	0	0	2	2	0	13	4	8	15
Total	0	0	0	0	0	0	9	1	21	10	0	0	0	0	0	2	3	0	13	5	15	34
17:00	0	0	2	10	2	0	7	0	12	7	0	0	0	0	0	0	1	0	4	1	10	26
17:15	1	0	0	0	1	0	4	1	6	5	0	0	0	0	0	0	0	0	2	0	6	8
17:30	0	0	0	0	0	0	6	0	10	6	0	0	0	0	0	1	6	0	0	7	13	10
17:45	0	0	1	1	1	0	11	0	11	11	0	0	0	0	0	3	1	0	2	4	16	14
Total	1	0	3	11	4	0	28	1	39	29	0	0	0	0	0	4	8	0	8	12	45	58
Grand Total	3	0	21	23	24	0	47	4	235	51	0	0	0	0	0	8	63	0	57	71	146	315
Apprch %	12.5%	0.0%	87.5%			0.0%	92.2%	7.8%			0.0%	0.0%	0.0%			11.3%	88.7%	0.0%				
Total %	2.1%	0.0%	14.4%		16.4%	0.0%	32.2%	2.7%		34.9%	0.0%	0.0%	0.0%		0.0%	5.5%	43.2%	0.0%		48.6%	100.0%	

AM PEAK HOUR	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	0	3	3	3	0	2	1	28	3	0	0	0	0	0	0	4	0	8	4	10
7:45	0	0	11	0	11	0	0	0	63	0	0	0	0	0	0	0	7	0	18	7	18
8:00	0	0	1	3	1	0	2	0	21	2	0	0	0	0	0	0	9	0	4	9	12
8:15	0	0	1	0	1	0	0	0	11	0	0	0	0	0	0	1	7	0	1	8	9
Total Volume	0	0	16	6	16	0	4	1	123	5	0	0	0	0	0	1	27	0	31	28	49
% App Total	0.0%	0.0%	100.0%			0.0%	80.0%	20.0%			0.0%	0.0%	0.0%			3.6%	96.4%	0.0%			
PHF	.000	.000	.364		.364	.000	.500	.250		.417	.000	.000	.000		.000	.250	.750	.000		.778	.681

PM PEAK HOUR	Hull Ave Southbound					Alameda de las Pulgas Westbound					Hull Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	1	0	7	1	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	2	1	8	3	0	0	0	0	0	0	0	0	0	0	3
16:30	0	0	0	0	0	0	2	0	4	2	0	0	0	0	0	0	1	0	0	1	3
16:45	0	0	0	0	0	0	4	0	2	4	0	0	0	0	0	2	2	0	13	4	8
Total Volume	0	0	0	0	0	0	9	1	21	10	0	0	0	0	0	2	3	0	13	5	15
% App Total	0.0%	0.0%	0.0%			0.0%	90.0%	10.0%			0.0%	0.0%	0.0%			40.0%	60.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.563	.250		.625	.000	.000	.000		.000	.250	.375	.000		.313	.469

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-003
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	7	4	16	0	27	2	54	2	0	58	2	2	4	0	8	14	121	3	0	138	231	0
7:15	4	1	29	0	34	2	58	2	0	62	0	2	21	0	23	9	191	2	0	202	321	0
7:30	7	3	51	0	61	1	80	4	0	85	2	2	56	0	60	22	182	3	0	207	413	0
7:45	7	2	87	0	96	10	122	2	0	134	0	5	36	0	41	37	162	2	0	201	472	0
Total	25	10	183	0	218	15	314	10	0	339	4	11	117	0	132	82	656	10	0	748	1437	0
8:00	4	2	57	0	63	12	104	4	0	120	0	0	32	0	32	48	151	1	0	200	415	0
8:15	5	1	41	0	47	5	88	13	0	106	2	4	18	0	24	34	172	2	0	208	385	0
8:30	5	2	26	0	33	2	91	7	0	100	2	0	12	0	14	26	170	1	0	197	344	0
8:45	7	1	30	0	38	3	87	9	0	99	1	3	12	0	16	47	154	1	0	202	355	0
Total	21	6	154	0	181	22	370	33	0	425	5	7	74	0	86	155	647	5	0	807	1499	0
16:00	5	1	24	0	30	3	227	7	0	237	2	0	10	0	12	20	102	1	0	123	402	0
16:15	3	2	29	0	34	6	217	10	0	233	3	0	3	0	6	17	95	2	0	114	387	0
16:30	4	1	38	0	43	12	234	11	0	257	4	3	6	0	13	19	98	0	0	117	430	0
16:45	6	1	45	0	52	14	221	13	0	248	1	1	8	0	10	19	113	1	0	133	443	0
Total	18	5	136	0	159	35	899	41	0	975	10	4	27	0	41	75	408	4	0	487	1662	0
17:00	1	2	26	0	29	10	229	11	0	250	0	1	8	0	9	21	78	1	0	100	388	0
17:15	2	5	35	0	42	11	223	8	0	242	0	2	9	0	11	23	110	2	0	135	430	0
17:30	5	2	31	0	38	14	200	10	0	224	1	2	7	0	10	21	114	2	0	137	409	0
17:45	3	2	29	0	34	11	186	16	0	213	1	0	8	0	9	23	131	2	0	156	412	0
Total	11	11	121	0	143	46	838	45	0	929	2	5	32	0	39	88	433	7	0	528	1639	0
Grand Total	75	32	594	0	701	118	2421	129	0	2668	21	27	250	0	298	400	2144	26	0	2570	6237	0
Apprch %	10.7%	4.6%	84.7%	0.0%		4.4%	90.7%	4.8%	0.0%		7.0%	9.1%	83.9%	0.0%		15.6%	83.4%	1.0%	0.0%			
Total %	1.2%	0.5%	9.5%	0.0%	11.2%	1.9%	38.8%	2.1%	0.0%	42.8%	0.3%	0.4%	4.0%	0.0%	4.8%	6.4%	34.4%	0.4%	0.0%	41.2%	100.0%	

AM PEAK HOUR	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	7	3	51	0	61	1	80	4	0	85	2	2	56	0	60	22	182	3	0	207	413
7:45	7	2	87	0	96	10	122	2	0	134	0	5	36	0	41	37	162	2	0	201	472
8:00	4	2	57	0	63	12	104	4	0	120	0	0	32	0	32	48	151	1	0	200	415
8:15	5	1	41	0	47	5	88	13	0	106	2	4	18	0	24	34	172	2	0	208	385
Total Volume	23	8	236	0	267	28	394	23	0	445	4	11	142	0	157	141	667	8	0	816	1685
% App Total	8.6%	3.0%	88.4%	0.0%		6.3%	88.5%	5.2%	0.0%		2.5%	7.0%	90.4%	0.0%		17.3%	81.7%	1.0%	0.0%		
PHF	.821	.667	.678	.000	.695	.583	.807	.442	.000	.830	.500	.550	.634	.000	.654	.734	.916	.667	.000	.981	.892

PM PEAK HOUR	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	4	1	38	0	43	12	234	11	0	257	4	3	6	0	13	19	98	0	0	117	430
16:45	6	1	45	0	52	14	221	13	0	248	1	1	8	0	10	19	113	1	0	133	443
17:00	1	2	26	0	29	10	229	11	0	250	0	1	8	0	9	21	78	1	0	100	388
17:15	2	5	35	0	42	11	223	8	0	242	0	2	9	0	11	23	110	2	0	135	430
Total Volume	13	9	144	0	166	47	907	43	0	997	5	7	31	0	43	82	399	4	0	485	1691
% App Total	7.8%	5.4%	86.7%	0.0%		4.7%	91.0%	4.3%	0.0%		11.6%	16.3%	72.1%	0.0%		16.9%	82.3%	0.8%	0.0%		
PHF	.542	.450	.800	.000	.798	.839	.969	.827	.000	.970	.313	.583	.861	.000	.827	.891	.883	.500	.000	.898	.954

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-003
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	7	1
7:15	1	0	2	0	3	0	2	0	0	2	0	0	0	0	0	0	8	0	0	8	13	0
7:30	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	0	4	0	0	4	11	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	9	0
Total	2	0	2	1	4	0	8	1	0	9	1	0	0	0	1	0	26	0	0	26	40	1
8:00	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0	0	5	0	0	5	7	2
8:15	1	0	0	0	1	0	0	0	0	0	0	1	0	2	1	0	10	0	0	10	12	2
8:30	1	0	0	1	1	0	2	3	0	5	0	0	0	0	0	0	12	0	0	12	18	1
8:45	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	7	0	2	7	10	2
Total	2	0	0	1	2	1	6	3	0	10	0	1	0	4	1	0	34	0	2	34	47	7
16:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	0
16:15	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	2	0	1	2	6	1
16:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3	0
16:45	0	0	0	9	0	0	6	0	0	6	0	0	1	0	1	0	2	0	2	2	9	11
Total	0	0	0	9	0	0	12	1	0	13	0	0	1	0	1	0	6	0	3	6	20	12
17:00	0	0	0	2	0	0	8	1	2	9	0	0	0	0	0	0	1	0	0	1	10	4
17:15	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	4	0
17:30	0	0	1	0	1	1	4	0	0	5	0	0	0	0	0	1	3	0	0	4	10	0
17:45	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	3	0	0	3	17	0
Total	1	0	1	2	2	1	28	1	2	30	0	0	0	0	0	1	8	0	0	9	41	4
Grand Total	5	0	3	13	8	2	54	6	2	62	1	1	1	4	3	1	74	0	5	75	148	24
Apprch %	62.5%	0.0%	37.5%			3.2%	87.1%	9.7%			33.3%	33.3%	33.3%			1.3%	98.7%	0.0%				
Total %	3.4%	0.0%	2.0%		5.4%	1.4%	36.5%	4.1%		41.9%	0.7%	0.7%	0.7%		2.0%	0.7%	50.0%	0.0%		50.7%	100.0%	

AM PEAK HOUR	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	0	4	0	0	4	11
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	9
8:00	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0	0	5	0	0	5	7
8:15	1	0	0	0	1	0	0	0	0	0	0	1	0	2	1	0	10	0	0	10	12
Total Volume	2	0	0	0	2	1	6	1	0	8	0	1	0	4	1	0	28	0	0	28	39
% App Total	100.0%	0.0%	0.0%			12.5%	75.0%	12.5%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.500	.000	.000		.500	.250	.300	.250		.333	.000	.250	.000		.250	.000	.700	.000		.700	.813

PM PEAK HOUR	Stockbridge Ave Southbound					Alameda de las Pulgas Westbound					Stockbridge Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
16:45	0	0	0	9	0	0	6	0	0	6	0	0	1	0	1	0	2	0	2	2	9
17:00	0	0	0	2	0	0	8	1	2	9	0	0	0	0	0	0	1	0	0	1	10
17:15	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	4
Total Volume	1	0	0	11	1	0	18	1	2	19	0	0	1	0	1	0	5	0	2	5	26
% App Total	100.0%	0.0%	0.0%			0.0%	94.7%	5.3%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			
PHF	.250	.000	.000		.250	.000	.563	.250		.528	.000	.000	.250		.250	.000	.625	.000		.625	.650

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

File Name : 18-08148-004
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	26	1	10	0	37	1	39	17	0	57	1	1	0	0	2	28	92	0	0	120	216	0
7:15	49	3	11	0	63	0	49	18	0	67	2	3	5	0	10	67	133	2	0	202	342	0
7:30	66	7	28	0	101	2	58	16	0	76	2	4	5	0	11	79	126	4	0	209	397	0
7:45	80	6	49	0	135	2	72	29	0	103	3	3	18	0	24	19	135	2	0	156	418	0
Total	221	17	98	0	336	5	218	80	0	303	8	11	28	0	47	193	486	8	0	687	1373	0
8:00	78	6	33	0	117	2	87	35	0	124	0	6	31	0	37	28	130	0	0	158	436	0
8:15	86	3	19	0	108	3	77	27	0	107	4	3	6	0	13	39	124	2	0	165	393	0
8:30	67	9	19	0	95	1	74	35	0	110	3	2	5	0	10	33	130	2	0	165	380	0
8:45	59	6	20	0	85	5	77	32	0	114	3	0	5	0	8	36	134	2	0	172	379	0
Total	290	24	91	0	405	11	315	129	0	455	10	11	47	0	68	136	518	6	0	660	1588	0
16:00	21	5	82	0	108	1	126	23	0	150	8	10	4	0	22	24	106	1	0	131	411	0
16:15	30	8	89	0	127	1	130	17	0	148	1	6	0	0	7	24	76	2	0	102	384	0
16:30	37	3	111	0	151	2	135	15	0	152	5	5	3	0	13	17	87	1	0	105	421	0
16:45	33	3	114	0	150	1	132	14	0	147	1	2	3	0	6	29	93	0	0	122	425	0
Total	121	19	396	0	536	5	523	69	0	597	15	23	10	0	48	94	362	4	0	460	1641	0
17:00	31	4	116	0	151	0	134	13	0	147	1	1	3	0	5	25	66	1	0	92	395	0
17:15	30	3	117	0	150	2	123	17	0	142	2	1	2	0	5	30	95	4	0	129	426	0
17:30	24	4	90	0	118	0	121	24	0	145	1	1	0	0	2	25	85	0	0	110	375	0
17:45	30	0	73	0	103	3	143	13	0	159	0	1	1	0	2	29	114	4	0	147	411	0
Total	115	11	396	0	522	5	521	67	0	593	4	4	6	0	14	109	360	9	0	478	1607	0
Grand Total	747	71	981	0	1799	26	1577	345	0	1948	37	49	91	0	177	532	1726	27	0	2285	6209	0
Apprch %	41.5%	3.9%	54.5%	0.0%		1.3%	81.0%	17.7%	0.0%		20.9%	27.7%	51.4%	0.0%		23.3%	75.5%	1.2%	0.0%			
Total %	12.0%	1.1%	15.8%	0.0%	29.0%	0.4%	25.4%	5.6%	0.0%	31.4%	0.6%	0.8%	1.5%	0.0%	2.9%	8.6%	27.8%	0.4%	0.0%	36.8%	100.0%	

AM PEAK HOUR	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	66	7	28	0	101	2	58	16	0	76	2	4	5	0	11	79	126	4	0	209	397
7:45	80	6	49	0	135	2	72	29	0	103	3	3	18	0	24	19	135	2	0	156	418
8:00	78	6	33	0	117	2	87	35	0	124	0	6	31	0	37	28	130	0	0	158	436
8:15	86	3	19	0	108	3	77	27	0	107	4	3	6	0	13	39	124	2	0	165	393
Total Volume	310	22	129	0	461	9	294	107	0	410	9	16	60	0	85	165	515	8	0	688	1644
% App Total	67.2%	4.8%	28.0%	0.0%		2.2%	71.7%	26.1%	0.0%		10.6%	18.8%	70.6%	0.0%		24.0%	74.9%	1.2%	0.0%		
PHF	.901	.786	.658	.000	.854	.750	.845	.764	.000	.827	.563	.667	.484	.000	.574	.522	.954	.500	.000	.823	.943

PM PEAK HOUR	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	37	3	111	0	151	2	135	15	0	152	5	5	3	0	13	17	87	1	0	105	421
16:45	33	3	114	0	150	1	132	14	0	147	1	2	3	0	6	29	93	0	0	122	425
17:00	31	4	116	0	151	0	134	13	0	147	1	1	3	0	5	25	66	1	0	92	395
17:15	30	3	117	0	150	2	123	17	0	142	2	1	2	0	5	30	95	4	0	129	426
Total Volume	131	13	458	0	602	5	524	59	0	588	9	9	11	0	29	101	341	6	0	448	1667
% App Total	21.8%	2.2%	76.1%	0.0%		0.9%	89.1%	10.0%	0.0%		31.0%	31.0%	37.9%	0.0%		22.5%	76.1%	1.3%	0.0%		
PHF	.885	.813	.979	.000	.997	.625	.970	.868	.000	.967	.450	.450	.917	.000	.558	.842	.897	.375	.000	.868	.978

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-004
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5	0
7:15	0	0	0	1	0	0	2	0	0	2	0	0	0	1	0	0	8	0	1	8	10	3
7:30	1	0	1	1	2	0	5	0	0	5	0	0	0	0	0	0	7	0	0	7	14	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	7	0	0	7	7	1
Total	1	0	1	2	2	0	8	0	0	8	0	0	0	2	0	0	26	0	1	26	36	5
8:00	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	5	0	0	5	7	1
8:15	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	9	0	0	10	11	1
8:30	0	0	1	0	1	0	4	0	0	4	0	0	0	1	0	0	14	0	0	14	19	1
8:45	0	0	1	1	1	0	3	0	0	3	0	0	0	2	0	0	9	0	0	9	13	3
Total	2	0	2	1	4	0	8	0	0	8	0	0	0	5	0	1	37	0	0	38	50	6
16:00	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	0	1	0	0	1	5	0
16:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0
16:30	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6	0
16:45	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	3	0	0	3	8	0
Total	1	0	0	0	1	0	11	2	0	13	0	0	0	0	0	0	7	0	0	7	21	0
17:00	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	9	0
17:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6	0
17:30	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	1	2	0	0	3	14	0
17:45	0	0	3	0	3	0	9	1	0	10	0	0	0	0	0	0	1	0	0	1	14	0
Total	0	0	3	0	3	0	32	1	0	33	0	0	0	0	0	1	6	0	0	7	43	0
Grand Total	4	0	6	3	10	0	59	3	0	62	0	0	0	7	0	2	76	0	1	78	150	11
Apprch %	40.0%	0.0%	60.0%			0.0%	95.2%	4.8%			0.0%	0.0%	0.0%			2.6%	97.4%	0.0%				
Total %	2.7%	0.0%	4.0%		6.7%	0.0%	39.3%	2.0%		41.3%	0.0%	0.0%	0.0%		0.0%	1.3%	50.7%	0.0%		52.0%	100.0%	

AM PEAK HOUR	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	1	0	1	1	2	0	5	0	0	5	0	0	0	0	0	0	7	0	0	7	14
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	7	0	0	7	7
8:00	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	5	0	0	5	7
8:15	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	9	0	0	10	11
Total Volume	3	0	1	1	4	0	6	0	0	6	0	0	0	3	0	1	28	0	0	29	39
% App Total	75.0%	0.0%	25.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			3.4%	96.6%	0.0%			
PHF	.750	.000	.250		.500	.000	.300	.000		.300	.000	.000	.000		.000	.250	.778	.000		.725	.696

PM PEAK HOUR	Atherton Ave Southbound					Alameda de las Pulgas Westbound					Atherton Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
16:45	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	3	0	0	3	8
17:00	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	9
17:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Total Volume	0	0	0	0	0	0	19	1	0	20	0	0	0	0	0	0	9	0	0	9	29
% App Total	0.0%	0.0%	0.0%			0.0%	95.0%	5.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.528	.250		.556	.000	.000	.000		.000	.000	.750	.000		.750	.806

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-005
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	0	0	0	0	9	56	0	0	65	5	0	0	0	5	0	108	8	0	116	186	0
7:15	0	0	1	0	1	18	56	0	0	74	10	0	10	0	20	0	166	15	0	181	276	0
7:30	0	0	2	0	2	18	68	0	0	86	7	0	21	0	28	0	185	16	0	201	317	0
7:45	2	0	3	0	5	17	96	0	0	113	9	0	18	0	27	0	215	16	0	231	376	0
Total	2	0	6	0	8	62	276	0	0	338	31	0	49	0	80	0	674	55	0	729	1155	0
8:00	1	0	4	0	5	16	99	0	0	115	7	0	20	0	27	0	212	19	0	231	378	0
8:15	14	0	10	0	24	10	97	0	0	107	8	0	26	0	34	0	184	17	0	201	366	0
8:30	16	0	8	0	24	10	92	0	0	102	7	0	26	0	33	0	183	15	0	198	357	0
8:45	18	2	14	0	34	12	88	0	0	100	10	0	13	0	23	0	187	15	0	202	359	0
Total	49	2	36	0	87	48	376	0	0	424	32	0	85	0	117	0	766	66	0	832	1460	0
16:00	2	0	0	0	2	13	143	0	0	156	9	0	15	0	24	0	129	11	0	140	322	0
16:15	3	0	1	0	4	15	138	0	0	153	11	0	20	0	31	0	100	5	0	105	293	0
16:30	8	0	1	0	9	20	141	1	0	162	10	0	24	0	34	0	128	7	0	135	340	0
16:45	5	0	3	0	8	11	139	0	0	150	1	0	8	0	9	0	120	9	0	129	296	0
Total	18	0	5	0	23	59	561	1	0	621	31	0	67	0	98	0	477	32	0	509	1251	0
17:00	4	0	1	0	5	13	137	1	1	152	11	0	35	0	46	0	95	5	0	100	303	1
17:15	1	0	1	0	2	13	136	0	0	149	6	0	18	0	24	0	126	2	0	128	303	0
17:30	8	0	1	0	9	16	125	0	0	141	5	0	10	0	15	0	93	11	0	104	269	0
17:45	3	0	1	0	4	13	135	0	0	148	8	0	7	0	15	0	146	4	0	150	317	0
Total	16	0	4	0	20	55	533	1	1	590	30	0	70	0	100	0	460	22	0	482	1192	1
Grand Total	85	2	51	0	138	224	1746	2	1	1973	124	0	271	0	395	0	2377	175	0	2552	5058	1
Apprch %	61.6%	1.4%	37.0%	0.0%		11.4%	88.5%	0.1%	0.1%		31.4%	0.0%	68.6%	0.0%		0.0%	93.1%	6.9%	0.0%			
Total %	1.7%	0.0%	1.0%	0.0%	2.7%	4.4%	34.5%	0.0%	0.0%	39.0%	2.5%	0.0%	5.4%	0.0%	7.8%	0.0%	47.0%	3.5%	0.0%	50.5%	100.0%	

AM PEAK HOUR	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	2	0	3	0	5	17	96	0	0	113	9	0	18	0	27	0	215	16	0	231	376
8:00	1	0	4	0	5	16	99	0	0	115	7	0	20	0	27	0	212	19	0	231	378
8:15	14	0	10	0	24	10	97	0	0	107	8	0	26	0	34	0	184	17	0	201	366
8:30	16	0	8	0	24	10	92	0	0	102	7	0	26	0	33	0	183	15	0	198	357
Total Volume	33	0	25	0	58	53	384	0	0	437	31	0	90	0	121	0	794	67	0	861	1477
% App Total	56.9%	0.0%	43.1%	0.0%		12.1%	87.9%	0.0%	0.0%		25.6%	0.0%	74.4%	0.0%		0.0%	92.2%	7.8%	0.0%		
PHF	.516	.000	.625	.000	.604	.779	.970	.000	.000	.950	.861	.000	.865	.000	.890	.000	.923	.882	.000	.932	.977

PM PEAK HOUR	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	2	0	0	0	2	13	143	0	0	156	9	0	15	0	24	0	129	11	0	140	322
16:15	3	0	1	0	4	15	138	0	0	153	11	0	20	0	31	0	100	5	0	105	293
16:30	8	0	1	0	9	20	141	1	0	162	10	0	24	0	34	0	128	7	0	135	340
16:45	5	0	3	0	8	11	139	0	0	150	1	0	8	0	9	0	120	9	0	129	296
Total Volume	18	0	5	0	23	59	561	1	0	621	31	0	67	0	98	0	477	32	0	509	1251
% App Total	78.3%	0.0%	21.7%	0.0%		9.5%	90.3%	0.2%	0.0%		31.6%	0.0%	68.4%	0.0%		0.0%	93.7%	6.3%	0.0%		
PHF	.563	.000	.417	.000	.639	.738	.981	.250	.000	.958	.705	.000	.698	.000	.721	.000	.924	.727	.000	.909	.920

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-005
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5	0	0	5	7	0
7:15	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	0	8	0	0	8	11	0
7:30	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	6	0	0	6	12	0
7:45	0	0	0	0	0	1	1	0	0	2	0	0	1	1	1	0	8	0	0	8	11	1
Total	0	0	0	0	0	2	8	0	0	10	1	0	3	1	4	0	27	0	0	27	41	1
8:00	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	0	6	0	0	6	9	1
8:15	0	0	0	0	0	1	2	0	0	3	0	0	1	1	1	0	7	0	0	7	11	1
8:30	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	0	10	0	0	10	13	1
8:45	0	0	0	0	0	0	3	0	0	3	0	0	1	1	1	0	9	0	0	9	13	1
Total	0	0	0	0	0	1	11	0	0	12	0	0	2	4	2	0	32	0	0	32	46	4
16:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4	0
16:15	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	4	0
16:30	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	3	0	0	3	8	0
16:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7	0
Total	0	0	0	0	0	3	12	0	0	15	0	0	1	0	1	0	7	0	0	7	23	0
17:00	0	0	0	0	0	0	9	1	0	10	0	0	0	0	0	0	0	0	0	0	10	0
17:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6	0
17:30	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	2	0	2	13	0
17:45	0	0	1	0	1	0	9	0	0	9	0	0	1	0	1	0	3	0	0	3	14	0
Total	0	0	1	0	1	0	32	1	0	33	0	0	1	0	1	0	6	2	0	8	43	0
Grand Total	0	0	1	0	1	6	63	1	0	70	1	0	7	5	8	0	72	2	0	74	153	5
Apprch %	0.0%	0.0%	100.0%			8.6%	90.0%	1.4%			12.5%	0.0%	87.5%			0.0%	97.3%	2.7%				
Total %	0.0%	0.0%	0.7%		0.7%	3.9%	41.2%	0.7%		45.8%	0.7%	0.0%	4.6%		5.2%	0.0%	47.1%	1.3%		48.4%	100.0%	

AM PEAK HOUR	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	0	0	0	0	1	1	0	0	2	0	0	1	1	1	0	8	0	0	8	11
8:00	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	0	6	0	0	6	9
8:15	0	0	0	0	0	1	2	0	0	3	0	0	1	1	1	0	7	0	0	7	11
8:30	0	0	0	0	0	0	3	0	0	3	0	0	0	1	0	0	10	0	0	10	13
Total Volume	0	0	0	0	0	2	9	0	0	11	0	0	2	4	2	0	31	0	0	31	44
% App Total	0.0%	0.0%	0.0%			18.2%	81.8%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.500	.750	.000		.917	.000	.000	.500		.500	.000	.775	.000		.775	.846

PM PEAK HOUR	Walsh Rd/Las Lomitas School Dwy Southbound					Alameda de las Pulgas Westbound					Walsh Rd/Las Lomitas School Dwy Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
16:15	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	0	0	0	0	4
16:30	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	3	0	0	3	8
16:45	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Total Volume	0	0	0	0	0	3	12	0	0	15	0	0	1	0	1	0	7	0	0	7	23
% App Total	0.0%	0.0%	0.0%			20.0%	80.0%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.375	.750	.000		.938	.000	.000	.250		.250	.000	.583	.000		.583	.719

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

File Name : 18-08148-006
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	1	0	0	0	1	0	66	3	0	69	0	0	0	0	0	4	104	0	0	108	178	0
7:15	0	0	0	0	0	1	73	7	0	81	1	0	1	0	2	6	171	1	0	178	261	0
7:30	6	0	4	0	10	0	81	3	0	84	1	0	0	0	1	11	193	0	0	204	299	0
7:45	4	0	7	0	11	2	106	15	0	123	1	0	4	0	5	6	229	0	0	235	374	0
Total	11	0	11	0	22	3	326	28	0	357	3	0	5	0	8	27	697	1	0	725	1112	0
8:00	6	0	5	0	11	2	121	22	0	145	0	0	1	0	1	6	221	0	0	227	384	0
8:15	4	0	3	0	7	2	98	22	0	122	1	0	1	0	2	15	204	4	0	223	354	0
8:30	4	0	2	0	6	2	97	38	0	137	0	0	1	0	1	11	209	4	0	224	368	0
8:45	5	0	1	0	6	0	99	68	0	167	0	0	4	0	4	14	200	4	0	218	395	0
Total	19	0	11	0	30	6	415	150	0	571	1	0	7	0	8	46	834	12	0	892	1501	0
16:00	7	0	2	0	9	0	153	22	0	175	0	0	1	0	1	4	143	1	0	148	333	0
16:15	2	0	3	0	5	1	152	31	0	184	0	0	1	0	1	9	114	0	0	123	313	0
16:30	5	0	2	0	7	1	160	37	0	198	1	0	1	0	2	13	149	0	0	162	369	0
16:45	11	0	3	0	14	0	145	28	0	173	0	0	0	0	0	4	131	1	0	136	323	0
Total	25	0	10	0	35	2	610	118	0	730	1	0	3	0	4	30	537	2	0	569	1338	0
17:00	0	0	2	0	2	1	161	44	0	206	0	0	2	0	2	11	122	1	0	134	344	0
17:15	4	0	4	0	8	1	144	48	0	193	0	2	1	0	3	7	137	1	0	145	349	0
17:30	3	0	4	0	7	3	134	13	0	150	0	1	1	0	2	7	106	0	0	113	272	0
17:45	2	1	4	0	7	2	144	20	0	166	0	0	1	0	1	4	149	0	0	153	327	0
Total	9	1	14	0	24	7	583	125	0	715	0	3	5	0	8	29	514	2	0	545	1292	0
Grand Total	64	1	46	0	111	18	1934	421	0	2373	5	3	20	0	28	132	2582	17	0	2731	5243	0
Apprch %	57.7%	0.9%	41.4%	0.0%		0.8%	81.5%	17.7%	0.0%		17.9%	10.7%	71.4%	0.0%		4.8%	94.5%	0.6%	0.0%			
Total %	1.2%	0.0%	0.9%	0.0%	2.1%	0.3%	36.9%	8.0%	0.0%	45.3%	0.1%	0.1%	0.4%	0.0%	0.5%	2.5%	49.2%	0.3%	0.0%	52.1%	100.0%	

AM PEAK HOUR	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	6	0	5	0	11	2	121	22	0	145	0	0	1	0	1	6	221	0	0	227	384
8:15	4	0	3	0	7	2	98	22	0	122	1	0	1	0	2	15	204	4	0	223	354
8:30	4	0	2	0	6	2	97	38	0	137	0	0	1	0	1	11	209	4	0	224	368
8:45	5	0	1	0	6	0	99	68	0	167	0	0	4	0	4	14	200	4	0	218	395
Total Volume	19	0	11	0	30	6	415	150	0	571	1	0	7	0	8	46	834	12	0	892	1501
% App Total	63.3%	0.0%	36.7%	0.0%		1.1%	72.7%	26.3%	0.0%		12.5%	0.0%	87.5%	0.0%		5.2%	93.5%	1.3%	0.0%		
PHF	.792	.000	.550	.000	.682	.750	.857	.551	.000	.855	.250	.000	.438	.000	.500	.767	.943	.750	.000	.982	.950

PM PEAK HOUR	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	5	0	2	0	7	1	160	37	0	198	1	0	1	0	2	13	149	0	0	162	369
16:45	11	0	3	0	14	0	145	28	0	173	0	0	0	0	0	4	131	1	0	136	323
17:00	0	0	2	0	2	1	161	44	0	206	0	0	2	0	2	11	122	1	0	134	344
17:15	4	0	4	0	8	1	144	48	0	193	0	2	1	0	3	7	137	1	0	145	349
Total Volume	20	0	11	0	31	3	610	157	0	770	1	2	4	0	7	35	539	3	0	577	1385
% App Total	64.5%	0.0%	35.5%	0.0%		0.4%	79.2%	20.4%	0.0%		14.3%	28.6%	57.1%	0.0%		6.1%	93.4%	0.5%	0.0%		
PHF	.455	.000	.688	.000	.554	.750	.947	.818	.000	.934	.250	.250	.500	.000	.583	.673	.904	.750	.000	.890	.938

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-006
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	7	0	0	7	8	1
7:15	1	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	8	0	0	8	10	1
7:30	0	0	1	1	1	0	5	0	2	5	0	0	0	0	0	0	6	0	0	6	12	3
7:45	0	0	0	0	0	0	2	0	0	2	0	0	0	1	0	2	7	0	0	9	11	1
Total	1	0	1	2	2	0	9	0	2	9	0	0	0	2	0	2	28	0	0	30	41	6
8:00	0	0	0	1	0	1	1	0	2	2	0	0	0	3	0	0	8	0	0	8	10	6
8:15	1	0	0	1	1	0	1	0	2	1	0	0	0	2	0	0	13	0	0	13	15	5
8:30	0	0	0	0	0	0	3	0	0	3	0	0	0	2	0	1	11	0	0	12	15	2
8:45	0	0	0	2	0	0	3	1	2	4	0	0	0	3	0	0	7	0	3	7	11	10
Total	1	0	0	4	1	1	8	1	6	10	0	0	0	10	0	1	39	0	3	40	51	23
16:00	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5	0
16:15	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4	0
16:30	0	0	0	0	0	0	4	0	0	4	0	0	0	1	0	0	4	0	0	4	8	1
16:45	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	7	0
Total	0	0	3	0	3	0	12	0	0	12	0	0	0	1	0	0	9	0	0	9	24	1
17:00	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	10	0
17:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	1	3	6	1
17:30	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	2	0	0	2	13	0
17:45	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	4	0	0	4	13	0
Total	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	0	9	0	1	9	42	1
Grand Total	2	0	4	6	6	1	62	1	8	64	0	0	0	13	0	3	85	0	4	88	158	31
Apprch %	33.3%	0.0%	66.7%			1.6%	96.9%	1.6%			0.0%	0.0%	0.0%			3.4%	96.6%	0.0%				
Total %	1.3%	0.0%	2.5%		3.8%	0.6%	39.2%	0.6%		40.5%	0.0%	0.0%	0.0%		0.0%	1.9%	53.8%	0.0%		55.7%	100.0%	

AM PEAK HOUR	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	1	0	1	1	0	2	2	0	0	0	3	0	0	8	0	0	8	10
8:15	1	0	0	1	1	0	1	0	2	1	0	0	0	2	0	0	13	0	0	13	15
8:30	0	0	0	0	0	0	3	0	0	3	0	0	0	2	0	1	11	0	0	12	15
8:45	0	0	0	2	0	0	3	1	2	4	0	0	0	3	0	0	7	0	3	7	11
Total Volume	1	0	0	4	1	1	8	1	6	10	0	0	0	10	0	1	39	0	3	40	51
% App Total	100.0%	0.0%	0.0%			10.0%	80.0%	10.0%			0.0%	0.0%	0.0%			2.5%	97.5%	0.0%			
PHF	.250	.000	.000		.250	.250	.667	.250		.625	.000	.000	.000		.000	.250	.750	.000		.769	.850

PM PEAK HOUR	Camino Al Lago Southbound					Alameda de las Pulgas Westbound					Camino Al Lago Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	4	0	0	4	0	0	0	1	0	0	4	0	0	4	8
16:45	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	7
17:00	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	10
17:15	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	1	3	6
Total Volume	0	0	2	0	2	0	19	0	0	19	0	0	0	1	0	0	10	0	1	10	31
% App Total	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.250		.250	.000	.475	.000		.475	.000	.000	.000		.000	.000	.625	.000		.625	.775

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-007
Date : 04/26/2018

Unshifted Count = All Vehicles & Uturns

	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	12	6	9	0	27	0	58	21	0	79	0	3	0	0	3	16	85	4	0	105	214	0
7:15	23	8	14	0	45	1	61	29	0	91	1	8	1	0	10	40	129	1	0	170	316	0
7:30	30	5	21	0	56	0	70	41	0	111	4	15	2	0	21	48	124	2	0	174	362	0
7:45	46	22	21	0	89	1	88	32	0	121	6	12	3	0	21	47	161	5	0	213	444	0
Total	111	41	65	0	217	2	277	123	0	402	11	38	6	0	55	151	499	12	0	662	1336	0
8:00	35	27	22	0	84	2	125	33	0	160	7	20	1	0	28	52	153	3	0	208	480	0
8:15	48	18	23	0	89	2	96	26	0	124	6	8	1	0	15	40	143	9	0	192	420	0
8:30	25	4	25	0	54	2	100	22	0	124	6	6	3	0	15	28	179	2	0	209	402	0
8:45	21	5	29	0	55	2	124	32	0	158	13	5	1	0	19	39	163	4	0	206	438	0
Total	129	54	99	0	282	8	445	113	0	566	32	39	6	0	77	159	638	18	0	815	1740	0
16:00	52	14	43	0	109	0	136	30	0	166	4	7	2	0	13	28	112	3	0	143	431	0
16:15	43	7	46	0	96	1	152	26	0	179	4	4	2	0	10	22	79	8	0	109	394	0
16:30	49	15	54	0	118	1	147	34	0	182	4	11	0	0	15	31	112	4	0	147	462	0
16:45	40	12	30	0	82	3	155	27	0	185	4	5	0	0	9	31	91	5	0	127	403	0
Total	184	48	173	0	405	5	590	117	0	712	16	27	4	0	47	112	394	20	0	526	1690	0
17:00	43	10	46	0	99	0	154	36	0	190	5	8	1	0	14	28	96	4	0	128	431	0
17:15	44	12	44	0	100	3	157	27	0	187	3	4	3	0	10	34	87	3	0	124	421	0
17:30	29	12	50	0	91	4	115	29	0	148	6	6	2	0	14	28	71	7	0	106	359	0
17:45	38	10	38	0	86	2	140	31	0	173	2	3	1	0	6	33	110	8	0	151	416	0
Total	154	44	178	0	376	9	566	123	0	698	16	21	7	0	44	123	364	22	0	509	1627	0
Grand Total	578	187	515	0	1280	24	1878	476	0	2378	75	125	23	0	223	545	1895	72	0	2512	6393	0
Apprch %	45.2%	14.6%	40.2%	0.0%		1.0%	79.0%	20.0%	0.0%		33.6%	56.1%	10.3%	0.0%		21.7%	75.4%	2.9%	0.0%			
Total %	9.0%	2.9%	8.1%	0.0%	20.0%	0.4%	29.4%	7.4%	0.0%	37.2%	1.2%	2.0%	0.4%	0.0%	3.5%	8.5%	29.6%	1.1%	0.0%	39.3%	100.0%	

AM PEAK HOUR	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	46	22	21	0	89	1	88	32	0	121	6	12	3	0	21	47	161	5	0	213	444
8:00	35	27	22	0	84	2	125	33	0	160	7	20	1	0	28	52	153	3	0	208	480
8:15	48	18	23	0	89	2	96	26	0	124	6	8	1	0	15	40	143	9	0	192	420
8:30	25	4	25	0	54	2	100	22	0	124	6	6	3	0	15	28	179	2	0	209	402
Total Volume	154	71	91	0	316	7	409	113	0	529	25	46	8	0	79	167	636	19	0	822	1746
% App Total	48.7%	22.5%	28.8%	0.0%		1.3%	77.3%	21.4%	0.0%		31.6%	58.2%	10.1%	0.0%		20.3%	77.4%	2.3%	0.0%		
PHF	.802	.657	.910	.000	.888	.875	.818	.856	.000	.827	.893	.575	.667	.000	.705	.803	.888	.528	.000	.965	.909

PM PEAK HOUR	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	49	15	54	0	118	1	147	34	0	182	4	11	0	0	15	31	112	4	0	147	462
16:45	40	12	30	0	82	3	155	27	0	185	4	5	0	0	9	31	91	5	0	127	403
17:00	43	10	46	0	99	0	154	36	0	190	5	8	1	0	14	28	96	4	0	128	431
17:15	44	12	44	0	100	3	157	27	0	187	3	4	3	0	10	34	87	3	0	124	421
Total Volume	176	49	174	0	399	7	613	124	0	744	16	28	4	0	48	124	386	16	0	526	1717
% App Total	44.1%	12.3%	43.6%	0.0%		0.9%	82.4%	16.7%	0.0%		33.3%	58.3%	8.3%	0.0%		23.6%	73.4%	3.0%	0.0%		
PHF	.898	.817	.806	.000	.845	.583	.976	.861	.000	.979	.800	.636	.333	.000	.800	.912	.862	.800	.000	.895	.929

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 18-08148-007
Date : 04/26/2018

Bank 1 Count = Bikes & Peds

	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	2	0	4	3	4	5
7:15	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	2	8	0	1	10	11	2
7:30	0	0	0	2	0	1	2	0	1	3	0	0	0	1	0	1	4	0	1	5	8	5
7:45	0	0	3	0	3	0	0	0	3	0	0	0	0	0	0	2	3	0	0	5	8	3
Total	0	0	3	3	3	1	4	0	4	5	0	0	0	2	0	6	17	0	6	23	31	15
8:00	1	0	1	0	2	0	0	0	0	0	0	0	0	3	0	2	4	0	0	6	8	3
8:15	0	0	0	0	0	0	1	1	2	2	0	0	0	0	0	2	13	0	0	15	17	2
8:30	0	1	0	1	1	0	3	0	0	3	0	0	0	1	0	0	10	1	1	11	15	3
8:45	1	0	1	2	2	0	2	0	0	2	0	0	0	0	0	2	8	0	0	10	14	2
Total	2	1	2	3	5	0	6	1	2	7	0	0	0	4	0	6	35	1	1	42	54	10
16:00	0	0	1	0	1	0	2	0	1	2	0	0	0	4	0	0	2	0	0	2	5	5
16:15	0	0	1	0	1	0	2	0	2	2	0	0	0	4	0	0	0	0	0	0	3	6
16:30	1	1	2	0	4	0	3	1	1	4	1	0	0	0	1	1	2	0	1	3	12	2
16:45	0	1	1	0	2	0	0	0	0	0	0	0	0	1	0	1	2	0	1	3	5	2
Total	1	2	5	0	8	0	7	1	4	8	1	0	0	9	1	2	6	0	2	8	25	15
17:00	2	0	0	0	2	0	10	0	1	10	0	1	0	0	1	0	0	0	1	0	13	2
17:15	0	0	0	0	0	0	6	0	1	6	0	0	0	0	0	0	2	0	0	2	8	1
17:30	1	0	1	3	2	0	7	0	0	7	0	0	0	0	0	0	3	0	0	3	12	3
17:45	1	1	0	0	2	0	9	0	1	9	0	0	0	0	0	0	4	0	2	4	15	3
Total	4	1	1	3	6	0	32	0	3	32	0	1	0	0	1	0	9	0	3	9	48	9
Grand Total	7	4	11	9	22	1	49	2	13	52	1	1	0	15	2	14	67	1	12	82	158	49
Apprch %	31.8%	18.2%	50.0%			1.9%	94.2%	3.8%			50.0%	50.0%	0.0%			17.1%	81.7%	1.2%				
Total %	4.4%	2.5%	7.0%		13.9%	0.6%	31.0%	1.3%		32.9%	0.6%	0.6%	0.0%		1.3%	8.9%	42.4%	0.6%		51.9%	100.0%	

AM PEAK HOUR	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	0	3	0	3	0	0	0	3	0	0	0	0	0	0	2	3	0	0	5	8
8:00	1	0	1	0	2	0	0	0	0	0	0	0	0	3	0	2	4	0	0	6	8
8:15	0	0	0	0	0	0	1	1	2	2	0	0	0	0	0	2	13	0	0	15	17
8:30	0	1	0	1	1	0	3	0	0	3	0	0	0	1	0	0	10	1	1	11	15
Total Volume	1	1	4	1	6	0	4	1	5	5	0	0	0	4	0	6	30	1	1	37	48
% App Total	16.7%	16.7%	66.7%			0.0%	80.0%	20.0%			0.0%	0.0%	0.0%			16.2%	81.1%	2.7%			
PHF	.250	.250	.333		.500	.000	.333	.250		.417	.000	.000	.000		.000	.750	.577	.250		.617	.706

PM PEAK HOUR	Valparaiso Ave Southbound					Alameda de las Pulgas Westbound					Valparaiso Ave Northbound					Alameda de las Pulgas Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	1	1	2	0	4	0	3	1	1	4	1	0	0	0	1	1	2	0	1	3	12
16:45	0	1	1	0	2	0	0	0	0	0	0	0	0	1	0	1	2	0	1	3	5
17:00	2	0	0	0	2	0	10	0	1	10	0	1	0	0	1	0	0	0	1	0	13
17:15	0	0	0	0	0	0	6	0	1	6	0	0	0	0	0	0	2	0	0	2	8
Total Volume	3	2	3	0	8	0	19	1	3	20	1	1	0	1	2	2	6	0	3	8	38
% App Total	37.5%	25.0%	37.5%			0.0%	95.0%	5.0%			50.0%	50.0%	0.0%			25.0%	75.0%	0.0%			
PHF	.375	.500	.375		.500	.000	.475	.250		.500	.250	.250	.000		.500	.500	.750	.000		.667	.731

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Alameda de las Pulgas & Stockbridge Ave

Day: Thursday
Date: 4/26/2018

City: Atherton
Project #: CA18_8149_001

DAILY TOTALS	NB	SB	EB	WB	Total
	8,483	0	0	0	8,483

AM Period	NB		SB	EB	WB	TOTAL		PM Period	NB		SB	EB	WB	TOTAL	
00:00	5		0	0	0	5		12:00	123		0	0	0	123	
00:15	12		0	0	0	12		12:15	107		0	0	0	107	
00:30	5		0	0	0	5		12:30	113		0	0	0	113	
00:45	1	23	0	0	0	1	23	12:45	106	449	0	0	0	106	449
01:00	2		0	0	0	2		13:00	121		0	0	0	121	
01:15	7		0	0	0	7		13:15	123		0	0	0	123	
01:30	3		0	0	0	3		13:30	131		0	0	0	131	
01:45	0	12	0	0	0		12	13:45	143	518	0	0	0	143	518
02:00	2		0	0	0	2		14:00	138		0	0	0	138	
02:15	1		0	0	0	1		14:15	140		0	0	0	140	
02:30	2		0	0	0	2		14:30	138		0	0	0	138	
02:45	3	8	0	0	0	3	8	14:45	159	575	0	0	0	159	575
03:00	2		0	0	0	2		15:00	210		0	0	0	210	
03:15	1		0	0	0	1		15:15	195		0	0	0	195	
03:30	0		0	0	0			15:30	199		0	0	0	199	
03:45	0	3	0	0	0		3	15:45	222	826	0	0	0	222	826
04:00	0		0	0	0			16:00	235		0	0	0	235	
04:15	2		0	0	0	2		16:15	233		0	0	0	233	
04:30	1		0	0	0	1		16:30	260		0	0	0	260	
04:45	3	6	0	0	0	3	6	16:45	257	985	0	0	0	257	985
05:00	5		0	0	0	5		17:00	249		0	0	0	249	
05:15	10		0	0	0	10		17:15	246		0	0	0	246	
05:30	10		0	0	0	10		17:30	227		0	0	0	227	
05:45	10	35	0	0	0	10	35	17:45	213	935	0	0	0	213	935
06:00	25		0	0	0	25		18:00	235		0	0	0	235	
06:15	21		0	0	0	21		18:15	215		0	0	0	215	
06:30	25		0	0	0	25		18:30	209		0	0	0	209	
06:45	39	110	0	0	0	39	110	18:45	189	848	0	0	0	189	848
07:00	59		0	0	0	59		19:00	169		0	0	0	169	
07:15	62		0	0	0	62		19:15	129		0	0	0	129	
07:30	86		0	0	0	86		19:30	109		0	0	0	109	
07:45	133	340	0	0	0	133	340	19:45	84	491	0	0	0	84	491
08:00	120		0	0	0	120		20:00	82		0	0	0	82	
08:15	105		0	0	0	105		20:15	88		0	0	0	88	
08:30	101		0	0	0	101		20:30	65		0	0	0	65	
08:45	100	426	0	0	0	100	426	20:45	74	309	0	0	0	74	309
09:00	107		0	0	0	107		21:00	55		0	0	0	55	
09:15	97		0	0	0	97		21:15	66		0	0	0	66	
09:30	81		0	0	0	81		21:30	58		0	0	0	58	
09:45	98	383	0	0	0	98	383	21:45	32	211	0	0	0	32	211
10:00	92		0	0	0	92		22:00	67		0	0	0	67	
10:15	92		0	0	0	92		22:15	41		0	0	0	41	
10:30	98		0	0	0	98		22:30	23		0	0	0	23	
10:45	114	396	0	0	0	114	396	22:45	17	148	0	0	0	17	148
11:00	99		0	0	0	99		23:00	14		0	0	0	14	
11:15	94		0	0	0	94		23:15	13		0	0	0	13	
11:30	101		0	0	0	101		23:30	12		0	0	0	12	
11:45	106	400	0	0	0	106	400	23:45	7	46	0	0	0	7	46
TOTALS		2142					2142	TOTALS		6341					6341
SPLIT %		100.0%					25.3%	SPLIT %		100.0%					74.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	8,483	0	0	0	8,483

AM Peak Hour	07:45					07:45	PM Peak Hour	16:30					16:30
AM Pk Volume	459					459	PM Pk Volume	1012					1012
Pk Hr Factor	0.863					0.863	Pk Hr Factor	0.973					0.973
7 - 9 Volume	766	0	0	0		766	4 - 6 Volume	1920	0	0	0		1920
7 - 9 Peak Hour	07:45					07:45	4 - 6 Peak Hour	16:30					16:30
7 - 9 Pk Volume	459	0	0	0		459	4 - 6 Pk Volume	1012	0	0	0		1012
Pk Hr Factor	0.863	0.000	0.000	0.000		0.863	Pk Hr Factor	0.973	0.000	0.000	0.000		0.973

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Alameda de las Pulgas & Camino Al Lago

Day: Thursday
Date: 4/26/2018

City: Atherton
Project #: CA18_8149_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	8,243	0	0	8,243

AM Period	NB	SB		EB	WB	TOTAL		PM Period	NB	SB		EB	WB	TOTAL	
00:00	0	4		0	0	4		12:00	0	117		0	0	117	
00:15	0	6		0	0	6		12:15	0	119		0	0	119	
00:30	0	2		0	0	2		12:30	0	126		0	0	126	
00:45	0	1	13	0	0	1	13	12:45	0	136	498	0	0	136	498
01:00	0	3		0	0	3		13:00	0	117		0	0	117	
01:15	0	5		0	0	5		13:15	0	105		0	0	105	
01:30	0	4		0	0	4		13:30	0	129		0	0	129	
01:45	0	4	16	0	0	4	16	13:45	0	127	478	0	0	127	478
02:00	0	3		0	0	3		14:00	0	145		0	0	145	
02:15	0	1		0	0	1		14:15	0	144		0	0	144	
02:30	0	2		0	0	2		14:30	0	159		0	0	159	
02:45	0	1	7	0	0	1	7	14:45	0	148	596	0	0	148	596
03:00	0	0		0	0			15:00	0	162		0	0	162	
03:15	0	3		0	0	3		15:15	0	139		0	0	139	
03:30	0	2		0	0	2		15:30	0	166		0	0	166	
03:45	0	0	5	0	0		5	15:45	0	145	612	0	0	145	612
04:00	0	1		0	0	1		16:00	0	142		0	0	142	
04:15	0	4		0	0	4		16:15	0	120		0	0	120	
04:30	0	7		0	0	7		16:30	0	157		0	0	157	
04:45	0	7	19	0	0	7	19	16:45	0	132	551	0	0	132	551
05:00	0	11		0	0	11		17:00	0	133		0	0	133	
05:15	0	23		0	0	23		17:15	0	145		0	0	145	
05:30	0	23		0	0	23		17:30	0	111		0	0	111	
05:45	0	33	90	0	0	33	90	17:45	0	149	538	0	0	149	538
06:00	0	22		0	0	22		18:00	0	125		0	0	125	
06:15	0	47		0	0	47		18:15	0	102		0	0	102	
06:30	0	68		0	0	68		18:30	0	102		0	0	102	
06:45	0	82	219	0	0	82	219	18:45	0	115	444	0	0	115	444
07:00	0	108		0	0	108		19:00	0	106		0	0	106	
07:15	0	177		0	0	177		19:15	0	82		0	0	82	
07:30	0	206		0	0	206		19:30	0	75		0	0	75	
07:45	0	239	730	0	0	239	730	19:45	0	72	335	0	0	72	335
08:00	0	226		0	0	226		20:00	0	75		0	0	75	
08:15	0	223		0	0	223		20:15	0	44		0	0	44	
08:30	0	221		0	0	221		20:30	0	50		0	0	50	
08:45	0	227	897	0	0	227	897	20:45	0	41	210	0	0	41	210
09:00	0	221		0	0	221		21:00	0	36		0	0	36	
09:15	0	183		0	0	183		21:15	0	26		0	0	26	
09:30	0	157		0	0	157		21:30	0	45		0	0	45	
09:45	0	150	711	0	0	150	711	21:45	0	13	120	0	0	13	120
10:00	0	131		0	0	131		22:00	0	27		0	0	27	
10:15	0	136		0	0	136		22:15	0	15		0	0	15	
10:30	0	115		0	0	115		22:30	0	16		0	0	16	
10:45	0	119	501	0	0	119	501	22:45	0	19	77	0	0	19	77
11:00	0	119		0	0	119		23:00	0	18		0	0	18	
11:15	0	121		0	0	121		23:15	0	11		0	0	11	
11:30	0	139		0	0	139		23:30	0	8		0	0	8	
11:45	0	148	527	0	0	148	527	23:45	0	12	49	0	0	12	49
TOTALS		3735				3735		TOTALS		4508				4508	
SPLIT %		100.0%				45.3%		SPLIT %		100.0%				54.7%	

DAILY TOTALS	NB	SB	EB	WB	Total
	0	8,243	0	0	8,243

AM Peak Hour		07:45			07:45	PM Peak Hour		14:45			14:45
AM Pk Volume		909			909	PM Pk Volume		615			615
Pk Hr Factor		0.951			0.951	Pk Hr Factor		0.926			0.926
7 - 9 Volume	0	1627	0	0	1627	4 - 6 Volume	0	1089	0	0	1089
7 - 9 Peak Hour		07:45			07:45	4 - 6 Peak Hour		16:30			16:30
7 - 9 Pk Volume	0	909	0	0	909	4 - 6 Pk Volume	0	567	0	0	567
Pk Hr Factor	0.000	0.951	0.000	0.000	0.951	Pk Hr Factor	0.000	0.903	0.000	0.000	0.903

Prepared by NDS/ATD

VOLUME

Alameda de las Pulgas & Camino Al Lago

Day: Thursday
Date: 4/26/2018

City: Atherton
Project #: CA18_8149_003

DAILY TOTALS	NB	SB	EB	WB	Total
	8,107	0	103	360	8,570

AM Period	NB		SB		EB		WB		TOTAL	
00:00	8		0		0		0		8	
00:15	7		0		0		0		7	
00:30	0		0		0		0		0	
00:45	1	16	0	0	0	0	0	0	1	16
01:00	1		0		0		0		1	
01:15	5		0		0		1		6	
01:30	2		0		0		0		2	
01:45	1	9	0	0	0	0	0	1	1	10
02:00	1		0		0		0		1	
02:15	1		0		0		0		1	
02:30	2		0		0		0		2	
02:45	3	7	0	0	0	0	0	0	3	7
03:00	1		0		0		0		1	
03:15	0		0		0		1		1	
03:30	1		0		0		0		1	
03:45	1	3	0	0	0	0	0	1	1	4
04:00	1		0		0		0		1	
04:15	2		0		0		0		2	
04:30	2		0		0		0		2	
04:45	8	13	0	1	1	1	1	1	10	15
05:00	8		0		0		1		9	
05:15	11		0		0		0		11	
05:30	10		0		0		2		12	
05:45	16	45	0	0	0	0	1	4	17	49
06:00	16		0		1		0		17	
06:15	26		0		0		0		26	
06:30	24		0		2		2		28	
06:45	48	114	0	0	0	3	2	4	50	121
07:00	68		0		0		1		69	
07:15	83		0		2		0		85	
07:30	91		0		1		8		100	
07:45	123	365	0	4	7	12	21	139	393	
08:00	146		0		1		9		156	
08:15	124		0		1		7		132	
08:30	137		0		1		5		143	
08:45	175	582	0	2	5	5	26	182	613	
09:00	119		0		1		13		133	
09:15	85		0		2		7		94	
09:30	84		0		2		8		94	
09:45	115	403	0	1	6	2	30	118	439	
10:00	112		0		3		8		123	
10:15	102		0		3		5		110	
10:30	118		0		2		4		124	
10:45	107	439	0	2	10	4	21	113	470	
11:00	95		0		3		3		101	
11:15	103		0		4		3		110	
11:30	111		0		1		8		120	
11:45	97	406	0	3	11	1	15	101	432	
TOTALS		2402			43		124		2569	
SPLIT %		93.5%			1.7%		4.8%		30.0%	

PM Period	NB		SB		EB		WB		TOTAL	
12:00	130		0		3		6		139	
12:15	112		0		2		5		119	
12:30	127		0		1		5		133	
12:45	100	469	0	1	7	8	24	109	500	
13:00	116		0		3		6		125	
13:15	115		0		1		5		121	
13:30	144		0		1		3		148	
13:45	158	533	0	1	6	8	22	167	561	
14:00	122		0		2		20		144	
14:15	127		0		4		3		134	
14:30	127		0		0		10		137	
14:45	153	529	0	2	8	7	40	162	577	
15:00	197		0		5		2		204	
15:15	195		0		1		11		207	
15:30	182		0		0		12		194	
15:45	166	740	0	3	9	3	28	172	777	
16:00	180		0		1		8		189	
16:15	194		0		1		6		201	
16:30	215		0		2		9		226	
16:45	177	766	0	0	4	9	32	186	802	
17:00	236		0		1		2		239	
17:15	216		0		1		6		223	
17:30	152		0		2		7		161	
17:45	174	778	0	1	5	7	22	182	805	
18:00	196		0		0		10		206	
18:15	191		0		2		3		196	
18:30	190		0		0		2		192	
18:45	169	746	0	3	5	3	18	175	769	
19:00	130		0		0		4		134	
19:15	123		0		1		4		128	
19:30	97		0		1		3		101	
19:45	81	431	0	1	3	16	27	98	461	
20:00	83		0		2		9		94	
20:15	89		0		1		6		96	
20:30	65		0		0		2		67	
20:45	69	306	0	4	7	1	18	74	331	
21:00	61		0		2		1		64	
21:15	67		0		1		1		69	
21:30	57		0		1		0		58	
21:45	39	224	0	1	5	0	2	40	231	
22:00	62		0		1		1		64	
22:15	32		0		0		1		33	
22:30	10		0		0		0		10	
22:45	24	128	0	0	1	0	2	24	131	
23:00	16		0		0		0		16	
23:15	12		0		0		0		12	
23:30	17		0		0		1		18	
23:45	10	55	0	0		0	1	10	56	
TOTALS		5705			60		236		6001	
SPLIT %		95.1%			1.0%		3.9%		70.0%	

DAILY TOTALS	NB	SB	EB	WB	Total
	8,107	0	103	360	8,570

AM Peak Hour	08:00			10:30	07:30	08:00	PM Peak Hour	16:30			14:15	13:45	16:30
AM Pk Volume	582			11	36	613	PM Pk Volume	844			11	41	874
Pk Hr Factor	0.831			0.688	0.750	0.842	Pk Hr Factor	0.894			0.550	0.513	0.914
7 - 9 Volume	947	0		12	47	1006	4 - 6 Volume	1544	0		9	54	1607
7 - 9 Peak Hour	08:00			07:15	07:30	08:00	4 - 6 Peak Hour	16:30			17:00	16:00	16:30
7 - 9 Pk Volume	582	0		8	36	613	4 - 6 Pk Volume	844	0		5	32	874
Pk Hr Factor	0.831	0.000		0.500	0.750	0.842	Pk Hr Factor	0.894	0.000		0.625	0.889	0.914

Prepared by NDS/ATD

VOLUME

Alameda de las Pulgas & Stockbridge Ave

Day: Thursday
Date: 4/26/2018

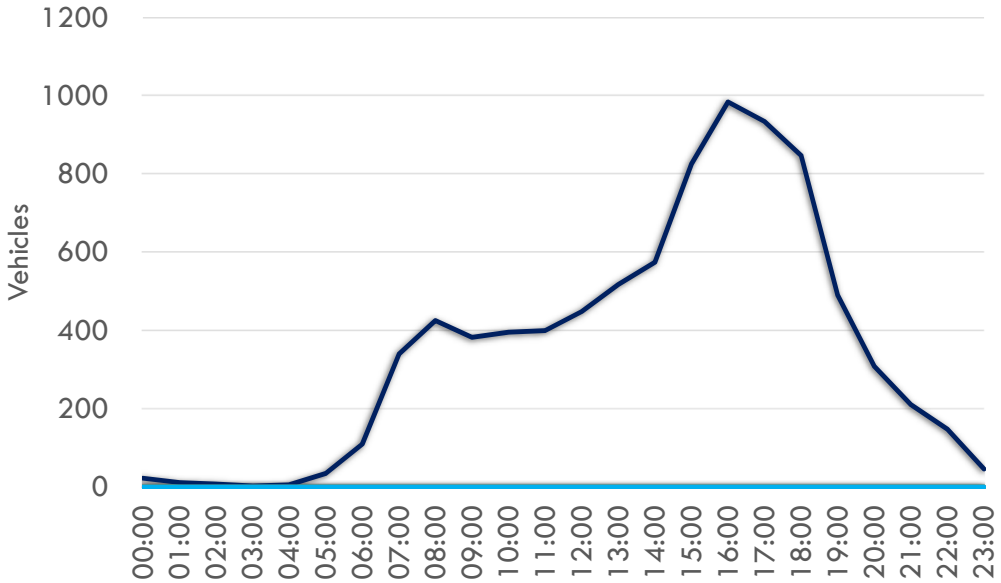
City: Atherton
Project #: CA18_8149_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	8,011	652	1,593	10,256

AM Period	NB	SB		EB		WB		TOTAL		PM Period	NB	SB		EB		WB		TOTAL	
00:00	0	7		0		0		7		12:00	0	105		6		19		130	
00:15	0	5		0		1		6		12:15	0	112		7		20		139	
00:30	0	1		0		1		2		12:30	0	118		11		17		146	
00:45	0	0	13	1	1	0	2	1	16	12:45	0	121	456	10	34	26	82	157	572
01:00	0	4		0		1		5		13:00	0	108		14		23		145	
01:15	0	4		0		0		4		13:15	0	125		9		21		155	
01:30	0	3		0		0		3		13:30	0	131		5		25		161	
01:45	0	4	15	0		0	1	4	16	13:45	0	103	467	6	34	19	88	128	589
02:00	0	2		0		0		2		14:00	0	118		7		35		160	
02:15	0	2		0		0		2		14:15	0	143		5		25		173	
02:30	0	2		0		0		2		14:30	0	148		15		17		180	
02:45	0	0	6	0		0		0	6	14:45	0	143	552	10	37	37	114	190	703
03:00	0	1		0		0		1		15:00	0	106		10		34		150	
03:15	0	4		0		0		4		15:15	0	171		32		30		233	
03:30	0	0		0		1		1		15:30	0	118		18		30		166	
03:45	0	1	6	0		0	1	1	7	15:45	0	147	542	22	82	37	131	206	755
04:00	0	0		0		2		2		16:00	0	122		11		30		163	
04:15	0	4		1		0		5		16:15	0	111		6		32		149	
04:30	0	4		0		1		5		16:30	0	118		10		38		166	
04:45	0	7	15	0	1	2	5	9	21	16:45	0	136	487	9	36	50	150	195	673
05:00	0	7		0		0		7		17:00	0	103		9		25		137	
05:15	0	22		0		2		24		17:15	0	135		11		39		185	
05:30	0	17		2		3		22		17:30	0	142		11		34		187	
05:45	0	31	77	0	2	2	7	33	86	17:45	0	154	534	7	38	30	128	191	700
06:00	0	23		0		5		28		18:00	0	137		7		27		171	
06:15	0	45		1		10		56		18:15	0	115		10		14		139	
06:30	0	83		2		9		94		18:30	0	98		4		22		124	
06:45	0	107	258	4	7	19	43	130	308	18:45	0	117	467	10	31	15	78	142	576
07:00	0	138		6		27		171		19:00	0	101		3		14		118	
07:15	0	203		26		36		265		19:15	0	88		7		13		108	
07:30	0	213		49		58		320		19:30	0	84		4		14		102	
07:45	0	206	760	38	119	70	191	314	1070	19:45	0	73	346	3	17	13	54	89	417
08:00	0	206		33		56		295		20:00	0	54		5		8		67	
08:15	0	221		25		44		290		20:15	0	41		2		9		52	
08:30	0	203		13		34		250		20:30	0	52		1		8		61	
08:45	0	208	838	17	88	35	169	260	1095	20:45	0	63	210	1	9	5	30	69	249
09:00	0	208		10		23		241		21:00	0	51		2		6		59	
09:15	0	170		16		31		217		21:15	0	38		2		12		52	
09:30	0	156		8		25		189		21:30	0	45		0		6		51	
09:45	0	179	713	6	40	20	99	205	852	21:45	0	24	158	1	5	2	26	27	189
10:00	0	125		5		23		153		22:00	0	28		0		6		34	
10:15	0	112		3		21		136		22:15	0	20		1		4		25	
10:30	0	112		7		16		135		22:30	0	29		1		2		32	
10:45	0	99	448	11	26	25	85	135	559	22:45	0	21	98	1	3	2	14	24	115
11:00	0	121		9		17		147		23:00	0	18		2		1		21	
11:15	0	97		7		25		129		23:15	0	10		0		4		14	
11:30	0	136		10		23		169		23:30	0	8		0		1		9	
11:45	0	143	497	13	39	22	87	178	623	23:45	0	12	48	1	3	2	8	15	59
TOTALS			3646		323		690		**4659**	**TOTALS**			4365		329		903		**5597**
SPLIT %			78.3%		6.9%		14.8%		**45.4%**	**SPLIT %**			78.0%		5.9%		16.1%		**54.6%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	8,011	652	1,593	10,256

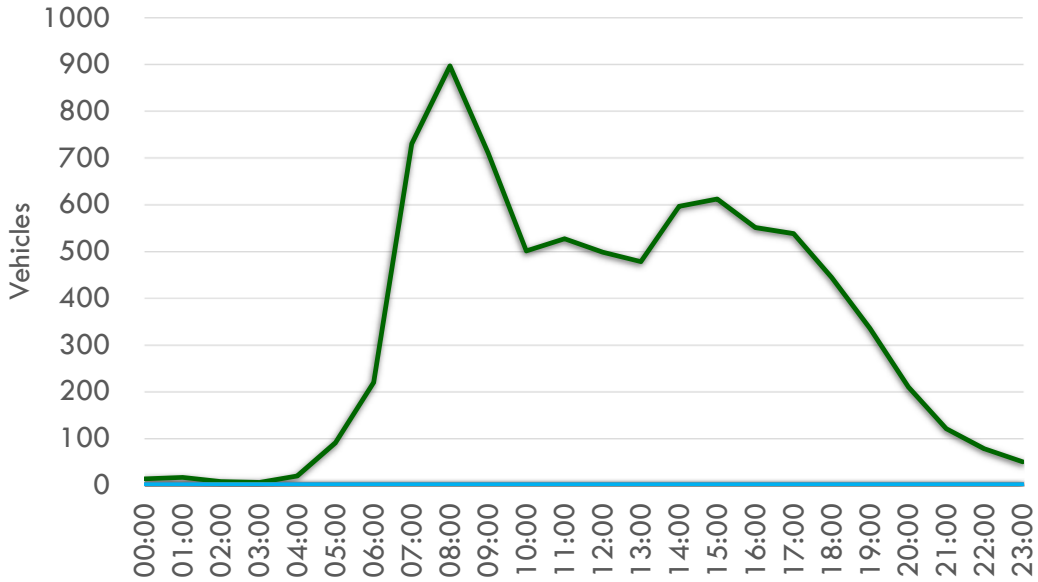
AM Peak Hour		07:30	07:15	07:30	**07:30**	**PM Peak Hour**		14:30	15:15	16:30	**15:15**
AM Pk Volume		846	146	228	**1219**	**PM Pk Volume**		568	83	152	**768**
Pk Hr Factor		0.957	0.745	0.814	**0.952**	**Pk Hr Factor**		0.830	0.648	0.760	**0.824**
7 - 9 Volume	0	1598	207	360	**2165**	**4 - 6 Volume**	0	1021	74	278	**1373**
7 - 9 Peak Hour		07:30	07:15	07:30	**07:30**	**4 - 6 Peak Hour**		17:00	16:45	16:30	**16:45**
7 - 9 Pk Volume	0	846	146	228	**1219**	**4 - 6 Pk Volume**	0	534	40	152	**704**
Pk Hr Factor	0.000	0.957	0.745	0.814	**0.952**	**Pk Hr Factor**	0.000	0.867	0.909	0.760	**0.903**



Northbound

AMG ADVANCED MOBILITY GROUP

Southbound



Redefining Mobility.

Appendix B Signal Warrant Analysis

Signal Warrant Analysis

Existing Conditions

DIST	CO	RTE	KPM				
	San Mateo			CALC	JL	DATE	7/23/2018
				CHK		DATE	

Major St: Alameda de las Pulgas — Critical Approach Speed 30 mph

Minor St: Stockbridge Avenue — Critical Approach Speed 25 mph

Critical speed of major street traffic > 64 km/h (40 mph)…… ☐ or ☐ RURAL (R)

In built up area of isolated community of < 10,000 population …….. ☑ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume

SATISFIED ☑ **YES** ☐ **NO**

Condition A - Minimum Vehicle Volume

100% SATISFIED ☐ **YES** ☑ **NO**

80 % SATISFIED ☐ **YES** ☑ **NO**

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	4:00 PM	5:00 PM	3:00 PM	6:00 PM	8:00 AM	2:00 pm	7:00 AM	9:00 AM	Hour
	1		2 or More										
Both Approaches	500	350	600	420	1472	1469	1368	1315	1264	1127	1100	1096	
Major Street	(400)	(280)	(480)	(336)	(1178)	(1175)	(1094)	(1052)	(1011)	(902)	(880)	(877)	
Highest Approaches	150	105	200	140	150	128	131	78	169	114	191	99	
Minor Street	(120)	(84)	(160)	(112)	(120)	(102)	(105)	(62)	(135)	(91)	(153)	(79)	

Condition B - Interruption of Continuous Traffic

100% SATISFIED ☑ **YES** ☐ **NO**

80 % SATISFIED ☑ **YES** ☐ **NO**

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U	R	U	R	4:00 PM	5:00 PM	3:00 PM	6:00 PM	8:00 AM	2:00 PM	7:00 AM	9:00 AM	Hour
	1		2 or More										
Both Approaches	750	525	900	630	1472	1469	1368	1315	1264	1127	1100	1096	
Major Street	(600)	(420)	(720)	(504)	(1178)	(1175)	(1094)	(1052)	(1011)	(902)	(880)	(877)	
Highest Approaches	75	53	100	70	150	128	131	78	169	114	191	99	
Minor Street	(60)	(42)	(80)	(56)	(120)	(102)	(105)	(62)	(135)	(91)	(153)	(79)	

Combination of Conditions A & B

SATISFIED ☐ **YES** ☑ **NO**

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 2 - Four Hour Vehicular Volume

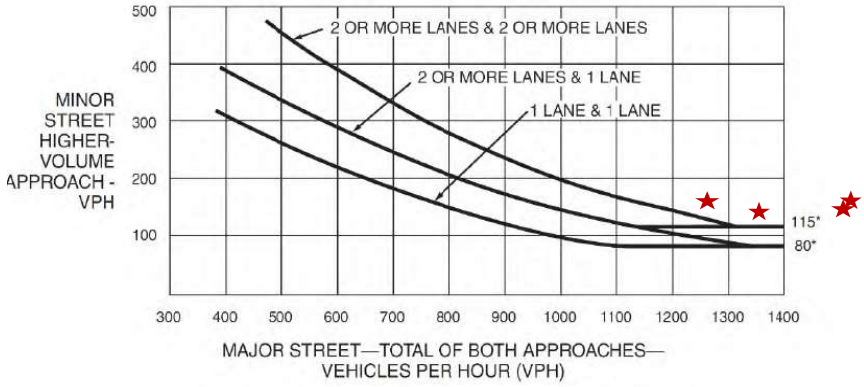
SATISFIED ☑ **YES** ☐ **NO**

Record hourly vehicular volumes for four hours

APPROACH LANES	One	2 or More	4:00 PM	5:00 PM	3:00 PM	8:00 AM	Hour
Both Approaches - Major Street	X		1472	1469	1368	1264	
Highest Approaches - Minor Street	X		150	128	131	169	

*All plotted points fall above the curves in MUTCD Figure 4C-1 or 4C-2. ☑ Yes ☐ No

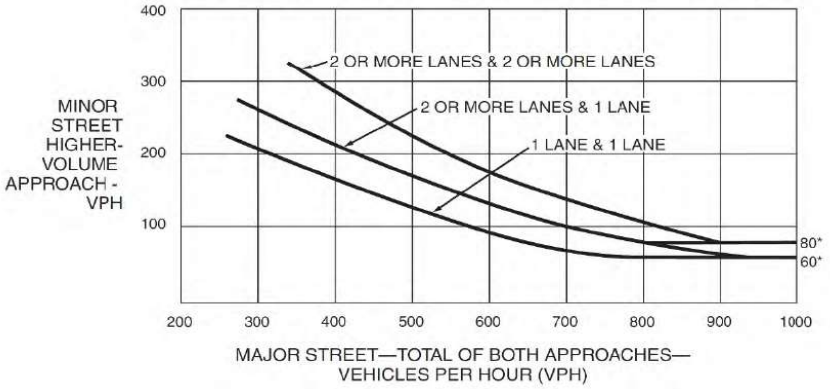
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

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



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

		AM Peak Hour		PM Peak Hour	
WARRANT 3 - Peak Hours	**PART A or PART B SATISFIED**	☑ **YES**	☐ **NO**	☑ **YES**	☐ **NO**
PART A	**SATISFIED**	☑ **YES**	☐ **NO**	☐ **YES**	☑ **NO**

(All parts, 1, 2 and 3 below must be satisfied)

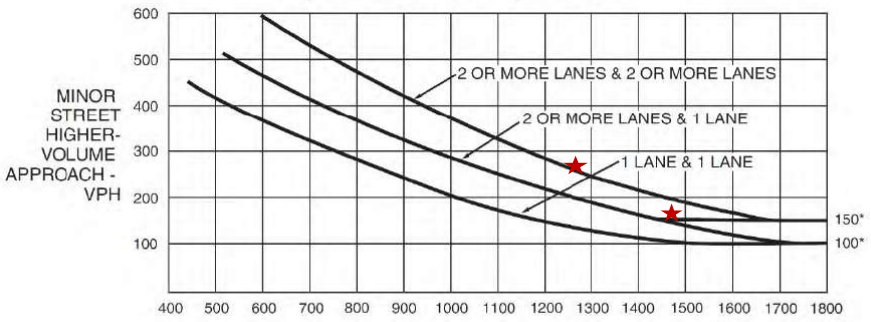
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane apprach; AND	☑ Yes	☐ No	☐ Yes	☑ No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes: AND	☑ Yes	☐ No	☑ Yes	☐ No
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☑ Yes	☐ No	☑ Yes	☐ No

PART B	**SATISFIED**	☑ **YES**	☐ **NO**	☑ **YES**	☐ **NO**

APPROACH LANES	One	2 or More	7:30 AM	4:30 PM		Hour
Both Approaches - Major Street	X		1262	1482		
Highest Approaches - Minor Street	X		267	166		

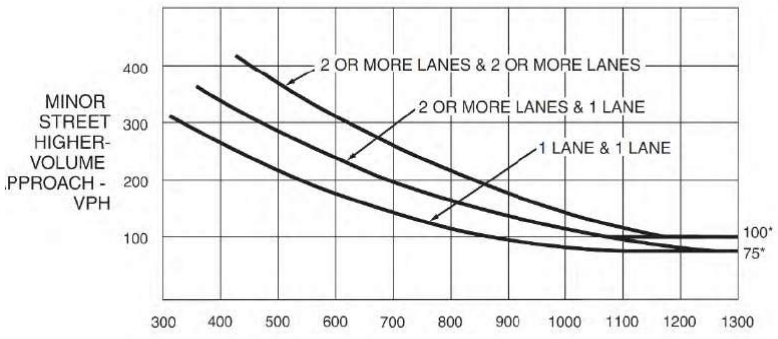
The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute fall above the applicable curves in MUTCD Figure 4C-3 or 4C-4.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Signal Warrant Analysis

Existing Conditions

DIST	CO	RTE	KPM				
	San Mateo			CALC	JL	DATE	7/23/2018
				CHK		DATE	

Major St: Alameda de las Pulgas — Critical Approach Speed 30 mph

Minor St: Camino Al Lago — Critical Approach Speed 25 mph

Critical speed of major street traffic > 64 km/h (40 mph)…… ☐

In built up area of isolated community of < 10,000 population …….. ☐

or } RURAL (R)

☑ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume

SATISFIED ☐ **YES** ☑ **NO**

Condition A - Minimum Vehicle Volume

100% SATISFIED ☐ **YES** ☑ **NO**

80 % SATISFIED ☐ **YES** ☑ **NO**

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U 1	R 1	U 2 or More	R 2 or More	8:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	2:00 PM	9:00 AM	7:00 AM	Hour
Both Approaches	500	350	600	420	1479	1352	1317	1316	1190	1125	1114	1095	
Major Street	(400)	(280)	(480)	(336)	(1183)	(1082)	(1054)	(1053)	(952)	(900)	(891)	(876)	
Highest Approaches	150	105	200	140	26	28	32	22	18	40	30	21	
Minor Street	(120)	(84)	(160)	(112)	(21)	(22)	(26)	(18)	(14)	(32)	(24)	(17)	

Condition B - Interruption of Continuous Traffic

100% SATISFIED ☐ **YES** ☑ **NO**

80 % SATISFIED ☐ **YES** ☑ **NO**

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U 1	R 1	U 2 or More	R 2 or More	8:00 AM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	2:00 PM	9:00 AM	7:00 AM	Hour
Both Approaches	750	525	900	630	1479	1352	1317	1316	1190	1125	1114	1095	
Major Street	(600)	(420)	(720)	(504)	(1183)	(1082)	(1054)	(1053)	(952)	(900)	(891)	(876)	
Highest Approaches	75	53	100	70	26	28	32	22	18	40	30	21	
Minor Street	(60)	(42)	(80)	(56)	(21)	(22)	(26)	(18)	(14)	(32)	(24)	(17)	

Combination of Conditions A & B

SATISFIED ☐ **YES** ☑ **NO**

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

WARRANT 2 - Four Hour Vehicular Volume

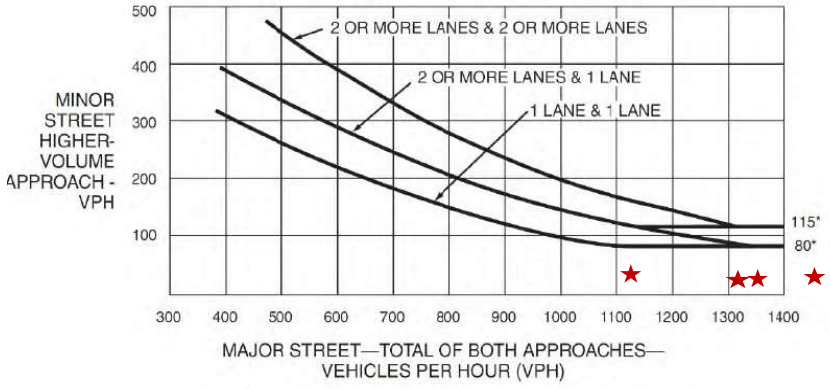
SATISFIED ☐ **YES** ☑ **NO**

Record hourly vehicular volumes for four hours

APPROACH LANES	One	2 or More	2:00 PM	4:00 PM	3:00 PM	8:00 AM	Hour
Both Approaches - Major Street	X		1125	1317	1352	1479	
Highest Approaches - Minor Street	X		40	32	28	26	

*All plotted points fall above the curves in MUTCD Figure 4C-1 or 4C-2. ☐ Yes ☑ No

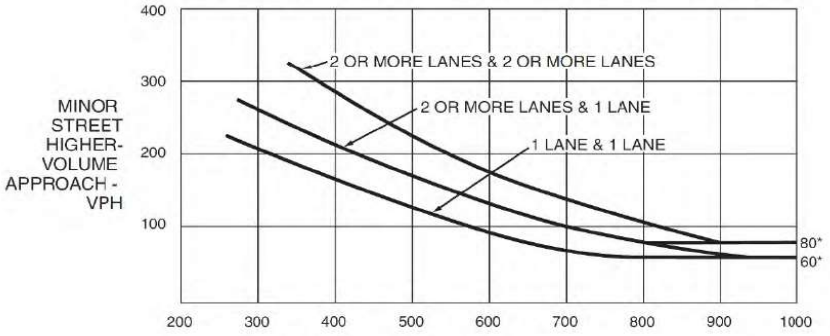
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

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



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

		AM Peak Hour		PM Peak Hour	
WARRANT 3 - Peak Hours	**PART A or PART B SATISFIED**	☐ YES	☑ NO	☐ YES	☑ NO
PART A	**SATISFIED**	☐ YES	☑ NO	☐ YES	☑ NO

(All parts, 1, 2 and 3 below must be satisfied)

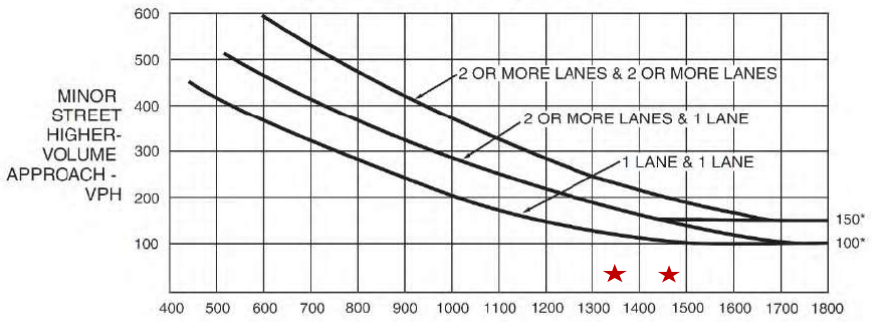
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane apprach; AND	☐ Yes	☑ No	☐ Yes	☑ No
2. The volume on the same minor street approach equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes: AND	☐ Yes	☑ No	☐ Yes	☑ No
3. The total entering volume services during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☑ Yes	☐ No	☑ Yes	☐ No

PART B	**SATISFIED**	☐ YES	☑ NO	☐ YES	☑ NO	

APPROACH LANES	One	2 or More	8:00 AM	4:30 PM		Hour
Both Approaches - Major Street	X		1463	1347		
Highest Approaches - Minor Street	X		30	31		

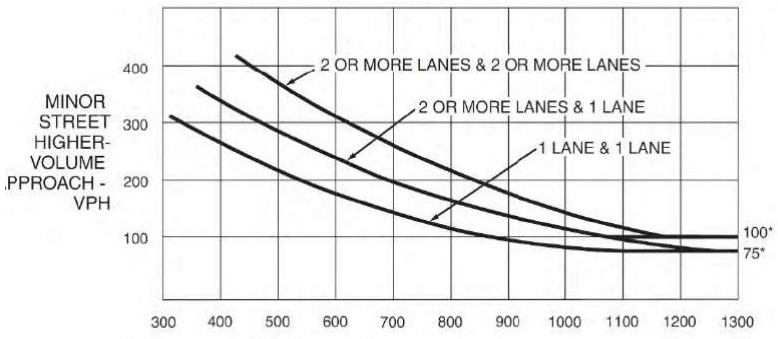
The plotted points for vehicles per hour on major streets (both approaches) and the corresponding per hour higher volume vehicle minor street approach (one direction only) for one hour (any consecutive 15 minute fall above the applicable curves in MUTCD Figure 4C-3 or 4C-4.

Figure 4C-3. Warrant 3, Peak Hour



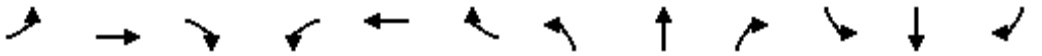
*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

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



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix C Intersection LOS Analysis: Existing LOS Calculation Sheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	1011	418	122	1450	43	449	148	125	49	206	357
Future Volume (vph)	126	1011	418	122	1450	43	449	148	125	49	206	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3353		1770	3521		3433	1863	1478	1770	1863	1493
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3353		1770	3521		3433	1863	1478	1770	1863	1493
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	131	1053	435	127	1510	45	468	154	130	51	215	372
RTOR Reduction (vph)	0	31	0	0	2	0	0	0	97	0	0	208
Lane Group Flow (vph)	131	1457	0	127	1553	0	468	154	33	51	215	164
Confl. Peds. (#/hr)	3		4	4		3	7		29	29		7
Confl. Bikes (#/hr)			1						12			25
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	13.8	59.6		13.3	59.1		20.1	31.3	31.3	7.8	19.0	19.0
Effective Green, g (s)	13.8	59.6		13.3	59.1		20.1	31.3	31.3	7.8	19.0	19.0
Actuated g/C Ratio	0.11	0.48		0.11	0.47		0.16	0.25	0.25	0.06	0.15	0.15
Clearance Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	195	1598		188	1664		552	466	370	110	283	226
v/s Ratio Prot	c0.07	0.43		0.07	c0.44		c0.14	0.08		0.03	c0.12	
v/s Ratio Perm									0.02			0.11
v/c Ratio	0.67	0.91		0.68	0.93		0.85	0.33	0.09	0.46	0.76	0.73
Uniform Delay, d1	53.4	30.3		53.8	31.1		51.0	38.3	35.9	56.6	50.8	50.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	9.4		7.3	11.1		11.1	0.2	0.0	1.1	9.9	9.4
Delay (s)	60.4	39.7		61.1	42.2		62.1	38.4	35.9	57.7	60.8	60.0
Level of Service	E	D		E	D		E	D	D	E	E	E
Approach Delay (s)		41.4			43.6			52.7			60.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	132	132	573	22	6	747
Future Volume (vph)	132	132	573	22	6	747
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.97		1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1638		1863	1548	1763	1863
Flt Permitted	0.98		1.00	1.00	0.33	1.00
Satd. Flow (perm)	1638		1863	1548	617	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	147	147	637	24	7	830
RTOR Reduction (vph)	46	0	0	5	0	0
Lane Group Flow (vph)	248	0	637	19	7	830
Confl. Peds. (#/hr)	123	31			6	
Confl. Bikes (#/hr)				4		
Turn Type	Prot		NA	Perm	Perm	NA
Protected Phases	4		2			2
Permitted Phases				2	2	
Actuated Green, G (s)	16.1		42.5	42.5	42.5	42.5
Effective Green, g (s)	16.1		42.5	42.5	42.5	42.5
Actuated g/C Ratio	0.24		0.63	0.63	0.63	0.63
Clearance Time (s)	4.2		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	391		1176	977	389	1176
v/s Ratio Prot	c0.15		0.34			c0.45
v/s Ratio Perm				0.01	0.01	
v/c Ratio	0.63		0.54	0.02	0.02	0.71
Uniform Delay, d1	23.0		6.9	4.6	4.6	8.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3		0.6	0.0	0.0	2.0
Delay (s)	26.3		7.5	4.6	4.6	10.3
Level of Service	C		A	A	A	B
Approach Delay (s)	26.3		7.4			10.2
Approach LOS	C		A			B

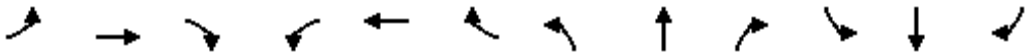
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	8.7
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	11	142	23	8	236	28	394	23	141	667	8
Future Volume (Veh/h)	4	11	142	23	8	236	28	394	23	141	667	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	4	12	160	26	9	265	31	443	26	158	749	9
Pedestrians		4										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		3.5										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1848	1604	758	1749	1596	456	762			469		
vC1, stage 1 conf vol	1074	1074		518	518							
vC2, stage 2 conf vol	774	531		1231	1078							
vCu, unblocked vol	1848	1604	758	1749	1596	456	762			469		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	94	61	65	96	56	96			86		
cM capacity (veh/h)	48	215	406	74	206	604	847			1093		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	176	300	31	469	158	758
Volume Left	4	26	31	0	158	0
Volume Right	160	265	0	26	0	9
cSH	330	360	847	1700	1093	1700
Volume to Capacity	0.53	0.83	0.04	0.28	0.14	0.45
Queue Length 95th (ft)	74	188	3	0	13	0
Control Delay (s)	27.7	49.3	9.4	0.0	8.9	0.0
Lane LOS	D	E	A		A	
Approach Delay (s)	27.7	49.3	0.6		1.5	
Approach LOS	D	E				

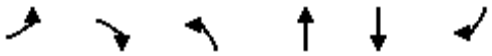
Intersection Summary				
Average Delay	11.3			
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	16	60	310	22	129	9	294	107	165	515	8
Future Volume (vph)	9	16	60	310	22	129	9	294	107	165	515	8
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	10	17	64	330	23	137	10	313	114	176	548	9

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	91	490	10	427	176	557
Volume Left (vph)	10	330	10	0	176	0
Volume Right (vph)	64	137	0	114	0	9
Hadj (s)	-0.37	0.00	0.53	-0.15	0.53	0.02
Departure Headway (s)	8.9	7.4	8.7	8.0	8.7	8.2
Degree Utilization, x	0.23	1.01	0.02	0.95	0.43	1.27
Capacity (veh/h)	392	485	410	446	420	449
Control Delay (s)	14.5	69.3	10.7	57.7	16.9	161.1
Approach Delay (s)	14.5	69.3	56.7		126.5	
Approach LOS	B	F	F		F	

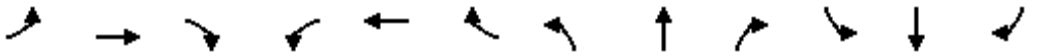
Intersection Summary				
Delay	87.2			
Level of Service	F			
Intersection Capacity Utilization	74.0%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	90	53	409	794	67
Future Volume (Veh/h)	31	90	53	409	794	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	32	92	54	417	810	68
Pedestrians	4					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)		1				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1373	848	882			
vC1, stage 1 conf vol	848					
vC2, stage 2 conf vol	525					
vCu, unblocked vol	1373	848	882			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	74	93			
cM capacity (veh/h)	353	360	764			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	124	54	417	878
Volume Left	32	54	0	0
Volume Right	92	0	0	68
cSH	485	764	1700	1700
Volume to Capacity	0.26	0.07	0.25	0.52
Queue Length 95th (ft)	25	6	0	0
Control Delay (s)	17.8	10.1	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	17.8	1.2		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	7	19	0	11	6	415	150	46	834	12
Future Volume (Veh/h)	1	0	7	19	0	11	6	415	150	46	834	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	0	7	20	0	12	6	437	158	48	878	13
Pedestrians		10			4			6			3	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		1			0			1			0	
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1454	1602	900	1519	1529	523	901			599		
vC1, stage 1 conf vol	990	990		532	532							
vC2, stage 2 conf vol	464	611		987	997							
vCu, unblocked vol	1454	1602	900	1519	1529	523	901			599		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	92	100	98	99			95		
cM capacity (veh/h)	252	259	332	244	267	550	747			974		

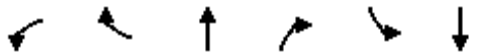
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	32	6	595	48	891
Volume Left	1	20	6	0	48	0
Volume Right	7	12	0	158	0	13
cSH	319	309	747	1700	974	1700
Volume to Capacity	0.03	0.10	0.01	0.35	0.05	0.52
Queue Length 95th (ft)	2	9	1	0	4	0
Control Delay (s)	16.6	18.0	9.9	0.0	8.9	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	16.6	18.0	0.1		0.5	
Approach LOS	C	C				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	58.1%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	46	8	154	71	91	7	409	113	167	636	19
Future Volume (vph)	25	46	8	154	71	91	7	409	113	167	636	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1803			1729		1766	1793		1768	1852	
Flt Permitted		0.86			0.82		0.26	1.00		0.35	1.00	
Satd. Flow (perm)		1568			1451		484	1793		660	1852	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	27	51	9	169	78	100	8	449	124	184	699	21
RTOR Reduction (vph)	0	5	0	0	19	0	0	9	0	0	1	0
Lane Group Flow (vph)	0	82	0	0	328	0	8	564	0	184	719	0
Confl. Peds. (#/hr)	1		5	5		1	4		1	1		4
Confl. Bikes (#/hr)						1			4			30
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)		25.5			25.5		55.3	55.3		55.3	55.3	
Effective Green, g (s)		25.5			25.5		55.3	55.3		55.3	55.3	
Actuated g/C Ratio		0.28			0.28		0.61	0.61		0.61	0.61	
Clearance Time (s)		4.6			4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		444			411		297	1101		405	1137	
v/s Ratio Prot								0.31			c0.39	
v/s Ratio Perm		0.05			c0.23		0.02			0.28		
v/c Ratio		0.18			0.80		0.03	0.51		0.45	0.63	
Uniform Delay, d1		24.4			29.9		6.8	9.8		9.3	10.9	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			10.4		0.2	1.7		3.6	2.7	
Delay (s)		24.6			40.3		7.0	11.5		12.9	13.6	
Level of Service		C			D		A	B		B	B	
Approach Delay (s)		24.6			40.3			11.4			13.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

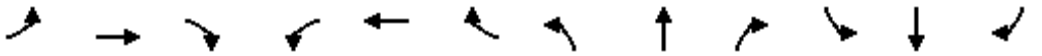
c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	25	437	0	0	884
Future Volume (Veh/h)	33	25	437	0	0	884
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	34	26	446	0	0	902
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1348	446			446	
vC1, stage 1 conf vol	446					
vC2, stage 2 conf vol	902					
vCu, unblocked vol	1348	446			446	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	96			100	
cM capacity (veh/h)	356	612			1114	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	34	26	446	902
Volume Left	34	0	0	0
Volume Right	0	26	0	0
cSH	356	612	1700	1700
Volume to Capacity	0.10	0.04	0.26	0.53
Queue Length 95th (ft)	8	3	0	0
Control Delay (s)	16.2	11.1	0.0	0.0
Lane LOS	C	B		
Approach Delay (s)	14.0		0.0	0.0
Approach LOS	B			

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1205	328	122	1076	43	598	250	131	29	132	114
Future Volume (vph)	205	1205	328	122	1076	43	598	250	131	29	132	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3409		1770	3519		3433	1863	1525	1770	1863	1539
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3409		1770	3519		3433	1863	1525	1770	1863	1539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	209	1230	335	124	1098	44	610	255	134	30	135	116
RTOR Reduction (vph)	0	17	0	0	2	0	0	0	98	0	0	104
Lane Group Flow (vph)	209	1548	0	124	1140	0	610	255	36	30	135	12
Confl. Peds. (#/hr)			1	1			1		4	4		1
Confl. Bikes (#/hr)									22			7
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	16.9	67.2		13.5	63.8		26.9	35.8	35.8	5.5	14.4	14.4
Effective Green, g (s)	16.9	67.2		13.5	63.8		26.9	35.8	35.8	5.5	14.4	14.4
Actuated g/C Ratio	0.13	0.50		0.10	0.47		0.20	0.27	0.27	0.04	0.11	0.11
Clearance Time (s)	3.0	4.0		3.0	4.0		3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	221	1696		177	1663		684	494	404	72	198	164
v/s Ratio Prot	c0.12	c0.45		0.07	0.32		c0.18	0.14		0.02	c0.07	
v/s Ratio Perm									0.02			0.01
v/c Ratio	0.95	0.91		0.70	0.69		0.89	0.52	0.09	0.42	0.68	0.08
Uniform Delay, d1	58.6	31.2		58.8	27.8		52.6	42.2	37.3	63.2	58.1	54.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.7	9.0		9.8	2.3		13.6	0.4	0.0	1.4	7.5	0.1
Delay (s)	103.3	40.3		68.6	30.1		66.2	42.6	37.4	64.6	65.6	54.4
Level of Service	F	D		E	C		E	D	D	E	E	D
Approach Delay (s)		47.7			33.9			56.3			60.8	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	27	1007	18	16	510
Future Volume (vph)	13	27	1007	18	16	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.97		1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.91		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1616		1863	1545	1770	1863
Flt Permitted	0.98		1.00	1.00	0.23	1.00
Satd. Flow (perm)	1616		1863	1545	433	1863
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	28	1038	19	16	526
RTOR Reduction (vph)	27	0	0	1	0	0
Lane Group Flow (vph)	14	0	1038	18	16	526
Confl. Peds. (#/hr)	21	13				
Confl. Bikes (#/hr)				9		
Turn Type	Prot		NA	Perm	Perm	NA
Protected Phases	4		2			2
Permitted Phases				2	2	
Actuated Green, G (s)	4.1		64.9	64.9	64.9	64.9
Effective Green, g (s)	4.1		64.9	64.9	64.9	64.9
Actuated g/C Ratio	0.05		0.84	0.84	0.84	0.84
Clearance Time (s)	4.2		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	85		1556	1290	361	1556
v/s Ratio Prot	c0.01		c0.56			0.28
v/s Ratio Perm				0.01	0.04	
v/c Ratio	0.17		0.67	0.01	0.04	0.34
Uniform Delay, d1	35.2		2.4	1.1	1.1	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0		1.1	0.0	0.1	0.2
Delay (s)	36.1		3.5	1.1	1.2	1.6
Level of Service	D		A	A	A	A
Approach Delay (s)	36.1		3.5			1.6
Approach LOS	D		A			A

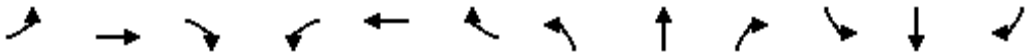
Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	8.7
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	7	31	13	9	144	47	907	43	82	399	4
Future Volume (Veh/h)	5	7	31	13	9	144	47	907	43	82	399	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	7	33	14	9	152	49	955	45	86	420	4
Pedestrians					11			2			2	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					1			0			0	
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1806	1703	424	1717	1682	990	424			1011		
vC1, stage 1 conf vol	594	594		1086	1086							
vC2, stage 2 conf vol	1212	1109		630	596							
vCu, unblocked vol	1806	1703	424	1717	1682	990	424			1011		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	96	95	93	96	49	96			87		
cM capacity (veh/h)	25	173	629	200	230	295	1135			678		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	45	175	49	1000	86	424
Volume Left	5	14	49	0	86	0
Volume Right	33	152	0	45	0	4
cSH	153	280	1135	1700	678	1700
Volume to Capacity	0.29	0.62	0.04	0.59	0.13	0.25
Queue Length 95th (ft)	29	96	3	0	11	0
Control Delay (s)	37.9	37.0	8.3	0.0	11.1	0.0
Lane LOS	E	E	A		B	
Approach Delay (s)	37.9	37.0	0.4		1.9	
Approach LOS	E	E				

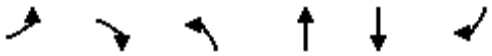
Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	77.4%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	9	11	131	13	458	5	524	59	101	341	6
Future Volume (vph)	9	9	11	131	13	458	5	524	59	101	341	6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	9	9	11	134	13	467	5	535	60	103	348	6

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	29	614	5	595	103	354
Volume Left (vph)	9	134	5	0	103	0
Volume Right (vph)	11	467	0	60	0	6
Hadj (s)	-0.13	-0.38	0.53	-0.04	0.53	0.02
Departure Headway (s)	8.8	6.5	8.0	7.5	8.2	7.7
Degree Utilization, x	0.07	1.10	0.01	1.23	0.24	0.76
Capacity (veh/h)	388	551	441	489	431	458
Control Delay (s)	12.5	94.2	9.9	144.6	12.6	30.2
Approach Delay (s)	12.5	94.2	143.5		26.2	
Approach LOS	B	F	F		D	

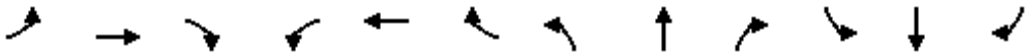
Intersection Summary				
Delay	91.9			
Level of Service	F			
Intersection Capacity Utilization	89.6%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	67	59	566	477	32
Future Volume (Veh/h)	31	67	59	566	477	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	73	64	615	518	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		1				
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1278	536	553			
vC1, stage 1 conf vol	536					
vC2, stage 2 conf vol	743					
vCu, unblocked vol	1278	536	553			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	87	94			
cM capacity (veh/h)	377	545	1017			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	107	64	615	553
Volume Left	34	64	0	0
Volume Right	73	0	0	35
cSH	799	1017	1700	1700
Volume to Capacity	0.13	0.06	0.36	0.33
Queue Length 95th (ft)	12	5	0	0
Control Delay (s)	13.5	8.8	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	13.5	0.8		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	4	20	0	11	3	610	157	35	539	3
Future Volume (Veh/h)	1	2	4	20	0	11	3	610	157	35	539	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	2	4	21	0	12	3	649	167	37	573	3
Pedestrians		1									1	
Lane Width (ft)		12.0									12.0	
Walking Speed (ft/s)		3.5									3.5	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1318	1472	576	1390	1390	734	577			816		
vC1, stage 1 conf vol	650	650		738	738							
vC2, stage 2 conf vol	668	822		652	651							
vCu, unblocked vol	1318	1472	576	1390	1390	734	577			816		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	99	93	100	97	100			95		
cM capacity (veh/h)	311	291	517	309	325	420	996			812		

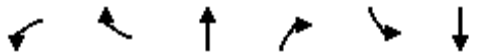
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	7	33	3	816	37	576
Volume Left	1	21	3	0	37	0
Volume Right	4	12	0	167	0	3
cSH	392	342	996	1700	812	1700
Volume to Capacity	0.02	0.10	0.00	0.48	0.05	0.34
Queue Length 95th (ft)	1	8	0	0	4	0
Control Delay (s)	14.3	16.7	8.6	0.0	9.6	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.3	16.7	0.0		0.6	
Approach LOS	B	C				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	28	4	176	49	174	7	613	124	124	386	16
Future Volume (vph)	16	28	4	176	49	174	7	613	124	124	386	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.6	4.6		4.6	4.6	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.94		1.00	0.97		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1808			1691		1768	1806		1770	1850	
Flt Permitted		0.87			0.83		0.44	1.00		0.19	1.00	
Satd. Flow (perm)		1592			1441		817	1806		352	1850	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	30	4	189	53	187	8	659	133	133	415	17
RTOR Reduction (vph)	0	3	0	0	33	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	48	0	0	396	0	8	785	0	133	431	0
Confl. Peds. (#/hr)	3		3	3		3	1					1
Confl. Bikes (#/hr)			1			2			19			6
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			6			2	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)		28.7			28.7		52.1	52.1		52.1	52.1	
Effective Green, g (s)		28.7			28.7		52.1	52.1		52.1	52.1	
Actuated g/C Ratio		0.32			0.32		0.58	0.58		0.58	0.58	
Clearance Time (s)		4.6			4.6		4.6	4.6		4.6	4.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		507			459		472	1045		203	1070	
v/s Ratio Prot								c0.43			0.23	
v/s Ratio Perm		0.03			c0.27		0.01			0.38		
v/c Ratio		0.10			0.86		0.02	0.75		0.66	0.40	
Uniform Delay, d1		21.5			28.8		8.1	14.1		12.9	10.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			15.3		0.1	5.0		15.3	1.1	
Delay (s)		21.6			44.0		8.1	19.1		28.2	11.5	
Level of Service		C			D		A	B		C	B	
Approach Delay (s)		21.6			44.0			19.0			15.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.2
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	5	620	0	0	544
Future Volume (Veh/h)	18	5	620	0	0	544
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	5	674	0	0	591
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1265	674			674	
vC1, stage 1 conf vol	674					
vC2, stage 2 conf vol	591					
vCu, unblocked vol	1265	674			674	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	404	455			917	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	20	5	674	591
Volume Left	20	0	0	0
Volume Right	0	5	0	0
cSH	404	455	1700	1700
Volume to Capacity	0.05	0.01	0.40	0.35
Queue Length 95th (ft)	4	1	0	0
Control Delay (s)	14.4	13.0	0.0	0.0
Lane LOS	B	B		
Approach Delay (s)	14.1		0.0	0.0
Approach LOS	B			

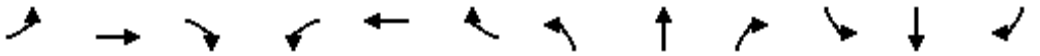
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D Intersection LOS Analysis: Alternative 1 – Signal/Protected Left-Turn Lane LOS Calculation Sheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	11	142	23	8	236	28	394	23	141	667	8
Future Volume (vph)	4	11	142	23	8	236	28	394	23	141	667	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		5.1	5.1	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.88			0.88		1.00	0.99		1.00	1.00	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1600			1634		1767	1845		1770	1858	
Flt Permitted		0.99			0.96		0.23	1.00		0.45	1.00	
Satd. Flow (perm)		1589			1572		432	1845		841	1858	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	4	12	160	26	9	265	31	443	26	158	749	9
RTOR Reduction (vph)	0	124	0	0	205	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	52	0	0	95	0	31	465	0	158	757	0
Confl. Peds. (#/hr)							4					4
Confl. Bikes (#/hr)			1						6			28
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		9.6			9.6		23.2	23.2		22.8	22.8	
Effective Green, g (s)		9.6			9.6		23.2	23.2		22.8	22.8	
Actuated g/C Ratio		0.23			0.23		0.55	0.55		0.54	0.54	
Clearance Time (s)		4.6			4.6		4.7	4.7		5.1	5.1	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		362			358		238	1016		455	1006	
v/s Ratio Prot								0.25			c0.41	
v/s Ratio Perm		0.03			c0.06		0.07			0.19		
v/c Ratio		0.14			0.27		0.13	0.46		0.35	0.75	
Uniform Delay, d1		13.0			13.4		4.6	5.7		5.4	7.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.4		0.2	0.3		0.5	3.2	
Delay (s)		13.2			13.8		4.8	6.0		5.9	10.7	
Level of Service		B			B		A	A		A	B	
Approach Delay (s)		13.2			13.8			5.9			9.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	42.1	Sum of lost time (s)	9.7
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	16	60	310	22	129	9	294	107	165	515	8
Future Volume (vph)	9	16	60	310	22	129	9	294	107	165	515	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.96		1.00	0.96		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1677			1734		1767	1775		1768	1857	
Flt Permitted		0.95			0.74		0.24	1.00		0.38	1.00	
Satd. Flow (perm)		1596			1331		452	1775		715	1857	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	17	64	330	23	137	10	313	114	176	548	9
RTOR Reduction (vph)	0	37	0	0	24	0	0	22	0	0	1	0
Lane Group Flow (vph)	0	54	0	0	466	0	10	405	0	176	556	0
Confl. Peds. (#/hr)							3		1	1		3
Confl. Bikes (#/hr)									6			28
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		22.0			22.0		20.0	20.0		20.0	20.0	
Effective Green, g (s)		22.0			22.0		20.0	20.0		20.0	20.0	
Actuated g/C Ratio		0.43			0.43		0.39	0.39		0.39	0.39	
Clearance Time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		684			570		176	692		278	723	
v/s Ratio Prot								0.23			c0.30	
v/s Ratio Perm		0.03			c0.35		0.02			0.25		
v/c Ratio		0.08			0.82		0.06	0.59		0.63	0.77	
Uniform Delay, d1		8.7			12.9		9.8	12.4		12.7	13.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			8.9		0.1	1.3		4.7	4.9	
Delay (s)		8.7			21.8		9.9	13.6		17.3	18.6	
Level of Service		A			C		A	B		B	B	
Approach Delay (s)		8.7			21.8			13.6			18.3	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	9.3
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	7	19	0	11	6	415	150	46	834	12
Future Volume (vph)	1	0	7	19	0	11	6	415	150	46	834	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.88			0.95		1.00	0.96		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1592			1691		1763	1774		1765	1857	
Flt Permitted		0.95			1.00		0.27	1.00		0.43	1.00	
Satd. Flow (perm)		1522			1744		510	1774		794	1857	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	0	7	20	0	12	6	437	158	48	878	13
RTOR Reduction (vph)	0	8	0	0	28	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	4	0	6	584	0	48	891	0
Confl. Peds. (#/hr)	3		6	6		3	10		4	4		10
Confl. Bikes (#/hr)									8			39
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		2.4			2.4		38.2	38.2		38.2	38.2	
Effective Green, g (s)		2.4			2.4		38.2	38.2		38.2	38.2	
Actuated g/C Ratio		0.05			0.05		0.77	0.77		0.77	0.77	
Clearance Time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		73			83		390	1358		607	1421	
v/s Ratio Prot								0.33			c0.48	
v/s Ratio Perm		0.00			c0.00		0.01			0.06		
v/c Ratio		0.01			0.05		0.02	0.43		0.08	0.63	
Uniform Delay, d1		22.6			22.7		1.4	2.0		1.5	2.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			0.3		0.0	0.2		0.1	0.9	
Delay (s)		22.6			22.9		1.4	2.3		1.5	3.5	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		22.6			22.9			2.3			3.4	
Approach LOS		C			C			A			A	

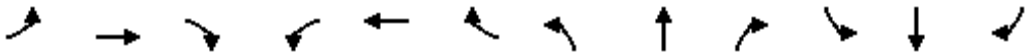
Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	9.3
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	46	8	154	71	91	7	409	113	167	636	19
Future Volume (vph)	25	46	8	154	71	91	7	409	113	167	636	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.96		1.00	0.97		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1803			1729		1770	1792		1770	1852	
Flt Permitted		0.85			0.82		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1556			1451		1770	1792		1770	1852	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	27	51	9	169	78	100	8	449	124	184	699	21
RTOR Reduction (vph)	0	5	0	0	17	0	0	10	0	0	1	0
Lane Group Flow (vph)	0	82	0	0	330	0	8	563	0	184	719	0
Confl. Peds. (#/hr)	1		5	5		1	4		1	1		4
Confl. Bikes (#/hr)						1			4			30
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		23.8			23.8		1.0	40.6		12.4	52.0	
Effective Green, g (s)		23.8			23.8		1.0	40.6		12.4	52.0	
Actuated g/C Ratio		0.26			0.26		0.01	0.45		0.14	0.58	
Clearance Time (s)		4.6			4.6		4.0	4.6		4.0	4.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		411			383		19	808		243	1070	
v/s Ratio Prot							0.00	0.31		c0.10	c0.39	
v/s Ratio Perm		0.05			c0.23							
v/c Ratio		0.20			0.86		0.42	0.70		0.76	0.67	
Uniform Delay, d1		25.7			31.5		44.2	19.8		37.4	13.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			17.7		14.4	4.9		12.6	3.4	
Delay (s)		25.9			49.2		58.6	24.7		50.0	16.5	
Level of Service		C			D		E	C		D	B	
Approach Delay (s)		25.9			49.2			25.2			23.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	7	31	13	9	144	47	907	43	82	399	4
Future Volume (vph)	5	7	31	13	9	144	47	907	43	82	399	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		5.1	5.1	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.90			0.88		1.00	0.99		1.00	1.00	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1640			1604		1770	1846		1770	1860	
Flt Permitted		0.97			0.97		0.51	1.00		0.16	1.00	
Satd. Flow (perm)		1601			1567		942	1846		298	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	5	7	33	14	9	152	49	955	45	86	420	4
RTOR Reduction (vph)	0	28	0	0	114	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	61	0	49	998	0	86	424	0
Confl. Peds. (#/hr)	2		2	2		2			11	11		
Confl. Bikes (#/hr)									18			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		9.1			9.1		39.4	39.4		39.0	39.0	
Effective Green, g (s)		9.1			9.1		39.4	39.4		39.0	39.0	
Actuated g/C Ratio		0.16			0.16		0.68	0.68		0.67	0.67	
Clearance Time (s)		4.6			4.6		4.7	4.7		5.1	5.1	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		252			246		642	1258		201	1255	
v/s Ratio Prot								c0.54			0.23	
v/s Ratio Perm		0.01			c0.04		0.05			0.29		
v/c Ratio		0.07			0.25		0.08	0.79		0.43	0.34	
Uniform Delay, d1		20.7			21.4		3.1	6.4		4.3	4.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.5		0.1	3.5		1.5	0.2	
Delay (s)		20.9			21.9		3.1	9.9		5.8	4.1	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		20.9			21.9			9.6			4.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	9.7
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	9	11	131	13	458	5	524	59	101	341	6
Future Volume (vph)	9	9	11	131	13	458	5	524	59	101	341	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.90		1.00	0.98		1.00	1.00	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1740			1653		1770	1828		1770	1857	
Flt Permitted		0.86			0.92		0.48	1.00		0.23	1.00	
Satd. Flow (perm)		1513			1538		903	1828		437	1857	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	9	9	11	134	13	467	5	535	60	103	348	6
RTOR Reduction (vph)	0	7	0	0	128	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	22	0	0	486	0	5	588	0	103	353	0
Confl. Bikes (#/hr)									19			9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		19.8			19.8		20.7	20.7		20.7	20.7	
Effective Green, g (s)		19.8			19.8		20.7	20.7		20.7	20.7	
Actuated g/C Ratio		0.40			0.40		0.42	0.42		0.42	0.42	
Clearance Time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		601			611		375	759		181	771	
v/s Ratio Prot								c0.32			0.19	
v/s Ratio Perm		0.01			c0.32		0.01			0.24		
v/c Ratio		0.04			0.79		0.01	0.77		0.57	0.46	
Uniform Delay, d1		9.2			13.2		8.5	12.5		11.1	10.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0			7.1		0.0	5.0		4.1	0.4	
Delay (s)		9.2			20.3		8.6	17.5		15.2	10.9	
Level of Service		A			C		A	B		B	B	
Approach Delay (s)		9.2			20.3			17.4			11.9	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	9.3
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	4	20	0	11	3	610	157	35	539	3
Future Volume (vph)	1	2	4	20	0	11	3	610	157	35	539	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	0.97		1.00	1.00	
Flt Protected		0.99			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1707			1703		1768	1795		1770	1861	
Flt Permitted		0.94			1.00		0.44	1.00		0.30	1.00	
Satd. Flow (perm)		1620			1758		812	1795		565	1861	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	2	4	21	0	12	3	649	167	37	573	3
RTOR Reduction (vph)	0	4	0	0	29	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	4	0	3	808	0	37	576	0
Confl. Peds. (#/hr)	1					1	1					1
Confl. Bikes (#/hr)									19			10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		2.5			2.5		33.2	33.2		33.2	33.2	
Effective Green, g (s)		2.5			2.5		33.2	33.2		33.2	33.2	
Actuated g/C Ratio		0.06			0.06		0.74	0.74		0.74	0.74	
Clearance Time (s)		4.6			4.6		4.7	4.7		4.7	4.7	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		90			97		599	1324		416	1373	
v/s Ratio Prot								c0.45			0.31	
v/s Ratio Perm		0.00			c0.00		0.00			0.07		
v/c Ratio		0.04			0.04		0.01	0.61		0.09	0.42	
Uniform Delay, d1		20.1			20.1		1.6	2.8		1.7	2.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.2		0.0	0.8		0.1	0.2	
Delay (s)		20.3			20.3		1.6	3.6		1.7	2.4	
Level of Service		C			C		A	A		A	A	
Approach Delay (s)		20.3			20.3			3.6			2.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	28	4	176	49	174	7	613	124	124	386	16
Future Volume (vph)	16	28	4	176	49	174	7	613	124	124	386	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6			4.6		4.0	4.6		4.0	4.6	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.99			0.94		1.00	0.97		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1808			1690		1770	1805		1770	1850	
Flt Permitted		0.86			0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1574			1441		1770	1805		1770	1850	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	30	4	189	53	187	8	659	133	133	415	17
RTOR Reduction (vph)	0	3	0	0	31	0	0	8	0	0	1	0
Lane Group Flow (vph)	0	48	0	0	398	0	8	784	0	133	431	0
Confl. Peds. (#/hr)	3		3	3		3	1					1
Confl. Bikes (#/hr)			1			2			19			6
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		1	6		5	2	
Permitted Phases	4			4								
Actuated Green, G (s)		26.0			26.0		1.0	43.4		7.4	49.8	
Effective Green, g (s)		26.0			26.0		1.0	43.4		7.4	49.8	
Actuated g/C Ratio		0.29			0.29		0.01	0.48		0.08	0.55	
Clearance Time (s)		4.6			4.6		4.0	4.6		4.0	4.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		454			416		19	870		145	1023	
v/s Ratio Prot							0.00	c0.43		c0.08	0.23	
v/s Ratio Perm		0.03			c0.28							
v/c Ratio		0.11			0.96		0.42	0.90		0.92	0.42	
Uniform Delay, d1		23.5			31.4		44.2	21.3		41.0	11.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			32.7		14.4	14.2		50.2	1.3	
Delay (s)		23.6			64.1		58.6	35.6		91.2	13.0	
Level of Service		C			E		E	D		F	B	
Approach Delay (s)		23.6			64.1			35.8			31.4	
Approach LOS		C			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Appendix E Intersection LOS Analysis: Alternative 2 - Roundabout LOS Calculation Sheets

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	176	300	500	916
Demand Flow Rate, veh/h	179	306	511	934
Vehicles Circulating, veh/h	952	488	177	68
Vehicles Exiting, veh/h	50	200	954	726
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	4	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	16.2	11.6	9.9	14.1
Approach LOS	C	B	A	B

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	L	TR	L	TR
Assumed Moves	LTR	LTR	L	TR	L	TR
RT Channelized						
Lane Util	1.000	1.000	0.063	0.937	0.172	0.828
Critical Headway, s	5.193	5.193	5.193	5.193	5.193	5.193
Entry Flow, veh/h	179	306	32	479	161	773
Cap Entry Lane, veh/h	436	694	947	947	1056	1056
Entry HV Adj Factor	0.982	0.980	0.969	0.979	0.981	0.981
Flow Entry, veh/h	176	300	31	469	158	758
Cap Entry, veh/h	428	680	917	927	1036	1035
V/C Ratio	0.410	0.441	0.034	0.506	0.153	0.732
Control Delay, s/veh	16.2	11.6	4.2	10.3	4.9	16.0
LOS	C	B	A	B	A	C
95th %tile Queue, veh	2	2	0	3	1	7

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	91	490	437	733
Demand Flow Rate, veh/h	92	500	445	748
Vehicles Circulating, veh/h	1076	339	207	370
Vehicles Exiting, veh/h	42	313	961	329
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	3	1	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.6	7.5	9.8	16.8
Approach LOS	B	A	A	C

Lane	Left	Left	Bypass	Left	Right	Left	Right
Designated Moves	LTR	LT	R	L	TR	L	TR
Assumed Moves	LTR	LT	R	L	TR	L	TR
RT Channelized			Free				
Lane Util	1.000	1.000		0.022	0.978	0.241	0.759
Critical Headway, s	5.193	5.193		5.193	5.193	5.193	5.193
Entry Flow, veh/h	92	360	140	10	435	180	568
Cap Entry Lane, veh/h	385	805	1938	919	919	780	780
Entry HV Adj Factor	0.986	0.979	0.980	1.000	0.981	0.978	0.981
Flow Entry, veh/h	91	353	137	10	427	176	557
Cap Entry, veh/h	380	788	1900	919	901	763	765
V/C Ratio	0.239	0.447	0.072	0.011	0.474	0.231	0.728
Control Delay, s/veh	13.6	10.4	0.0	4.0	9.9	7.3	19.8
LOS	B	B	A	A	A	A	C
95th %tile Queue, veh	1	2	0	0	3	1	6

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	8	32	601	939
Demand Flow Rate, veh/h	8	32	613	958
Vehicles Circulating, veh/h	965	453	50	26
Vehicles Exiting, veh/h	19	210	923	459
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	10	4	6	3
Ped Cap Adj	1.000	0.999	0.993	0.997
Approach Delay, s/veh	8.6	5.5	10.6	20.3
Approach LOS	A	A	B	C

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	L	TR	L	TR
Assumed Moves	LTR	LTR	L	TR	L	TR
RT Channelized						
Lane Util	1.000	1.000	0.010	0.990	0.051	0.949
Critical Headway, s	5.193	5.193	5.193	5.193	5.193	5.193
Entry Flow, veh/h	8	32	6	607	49	909
Cap Entry Lane, veh/h	430	718	1075	1075	1101	1101
Entry HV Adj Factor	1.000	1.000	1.000	0.981	0.980	0.981
Flow Entry, veh/h	8	32	6	595	48	891
Cap Entry, veh/h	430	718	1068	1047	1075	1076
V/C Ratio	0.019	0.045	0.006	0.568	0.045	0.828
Control Delay, s/veh	8.6	5.5	3.4	10.7	3.7	21.2
LOS	A	A	A	B	A	C
95th %tile Queue, veh	0	0	0	4	0	10

Intersection	
Intersection Delay, s/veh	31.6
Intersection LOS	D

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	45	175	1049	510
Demand Flow Rate, veh/h	46	178	1070	520
Vehicles Circulating, veh/h	530	1029	100	73
Vehicles Exiting, veh/h	63	141	476	1134
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	11	2	2
Ped Cap Adj	1.000	1.000	0.998	0.998
Approach Delay, s/veh	6.3	18.2	46.7	7.4
Approach LOS	A	C	E	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	L	TR	L	TR
Assumed Moves	LTR	LTR	L	TR	L	TR
RT Channelized						
Lane Util	1.000	1.000	0.047	0.953	0.169	0.831
Critical Headway, s	5.193	5.193	5.193	5.193	5.193	5.193
Entry Flow, veh/h	46	178	50	1020	88	432
Cap Entry Lane, veh/h	665	404	1022	1022	1050	1050
Entry HV Adj Factor	0.975	0.982	0.980	0.980	0.977	0.981
Flow Entry, veh/h	45	175	49	1000	86	424
Cap Entry, veh/h	649	397	1000	1000	1024	1028
V/C Ratio	0.069	0.441	0.049	1.000	0.084	0.412
Control Delay, s/veh	6.3	18.2	4.0	48.8	4.3	8.0
LOS	A	C	A	E	A	A
95th %tile Queue, veh	0	2	0	19	0	2

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	29	614	600	457
Demand Flow Rate, veh/h	29	626	612	466
Vehicles Circulating, veh/h	597	560	123	155
Vehicles Exiting, veh/h	24	175	503	555
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.3	2.1	12.2	7.2
Approach LOS	A	A	B	A

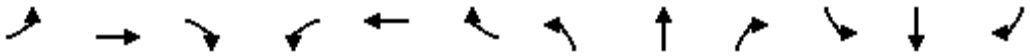
Lane	Left	Left	Bypass	Left	Right	Left	Right
Designated Moves	LTR	LT	R	L	TR	L	TR
Assumed Moves	LTR	LT	R	L	TR	L	TR
RT Channelized			Free				
Lane Util	1.000	1.000		0.008	0.992	0.225	0.775
Critical Headway, s	5.193	5.193		5.193	5.193	5.193	5.193
Entry Flow, veh/h	29	150	476	5	607	105	361
Cap Entry Lane, veh/h	622	645	1938	999	999	968	968
Entry HV Adj Factor	0.994	0.978	0.980	1.000	0.981	0.981	0.981
Flow Entry, veh/h	29	147	467	5	595	103	354
Cap Entry, veh/h	618	631	1900	999	980	949	949
V/C Ratio	0.047	0.232	0.246	0.005	0.608	0.109	0.373
Control Delay, s/veh	6.3	8.6	0.0	3.6	12.2	4.8	7.9
LOS	A	A	A	A	B	A	A
95th %tile Queue, veh	0	1	1	0	4	0	2

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	7	33	819	613
Demand Flow Rate, veh/h	7	33	835	625
Vehicles Circulating, veh/h	643	666	41	24
Vehicles Exiting, veh/h	6	210	609	675
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	1	0	0	1
Ped Cap Adj	1.000	1.000	1.000	0.999
Approach Delay, s/veh	6.2	6.9	17.3	9.4
Approach LOS	A	A	C	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	L	TR	L	TR
Assumed Moves	LTR	LTR	L	TR	L	TR
RT Channelized						
Lane Util	1.000	1.000	0.004	0.996	0.061	0.939
Critical Headway, s	5.193	5.193	5.193	5.193	5.193	5.193
Entry Flow, veh/h	7	33	3	832	38	587
Cap Entry Lane, veh/h	594	581	1085	1085	1103	1103
Entry HV Adj Factor	0.994	1.000	1.000	0.981	0.974	0.980
Flow Entry, veh/h	7	33	3	816	37	576
Cap Entry, veh/h	591	581	1085	1064	1073	1080
V/C Ratio	0.012	0.057	0.003	0.767	0.034	0.533
Control Delay, s/veh	6.2	6.9	3.3	17.4	3.6	9.7
LOS	A	A	A	C	A	A
95th %tile Queue, veh	0	0	0	8	0	3

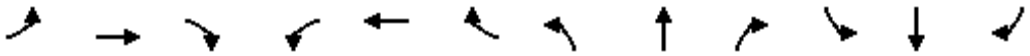
Appendix F Intersection LOS Analysis: Alternative 3 – All-Way Stop Control LOS Calculation Sheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	11	142	23	8	236	28	394	23	141	667	8
Future Volume (vph)	4	11	142	23	8	236	28	394	23	141	667	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	4	12	160	26	9	265	31	443	26	158	749	9

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	176	300	31	469	158	758
Volume Left (vph)	4	26	31	0	158	0
Volume Right (vph)	160	265	0	26	0	9
Hadj (s)	-0.51	-0.48	0.53	0.00	0.53	0.03
Departure Headway (s)	7.9	7.4	8.2	7.6	8.2	7.7
Degree Utilization, x	0.39	0.62	0.07	0.99	0.36	1.61
Capacity (veh/h)	422	471	434	469	440	474
Control Delay (s)	15.9	21.5	10.6	65.9	14.5	303.2
Approach Delay (s)	15.9	21.5	62.4		253.4	
Approach LOS	C	C	F		F	

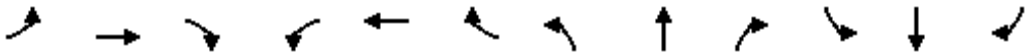
Intersection Summary				
Delay	144.1			
Level of Service	F			
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	0	7	19	0	11	6	415	150	46	834	12
Future Volume (vph)	1	0	7	19	0	11	6	415	150	46	834	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	1	0	7	20	0	12	6	437	158	48	878	13

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	8	32	6	595	48	891
Volume Left (vph)	1	20	6	0	48	0
Volume Right (vph)	7	12	0	158	0	13
Hadj (s)	-0.47	-0.07	0.53	-0.15	0.53	0.02
Departure Headway (s)	6.4	6.7	5.8	5.1	5.6	5.1
Degree Utilization, x	0.01	0.06	0.01	0.84	0.08	1.27
Capacity (veh/h)	532	517	612	699	621	711
Control Delay (s)	9.5	10.1	7.6	27.7	7.9	149.6
Approach Delay (s)	9.5	10.1	27.5		142.4	
Approach LOS	A	B	D		F	

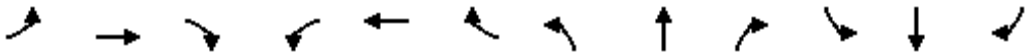
Intersection Summary				
Delay	95.3			
Level of Service	F			
Intersection Capacity Utilization	58.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	7	31	13	9	144	47	907	43	82	399	4
Future Volume (vph)	5	7	31	13	9	144	47	907	43	82	399	4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	7	33	14	9	152	49	955	45	86	420	4

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	45	175	49	1000	86	424
Volume Left (vph)	5	14	49	0	86	0
Volume Right (vph)	33	152	0	45	0	4
Hadj (s)	-0.38	-0.47	0.53	0.00	0.53	0.03
Departure Headway (s)	6.9	6.3	6.5	6.0	6.6	6.1
Degree Utilization, x	0.09	0.31	0.09	1.66	0.16	0.72
Capacity (veh/h)	469	535	538	609	534	577
Control Delay (s)	10.6	12.1	8.9	317.8	9.6	21.8
Approach Delay (s)	10.6	12.1	303.4		19.8	
Approach LOS	B	B	F		C	

Intersection Summary				
Delay	186.0			
Level of Service	F			
Intersection Capacity Utilization	77.4%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	2	4	20	0	11	3	610	157	35	539	3
Future Volume (vph)	1	2	4	20	0	11	3	610	157	35	539	3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	2	4	21	0	12	3	649	167	37	573	3

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	7	33	3	816	37	576
Volume Left (vph)	1	21	3	0	37	0
Volume Right (vph)	4	12	0	167	0	3
Hadj (s)	-0.28	-0.06	0.53	-0.11	0.53	0.03
Departure Headway (s)	6.6	6.7	5.7	5.0	5.7	5.2
Degree Utilization, x	0.01	0.06	0.00	1.14	0.06	0.83
Capacity (veh/h)	516	516	611	717	622	685
Control Delay (s)	9.7	10.1	7.5	99.8	7.8	27.1
Approach Delay (s)	9.7	10.1	99.5		26.0	
Approach LOS	A	B	F		D	

Intersection Summary				
Delay	66.4			
Level of Service	F			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			