

DATE: July 13, 2026
TO: Susie Hufstader; City of Alameda
FROM: Marisa Lee; Andrew Lee, PE; Parametrix
SUBJECT: Wilma Chan Way & Pacific Ave Intersection Analysis
PROJECT NUMBER: 474-8939-006
PROJECT NAME: On-Call Transportation Engineering Services

This memorandum presents the results of a safety and access study for the Wilma Chan Way and Pacific Avenue intersection in the City of Alameda (Figure 1). This intersection was identified as needing improvements based on its importance for the Neighborhood Greenway network as recommended in the 2022 Active Transportation Plan. The City initiated this analysis to study ways to improve multimodal safety, including converting the traffic control to a traffic signal or pedestrian hybrid beacon (PHB) and / or restricting turns.

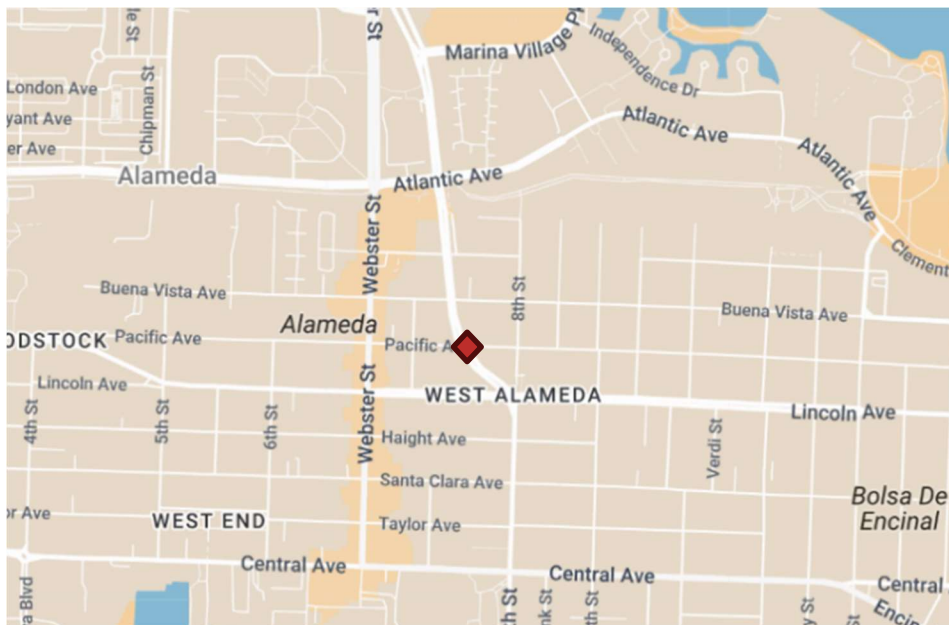


Figure 1 Project Location Map, Wilma Chan Way at Pacific Avenue
Source: mymaps.google.com



Summary of Data & Analysis

- **Volumes:** Wilma Chan Way recorded more than 16,000 daily vehicle trips while street volumes along Pacific Avenue are low. Bicycle and pedestrian volumes experience AM and PM peaks, with volumes around 20 pedestrians and 10-15 bikes per hour during the peak hours. Most pedestrians and bicycles at this intersection cross Wilma Chan Way.
- **Collision History:** There have been 9 reported injury collisions during the study period (2014-2025), mostly broadside collisions between vehicles turning from Pacific Avenue and vehicles travelling through the intersection along Wilma Chan Way. There have been no reported bicycle or pedestrian injuries.
- **Sight Distance:** Sight distance is limited for vehicles approaching Wilma Chan Way from Pacific Avenue, particularly going westbound. Sight distance obstructions include private property walls, vegetation, and a utility pole. In the northbound direction, the measured stopping sight distance satisfies up to 35 MPH (275 feet vs 250 feet).
- **Traffic Control Warrant – PHB:** The warrant for a PHB was met when bicycles and pedestrians were counted together during the AM peak hour at 7:30am.
- **Traffic Control Warrant – Signal:** There were six reported collisions at the study intersection from 2016-2018, which satisfies Warrant 7. Crash frequency has decreased since, and more recent years' crash data do not meet the threshold for Warrant 7. Physical conditions of the intersection have not changed significantly since 2016-2018.
- **Lighting:** Horizontal illuminance for the intersection meets criteria, while illuminance uniformity and vertical illuminance in crosswalks does not meet criteria. Two alternatives are analyzed for improved lighting.
- **Median Diverter:** A median diverter was designed to reduce conflicts, restricting side street access for vehicles and eliminating the vehicle movements that caused the prevailing collision type. The median diverter allows bicycles and pedestrians to pass through.
- **Traffic Operations Modeling:** Various configurations of signalization and PHB traffic control were modeled for operational outcomes. PHB with Full Median Diverter and Signal with Full Median Diverter provided the most optimal outcomes, with operational efficiency and reduced conflicts.

This rest of this memo is organized into the following sections:

1. **Existing Conditions:** Setting, Multimodal Traffic Counts, Collision Analysis, Sight Distance Measurements, and Site Visit Observations,
2. **Analysis:** Traffic Control Warrant Analysis, Traffic Operations Modeling, Geometric Changes/Conceptual Design, Lighting
3. **Appendix**

1. Existing Conditions and Observations

This section presents multimodal traffic counts, collision analysis, and sight distance measurements. These data are supplemented by notes on user behavior and infrastructure collected during a site visit performed by City staff and Consultants in March 2026.

1.1 Setting

Wilma Chan Way is a four-lane, north-south principal arterial roadway connecting the neighborhoods of West Alameda to Atlantic Avenue and the Webster Street Tube.¹ The posted speed limit is 25 MPH.

Pacific Avenue is a two-lane east-west local street; the City designates Pacific as a planned Neighborhood Greenway.² The prima facie speed limit for this residential street is 25 MPH.

The intersection operates as a minor-approach stop-controlled intersection at the Pacific Avenue approaches. North-south traffic at this intersection along Wilma Chan is uncontrolled, while east-west traffic approaching from Pacific Avenue is two-way stop controlled. The crosswalks across Wilma Chan Way measure between 75 and 90 feet and approximately 60 feet across Pacific Avenue.

There are no marked bike route markings or bike route signs on Pacific Avenue.

There are marked high visibility “ladder” crosswalks on all four legs with crosswalk warning signs at the corners and in the median. The corners of the intersection are ‘blended transition’ curb treatments where the sidewalk becomes flush with the roadway; this corner curb treatment provides limited protection for people on foot waiting to cross the street, as there is no vertical separation to prevent turning vehicles from driving onto the sidewalk.

1.2 Multimodal Traffic Counts and Speeds

Parametrix collected on March 3, 2026, turning movement counts of people walking, biking, and driving for one weekday 12-hour period from 7am to 7pm (Table 1) and vehicle speed and volumes on Wilma Chan Way between Pacific and Lincoln avenues for one 24-hour period (Table 2).

Table 1 Multimodal Traffic Counts 12-Hours, Wilma Chan Way / Pacific Avenue

Approach	Vehicles			Bikes		Xwalk Location	Pedestrians
	Left	Through	Right				
	AM Peak Hour, 7:45-8:45AM						
Northbound	29	703	3	0		South Leg	8
Southbound	3	466	20	0		North Leg	6
Eastbound	8	8	25	2		West Leg	5
Westbound	0	7	16	6		East Leg	3
	PM Peak Hour, 5-6 PM						
Northbound	32	607	3	1		South Leg	2
Southbound	9	975	34	0		North Leg	11
Eastbound	9	9	44	3		West Leg	3

¹ Caltrans California Road Systems (CRS) Maps. <https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance/functional-classification>

² https://www.alamedaca.gov/files/assets/public/v/1/departments/alameda/transportation/bike-ped/2030_low_stress_backbone_network_alamedaatp_2022.pdf

Westbound	0	2	10	1		East Leg	5
12-hour total, 7AM-7PM							
Northbound	367	6711	41	13		South Leg	42
Southbound	50	6966	262	16		North Leg	62
Eastbound	85	81	436	18		West Leg	57
Westbound	12	35	96	37		East Leg	30

Traffic Counts Plus and Parametrix, March 3, 2026

Wilma Chan Way recorded nearly 17,000 vehicle trips in one day in Spring 2026. Most trips are northbound during the AM peak hour and southbound during the PM peak hour. Across the day, northbound traffic volumes were highest during the AM peak hour and relatively constant after 10 AM, whereas southbound traffic volumes tended to increase and peak at 5 PM (Figure 2).

Among people traveling by bike, there were 8 people crossing Wilma Chan Way during the AM peak hour and four during the PM peak hour. There were 55 total bicyclists recorded crossing Wilma Chan Way across the sampled 12-hours. There were 14 pedestrians recorded crossing Wilma Chan Way during the AM peak hour, 13 during the PM peak hour, and a total of 104 across 12 hours.

Table 2 Vehicle Speed and Volumes 24-Hours, Wilma Chan Way between Lincoln Avenue and Pacific Avenue

Direction	Vehicle Speeds (MPH)				% over 25 MPH	% of traffic congested	Daily Traffic Volumes
	15 th %ile	50 th %ile (Median)	85 th %ile	95 th %ile			
Northbound	22 MPH	27 MPH	31 MPH	34 MPH	69%	3%	8524
Southbound*	18 MPH	24 MPH	29 MPH	31 MPH	54%	8%	8334
Total							16,858

Traffic Counts Plus and Parametrix, March 3, 2026

*Adjusted to discount congested conditions, i.e. traffic speeds < 8 MPH

Traffic speeds tended to be higher northbound (85thile speed = 31 mph vs 29 mph), and the southbound direction was more likely to experience congested conditions (8% of traffic traveling at less than 8 MPH vs. 3%).

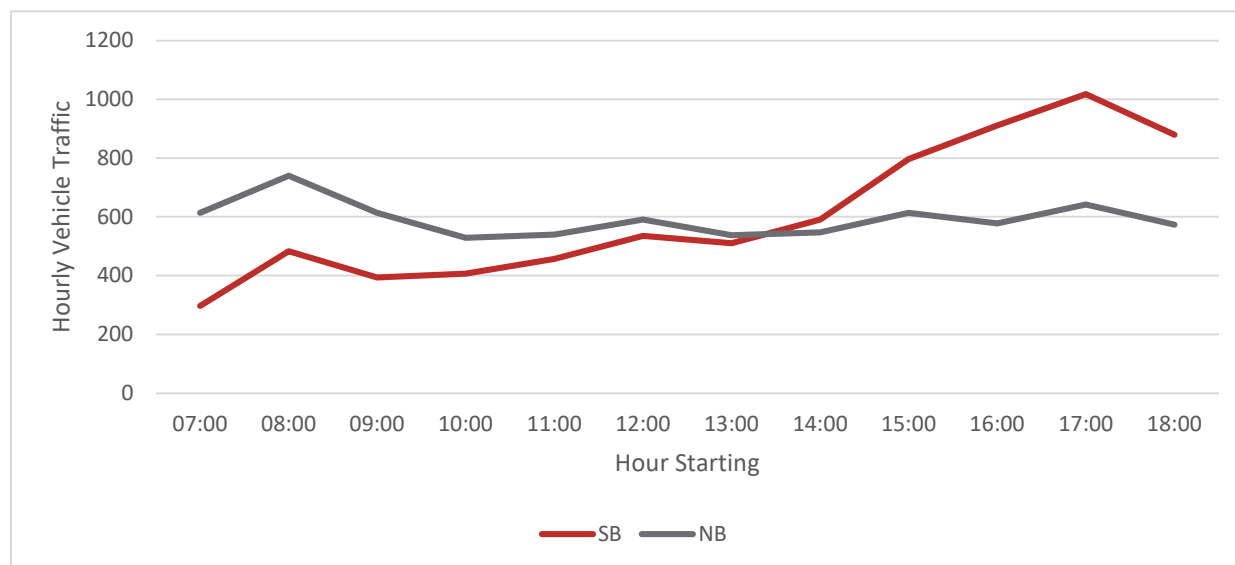


Figure 2 Hourly Vehicle Volumes, Wilma Chan Way at Pacific Avenue

Traffic Counts Plus and Parametrix, March 3, 2026

A detailed table of multimodal traffic volumes is provided in Appendix A.

1.3 Collision Analysis

There were 9 total reported injury crashes at the Wilma Chan Way / Pacific Avenue intersection recorded between 2014 and 2025 (Table 3).³ Seven out of nine recorded incidents were broadside collisions, and the predominant Primary Collision Factor (PCF) was Failure to Yield Right-of-Way (Automobile ROW). The at-fault party was the minor-street driver in seven out of nine cases and the opposing vehicle movement was southbound through vehicles on Wilma Chan Avenue. There was one reported bicycle-involved collision.

Table 3 Injury Collision Summary, 2014-2025

Accident Year	Party 1 (Party At Fault)	Party 1 Movement	Party 2	Party 2 Movement	Collision type	Collision Severity
2016	Vehicle	EB Straight	Vehicle	SB Straight	Broadside	Complaint of Pain
2016	Bicyclist	WB Straight	Vehicle	SB Straight	Broadside	Other Visible Injury
2016	Vehicle	EB Straight	Vehicle	SB Straight	Broadside	Complaint of Pain
2017	Vehicle	WB Left	Vehicle	SB Straight	Broadside	Complaint of Pain
2017	Vehicle	NB Left	Vehicle	SB Straight	Broadside	Complaint of Pain
2018	Vehicle	WB Straight	Vehicle	SB Straight	Broadside	Complaint of Pain
2022	Vehicle	WB Left	Vehicle	SB Parked	Sideswipe	Complaint of Pain
2025	Vehicle	SB Straight	Vehicle	SB Straight	Rear end	Other Visible Injury
2025	Vehicle	WB Straight	Vehicle	SB Straight	Broadside	Complaint of Pain

Abbreviations: Westbound WB, Eastbound EB, Northbound NB, Southbound SB

1.4 Sight Distance

At intersections there are two types of applicable sight distances: stopping sight distance (SSD) and intersection or corner sight distance (CSD). For non-State highway roadways like urban arterials, guidance from the American Association of State Highway and Transportation Officials (AASHTO) dictates that SSD is the required standard for the mainline street and CSD as a recommended standard for the side street approaches.⁴ Wilma Chan Way is not a State highway and the California Highway Design Manual (CA HDM, 2023) does not govern, although it represents best practices for some types of roadways.

The measured sight distances are presented for the Wilma Chan Way approaches (Figure 3, SSD) and Pacific Avenue approaches (Figure 4 and Figure 5, CSD). The measured stopping sight distances were compared to the required and recommended standards from the AASHTO Green Book and CA HDM (Table 4).⁵

³ UC Berkeley (2026) Transportation Injury Mapping System. <https://tims.berkeley.edu/>

⁴ AASHTO (2018) "A Policy on Geometric Design of Highways and Streets" (AASHTO Green Book). Section 9.5.1 and 9.5.3.2.

⁵ CA HDM 405.1(2)(a); AASHTO (2018) "Green Book" Equation 9-1.



Figure 3: Stopping Sight Distance, Wilma Chan Way & Pacific Avenue

The SSD measured along Wilma Chan Way approaching Pacific Avenue satisfies AASHTO SSD standards for up to 35 MPH (250', Table 4). North and southbound drivers have a clear line of sight approaching the intersection although adjacent walls, signs, and trees may obstruct drivers' sight lines at times.

Measurement of the CSD is based on the departure sight triangle and depends largely on the assumed driver position.⁶ A driver stopped at the Pacific Avenue approaches could be initially positioned at the STOP bar but could encroach into crosswalk to improve their line of sight of the mainline traffic lanes. The exhibit below shows a westbound driver's initial line of sight positioned at the STOP bar (dashed lines) and blocking the crosswalk (solid lines).

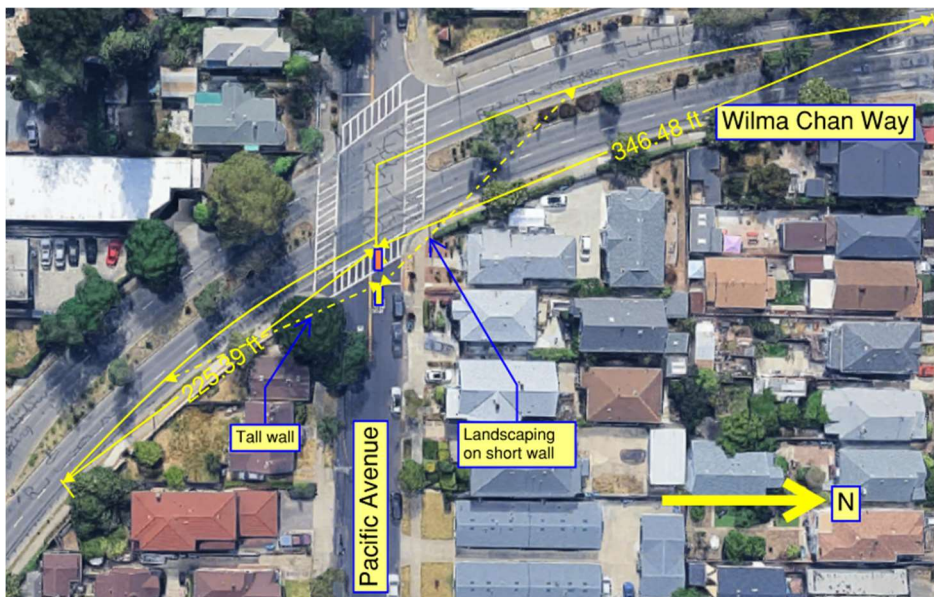


Figure 4: Westbound Pacific Avenue Sight Distance, Wilma Chan Way & Pacific Avenue

⁶ AASHTO (2018) Section 9.5.2.2

The westbound Pacific Avenue approach has more constrained corner sight lines due to the walls and landscaping to both the left and right and the horizontal curve of the road (Figure 4). A westbound driver could position themselves to have adequate CSD if they stop in the crosswalk; this behavior was observed during the site visit. These sight line issues are supported by collision records, with westbound movements making up five out of the nine crashes.

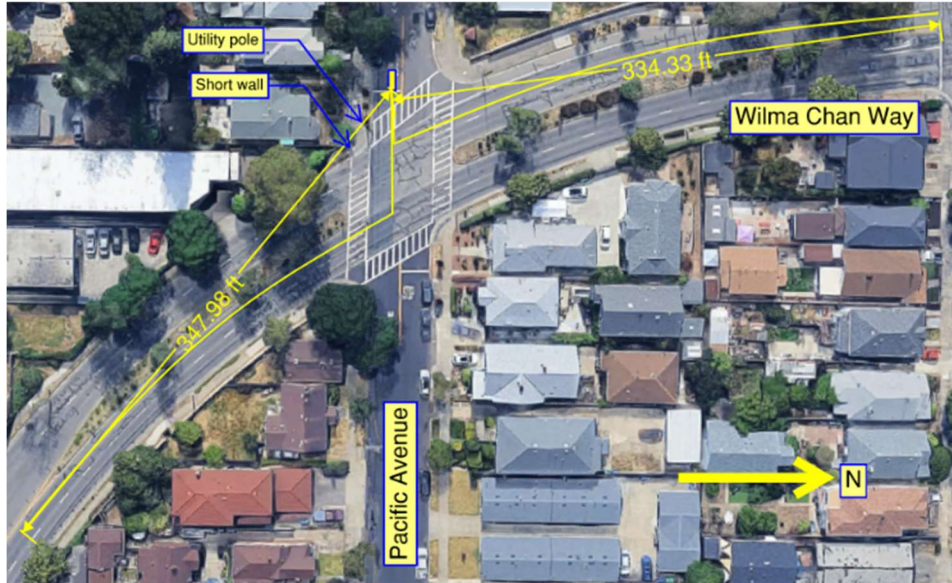


Figure 5: Eastbound Pacific Avenue Sight Distance, Wilma Chan Way & Pacific Avenue

The eastbound approach does not have the same degree of sight line issues although a driver's line of sight can be obstructed by the utility pole to the right and a low wall to the left. Eastbound crashes made up two out of the nine recorded crashes.

Table 4 Corner Sight Distance Measurements and Design Guidance, Wilma Chan Way & Pacific Avenue

Approach	Measured Sight Distance	Required Sight Distance at 25 MPH*	Standard	Met?
Northbound	SSD > 275'	SSD = 150' at 25 MPH	Required	Yes
Southbound	SSD > 340'	SSD = 250' at 35 MPH	Required	Yes
Westbound	Left CSD 350' at Xwalk Right CSD 225 at Xwalk	Left CSD 312' (looking right)	Recommended	Yes if at Xwalk No if at STOP bar
Eastbound	Left CSD 334' at STOP Right CSD 347' at STOP	Right CSD 238' (looking left)	Recommended	Yes at STOP bar

Corner Sight Distance – CSD; Stopping Sight Distance – SSD

*SSD Standard, AASHTO Table 3-1;

CSD Standard, AASHTO Equation 9-1. $ISD/CSD = 1.47 * V_{major} * T_g$

Left CSD T_g time gap = 7.5s + 0.5s (2nd lane) + 0.5s (median)

Right CSD T_g time gap = 6.5s

2. Traffic Control Warrant and Operations Analysis

This section presents an analysis for two types of traffic control: a pedestrian hybrid beacon (PHB) and traffic signal. Vehicle delay was modeled for the existing minor stop control, a PHB with and without a traffic diverter, and a traffic signal with and without a traffic diverter, to assess the change in driver delay.

2.1 Pedestrian Hybrid Beacon Warrant

Based on the traffic volumes and crossing distance at this intersection, the threshold to warrant a PHB is 20 pedestrians per hour. There were 17 pedestrians and 8 bicyclists recorded crossing Wilma Chan Way at Pacific Avenue during the peak hours, which satisfies the PHB Warrant (Figure 6). Whether bikes can be included as pedestrian volumes is not explicitly addressed in the CA MUTCD, however, both people walking and biking would be using the PHB in the proposed condition. The addition of a PHB and other improvements to create a more safe and comfortable crossing could induce higher walk and bike crossings at this location; some people may currently be avoiding this location and cross at alternate, but less direct, routes.

PHB Warrant

Figure 4J-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways

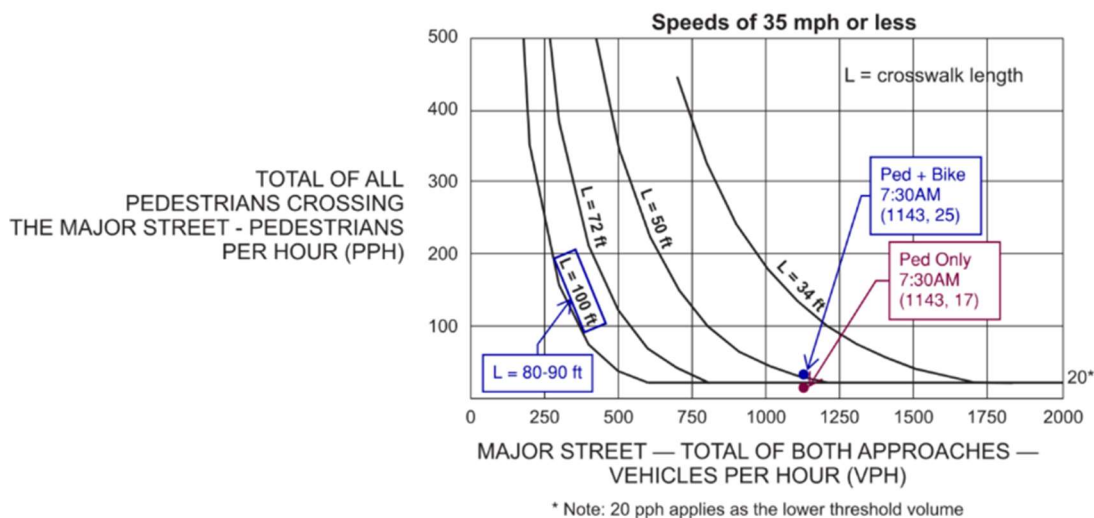


Figure 6: Pedestrian Hybrid Beacon Warrant, Wilma Chan Way & Pacific Avenue

2.2 Signal Warrant

The CA MUTCD Section 4C.01 provides guidance on criteria for consideration in a traffic signal control study. The guidance is based on the following traffic signal warrants:

1. Eight-Hour Vehicular Volume
2. Four-Hour Vehicular Volume
3. Peak Hour
4. Pedestrian Volume
5. School Crossing
6. Coordinated Signal System
7. Crash Experience
8. Roadway Network
9. Intersection Near a Grade Crossing

In general, the installation of unwarranted traffic signals has multiple potential operational and safety ramifications including the potential of increasing main street delays, increasing rear-end collisions, and increasing cut-through traffic on local roads. Additionally, the CA MUTCD provides the following standard with regards to traffic signal warrant engineering studies:

“Delay, congestion, approach conditions, driver confusion, future land use or other evidence of the need for right of way assignment beyond that which could be provided by stop sign shall be demonstrated.”⁷

Based on the characteristics of the study intersection, Warrants 1, 2, 4, and 7 identified in the CA MUTCD are applicable to the study intersection. The intersection does not meet the criteria identified in Warrant 3 as an unusual condition, located in a land use context that produces peak-hour conditions where high-occupancy vehicle facilities attract or discharge large numbers of vehicles over a short time. The intersection does not meet the definition of a school crossing, so Warrant 5 does not apply. Warrant 6 does not apply since the resulting spacing of signalizing intersections along Wilma Chan Way would be less than 1000 feet. Warrant 8 does not apply since the intersection is not between two major roadways, as defined by CA MUTCD Section 4C.09(03). Warrant 9 does not apply since there is no rail grade crossing at the intersection.

The six reported collisions at the study intersection from 2016-2018 satisfy Warrant 7. Crash frequency has decreased since, and more recent years' crash data do not meet the threshold for Warrant 7. Physical conditions of the intersection have not changed significantly since 2016-2018.

The signal appears to be warranted based on a combination of the factors identified in this and previous sections: collision records, constrained sight distances, adjacent land uses, and City plans for Pacific Avenue as a neighborhood greenway.

See below for the results of each warrant analyzed. Appendix B contains the CA MUTCD Warrant Analysis Worksheet.

⁷ CA MUTCD 2026, Section 4C.01, Paragraph 19a

Warrant 1 – Eight-Hour Vehicular Volume

Warrant 1 (Eight-Hour Vehicular Volume) is intended for applications at locations where a large volume of intersecting traffic is the principal reason to install a traffic control signal. Warrant 1 is satisfied if minimum volume requirements are met for any eight hours of a single day, based on two conditions and thresholds set by CA MUTCD Figure 4C-101. If either Condition A and Condition B are met, or if both conditions are met at 80 percent of the minimum volumes, then the warrant is satisfied.

Based on the urban area classification and 2 or more approach lanes, the minimum volume requirement for Condition A is 600 vehicles total on both approaches of the major street and 200 vehicles on the single highest minor street approach. The minimum volume requirement for Condition B is 900 vehicles total on both approaches of the major street and 100 vehicles on the single highest minor street approach.

While Wilma Chan Way vehicle traffic volumes satisfy the 600-vehicle minimum threshold set by the CA MUTCD for all eight hours, the minor approach volumes do not meet the threshold for any of the 8 hours and thus Warrant 1 is not satisfied.

Table 5. Warrant 1 (8-Hour Vehicular Volume), Wilma Chan Way & Pacific Avenue

Wilma Chan Way/Pacific Ave			Warrant 1			
Hour Starting	Wilma Chan Wy Two-Way Total Vehicle Volumes (Major)	Pacific Ave Vehicle Volumes (Minor)	100% Condition A Satisfied?	100% Condition B Satisfied?	80% Condition A Satisfied?	80% Condition B Satisfied?
			Min. 600 Major & 200 Minor	Min. 900 Major & 100 Minor	Min. 480 Major & 160 Minor	Min. 720 Major & 80 Minor
9:45 AM	959	47	No	No	No	No
11:15 AM	1046	61	No	No	No	No
12:15 PM	1128	68	No	No	No	No
1:45 PM	1092	60	No	No	No	No
2:45 PM	1339	63	No	No	No	No
3:45 PM	1470	66	No	No	No	No
4:45 PM	1633	71	No	No	No	No
5:45 PM	1571	55	No	No	No	No
Warrant Satisfied?			Condition A: No	Condition B: No	Combination of A and B at 80%: No	
			No			

Warrant 2 – Four-Hour Vehicular Volume

Warrant 2 (Four-Hour Vehicular Volume) is intended for applications at locations where a large volume of intersecting traffic is the principal reason to install a traffic control signal. Warrant 2 is satisfied if minimum traffic volume conditions are met for any four hours of a day, with the plotted point of minor street traffic volumes vs major street volumes falling above the curve in CA MUTCD Figure 4C-1. With major street traffic exceeding 1400 vehicles per hour, the minimum minor-street approach volume threshold is 115 vehicles per hour. The Pacific Avenue approach exceeds this threshold for only 1 out of 4 hours and thus Warrant 2 is not satisfied.

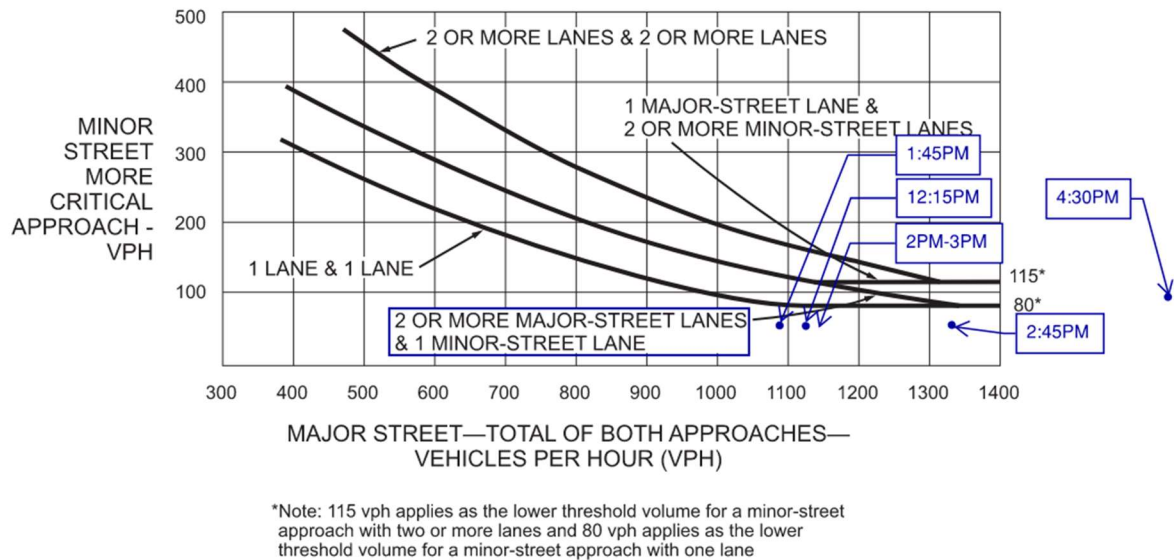


Figure 7: Warrant 2 (Four-Hour Vehicular Volume), Wilma Chan Way & Pacific Avenue

Table 6. Warrant 2 (Four-Hour Vehicular Volume), Wilma Chan Way & Pacific Avenue

Hour Starting	Wilma Chan Way Two-Way Total Vehicle Volumes (Major)	Pacific Avenue Vehicle Volumes (Minor)	Warrant 2
			Plotted points fall above applicable curve in CA MUTCD Figure 4C-1?
12:15 PM	1128	68	No
1:45 PM	1092	60	No
2:45 PM	1339	63	No
4:30 PM	1622	91	No
Warrant Satisfied?			No

Warrant 4 – Pedestrian Volume

Warrant 4 (Pedestrian Volume) is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street. As detailed in CA MUTCD Section 4C.05, recorded pedestrian volumes across four hours (Criteria A) or across one hour (Criteria B) must plot above the curves of CA MUTCD Figure 4C-5 and 4C-7, respectively, to satisfy the warrant. The minimum pedestrian volume threshold is 107 and 133 pedestrians per hour for Criteria A and Criteria B, respectively, crossing the major street only.

Pedestrian volumes at the study intersection, crossing in all directions, peak at 23 pedestrians per hour, with 17 of those crossing Wilma Chan Way. The recorded pedestrian volumes fail to meet the minimum threshold and thus Warrant 4 is not satisfied. The low number of people crossing on foot and bike here likely reflects the existing crossing challenges here.

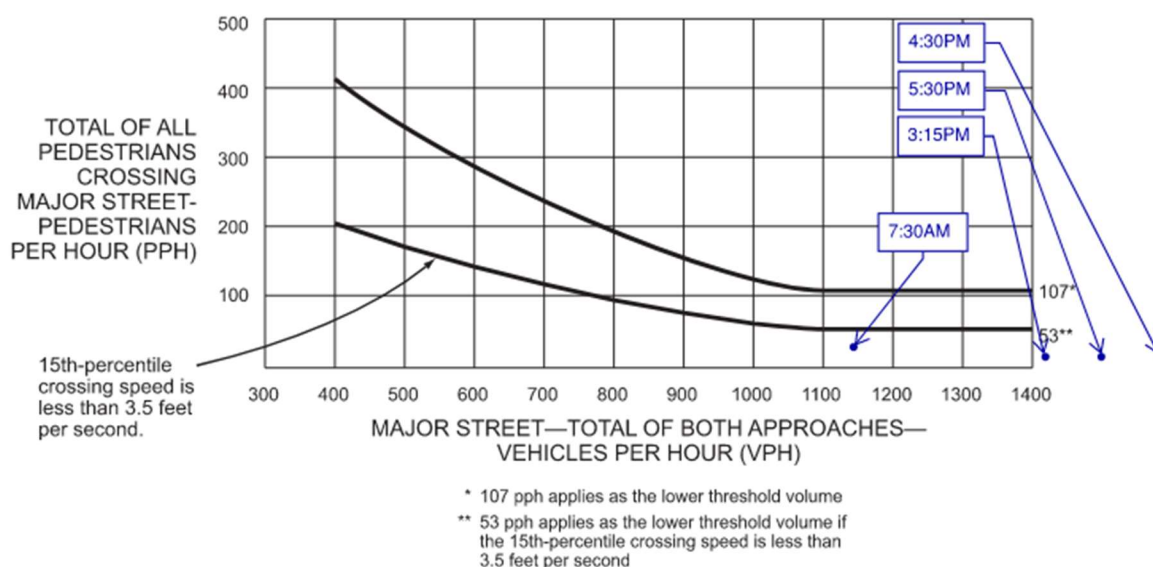


Figure 8. Warrant 4 Four-Hour Volumes Threshold Curve from CA MUTCD Figure 4C-5, Wilma Chan Way & Pacific Avenue

Table 7. Warrant 4 (Pedestrian Volume), Wilma Chan Way & Pacific Avenue

Hour Starting	Wilma Chan Way Two-Way Total Vehicle Volumes (Major)	Pedestrians Crossing WCW	Part A: Four Hour	Part B: One Hour
7:30 AM	1143	17	No	No
3:15 PM	1420	13	No	No
4:30 PM	1617	7	No	No
5:30 PM	1585	11	No	No
Part A/B Satisfied?			No	No
Satisfied?			No	

Warrant 7 – Crash Experience

Warrant 7 is intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic signal. The primary criteria for an intersection of this type to meet Warrant 7 is a minimum threshold of five crashes within a 12-month period, or six crashes in a three-year period, as outlined in CA MUTCD Section 4C.08 and Table 4C-3 Minimum Number of Reported Crashes in a Three-Year Period.

The six reported collisions at the study intersection from 2016-2018 satisfy Warrant 7 (Table 3 and Table 8). Crash frequency has decreased since, and more recent years' crash data do not meet the threshold for Warrant 7. Physical conditions of the intersection have not changed significantly since 2016-2018.

The intersection has a history of primarily broadside collisions, a collision type that would be corrected by traffic control signals.

Table 8 Warrant 7 - Crash Summary, Wilma Chan Way & Pacific Avenue

Year	Number of Collisions
2016	3
2017	2
2018	1
2019	0
2020	0
2021	0
2022	1
2023	0
2024	0
2025	2
Satisfied?	Yes, 2016-2018

Table 9 CA MUTCD Warrant 7 Minimum Number of Reported Crashes

Number of Through Lanes		Total Crashes	
Major	Minor	1 Year	3 Year
2 or more	1	5	6

CA MUTCD 2026, Table 4C-2 and 4C-3

2.3 Lighting Analysis

The lighting analysis included evaluating existing conditions of the existing intersection and crosswalk illuminance levels. Analysis was then conducted to develop alternative recommendations to improve intersection and crosswalk light levels for user safety. Two alternative options were developed, reflecting options for light improvements or more robust improvements.

Model Parameters

The following design criteria were taken from the City of Alameda's Street, Parking Lot, and Pathway Lighting Design Guide and supplemented by ANSI/IES RP-08-25,:

Table 10 Intersection Lighting Standards, City of Alameda

Guidance	Intersection Illuminance		Pedestrian Way Min Vertical Illuminance
	Avg Maintained Horizontal Illuminance	Uniformity Ratio	
City of Alameda	2.0 fc	3:1	0.2 fc
			Avg Vertical Illuminance for Crosswalks at Intersections
RP-08-25	1.9 fc	3:1	1.9 fc
Classifications			
Intersecting Streets:	Major/Local		
Pedestrian Conflict Area:	Medium		

The following parameters were incorporated into the lighting model:

- The luminaire used in the analysis was the Autobahn ATB0 Series P204-R3-3K (88 watts, ~11500 lumens) with loss factors as follows:
 - Lamp lumen = 0.9 (from the fixture spec sheet)
 - Dirt depreciation = 0.85 (from the City's Lighting Design Guide)
 - Resulting total light loss factor (LLF) = 0.765
- All luminaires were modeled at a mounting height of 30 feet
- Six-foot luminaire arms were used for existing lights. New lights used either 6'- or 12'-arms
- Vertical illumination was evaluated for all crosswalks in both directions of traffic

Model Results

In the existing condition, the intersection meets horizontal illuminance criteria but does not meet the uniformity ratio (UR) or vertical criteria for crosswalks. Vertical illuminance in the crosswalks was typically less than 1 fc.

After several iterations in the lighting model, two improvement options are provided.

Option 1: Minor Improvements

- Retain two existing lights
- Replace two existing lights on longer mast arms
- Add two new streetlights

In this scenario, the intersection meets the desired UR and improves the light levels in the crosswalks, but not enough to satisfy criteria for all crosswalks in all directions.

Option 2: Robust Improvements

- Retain three existing lights
- Replace one existing light on a longer mast arm
- Add three new streetlights

This option further increases the crosswalk vertical illuminance to over 1 fc in all directions except one, and meets the minimum vertical illuminance in 6 out of 8 crosswalk/direction conditions. The table below indicates whether criteria were satisfied.

The next section presents conceptual designs that include the preliminary placement of the streetlights modeled here.

Table 11 Intersection Lighting Model Results, Wilma Chan Way & Pacific Avenue

	Meets Criteria?			
	Avg Maintained Horizontal Illuminance	Uniformity Ratio	Pedestrian Way Min Vertical Illuminance	Avg Vertical Illuminance for Crosswalks at Intersections
Criteria	2.0 fc/1.9 fc	3:1	0.2 fc	1.9 fc
Existing Conditions	Yes	No	Yes (3 out of 8)	No
Option 1	Yes	Yes	Yes (4 out of 8)	Yes (1 out of 8)
Option 2	Yes	Yes	Yes (6 out of 8)	Yes (2 out of 8)
Color Key				
City of Alameda				
RP-08-25				

Parametrix, 2026.

Appendix D includes illuminance values and calculation summary tables for the three cases discussed above.

2.4 Concept Design

Parametrix and the City developed conceptual designs for traffic operations modeling and preliminary layout plans. The design variables the team considered were:

1. **Center median with turn restrictions:** The center median would prohibit vehicles from making through and left turn movements from Pacific Avenue and left turns from Wilma Chan Way; people on bikes and foot would be permitted to cross Wilma Chan Way. Vehicles would be diverted to Buena Vista or Lincoln avenues. Because of the low vehicle volumes making these turns, as described in section 1.2, the evaluation concludes that Buena Vista and Lincoln Avenues can accommodate this diversion. The median diverter is intended to prohibit minor approach crossings which are most of the injury collisions recorded here.
2. **Traffic control, traffic signal or PHB**
 - a) The traffic signal would service vehicles approaching from Pacific Avenue and walk and bike actuations. Left turns from Pacific Avenue and Wilma Chan Way were assumed as permissive movements, i.e., not provided a dedicated left turn or protected phase. With a median diverter these left turns would be prohibited.
 - b) The PHB would activate to service walk and bike actuations crossing Wilma Chan Way. Vehicle movements from Pacific Avenue would be permitted under minor street STOP control.
3. **Bikeway alignment to the left or right of the Pacific Avenue approach.**
 - a) The traffic signal alternative includes left-side bike lanes at the approach to Wilma Chan Way, placing bicyclists waiting for their signal to cross where they will not conflict with turning vehicles as they proceed through the intersection.
 - b) The PHB alternative includes right-side bike lanes at the approach to Wilma Chan Way, allowing bicyclists to access the push button and wait next to the curb for their signal to cross Wilma Chan Way.

Parametrix developed two conceptual plan layouts within these options:

- Concept A presents a traffic signal with median diverter and left side bikeway (Figure 9).
- Concept B presents a PHB with median diverter and right-side bikeway (Figure 10).

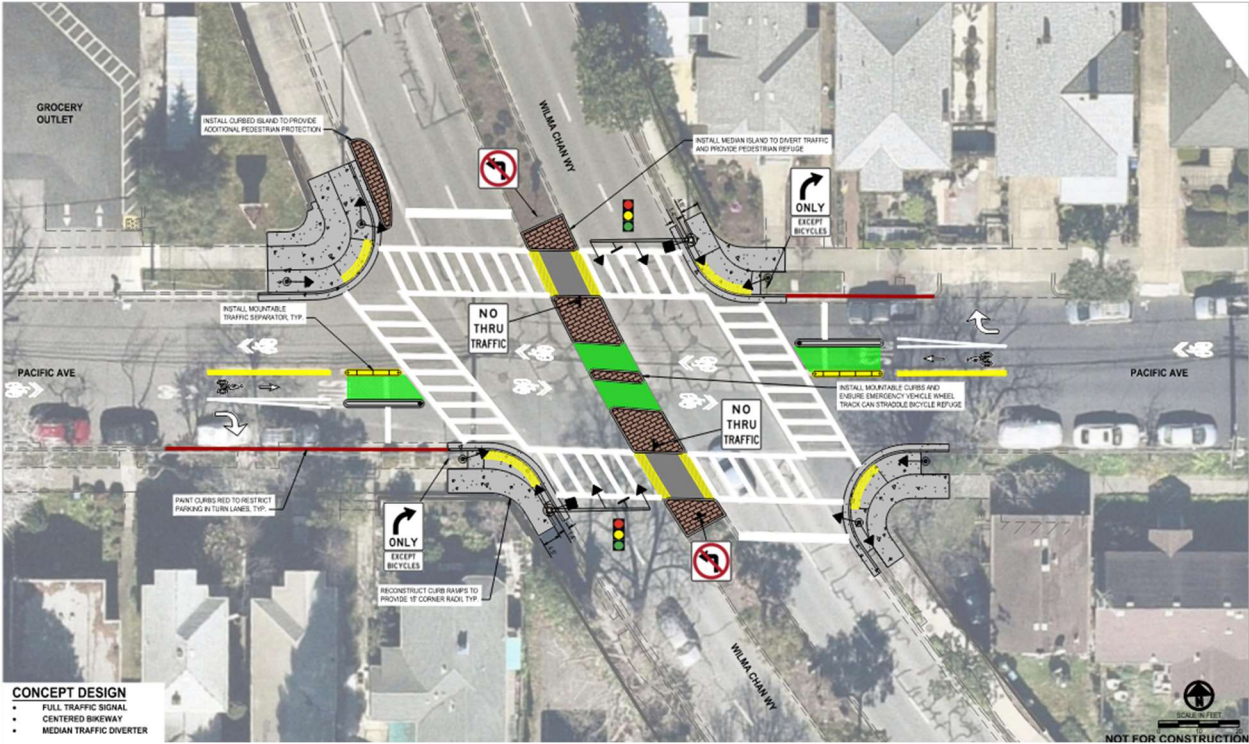


Figure 9: Concept A: Traffic Signal with Median Diverter and Left Side Bikeway

Source: Parametrix 2026

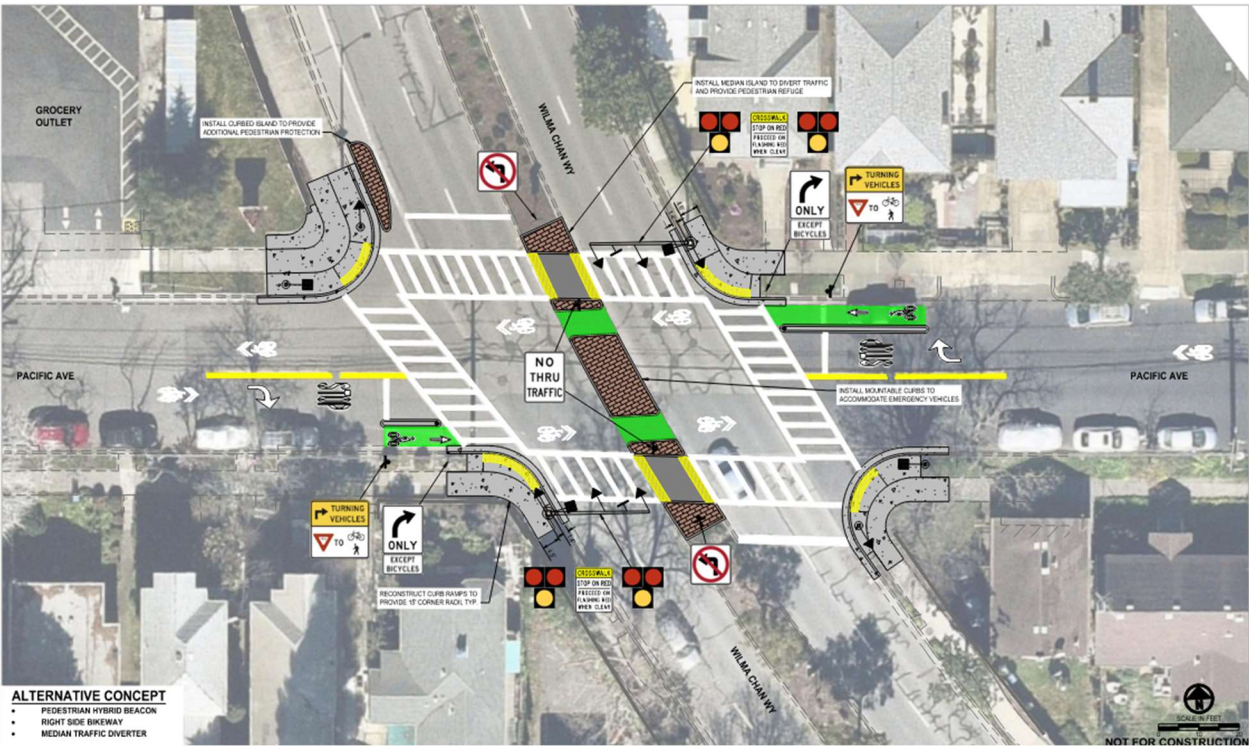


Figure 10: Concept B: PHB with Median Diverter and Right-Side Bikeway

Source: Parametrix 2026

2.5 Traffic Operations Analysis

Parametrix modeled the various intersection options as summarized below (Table 12). The signal was modeled to activate for vehicles detected at the minor approach and permissive left turns at all four approaches. The PHB was modeled to respond to only walk and bike actuations at a maximum of once per minute; minor approach vehicles would continue to operate with STOP control. The traffic model delay estimates and equivalent level of service (LOS) grades are based on the Highway Capacity Manual 2000 methodology.

Table 12 Intersection Operations Summary, Wilma Chan Way & Pacific Avenue

			AM Peak Hour	PM Peak Hour
#	Scenario Description	Control	Delay (s) / LOS	Delay (s) / LOS
0	Existing	TWSC	11.7 / B (Pacific)	16.8 / C (Pacific)
1A	No Diverter	Signal	5.7 / A (Average)	5.3 / A (Average)
1B	Median Diverter	Signal	6.2 / A (Average)	6.5 / A (Average)
2A	No Diverter	PHB	3.2 / A (Wilma Chan) 11.7 / B (Pacific)	2.6 / A (Wilma Chan) 16.8 / C (Pacific)
2B	Median Diverter	PHB	1.9 / A (Wilma Chan) 12.8 / B (Pacific)	3.3 / A (Wilma Chan) 15.0 / C (Pacific)

Source: Parametrix June 2026

The model results indicate that Pacific Avenue approaches currently operate at an estimated level of delay between 10 and 20 seconds, although the actual performance may be worse due to the sight distance constraints and interaction effects from the adjacent traffic signals.

The model for a full traffic signal (Scenarios 1A and 1B) forecasts that the overall vehicle delay would be less than 10 seconds (LOS A). The model for the PHB forecasts that the mainline vehicle delay would be less, as the signal would only activate for walk and bike activity. The PHB delay for the minor approach traffic would continue to be in the LOS B/C range over 10 seconds.

4. Appendix

Appendix A: Multimodal Traffic Volumes

TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 1

Groups Printed- Vehicles Only

	WILMA CHAN WAY Southbound				PACIFIC AVE Westbound				WILMA CHAN WAY Northbound				PACIFIC AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
07:00	2	49	0	51	2	0	0	2	0	135	0	135	3	0	1	4	192
07:15	0	66	0	66	1	0	1	2	0	143	5	148	2	1	0	3	219
07:30	4	69	0	73	3	0	0	3	0	161	1	162	4	1	1	6	244
07:45	4	102	1	107	6	1	0	7	1	166	2	169	3	0	1	4	287
Total	10	286	1	297	12	1	1	14	1	605	8	614	12	2	3	17	942
08:00	5	106	0	111	6	3	0	9	0	191	4	195	7	3	0	10	325
08:15	6	145	0	151	2	1	0	3	0	167	8	175	6	3	3	12	341
08:30	5	113	2	120	2	2	0	4	2	179	15	196	9	2	4	15	335
08:45	2	97	2	101	3	1	0	4	1	165	8	174	2	0	2	4	283
Total	18	461	4	483	13	7	0	20	3	702	35	740	24	8	9	41	1284
09:00	2	99	3	104	4	1	0	5	1	175	2	178	2	1	1	4	291
09:15	4	99	0	103	1	0	1	2	2	142	6	150	9	1	0	10	265
09:30	0	78	0	78	2	1	0	3	1	136	6	143	4	1	1	6	230
09:45	2	105	1	108	5	0	1	6	0	135	8	143	5	0	3	8	265
Total	8	381	4	393	12	2	2	16	4	588	22	614	20	3	5	28	1051
10:00	5	91	2	98	2	0	0	2	0	115	4	119	10	3	0	13	232
10:15	5	98	1	104	1	2	0	3	0	149	6	155	6	2	5	13	275
10:30	4	98	0	102	1	0	0	1	1	124	3	128	5	3	3	11	242
10:45	4	98	1	103	1	0	1	2	1	119	7	127	1	2	3	6	238
Total	18	385	4	407	5	2	1	8	2	507	20	529	22	10	11	43	987
11:00	5	94	0	99	1	0	0	1	1	122	8	131	5	0	1	6	237
11:15	8	102	0	110	1	0	2	3	1	129	7	137	12	1	3	16	266
11:30	4	125	1	130	2	0	0	2	0	119	11	130	7	4	0	11	273
11:45	7	110	1	118	1	0	1	2	1	134	7	142	10	3	1	14	276
Total	24	431	2	457	5	0	3	8	3	504	33	540	34	8	5	47	1052
12:00	9	134	0	143	4	2	0	6	1	121	12	134	12	5	1	18	301
12:15	4	124	3	131	1	2	0	3	1	141	13	155	10	1	3	14	303
12:30	5	98	0	103	0	1	0	1	0	140	6	146	13	3	2	18	268
12:45	8	147	3	158	0	1	0	1	0	145	11	156	14	0	3	17	332
Total	26	503	6	535	5	6	0	11	2	547	42	591	49	9	9	67	1204
13:00	4	124	0	128	4	0	0	4	1	138	9	148	13	3	2	18	298
13:15	3	127	0	130	3	0	1	4	0	112	8	120	9	0	2	11	265
13:30	4	110	2	116	0	0	0	0	0	145	10	155	10	0	1	11	282
13:45	6	130	0	136	0	0	0	0	0	108	6	114	9	1	1	11	261
Total	17	491	2	510	7	0	1	8	1	503	33	537	41	4	6	51	1106
14:00	7	116	0	123	1	2	0	3	3	118	14	135	10	0	1	11	272
14:15	2	128	2	132	4	0	0	4	2	120	3	125	17	1	3	21	282
14:30	1	163	0	164	2	0	1	3	0	151	10	161	11	4	2	17	345
14:45	8	162	2	172	3	2	0	5	3	110	13	126	8	1	1	10	313
Total	18	569	4	591	10	4	1	15	8	499	40	547	46	6	7	59	1212
15:00	4	184	1	189	2	0	0	2	0	145	6	151	14	2	1	17	359
15:15	7	186	2	195	2	0	0	2	1	133	13	147	14	1	3	18	362
15:30	5	190	0	195	1	2	2	5	0	152	10	162	11	2	3	16	378
15:45	7	209	2	218	2	1	0	3	1	143	10	154	7	3	2	12	387
Total	23	769	5	797	7	3	2	12	2	573	39	614	46	8	9	63	1486
16:00	8	204	1	213	0	2	0	2	2	124	10	136	11	1	2	14	365
16:15	9	209	0	218	0	1	0	1	1	130	13	144	6	2	1	9	372
16:30	11	221	2	234	0	0	0	0	1	141	8	150	23	3	2	28	412
16:45	7	237	2	246	2	0	1	3	3	135	10	148	15	3	1	19	416
Total	35	871	5	911	2	3	1	6	7	530	41	578	55	9	6	70	1565
17:00	10	256	1	267	3	1	0	4	2	166	10	178	10	5	2	17	466
17:15	9	243	4	256	3	0	0	3	0	129	9	138	18	1	4	23	420
17:30	8	237	2	247	4	0	0	4	0	143	7	150	7	2	0	9	410
17:45	7	239	2	248	0	1	0	1	1	169	6	176	9	1	3	13	438
Total	34	975	9	1018	10	2	0	12	3	607	32	642	44	9	9	62	1734
18:00	6	225	0	231	2	1	0	3	1	131	5	137	10	0	2	12	383
18:15	9	215	1	225	3	2	0	5	2	163	6	171	11	0	0	11	412
18:30	8	229	2	239	2	2	0	4	1	134	5	140	13	3	2	18	401
18:45	8	175	1	184	1	0	0	1	1	118	6	125	9	2	2	13	323
Total	31	844	4	879	8	5	0	13	5	546	22	573	43	5	6	54	1519
Grand Total	262	6966	50	7278	96	35	12	143	41	6711	367	7119	436	81	85	602	15142
Apprch %	3.6	95.7	0.7		67.1	24.5	8.4		0.6	94.3	5.2		72.4	13.5	14.1		
Total %	1.7	46	0.3	48.1	0.6	0.2	0.1	0.9	0.3	44.3	2.4	47	2.9	0.5	0.6	4	

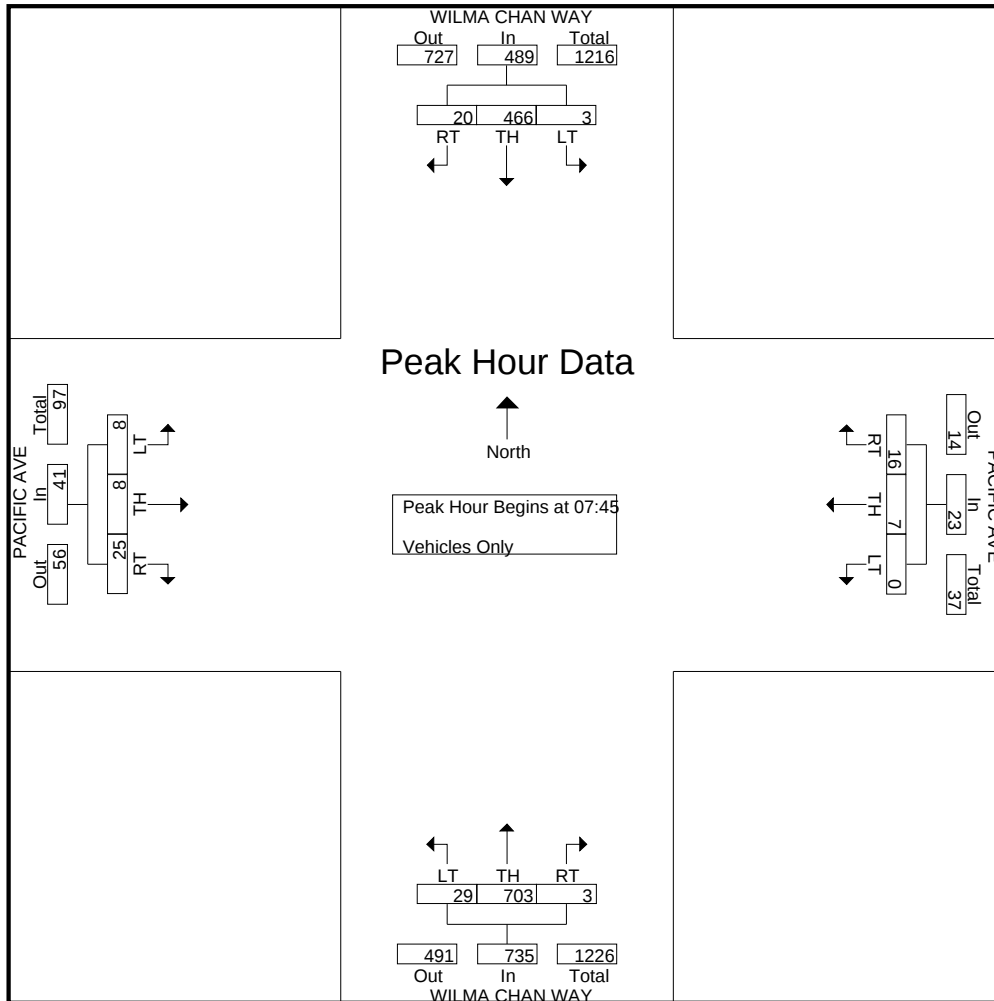
TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 2

	WILMA CHAN WAY Southbound				PACIFIC AVE Westbound				WILMA CHAN WAY Northbound				PACIFIC AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	4	102	1	107	6	1	0	7	1	166	2	169	3	0	1	4	287
08:00	5	106	0	111	6	3	0	9	0	191	4	195	7	3	0	10	325
08:15	6	145	0	151	2	1	0	3	0	167	8	175	6	3	3	12	341
08:30	5	113	2	120	2	2	0	4	2	179	15	196	9	2	4	15	335
Total Volume	20	466	3	489	16	7	0	23	3	703	29	735	25	8	8	41	1288
% App. Total	4.1	95.3	0.6		69.6	30.4	0		0.4	95.6	3.9		61	19.5	19.5		
PHF	.833	.803	.375	.810	.667	.583	.000	.639	.375	.920	.483	.938	.694	.667	.500	.683	.944



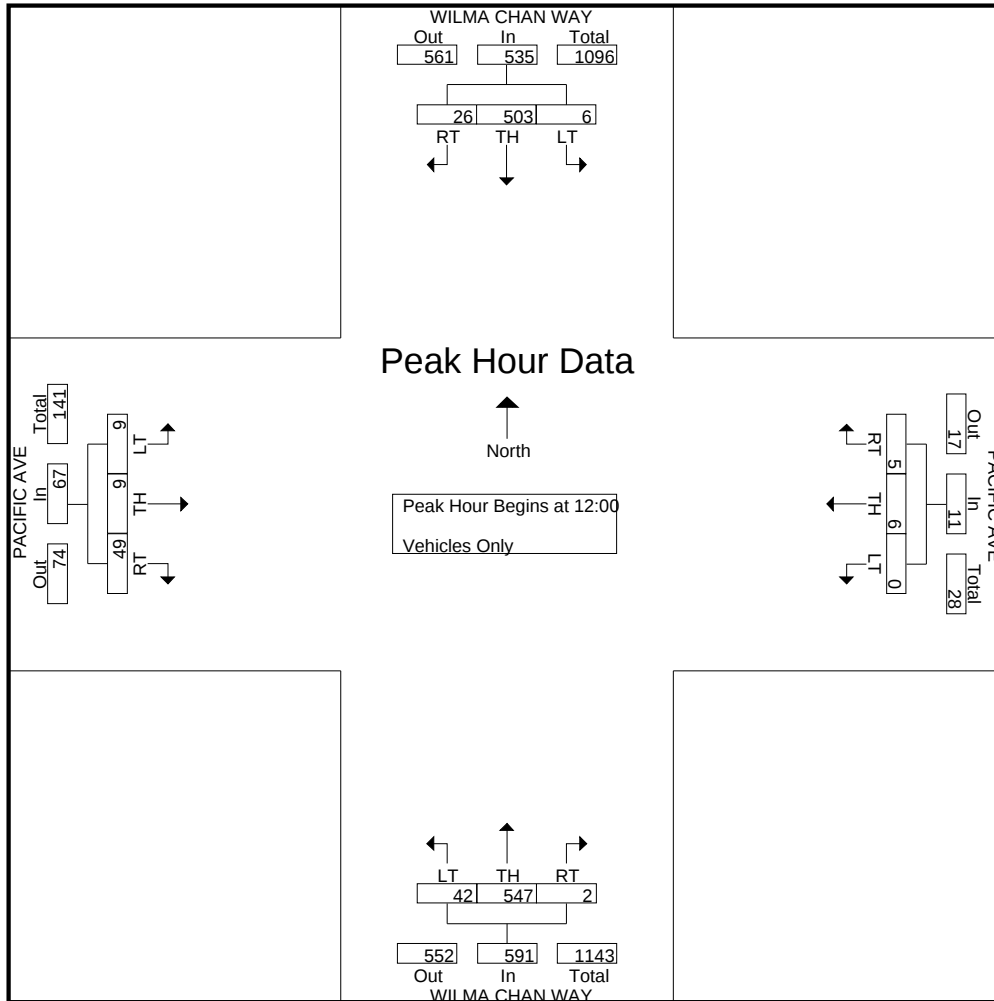
TRAFFIC COUNTS PLUS

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CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 3

	WILMA CHAN WAY Southbound				PACIFIC AVE Westbound				WILMA CHAN WAY Northbound				PACIFIC AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00																	
12:00	9	134	0	143	4	2	0	6	1	121	12	134	12	5	1	18	301
12:15	4	124	3	131	1	2	0	3	1	141	13	155	10	1	3	14	303
12:30	5	98	0	103	0	1	0	1	0	140	6	146	13	3	2	18	268
12:45	8	147	3	158	0	1	0	1	0	145	11	156	14	0	3	17	332
Total Volume	26	503	6	535	5	6	0	11	2	547	42	591	49	9	9	67	1204
% App. Total	4.9	94	1.1		45.5	54.5	0		0.3	92.6	7.1		73.1	13.4	13.4		
PHF	.722	.855	.500	.847	.313	.750	.000	.458	.500	.943	.808	.947	.875	.450	.750	.931	.907



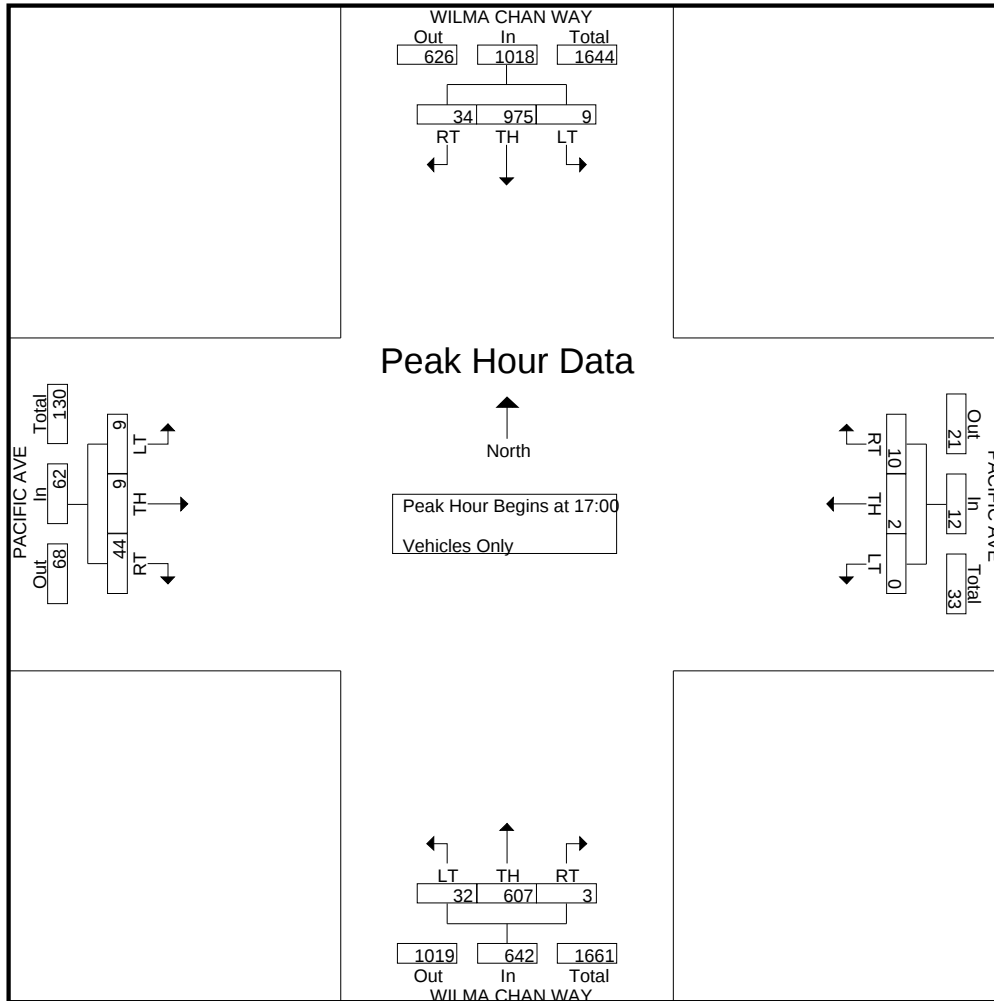
TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 4

	WILMA CHAN WAY Southbound				PACIFIC AVE Westbound				WILMA CHAN WAY Northbound				PACIFIC AVE Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	10	256	1	267	3	1	0	4	2	166	10	178	10	5	2	17	466
17:15	9	243	4	256	3	0	0	3	0	129	9	138	18	1	4	23	420
17:30	8	237	2	247	4	0	0	4	0	143	7	150	7	2	0	9	410
17:45	7	239	2	248	0	1	0	1	1	169	6	176	9	1	3	13	438
Total Volume	34	975	9	1018	10	2	0	12	3	607	32	642	44	9	9	62	1734
% App. Total	3.3	95.8	0.9		83.3	16.7	0		0.5	94.5	5		71	14.5	14.5		
PHF	.850	.952	.563	.953	.625	.500	.000	.750	.375	.898	.800	.902	.611	.450	.563	.674	.930



TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 1

Groups Printed- Bikes + Peds

	WILMA CHAN WAY Southbound					PACIFIC AVE Westbound					WILMA CHAN WAY Northbound					PACIFIC AVE Eastbound					
Start Time	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	Int. Total
07:00	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	3
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
07:30	0	0	0	1	1	0	0	0	1	1	0	0	0	3	3	0	0	0	0	0	5
07:45	0	0	0	3	3	1	1	0	1	3	0	0	0	3	3	0	0	0	2	2	11
Total	0	0	0	5	5	1	1	0	2	4	0	1	0	7	8	0	0	0	3	3	20
08:00	0	0	0	1	1	0	2	0	0	2	0	0	0	4	4	0	2	0	2	4	11
08:15	0	0	0	1	1	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	4
08:30	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	4
08:45	0	0	0	1	1	0	1	0	1	2	0	0	0	0	0	0	0	0	1	1	4
Total	0	0	0	4	4	0	5	0	3	8	0	0	0	5	5	0	2	0	4	6	23
09:00	0	0	0	2	2	0	3	0	0	3	0	0	0	0	0	0	0	0	2	2	7
09:15	0	1	0	0	1	0	0	0	1	1	0	0	0	1	1	1	1	0	2	4	7
09:30	0	1	0	2	3	0	1	0	0	1	0	0	1	0	1	0	0	0	1	1	6
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	2	0	4	6	0	4	0	1	5	0	0	1	1	2	1	1	0	6	8	21
10:00	0	0	0	3	3	1	0	0	0	1	0	0	0	1	1	0	0	0	1	1	6
10:15	0	0	0	0	0	0	0	0	2	2	0	1	0	2	3	0	0	0	3	3	8
10:30	0	0	0	0	0	0	1	0	2	3	0	1	0	3	4	0	2	0	0	2	9
10:45	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	3	3	5
Total	0	0	0	3	3	1	2	0	4	7	0	2	0	7	9	0	2	0	7	9	28
11:00	0	1	1	3	5	0	1	0	0	1	0	1	0	0	1	0	0	0	3	3	10
11:15	0	0	0	2	2	0	1	0	1	2	0	0	0	0	0	0	0	0	1	1	5
11:30	0	0	0	2	2	0	2	0	1	3	0	0	0	1	1	0	0	0	1	1	7
11:45	0	0	0	1	1	0	1	0	1	2	0	0	1	1	2	0	1	0	1	2	7
Total	0	1	1	8	10	0	5	0	3	8	0	1	1	2	4	0	1	0	6	7	29
12:00	0	1	0	0	1	0	2	0	0	2	0	0	0	1	1	0	1	0	0	1	5
12:15	0	1	0	5	6	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	7
12:30	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	5
12:45	1	0	0	2	3	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	6
Total	1	3	0	9	13	0	2	0	3	5	0	0	0	2	2	0	1	1	1	3	23
13:00	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
13:15	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	2	2	5
13:30	0	1	0	2	3	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	6
13:45	0	0	0	1	1	0	2	0	0	2	0	0	0	0	0	0	0	0	4	4	7
Total	0	1	0	4	5	0	3	0	0	3	0	0	0	6	6	0	0	0	6	6	20
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
14:15	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	2	2	4
14:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2	3
14:45	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	3
Total	0	2	0	0	2	0	2	0	0	2	0	0	1	0	1	0	0	0	6	6	11
15:00	0	0	0	2	2	0	0	0	1	1	0	0	1	1	2	0	1	0	2	3	8
15:15	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	1	0	1	2	4
15:30	0	0	0	4	4	0	1	0	3	4	0	0	0	1	1	0	0	0	0	0	9
15:45	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	5
Total	0	0	0	11	11	0	1	0	5	6	0	0	1	2	3	0	3	0	3	6	26
16:00	0	0	0	1	1	0	1	0	0	1	0	0	0	2	2	0	1	0	2	3	7
16:15	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2	0	0	0	0	0	3
16:30	1	0	0	0	1	0	2	0	0	2	0	1	0	1	2	0	1	0	1	2	7
16:45	0	1	0	0	1	0	2	0	1	3	0	0	0	1	1	0	1	0	3	4	9
Total	1	1	0	1	3	0	6	0	1	7	0	1	1	5	7	0	3	0	6	9	26
17:00	0	0	0	0	0	0	0	0	1	1	0	1	1	1	3	0	0	0	0	0	4
17:15	0	0	0	2	2	0	0	0	1	1	0	0	0	2	2	0	2	0	1	3	8
17:30	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	3
17:45	0	0	0	3	3	0	1	0	0	1	0	0	0	0	0	0	0	0	3	3	7
Total	0	0	0	6	6	0	2	0	2	4	0	1	1	3	5	0	2	0	5	7	22
18:00	0	1	1	1	3	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	6
18:15	0	1	0	5	6	0	1	0	4	5	0	0	0	1	1	0	0	0	0	0	12
18:30	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18:45	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	4	4	7
Total	0	2	1	7	10	0	2	0	6	8	0	0	1	2	3	0	1	0	4	5	26
Grand Total	2	12	2	62	78	2	35	0	30	67	0	6	7	42	55	1	16	1	57	75	275
Apprch %	2.6	15.4	2.6	79.5		3	52.2	0	44.8		0	10.9	12.7	76.4		1.3	21.3	1.3	76		
Total %	0.7	4.4	0.7	22.5	28.4	0.7	12.7	0	10.9	24.4	0	2.2	2.5	15.3	20	0.4	5.8	0.4	20.7	27.3	

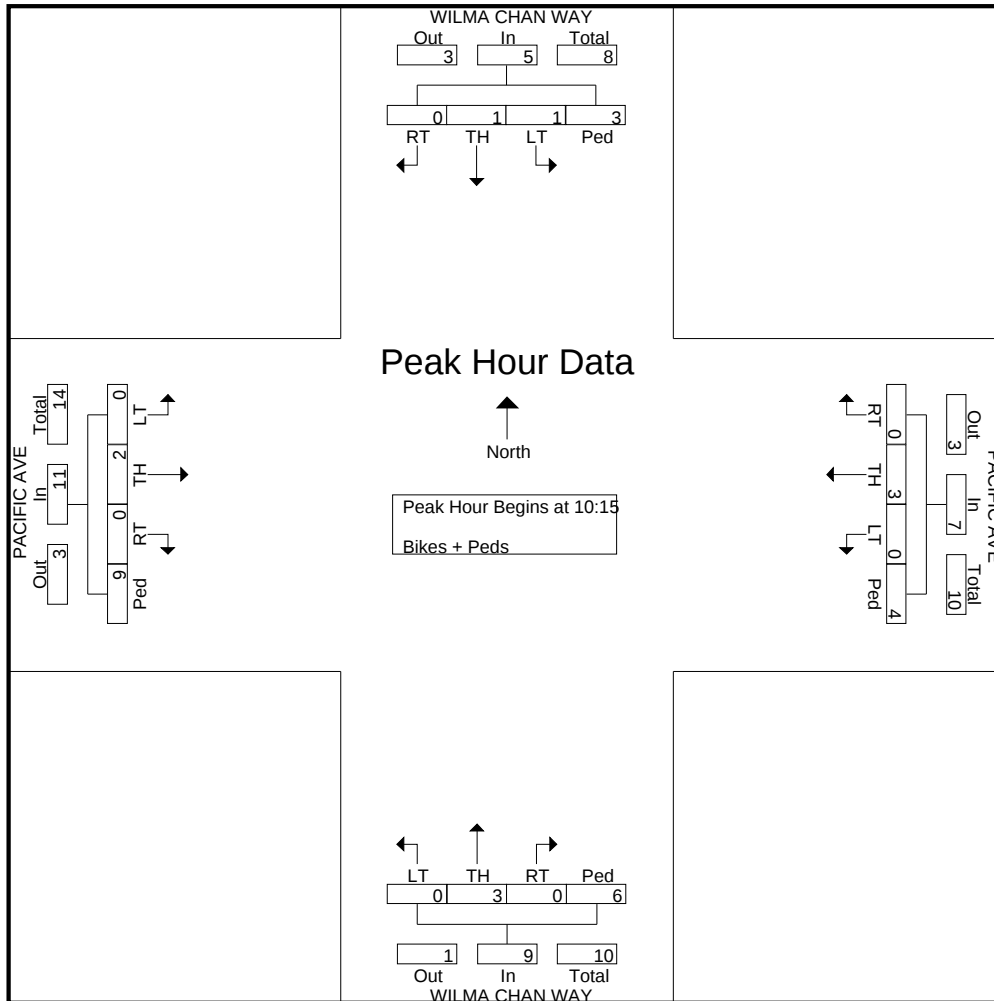
TRAFFIC COUNTS PLUS

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CITY OF ALAMEDA
Wilma Chan Way & Pacific Ave.
Latitude: 37.776198
Longitude: -122.274144

File Name : wilma chan-pacific-12
Site Code : 2
Start Date : 3/3/2026
Page No : 2

	WILMA CHAN WAY Southbound					PACIFIC AVE Westbound					WILMA CHAN WAY Northbound					PACIFIC AVE Eastbound					
Start Time	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	RT	TH	LT	Ped	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 10:15																					
10:15	0	0	0	0	0	0	0	0	2	2	0	1	0	2	3	0	0	0	3	3	8
10:30	0	0	0	0	0	0	1	0	2	3	0	1	0	3	4	0	2	0	0	2	9
10:45	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	3	3	5
11:00	0	1	1	3	5	0	1	0	0	1	0	1	0	0	1	0	0	0	3	3	10
Total Volume	0	1	1	3	5	0	3	0	4	7	0	3	0	6	9	0	2	0	9	11	32
% App. Total	0	20	20	60		0	42.9	0	57.1		0	33.3	0	66.7		0	18.2	0	81.8		
PHF	.000	.250	.250	.250	.250	.000	.750	.000	.500	.583	.000	.750	.000	.500	.563	.000	.250	.000	.750	.917	.800



TRAFFIC COUNTS PLUS

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Page 1

CITY OF ALAMEDA

WILMA CHAN WAY - PACIFIC AVE. to LINCOLN AVE.

wilma chan-1n

Site Code: 1n

NORTHBOUND

Start Time	1	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	Total
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	9999	
03/04/2																					
6	0	0	0	0	0	0	0	1	4	12	3	5	6	0	3	0	0	0	0	0	34
01:00	0	0	0	0	0	0	0	1	3	4	2	3	5	2	3	1	0	0	0	0	25
02:00	0	0	0	0	0	0	0	0	1	4	3	1	1	1	0	0	0	0	0	0	11
03:00	0	0	0	0	0	0	0	1	0	4	5	6	7	0	1	2	0	0	1	0	27
04:00	0	0	0	0	1	1	0	0	3	3	11	7	10	7	3	2	0	1	0	0	49
05:00	0	0	0	0	0	0	1	1	4	9	32	59	35	29	10	4	1	2	0	0	187
06:00	8	0	0	0	0	1	0	8	18	30	75	82	61	35	12	8	3	0	0	0	341
07:00	18	3	0	0	1	1	7	10	57	88	136	101	111	53	18	11	2	1	1	0	619
08:00	36	0	3	0	3	10	20	43	74	128	136	115	76	40	16	6	0	1	1	0	708
09:00	23	1	1	1	3	5	10	30	65	95	129	114	64	19	11	8	1	0	0	0	580
10:00	20	0	1	1	2	8	16	37	38	105	92	79	53	29	15	2	1	0	0	1	500
11:00	9	0	0	0	4	5	12	24	67	97	94	84	53	29	18	4	2	0	1	0	503
12 PM	31	0	0	2	2	1	9	33	75	122	113	100	55	27	14	7	0	2	0	1	594
13:00	18	0	0	0	0	2	9	28	86	106	115	85	49	26	6	4	4	0	0	0	538
14:00	16	0	0	2	2	6	14	44	72	113	128	92	49	28	22	8	2	0	0	0	598
15:00	19	0	1	0	0	10	6	28	73	107	114	103	57	24	9	6	2	0	0	0	559
16:00	15	0	2	1	0	2	15	38	79	72	112	83	57	15	8	3	0	0	0	0	502
17:00	22	0	1	0	2	6	14	44	80	111	110	64	45	18	8	3	3	0	0	0	531
18:00	16	0	2	2	2	4	11	42	83	138	109	86	39	25	7	4	0	1	0	0	571
19:00	7	0	0	0	1	3	7	17	59	68	92	58	51	19	12	5	0	1	0	0	400
20:00	3	0	0	0	0	2	5	10	31	57	75	57	27	13	4	1	2	1	1	0	289
21:00	1	0	0	0	0	0	1	5	8	23	51	39	37	8	7	1	1	0	0	0	182
22:00	1	0	0	0	0	2	2	2	6	24	17	28	15	8	3	0	0	0	0	0	108
23:00	0	0	0	0	0	0	1	3	6	11	12	13	11	5	1	2	3	0	0	0	68
Total	263	4	11	9	23	69	161	452	990	1531	1766	1464	974	460	211	92	27	10	5	2	8524
Grand Total	263	4	11	9	23	69	161	452	990	1531	1766	1464	974	460	211	92	27	10	5	2	8524

Stats

15th Percentile : 22 MPH
50th Percentile : 27 MPH
85th Percentile : 31 MPH
95th Percentile : 34 MPH

Mean Speed(Average) : 26 MPH
10 MPH Pace Speed : 23-32 MPH
Number in Pace : 6301
Percent in Pace : 73.9%
Number of Vehicles > 25 MPH : 5882
Percent of Vehicles > 25 MPH : 69.0%

TRAFFIC COUNTS PLUS

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Page 1

CITY OF ALAMEDA

WILMA CHAN WAY - PACIFIC AVE. to LINCOLN AVE.

wilma chan-2s

Site Code: 2s

SOUTHBOUND

Start Time	1	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	Total
	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	9999	
03/04/2																					
6	0	0	0	0	0	0	0	1	6	16	11	11	17	3	1	2	0	0	1	0	69
01:00	0	0	0	0	0	0	0	1	3	5	9	6	2	2	0	0	0	0	0	0	28
02:00	0	0	0	0	0	0	0	1	1	7	8	3	2	2	0	0	0	0	0	0	24
03:00	0	1	0	0	0	0	0	1	2	1	2	5	2	3	0	0	0	0	0	0	17
04:00	0	0	0	0	0	0	1	0	0	2	3	3	2	2	0	0	0	0	0	0	13
05:00	2	0	0	0	0	0	1	6	5	4	15	14	6	5	3	1	0	1	0	0	63
06:00	0	0	0	0	0	2	4	5	13	25	38	26	9	7	2	0	0	1	0	0	132
07:00	9	0	0	0	1	5	13	34	50	71	60	37	33	4	3	0	0	0	0	0	320
08:00	36	0	4	6	11	26	34	61	71	101	65	35	18	6	5	1	0	0	0	0	480
09:00	19	2	4	4	9	7	15	40	64	76	64	35	13	11	4	0	0	0	0	0	367
10:00	18	0	1	5	3	6	22	31	55	86	76	44	27	16	3	2	0	0	0	0	395
11:00	26	1	5	8	6	16	15	35	66	94	80	60	28	10	3	1	0	0	0	0	454
12 PM	35	2	5	4	3	17	43	46	81	83	79	54	32	14	4	3	0	0	1	0	506
13:00	36	1	1	3	3	18	32	51	102	75	100	68	26	9	4	0	0	0	0	0	529
14:00	43	2	3	6	6	27	36	54	93	103	85	47	26	6	2	1	1	0	0	0	541
15:00	81	5	2	18	22	23	48	100	109	80	76	44	16	10	1	0	0	0	0	0	635
16:00	135	6	20	31	41	51	75	111	109	98	69	28	12	6	4	0	0	0	0	0	796
17:00	133	10	16	34	57	59	76	109	132	105	61	29	9	5	2	0	0	0	0	0	837
18:00	67	4	10	15	21	31	54	79	119	99	86	31	8	5	1	0	1	0	0	0	631
19:00	22	1	1	3	7	14	29	63	100	91	74	42	21	10	3	1	0	0	0	0	482
20:00	7	0	1	0	2	7	24	59	58	81	88	46	25	2	6	2	0	1	0	2	411
21:00	3	0	1	1	0	4	11	26	34	62	79	53	28	13	5	1	0	1	0	0	322
22:00	2	0	0	0	1	0	6	6	16	37	38	33	19	6	1	3	1	1	0	0	170
23:00	0	0	0	0	0	0	3	2	11	14	27	25	15	10	2	2	1	0	0	0	112
Total	674	35	74	138	193	313	542	922	1300	1416	1293	779	396	167	59	20	4	5	2	2	8334
Grand Total	674	35	74	138	193	313	542	922	1300	1416	1293	779	396	167	59	20	4	5	2	2	8334

Stats

15th Percentile : 6 MPH
50th Percentile : 23 MPH
85th Percentile : 28 MPH
95th Percentile : 31 MPH

Mean Speed(Average) : 21 MPH
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 5021
Percent in Pace : 60.3%
Number of Vehicles > 25 MPH : 3364
Percent of Vehicles > 25 MPH : 40.4%

Appendix B: CA MUTCD Warrant Analysis Worksheet

Wilma Chan Way / Pacific Avenue Traffic Signal Warrant & PHB Analysis - DRAFT
Alameda, CA

CA MUTCD 2026 Traffic Signal Warrants

#	Warrant	Met?	Notes
1	Eight Hour Vehicular Volume	No	Highest approach minor street vehicle volumes do not meet threshold for any of the 8 hours.
2	Four Hour Vehicular Volume	No	Highest approach minor street vehicle volumes meet threshold for only 1 out of 4 hours.
3	Peak Hour	No	CA MUTCD Section 4C.04: Warrant 3 "should only be applied in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time." Nearby land uses do not match these descriptions.
4	Pedestrian Volume	No	Ped volumes peak at 25 peds/hr and do not meet thresholds (4 hr - 107 peds/hr; 1 hr - 133 peds/hr).
5	School Crossing	No	The crosswalks are not marked as a school crossing. Total ped volumes crossing Wilma Chan peak at 25 at 7:30am, and volumes average 12 for the rest of the day. It is unlikely that there are 20 schoolchildren during the highest crossing hour.
6	Coordinated Signal System	No	Nearest signals are under 1,000 feet away.
7	Crash Experience Warrant	No, close	Meets thresholds from 2016-2018, and crash frequency has diminished since. Crash mitigation may have happened, but conditions do not seem to have changed on Streetview. Warrant 1 Condition B 80% thresholds are met for 6 out of 8 required hours. Remaining hours are close, within 5-13 vehicles on the highest approach of the minor street.
8	Roadway Network	No	Pacific Ave is not classified as a major route.
9	Intersection Near a Grade Crossing	No	Wilma Chan Way / Pacific Ave is not near a grade crossing.

CA MUTCD 2026 Pedestrian Hybrid Beacon (PHB) Guidelines

Guideline	Met?	Notes
Figure 4J-1. Guidelines for Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways	Yes	Meets pedestrian thresholds crossing Wilma Chan at 7:30am if peds and bikes are counted (not explicitly stated in CA MUTCD). Barely misses threshold if only peds are counted (17; threshold is 20).

Figure 4C-101(CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE 3/3/26 Tuesday
 CALC JZ DATE _____
 CHK AL DATE _____
 50th %ile: 23-27
 85th %ile: 28-31

DIST _____ CO _____ RTE _____ PM _____

Major St: Wilma Chan Way
 Minor St: Pacific Avenue

Critical Approach Speed _____ mph
 Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 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 or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume 100% SATISFIED YES ☐ NO ☒
 80% SATISFIED YES ☐ NO ☒

		MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				80% SATISFIED YES ☐ NO ☒							
		U	R	U	R								
APPROACH LANES	1		2 or More		9:45 AM	11:15 AM	12:15 AM	1:45 PM	2:45 PM	3:45 PM	4:45 PM	5:45 PM	Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	959	1046	1128	1092	1339	1470	1633	1571	
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	47	61	68	60	63	66	71	55	

Condition B - Interruption of Continuous Traffic 100% SATISFIED YES ☐ NO ☒
 80% SATISFIED YES ☐ NO ☒

MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)					80% SATISFIED								YES	☐	NO	☒
	U	R	U	R												
APPROACH LANES	1		2 or More		9:45 AM	11:15 AM	12:15 AM	1:45 PM	2:45 PM	3:45 PM	4:45 PM	5:45 PM	Hour			
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	959	1046	1128	1092	1339	1470	1633	1571				
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	47	61	68	60	63	66	71	55				

Combination of Conditions A & B SATISFIED YES ☐ NO ☒

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☒
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☐

Major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101(CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume

SATISFIED* YES ☐ NO ☒

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	12:15 AM	1:45 PM	2:45 PM	4:30 PM	Hour
Both Approaches - Major Street		☒	1128	1092	1339	1622	
Higher Approach - Minor Street	☒		68	60	63	91	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☒
<u>OR</u> , All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**

SATISFIED YES ☐ NO ☒

PART A

SATISFIED YES ☐ NO ☒

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	Yes ☐	No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>	Yes ☐	No ☒
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐

PART B

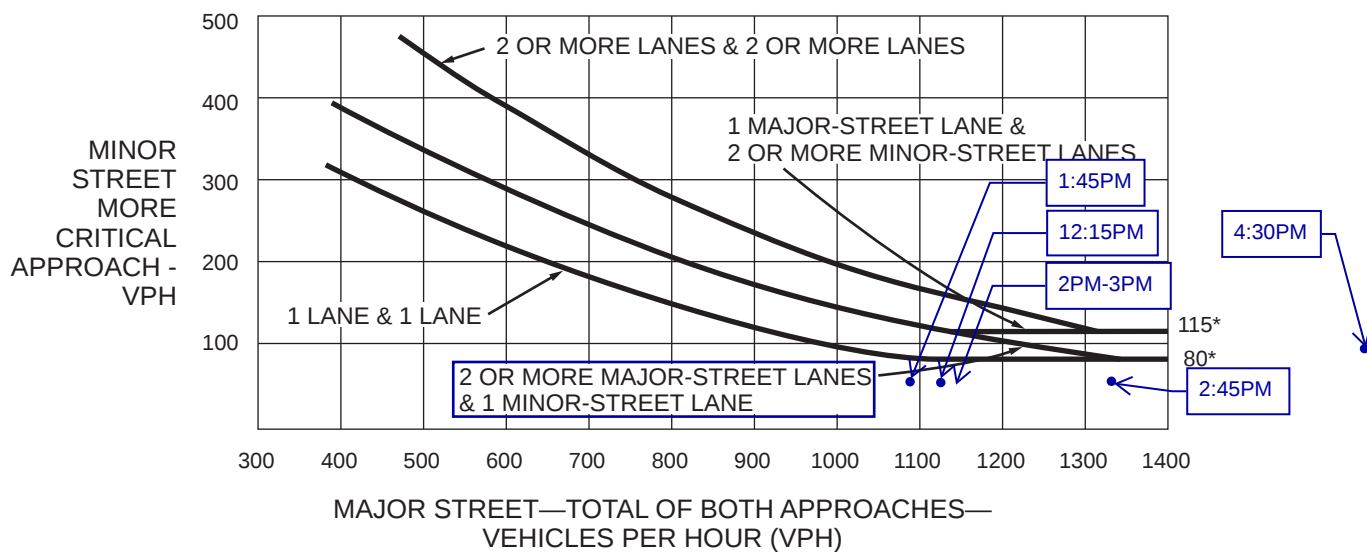
SATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	4 PM	Hour
Both Approaches - Major Street		☒	1489	
Higher Approach - Minor Street	☒		70	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☒
<u>OR</u> , The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☐

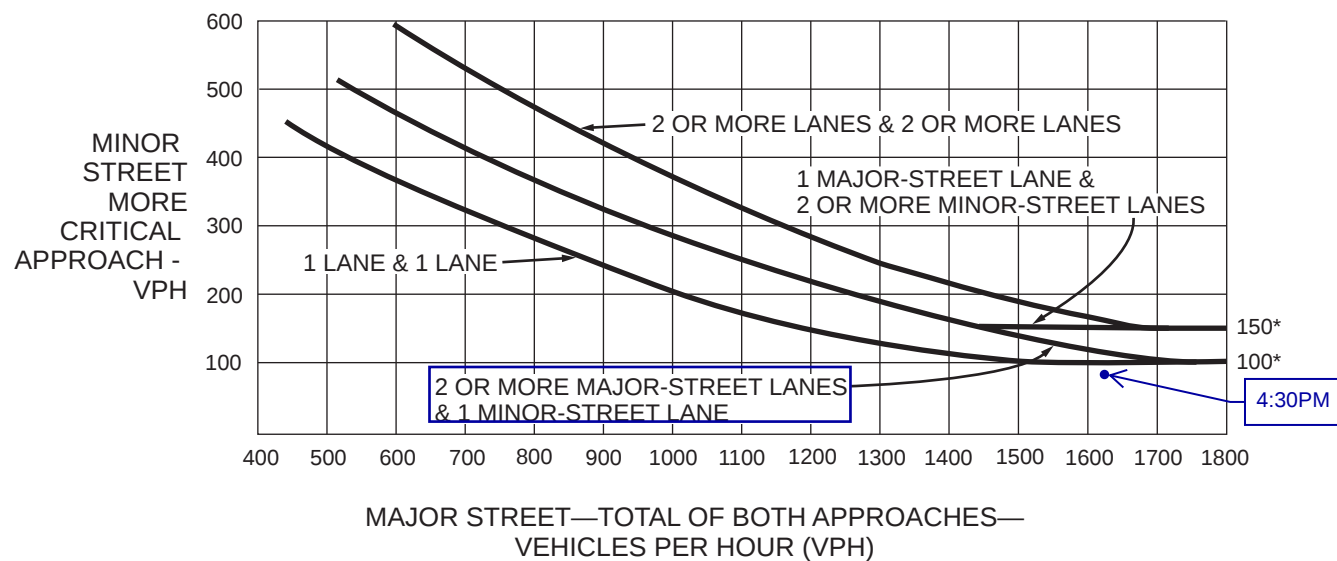
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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-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

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)

**WARRANT 4 - Pedestrian Volume
(Parts 1 and 2 Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

Part 1 (Parts A or B must be satisfied)

Hours -->

A.

Vehicles per hour for any 4 hours	1143	1420	1617	1585
Pedestrians per hour for any 4 hours	25	18	15	16

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☒

Hours -->

B.

Vehicles per hour for any 1 hour	1143	1420	1617	1585
Pedestrians per hour for any 1 hour	25	18	15	16

Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☐

Part 2

SATISFIED YES ☒ NO ☐

<u>AND</u> , The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☒ No ☐
<u>OR</u> , The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☒ No ☐

**WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

Part A

Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☒

Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		<20

Hour

Gaps < Minutes YES ☐ NO ☐
AND Children > 20/hr YES ☐ NO ☒

<u>AND</u> , Consideration has been given to less restrictive remedial measures.	Yes ☐ No ☐
--	--

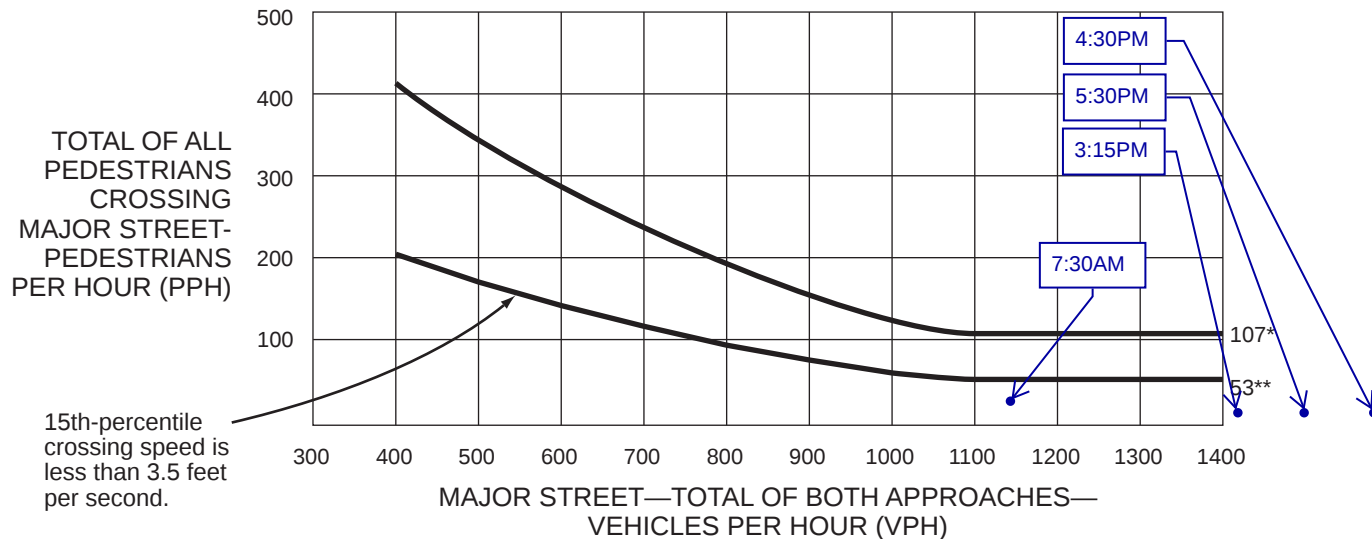
Part B

SATISFIED YES ☒ NO ☐

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☒ No ☐
<u>OR</u> , The proposed signal will not restrict the progressive movement of traffic.	Yes ☒ No ☐

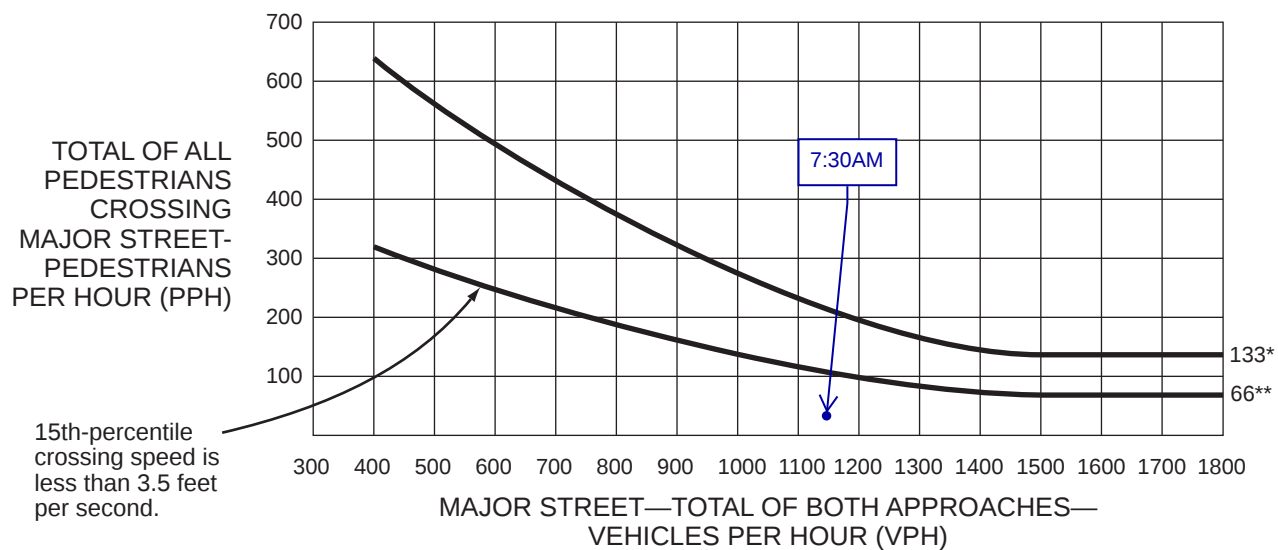
The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume



- * 107 pph applies as the lower threshold volume
- ** 53 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

Figure 4C-6. Warrant 4, Pedestrian Peak Hour



- * 133 pph applies as the lower threshold volume
- ** 66 pph applies as the lower threshold volume if the 15th-percentile crossing speed is less than 3.5 feet per second

Figure 4C-101(CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)

**WARRANT 6 - Coordinated Signal System
(All Parts Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N 370 ft, S 525 ft, E >1,000 ft, W 730 ft	Yes ☐ No ☒
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

**WARRANT 7 - Crash Experience Warrant
(All Parts Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.		Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.	Yes ☐ No ☐
5 OR MORE		
REQUIREMENTS	CONDITIONS	✓
ONE CONDITION SATISFIED MINIMUM REPORTED CRASHES	Table 4C-2, Angle crashes and pedestrian crashes	
	OR, Table 4C-2, Fatal-and-injury angle crashes and pedestrian crashes	✓
	OR, Table 4C-3, Angle crashes and pedestrian crashes	✓
	OR, Table 4C-3, Fatal-and-injury angle crashes and pedestrian crashes	✓
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume	
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic	
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8	

**WARRANT 8 - Roadway Network
(All Parts Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour 1,734 Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☒ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun Veh/Hr		
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ROUTE A	MAJOR ROUTE B
Hwy. System Serving as Principal Network for Through Traffic			
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan		✓	
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 5 of 5)

**WARRANT 9 - Intersection Near a Grade Crossing
(Both Parts A and B Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

<u>PART A</u> A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☒
<u>PART B</u> There is one minor street approach lane at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH <u>OR</u>, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☒

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

- 1- Number of Rail Traffic per Day _____ Adjustment factor from table 4C-2 _____
- 2- Percentage of High-Occupancy Buses on Minor Street Approach _____ Adjustment factor from table 4C-3 _____
- 3- Percentage of Tractor-Trailer Trucks on Minor Street Approach _____ Adjustment factor from table 4C-4 _____

NOTE: If no data is available or known, then use AF = 1 (no adjustment)

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

*

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on more critical minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

^a Basic minimum hourly volume

^b Used for combination of Conditions A and B after adequate trial of other remedial measures

^c May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

^d May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

* Refer to FHWA's List of Known Errors for error above the second sub-table. Refer to Section 1A.04 for more details.

Table 4C-2. Minimum Number of Reported Crashes in a One-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	5	4	3	3
2 or more	1	5	4	3	3
2 or more	2 or more	5	4	3	3
1	2 or more	5	4	3	3

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-3. Minimum Number of Reported Crashes in a Three-Year Period

Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	6	5	4	4
2 or more	2 or more	6	5	4	4
1	2 or more	6	5	4	4

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-4. Minimum Number of Reported Crashes in a One-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	4	3	3	3
2 or more	1	1 0	9	6	6
2 or more	2 or more	1 0	9	6	6
1	2 or more	4	3	3	3

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

Table 4C-5. Minimum Number of Reported Crashes in a Three-Year Period

Community less than 10,000 population or above 40 mph on major street					
Number of through lanes on each approach		Total of angle and pedestrian crashes (all severities) ^a		Total of fatal-and-injury angle and pedestrian crashes ^a	
Major Street	Minor Street	Four Legs	Three Legs	Four Legs	Three Legs
1	1	6	5	4	4
2 or more	1	1 6	13	9	9
2 or more	2 or more	1 6	13	9	9
1	2 or more	6	5	4	4

^a Angle crashes include all crashes that occur at an angle and involve one or more vehicles on the major street and one or more vehicles on the minor street

**Table 4C-6. Warrant 9,
Adjustment Factor for Daily
Frequency of Rail Traffic**

Rail traffic per day	Adjustment factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

**Table 4C-7. Warrant 9, Adjustment Factor for
Percentage of High-Occupancy Buses**

% of high-occupancy buses* on minor-street approach	Adjustment factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

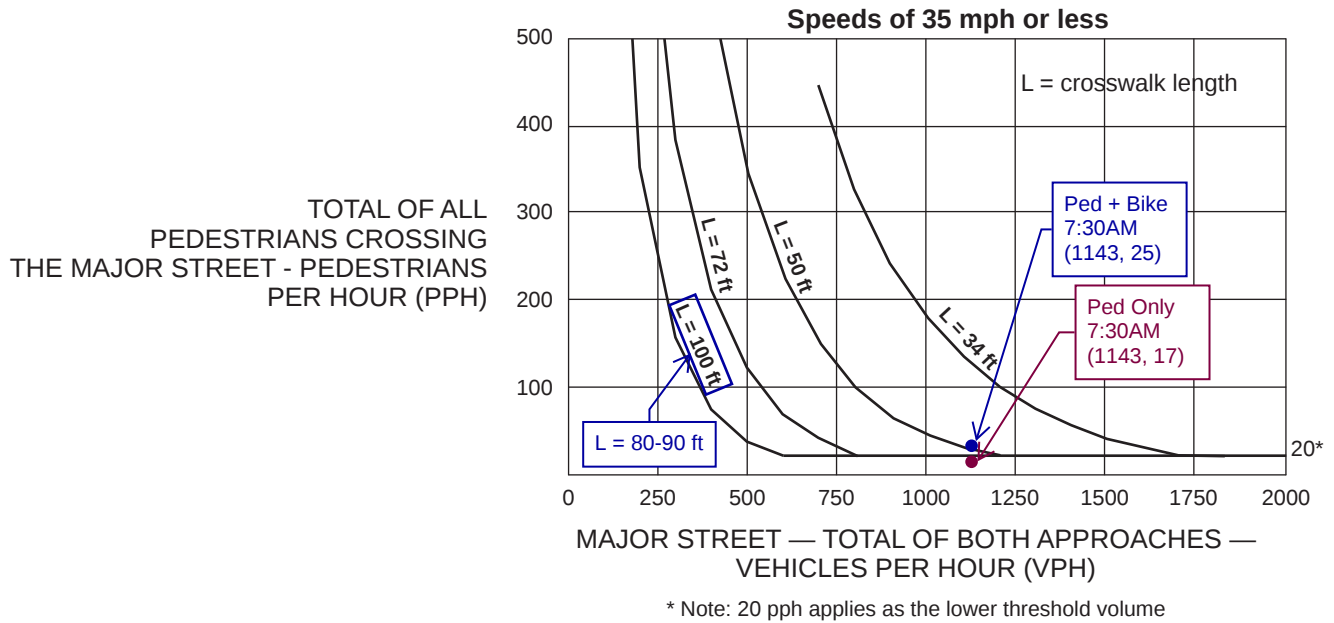
* A high-occupancy bus is defined as a bus occupied by at least 20 people.

**Table 4C-8. Warrant 9, Adjustment Factor for
Percentage of Tractor-Trailer Trucks**

% of tractor-trailer trucks on minor-street approach	Adjustment factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

PHB Warrant

Figure 4J-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



Appendix C: Traffic Operations Modeling

HCM Unsignalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	25	0	7	16	29	703	3	3	466	20
Future Volume (Veh/h)	8	8	25	0	7	16	29	703	3	3	466	20
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	27	0	8	17	32	764	3	3	507	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)							563			373		
pX, platoon unblocked	0.92	0.92	0.90	0.92	0.92	0.87	0.90				0.87	
vC, conflicting volume	991	1355	265	1121	1365	384	529				767	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	332	729	0	473	740	0	266				424	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	97	97	100	97	98	97				100	
cM capacity (veh/h)	514	309	980	403	304	940	1170				981	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	45	25	414	385	257	276						
Volume Left	9	0	32	0	3	0						
Volume Right	27	17	0	3	0	22						
cSH	606	564	1170	1700	981	1700						
Volume to Capacity	0.07	0.04	0.03	0.23	0.00*	0.16						
Queue Length 95th (ft)	6	3	2	0	0	0						
Control Delay (s/veh)	11.4	11.7	0.9	0.0	0.1	0.0						
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.4	11.7	0.5	0.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay	0.9											
Intersection Capacity Utilization	53.0%			ICU Level of Service			A					
Analysis Period (min)	15											
* Value less than 0.01.												

HCM Unsignalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	9	44	0	2	10	32	607	3	9	975	34
Future Volume (Veh/h)	9	9	44	0	2	10	32	607	3	9	975	34
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	10	48	0	2	11	35	660	3	10	1060	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (ft)	563						373					
pX, platoon unblocked	0.93	0.93	0.88	0.93	0.93	0.89	0.88				0.89	
vC, conflicting volume	1511	1832	549	1335	1849	332	1097				663	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	891	1234	217	702	1253	12	839				383	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	95	94	93	100	99	99	95				99	
cM capacity (veh/h)	207	154	694	256	150	951	697				1046	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	68	13	365	333	540	567						
Volume Left	10	0	35	0	10	0						
Volume Right	48	11	0	3	0	37						
cSH	373	522	697	1700	1046	1700						
Volume to Capacity	0.18	0.02	0.05	0.20	0.00*	0.33						
Queue Length 95th (ft)	16	2	4	0	1	0						
Control Delay (s/veh)	16.8	12.1	1.6	0.0	0.3	0.0						
Lane LOS	C	B	A	A								
Approach Delay (s/veh)	16.8	12.1	0.8	0.1								
Approach LOS	C	B										
Intersection Summary												
Average Delay	1.1											
Intersection Capacity Utilization	57.7%			ICU Level of Service			B					
Analysis Period (min)	15											

* Value less than 0.01.

HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

04/22/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Future Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.92			0.91			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1669			1667			3530			3510	
Flt Permitted		0.93			1.00			0.92			0.95	
Satd. Flow (perm)		1567			1667			3269			3344	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	9	27	0	8	17	32	764	3	3	507	22
RTOR Reduction (vph)	0	24	0	0	15	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	21	0	0	10	0	0	799	0	0	530	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		6.4			6.4			32.9			32.9	
Effective Green, g (s)		6.4			6.4			32.9			32.9	
Actuated g/C Ratio		0.12			0.12			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		189			201			2033			2079	
v/s Ratio Prot					0.01							
v/s Ratio Perm		c0.01						c0.24			0.16	
v/c Ratio		0.11			0.05			0.39			0.25	
Uniform Delay, d1		20.7			20.6			5.0			4.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.1			0.1			0.1	
Delay (s)		21.0			20.7			5.1			4.6	
Level of Service		C			C			A			A	
Approach Delay (s)		21.0			20.7			5.1			4.6	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.34										
Actuated Cycle Length (s)		52.9			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		60.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

04/22/2026

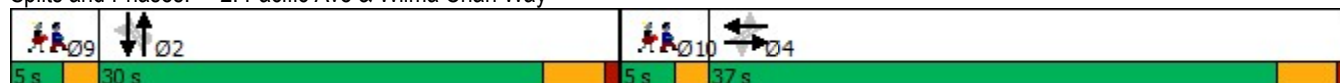


Phase Number	2	4	9	10
Movement	NBSB	EBWB	Ped	Ped
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	None	None
Maximum Split (s)	30	37	5	5
Maximum Split (%)	39.0%	48.1%	6.5%	6.5%
Minimum Split (s)	30	37	3	3
Yellow Time (s)	3.5	3.5	2	2
All-Red Time (s)	1	1	0	0
Minimum Initial (s)	5	5	1	1
Vehicle Extension (s)	3	3	0.2	0.2
Minimum Gap (s)	3	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	0	0
Flash Dont Walk (s)	18	25	0	0
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	5	40	0	35
End Time (s)	35	0	5	40
Yield/Force Off (s)	30.5	72.5	3	38
Yield/Force Off 170(s)	30.5	47.5	3	38
Local Start Time (s)	0	35	72	30
Local Yield (s)	25.5	67.5	75	33
Local Yield 170(s)	25.5	42.5	75	33

Intersection Summary

Cycle Length	77
Control Type	Actuated-Uncoordinated
Natural Cycle	75

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Future Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.89			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1643			1620			3528			3515	
Flt Permitted		0.95			1.00			0.87			0.95	
Satd. Flow (perm)		1579			1620			3088			3338	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	10	48	0	2	11	35	660	3	10	1060	37
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	26	0	0	3	0	0	698	0	0	1105	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		7.4			7.4			37.9			37.9	
Effective Green, g (s)		7.4			7.4			37.9			37.9	
Actuated g/C Ratio		0.13			0.13			0.67			0.67	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		206			211			2064			2231	
v/s Ratio Prot					0.00							
v/s Ratio Perm		c0.02						0.23			c0.33	
v/c Ratio		0.13			0.02			0.34			0.50	
Uniform Delay, d1		21.8			21.5			4.0			4.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.0			0.1			0.2	
Delay (s)		22.1			21.5			4.1			4.8	
Level of Service		C			C			A			A	
Approach Delay (s/veh)		22.1			21.5			4.1			4.8	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		5.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.45										
Actuated Cycle Length (s)		56.7			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		61.8%			ICU Level of Service			B				
Analysis Period (min)		15										

c Critical Lane Group

Timing Report, Sorted By Phase
2: Pacific Ave & Wilma Chan Way

07/06/2026

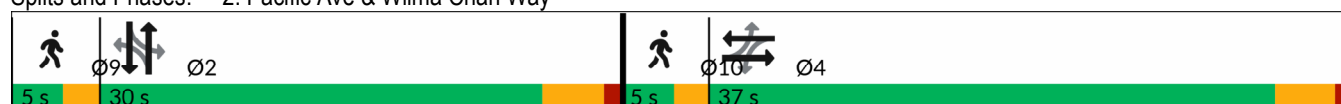


Phase Number	2	4	9	10
Movement	NBSB	EBWB	Ped	Ped
Lead/Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	Min	None	None	None
Maximum Split (s)	30	37	5	5
Maximum Split (%)	39.0%	48.1%	6.5%	6.5%
Minimum Split (s)	30	37	3	3
Yellow Time (s)	3.5	3.5	2	2
All-Red Time (s)	1	1	0	0
Minimum Initial (s)	5	5	1	1
Vehicle Extension (s)	3	3	0.2	0.2
Minimum Gap (s)	3	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	0	0
Flash Don't Walk (s)	18	25	0	0
Dual Entry	Yes	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	5	40	0	35
End Time (s)	35	0	5	40
Yield/Force Off (s)	30.5	72.5	3	38
Yield/Force Off 170(s)	30.5	47.5	3	38
Local Start Time (s)	0	35	72	30
Local Yield (s)	25.5	67.5	75	33
Local Yield 170(s)	25.5	42.5	75	33

Intersection Summary

Cycle Length	77
Control Type	Actuated-Uncoordinated
Natural Cycle	75

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↕		↖	↕	
Traffic Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Future Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.91		1.00	1.00		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1669			1668		1770	3537		1768	3512	
Flt Permitted		0.92			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1557			1668		1770	3537		1768	3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	9	27	0	8	17	32	764	3	3	507	22
RTOR Reduction (vph)	0	24	0	0	15	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	21	0	0	10	0	32	767	0	3	526	0
Confl. Peds. (#/hr)	3		6			12			8	3		18
Confl. Bikes (#/hr)			6			2			6			
Turn Type	Perm	NA			NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1!	2!		5!	6!	
Permitted Phases	4			8								
Actuated Green, G (s)		5.4			5.4		0.6	19.2		0.6	19.2	
Effective Green, g (s)		5.4			5.4		0.6	19.2		0.6	19.2	
Actuated g/C Ratio		0.13			0.13		0.01	0.45		0.01	0.45	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		195			208		24	1575		24	1564	
v/s Ratio Prot					0.01		c0.02	c0.22		0.00	0.15	
v/s Ratio Perm		c0.01										
v/c Ratio		0.11			0.05		1.33	0.49		0.12	0.34	
Uniform Delay, d1		16.7			16.6		21.2	8.5		21.0	7.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.1		300.0	0.2		2.3	0.1	
Delay (s)		17.0			16.7		321.2	8.7		23.3	7.9	
Level of Service		B			B		F	A		C	A	
Approach Delay (s)		17.0			16.7			21.2			8.0	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			16.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			43.1				Sum of lost time (s)			17.5		
Intersection Capacity Utilization			44.2%				ICU Level of Service			A		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

04/22/2026



Phase Number	1	2	4	5	6	8	9	10	11	12
Movement	NBL	NBT	EBTL	SBL	SBT	WBTL	Ped	Ped	Ped	Hold
Lead/Lag	Lead			Lead			Lag	Lag		
Lead-Lag Optimize	Yes			Yes			Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Maximum Split (s)	12.5	31	36.5	12.5	31	36.5	5	5	5	5
Maximum Split (%)	13.9%	34.4%	40.6%	13.9%	34.4%	40.6%	5.6%	5.6%	5.6%	5.6%
Minimum Split (s)	12.5	29.5	36.5	12.5	29.5	36.5	4	3	3	3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	2	2	2	2
All-Red Time (s)	1	1	1	1	1	1	0	0	0	0
Minimum Initial (s)	8	5	5	8	5	5	1	1	1	1
Vehicle Extension (s)	3	3	3	3	3	3	0.2	0.2	0.2	0.2
Minimum Gap (s)	3	3	3	3	3	3	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0	0	0
Walk Time (s)		7	7		7	7	0	0	0	0
Flash Dont Walk (s)		18	25		18	25	0	0	0	0
Dual Entry	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	17.5	53.5	0	17.5	53.5	12.5	12.5	48.5	48.5
End Time (s)	12.5	48.5	0	12.5	48.5	0	17.5	17.5	53.5	53.5
Yield/Force Off (s)	8	44	85.5	8	44	85.5	15.5	15.5	51.5	51.5
Yield/Force Off 170(s)	8	26	60.5	8	26	60.5	15.5	15.5	51.5	51.5
Local Start Time (s)	72.5	0	36	72.5	0	36	85	85	31	31
Local Yield (s)	80.5	26.5	68	80.5	26.5	68	88	88	34	34
Local Yield 170(s)	80.5	8.5	43	80.5	8.5	43	88	88	34	34

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 2: Pacific Ave & Wilma Chan Way

Ø1	Ø9	Ø2	Ø11	Ø4
12.5 s	5 s	31 s	5 s	36.5 s
Ø5	Ø10	Ø6	Ø12	Ø8
12.5 s	5 s	31 s	5 s	36.5 s

HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Future Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
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			0.89		1.00	1.00		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1641			1619		1770	3536		1770	3517	
Flt Permitted		0.95			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1566			1619		1770	3536		1770	3517	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	10	48	0	2	11	35	660	3	10	1060	37
RTOR Reduction (vph)	0	43	0	0	10	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	25	0	0	3	0	35	663	0	10	1095	0
Confl. Peds. (#/hr)	3		6			12	3		8			18
Confl. Bikes (#/hr)			6			2			6			
Turn Type	Perm	NA			NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1!	2!		5!	6!	
Permitted Phases	4			8								
Actuated Green, G (s)		6.2			6.2		2.5	28.6		0.8	30.3	
Effective Green, g (s)		6.2			6.2		2.5	28.6		0.8	30.3	
Actuated g/C Ratio		0.11			0.11		0.05	0.52		0.01	0.55	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		175			181		79	1825		25	1923	
v/s Ratio Prot					0.00		c0.02	0.19		0.01	c0.31	
v/s Ratio Perm		c0.02										
v/c Ratio		0.14			0.02		0.44	0.36		0.40	0.57	
Uniform Delay, d1		22.2			21.9		25.8	8.0		27.1	8.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.0		3.9	0.1		10.2	0.4	
Delay (s)		22.6			21.9		29.7	8.1		37.2	8.6	
Level of Service		C			C		C	A		D	A	
Approach Delay (s/veh)		22.6			21.9			9.2			8.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		9.6										
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		55.4										
Intersection Capacity Utilization		49.3%										
Analysis Period (min)		15										
! Phase conflict between lane groups.												
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

07/06/2026



Phase Number	1	2	4	5	6	8	9	10	11	12
Movement	NBL	NBT	EBTL	SBL	SBT	WBTL	Ped	Ped	Ped	Hold
Lead/Lag	Lead			Lead			Lag	Lag		
Lead-Lag Optimize	Yes			Yes			Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Maximum Split (s)	12.5	31	36.5	12.5	31	36.5	5	5	5	5
Maximum Split (%)	13.9%	34.4%	40.6%	13.9%	34.4%	40.6%	5.6%	5.6%	5.6%	5.6%
Minimum Split (s)	12.5	29.5	36.5	12.5	29.5	36.5	4	3	3	3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	2	2	2	2
All-Red Time (s)	1	1	1	1	1	1	0	0	0	0
Minimum Initial (s)	8	5	5	8	5	5	1	1	1	1
Vehicle Extension (s)	3	3	3	3	3	3	0.2	0.2	0.2	0.2
Minimum Gap (s)	3	3	3	3	3	3	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0	0	0
Walk Time (s)		7	7		7	7	0	0	0	0
Flash Don't Walk (s)		18	25		18	25	0	0	0	0
Dual Entry	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	17.5	53.5	0	17.5	53.5	12.5	12.5	48.5	48.5
End Time (s)	12.5	48.5	0	12.5	48.5	0	17.5	17.5	53.5	53.5
Yield/Force Off (s)	8	44	85.5	8	44	85.5	15.5	15.5	51.5	51.5
Yield/Force Off 170(s)	8	26	60.5	8	26	60.5	15.5	15.5	51.5	51.5
Local Start Time (s)	72.5	0	36	72.5	0	36	85	85	31	31
Local Yield (s)	80.5	26.5	68	80.5	26.5	68	88	88	34	34
Local Yield 170(s)	80.5	8.5	43	80.5	8.5	43	88	88	34	34

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 2: Pacific Ave & Wilma Chan Way

Ø1	Ø9	Ø2	Ø11	Ø4
12.5 s	5 s	31 s	5 s	36.5 s
Ø5	Ø10	Ø6	Ø12	Ø8
12.5 s	5 s	31 s	5 s	36.5 s

HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	41	0	0	23	0	717	3	0	466	20
Future Volume (vph)	0	0	41	0	0	23	0	717	3	0	466	20
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	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frpb, ped/bikes			0.98			0.98		1.00			1.00	
Flpb, ped/bikes			1.00			1.00		1.00			1.00	
Frt			0.86			0.86		1.00			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1571			1579		3537			3512	
Flt Permitted			1.00			1.00		1.00			1.00	
Satd. Flow (perm)			1571			1579		3537			3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	45	0	0	25	0	779	3	0	507	22
RTOR Reduction (vph)	0	0	39	0	0	22	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	6	0	0	3	0	782	0	0	526	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type			Perm			Perm		NA			NA	
Protected Phases								2			2	
Permitted Phases			4			4						
Actuated Green, G (s)			5.0			5.0		20.3			20.3	
Effective Green, g (s)			5.0			5.0		20.3			20.3	
Actuated g/C Ratio			0.13			0.13		0.52			0.52	
Clearance Time (s)			4.6			4.6		4.6			4.6	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			200			201		1836			1823	
v/s Ratio Prot								c0.22			0.15	
v/s Ratio Perm			c0.00			0.00						
v/c Ratio			0.03			0.02		0.43			0.29	
Uniform Delay, d1			14.9			14.9		5.8			5.3	
Progression Factor			1.00			1.00		1.00			1.00	
Incremental Delay, d2			0.1			0.0		0.2			0.1	
Delay (s)			15.0			14.9		6.0			5.4	
Level of Service			B			B		A			A	
Approach Delay (s)		15.0			14.9			6.0			5.4	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			6.2			HCM 2000 Level of Service					A	
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			39.1			Sum of lost time (s)				13.2		
Intersection Capacity Utilization			38.3%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

04/22/2026

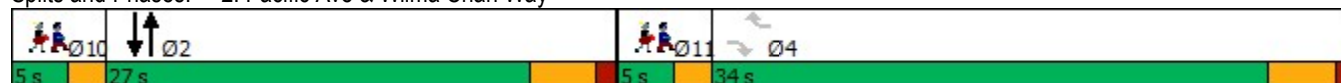


Phase Number	2	4	10	11
Movement	NBSB	WBR	Ped	Ped
Lead/Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Maximum Split (s)	27	34	5	5
Maximum Split (%)	38.0%	47.9%	7.0%	7.0%
Minimum Split (s)	26.6	33.6	3	3
Yellow Time (s)	3.5	3.5	2	2
All-Red Time (s)	1.1	1.1	0	0
Minimum Initial (s)	5	5	1	1
Vehicle Extension (s)	3	3	0.2	0.2
Minimum Gap (s)	3	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	4	4	0	0
Flash Dont Walk (s)	18	25	0	0
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	5	37	0	32
End Time (s)	32	0	5	37
Yield/Force Off (s)	27.4	66.4	3	35
Yield/Force Off 170(s)	9.4	41.4	3	35
Local Start Time (s)	0	32	66	27
Local Yield (s)	22.4	61.4	69	30
Local Yield 170(s)	4.4	36.4	69	30

Intersection Summary

Cycle Length	71
Control Type	Actuated-Uncoordinated
Natural Cycle	70

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↶			↶		↶↷			↶↷	
Traffic Volume (vph)	0	0	53	0	0	12	0	639	3	0	975	34
Future Volume (vph)	0	0	53	0	0	12	0	639	3	0	975	34
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	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frpb, ped/bikes			0.97			0.98		1.00			1.00	
Flpb, ped/bikes			1.00			1.00		1.00			1.00	
Frt			0.87			0.87		1.00			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1571			1578		3536			3517	
Flt Permitted			1.00			1.00		1.00			1.00	
Satd. Flow (perm)			1571			1578		3536			3517	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	58	0	0	13	0	695	3	0	1060	37
RTOR Reduction (vph)	0	0	51	0	0	11	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	7	0	0	2	0	698	0	0	1095	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type			Perm			Perm		NA			NA	
Protected Phases								2			2	
Permitted Phases			4			4						
Actuated Green, G (s)			5.6			5.6		25.2			25.2	
Effective Green, g (s)			5.6			5.6		25.2			25.2	
Actuated g/C Ratio			0.13			0.13		0.57			0.57	
Clearance Time (s)			4.6			4.6		4.6			4.6	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			197			198		1997			1987	
v/s Ratio Prot								0.20			c0.31	
v/s Ratio Perm			c0.00			0.00						
v/c Ratio			0.04			0.01		0.35			0.55	
Uniform Delay, d1			17.1			17.1		5.3			6.1	
Progression Factor			1.00			1.00		1.00			1.00	
Incremental Delay, d2			0.1			0.0		0.1			0.3	
Delay (s)			17.2			17.1		5.4			6.5	
Level of Service			B			B		A			A	
Approach Delay (s/veh)		17.2			17.1			5.4			6.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			6.5			HCM 2000 Level of Service					A	
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			44.6			Sum of lost time (s)				13.2		
Intersection Capacity Utilization			43.6%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

Timing Report, Sorted By Phase
2: Pacific Ave & Wilma Chan Way

07/06/2026

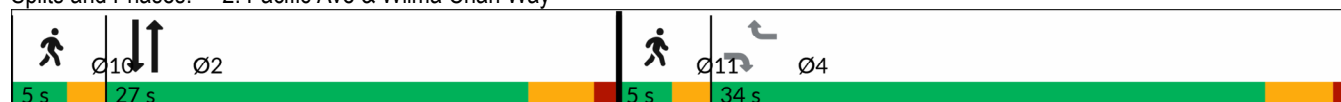


Phase Number	2	4	10	11
Movement	NBSB	WBR	Ped	Ped
Lead/Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Maximum Split (s)	27	34	5	5
Maximum Split (%)	38.0%	47.9%	7.0%	7.0%
Minimum Split (s)	26.6	33.6	3	3
Yellow Time (s)	3.5	3.5	2	2
All-Red Time (s)	1.1	1.1	0	0
Minimum Initial (s)	5	5	1	1
Vehicle Extension (s)	3	3	0.2	0.2
Minimum Gap (s)	3	3	0.2	0.2
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	4	4	0	0
Flash Don't Walk (s)	18	25	0	0
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	5	37	0	32
End Time (s)	32	0	5	37
Yield/Force Off (s)	27.4	66.4	3	35
Yield/Force Off 170(s)	9.4	41.4	3	35
Local Start Time (s)	0	32	66	27
Local Yield (s)	22.4	61.4	69	30
Local Yield 170(s)	4.4	36.4	69	30

Intersection Summary

Cycle Length	71
Control Type	Actuated-Uncoordinated
Natural Cycle	70

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Future Volume (vph)	8	8	25	0	7	16	29	703	3	3	466	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.92			0.91			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1668			1666			3530			3512	
Flt Permitted		0.94			1.00			0.93			0.95	
Satd. Flow (perm)		1591			1666			3276			3345	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	9	27	0	8	17	32	764	3	3	507	22
RTOR Reduction (vph)	0	24	0	0	15	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	21	0	0	10	0	0	799	0	0	529	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			
Turn Type	custom	NA			NA		Perm	NA		Perm	NA	
Protected Phases								2				2
Permitted Phases	4	4		4	4		2			2		
Actuated Green, G (s)		5.6			5.6			32.8			32.8	
Effective Green, g (s)		5.6			5.6			32.8			32.8	
Actuated g/C Ratio		0.12			0.12			0.71			0.71	
Clearance Time (s)		3.0			3.0			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		194			203			2341			2390	
v/s Ratio Prot												
v/s Ratio Perm		c0.01			0.01			c0.24			0.16	
v/c Ratio		0.11			0.05			0.34			0.22	
Uniform Delay, d1		17.9			17.8			2.5			2.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.1			0.1			0.0	
Delay (s)		18.2			17.9			2.6			2.3	
Level of Service		B			B			A			A	
Approach Delay (s)		18.2			17.9			2.6			2.3	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			3.2									
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			45.9									
Intersection Capacity Utilization			56.1%									
Analysis Period (min)			15									
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

04/22/2026



Phase Number	2	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	Min	None
Maximum Split (s)	34	26
Maximum Split (%)	56.7%	43.3%
Minimum Split (s)	9.5	26
Yellow Time (s)	3.5	2
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)		7
Flash Dont Walk (s)		16
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	34
End Time (s)	34	0
Yield/Force Off (s)	29.5	57
Yield/Force Off 170(s)	29.5	41
Local Start Time (s)	0	34
Local Yield (s)	29.5	57
Local Yield 170(s)	29.5	41

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	45

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Future Volume (vph)	9	9	44	0	2	10	32	607	3	9	975	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.90			0.89			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1643			1620			3528			3516	
Flt Permitted		0.96			1.00			0.88			0.95	
Satd. Flow (perm)		1586			1620			3115			3339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	10	48	0	2	11	35	660	3	10	1060	37
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	26	0	0	3	0	0	698	0	0	1104	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type	custom	NA			NA		Perm	NA		Perm	NA	
Protected Phases								2				2
Permitted Phases	4	4		4	4		2			2		
Actuated Green, G (s)		5.2			5.2			26.5			26.5	
Effective Green, g (s)		5.2			5.2			26.5			26.5	
Actuated g/C Ratio		0.13			0.13			0.68			0.68	
Clearance Time (s)		3.0			3.0			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		210			214			2105			2257	
v/s Ratio Prot												
v/s Ratio Perm		c0.02			0.00			0.22			c0.33	
v/c Ratio		0.13			0.02			0.33			0.49	
Uniform Delay, d1		15.0			14.8			2.7			3.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.0			0.1			0.2	
Delay (s)		15.3			14.8			2.7			3.2	
Level of Service		B			B			A			A	
Approach Delay (s/veh)		15.3			14.8			2.7			3.2	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			3.6									
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			39.2									
Intersection Capacity Utilization			60.1%									
Analysis Period (min)			15									
c Critical Lane Group												

Timing Report, Sorted By Phase
2: Pacific Ave & Wilma Chan Way

07/06/2026



Phase Number	2	4
Movement	NBSB	EBWB
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	None	None
Maximum Split (s)	34	26
Maximum Split (%)	56.7%	43.3%
Minimum Split (s)	9.5	26
Yellow Time (s)	3.5	2
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)		7
Flash Don't Walk (s)		16
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	34
End Time (s)	34	0
Yield/Force Off (s)	29.5	57
Yield/Force Off 170(s)	29.5	41
Local Start Time (s)	30.5	4.5
Local Yield (s)	0	27.5
Local Yield 170(s)	0	11.5

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	55

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

04/22/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	41	0	0	23	0	717	3	0	466	20
Future Volume (vph)	0	0	41	0	0	23	0	717	3	0	466	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.0			3.0		4.5			4.5	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frpb, ped/bikes			0.96			0.98		1.00			1.00	
Flpb, ped/bikes			1.00			1.00		1.00			1.00	
Frt			0.86			0.86		1.00			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1548			1572		3537			3512	
Flt Permitted			1.00			1.00		1.00			1.00	
Satd. Flow (perm)			1548			1572		3537			3512	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	45	0	0	25	0	779	3	0	507	22
RTOR Reduction (vph)	0	0	43	0	0	24	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	2	0	0	1	0	782	0	0	526	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type			Perm			Perm		NA			NA	
Protected Phases								2			2	
Permitted Phases			4			4						
Actuated Green, G (s)			1.5			1.5		19.1			19.1	
Effective Green, g (s)			1.5			1.5		19.1			19.1	
Actuated g/C Ratio			0.05			0.05		0.68			0.68	
Clearance Time (s)			3.0			3.0		4.5			4.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			82			83		2404			2387	
v/s Ratio Prot								c0.22			0.15	
v/s Ratio Perm			c0.00			0.00						
v/c Ratio			0.03			0.02		0.33			0.22	
Uniform Delay, d1			12.6			12.6		1.9			1.7	
Progression Factor			1.00			1.00		1.00			1.00	
Incremental Delay, d2			0.1			0.1		0.1			0.0	
Delay (s)			12.8			12.7		1.9			1.7	
Level of Service			B			B		A			A	
Approach Delay (s)		12.8			12.7			1.9			1.7	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			2.4			HCM 2000 Level of Service					A	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			28.1			Sum of lost time (s)				7.5		
Intersection Capacity Utilization			36.1%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

Timing Report, Sorted By Phase

2: Pacific Ave & Wilma Chan Way

04/22/2026



Phase Number	2	4
Movement	NBSB	WBR
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	None	None
Maximum Split (s)	34	26
Maximum Split (%)	56.7%	43.3%
Minimum Split (s)	22.5	26
Yellow Time (s)	3.5	2
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)		7
Flash Dont Walk (s)		16
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	34
End Time (s)	34	0
Yield/Force Off (s)	29.5	57
Yield/Force Off 170(s)	29.5	41
Local Start Time (s)	0	34
Local Yield (s)	29.5	57
Local Yield 170(s)	29.5	41

Intersection Summary

Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	50

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



HCM Signalized Intersection Capacity Analysis

2: Pacific Ave & Wilma Chan Way

07/06/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Traffic Volume (vph)	0	0	53	0	0	12	0	639	3	0	975	34
Future Volume (vph)	0	0	53	0	0	12	0	639	3	0	975	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.0			3.0		4.5			4.5	
Lane Util. Factor			1.00			1.00		0.95			0.95	
Frpb, ped/bikes			0.97			0.98		1.00			1.00	
Flpb, ped/bikes			1.00			1.00		1.00			1.00	
Frt			0.87			0.87		1.00			0.99	
Flt Protected			1.00			1.00		1.00			1.00	
Satd. Flow (prot)			1571			1577		3536			3517	
Flt Permitted			1.00			1.00		1.00			1.00	
Satd. Flow (perm)			1571			1577		3536			3517	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	58	0	0	13	0	695	3	0	1060	37
RTOR Reduction (vph)	0	0	48	0	0	11	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	10	0	0	2	0	698	0	0	1094	0
Confl. Peds. (#/hr)			6			12			8			18
Confl. Bikes (#/hr)			6			2			6			4
Turn Type			Perm			Perm		NA			NA	
Protected Phases								2			2	
Permitted Phases			4			4						
Actuated Green, G (s)			5.0			5.0		26.4			26.4	
Effective Green, g (s)			5.0			5.0		26.4			26.4	
Actuated g/C Ratio			0.13			0.13		0.68			0.68	
Clearance Time (s)			3.0			3.0		4.5			4.5	
Vehicle Extension (s)			3.0			3.0		3.0			3.0	
Lane Grp Cap (vph)			201			202		2399			2386	
v/s Ratio Prot								0.20			c0.31	
v/s Ratio Perm			c0.01			0.00						
v/c Ratio			0.05			0.01		0.29			0.46	
Uniform Delay, d1			14.9			14.8		2.5			2.9	
Progression Factor			1.00			1.00		1.00			1.00	
Incremental Delay, d2			0.1			0.0		0.1			0.1	
Delay (s)			15.0			14.8		2.6			3.1	
Level of Service			B			B		A			A	
Approach Delay (s/veh)		15.0			14.8			2.6			3.1	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			3.3			HCM 2000 Level of Service					A	
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			38.9			Sum of lost time (s)				7.5		
Intersection Capacity Utilization			42.1%			ICU Level of Service				A		
Analysis Period (min)			15									

c Critical Lane Group

Timing Report, Sorted By Phase
2: Pacific Ave & Wilma Chan Way

07/06/2026



Phase Number	2	4
Movement	NBSB	WBR
Lead/Lag		
Lead-Lag Optimize		
Recall Mode	None	None
Maximum Split (s)	34	26
Maximum Split (%)	56.7%	43.3%
Minimum Split (s)	9.5	26
Yellow Time (s)	3.5	2
All-Red Time (s)	1	1
Minimum Initial (s)	5	5
Vehicle Extension (s)	3	3
Minimum Gap (s)	3	3
Time Before Reduce (s)	0	0
Time To Reduce (s)	0	0
Walk Time (s)		7
Flash Don't Walk (s)		16
Dual Entry	Yes	Yes
Inhibit Max	Yes	Yes
Start Time (s)	0	34
End Time (s)	34	0
Yield/Force Off (s)	29.5	57
Yield/Force Off 170(s)	29.5	41
Local Start Time (s)	30.5	4.5
Local Yield (s)	0	27.5
Local Yield 170(s)	0	11.5

Intersection Summary

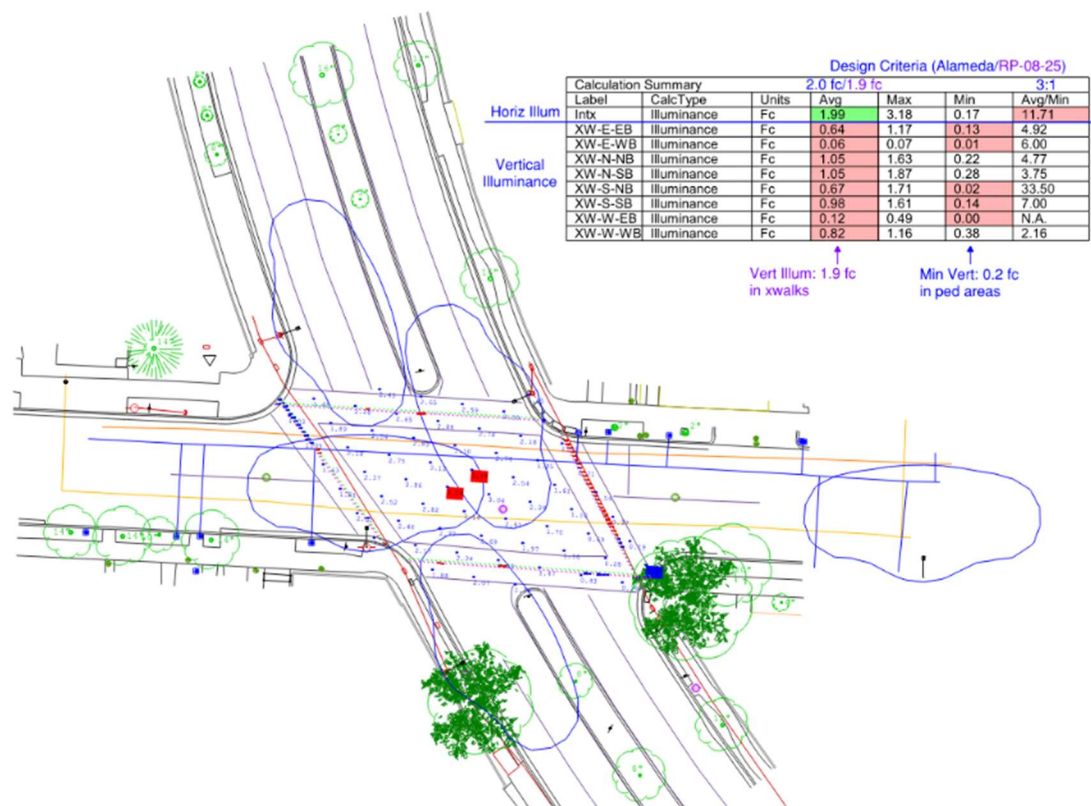
Cycle Length	60
Control Type	Actuated-Uncoordinated
Natural Cycle	55

Splits and Phases: 2: Pacific Ave & Wilma Chan Way



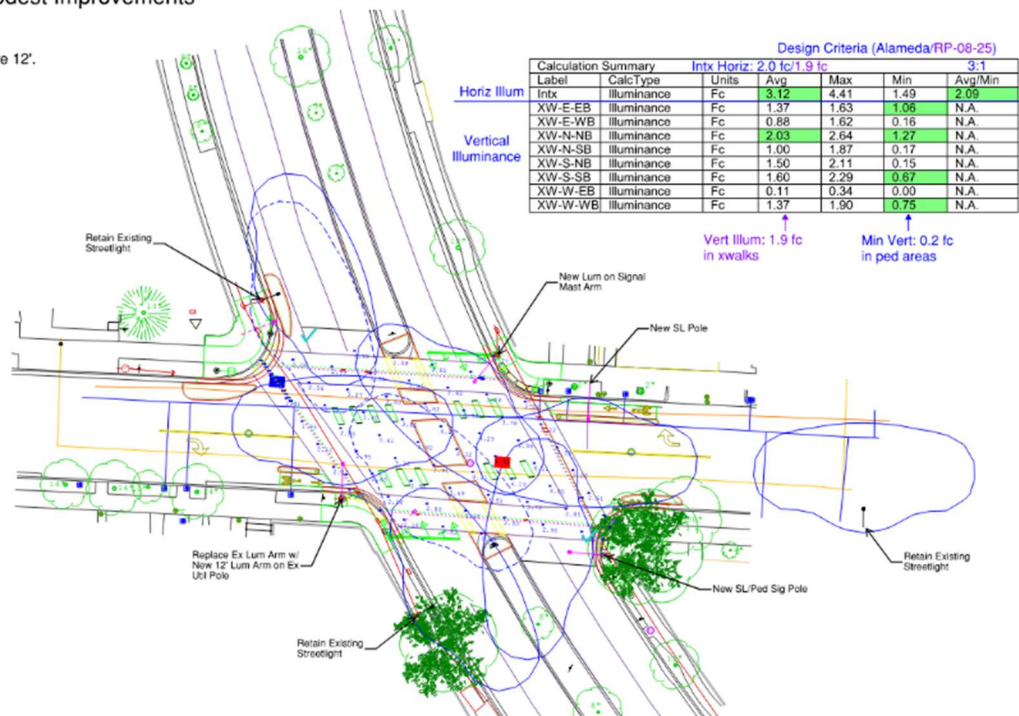
Appendix D: Lighting Analysis

Existing Light Levels



Lighting Option 1) Modest Improvements

All mounting heights are 30'.
All new (pink) luminaire arms are 12'.



Lighting Option 2) More Robust Improvements

All mounting heights are 30'.
New luminaire arm lengths are as noted.

