



HEXAGON TRANSPORTATION CONSULTANTS, INC.



505 East Bayshore Road Residential Development

Draft Transportation Analysis

Prepared for:

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Executive Summary

This report presents the results of the Transportation Analysis (TA) conducted for the proposed residential development at 505 E. Bayshore Road in Redwood City, California. The 2.54-acre project site is currently developed with industrial warehouse structures and outdoor industrial storage uses. The project proposes to construct 56 rowhouses within 9 buildings. The project would remove two of the three existing driveways along E. Bayshore Road and would reconstruct one existing driveway to provide access to the project site.

The transportation analysis was conducted for the purpose of identifying potential traffic impacts related to the project. The potential impacts of the project were evaluated in accordance with the standards set forth by Redwood City and the City/County Association of Governments of San Mateo County (C/CAG). The C/CAG administers the San Mateo County Congestion Management Plan (CMP). This report includes an evaluation of transportation impacts according to CEQA and a Local Transportation Analysis (LTA) per the City's requirements.

CEQA Transportation Impacts

Because the proposed project would require a General Plan Amendment, the bi-county C/CAG-Santa Clara Valley Transportation Authority (VTA) travel forecasting model was used to estimate the daily project generated VMT and project effect on VMT. The land use inputs for the project TAZ were updated for the "with Project" scenario to reflect the proposed addition of households and decrease in jobs associated with the existing warehouse space. The project generated VMT statistics are expressed per resident and the project effect on VMT is expressed per capita to distinguish the effects of population growth from the effects of changes in personal behavior.

The results of the project generated VMT analysis are presented in Table ES-1. The project's relatively remote location on the east side of US 101 next to the Bay in an area lacking transit connectivity results in a project generated VMT rate that is higher than the average Countywide VMT rate for the proposed residential use. The project generated home-based VMT per capita of 13.4 is greater than the threshold of 10.5 for residential uses. Therefore, the project would have a significant impact based on the project generated VMT. The project generated VMT can be reduced by implementation of a Transportation Demand Management (TDM) Plan that includes physical facilities, programs, and policies. The project applicant is preparing a TDM Plan to fulfill C/CAG and City requirements, which are discussed in the next chapter. While the TDM Plan has not yet been finalized, it is expected to result in a reduction in daily VMT that would satisfactorily mitigate the project's impact on VMT.

Table ES 1
Project Generated VMT Assessment

Land Use	Significance Criteria	Threshold ¹	Project TAZ VMT ²
Residential	Project exceeds existing countywide home-based VMT per capita minus 15%	10.5	13.4
Notes:			
¹ The threshold for project generated VMT per capita is 15% below the San Mateo County average.			
² Average VMT per capita within the TAZ where the project is located.			

Projects requiring a General Plan Amendment are also required to evaluate the project effect on VMT under Year 2040 Cumulative Conditions. The cumulative project effect on VMT was estimated using the City limit boundary and extracting the total link-level VMT for both no project and with project conditions. The cumulative threshold for the project effect on VMT is no change to the City's per capita VMT applying the boundary method. The proposed project would result in a marginal decrease in VMT per service population (see Table ES 2).

Table ES 2
Project Effect on VMT Analysis

Scenario	Population	Jobs	Service Population	Daily VMT	VMT per Service Population
No Project	105,098	74,831	179,929	1,526,860	8.49
Project	105,249	74,803	180,052	1,526,483	8.48
Change	151	-28	123	-377	-0.01

Level of Service (LOS) Transportation Analysis (Non-CEQA Analysis)

Project Trip Generation

The trip generation rates published for "Single-Family Housing" (Land Use 210) located in a general Urban/Suburban area were used to estimate the trips generated by the proposed project. Based on the ITE rates, the proposed project would generate 529 gross daily trips including 41 AM peak-hour trips and 55 PM peak-hour trips. After crediting the existing trips, the proposed project is expected to generate a net total of 480 daily vehicle trips with 36 net trips in the AM peak hour and 50 net trips in the PM peak hour (see Table ES 3). To be conservative, the analysis of the project's potential effects on nearby intersections does not assume any trip reductions due to Transportation Demand Management (TDM) measures that may be implemented by the project.

Table ES 3
Project Trip Generation Estimates

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips			Rate	Trips		
					In	Out	Total		In	Out	Total
Proposed Land Use											
Single-Family Housing	56 Units	9.44	529	0.74	10	31	41	0.99	35	20	55
Existing Land Use											
Warehouse	-28,255 s.f.	1.74	-49	0.17	-4	-1	-5	0.19	-1	-4	-5
Net Project Trips			480		6	30	36		34	16	50
Notes:											
Source: ITE <i>Trip Generation Manual</i> , 10 th Edition 2017											
1. Trip generation rates for the proposed office space are based on the ITE's Trip Generation Manual, 10th Edition rates for Land Use Code 210 "Single-Family Detached Housing".											
2. Trip generation rates for the existing warehouse are based on the ITE's Trip Generation Manual, 10th Edition rates for Land Use Code 150 "Warehousing".											

Project Conditions Intersection Levels of Service

Based on Redwood City level of service standards and thresholds, the proposed project would not result in a substantial adverse effect at any study intersections under existing plus project conditions and background plus project conditions (see Table ES 4).

Cumulative (2040) Plus Project Intersection Levels of Service

Two cumulative scenarios were analyzed to evaluate cumulative volumes with and without the proposed Blomquist Street extension project (see Table ES 4).

With Blomquist Street Extension

The results show that the project would cause a substantial adverse effect at the intersection of Blomquist Street and Maple Street under the short-term all-way stop control. The project would not cause a substantial adverse effect at the remaining study intersections.

Blomquist Street and Maple Street

The intersection would meet signal warrants under cumulative conditions during the AM and the PM peak hours both without and with the proposed project. Because the project would increase the average delay by more than five seconds and the intersection would meet signal warrants under cumulative conditions, the project is considered to have a **substantial adverse effect** at this intersection.

The intersection would operate at an acceptable LOS B or C with a single-lane roundabout under both cumulative no project and cumulative plus project conditions during the AM and PM peak hours. This roundabout is included as part of the Blomquist Street extension project, which will be funded in part through the City's Transportation Impact Fee (TIF). Therefore, payment of the City's TIF would mitigate this deficiency.

Without Blomquist Street Extension

The results of the level of service analysis under cumulative no project and cumulative plus project conditions without the Blomquist Street extension show that the project would not cause a substantial adverse effect at any study intersections.

Other Transportation Issues

Generally, the proposed site plan shows adequate site access and on-site circulation, and the proposed project would not have an adverse effect on the existing transit services, pedestrian facilities, or bicycle facilities in the study area. Hexagon provides the following recommendations and enhancements for the proposed project:

1. The proposed project should provide bicycle facilities along the project frontage on East Bayshore Road in coordination with the City of Redwood City and adjacent property owners.
2. No transit services currently exist in the project vicinity. Due to the lack of transit accessibility, the project is expected to generate minimal transit trips. To improve transit access, the project should work with the City and SamTrans to create a bus route that serves the various residential, office, and retail uses on Bair Island.
3. The project should provide additional guest parking spaces to satisfy the Zoning Code requirements.

Table ES 4
Intersection Level of Service Summary

ID	Intersection	Control ¹	Peak Hour	Count Date	Existing		Existing Plus Project		Background		Background Plus Project		With Blomquist St Extension		Without Blomquist St Extension		Cumulative No Project		Cumulative		Cumulative No Project		Cumulative	
					Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	Incr. in Avg. Del.	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	LOS	Avg. Delay	Incr. in Avg. Del.
					Cumulative No Project		Cumulative		Cumulative No Project		Cumulative		Cumulative No Project		Cumulative		Cumulative No Project		Cumulative		Cumulative No Project		Cumulative	
1	Veterans Boulevard and Whipple Avenue	Signal	AM	09/10/19	38.6	D	38.8	D	42.6	D	43.0	D	0.4	83.9	F	84.2	F	0.3	86.6	F	87.4	F	0.8	
			PM	09/10/19	36.1	D	36.2	D	37.6	D	37.8	D	0.2	48.4	D	48.9	D	0.5	56.0	E	57.1	E	1.1	
2	US 101 Northbound Off-Ramp and Whipple	Signal	AM	09/10/19	12.3	B	12.2	B	12.3	B	12.7	B	0.4	13.5	B	13.5	B	0.0	13.4	B	13.4	B	0.0	
			PM	09/10/19	12.8	B	12.7	B	12.8	B	12.7	B	-0.1	13.7	B	13.9	B	0.2	15.1	B	15.4	B	0.3	
3	East Bayshore Road (Blomquist Street) and	Rbt	AM	09/10/19	4.5	A	4.5	A	4.5	A	4.5	A	0.0	6.9	A	7.0	A	0.1	4.6	A	4.6	A	0.0	
			PM	09/10/19	4.4	A	4.4	A	4.4	A	4.4	A	0.0	11.8	B	12.1	B	0.3	4.5	A	4.5	A	0.0	
4	Blomquist Street and Maple Street	OWSC	AM	09/10/19	11.2	B	11.2	B	13.4	B	13.4	B	0.0	--	--	--	--	--	23.9	C	23.9	C	0.0	
			PM	09/10/19	12.7	B	12.8	B	17.1	C	17.2	C	0.1	--	--	--	--	--	36.7	E	37.1	E	0.4	
		AWSC ²	AM	N/A	--	--	--	--	--	--	--	--	--	>120	F	>120	F	3.4	--	--	--	--	--	
			PM	N/A	--	--	--	--	--	--	--	--	--	>120	F	>120	F	5.9	--	--	--	--	--	
		Rbt ²	AM	N/A	--	--	--	--	--	--	--	--	--	12.8	B	12.9	B	0.1	--	--	--	--	--	
			PM	N/A	--	--	--	--	--	--	--	--	--	20.4	C	21.2	C	0.8	--	--	--	--	--	
5	Blomquist Street and Seaport Boulevard	Signal	AM	11/06/18	32.8	C	32.9	C	34.8	C	34.8	D	0.0	108.4	F	108.5	F	0.1	109.6	F	109.7	F	0.1	
			PM	11/06/18	29.7	C	29.7	C	30.5	C	30.5	C	0.0	68.5	E	69.0	E	0.5	86.3	F	86.3	F	0.0	
6	Veterans Boulevard and Woodside Road (SR 84)	Signal	AM	09/10/19	50.7	D	50.7	D	>120	F	>120	F	0.0	>120	F	>120	F	1.0	>120	F	>120	F	0.0	
			PM	09/10/19	102.6	F	102.7	F	>120	F	>120	F	0.0	>120	F	>120	F	1.5	>120	F	>120	F	0.1	

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control; AWSC = All-Way Stop Control.

Overall weighted average control delay (seconds per vehicle) is reported for signalized and AWSC intersections.

Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² The intersection of Blomquist St and Maple St will be converted to either an AWSC or Rbt intersection under cumulative conditions. The above results for Rbt reflect a single-lane Rbt.

³ Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

Bold indicates that the proposed project would cause an adverse effect at this intersection.

1. Introduction

This report presents the results of the Transportation Analysis (TA) conducted for the proposed residential development at 505 E. Bayshore Road in Redwood City, California. The 2.54-acre project site is currently developed with industrial warehouse structures and outdoor industrial storage uses. The project proposes to construct 56 rowhouses within 9 buildings. The project would remove two of the three existing driveways along E. Bayshore Road and would reconstruct one existing driveway to provide access to the project site. A public trail would be constructed along the northern boundary of the site, providing access between E. Bayshore Road and a planned public trail segment to be located on the adjacent property to the east, expanding and enhancing public access along the shoreline. The project site and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Scope of Study

The purpose of the traffic study is to identify any traffic impacts in accordance with the standards set forth by Redwood City and the City/County Association of Governments of San Mateo County (C/CAG). C/CAG administers the County's Congestion Management Program (CMP). The project would generate more than 100 daily vehicle trips. Therefore, the project is subject to the C/CAG TDM Policy. However, none of the study intersections are part of the CMP roadway network, so the project is not required to evaluate compliance with CMP intersection levels of service standards. This report includes an evaluation of transportation impacts according to CEQA and a Local Transportation Analysis (LTA) per the City's requirements specified in the Redwood City Transportation Analysis Manual dated July 21, 2020.

CEQA Analysis

Vehicle Miles Travelled (VMT) Analysis

Senate Bill (SB) 743 changed the way transportation impacts are identified under CEQA from vehicle level of service (LOS) to daily vehicle miles travelled (VMT). The City of Redwood City recently adopted a Transportation Analysis Manual that outlines policies and guidelines for VMT impact evaluation generally consistent with SB 743 and the Governor's Office of Planning and Research (OPR) recommendations. A project can be screened from the VMT analysis if it meets the following criteria:

- Transit Priority Areas (TPA): Projects located within ½-mile walkshed around major transit stops or within ¼ mile walkshed around high-quality transit corridors.



Figure 1
Project Location and Study Intersections



Source: Dahlin Group Architecture, June 25, 2021.

Figure 2
Proposed Site Plan

- **Affordable Housing:** 100% restricted affordable residential projects in infill locations and near transit.
- **Small Projects:** Projects defined as generating 150 or fewer average daily vehicle trips, absent substantial evidence indicating that a project would generate a potentially significant level of VMT.
- **Locally-Serving Public Facility:** Locally-serving public facility that encompasses government, civic, cultural, health, and infrastructure uses and activities that contribute to and support community needs.
- **Neighborhood-Serving Retail Project:** Neighborhood-serving retail projects that are less than 30,000 square feet that serve the immediate neighborhoods and have a similar use within three miles.

The proposed project land use and location do not meet the above screening criteria. Because the proposed project would require a General Plan Amendment, the bi-county C/CAG-Santa Clara Valley Transportation Authority (VTA) travel forecasting model was used to estimate the daily project generated VMT and the project effect on VMT. The project generated VMT statistics are expressed per resident and the project effect on VMT is expressed per capita to distinguish the effects of population growth from the effects of changes in personal behavior.

Local Transportation Analysis

The LTA analyzed the effect of traffic operations by the project on six key intersections in the vicinity of the project site. The study intersections were selected in consultation with Redwood City staff and include those intersections that provide primary access to and from the project site and locations that may be affected by the proposed project. The study intersections are listed below and shown on Figure 1. Traffic conditions at the study locations were analyzed for the weekday AM and PM peak hours of traffic.

Study Intersections

1. Veterans Boulevard and Whipple Avenue
2. US 101 Northbound Off-Ramp and Whipple Avenue
3. East Bayshore Road (Blomquist Street) and Bair Island Road (unsignalized)
4. Blomquist Street and Maple Street (unsignalized)
5. Blomquist Street and Seaport Boulevard
6. Veterans Boulevard and Woodside Road (SR 84)

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of adjacent street traffic.

The proposed project would generate more than 100 daily vehicle trips. Therefore, the project is subject to the C/CAG TDM Policy. However, none of the study intersections are part of the CMP roadway network. Furthermore, new project trips on freeway segments would comprise less than one percent of the roadway capacity. Therefore, the project is not required to evaluate compliance with CMP level of service standards.

The proposed project would only add minimal trips to the freeway ramps; therefore, a freeway ramp analysis is not necessary. Instead, the study documents the trips added by the proposed project to the freeway ramps for informational purposes only.

A queuing analysis at study intersections was not conducted because the project would add less than 10 peak-hour trips to all turning movements and would have an insignificant effect on intersection operations.

Traffic conditions were evaluated for the following scenarios:

- Scenario 1:** *Existing Conditions.* Existing traffic volumes are still depressed due to the COVID-19 pandemic. Therefore, to be conservative, pre-pandemic traffic volumes were used in this study. Weekday AM and PM peak-hour traffic volumes from September 2019 were obtained from the transportation analysis conducted for the proposed development at 557 East Bayshore Road.
- Scenario 2:** *Existing plus Project Conditions.* Project-generated traffic was added to the existing traffic volumes. Existing plus project conditions were evaluated relative to existing conditions in order to identify substantial adverse effects due to the project.
- Scenario 3:** *Background Conditions.* Background traffic volumes were estimated by adding to existing traffic volumes the projected volumes from approved but not yet constructed projects that would generate trips at the study intersections. A list of approved projects was obtained from Redwood City.
- Scenario 4:** *Background plus Project Conditions.* Background traffic volumes with the project were estimated by adding to background traffic volumes the additional traffic generated by the project. Substantial adverse effects on study intersections associated with the development of the project were evaluated relative to background conditions.
- Scenario 5:** *Cumulative Conditions.* This scenario assumes the development of the Blomquist Street extension project. The cumulative no project traffic volumes were estimated by reassigning the existing volumes based on the extension, adding the trips generated by approved projects and proposed (not yet approved) projects in the vicinity of the project site, and applying a growth factor based on direction from Redwood City staff. Project trips were assigned based on this road network change and then added to the cumulative no project traffic volumes to yield cumulative traffic volumes. Intersection levels of service were evaluated for cumulative conditions with and without the project.
- Scenario 6:** *Cumulative Conditions without the Blomquist Street Extension.* The cumulative no project conditions traffic volumes under this scenario were estimated by adding to existing traffic volumes the trips generated by approved projects and proposed projects in the vicinity of the project site and applying a growth factor based on direction from Redwood City staff. Cumulative volumes without the Blomquist Street extension were estimated by adding to the cumulative no project volumes the trips associated with the project. Intersection levels of service were evaluated for cumulative conditions with and without the project.

Methodology

This section presents the methods used to determine the traffic conditions at study intersections for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards and mobility deficiency criteria.

Data Requirements

The data required for the analysis were obtained from previous studies, field observations, and the City of Redwood City. The following data were obtained from these sources:

- existing peak-hour intersection turning-movement volumes,
- existing lane configurations,
- signal timing and phasing,

- existing bicycle and pedestrian volumes, and
- list of approved but not yet constructed projects and pending projects.

Intersection Level of Service Methodologies

Traffic conditions at the study intersections were evaluated using level of service (LOS). Level of Service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays.

This study uses the Highway Capacity Manual (HCM) 6th Edition methodology for signalized and unsignalized intersections utilizing Synchro software to determine intersection level of service. This method evaluates intersection operations on the basis of average control delay time for all vehicles at the intersection. This average delay can then be correlated to a level of service. Table 1 presents the level of service definitions for signalized intersections. The level of service definitions for unsignalized intersections are presented in Table 2. Note that for unsignalized intersections under two-way or side-street stop control, the level of service is reported for the worst approach.

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though some vehicles may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0
Source: Transportation Research Board, <i>Highway Capacity Manual 6th Edition</i> (Washington, D.C., 2016), p.16-19.		

Table 2
Unsignalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *Highway Capacity Manual 6th Edition* (Washington D.C., 2016).

Level of Service Standards and Mobility Deficiency Criteria

City of Redwood City

The City of Redwood City General Plan contains the following transportation policy with respect to level of service:

“Program BE-55 / Level of Service Policy Evaluation: Evaluate Redwood City’s current Level of Service (LOS) policies for motor vehicle circulation. The evaluation shall consider the following to ensure efficient traffic flow and balance multi-modal mobility goals:

Maintaining LOS D or better for motor vehicles in all areas of the city, except the Downtown area as defined by the Downtown Precise Plan. In Downtown, no minimum vehicular LOS standard will be maintained but vehicular LOS will be calculated and alternate LOS standards for other travel modes will be established.”

The study intersections are located outside the Downtown area; thus, the intersections are subject to the City’s LOS D standard.

According to the City of Redwood City Transportation Analysis Manual, a substantial adverse effect at a study intersection will be caused by the project if:

Signalized Intersection

1. Operations at a signalized intersection deteriorate from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F); or
2. Average delay at a signalized intersection operating at an unacceptable level (LOS E or F) increases by 5 seconds or more.

Unsignalized Intersection

1. Operations at an unsignalized intersection deteriorate from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F); or

2. Delay at an unsignalized intersection operating at an unacceptable level (LOS E or F) increases by 5 seconds or more; and traffic volumes at the intersection satisfy the Caltrans peak-hour volume signal warrant for traffic signal installation.

A substantial adverse effect at an intersection by the City of Redwood City standards is said to be satisfactorily mitigated when improvements are implemented that eliminate the project's adverse effect.

Relevant Plans and Policies

Redwood City Transportation Impact Mitigation Fee Program

The Redwood City Transportation Impact Mitigation Fee (TIF) was adopted by the City to establish a source of funding for future transportation system capital improvements. The list of transportation projects associated with the transportation fee is on file with the Redwood City Community Development Department and is subject to amendment periodically. The notable TIF project in the vicinity of the proposed 505 East Bayshore project is the Blomquist Street extension from Maple Street, over Redwood Creek, to the East Bayshore Road/Bair Island Road intersection. The TIF also includes area-wide improvements to alternative modes such as neighborhood traffic management programs, a City-based shuttle system, a transportation demand management coordinator, and miscellaneous transit, pedestrian, and bicycle projects throughout the City.

US 101/SR 84 (Woodside Road) Interchange Improvement Project

Redwood City, in cooperation with Caltrans and the San Mateo County Transportation Authority (SMCTA), is proposing to reconstruct the US 101 and Woodside Road interchange. The proposal includes modifying the on- and off-ramp configuration at the interchange to improve traffic flow, increase safety, and better accommodate pedestrian and bicycle access across US 101. The project design was paused at the 95% design level while the City seeks to secure full capital funding. The project is not expected to be completed by the cumulative horizon year (2024). Key components of the project include redesign of the existing southbound off-ramp termini from a five-legged intersection to a four-legged intersection, a direct Veterans Boulevard ramp connection to US 101 to reduce vehicular traffic on Woodside Road, perpendicular ramp termini to Woodside Road to allow for improved crossing for both pedestrians and bicyclists, and Class I multi-use paths on the south side of the interchange and along the UPRR corridor to provide safer pedestrian/bicycle access across US 101.

Report Organization

The remainder of this report is divided into four chapters. Chapter 2 presents the CEQA impact analysis. Chapter 3 presents the local transportation analysis including the description of the existing roadway network, transit service, bicycle and pedestrian facilities as well as traffic conditions in the study area under existing, background, background plus project, cumulative with and without the Blomquist Street Extension project, cumulative plus project, and recommended mitigation improvements. Chapter 4 provides an evaluation of other transportation-related issues, such as site access, on-site circulation, parking, and potential project impacts on bicycle, pedestrian, and transit facilities.

2. CEQA Transportation Analysis

This chapter describes the CEQA transportation analysis, including the VMT analysis methodology, threshold of significance, and the project-level VMT impact analysis results. Senate Bill (SB) 743 changed the way transportation impacts are identified under CEQA from vehicle level of service (LOS) to daily vehicle miles travelled (VMT). The City of Redwood City recently adopted a Transportation Analysis Manual that outlines policies and guidelines for VMT impact evaluation generally consistent with SB 743 and the Governor's Office of Planning and Research (OPR) recommendations.

Vehicle Miles Traveled Analysis

Because the proposed project would require a General Plan Amendment, the bi-county C/CAG-Santa Clara Valley Transportation Authority (VTA) travel forecasting model was used to estimate the daily project generated VMT and project effect on VMT. The land use inputs for the project TAZ were updated for the "with Project" scenario to reflect the proposed addition of households and decrease in jobs associated with the existing warehouse space. The project generated VMT statistics are expressed per resident and the project effect on VMT is expressed per capita to distinguish the effects of population growth from the effects of changes in personal behavior.

VMT Impact Criteria

Per the Redwood City Transportation Analysis Manual, a proposed residential project would have a significant impact on VMT if the project generated home-based VMT per capita exceeds 10.5 miles, which is the existing countywide average home-based VMT per capita (12.3 miles) minus 15 percent.

VMT Assessment Results

Project Generated VMT

The results of the project generated VMT analysis are presented in Table 3. The project's relatively remote location on the east side of US 101 next to the Bay in an area lacking transit connectivity results in a project generated VMT rate that is higher than the average Countywide VMT rate for the proposed residential use. The project generated home-based VMT per capita of 13.4 is greater than the threshold of 10.5 for residential uses. Therefore, the project would have a significant impact based on the project generated VMT.

Table 3
Project Generated VMT Assessment

Land Use	Significance Criteria	Threshold ¹	Project TAZ VMT ²
Residential	Project exceeds existing countywide home-based VMT per capita minus 15%	10.5	13.4
Notes:			
¹ The threshold for project generated VMT per capita is 15% below the San Mateo County average.			
² Average VMT per capita within the TAZ where the project is located.			

Mitigation

The project generated VMT can be reduced by implementation of a Transportation Demand Management (TDM) Plan that includes physical facilities, programs, and policies. The project applicant is preparing a TDM Plan to fulfill C/CAG and City requirements, which are discussed in the next chapter. While the TDM Plan has not yet been finalized, it is expected to result in a reduction in daily VMT that would satisfactorily mitigate the project's impact on VMT. Table 4 presents a sample TDM Plan that could mitigate the project's impact on VMT.

Table 4
Sample TDM Plan Designed to Mitigate VMT Impact

TDM Measure	Estimated Reduction in Drive-Alone Trips/Mode Share	
	Min	Max
On-site information*	1.0%	1.5%
New resident orientation*	1.0%	1.5%
Annual promotion of TDM measures*	0.5%	1.0%
Bike racks for visitors	1.0%	4.0%
Indoor bike parking for residents	2.0%	5.0%
Land/facilities for pedestrian/bike connections	0.0%	2.0%
Caltrain/Samtrans subsidies	10.0%	15.0%
Moderate below market rate units (8 du)	0.0%	0.0%
Total	15.5%	30.0%
Average	22.8%	
* Maximum 4% reduction for all information improvements combined.		
Source: Minimum/maximum trip reductions obtained from RWCmoves Appendix E: Redwood City Transportation Demand Management (TDM) Program.		

Assuming a typical reduction in drive-alone trips and mode share (the average between minimum and maximum values), the sample TDM Plan would yield a 22.8% reduction in drive-alone trips. This would reduce the home-based VMT per capita from 13.4 to 10.4, which is below the impact threshold of 10.5.

TDM Plan monitoring and enforcement requirements are described in the City's TDM Program. The project will be required to implement an annual survey of residents to measure residents travel characteristics and usage of TDM measures. Annual driveway counts and an annual report will also be required to quantify the site's vehicle trip generation. The City of Redwood City will set forth TDM monitoring and enforcement requirements in the project's conditions of approval to ensure that the project's TDM plan satisfactorily mitigates the project impact on VMT.

Project Effects on VMT

Projects requiring a General Plan Amendment are also required to evaluate the project effect on VMT under Year 2040 Cumulative Conditions. This scenario reflects buildout of the region's land use and transportation system and provides the long-range view of future travel patterns. The project's effect on VMT under Year 2040 Cumulative Conditions considers the project's influence on the VMT generation of surrounding land uses. The cumulative project effect on VMT was estimated using the City limit boundary and extracting the total link-level VMT for both no project and with project conditions. The cumulative threshold for the project effect on VMT is no change to the City's per capita VMT applying the boundary method. The proposed project would result in a marginal decrease in VMT per service population (see Table 5), and thus the project would not have a significant cumulative impact on VMT and would therefore not require mitigation.

Table 5
Project Effect on VMT Analysis

Scenario	Population	Jobs	Service Population	Daily VMT	VMT per Service Population
No Project	105,098	74,831	179,929	1,526,860	8.49
Project	105,249	74,803	180,052	1,526,483	8.48
Change	151	-28	123	-377	-0.01

3. Local Transportation Analysis

This chapter describes the local transportation analysis including existing transportation facilities near the project site and the intersection operations under existing conditions. The chapter also describes the intersection operations analysis under background conditions and cumulative conditions with and without the Blomquist Extension project, the method by which project traffic is estimated, and intersection operations analysis for with project conditions under existing, background, and cumulative scenarios. Mitigation improvements for any adverse intersection traffic effects caused by the project are recommended.

Existing Conditions

This section describes the existing conditions for all of the major transportation facilities near the site, including the roadway network, transit service, and bicycle and pedestrian facilities.

Roadway Network

Regional access to the project site is provided via US 101.

US 101 is a north/south freeway that extends from north of San Francisco to south of San Jose. In the project vicinity, US 101 has eight lanes (including two high-occupancy vehicle (HOV) lanes south of Whipple Avenue). US 101 provides site access via the full interchanges at Whipple Avenue.

Local access to the site is provided by Whipple Avenue, Woodside Road (SR 84), Veterans Boulevard, Maple Street, and East Bayshore Road/Blomquist Street. These roadways are described below.

Whipple Avenue is a two- to four-lane connector street that extends from US 101, west through Redwood City until its terminus at Upland Road west of Alameda de las Pulgas. Whipple Avenue is a four-lane road between Veterans Boulevard and El Camino Real, and provides access to US 101 via a full interchange. A sidewalk is present along only the south side of Whipple Avenue between Veterans Boulevard and East Bayshore Road, while bike lanes are provided in both directions. The speed limit on Whipple Avenue is 25 mph.

Woodside Road (SR 84) is a four-lane east-west boulevard that extends from US 101 in the east to Portola Road in the west through Woodside. West of Portola Road, Woodside Road becomes La Honda Road and extends all the way to Cabrillo Highway (SR 1). The speed limit on Woodside Road is 35 mph.

East Bayshore Road is a two-lane, local road that extends south from Whipple along the east side of US 101 and currently terminates at its roundabout intersection with Bair Island Road. The speed limit on this segment of East Bayshore Road is 25 mph. A sidewalk is available only on the east side of

street. South of the Woodside Road, East Bayshore Road continues to the south as a frontage road on the east side of US 101 until its intersection with Sleepy Hollow Lane near the Menlo Park border. East Bayshore Road currently does not have a connection between these two segments. East Bayshore Road serves as the west boundary of the project site and provides direct access to the project site.

Veterans Boulevard is a north-south divided boulevard that provides access between US 101 and Redwood City. Veterans Boulevard begins at its connection with the southbound US 101 off ramp north of Whipple Avenue and extends south to Woodside Road where it aligns with the US 101 southbound on ramp. Between Whipple Avenue and Main Street, Veterans Boulevard has three lanes in both directions with a posted speed limit of 35 mph. Between Main Street and Chestnut Street, Veterans Boulevard has two lanes in each direction. Between Chestnut Street and Woodside Road, Veterans Boulevard has one-lane in each direction. Bike lanes are present in both directions along Veterans Boulevard between Whipple Avenue and Chestnut Street.

Maple Street is an east-west, two-lane street that extends from its intersection with El Camino Real, through downtown Redwood City to Bair Island. Maple Street serves as the only roadway between Whipple Avenue and Woodside Road that crosses US 101 without an interchange. Bike lanes or bike “sharrows” are present along Maple Street. The City’s General Plan classifies Maple Street as a pedestrian street west of Veterans Boulevard and a bicycle boulevard east of Veterans Boulevard.

Blomquist Street is a two-lane, local road that extends south from Maple Street to its intersection with Woodside Road. South of Woodside Road, Blomquist Street becomes the southern segment of East Bayshore Road. Bike lanes are present in both directions along Blomquist Street. The speed limit on Blomquist Street is 25 mph.

Bicycle Facilities

Existing Facilities

Bicycle facilities include bike paths, bike lanes, and bike routes. Bike paths (Class I facilities) are pathways separate from roadways that are designated for use by bicycles. Often, these pathways also allow pedestrian access. Bike lanes (Class II facilities) are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes (Class III facilities) are existing rights-of-way that accommodate bicycles but are not separate from existing travel lanes. Class III routes are typically designated with only signs or sharrows (painted, on-road bike markings). The existing bicycle facilities in the project vicinity are shown on Figure 3.

The project site is served relatively well by existing bicycle facilities, which provide access between the project site and downtown Redwood City and nearby office centers. Existing bicycle facilities include Class III routes on East Bayshore Road south of Seaport Boulevard and Whipple Avenue west of Veterans Boulevard. Class II bicycle lanes in the project vicinity include:

- Whipple Avenue at the US 101 overcrossing between Veterans Boulevard and US 101 Northbound Off-ramp
- Whipple Avenue between El Camino Real and Arguello Street
- Maple Street between Marshall Street and Veterans Boulevard
- Veterans Boulevard between Whipple Avenue and Chestnut Street
- Winslow Street between Whipple Avenue and Broadway
- Industrial Way between Harbor Boulevard and Whipple Avenue
- Blomquist Street between Maple Street and Seaport Boulevard
- Marshall Street between Arguello Street and Walnut Street
- Middlefield Road between Veterans Boulevard and Bradford Street
- Main Street between Convention Way and Veterans Boulevard
- Brewster Avenue between Main Street and Fulton Street

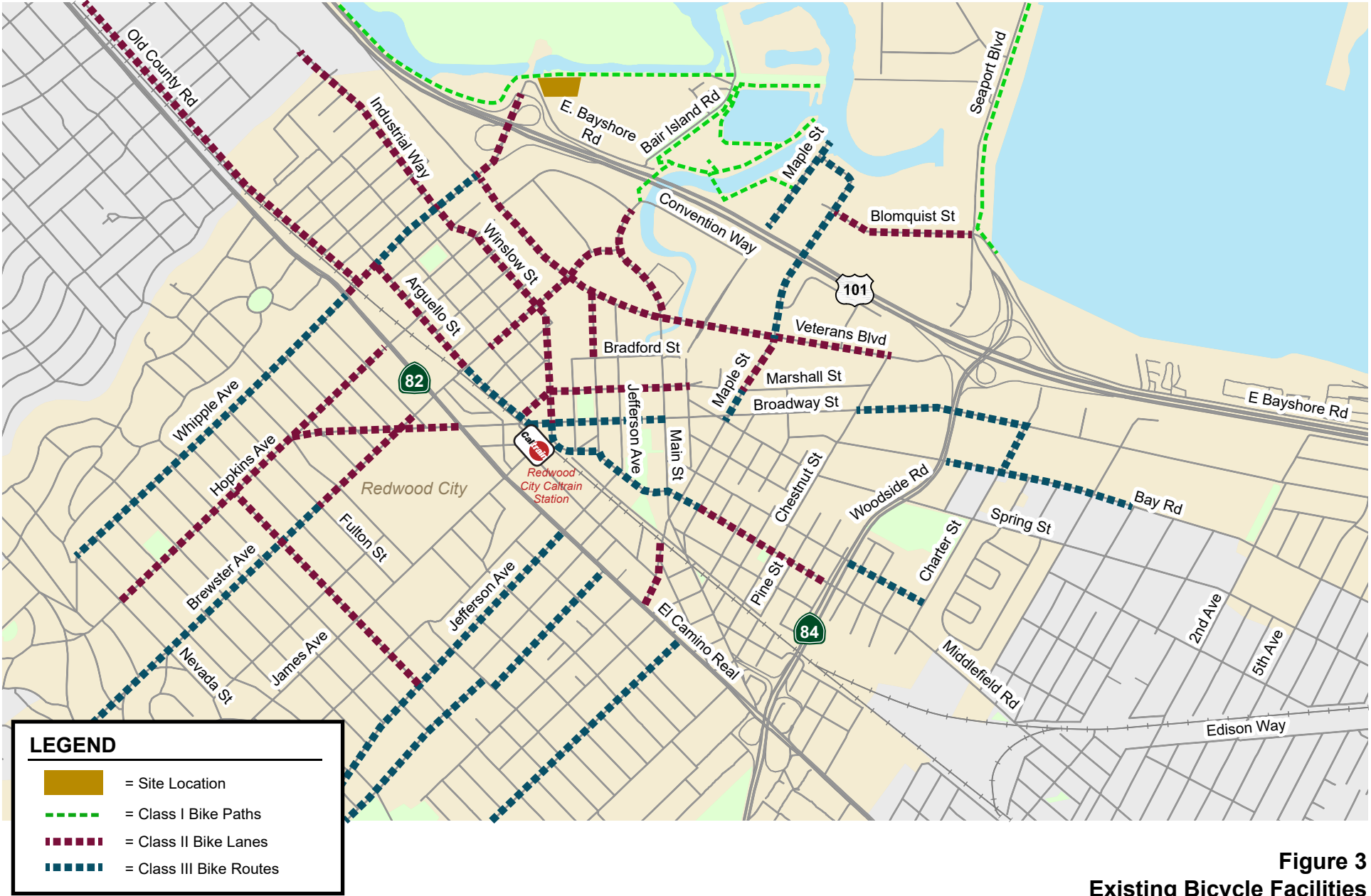


Figure 3
Existing Bicycle Facilities

- Arguello Street between Whipple Avenue and Brewster Avenue
- Stafford Street between Whipple Avenue and Old County Road
- Old County Road between Stafford Street and Bransten Road
- Edgewood Road west of Alameda De Las Pulgas
- Hopkins Avenue between El Camino Real and Nevada Street

Within the vicinity of the project site, a Class I bicycle path, the Bay Trail, exists along the eastern frontage of the site. The Bay Trail can be accessed via Whipple Avenue at East Bayshore Road and via Bair Island Road. The Bay Trail is a planned, 500-mile bicycle and pedestrian trail that extends around the entire San Francisco Bay. Currently, about 350 miles of the trail have been completed. The Bay Trail does not currently provide access to areas south of the project site as it terminates at Bair Island Road. A separated Class I bicycle facility along the south side of Bair Island Road connects the Bay trail to an existing pedestrian and bicycle bridge, commonly referred to as the Bridge to Nowhere. An unpaved pathway on the south side of the bridge provides access between East Bayshore Road and Maple Street. The Class I bicycle facility along the south side of Bair Island Road also connects to the bicycle facilities west of US 101 at Main Street/Convention Way.

Bicycle counts were conducted as part of the 2019 peak-hour turning movement counts at the study intersections during the AM and PM peak periods. The traffic count data are included in Appendix A.

Planned Facilities

Based on the Citywide Transportation Plan, known as RWC moves, a Class I bike path is proposed along East Bayshore Road and the planned Blomquist Street extension between Whipple Avenue and Seaport Boulevard. This proposed bicycle path would improve connectivity between the project site and areas to the west of US 101, including to downtown Redwood City.

Pedestrian Facilities

Pedestrian facilities near the project site consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. Sidewalks are not present along the project frontage nor along the nearby buildings on East Bayshore Road. Approximately 625 feet south of the project site, there is a sidewalk along the east side of East Bayshore Road. Pedestrian facilities in the project vicinity also include a sidewalk on the south side of Bair Island Road, the Bay Trail, and a mixed-use trail that extends from Bair Island Road under US 101 to Convention Way and Main Street. A sidewalk is present along the south side of the Whipple Avenue overcrossing. Pedestrians crossing US 101 at Whipple Avenue can access the project site via the crosswalk on the US 101 Northbound Off Ramp, a cut-through sidewalk through the triangle area circled by the US 101 Northbound Off-ramp and East Bayshore Road, and a crosswalk with pedestrian crossing warning sign and flashing beacon at the sharp curve where East Bayshore Road turns to the south. A crosswalk also exists in the project vicinity on Bair Island Road just east of the roundabout at East Bayshore Road. This crosswalk provides access from the project site to the existing Bridge to Nowhere, the residential and hotel uses on the south side of Bair Island Road, and the mixed-use trail that connects to Convention Way and Main Street.

Pedestrian counts were conducted as part of the 2019 peak-hour turning movement counts at the study intersections adjacent to the project site. The count data are included in Appendix A.

Transit Services

Primary transit service in Redwood City is provided by the San Mateo County Transit District (SamTrans). However, the project site is not served by any existing transit routes. The nearest bus stops are located more than ½ mile from the site at either the Arguello Street and A Street intersection, or the Maple Street and Blomquist Street intersection (see Figure 4). The bus stops are beyond walking distance for most residents.



Figure 4
Existing Transit Services

Intersection Lane Configurations and Traffic Volumes

The existing lane configurations at the study intersections were obtained from field observations and are shown on Figure 5.

Existing traffic volumes are still depressed due to the COVID-19 pandemic. Therefore, to be conservative, pre-pandemic traffic volumes were used in this study. Weekday AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak hour traffic volumes from September 2019 were obtained from the transportation analysis conducted for the proposed development at 557 East Bayshore Road. The existing peak hour traffic volumes used for the study are shown graphically on Figure 6. All traffic count data are included in Appendix A Peak-hour intersection volumes for the study intersections are tabulated in Appendix B.

Existing Condition Intersection Levels of Service

The results of the level of service analysis under existing conditions are summarized in Table 6. The results show that five of the six study intersections currently operate at an acceptable level of service during the AM and PM peak hours. The intersection of Veterans Boulevard and Woodside Road operates at LOS F in the PM peak hour. The level of service calculation sheets are included in Appendix C.

While this report uses the same traffic count data as the 557 East Bayshore Transportation Analysis (TA) report, the intersection level of service analysis presented in this report is based on an updated methodology from the Highway Capacity Manual (HCM), 6th Edition per the City's new Transportation Analysis Manual, while the other TA report used an earlier version of the HCM methodology. The different HCM methodologies produce slight differences in the delay calculated at each intersection but would not affect the study conclusions regarding adverse effects of the proposed project.

Table 6
Existing Intersection Levels of Service

ID	Intersection	Control ¹	LOS Standard	Peak Hour	Count Date	Existing	
						Avg. Delay	LOS
1	Veterans Boulevard and Whipple Avenue	Signal	D	AM	09/10/19	38.6	D
				PM	09/10/19	36.1	D
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	D	AM	09/10/19	12.3	B
				PM	09/10/19	12.8	B
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	D	AM	09/10/19	4.5	A
				PM	09/10/19	4.4	A
4	Blomquist Street and Maple Street	OWSC	D	AM	09/10/19	11.2	B
				PM	09/10/19	12.7	B
5	Blomquist Street and Seaport Boulevard	Signal	D	AM	11/06/18	32.8	C
				PM	11/06/18	29.7	C
6	Veterans Boulevard and Woodside Road (SR 84) ²	Signal	D	AM	09/10/19	50.7	D
				PM	09/10/19	102.6	F

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control.

Overall weighted average control delay (seconds per vehicle) is reported for signalized intersections.

Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

505 East Bayshore Road TA

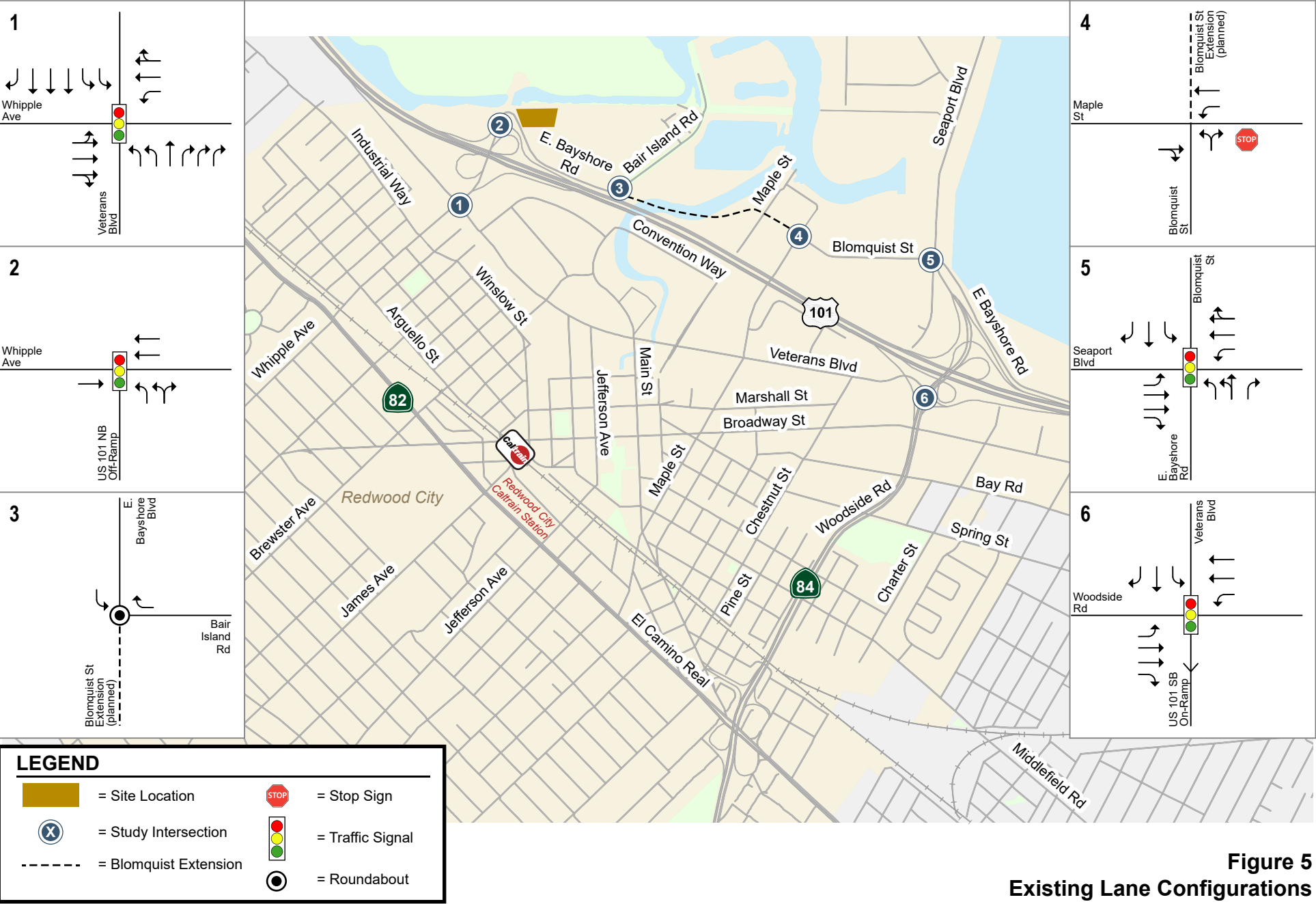


Figure 5
Existing Lane Configurations

505 East Bayshore Road TA

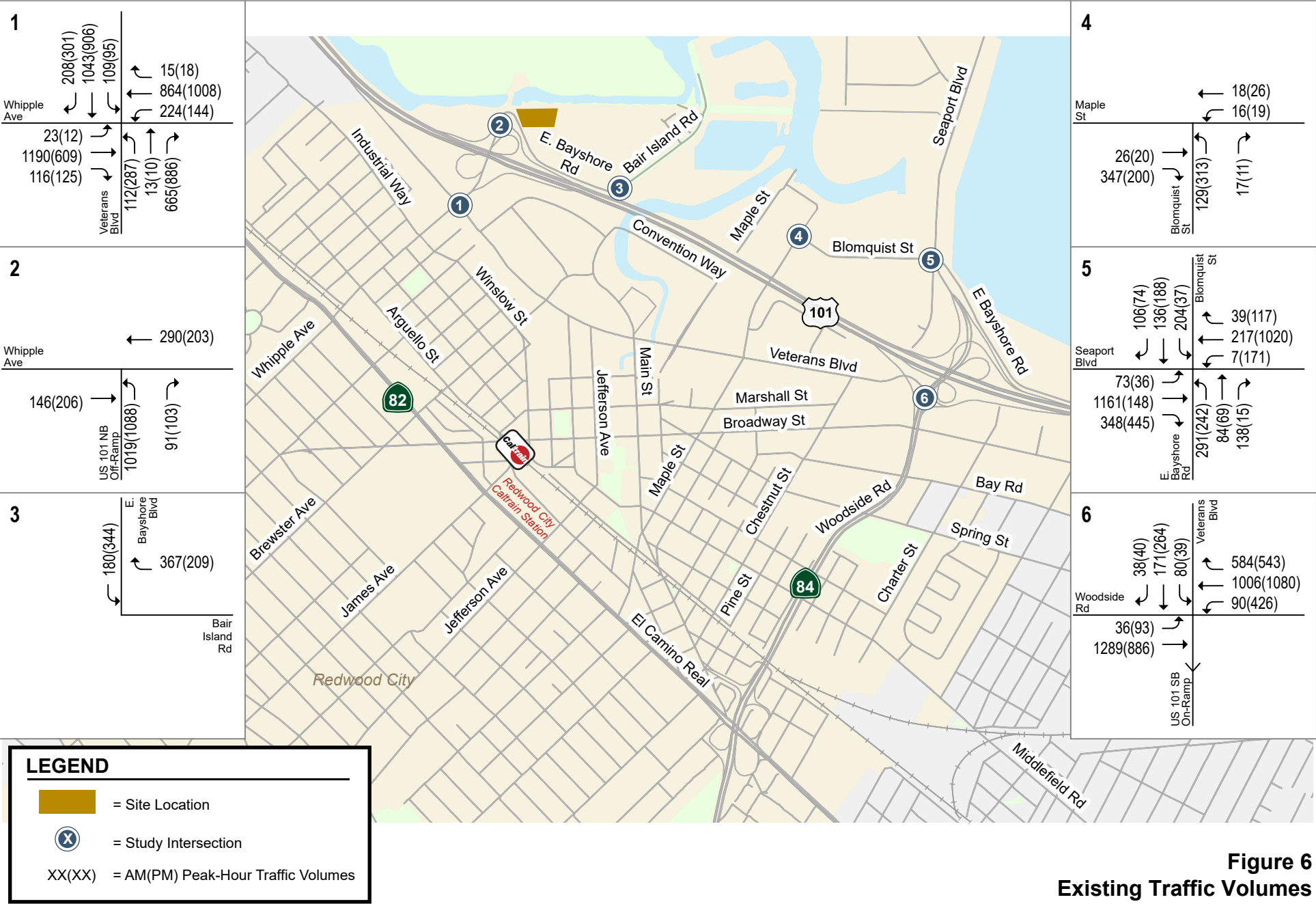


Figure 6
Existing Traffic Volumes

Background Conditions

Roadway Network

There are no near-term planned and funded transportation improvements at the study intersections that would alter the existing intersection lane configurations.

Approved Developments

Background traffic volumes were forecast based on the project trip assignments provided for the relevant approved but not yet completed projects. The list of approved and under construction projects was developed based on information provided by Redwood City's website¹ (accessed on October 11, 2021). The following approved but not constructed projects were considered under background conditions because they would contribute background trips to the study intersections.

- 610 Walnut Street – 65,080 s.f. office
- 1180 Main Street – 109,375 s.f. office
- 353 Main Street – 125 units of affordable housing
- Holiday Inn Express & Suites (1690 Broadway) – 112-room hotel
- Strada (1548 Maple Street) – 131 residential dwelling units
- Broadway Plaza (1401 Broadway and 2201 Bay Road) – Mixed-use development including 520 residential dwelling units, 420,000 s.f. of office, 26,000 sf of retail, and 10,000 s.f. of child-care space
- San Mateo County Government Center – 186,000 s.f. office
- Kaiser Medical Office Building 2 (1175 Marshall Street) – 197,800 s.f. of medical office
- 707 Bradford Street – 117-units of affordable housing and 8,000 s.f. of daycare
- Habitat for Humanity (612 Jefferson Avenue) – 20-units of affordable housing
- Greystar IV (1409 El Camino Real) – 350 residential dwelling units and 2,900 s.f. retail
- 851 Main Street – 78,832 s.f. office and 6,900 s.f. retail
- Greystar II (103 Wilson Street) – 175 residential dwelling units
- Broadway Station RWC (2075 Broadway) – 66,786 s.f. office and 26,729 s.f. retail
- Stanford in Redwood City (405, 425, 475, 500-585 Broadway and 1228 Douglas Avenue) – 570,000 s.f. office, 31,159 s.f. of recreation, and 14,000 s.f. of childcare space
- 849 Veterans Boulevard – 90 residential dwelling units
- 690 Veterans Boulevard – 92-room hotel
- South Main Mixed-use (1601 El Camino Real) – 540 residential dwelling units, 530,000 s.f. office, 28,841 s.f. retail, 8,367 s.f. childcare space

Intersection Traffic Volumes

Background peak-hour traffic volumes were calculated by adding to existing volumes the estimated traffic from approved developments. Trip generation and assignment for each project was obtained from each project's transportation analysis (TA) or environmental impact report (EIR). Project trips for developments within the Downtown Precise Plan area were assigned to the study network based on the trip distribution included within the Downtown Precise Plan DEIR. Background traffic volumes are shown on Figure 7. Peak-hour intersection volumes for the study intersections are tabulated in Appendix B.

¹ <https://www.redwoodcity.org/city-hall/current-projects/development-projects>. Accessed on 10/11/2021.

505 East Bayshore Road TA

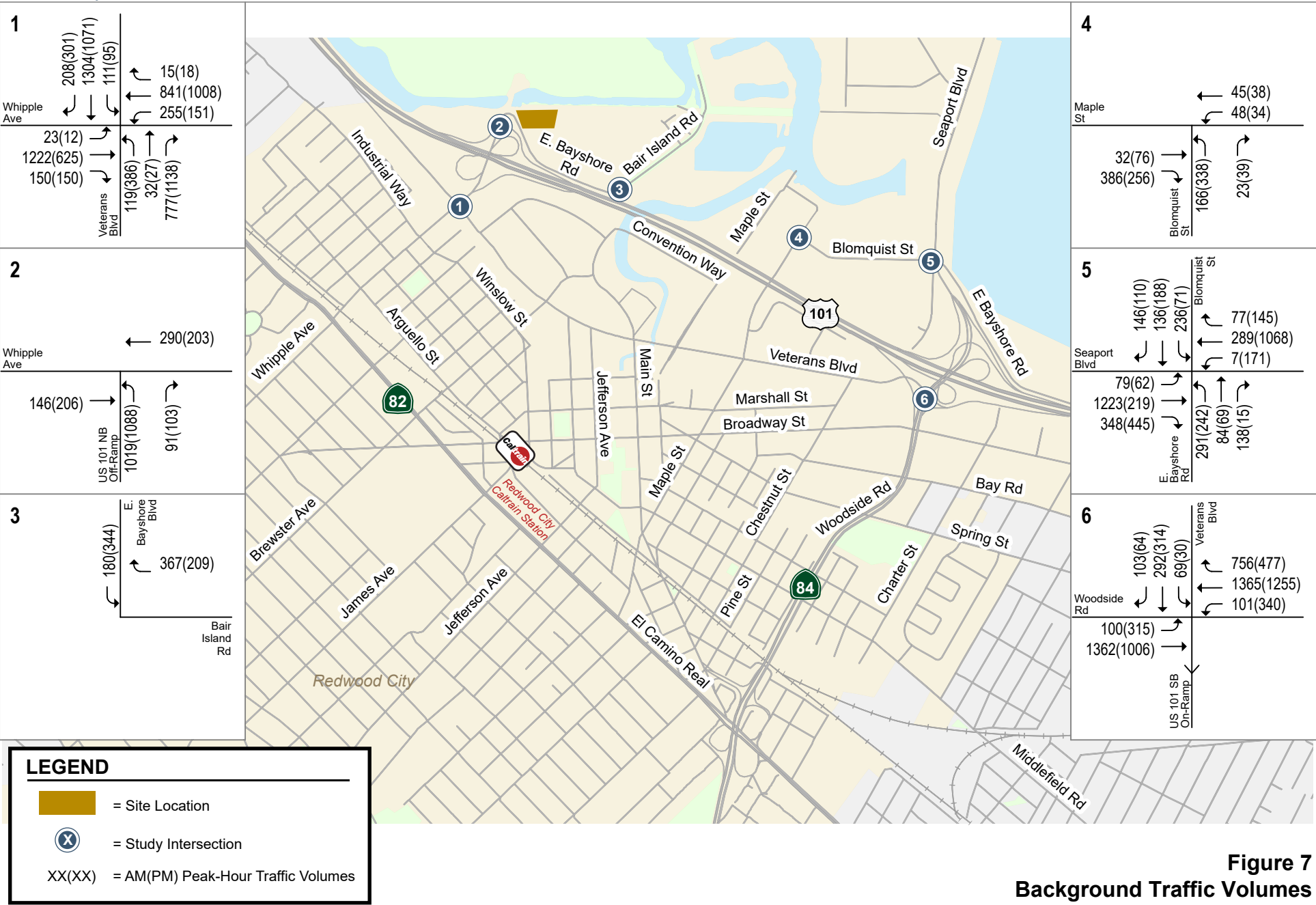


Figure 7
Background Traffic Volumes

Intersection Levels of Service

The results of the level of service analysis under background conditions are summarized in Table 7. The results show that five of the six study intersections would continue to operate at an acceptable level of service during the AM and PM peak hours. The intersection of Veterans Boulevard and Woodside Road would operate at LOS F in both the AM and PM peak hours. The level of service calculation sheets are included in Appendix C.

Table 7
Background Intersection Levels of Service

ID	Intersection	Control ¹	Peak Hour	Existing		Background	
				Avg. Delay	LOS	Avg. Delay	LOS
1	Veterans Boulevard and Whipple Avenue	Signal	AM	38.6	D	42.6	D
			PM	36.1	D	37.6	D
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	AM	12.3	B	12.3	B
			PM	12.8	B	12.8	B
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	AM	4.5	A	4.5	A
			PM	4.4	A	4.4	A
4	Blomquist Street and Maple Street	OWSC	AM	11.2	B	13.4	B
			PM	12.7	B	17.1	C
5	Blomquist Street and Seaport Boulevard	Signal	AM	32.8	C	34.8	C
			PM	29.7	C	30.5	C
6	Veterans Boulevard and Woodside Road (SR 84) ²	Signal	AM	50.7	D	>120	F
			PM	102.6	F	>120	F

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control.
Overall weighted average control delay (seconds per vehicle) is reported for signalized intersections.
Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.
Bold indicates a substandard level of service.

Project Conditions

This section describes the roadway traffic operations under existing plus project and background plus project conditions, the method by which project traffic is estimated, and any substantial adverse effects due to the project. Existing plus project conditions could potentially occur if the project were to be occupied prior to the other approved projects in the area. Background plus project conditions represent the likely conditions in which the proposed project is developed after approved projects in the area have been developed.

Roadway Network

There are no project-sponsored improvements and no near-term planned and funded transportation improvements at the study intersections. Thus, the intersection lane configuration under existing plus project conditions and under background plus project conditions would be the same as under existing conditions.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: 1) trip generation, 2) trip distribution, and 3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the project site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

To be conservative, daily and peak hour trip generation estimates for the proposed project were based on trip rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition (2017) for “Single-Family Housing” (Land Use 210) located in a general Urban/Suburban area. Based on the ITE rates, the proposed project would generate 529 gross daily trips including 41 AM peak-hour trips and 55 PM peak-hour trips.

The project is eligible to receive credit for trips generated by the existing buildings on the site. The traffic generated by the existing warehouse buildings was estimated by applying trip rates for “Warehousing” (Land Use 150). The total number of trips generated by the existing warehouse use was deducted from the estimated number of trips generated by the proposed project, which results in a net increase of 480 daily trips including 36 net trips in the AM peak hour and 50 net trips in the PM peak hour. The project trip generation estimates are presented in Table 8.

The C/CAG TDM Policy Update (September 2021) includes a new requirement that local jurisdictions notify C/CAG of any new development project under their purview that is estimated to generate at least 100 Average Daily Trips (ADT). C/CAG categorizes new developments as small projects and large projects. Multi-family residential projects larger than 50 dwelling units (generating more than 500 average daily trips) are considered large projects. The project would not qualify as a transit proximate development, which is described as a project between 0.5 and 3 miles of high-quality transit. A high-quality transit area provides fixed-route bus service with headways of 15 minutes or less during peak hours. The recommended vehicle trip reduction target for large multi-family residential projects that are not transit oriented developments (TOD) is 35 percent.

Likewise, the City of Redwood City requires new multi-family residential developments with 25 or more dwelling units to prepare a Transportation Demand Management (TDM) Plan. Per the City’s TDM program, the project will have a 44 percent drive-alone mode share target. The project’s TDM Plan has not yet been finalized. To be conservative, the analysis of the project’s potential effects on nearby intersections does not assume any trip reductions due to TDM measures that may be implemented by the project.

Table 8
Project Trip Generation Estimates

Land Use	Size	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips			Rate	Trips		
					In	Out	Total		In	Out	Total
Proposed Land Use											
Single-Family Housing	56 Units	9.44	529	0.74	10	31	41	0.99	35	20	55
Existing Land Use											
Warehouse	-28,255 s.f.	1.74	-49	0.17	-4	-1	-5	0.19	-1	-4	-5
Net Project Trips			480		6	30	36		34	16	50

Notes:

Source: ITE *Trip Generation Manual*, 10th Edition 2017

1. Trip generation rates for the proposed office space are based on the ITE's Trip Generation Manual, 10th Edition rates for Land Use Code 210 "Single-Family Detached Housing".

2. Trip generation rates for the existing warehouse are based on the ITE's Trip Generation Manual, 10th Edition rates for Land Use Code 150 "Warehousing".

Trip Distribution and Assignment

The trip distribution patterns were estimated based on existing travel patterns on the surrounding roadway system, locations of complimentary land uses, and the trip distribution patterns provided as part of the Peninsula Park Project EIR produced by Fehr & Peers (2007). The project trip distribution patterns are shown on Figure 8.

The estimate project generated traffic was added to the surrounding road network based on the distribution percentages described above. The project trip assignment is shown on Figure 9.

Intersection Traffic Volumes

For the existing plus project scenario, the new trips generated by the project were added to the existing traffic volumes to derive the existing plus project traffic volumes. Figure 10 shows the intersection turning-movement volumes under existing plus project conditions. Effects of the project under existing plus project conditions were evaluated relative to existing conditions.

For the background plus project scenario, the new trips generated by the project were added to the background traffic volumes to derive the background plus project traffic volumes. Figure 11 shows the intersection turning-movement volumes under background plus project conditions. Effects of the project under background plus project conditions were evaluated relative to background conditions.

Peak-hour intersection volumes for the study intersections are tabulated in Appendix B.



Figure 8
Project Trip Distribution

505 East Bayshore Road TA

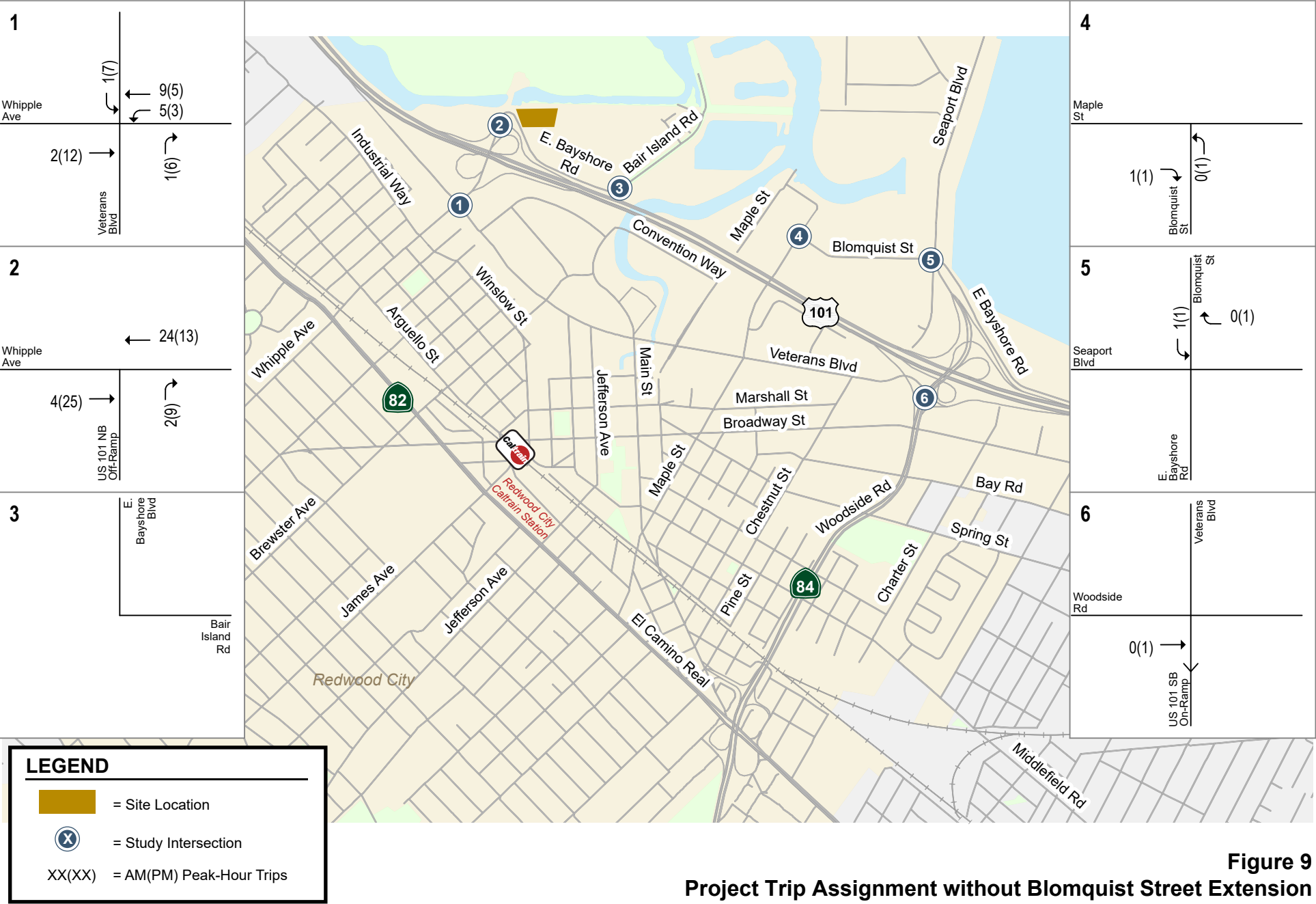


Figure 9
Project Trip Assignment without Blomquist Street Extension

505 East Bayshore Road TA

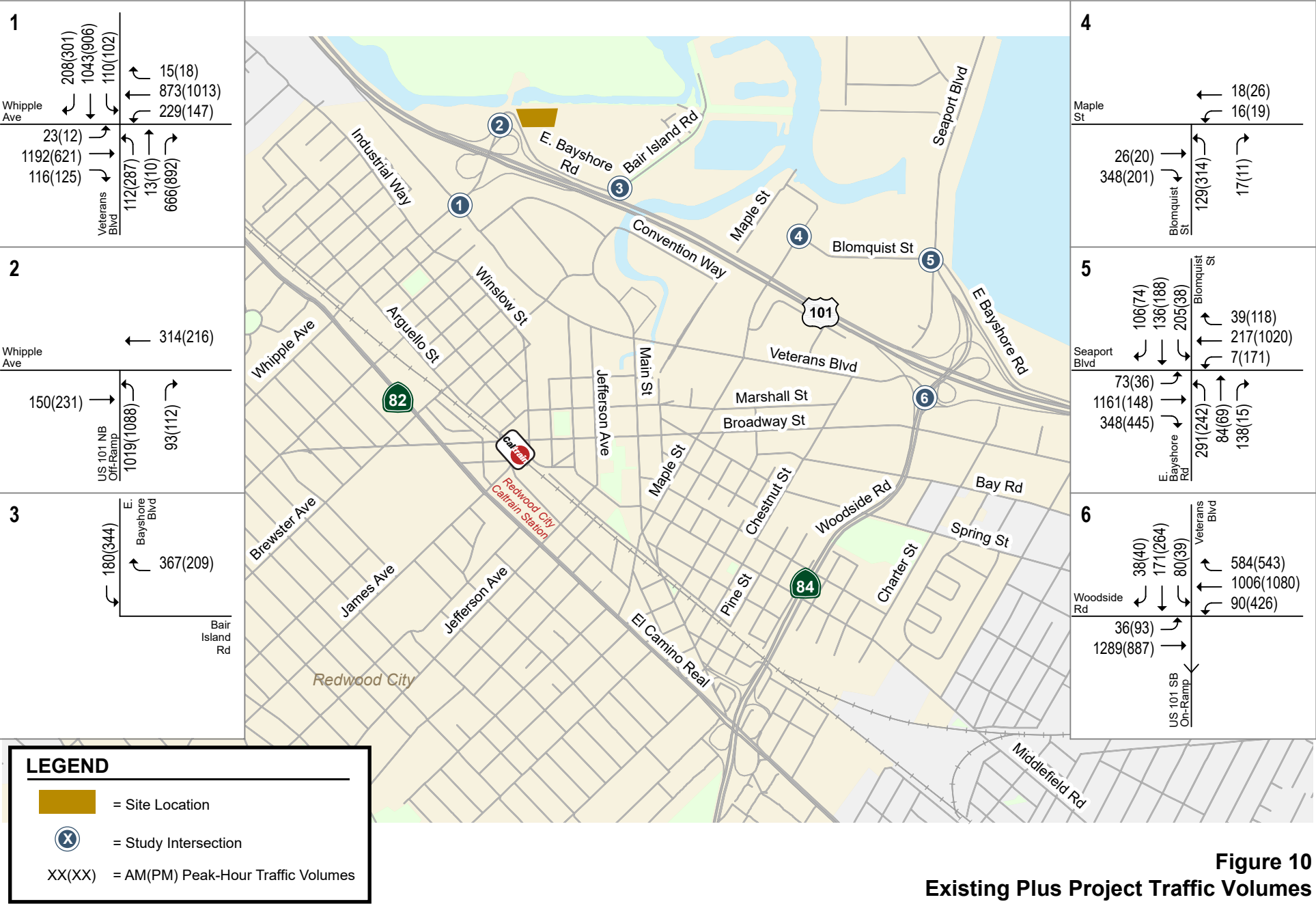


Figure 10
Existing Plus Project Traffic Volumes

505 East Bayshore Road TA

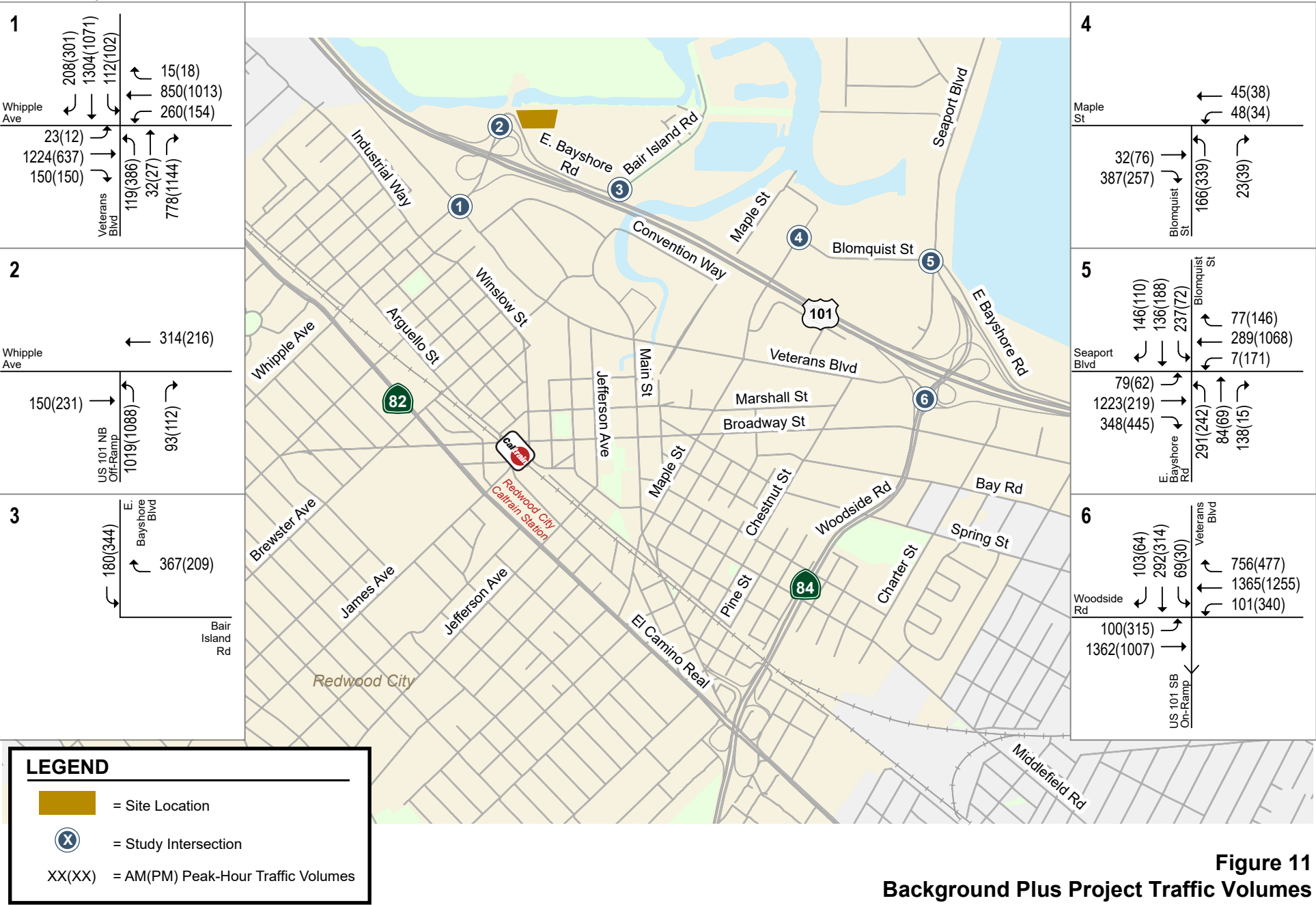


Figure 11
Background Plus Project Traffic Volumes

Intersection Levels of Service

The results of the intersection level of service analysis for existing plus project and background plus project conditions are summarized in Tables 9 and 10, respectively.

Existing Plus Project Conditions

The results show that under existing plus project conditions five of the six study intersections would operate at an acceptable level of service during the AM and PM peak hours. The intersection of Veterans Boulevard and Woodside Road would continue operate at LOS F in the PM peak hour. Since the proposed project would not increase the average delay at Veterans Boulevard and Woodside Road by five seconds or more, the project would not cause a substantial adverse effect at the intersection.

Table 9
Existing Plus Project Intersection Levels of Service

ID	Intersection	Control ¹	Peak Hour	Existing		Existing Plus Project	
				Avg. Delay	LOS	Avg. Delay	LOS
1	Veterans Boulevard and Whipple Avenue	Signal	AM	38.6	D	38.8	D
			PM	36.1	D	36.2	D
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	AM	12.3	B	12.2	B
			PM	12.8	B	12.7	B
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	AM	4.5	A	4.5	A
			PM	4.4	A	4.4	A
4	Blomquist Street and Maple Street	OWSC	AM	11.2	B	11.2	B
			PM	12.7	B	12.8	B
5	Blomquist Street and Seaport Boulevard	Signal	AM	32.8	C	32.9	C
			PM	29.7	C	29.7	C
6	Veterans Boulevard and Woodside Road (SR 84) ²	Signal	AM	50.7	D	50.7	D
			PM	102.6	F	102.7	F

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control.
Overall weighted average control delay (seconds per vehicle) is reported for signalized intersections.
Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

Background Plus Project Conditions

The results show that under background plus project conditions, five of the six study intersections would operate at an acceptable level of service during the AM and PM peak hours. The intersection of Veterans Boulevard and Woodside Road would operate at LOS F in the AM and PM peak hour. Since the proposed project would not increase the average delay by five seconds or more during any peak hour at Veterans Boulevard and Woodside Road, the project would not cause a substantial adverse effect at the intersection.

Table 10
Background Plus Project Intersections Levels of Service

ID	Intersection	Control ¹	Peak Hour	Background		Background Plus Project		
				Avg. Delay	LOS	Avg. Delay	LOS	Incr. in Avg. Del.
1	Veterans Boulevard and Whipple Avenue	Signal	AM	42.6	D	43.0	D	0.4
			PM	37.6	D	37.8	D	0.2
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	AM	12.3	B	12.7	B	0.4
			PM	12.8	B	12.7	B	-0.1
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	AM	4.5	A	4.5	A	0.0
			PM	4.4	A	4.4	A	0.0
4	Blomquist Street and Maple Street	OWSC	AM	13.4	B	13.4	B	0.0
			PM	17.1	C	17.2	C	0.1
5	Blomquist Street and Seaport Boulevard	Signal	AM	34.8	C	34.8	D	0.0
			PM	30.5	C	30.5	C	0.0
6	Veterans Boulevard and Woodside Road (SR 84) ²	Signal	AM	>120	F	>120	F	0.0
			PM	>120	F	>120	F	0.0

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control.
Overall weighted average control delay (seconds per vehicle) is reported for signalized intersections.
Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

At some intersections, the project would result in a slight decrease in the average delay . This occurs because the intersection delay is a weighted average of all intersection movements. When traffic is added to movements with delays lower than the average intersection delay, the average delay for the entire intersection can decrease.

Cumulative Conditions

This section describes traffic operations under cumulative no project conditions and cumulative conditions. For this study, cumulative no project conditions reflect a horizon year of 2024. Cumulative no project traffic volumes reflect regional growth in the study area and traffic generated by nearby approved and proposed development projects. Two cumulative scenarios were analyzed to evaluate cumulative volumes with and without the proposed Blomquist Street extension project (described in detail in Chapter 1).

Roadway Network

Cumulative Conditions with Blomquist Street Extension

The roadway network under cumulative no project conditions assumes the completion of the planned Blomquist Street extension to connect with East Bayshore Road at Bair Island Road. The Blomquist Street extension would include geometry changes to the following two study intersections:

- **East Bayshore Road/Bair Island Road:** Addition of a northbound leg to the existing roundabout intersection. The northbound leg would have one receiving lane and one right-turn lane.

- **Blomquist Street/Maple Street:** Addition of a southbound leg to the existing “T” intersection. The addition of this leg would be accompanied by the installation of all-way stop traffic control at the intersection. This all-way stop control would serve as a short-term control device. The City has stated that the preferred long-term control device for this intersection would be a one-lane roundabout. An analysis of both intersection controls is included as part of this cumulative analysis.

The proposed Blomquist Street extension project and lane configurations at the two intersections described above are shown on Figure 12. No other changes to the roadway network were assumed that would alter existing intersection lane configurations or the existing network.

Cumulative Conditions without Blomquist Street Extension

For the purposes of this analysis and at the direction of City staff, an analysis of cumulative conditions without the development of the Blomquist Street extension project was conducted. For this alternative analysis, no changes to the roadway network were assumed that would alter the existing lane configurations at any study intersections.

Intersection Traffic Volumes

The cumulative scenarios assume a horizon year of 2024. A growth factor of 1.0 percent per year for both the AM and PM peak periods was assumed based on direction from Redwood City staff.

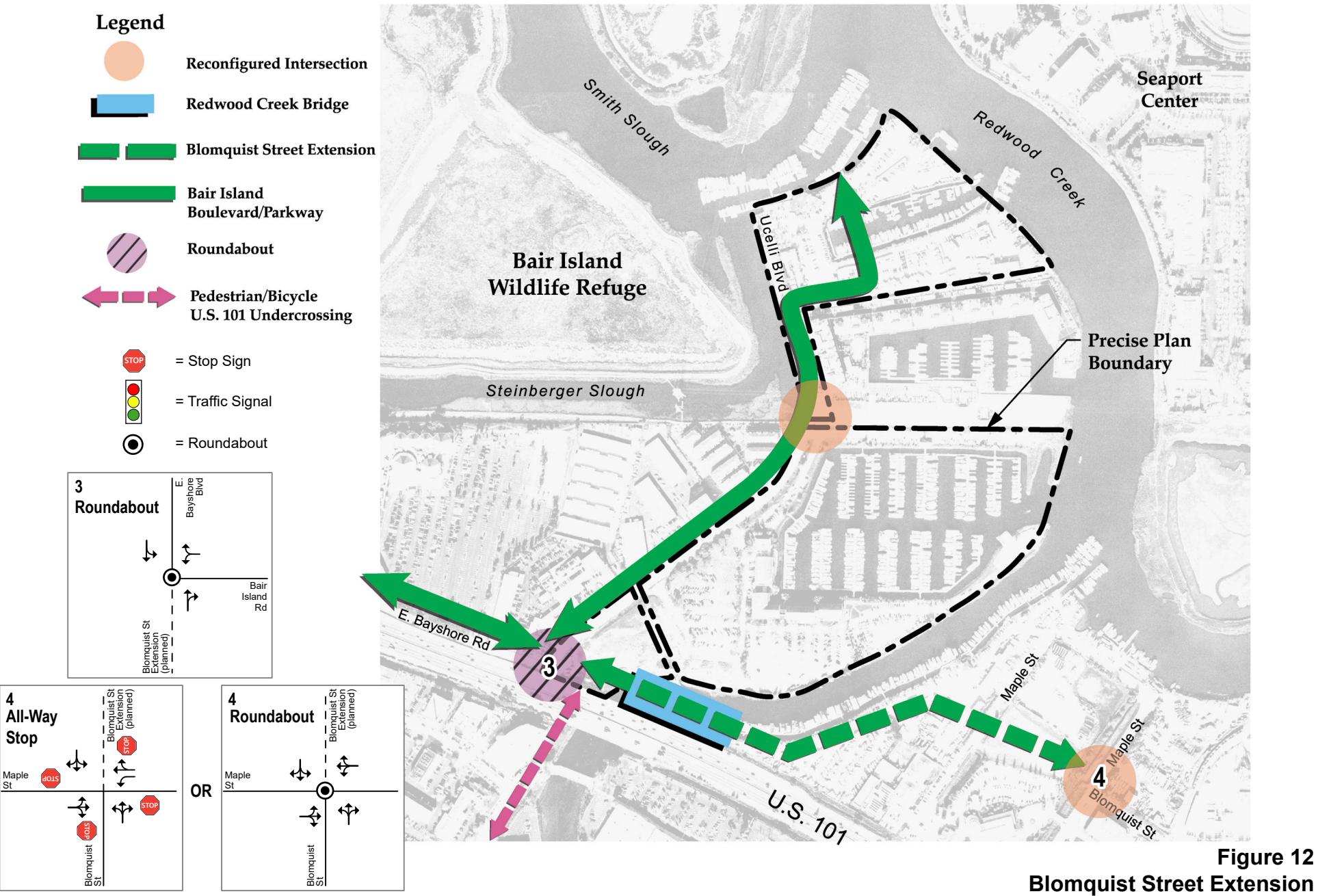
Cumulative No Project

Cumulative no project volumes were forecast based on the growth factor, the addition of background volumes from approved projects, and the addition of trips from other proposed but not yet approved projects in the study area. Trip generation and trip distribution for proposed projects were obtained from each project’s traffic analysis (TA) or environmental impact report (EIR). If there was no traffic study or EIR available for the project, trip generation was developed using rates provided in the *ITE Trip Generation Manual*. Trip distributions were developed based on existing travel patterns on the surrounding roadway system, locations of complimentary land uses, and the trip distribution patterns provided as part of nearby traffic studies. Peak-hour intersection volumes for the study intersections are tabulated in Appendix B.

The list of proposed projects was based on information provided on Redwood City’s website¹ (accessed in October 2021). The following proposed but not yet approved projects were considered under cumulative conditions because they would contribute cumulative trips to the study intersections.

- Sequoia Station Transit Sub-Area Plan (1057 El Camino Real) – 440 residential dwelling units and 1,635,000 s.f. office
- 557 East Bayshore Road - 480 multifamily residential dwelling units and a 97,101 s.f. sport fitness center
- 1125 Arguello Street – 68 townhomes
- Toyota 101 (525 East Bayshore Road) – 201,670 s.f. automotive dealership
- Harbor View (320-350 Blomquist Street) – 745,150 s.f. office (including 35,000 s.f. amenities space) and 20,000 s.f. community space
- 1330 El Camino Real – 130 residential dwelling units
- 800 Main Street – 83 hotel rooms, ground floor retail and restaurant space, rooftop bar, and basement amenities

¹ <https://www.redwoodcity.org/city-hall/current-projects/development-projects>. Accessed on 10/11/2021.



- 2300 Broadway – 200,000 s.f. office, 15,000 s.f. retail space, and 5,000 s.f. of open space
- 901 El Camino Real - 169,686 s.f. office, a two-story 4,462 s.f. teen center, and 4,000 s.f. public open space
- 651 El Camino Real - 300 residential dwelling units with a 12,000 s.f. space for American Legion
- 750 Bradford Street - 70,000 s.f. office building and 87 workforce housing units
- 601 Allerton Street – 80,579 s.f. of office space, 635 s.f. of ground floor retail space, two community futsal courts, and a rooftop clubhouse.

Since the Blomquist Street extension has yet to be built, the existing counts were reassigned to represent travel patterns that would occur if the Blomquist Street extension were in place (See Figure 13). The planned new roadway connection is expected to result in a diversion of trips from US 101 to Blomquist Street/E. Bayshore Road. In addition, existing developments on Bair Island Road and Uccelli Boulevard that are currently only accessible from the north via Whipple Avenue would also be accessible from the south via Maple Street and Seaport Boulevard. Furthermore, trips from the approved Strada development at 1548 Maple Street also were reassigned to reflect the Blomquist Street extension.

As described previously, the City has requested that the analysis include a cumulative scenario without the Blomquist Street extension. The traffic studies for proposed development projects east of the US 101, including 557 East Bayshore Road, Toyota 101, and Harbor View, were completed assuming the Blomquist extension was in place. Therefore, the project traffic needed to be reassigned to reflect no Blomquist Street extension.

Cumulative no project volumes with and without the Blomquist Street extension are presented in Figures 14 and 15, respectively.

Cumulative with Project

Project trips were reassigned to the future roadway network assuming the completion of the Blomquist Street extension based on the same trip generation and distribution estimates provided previously (see Figure 16). These reassigned project trips were added to the cumulative no project volumes to generate cumulative volumes (see Figure 17).

Under cumulative conditions without the Blomquist Street extension, the project trip assignment would be the same as shown on Figure 9. These project trips were added to the cumulative no project (no Blomquist Extension) volumes to generate cumulative (no Blomquist Extension) volumes (see Figure 18).

Intersection Levels of Service

Intersection levels of service were analyzed with and without the Blomquist Street extension.

With Blomquist Street Extension

The results of the level of service analysis under cumulative no project and cumulative plus project conditions with the Blomquist Street extension are summarized in Table 11. The results show that the project would cause a substantial adverse effect at the intersection of Blomquist Street and Maple Street under the short-term all-way stop control. The project would not cause a substantial adverse effect at the remaining study intersections.

505 East Bayshore Road TA

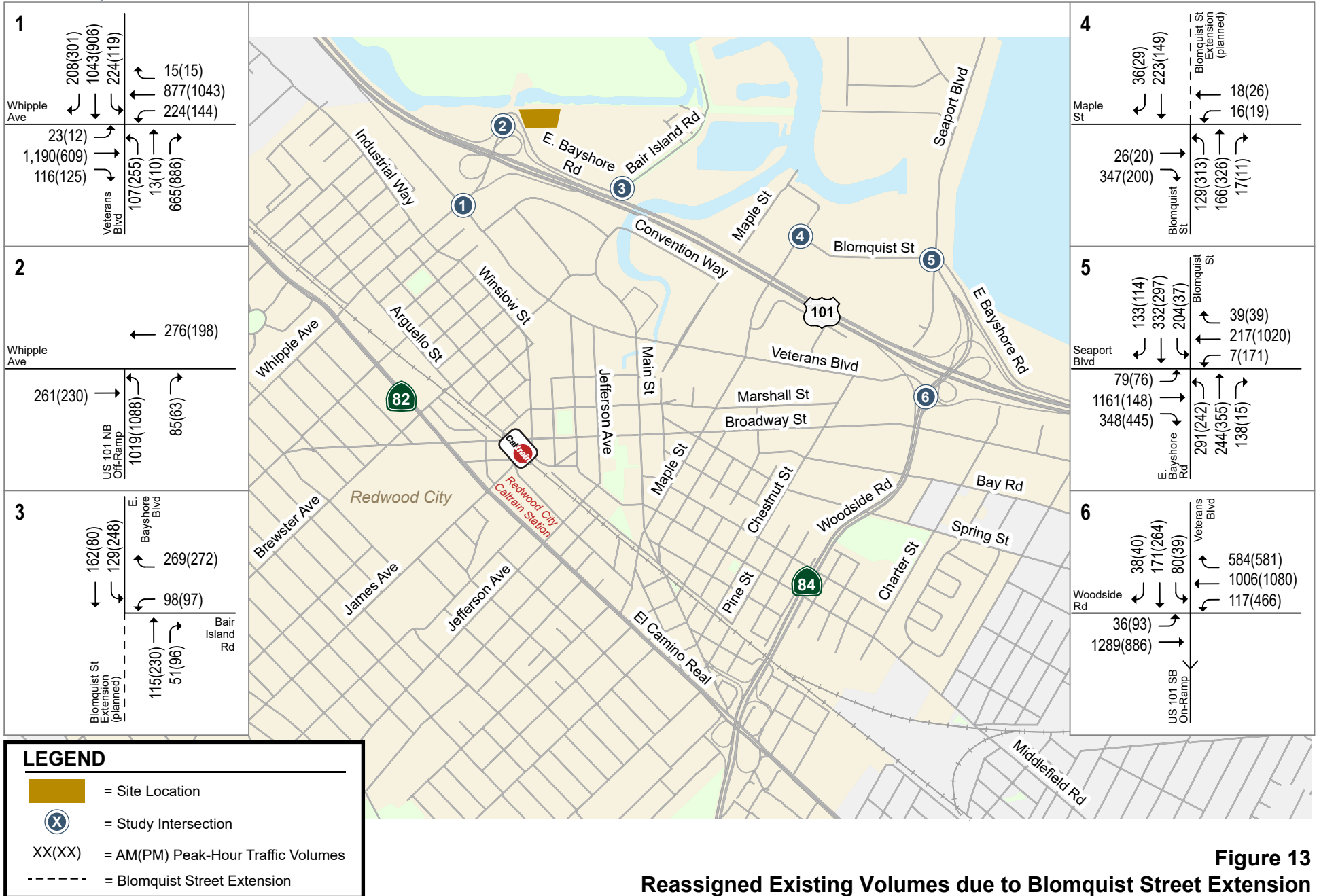


Figure 13
Reassigned Existing Volumes due to Blomquist Street Extension

505 East Bayshore Road TA

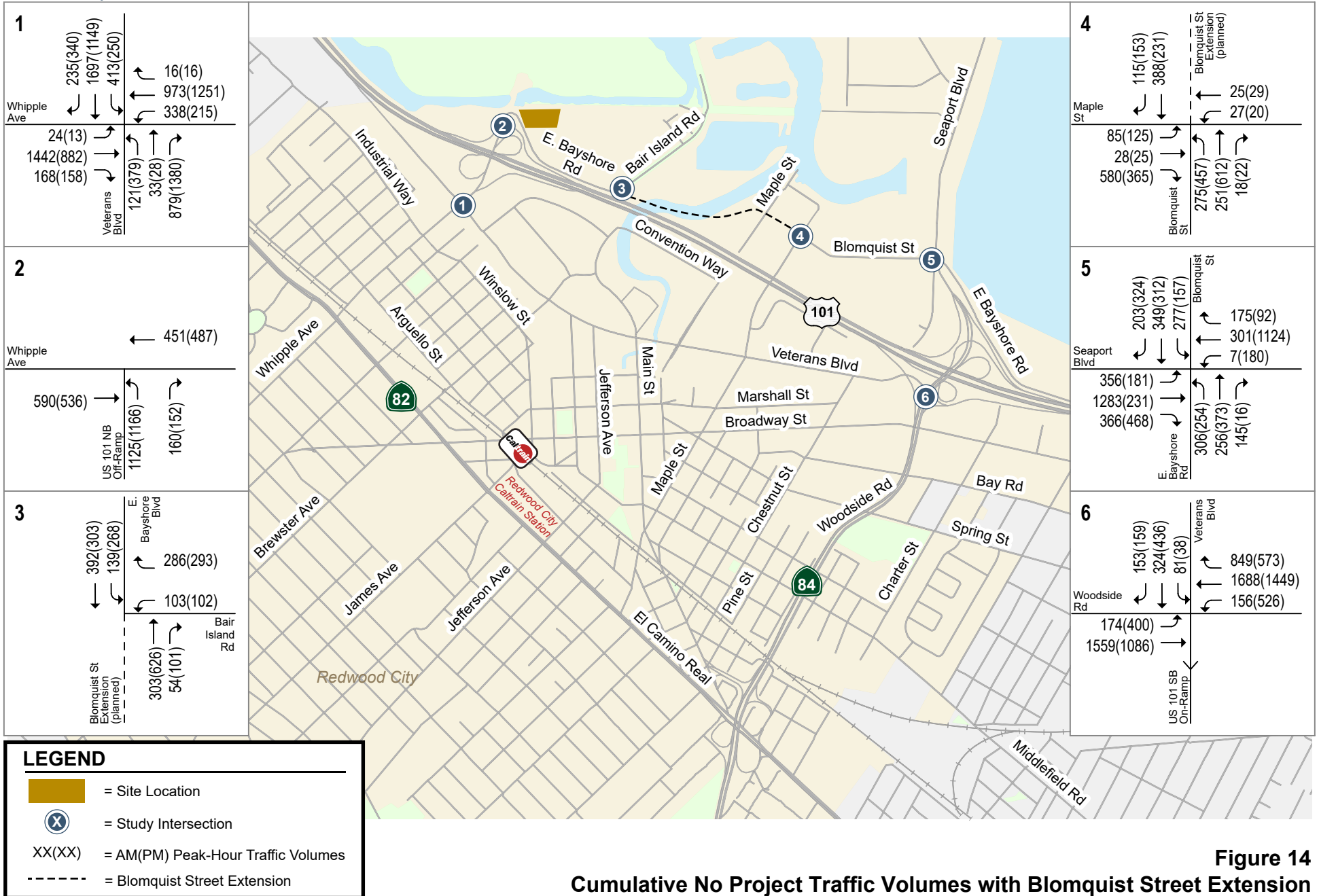
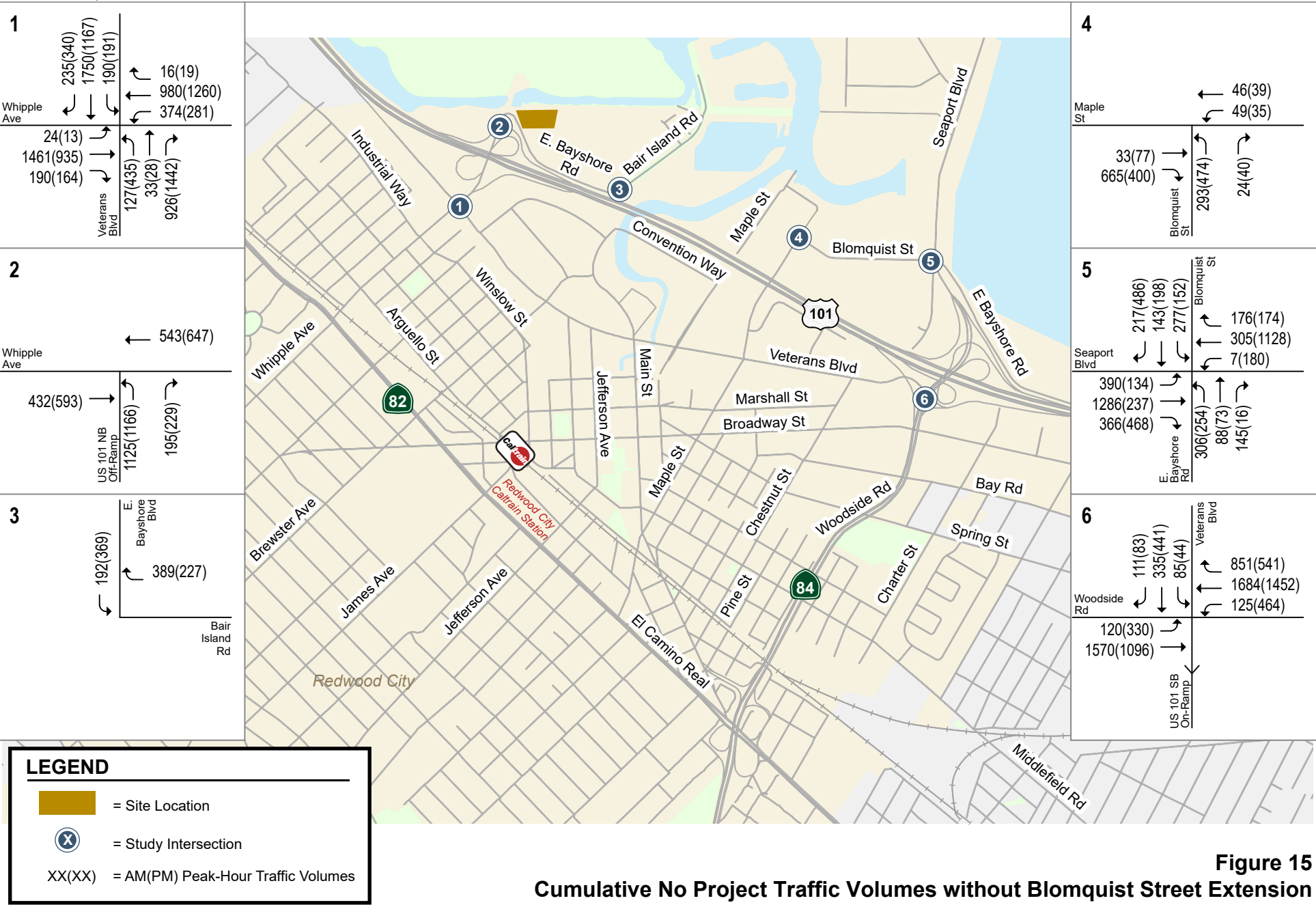


Figure 14
Cumulative No Project Traffic Volumes with Blomquist Street Extension

505 East Bayshore Road TA



505 East Bayshore Road TA

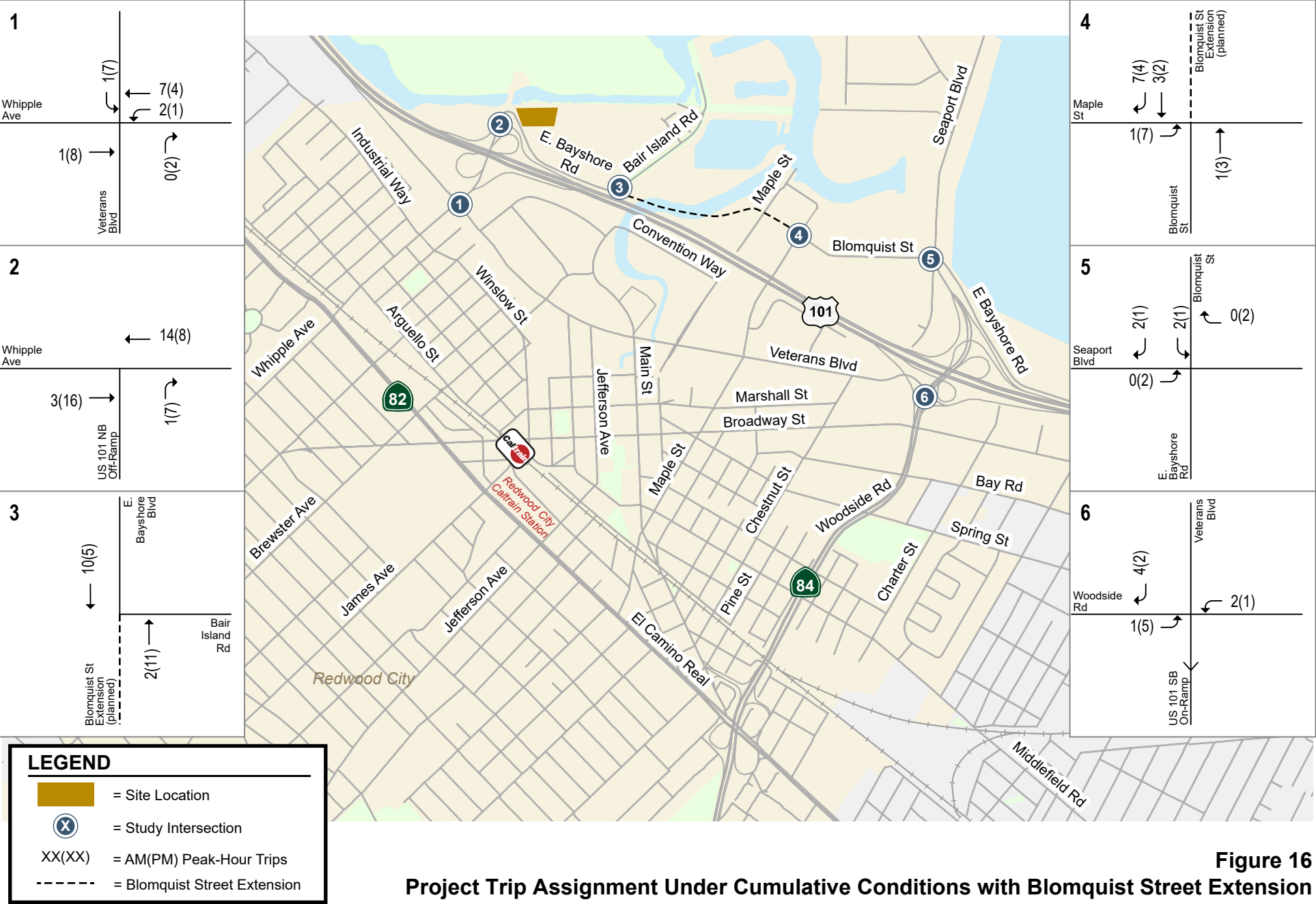


Figure 16
Project Trip Assignment Under Cumulative Conditions with Blomquist Street Extension

505 East Bayshore Road TA

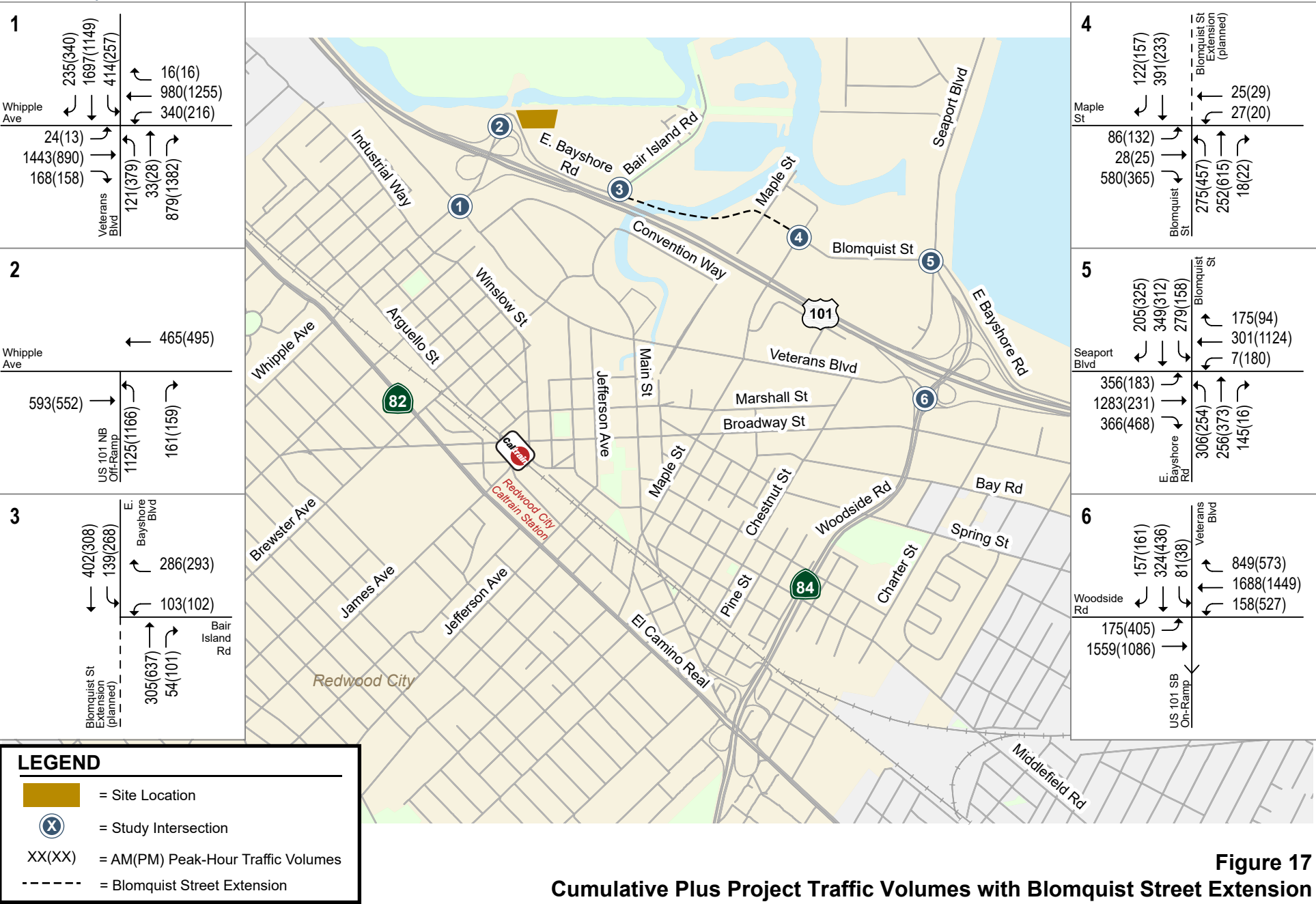


Figure 17
Cumulative Plus Project Traffic Volumes with Blomquist Street Extension

505 East Bayshore Road TA

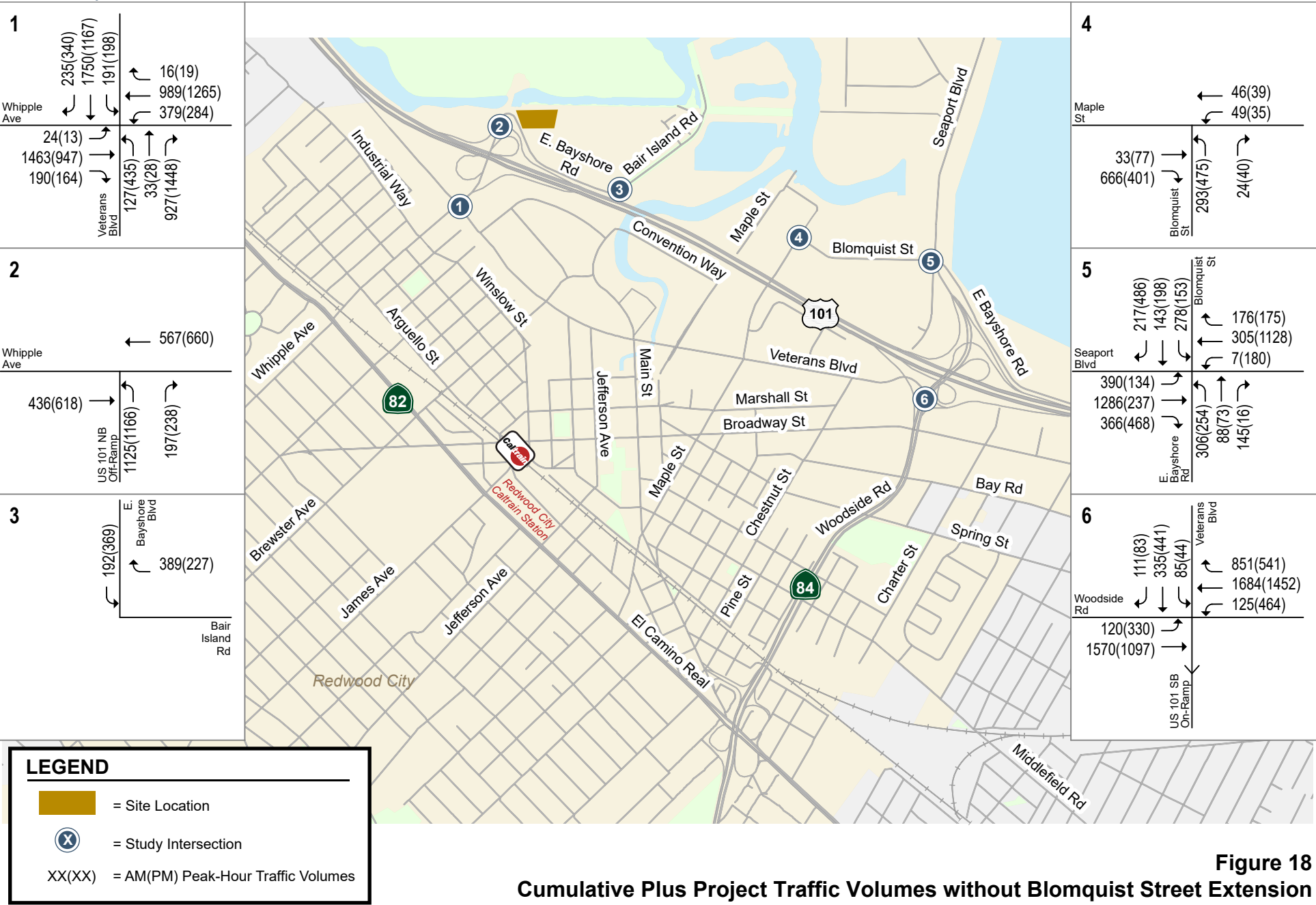


Figure 18
Cumulative Plus Project Traffic Volumes without Blomquist Street Extension

Blomquist Street and Maple Street

With the installation of the all-way stop control, the Blomquist Street and Maple Street intersection would operate at an unacceptable LOS F during the AM and PM peak hours under both cumulative no project and cumulative plus project conditions. The addition of project trips would increase the average delay at this unsignalized intersection by 5.9 seconds in the PM peak hour. As described later in this chapter, this intersection would meet signal warrants under both cumulative conditions during the AM and the PM peak hours both without and with the proposed project. Because the project would increase the average delay by more than five seconds and the intersection would meet signal warrants under cumulative conditions, the project is considered to have a **substantial adverse effect** at this intersection.

As shown in Table 11, this intersection would operate at an acceptable LOS B or C with a single-lane roundabout under both cumulative no project and cumulative plus project conditions during the AM and PM peak hours. This roundabout is included as part of the Blomquist Street extension project, which will be funded in part through the City's Transportation Impact Fee (TIF). Therefore, payment of the City's TIF would mitigate this deficiency.

Table 11
Cumulative With Blomquist Street Extension Intersection Levels of Service

ID	Intersection	Control ¹	Peak Hour	With Blomquist St Extension				
				Cumulative No Project		Cumulative Plus Project		
				Avg. Delay	LOS	Avg. Delay	LOS	Incr. in Avg. Del.
1	Veterans Boulevard and Whipple Avenue	Signal	AM	83.9	F	84.2	F	0.3
			PM	48.4	D	48.9	D	0.5
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	AM	13.5	B	13.5	B	0.0
			PM	13.7	B	13.9	B	0.2
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	AM	6.9	A	7.0	A	0.1
			PM	11.8	B	12.1	B	0.3
4	Blomquist Street and Maple Street	AWSC ²	AM	>120	F	>120	F	3.4
			PM	>120	F	>120	F	5.9
		Rbt ²	AM	12.8	B	12.9	B	0.1
			PM	20.4	C	21.2	C	0.8
5	Blomquist Street and Seaport Boulevard	Signal	AM	108.4	F	108.5	F	0.1
			PM	68.5	E	69.0	E	0.5
6	Veterans Boulevard and Woodside Road (SR 84) ³	Signal	AM	>120	F	>120	F	1.0
			PM	>120	F	>120	F	1.5

Notes:

¹ Control Type Definitions: Rbt = Roundabout; AWSC = All-Way Stop Control.

Overall weighted average control delay (seconds per vehicle) is reported for signalized and AWSC intersections.

² The intersection of Blomquist St and Maple St will be converted to either an AWSC or Rbt intersection under cumulative conditions. The above results for Rbt reflect a single-lane Rbt.

³ Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

Bold indicates that the proposed project would cause an adverse effect at this intersection.

Without Blomquist Street Extension

The results of the level of service analysis under cumulative no project and cumulative plus project conditions without the Blomquist Street extension are summarized in Table 12. The project would not cause a substantial adverse effect at any study intersections.

Table 12
Cumulative Without Blomquist Street Extension Intersection Levels of Service

ID	Intersection	Control ¹	Peak Hour	Without Blomquist St Extension			
				Cumulative No Project		Cumulative Plus Project	
				Avg. Delay	LOS	Avg. Delay	Incr. in Avg. Del.
1	Veterans Boulevard and Whipple Avenue	Signal	AM	86.6	F	87.4	F
			PM	56.0	E	57.1	1.1
2	US 101 Northbound Off-Ramp and Whipple Avenue	Signal	AM	13.4	B	13.4	0.0
			PM	15.1	B	15.4	0.3
3	East Bayshore Road (Blomquist Street) and Bair Island Road	Rbt	AM	4.6	A	4.6	0.0
			PM	4.5	A	4.5	0.0
4	Blomquist Street and Maple Street	OWSC	AM	23.9	C	23.9	0.0
			PM	36.7	E	37.1	0.4
5	Blomquist Street and Seaport Boulevard	Signal	AM	109.6	F	109.7	0.1
			PM	86.3	F	86.3	0.0
6	Veterans Boulevard and Woodside Road (SR 84) ²	Signal	AM	>120	F	>120	0.0
			PM	>120	F	>120	0.1

Notes:

¹ Control Type Definitions: Rbt = Roundabout; OWSC = One-Way Stop Control.

Overall weighted average control delay (seconds per vehicle) is reported for signalized intersections.

Worst stop-controlled approach delay (seconds per vehicle) is reported for OWSC intersections.

² Synchro default parameters were adjusted to ensure intersection delay and LOS reflect field observations.

Bold indicates a substandard level of service.

Signal Warrants

An assessment was made of the need for signalization at the stop-controlled study intersection at Blomquist Street and Maple Street. This assessment was made on the basis of the Peak-Hour Volume Signal Warrant, Warrant #3, described in the *California Manual on Uniform Traffic Control Devices* (CA MUTCD). This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes are or would be sufficient to justify installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized level of service analysis and/or operational analyses such as evaluation of vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions.

The peak-hour signal warrant check was completed for the Blomquist Street and Maple Street intersection for the AM and PM peak hours under all scenarios. The analysis showed that the signal warrant *would be satisfied* during the AM and PM peak hour under cumulative no project and cumulative plus project conditions without and with the Blomquist Street extension. The signal warrant worksheet can be found in Appendix D.

As described previously, the project would cause the average delay at this intersection to increase by more than five seconds under cumulative conditions with the Blomquist Street extension with all-way stop control during the PM peak hour. Based on the City's mobility deficiency criteria, a project is said to have a substantial adverse effect at an unsignalized intersection operating at an unacceptable level of service if the addition of project traffic increases the worst movement delay by greater than 5.0 seconds and the peak-hour signal warrants is met at the intersection. Therefore, the project would cause a substantial adverse effect at the intersection during the PM peak hour.

This intersection is planned to have a roundabout with the Blomquist Street extension. The analysis of a one-lane roundabout showed that the intersection would operate at an acceptable LOS B or C under both cumulative no project and cumulative plus project conditions during the AM and PM peak hours, respectively. Based on the projected traffic volumes, a roundabout would be a preferred control method rather than a traffic signal at this intersection.

Without the Blomquist Street extension, the intersection is expected to operate at an acceptable level under the current one-way stop control during the AM peak hour. During the PM peak hour, the intersection would operate at unacceptable level of service E with the current one-way stop control under both cumulative no project conditions and cumulative plus project conditions. The peak-hour signal warrant check showed that the signal warrant *would be satisfied* during the AM and PM peak hour under cumulative no project and cumulative plus project conditions. Because the project would cause the average delay to increase by less than five seconds without the Blomquist Street extension, the project would not result in an adverse effect under this scenario.

4. Other Transportation Issues

This chapter presents other transportation issues associated with the proposed project. These include an analysis of:

- Site access and on-site circulation
- Potential impacts to transit, bicycle, and pedestrian facilities
- Parking

Unlike the level of service and VMT impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Site Access and On-Site Circulation

Site access and on-site circulation were evaluated using commonly accepted transportation principles. This review is based on the site plan prepared by the DAHLIN Group, dated June 24, 2021 (see Figure 2).

Vehicle Site Access

Vehicular access to the site would be provided via one driveway on E. Bayshore Road. A 26-foot wide internal roadway would provide access to three residential buildings along the north side of the project site and connect to three 20-foot wide short dead-end roads serving the remaining six buildings on the southern portion of the project site. The project is estimated to generate 41 gross trips during the AM peak hour and 55 gross trips during the PM peak hour. That is less than one car every minute entering or exiting the driveway. Given the small number of project trips and the low traffic volume on East Bayshore Road, turning movements to and from the project driveway would not cause any operational issues.

Sight Distance

Sight distance generally should be provided in accordance with Caltrans design standards. Sight distance requirements vary depending on the roadway speeds. The speed limit on East Bayshore Road is 25 mph. The Caltrans recommended stopping sight distance at this speed is 150 feet. This means that a driver must be able to see 150 feet down East Bayshore Road to locate a sufficient gap to turn out of the driveways.

The driveway is located about 90 feet south of the sharp curve where Whipple Avenue connects to East Bayshore Road. Therefore, eastbound right-turn traffic from Whipple Avenue is expected to travel at lower speeds while making turns. Based on the curb radius, vehicles slow to a maximum of

approximately 15 mph when making this turn. The recommended stopping sight distance would be 100 feet for a design speed of 15 mph. There are no landscaping features next to the site driveway that would obstruct the vision of exiting drivers. However, there is a fence along the west side of East Bayshore Road that extends south from the pedestrian crosswalk that limits visibility of vehicles approaching around the curve. Measured on the current site plan, outbound drivers at the project driveway would be able to see vehicles approaching on eastbound Whipple Avenue 150 feet away, which would be more than adequate for the expected vehicle speeds.

Currently, on-street parking is not allowed on East Bayshore Road near the project driveway. Under project conditions, the site plan shows that five parallel street parking spaces will be provided to the San Francisco Bay Conservation & Development Commission (BCDC) for public use by Bay Trail visitors south of the project driveway on East Bayshore Road. However, a bulb out would be constructed on East Bayshore Road on both sides of the project driveway that would enable exiting drivers to pull forward after confirming the sidewalk is clear of approaching pedestrians and see past any cars parked near the driveway. There are no roadway curves or tall structures that would obstruct a driver's ability to see 150 feet to the south on East Bayshore Road. Thus, the sight distance looking south on East Bayshore Road would be adequate.

Emergency Vehicles, Truck Access and Circulation

Emergency response vehicles would be able to access the project site from the driveway on E. Bayshore Road. The width of the main internal road would be 26 feet wide, which is adequate for emergency vehicle access and circulation. The site plan shows three 20-foot-wide short dead-end roads serving the six buildings on the southern portion of the project site. Dead-end streets generally are undesirable because upon reaching the end of an aisle, drivers must either back out or perform a three-point maneuver. Because the dead-end streets would only provide access to resident garages and no visitor parking spaces, they would not cause any operational issues. The 20-foot wide dead-end roads would not be wide enough for garbage trucks, large delivery trucks, and emergency vehicles to turn around. However, a hammerhead turnaround area would allow large vehicles to back out to the main internal road in order to turn around on site.

Pedestrian, Bicycle and Transit Analysis

Pedestrian facilities near the project site consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. Whipple Avenue has pedestrian walkways on only the south side of the roadway at the US 101 interchange. Bicycle and pedestrian access to and from the site is also provided via the mixed-use trail along Redwood Creek connecting East Bayshore Road to Convention Way/Main Street. As shown on the site plan, the proposed project will provide new sidewalks along its frontage on East Bayshore Road. A public trail would be constructed along the northern boundary of the site, providing access between E. Bayshore Road and a planned public trail segment to be located on the adjacent property to the east, expanding and enhancing public access along the shoreline. Pedestrian pathways would be located throughout the site, connecting the proposed buildings to the public trail and E. Bayshore Road. The public trail would also provide bicycle access to the site.

Several new bicycle connections across US 101 have been constructed in recent years including enhanced Class II bike lanes on Whipple Avenue from Veterans Boulevard to East Bayshore Road and a new Class I bicycle path under US 101 connecting Convention Way/Main Street and East Bayshore Road. The Citywide Transportation Plan also calls for a new Class I bicycle path connecting Chestnut Street and Seaport Boulevard. Furthermore, a Class I bicycle path is proposed adjacent to the entire length of East Bayshore Road and Blomquist Street. The proposed development on the adjacent property at 557 East Bayshore Road would add Class II bicycle lanes along its project frontage on East Bayshore Road. However, the new bicycle lanes would not connect to other bicycle facilities.

Recommendation: The proposed project should provide bicycle facilities along the project frontage on East Bayshore Road in coordination with the City of Redwood City and adjacent property owners.

No transit services currently exist in the project vicinity. Due to the lack of transit accessibility, the project is expected to generate minimal transit trips. To improve transit access, the project should work with the City and SamTrans to create a bus route that serves the various residential, office, and retail uses on Bair Island.

Parking Analysis

Vehicle Parking

The project is proposing a General Plan Amendment and associated rezoning from General Commercial to Mixed-Use Waterfront District. The required parking supply is determined using the parking rates specified in the City Municipal Code Section 30.4.B. The project is located within a mixed-use zone. Based on the Redwood City Zoning Ordinance (Section 30.4), the project would be required to provide parking at the following rates for each use:

- Residential Use: 2 spaces per each unit with two or more bedrooms, 1.5 spaces for each one-bedroom or studio unit.
- Guests or Visitors: 1 space for every 4 residential units

Based on the project site plan and description, all 56 residential units will have two or more bedrooms. Based on the requirements listed above, the project would be required to provide a total of 112 parking spaces for residents and 14 spaces for guests or visitors. Based on the site plan, the project would provide a two car garage for each unit for a total of 112 reserved resident spaces and seven surface parking spaces on the site available to residents and guests. The proposed on-site parking satisfies the City's parking requirement for residents but falls short of the required guest parking. The Zoning Code states that the required number of guest or visitor spaces for a multiple dwelling development may be reduced or eliminated if one of the following conditions applies:

- a. Adequate street parking is available, and/or
- b. Only one parking space is reserved per unit for residents, and/or
- c. The site is in close proximity to retail shopping facilities and services.

The project would also provide five onstreet parking spaces to the San Francisco Bay Conservation & Development Commission (BCDC) for public use by Bay Trail visitors. There are no other on-street parking spaces available in the project vicinity. Because the project would provide more than one reserved per unit for residents and the site is not in close proximity to retail shopping facilities and services, it would not qualify for a reduction in guest parking.

Recommendation: The project should provide additional guest parking spaces to satisfy the Zoning Code requirements.

Bicycle Parking

The bicycle parking requirements per Redwood City Zoning Ordinance (Section 57.6) for residential uses in the Mixed-Use Waterfront District are: one bicycle parking space shall be provided per every three dwelling units.

Per the above zoning code, the project is required to provide 19 bicycle parking spaces for the proposed residential development. The project proposes to provide 19 bicycle parking spaces. The site plan does not show the location of the bicycle parking spaces. Acceptable secure bicycle parking

includes covered, lockable enclosures with permanently anchored racks for bicycles; lockable bicycle rooms with permanently anchored racks; or lockable, permanently anchored bicycle lockers.

**505 East Bayshore Road Residential Development
Transportation Analysis
Technical Appendices**

Appendix A

Traffic Counts



(303) 216-2439
www.alltrafficdata.net

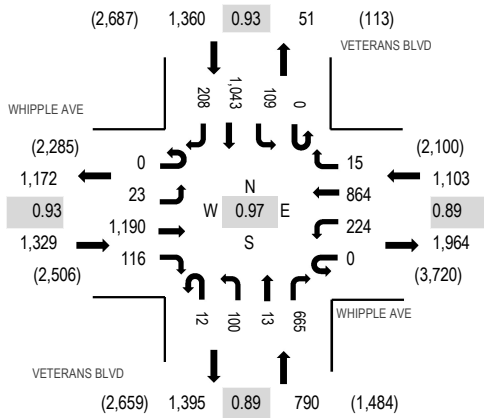
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Date: Tuesday, September 10, 2019

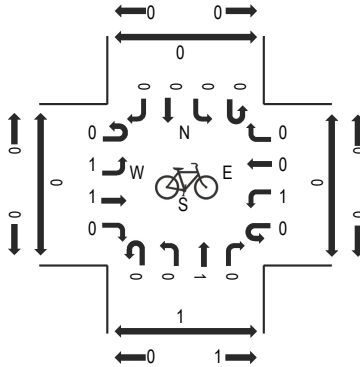
Peak Hour: 07:45 AM - 08:45 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

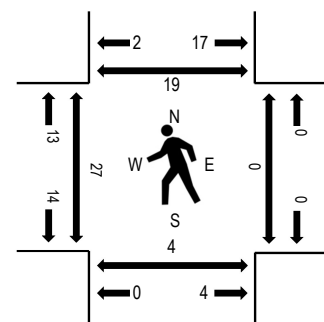
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WHIPPLE AVE Eastbound				WHIPPLE AVE Westbound				VETERANS BLVD Northbound				VETERANS BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	4	218	19	0	51	194	3	0	17	6	119	0	38	210	64	943	4,265	2	0	0	3
7:15 AM	0	6	235	14	0	46	199	5	1	20	2	134	0	24	254	67	1,007	4,451	2	0	0	2
7:30 AM	0	8	279	28	0	43	214	7	1	21	4	175	0	27	252	71	1,130	4,551	3	0	0	5
7:45 AM	0	4	304	31	0	65	250	4	2	28	2	181	0	25	237	52	1,185	4,582	0	0	1	1
8:00 AM	0	11	285	23	0	59	246	4	0	20	3	142	0	26	271	39	1,129	4,512	11	0	2	10
8:15 AM	0	5	281	22	0	56	181	4	2	26	5	158	0	33	273	61	1,107		15	0	0	7
8:30 AM	0	3	320	40	0	44	187	3	8	26	3	184	0	25	262	56	1,161		1	0	1	1
8:45 AM	0	8	312	46	0	55	175	5	1	24	4	165	0	30	243	47	1,115		7	0	1	8

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	6	0	0	1	4	0	0	0	0	2	0	0	3	1	17
Lights	0	21	1,163	109	0	217	822	15	11	96	13	648	0	103	1,023	202	4,443
Mediums	0	2	21	7	0	6	38	0	1	4	0	15	0	6	17	5	122
Total	0	23	1,190	116	0	224	864	15	12	100	13	665	0	109	1,043	208	4,582



(303) 216-2439
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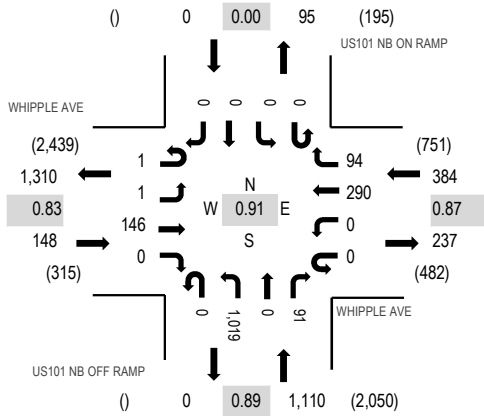
Location: 4 US101 NB OFF RAMP & WHIPPLE AVE AM

Date: Tuesday, September 10, 2019

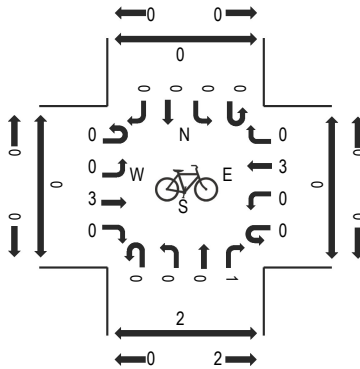
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

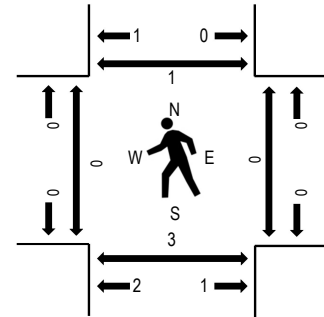
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WHIPPLE AVE Eastbound				WHIPPLE AVE Westbound				US101 NB OFF RAMP Northbound				US101 NB ON RAMP Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	44	0	0	0	48	16	0	221	0	15	0	0	0	0	344	1,562	0	0	1	0
7:15 AM	0	0	37	0	0	0	55	19	0	225	0	21	0	0	0	0	357	1,642	0	0	0	0
7:30 AM	0	0	36	0	0	0	78	21	0	255	0	19	0	0	0	0	409	1,632	0	0	1	0
7:45 AM	0	0	35	0	0	0	80	26	0	287	0	24	0	0	0	0	452	1,599	0	0	1	0
8:00 AM	1	1	38	0	0	0	77	28	0	252	0	27	0	0	0	0	424	1,554	0	0	1	1
8:15 AM	0	0	32	0	0	0	65	24	0	214	0	12	0	0	0	0	347		0	0	3	0
8:30 AM	0	0	42	0	0	0	78	19	0	211	0	26	0	0	0	0	376		0	0	2	0
8:45 AM	0	0	49	0	0	0	77	40	0	215	1	25	0	0	0	0	407		0	0	3	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	1	0	0	6	0	0	0	0	0	0	7
Lights	1	1	145	0	0	0	283	94	0	980	0	89	0	0	0	0	1,593
Mediums	0	0	1	0	0	0	6	0	0	33	0	2	0	0	0	0	42
Total	1	1	146	0	0	0	290	94	0	1,019	0	91	0	0	0	0	1,642



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Peak 15-Minutes: 08:45 AM - 09:00 AM

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	0	0	0	0	0	0	0	0	0	1	0	1
Lights					0	0	0	361	0	0	1	0	4	169	1	0	536
Mediums					0	0	0	6	0	0	1	0	1	6	0	0	14
Total					0	0	0	367	0	0	2	0	5	175	2	0	551



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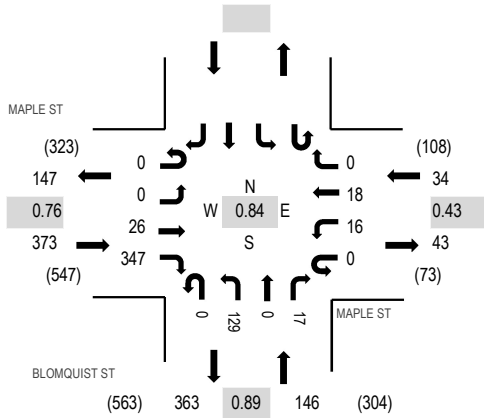
Location: 6 BLOMQUIST ST & MAPLE ST AM

Date: Tuesday, September 10, 2019

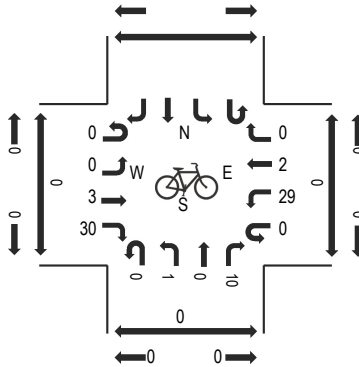
Peak Hour: 08:00 AM - 09:00 AM

Peak 15-Minutes: 08:45 AM - 09:00 AM

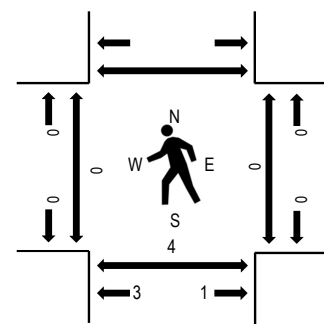
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	MAPLE ST Eastbound				MAPLE ST Westbound				BLOMQUIST ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	2	25	0	26	17	0	0	20	0	5					95	406	0	0	0	
7:15 AM	0	0	4	29	0	9	6	0	0	38	0	2					88	444	0	0	0	
7:30 AM	0	0	4	39	0	2	6	0	0	43	0	6					100	478	0	0	1	
7:45 AM	0	0	5	66	0	3	5	0	1	41	0	2					123	511	0	0	2	
8:00 AM	0	0	7	74	0	6	4	0	0	37	0	5					133	553	0	0	1	
8:15 AM	0	0	6	72	0	4	2	0	0	33	0	5					122		0	0	0	
8:30 AM	0	0	5	86	0	4	6	0	0	30	0	2					133		0	0	2	
8:45 AM	0	0	8	115	0	2	6	0	0	29	0	5					165		0	0	1	

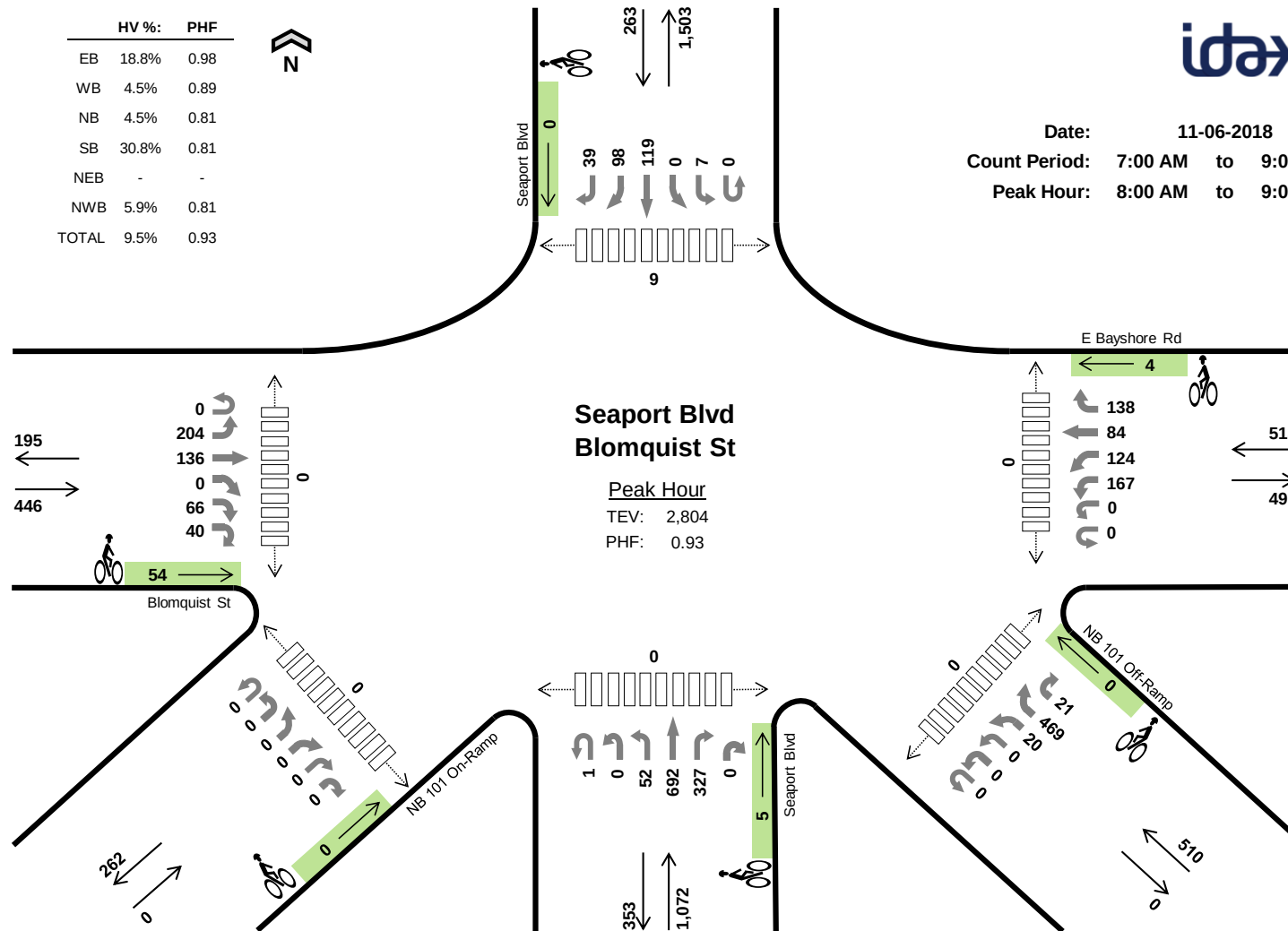
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	0	0	0					1
Lights	0	0	25	332	0	16	16	0	0	123	0	15					527
Mediums	0	0	1	14	0	0	2	0	0	6	0	2					25
Total	0	0	26	347	0	16	18	0	0	129	0	17					553

N

Peak Hour: 8:00 AM to 9:00 AM

Peak Hour
TEV: 2,804
PHF: 0.93



Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)								
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total
7:00 AM	15	8	14	21	0	11	69	8	3	0	1	0	0	12	0	0	3	0	0	0	3
7:15 AM	19	3	17	22	0	2	63	10	0	0	0	0	0	10	0	1	4	0	0	0	5
7:30 AM	24	2	9	15	0	10	60	5	0	0	0	0	0	5	0	0	4	0	0	0	4
7:45 AM	25	2	15	21	0	10	73	8	0	0	1	0	0	9	0	0	4	0	0	0	4
8:00 AM	25	10	14	14	0	3	66	14	0	1	0	0	0	15	0	0	1	0	0	0	1
8:15 AM	21	9	8	27	0	7	72	16	0	2	0	0	0	18	0	0	3	0	0	0	3
8:30 AM	22	2	13	17	0	9	63	17	2	2	0	0	0	21	0	0	5	0	0	0	5
8:45 AM	16	2	13	23	0	11	65	7	2	0	0	0	0	9	0	0	0	0	0	0	0
Count Total	167	38	103	160	0	63	531	85	7	5	2	0	0	99	0	1	24	0	0	0	25
Peak Hr	84	23	48	81	0	30	266	54	4	5	0	0	0	63	0	0	9	0	0	0	9

Interval Start	Blomquist St Eastbound						E Bayshore Rd Westbound						Seaport Blvd Northbound						Seaport Blvd Southbound						NB 101 On-Ramp Northwestbound						NB 101 Off-Ramp Northeastbound						15-min Total	Rolling One Hour
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
	7:00 AM	0	3	0	0	2	10	0	0	4	3	1	0	0	0	4	10	0	0	0	0	11	7	3	0	0	0	0	0	0	0	0	0	0	0	69		
7:15 AM	0	3	0	0	10	6	0	0	2	0	1	0	0	0	9	6	2	0	0	1	0	13	6	2	0	0	0	0	0	0	0	0	0	2	0	63	0	
7:30 AM	0	5	1	0	7	11	0	0	1	0	1	0	0	0	3	5	1	0	0	0	0	7	5	3	0	0	0	0	0	0	0	0	2	7	1	60	0	
7:45 AM	0	6	0	0	4	15	0	0	2	0	0	0	0	0	8	6	1	0	0	1	0	11	5	4	0	0	0	0	0	0	0	0	1	9	0	73	265	
8:00 AM	0	4	3	0	8	10	0	0	2	4	3	1	0	0	6	4	4	0	0	0	8	3	3	0	0	0	0	0	0	0	0	0	2	1	0	66	262	
8:15 AM	0	4	2	0	7	8	0	0	5	1	2	1	0	0	1	6	1	0	0	1	0	7	14	5	0	0	0	0	0	0	0	1	6	0	72	271		
8:30 AM	0	5	0	0	11	6	0	0	2	0	0	0	0	0	3	8	2	0	0	1	0	7	7	2	0	0	0	0	0	0	0	1	8	0	63	274		
8:45 AM	0	5	1	0	10	0	0	0	2	0	0	0	0	0	3	4	6	0	0	0	10	9	4	0	0	0	0	0	0	0	0	0	10	1	65	266		
Count Total	0	35	7	0	59	66	0	0	20	8	8	2	0	0	37	49	17	0	0	4	0	74	56	26	0	0	0	0	0	0	0	0	10	51	2	531	0	
Peak Hour	0	18	6	0	36	24	0	0	11	5	5	2	0	0	13	22	13	0	0	2	0	32	33	14	0	0	0	0	0	0	0	4	25	1	266	0		

Interval Start	Blomquist St							E Bayshore Rd						Seaport Blvd						Seaport Blvd						NB 101 On-Ramp						NB 101 Off-Ramp						15-min Total	Rolling One Hour					
								Eastbound						Northbound						Southbound						Northeastbound						Northwestbound												
	UT	LT	TH	BR	RT	HR		UT	HL	LT	BL	TH	RT		UT	HL	LT	TH	RT	HR		UT	LT	BL	TH	BR	RT		UT	HL	BL	BR	RT	HR		UT	HL			LT	BL	BR	HR	
7:00 AM	0	3	5	0	0	0		0	0	0	0	1	2		0	0	0	0	0	0		0	0	0	0	0	1		0	0	0	0	0	0		0	0	0	0	0	0		12	0
7:15 AM	0	1	9	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		10	0
7:30 AM	0	1	4	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		5	0
7:45 AM	0	3	5	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	1		0	0	0	0	0	0		0	0	0	0	0	0		9	36
8:00 AM	0	4	10	0	0	0		0	0	0	0	0	0		0	0	0	1	1	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		15	39
8:15 AM	0	7	9	0	0	0		0	0	0	0	0	0		0	0	0	2	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		18	47
8:30 AM	0	8	9	0	0	0		0	0	0	0	1	1		1	0	0	1	1	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		21	63
8:45 AM	0	1	6	0	0	0		0	0	0	0	1	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		9	63
Count Total	0	28	57	0	0	0		0	0	0	0	3	4		0	0	1	4	0	0		0	0	0	0	0	2		0	0	0	0	0	0		0	0	0	0	0	0		99	0
Peak Hour	0	20	34	0	0	0		0	0	0	0	2	2		0	0	1	4	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		63	0



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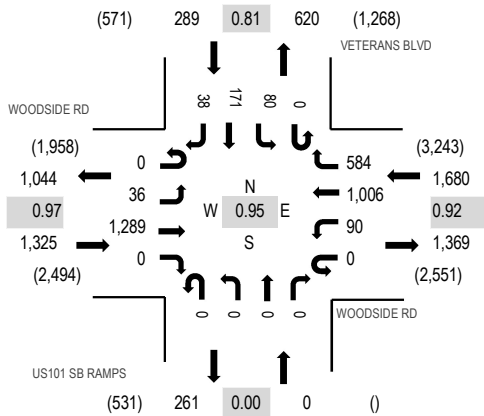
Location: 8 US101 SB RAMPS & WOODSIDE RD AM

Date: Tuesday, September 10, 2019

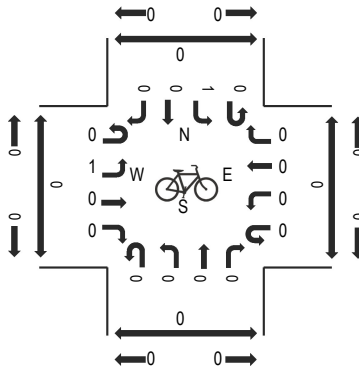
Peak Hour: 07:15 AM - 08:15 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

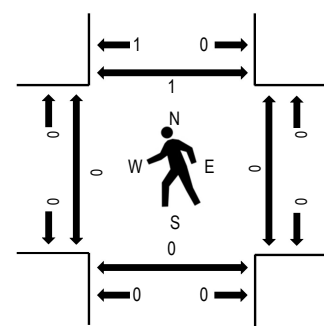
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WOODSIDE RD Eastbound				WOODSIDE RD Westbound				US101 SB RAMPS Northbound				VETERANS BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	12	259	0	0	35	255	112	0	0	0	0	0	9	31	4	717	3,215	0	0	0	0
7:15 AM	0	14	327	0	0	20	259	124	0	0	0	0	0	11	18	12	785	3,294	0	0	0	0
7:30 AM	0	7	315	0	0	26	252	150	0	0	0	0	0	31	60	9	850	3,260	0	0	0	0
7:45 AM	0	6	336	0	0	22	262	173	0	0	0	0	0	15	38	11	863	3,181	0	0	0	0
8:00 AM	0	9	311	0	0	22	233	137	0	0	0	0	0	23	55	6	796	3,093	0	0	0	1
8:15 AM	0	12	280	0	0	12	212	158	0	0	0	0	0	21	48	8	751		0	0	0	1
8:30 AM	0	20	281	0	0	27	226	142	0	0	0	0	0	20	48	7	771		0	0	0	0
8:45 AM	0	19	286	0	0	18	193	173	0	0	0	0	0	26	51	9	775		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	11	0	0	22	20	0	0	0	0	0	0	5	0	1	59
Lights	0	34	1,225	0	0	51	931	572	0	0	0	0	0	68	164	35	3,080
Mediums	0	2	53	0	0	17	55	12	0	0	0	0	0	7	7	2	155
Total	0	36	1,289	0	0	90	1,006	584	0	0	0	0	0	80	171	38	3,294



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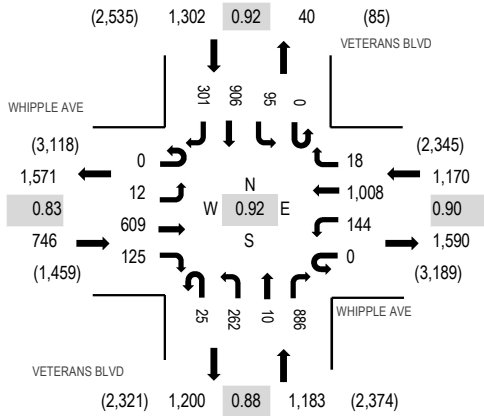
Location: 3 VETERANS BLVD & WHIPPLE AVE PM

Date: Tuesday, September 10, 2019

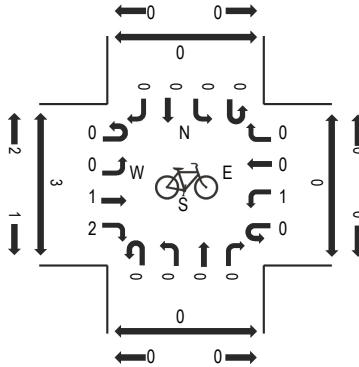
Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:00 PM - 04:15 PM

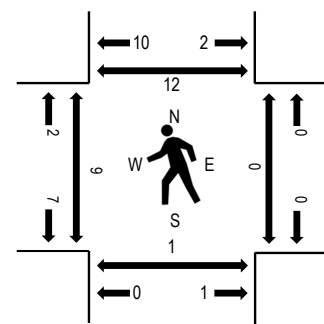
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WHIPPLE AVE Eastbound				WHIPPLE AVE Westbound				VETERANS BLVD Northbound				VETERANS BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	3	185	38	0	38	234	2	6	59	1	312	0	24	210	78	1,190	4,401	5	0	1	4
4:15 PM	0	5	142	32	0	33	249	4	8	76	3	197	0	26	244	82	1,101	4,333	0	0	0	1
4:30 PM	0	2	132	27	0	44	276	5	7	67	4	192	0	24	234	75	1,089	4,351	4	0	0	5
4:45 PM	0	2	150	28	0	29	249	7	4	60	2	185	0	21	218	66	1,021	4,339	0	0	0	2
5:00 PM	0	4	176	28	0	37	237	6	8	76	6	252	0	33	200	59	1,122	4,312	6	0	2	6
5:15 PM	0	5	158	18	0	46	235	4	4	72	5	211	0	36	241	84	1,119		0	1	0	2
5:30 PM	0	4	151	22	0	36	254	1	5	75	5	232	0	29	201	62	1,077		0	0	0	1
5:45 PM	1	1	123	22	0	44	273	2	9	63	2	166	0	32	200	56	994		1	0	0	1

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3
Lights	0	12	600	123	0	140	992	17	25	261	10	881	0	94	897	296	4,348
Mediums	0	0	9	2	0	4	16	1	0	1	0	4	0	1	9	3	50
Total	0	12	609	125	0	144	1,008	18	25	262	10	886	0	95	906	301	4,401



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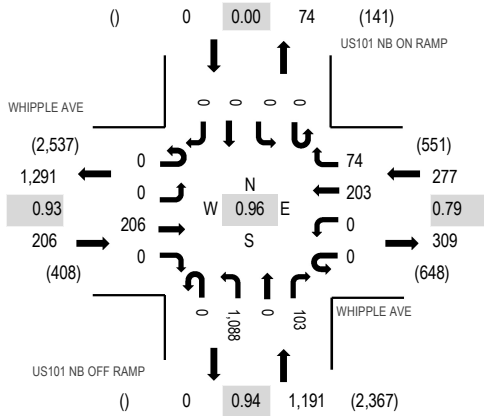
Location: 4 US101 NB OFF RAMP & WHIPPLE AVE PM

Date: Tuesday, September 10, 2019

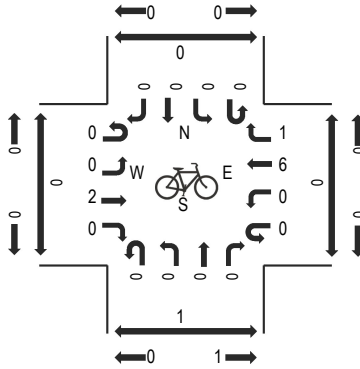
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

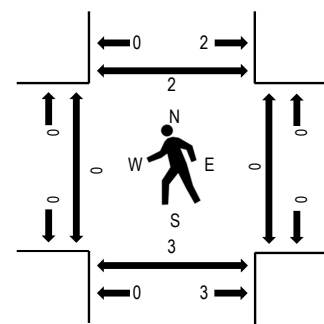
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



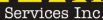
Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WHIPPLE AVE Eastbound				WHIPPLE AVE Westbound				US101 NB OFF RAMP Northbound				US101 NB ON RAMP Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	47	0	0	0	66	23	0	255	0	27	0	0	0	0	418	1,660	0	0	0	1
4:15 PM	0	0	40	0	0	0	47	13	0	271	0	23	0	0	0	0	394	1,661	0	0	0	0
4:30 PM	0	0	38	0	0	0	64	23	0	286	0	26	0	0	0	0	437	1,674	0	0	0	2
4:45 PM	0	0	44	0	0	0	34	13	0	290	0	30	0	0	0	0	411	1,659	0	0	0	0
5:00 PM	0	0	64	0	0	0	59	16	0	256	0	24	0	0	0	0	419	1,666	0	0	0	0
5:15 PM	0	0	60	0	0	0	46	22	0	256	0	23	0	0	0	0	407		0	0	3	0
5:30 PM	0	0	56	0	0	0	44	10	0	274	0	38	0	0	0	0	422		0	0	0	0
5:45 PM	0	0	59	0	1	0	49	21	0	240	0	48	0	0	0	0	418		0	0	0	0

Peak Rolling Hour Flow Rates

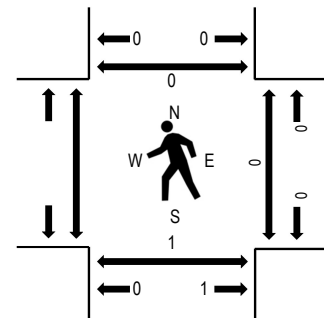
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Lights	0	0	203	0	0	0	201	74	0	1,073	0	100	0	0	0	0	1,651
Mediums	0	0	3	0	0	0	2	0	0	14	0	3	0	0	0	0	22
Total	0	0	206	0	0	0	203	74	0	1,088	0	103	0	0	0	0	1,674



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Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - Pedestrians



Traffic Counts - Motorized Vehicles

Interval Start Time	BAIR ISLAND RD								DWY				E BAYSHORE RD				Total	Rolling Hour	Pedestrian Crossings			
	Eastbound				Westbound				Northbound				Southbound						West	East	South	North
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right						
4:00 PM					0	0	0	63	0	0	3	0	1	63	0	0	130	432		0	1	0
4:15 PM					0	1	0	38	0	0	1	0	0	52	0	0	92	450		0	0	0
4:30 PM					0	1	0	53	1	0	2	0	1	46	0	0	104	493		0	1	0
4:45 PM					1	0	0	41	0	0	0	0	1	63	0	0	106	514		0	0	0
5:00 PM					0	1	0	64	0	0	0	0	0	83	0	0	148	556		0	0	0
5:15 PM					0	0	0	55	0	0	0	0	0	80	0	0	135			0	0	0
5:30 PM					0	0	0	41	0	0	0	0	0	84	0	0	125			0	0	0
5:45 PM					0	1	0	49	0	0	1	0	0	97	0	0	148			0	1	0

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	0	0	0	0	0	0	0	0	0	0	0	0
Lights					0	2	0	207	0	0	1	0	0	339	0	0	549
Mediums					0	0	0	2	0	0	0	0	0	5	0	0	7
Total					0	2	0	209	0	0	1	0	0	344	0	0	556



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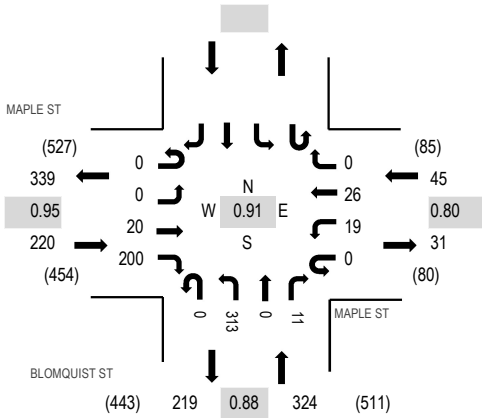
Location: 6 BLOMQUIST ST & MAPLE ST PM

Date: Tuesday, September 10, 2019

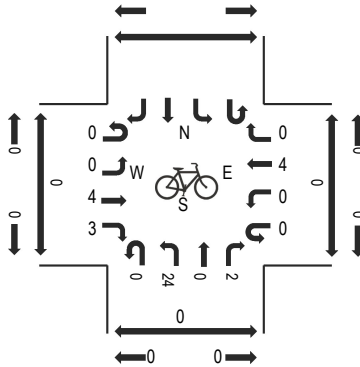
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:15 PM - 05:30 PM

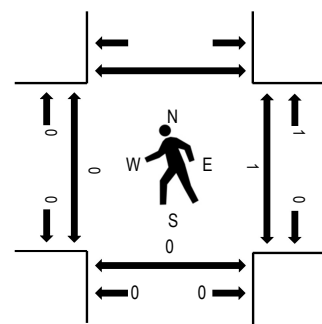
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

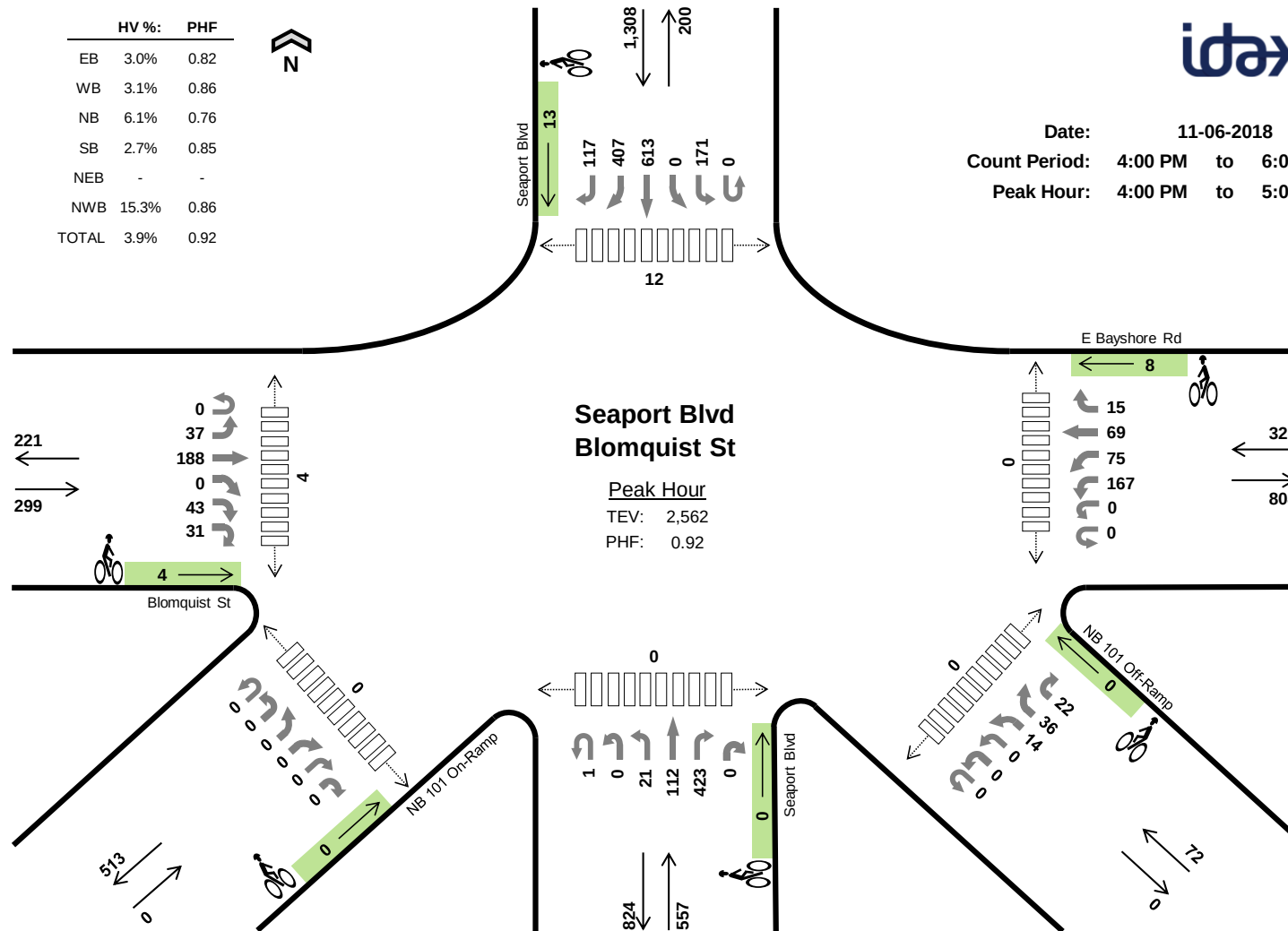
Interval Start Time	MAPLE ST Eastbound				MAPLE ST Westbound				BLOMQUIST ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	0	11	54	0	10	10	0	0	34	0	13					133	503	0	0	0	0
4:15 PM	0	0	5	57	0	3	4	0	0	48	0	3					120	508	0	0	0	0
4:30 PM	0	0	2	62	0	5	3	0	0	38	0	2					112	549	0	0	0	0
4:45 PM	0	0	6	54	0	2	6	0	0	68	0	2					138	589	0	0	0	0
5:00 PM	0	0	4	46	0	6	7	0	0	71	0	4					138	547	0	1	0	0
5:15 PM	0	0	7	57	0	3	7	0	0	84	0	3					161		0	0	0	0
5:30 PM	0	0	3	43	0	8	6	0	0	90	0	2					152		0	0	0	0
5:45 PM	0	0	11	31	0	2	3	0	0	47	0	2					96		0	0	1	

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	1					1
Lights	0	0	20	193	0	19	26	0	0	309	0	10					577
Mediums	0	0	0	7	0	0	0	0	0	4	0	0					11
Total	0	0	20	200	0	19	26	0	0	313	0	11					589



Peak Hour: 4:00 PM to 5:00 PM



Two-Hour Count Summaries

Interval Start	Blomquist St						E Bayshore Rd						Seaport Blvd						Seaport Blvd						NB 101 On-Ramp						NB 101 Off-Ramp						15-min Total	Rolling One Hour	
	Eastbound						Westbound						Northbound						Southbound						Northeastbound						Northwestbound								
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	LT	BL	BR	RT	HR	UT	HL	LT	BL	BR			HR
4:00 PM	0	12	54	0	16	9	0	0	30	22	15	3	0	0	2	29	95	0	0	48	0	184	135	18	0	0	0	0	0	0	0	0	0	0	6	10	5	693	0
4:15 PM	0	7	52	0	13	11	0	0	44	14	20	4	0	0	11	26	146	0	0	34	0	132	87	17	0	0	0	0	0	0	0	0	0	4	8	4	634	0	
4:30 PM	0	12	41	0	8	5	0	0	53	18	17	7	1	0	2	23	76	0	0	50	0	160	103	43	0	0	0	0	0	0	0	0	0	3	10	7	639	0	
4:45 PM	0	6	41	0	6	6	0	0	40	21	17	1	0	0	6	34	106	0	0	39	0	137	82	39	0	0	0	0	0	0	0	0	1	8	6	596	2,562		
5:00 PM	0	7	37	0	13	7	0	0	47	20	24	4	0	0	7	20	89	0	0	43	0	136	99	51	0	0	0	0	0	0	0	0	4	9	2	619	2,488		
5:15 PM	0	10	42	0	5	5	0	0	56	18	43	1	0	0	3	22	106	0	0	36	0	140	97	60	0	0	0	0	0	0	0	4	3	4	655	2,509			
5:30 PM	0	10	36	0	3	1	0	0	55	15	37	0	1	0	19	29	79	0	0	33	0	141	60	35	0	0	0	0	0	0	0	11	16	8	589	2,459			
5:45 PM	0	6	28	0	1	7	0	0	51	8	30	4	0	0	22	30	65	0	0	21	0	142	76	41	0	0	0	0	0	0	0	6	15	13	566	2,429			
Count Total	0	70	331	0	65	51	0	0	376	136	203	24	2	0	72	213	762	0	0	304	0	1,172	739	304	0	0	0	0	0	0	0	0	39	79	49	4,991	0		
Peak Hour	All	0	37	188	0	43	31	0	0	167	75	69	15	1	0	21	112	423	0	0	171	0	613	407	117	0	0	0	0	0	0	0	14	36	22	2,562	0		
	HV	0	5	2	0	1	1	0	0	3	2	1	4	0	0	0	13	21	0	0	2	0	13	16	4	0	0	0	0	0	0	0	10	1	99	0			
	HV%	-	14%	1%	-	2%	3%	-	-	2%	3%	1%	27%	0%	-	0%	12%	5%	-	-	1%	-	2%	4%	3%	-	-	-	-	-	-	-	0%	28%	5%	4%	0		

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals							Bicycles							Pedestrians (Crossing Leg)							Total
	EB	WB	NB	SB	NEB	NWB	Total	EB	WB	NB	SB	NEB	NWB	Total	East	West	North	South	SE	SW	Total	
4:00 PM	3	4	7	5	0	5	24	1	3	0	1	0	0	5	0	1	2	0	0	0	3	
4:15 PM	2	2	10	12	0	1	27	2	1	0	6	0	0	9	0	2	3	0	0	0	5	
4:30 PM	2	2	7	9	0	3	23	0	3	0	3	0	0	6	0	1	6	0	0	0	7	
4:45 PM	2	2	10	9	0	2	25	1	1	0	3	0	0	5	0	0	1	0	0	0	1	
5:00 PM	5	1	9	5	0	2	22	1	8	1	4	0	0	14	0	0	2	0	0	0	2	
5:15 PM	2	1	4	4	0	2	13	1	9	0	1	0	0	11	0	0	4	0	0	0	4	
5:30 PM	1	1	3	1	0	1	7	4	6	0	0	0	0	10	0	0	4	0	0	0	4	
5:45 PM	1	0	3	3	0	0	7	1	7	0	0	0	0	8	0	0	0	0	0	0	0	
Count Total	18	13	53	48	0	16	148	11	38	1	18	0	0	68	0	4	22	0	0	0	26	
Peak Hr	9	10	34	35	0	11	99	4	8	0	13	0	0	25	0	4	12	0	0	0	16	

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Blomquist St						E Bayshore Rd						Seaport Blvd						Seaport Blvd						NB 101 On-Ramp						NB 101 Off-Ramp						15-min Total	Rolling One Hour
	Eastbound						Westbound						Northbound						Southbound						Northeastbound						Northwestbound							
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM	0	1	1	0	0	1	0	0	0	2	0	2	0	0	0	0	4	3	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	4	1	24	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	7	0	0	1	0	6	5	0	0	0	0	0	0	0	0	0	1	0	27	0	
4:30 PM	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	2	5	0	0	0	0	2	4	3	0	0	0	0	0	0	0	0	0	3	0	23	0
4:45 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4	6	0	0	1	0	4	3	1	0	0	0	0	0	0	0	0	2	0	25	99	
5:00 PM	0	0	4	0	0	1	0	0	0	1	0	0	0	0	0	4	5	0	0	1	0	1	1	1	2	0	0	0	0	0	0	0	0	2	0	22	97	
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	1	1	13	83	
5:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	7	67	
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	7	49	
Count Total	0	9	6	0	1	2	0	0	0	4	3	2	4	0	0	0	25	28	0	0	3	0	17	20	8	0	0	0	0	0	0	0	0	14	2	148	0	
Peak Hour	0	5	2	0	1	1	0	0	0	3	2	1	4	0	0	0	13	21	0	0	2	0	13	16	4	0	0	0	0	0	0	0	0	10	1	99	0	

Two-Hour Count Summaries - Bikes

Interval Start	Blomquist St						E Bayshore Rd						Seaport Blvd						Seaport Blvd						NB 101 On-Ramp						NB 101 Off-Ramp						15-min Total	Rolling One Hour
	Eastbound						Westbound						Northbound						Southbound						Northeastbound						Northwestbound							
	UT	LT	TH	BR	RT	HR	UT	HL	LT	BL	TH	RT	UT	HL	LT	TH	RT	HR	UT	LT	BL	TH	BR	RT	UT	HL	BL	BR	RT	HR	UT	HL	LT	BL	BR	HR		
4:00 PM	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0		
4:15 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	9	0		
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	6	0			
4:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	5	25			
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	7	1	0	0	0	0	1	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	14	34			
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11	36			
5:30 PM	0	0	4	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	40			
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	43			
Count Total	0	1	9	0	1	0	0	0	0	0	37	1	0	0	0	0	0	1	0	0	6	2	0	10	0	0	0	0	0	0	0	0	0	68	0			
Peak Hour	0	1	2	0	1	0	0	0	0	8	0	0	0	0	0	0	0	0	0	6	0	1	0	6	0	0	0	0	0	0	0	0	0	25	0			



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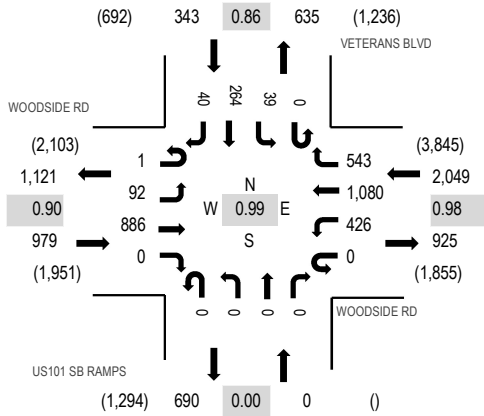
Location: 8 US101 SB RAMPS & WOODSIDE RD PM

Date: Tuesday, September 10, 2019

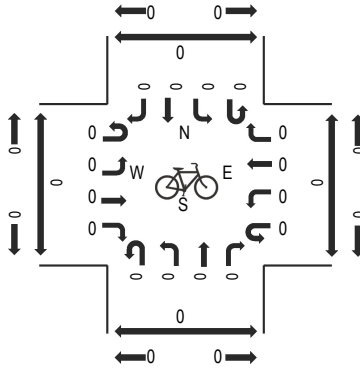
Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

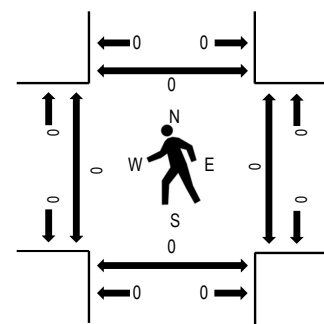
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	WOODSIDE RD Eastbound				WOODSIDE RD Westbound				US101 SB RAMPS Northbound				VETERANS BLVD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	15	274	2	0	95	240	108	0	0	0	0	0	11	56	10	811	3,246	0	0	0	0
4:15 PM	0	33	220	0	0	89	199	99	0	0	0	0	0	16	74	15	745	3,282	0	0	0	0
4:30 PM	1	26	231	0	0	110	248	143	0	0	0	0	0	10	58	19	846	3,371	0	0	0	0
4:45 PM	0	26	219	0	0	110	269	127	0	0	0	0	0	16	69	8	844	3,304	0	0	0	0
5:00 PM	0	17	235	0	0	94	294	131	0	0	0	0	0	8	63	5	847	3,242	0	0	0	0
5:15 PM	0	23	201	0	0	112	269	142	0	0	0	0	0	5	74	8	834		0	0	0	0
5:30 PM	0	18	182	0	0	92	253	150	0	0	0	0	0	8	63	13	779		0	0	0	0
5:45 PM	0	19	209	0	0	71	241	159	0	0	0	0	0	10	62	11	782		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	5	0	0	3	2	1	0	0	0	0	0	0	0	0	11
Lights	1	91	862	0	0	416	1,066	536	0	0	0	0	0	38	264	40	3,314
Mediums	0	1	19	0	0	7	12	6	0	0	0	0	0	1	0	0	46
Total	1	92	886	0	0	426	1,080	543	0	0	0	0	0	39	264	40	3,371

Appendix B

Volume Summary Tables

Intersection Number:	2																
Traffic Node Number:	4																
Intersection Name:	US 101 NB Off-Ramp & Whipple Ave																
Peak Hour:	AM															Date of Analysis:	#REF!
Count Date:	09/10/19																
Scenario:	#REF!																
RC Growth Factor:											Future Growth % Per Year					1.000	
Number of Years											Number of Years to Buildout					5	
	Movements																
	North Approach			East Approach			South Approach			West Approach							
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total	
Existing Conditions	0	0	0	0	290	0	91	0	1019	0	146	0				1546	
Approved Project Trips																	
610 Walnut Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1180 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
353 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1690 Broadway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1548 Maple Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1401 Broadway and 2201 Bay Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SM County Government Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1175 Marshall Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
707 Bradford Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
612 Jefferson Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1409 El Camino Real	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
851 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
103 Wilson Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stanford Precise Plan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	
2075 Broadway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
849 Veterans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
690 Veterans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
South Main Mixed-Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Approved Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Background Conditions	0	0	0	0	290	0	91	0	1019	0	146	0				1546	
Project Trips Under Existing and Background Conditions																	
Project Trips	0	0	0	0	24	0	2	0	0		0	4	0			30	
Net Project Trips	0	0	0	0	24	0	2	0	0		0	4	0			30	
Existing + Project	0	0	0	0	314	0	93	0	1019		0	150	0			1576	
E + P Check	0	0	0	0	314	0	93	0	1019		0	150	0				
Background + Project	0	0	0	0	314	0	93	0	1019		0	150	0			1576	
B + P Check	0	0	0	0	314	0	93	0	1019		0	150	0				
Existing Conditions with Blomquist Extension	0	0	0	0	276	0	85	0	1019		0	261	0			1641	
Cumulative Project Trips with Blomquist Extension																	
Sequoia Station Transit Sub-Area	0	0	0	0	0	0	0	0	0		0	0	0			0	
557 East Bayshore Avenue	0	0	0	0	97	0	16	0	0		0	56	0			169	
1125 Arguello Street	0	0	0	0	0	0	0	0	0		0	0	0			0	
Toyota 101	0	0	0	0	49	0	55	0	0		0	132	0			236	
Harbor View	0	0	0	0	5	0	0	0	0		0	128	0			133	
1548 Maple Street (w/ Blomquist Ext)	0	0	0	0	10	0	0	0	0		0	0	0			10	
1330 El Camino Real	0	0	0	0	0	0	0	0	0		0	0	0			0	
800 Main Street	0	0	0	0	0	0	0	0	0		0	0	0			0	
2300 Broadway	0	0	0	0	0	0	0	0	47		0	0	0			47	
901 El Camino Real	0	0	0	0	0	0	0	0	0		0	0	0			0	
651 El Camino Real	0	0	0	0	0	0	0	0	7		0	0	0			7	
750 Bradford Street	0	0	0	0	0	0	0	0	0		0	0	0			0	
601 Allerton Street	0	0	0	0	0	0	0	0	0		0	0	0			0	
Total Pending Trips	0	0	0	0	151	0	71	0	54		0	316	0			592	
Cumulative w/o Project Conditions	0	0	0	0	451	0	160	0	1125		0	590	0			2327	
C Check	0	0	0	0	451	0	160	0	1125		0	590	0				
Project Trips Under Cumulative Conditions with Blomquist Extension																	
Cumulative Project Trips	0	0	0	0	14	0	1	0	0		0	3	0			18	
Net Cumulative Proj. Trips	0	0	0	0	14	0	1	0	0		0	3	0			18	
Cumulative w/ Project	0	0	0	0	465	0	161	0	1125		0	593	0			2345	
C + P Check	0	0	0	0	465	0	161	0	1125		0	593	0				
Cumulative Scenario without Blomquist Extension																	
Cumulative w/o Project	0	0	0	0	543	0	195	0	1125		0	432	0			2295	
C Check	0	0	0	0	543	0	195	0	1125		0	432	0				
Cumulative w/ Project	0	0	0	0	567	0	197	0	1125		0	436	0			2325	
C + P Check	0	0	0	0	567	0	197	0	1125		0	436	0				

Intersection Number:	3																	
Traffic Node Number:	5																	
Intersection Name:	East Bayshore Rd				&	Bair Island Rd												
Peak Hour:	AM											Date of Analysis:				#REF!		
Count Date:	09/10/19																	
Scenario:	#REF!																	
RC Growth Factor:											Future Growth % Per Year				1.000			
Number of Years											Number of Years to Buildout				5			
	Movements																	
	North Approach				East Approach				South Approach				West Approach					
Scenario:	RT	TH	LT		RT	TH	LT		RT	TH	LT		RT	TH	LT		Total	
Existing Conditions	0	0	180		367	0	0		0	0	0		0	0	0		547	
Approved Project Trips																		
610 Walnut Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
1180 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
353 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
1690 Broadway	0	0	0		0	0	0		0	0	0		0	0	0		0	
1548 Maple Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
1401 Broadway and 2201 Bay Road	0	0	0		0	0	0		0	0	0		0	0	0		0	
SM County Government Center	0	0	0		0	0	0		0	0	0		0	0	0		0	
1175 Marshall Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
707 Bradford Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
612 Jefferson Ave	0	0	0		0	0	0		0	0	0		0	0	0		0	
1409 El Camino Real	0	0	0		0	0	0		0	0	0		0	0	0		0	
851 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
103 Wilson Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
Stanford Precise Plan	--	--	--		--	--	--		--	--	--		--	--	--		0	
2075 Broadway	0	0	0		0	0	0		0	0	0		0	0	0		0	
849 Veterans	0	0	0		0	0	0		0	0	0		0	0	0		0	
690 Veterans	0	0	0		0	0	0		0	0	0		0	0	0		0	
South Main Mixed-Use	0	0	0		0	0	0		0	0	0		0	0	0		0	
Total Approved Trips	0	0	0		0	0	0		0	0	0		0	0	0		0	
Background Conditions	0	0	180		367	0	0		0	0	0		0	0	0		547	
	0	0	180		367	0	0		0	0	0		0	0	0			
Project Trips Under Existing and Background Conditions																		
Project Trips	0	0	0		0	0	0		0	0	0		0	0	0		0	
Net Project Trips	0	0	0		0	0	0		0	0	0		0	0	0		0	
Existing + Project	0	0	180		367	0	0		0	0	0		0	0	0		547	
E + P Check	0	0	180		367	0	0		0	0	0		0	0	0			
Background + Project	0	0	180		367	0	0		0	0	0		0	0	0		547	
B + P Check	0	0	180		367	0	0		0	0	0		0	0	0			
Existing Conditions with Blomquist Extension	0	162	129		269	0	98		51	115	0		0	0	0		824	
Cumulative Project Trips with Blomquist Extension																		
Sequoia Station Transit Sub-Area	0	0	0		0	0	0		0	0	0		0	0	0		0	
557 East Bayshore Avenue	0	61	3		3	0	0		0	33	0		0	0	0		100	
1125 Arguello Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
Toyota 101	0	33	0		0	0	0		0	88	0		0	0	0		121	
Harbor View	0	128	0		0	0	0		0	41	0		0	0	0		169	
1548 Maple Street (w/ Blomquist Ext)	0	0	0		0	0	0		0	20	0		0	0	0		20	
1330 El Camino Real	0	0	0		0	0	0		0	0	0		0	0	0		0	
800 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
2300 Broadway	0	0	0		0	0	0		0	0	0		0	0	0		0	
901 El Camino Real	0	0	0		0	0	0		0	0	0		0	0	0		0	
651 El Camino Real	0	0	0		0	0	0		0	0	0		0	0	0		0	
750 Bradford Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
601 Allerton Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
Total Pending Trips	0	222	3		3	0	0		0	162	0		0	0	0		390	
Cumulative w/o Project Conditions	0	392	139		286	0	103		54	303	0		0	0	0		1276	
C Check	0	392	139		286	0	103		54	303	0		0	0	0			
Project Trips Under Cumulative Conditions with Blomquist Extension																		
Cumulative Project Trips	0	10	0		0	0	0		0	2	0		0	0	0		12	
Net Cumulative Proj. Trips	0	10	0		0	0	0		0	2	0		0	0	0		12	
Cumulative w/ Project	0	402	139		286	0	103		54	305	0		0	0	0		1288	
C + P Check	0	402	139		286	0	103		54	305	0		0	0	0			
Cumulative Scenario without Blomquist Extension																		
Cumulative w/o Project	0	0	192		389	0	0		0	0	0		0	0	0		581	
C Check	0	0	192		389	0	0		0	0	0		0	0	0			
Cumulative w/ Project	0	0	192		389	0	0		0	0	0		0	0	0		581	
C + P Check	0	0	192		389	0	0		0	0	0		0	0	0			

[illegible]

Intersection Number:	5																			
Traffic Node Number:	7																			
Intersection Name:	Blomquist St				& Seaport Blvd															
Peak Hour:	AM													Date of Analysis: #REF!						
Count Date:	11/06/18																			
Scenario:	#REF!																			
RC Growth Factor:									Future Growth % Per Year				1.000							
Number of Years									Number of Years to Buildout				5							
	Movements																			
	North Approach			East Approach			South Approach			West Approach										
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total				
Existing Conditions	106	136	204	39	217	7	138	84	291	348	1161	73	280							
Approved Project Trips																				
610 Walnut Street	0	0	1	10	2	0	0	0	0	0	0	0	13							
1180 Main Street	0	0	0	0	5	0	0	0	0	0	1	0	6							
353 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0							
1690 Broadway	0	0	0	0	0	0	0	0	0	0	0	0	0							
1548 Maple Street	30	0	3	1	0	0	0	0	0	0	0	6	40							
1401 Broadway and 2201 Bay Road	0	0	0	0	50	0	0	0	0	0	46	0	96							
SM County Government Center	0	0	0	0	5	0	0	0	0	0	0	0	5							
1175 Marshall Street	0	0	23	23	0	0	0	0	0	0	0	0	46							
707 Bradford Street	0	0	0	0	0	0	0	0	0	0	0	0	0							
612 Jefferson Ave	0	0	0	0	0	0	0	0	0	0	0	0	0							
1409 El Camino Real	0	0	0	0	2	0	0	0	0	0	7	0	9							
851 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0							
103 Wilson Street	0	0	0	0	1	0	0	0	0	0	4	0	5							
Stanford Precise Plan	--	--	--	--	--	--	--	--	--	--	--	--	0							
2075 Broadway	0	0	1	3	3	0	0	0	0	0	1	0	8							
849 Veterans	0	0	0	0	0	0	0	0	0	0	0	0	0							
690 Veterans	0	0	1	1	0	0	0	0	0	0	0	0	2							
South Main Mixed-Use	10	0	3	0	4	0	0	0	0	0	3	0	20							
Total Approved Trips	40	0	32	38	72	0	0	0	0	0	62	6	250							
Background Conditions	146	136	236	77	289	7	138	84	291	348	1223	79	3054							
	146	136	236	77	289	7	138	84	291	348	1223	79								
Project Trips Under Existing and Background Conditions																				
Project Trips	0	0	1	0	0	0	0	0	0	0	0	0	1							
Net Project Trips	0	0	1	0	0	0	0	0	0	0	0	0	1							
Existing + Project	106	136	205	39	217	7	138	84	291	348	1161	73	2805							
E + P Check	106	136	205	39	217	7	138	84	291	348	1161	73								
Background + Project	146	136	237	77	289	7	138	84	291	348	1223	79	3055							
B + P Check	146	136	237	77	289	7	138	84	291	348	1223	79								
Existing Conditions with Blomquist Extension	133	332	204	39	217	7	138	244	291	348	1161	79	3193							
Cumulative Project Trips with Blomquist Extension																				
Sequoia Station Transit Sub-Area	0	0	11	54	0	0	0	0	0	0	0	0	65							
557 East Bayshore Avenue	8	0	8	3	0	0	0	0	0	0	0	4	23							
1125 Arguello Street	0	0	2	1	0	0	0	0	0	0	0	0	3							
Toyota 101	5	0	5	10	0	0	0	0	0	0	0	14	34							
Harbor View	30	0	0	0	0	0	0	0	0	0	0	255	285							
1548 Maple Street (w/ Blomquist Ext)	10	0	0	0	0	0	0	0	0	0	0	0	10							
1330 El Camino Real	0	0	0	0	-5	0	0	0	0	0	-3	0	-8							
800 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0							
2300 Broadway	0	0	2	11	0	0	0	0	0	0	0	0	13							
901 El Camino Real	0	0	1	9	0	0	0	0	0	0	0	0	10							
651 El Camino Real	0	0	3	1	1	0	0	0	0	0	3	0	8							
750 Bradford Street	0	0	2	8	0	0	0	0	0	0	0	0	10							
601 Allerton Street	0	0	0	0	5	0	0	0	0	0	1	0	6							
Total Pending Trips	43	0	34	97	1	0	0	0	0	0	1	273	449							
Cumulative w/o Project Conditions	203	349	277	175	301	7	145	256	306	366	1283	356	4025							
C Check	203	349	277	175	301	7	145	256	306	366	1283	356								
Project Trips Under Cumulative Conditions with Blomquist Extension																				
Cumulative Project Trips	2	0	2	0	0	0	0	0	0	0	0	0	4							
Net Cumulative Proj. Trips	2	0	2	0	0	0	0	0	0	0	0	0	4							
Cumulative w/ Project	205	349	279	175	301	7	145	256	306	366	1283	356	4029							
C + P Check	205	349	279	175	301	7	145	256	306	366	1283	356								
Cumulative Scenario without Blomquist Extension																				
Cumulative w/o Project	217	143	277	176	305	7	145	88	306	366	1286	390	3706							
C Check	217	143	277	176	305	7	145	88	306	366	1286	390								
Cumulative w/ Project	217	143	278	176	305	7	145	88	306	366	1286	390	3707							
C + P Check	217	143	278	176	305	7	145	88	306	366	1286	390								

Intersection Number:	1																				
Traffic Node Number:	3																				
Intersection Name:	Veterans Blvd				Whipple Ave																
Peak Hour:	PM													Date of Analysis:				10/12/21			
Count Date:	09/10/19																				
Scenario:	Single-Family Housing																				
RC Growth Factor:													Future Growth % Per Year				1.000				
Number of Years													Number of Years to Buildout				5				
Movements																					
Scenario:		North Approach			East Approach			South Approach			West Approach			Total							
		RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT					
Existing Conditions		301	906	95	18	1008	144	886	10	287				125	609	12	440				
Approved Project Trips																					
610 Walnut Street		0	7	0	0	0	0	33	0	0				0	0	0	40				
1180 Main Street		0	0	0	0	0	0	0	0	0				0	0	0	0				
353 Main Street		0	12	0	0	0	0	0	-1	0				0	0	0	11				
1690 Broadway		0	0	0	0	0	0	0	0	0				0	0	0	0				
1548 Maple Street		0	6	0	0	0	0	0	0	1				1	0	0	8				
1401 Broadway and 2201 Bay Road		0	0	0	0	0	0	14	0	0				0	0	0	14				
SM County Government Center		0	46	0	0	0	6	77	0	13				10	0	0	152				
1175 Marshall Street		0	63	0	0	0	0	47	0	0				0	0	0	110				
707 Bradford Street		0	0	0	0	0	0	0	5	0				0	0	0	5				
612 Jefferson Ave		0	1	0	0	0	0	1	0	0				1	0	0	3				
1409 El Camino Real		0	0	0	0	0	0	0	0	0				0	11	0	11				
851 Main Street		0	0	0	0	0	1	18	0	2				0	0	0	21				
103 Wilson Street		0	11	0	0	0	0	0	0	0				0	6	0	17				
Stanford Precise Plan		0	-3	0	0	0	0	2	13	74				9	-1	0	94				
2075 Broadway		0	7	0	0	0	0	19	0	3				1	0	0	30				
849 Veterans		0	0	0	0	0	0	0	0	0				0	0	0	0				
690 Veterans (w/ Blomquist Ext)		0	4	0	0	0	0	7	0	6				3	0	0	20				
South Main Mixed-Use		0	11	0	0	0	0	34	0	0				0	0	0	45				
Total Approved Trips		0	165	0	0	0	7	252	17	99				25	16	0	581				
Background Conditions		301	1071	95	18	1008	151	1138	27	386				150	625	12	4982				
Project Trips Under Existing and Background Conditions																					
Project Trips		0	0	7	0	5	3	6	0	0				0	12	0	33				
Net Project Trips		0	0	7	0	5	3	6	0	0				0	12	0	33				
Existing + Project		301	906	102	18	1013	147	892	10	287				125	621	12	4434				
E + P Check		301	906	102	18	1013	147	892	10	287				125	621	12	4434				
Background + Project		301	1071	102	18	1013	154	1144	27	386				150	637	12	5015				
B + P Check		301	1071	102	18	1013	154	1144	27	386				150	637	12	5015				
Existing Conditions with Blomquist Extension		301	906	119	15	1043	144	886	10	255				125	609	12	4425				
Cumulative Project Trips with Blomquist Extension																					
Sequoia Station Transit Sub-Area		0	-2	0	0	0	0	114	0	0				0	0	0	112				
557 East Bayshore Avenue		0	0	52	0	64	19	25	0	0				0	84	0	244				
1125 Arguello Street		6	0	0	0	0	0	0	0	0				0	4	0	10				
Toyota 101		0	0	39	0	65	15	10	0	0				0	45	0	174				
Harbor View		0	24	24	0	26	0	0	0	13				3	6	0	95				
1548 Maple Street (w/ Blomquist Ext)		0	0	10	0	0	0	0	0	0				0	0	0	10				
1330 El Camino Real		0	0	0	0	0	0	0	0	0				0	-3	0	-3				
800 Main Street		0	2	0	0	0	0	2	0	0				0	0	0	4				
2300 Broadway		1	1	0	0	0	2	24	0	0				0	0	0	28				
901 El Camino Real		0	3	0	0	0	0	0	0	0				0	56	0	59				
651 El Camino Real		15	0	0	0	0	21	0	0	0				0	21	0	57				
750 Bradford Street		0	8	0	0	0	0	22	0	0				0	0	0	30				
601 Allerton Street		2	2	0	0	0	0	0	0	0				0	13	0	17				
Total Pending Trips		24	38	115	0	155	57	197	0	13				3	226	0	827				
Cumulative w/o Project Conditions		340	1149	250	16	1251	215	1380	28	379				158	882	13	6061				
C Check		340	1149	250	16	1251	215	1380	28	379				158	882	13	6061				
Project Trips Under Cumulative Conditions with Blomquist Extension																					
Cumulative Project Trips		0	0	7	0	4	1	2	0	0				0	8	0	22				
Net Cumulative Proj. Trips		0	0	7	0	4	1	2	0	0				0	8	0	22				
Cumulative w/ Project		340	1149	257	16	1255	216	1382	28	379				158	890	13	6083				
C + P Check		340	1149	257	16	1255	216	1382	28	379				158	890	13	6083				
Cumulative Scenario without Blomquist Extension																					
Cumulative w/o Project		340	1167	191	19	1260	281	1442	28	435				164	935	13	6275				
C Check		336	1451	173	19	1154	235	1333	28	403				190	885	13	6275				
Cumulative w/ Project		340	1167	198	19	1265	284	1448	28	435				164	947	13	6308				
C + P Check		336	1451	180	19	1159	238	1339	28	403				190	897	13	6308				

Intersection Number:	3																			
Traffic Node Number:	5																			
Intersection Name:	East Bayshore Rd				Bair Island Rd															
Peak Hour:	PM													Date of Analysis: #REF!						
Count Date:	09/10/19																			
Scenario:	#####																			
RC Growth Factor:											Future Growth % Per Year				1.000					
Number of Years											Number of Years to Buildout				5					
		Movements																		
Scenario:	North Approach			East Approach			South Approach			West Approach						Total				
	RT	TH	LT	RT	TH	LT		RT	TH	LT		RT	TH	LT						
Existing Conditions	0	0	344	209	0	0		0	0	0		0	0	0					553	
Approved Project Trips																				
610 Walnut Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1180 Main Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
353 Main Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1690 Broadway	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1548 Maple Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1401 Broadway and 2201 Bay Road	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
SM County Government Center	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1175 Marshall Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
707 Bradford Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
612 Jefferson Ave	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
1409 El Camino Real	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
851 Main Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
103 Wilson Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Stanford Precise Plan	--	--	--	--	--	--		--	--	--		--	--	--		--	--	--	0	
2075 Broadway	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
849 Veterans	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
690 Veterans	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
South Main Mixed-Use	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Total Approved Trips	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Background Conditions	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0	553	
	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0		
Project Trips Under Existing and Background Conditions																				
Project Trips	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Net Project Trips	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Existing + Project	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0	553	
E + P Check	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0		
Background + Project	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0	553	
B + P Check	0	0	344	209	0	0		0	0	0		0	0	0		0	0	0		
Existing Conditions with Blomquist Extension	0	80	248	272	0	97		96	230	0		0	0	0					1023	
Cumulative Project Trips with Blomquist Extension																				
Sequoia Station Transit Sub-Area	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
557 East Bayshore Avenue	0	75	7	7	0	0		0	94	0		0	0	0		0	0	0	183	
1125 Arguello Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Toyota 101	0	94	0	0	0	0		0	63	0		0	0	0		0	0	0	157	
Harbor View	0	29	0	0	0	0		0	217	0		0	0	0		0	0	0	246	
1548 Maple Street (w/ Blomquist Ext)	0	20	0	0	0	0		0	10	0		0	0	0		0	0	0	30	
1330 El Camino Real	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
800 Main Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
2300 Broadway	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
901 El Camino Real	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
651 El Camino Real	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
750 Bradford Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
601 Allerton Street	0	0	0	0	0	0		0	0	0		0	0	0		0	0	0	0	
Total Pending Trips	0	198	7	7	0	0		0	374	0		0	0	0		0	0	0	586	
Cumulative w/o Project Conditions	0	303	268	293	0	102		101	626	0		0	0	0		0	0	0	1692	
C Check	0	303	268	293	0	102		101	626	0		0	0	0		0	0	0		
Project Trips Under Cumulative Conditions with Blomquist Extension																				
Cumulative Project Trips	0	5	0	0	0	0		0	11	0		0	0	0		0	0	0	16	
Net Cumulative Proj. Trips	0	5	0	0	0	0		0	11	0		0	0	0		0	0	0	16	
Cumulative w/ Project	0	308	268	293	0	102		101	637	0		0	0	0		0	0	0	1708	
C + P Check	0	308	268	293	0	102		101	637	0		0	0	0		0	0	0		
Cumulative Scenario without Blomquist Extension																				
Cumulative w/o Project	0	0	369	227	0	0		0	0	0		0	0	0		0	0	0	596	
C Check	0	0	365	223	0	0		0	0	0		0	0	0		0	0	0		
Cumulative w/ Project	0	0	369	227	0	0		0	0	0		0	0	0		0	0	0	596	
C + P Check	0	0	365	223	0	0		0	0	0		0	0	0		0	0	0		

Intersection Number:	4																		
Traffic Node Number:	6																		
Intersection Name:	Blomquist St							Maple St											
Peak Hour:	PM																	Date of Analysis: #REF!	
Count Date:	09/10/19																		
Scenario:	#####																		
RC Growth Factor:																		Future Growth % Per Year	1.000
Number of Years																		Number of Years to Buildout	5
Movements																			
Scenario:	North Approach			East Approach			South Approach			West Approach									Total
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	
Existing Conditions	0	0	0	0	26	19	11	0	313	200	20	0	589						
Approved Project Trips																			
610 Walnut Street	0	0	0	0	0	0	0	0	2	9	0	0	11						
1180 Main Street	0	0	0	0	2	0	0	0	0	0	4	0	6						
353 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
1690 Broadway	0	0	0	0	0	0	0	0	0	0	0	0	0						
1548 Maple Street	0	0	0	0	10	15	28	0	0	0	52	0	105						
1401 Broadway and 2201 Bay Road	0	0	0	0	0	0	0	0	0	0	0	0	0						
SM County Government Center	0	0	0	0	0	0	0	0	0	0	0	0	0						
1175 Marshall Street	0	0	0	0	0	0	0	0	21	16	0	0	37						
707 Bradford Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
612 Jefferson Ave	0	0	0	0	0	0	0	0	0	0	0	0	0						
1409 El Camino Real	0	0	0	0	0	0	0	0	0	0	0	0	0						
851 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
103 Wilson Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
Stanford Precise Plan	--	--	--	--	--	--	--	--	--	--	--	--	0						
2075 Broadway	0	0	0	0	0	0	0	0	1	3	0	0	4						
849 Veterans	0	0	0	0	0	0	0	0	0	0	0	0	0						
690 Veterans	0	0	0	0	0	0	0	0	1	2	0	0	3						
South Main Mixed-Use	0	0	0	0	0	0	0	0	0	26	0	0	26						
Total Approved Trips	0	0	0	0	12	15	28	0	25	56	56	0	192						
Background Conditions	0	0	0	0	38	34	39	0	338	256	76	0	781						
	0	0	0	0	38	34	39	0	338	256	76	0							
Project Trips Under Existing and Background Conditions																			
Project Trips	0	0	0	0	0	0	0	0	1	1	0	0	2						
Net Project Trips	0	0	0	0	0	0	0	0	1	1	0	0	2						
Existing + Project	0	0	0	0	26	19	11	0	314	201	20	0	591						
E + P Check	0	0	0	0	26	19	11	0	314	201	20	0							
Background + Project	0	0	0	0	38	34	39	0	339	257	76	0	783						
B + P Check	0	0	0	0	38	34	39	0	339	257	76	0							
Existing Conditions with Blomquist Extension	29	149	0	0	26	19	11	326	313	200	20	0	1093						
Cumulative Project Trips with Blomquist Extension																			
Sequoia Station Transit Sub-Area	0	0	0	0	0	0	0	0	-1	38	0	0	37						
557 East Bayshore Avenue	58	16	0	0	0	0	0	22	0	0	0	72	168						
1125 Arguello Street	0	0	0	0	0	0	0	0	2	1	0	0	3						
Toyota 101	65	29	0	0	0	0	0	20	0	0	0	43	157						
Harbor View	0	29	0	0	0	0	0	217	94	36	0	0	376						
1548 Maple Street (w/ Blomquist Ext)	0	0	0	0	0	0	10	10	0	0	0	10	30						
1330 El Camino Real	0	0	0	0	0	0	0	0	0	0	0	0	0						
800 Main Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
2300 Broadway	0	0	0	0	0	0	0	0	1	8	0	0	9						
901 El Camino Real	0	0	0	0	0	0	0	0	1	8	0	0	9						
651 El Camino Real	0	0	0	0	0	0	0	0	3	1	0	0	4						
750 Bradford Street	0	0	0	0	0	0	0	0	3	7	0	0	10						
601 Allerton Street	0	0	0	0	0	0	0	0	0	0	0	0	0						
Total Pending Trips	123	74	0	0	0	0	0	259	103	99	0	115	773						
Cumulative w/o Project Conditions																			
	153	231	0	0	29	20	22	612	457	365	25	125	2039						
C Check	153	231	0	0	29	20	22	612	457	365	25	125							
Project Trips Under Cumulative Conditions with Blomquist Extension																			
Cumulative Project Trips	4	2	0	0	0	0	0	3	0	0	0	7	16						
Net Cumulative Proj. Trips	4	2	0	0	0	0	0	3	0	0	0	7	16						
Cumulative w/ Project	157	233	0	0	29	20	22	615	457	365	25	132	2055						
C + P Check	157	233	0	0	29	20	22	615	457	365	25	132							
Cumulative Scenario without Blomquist Extension																			
Cumulative w/o Project	0	0	0	0	39	35	40	0	474	400	77	0	1065						
C Check	0	0	0	0	39	35	40	0	453	543	77	0							
Cumulative w/ Project	0	0	0	0	39	35	40	0	475	401	77	0	1067						
C + P Check	0	0	0	0	39	35	40	0	454	544	77	0							

Intersection Number:	5																	
Traffic Node Number:	7																	
Intersection Name:	Blomquist St			Seaport Blvd														
Peak Hour:	PM															Date of Analysis:	#REF!	
Count Date:	11/06/18																	
Scenario:	#####																	
RC Growth Factor:										Future Growth % Per Year						1.000		
Number of Years										Number of Years to Buildout						5		
	Movements																	
Scenario:	North Approach			East Approach			South Approach			West Approach							Total	
	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT			
Existing Conditions	74	188	37		117	1020	171		15	69	242		445	148	36		2562	
Approved Project Trips																		
610 Walnut Street	0	0	9		2	0	0		0	0	0		0	2	0		13	
1180 Main Street	0	0	0		0	1	0		0	0	0		0	4	0		5	
353 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
1690 Broadway	0	0	0		0	0	0		0	0	0		0	0	0		0	
1548 Maple Street	14	0	1		3	0	0		0	0	0		0	0	26		44	
1401 Broadway and 2201 Bay Road	0	0	0		0	23	0		0	0	0		0	53	0		76	
SM County Government Center	0	0	0		0	3	0		0	0	0		0	0	0		3	
1175 Marshall Street	0	0	16		21	0	0		0	0	0		0	0	0		37	
707 Bradford Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
612 Jefferson Ave	0	0	0		0	0	0		0	0	0		0	0	0		0	
1409 El Camino Real	0	0	0		0	7	0		0	0	0		0	4	0		11	
851 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
103 Wilson Street	0	0	0		0	4	0		0	0	0		0	2	0		6	
Stanford Precise Plan	--	--	--		--	--	--		--	--	--		--	--	--		0	
2075 Broadway	0	0	3		1	1	0		0	0	0		0	3	0		8	
849 Veterans	0	0	0		0	0	0		0	0	0		0	0	0		0	
690 Veterans	0	0	2		1	0	0		0	0	0		0	0	0		3	
South Main Mixed-Use	22	0	3		0	9	0		0	0	0		0	3	0		37	
Total Approved Trips	36	0	34		28	48	0		0	0	0		0	71	26		243	
Background Conditions	110	188	71		145	1068	171		15	69	242		445	219	62		2805	
Project Trips Under Existing and Background Conditions																		
Project Trips	0	0	1		1	0	0		0	0	0		0	0	0		2	
Net Project Trips	0	0	1		1	0	0		0	0	0		0	0	0		2	
Existing + Project	74	188	38		118	1020	171		15	69	242		445	148	36		2564	
E + P Check	74	188	38		118	1020	171		15	69	242		445	148	36			
Background + Project	110	188	72		146	1068	171		15	69	242		445	219	62		2807	
B + P Check	110	188	72		146	1068	171		15	69	242		445	219	62			
Existing Conditions with Blomquist Extension	114	297	37		39	1020	171		15	355	242		445	148	76		2959	
Cumulative Project Trips with Blomquist Extension																		
Sequoia Station Transit Sub-Area	0	0	38		-1	0	0		0	0	0		0	0	0		37	
557 East Bayshore Avenue	9	0	7		10	0	0		0	0	0		0	0	12		38	
1125 Arguello Street	0	0	1		2	0	0		0	0	0		0	0	0		3	
Toyota 101	15	0	15		7	0	0		0	0	0		0	0	10		47	
Harbor View	158	0	0		0	0	0		0	0	0		0	0	59		217	
1548 Maple Street (w/ Blomquist Ext)	0	0	0		0	0	0		0	0	0		0	0	20		20	
1330 El Camino Real	0	0	0		0	0	0		0	0	0		0	-1	0		-1	
800 Main Street	0	0	0		0	0	0		0	0	0		0	0	0		0	
2300 Broadway	0	0	8		1	0	0		0	0	0		0	0	0		9	
901 El Camino Real	0	0	8		1	0	0		0	0	0		0	0	0		9	
651 El Camino Real	0	0	1		3	3	0		0	0	0		0	1	0		8	
750 Bradford Street	0	0	7		3	0	0		0	0	0		0	0	0		10	
601 Allerton Street	0	0	0		0	1	0		0	0	0		0	4	0		5	
Total Pending Trips	182	0	85		26	4	0		0	0	0		0	4	81		382	
Cumulative w/o Project Conditions	324	312	157		92	1124	180		16	373	254		468	231	181		3711	
C Check	324	312	157		92	1124	180		16	373	254		468	231	181			
Project Trips Under Cumulative Conditions with Blomquist Extension																		
Cumulative Project Trips	1	0	1		2	0	0		0	0	0		0	0	2		6	
Net Cumulative Proj. Trips	1	0	1		2	0	0		0	0	0		0	0	2		6	
Cumulative w/ Project	325	312	158		94	1124	180		16	373	254		468	231	183		3717	
C + P Check	325	312	158		94	1124	180		16	373	254		468	231	183			
Cumulative Scenario without Blomquist Extension																		
Cumulative w/o Project	486	198	152		174	1128	180		16	73	254		468	237	134		3500	
C Check	180	198	120		227	1128	180		16	73	254		468	234	371			
Cumulative w/ Project	486	198	153		175	1128	180		16	73	254		468	237	134		3502	
C + P Check	180	198	121		228	1128	180		16	73	254		468	234	371			

Intersection Number:	6																
Traffic Node Number:	10																
Intersection Name:	Veterans Blvd				Woodside Rd												
Peak Hour:	PM													Date of Analysis: #REF!			
Count Date:	09/10/19																
Scenario:	#####																
RC Growth Factor:											Future Growth % Per Year				1.000		
Number of Years											Number of Years to Buildout				5		
Movements																	
	North Approach			East Approach			South Approach			West Approach							
Scenario:	RT	TH	LT		RT	TH	LT		RT	TH	LT		RT	TH	LT	Total	
Existing Conditions	40	264	39		543	1080	426		0	0	0		0	886	93	337	
Approved Project Trips																	
610 Walnut Street	5	47	2		10	0	0		0	0	0		0	0	1	65	
1180 Main Street	0	0	0		0	0	0		0	0	0		0	0	0	0	
353 Main Street	0	0	0		0	12	0		0	0	0		0	-1	0	11	
1690 Broadway	0	0	0		0	0	0		0	0	0		0	0	0	0	
1548 Maple Street	1	5	0		6	3	5		0	0	0		0	6	1	27	
1401 Broadway and 2201 Bay Road	0	0	0		0	0	0		0	0	0		0	22	2	24	
SM County Government Center	0	0	0		0	0	0		0	0	0		0	15	0	15	
1175 Marshall Street	25	66	0		88	0	0		0	0	0		0	0	33	212	
707 Bradford Street	0	0	0		0	0	0		0	0	0		0	0	0	0	
612 Jefferson Ave	0	1	0		2	0	0		0	0	0		0	0	0	3	
1409 El Camino Real	0	0	0		0	37	0		0	0	0		0	4	0	41	
851 Main Street	0	0	0		0	3	0		0	0	0		0	7	0	10	
103 Wilson Street	0	0	0		0	18	0		0	0	0		0	2	0	20	
Stanford Precise Plan	-11	-124	-11		-177	61	-91		0	0	0		0	47	183	-123	
2075 Broadway	0	13	0		0	10	0		0	0	0		0	3	0	26	
849 Veterans	0	0	0		0	0	0		0	0	0		0	0	0	0	
690 Veterans	4	10	0		6	0	0		0	0	0		0	0	2	22	
South Main Mixed-Use	0	32	0		-1	31	0		0	0	0		0	15	0	77	
Total Approved Trips	24	50	-9		-66	175	-86		0	0	0		0	120	222	430	
Background Conditions																	
	64	314	30		477	1255	340		0	0	0		0	1006	315	3801	
Project Trips Under Existing and Background Conditions																	
Project Trips	0	0	0		0	0	0		0	0	0		0	1	0	1	
Net Project Trips	0	0	0		0	0	0		0	0	0		0	1	0	1	
Existing + Project																	
E + P Check	40	264	39		543	1080	426		0	0	0		0	887	93	3372	
Background + Project																	
B + P Check	64	314	30		477	1255	340		0	0	0		0	1007	315	3802	
Existing Conditions with Blomquist Extension																	
	40	264	39		581	1080	466		0	0	0		0	886	93	3449	
Cumulative Project Trips with Blomquist Extension																	
Sequoia Station Transit Sub-Area	0	0	0		0	-3	0		0	0	0		0	0	0	-3	
557 East Bayshore Avenue	37	0	0		0	0	9		0	0	0		0	0	48	94	
1125 Arguello Street	0	5	0		9	0	0		0	0	0		0	0	0	14	
Toyota 101	42	0	0		2	0	15		0	0	0		0	0	28	87	
Harbor View	0	41	1		3	137	103		0	0	0		0	32	0	316	
1548 Maple Street (w/ Blomquist Ext)	0	0	0		0	0	0		0	0	0		0	10	0	10	
1330 El Camino Real	0	0	0		0	1	0		0	0	0		0	-1	0	0	
800 Main Street	0	1	0		0	3	0		0	0	0		0	0	0	4	
2300 Broadway	0	17	0		0	0	0		0	0	0		0	0	0	17	
901 El Camino Real	0	0	0		0	4	0		0	0	0		0	0	0	4	
651 El Camino Real	0	0	1		3	0	0		0	0	0		0	0	0	4	
750 Bradford Street	12	31	0		11	0	0		0	0	0		0	0	4	58	
601 Allerton Street	3	18	4		6	0	0		0	0	0		0	0	1	32	
Total Pending Trips	94	113	6		34	142	127		0	0	0		0	31	81	627	
Cumulative w/o Project Conditions																	
C Check	159	436	38		573	1449	526		0	0	0		0	1086	400	4665	
Project Trips Under Cumulative Conditions with Blomquist Extension																	
Cumulative Project Trips	2	0	0		0	0	1		0	0	0		0	0	5	8	
Net Cumulative Proj. Trips	2	0	0		0	0	1		0	0	0		0	0	5	8	
Cumulative w/ Project																	
C + P Check	161	436	38		573	1449	527		0	0	0		0	1086	405	4673	
Cumulative Scenario without Blomquist Extension																	
Cumulative w/o Project	83	441	44		541	1452	464		0	0	0		0	1096	330	4451	
C Check	82	410	45		533	1572	381		51	0	0		0	1196	327		
Cumulative w/ Project																	
C + P Check	83	441	44		541	1452	464		0	0	0		0	1097	330	4452	

Appendix C

Level of Service Calculations

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1190	116	224	864	15	112	13	665	109	1043	208
Future Volume (veh/h)	23	1190	116	224	864	15	112	13	665	109	1043	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	23	1190	116	224	864	15	112	13	665	109	1043	208
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	47	1381	134	248	1702	30	295	626	1184	295	1709	518
Arrive On Green	0.31	0.31	0.31	0.14	0.47	0.47	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	47	4522	437	1810	3629	63	3510	1900	3590	3510	5187	1571
Grp Volume(v), veh/h	481	417	431	224	430	449	112	13	665	109	1043	208
Grp Sat Flow(s),veh/h/ln	1807	1573	1626	1810	1805	1887	1755	1900	1197	1755	1729	1571
Q Serve(g_s), s	13.5	29.1	29.1	14.1	19.2	19.2	3.5	0.5	17.7	3.4	19.6	11.9
Cycle Q Clear(g_c), s	28.8	29.1	29.1	14.1	19.2	19.2	3.5	0.5	17.7	3.4	19.6	11.9
Prop In Lane	0.05		0.27	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	584	480	497	248	847	885	295	626	1184	295	1709	518
V/C Ratio(X)	0.82	0.87	0.87	0.90	0.51	0.51	0.38	0.02	0.56	0.37	0.61	0.40
Avail Cap(c_a), veh/h	668	556	575	248	934	976	318	626	1184	318	1709	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	38.1	38.1	49.3	21.5	21.5	50.3	26.2	32.0	50.2	32.6	30.1
Incr Delay (d2), s/veh	6.4	11.2	10.9	32.0	0.2	0.2	0.3	0.1	1.9	0.3	1.6	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	12.6	12.9	8.6	8.1	8.4	1.6	0.3	5.3	1.5	8.4	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	49.3	49.0	81.3	21.6	21.6	50.6	26.3	33.9	50.5	34.3	32.4
LnGrp LOS	D	D	D	F	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1329			1103			790			1360	
Approach Delay, s/veh		47.3			33.8			36.1			35.3	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	43.3		59.4	13.3	43.3	19.0	40.4				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	5.4	19.7		21.2	5.5	21.6	16.1	31.1				
Green Ext Time (p_c), s	0.1	1.6		4.0	0.1	4.2	0.0	4.3				

Intersection Summary

HCM 6th Ctrl Delay 38.6

HCM 6th LOS D

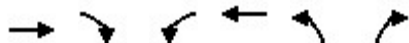
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	146	0	0	290	1019	91
Future Volume (veh/h)	146	0	0	290	1019	91
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	146	0	0	290	1104	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	969	0	0	1841	1230	547
Arrive On Green	0.51	0.00	0.00	0.51	0.34	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	146	0	0	290	1104	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	1.8	0.0	0.0	1.9	12.7	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.9	12.7	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	969	0	0	1841	1230	547
V/C Ratio(X)	0.15	0.00	0.00	0.16	0.90	0.00
Avail Cap(c_a), veh/h	969	0	0	1841	2554	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	13.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	1.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.6	0.0	0.0	0.5	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	6.0	0.0	0.0	5.9	14.8	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	146			290	1104	
Approach Delay, s/veh	6.0			5.9	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		17.9	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	3.8		3.9		14.7	
Green Ext Time (p_c), s	0.1		0.4		0.2	

Intersection Summary

HCM 6th Ctrl Delay 12.3
 HCM 6th LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.5

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	367	0	180
Demand Flow Rate, veh/h	367	0	180
Vehicles Circulating, veh/h	0	180	0
Vehicles Exiting, veh/h	180	0	367
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	0.0	3.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	367	180
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	367	180
Cap Entry, veh/h	1380	1380
V/C Ratio	0.266	0.130
Control Delay, s/veh	4.9	3.7
LOS	A	A
95th %tile Queue, veh	1	0

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	347	16	18	129	17
Future Vol, veh/h	26	347	16	18	129	17
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	26	347	16	18	129	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	377
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1193
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1188
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	731	-	-	1188	-
HCM Lane V/C Ratio	0.2	-	-	0.013	-
HCM Control Delay (s)	11.2	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	1161	348	7	217	39	291	84	138	204	136	106
Future Volume (veh/h)	73	1161	348	7	217	39	291	84	138	204	136	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	73	1161	348	7	217	39	188	229	138	204	136	106
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	148	1692	719	131	1402	247	222	272	215	238	289	245
Arrive On Green	0.08	0.47	0.47	0.07	0.46	0.46	0.12	0.14	0.14	0.13	0.15	0.15
Sat Flow, veh/h	1810	3610	1533	1810	3050	537	1810	1900	1498	1810	1900	1610
Grp Volume(v), veh/h	73	1161	348	7	127	129	188	229	138	204	136	106
Grp Sat Flow(s),veh/h/ln	1810	1805	1533	1810	1805	1783	1810	1900	1498	1810	1900	1610
Q Serve(g_s), s	4.3	27.8	10.0	0.4	4.5	4.7	11.2	13.0	7.6	12.2	7.2	6.6
Cycle Q Clear(g_c), s	4.3	27.8	10.0	0.4	4.5	4.7	11.2	13.0	7.6	12.2	7.2	6.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1692	719	131	829	819	222	272	215	238	289	245
V/C Ratio(X)	0.49	0.69	0.48	0.05	0.15	0.16	0.85	0.84	0.64	0.86	0.47	0.43
Avail Cap(c_a), veh/h	169	1692	719	131	829	819	362	310	244	361	308	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	23.0	6.8	47.6	17.3	17.4	47.4	46.0	28.3	46.9	42.7	42.5
Incr Delay (d2), s/veh	2.5	2.3	2.3	0.2	0.4	0.4	9.6	16.7	4.6	12.2	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.0	3.4	0.2	2.0	2.0	5.6	7.3	3.0	6.3	3.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	25.3	9.1	47.8	17.7	17.8	57.0	62.7	32.9	59.1	43.9	43.7
LnGrp LOS	D	C	A	D	B	B	E	E	C	E	D	D
Approach Vol, veh/h	1582			263			555			446		
Approach Delay, s/veh	22.9			18.6			53.4			50.8		
Approach LOS	C			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	19.5	20.9	14.1	55.8	18.6	21.8				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	29.8	14.2	15.0	6.3	6.7	13.2	9.2				
Green Ext Time (p_c), s	0.0	10.6	0.3	0.5	0.0	1.6	0.3	0.7				

Intersection Summary

HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1289	0	90	1006	584	0	0	0	80	171	38
Future Volume (veh/h)	36	1289	0	90	1006	584	0	0	0	80	171	38
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	36	1289	0	90	1006	584				80	171	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	42	1570		100	1261	538				197	217	178
Arrive On Green	0.03	0.62	0.00	0.10	0.69	0.69				0.19	0.19	0.19
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	36	1289	0	90	1006	584				80	171	38
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	4.0	53.1	0.0	13.7	51.4	101.5				11.0	24.7	5.6
Cycle Q Clear(g_c), s	4.0	53.1	0.0	13.7	51.4	101.5				11.0	24.7	5.6
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	42	1570		100	1261	538				197	217	178
V/C Ratio(X)	0.86	0.82		0.90	0.80	1.09				0.41	0.79	0.21
Avail Cap(c_a), veh/h	77	1639		146	1311	572				236	248	210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	73.8	25.1	0.0	67.8	18.5	27.5				56.0	59.5	55.4
Incr Delay (d2), s/veh	36.5	3.4	0.0	36.5	3.5	63.9				1.3	13.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				70.4	72.5	115.5
%ile BackOfQ(50%),veh/ln	1.8	18.9	0.0	4.5	12.8	28.5				9.2	13.4	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	110.3	28.4	0.0	104.3	22.0	91.3				127.7	145.8	171.6
LnGrp LOS	F	C		F	C	F				F	F	F
Approach Vol, veh/h	1325		A	1680		289						
Approach Delay, s/veh	30.6			50.5		144.2						
Approach LOS	C			D		F						
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.9	95.2		32.1	9.1	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+11.5), s	115.7	55.1		26.7	6.0	103.5						
Green Ext Time (p_c), s	0.1	12.3		0.9	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 50.7
 HCM 6th LOS D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	609	125	144	1008	18	287	10	886	95	906	301
Future Volume (veh/h)	12	609	125	144	1008	18	287	10	886	95	906	301
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	12	609	125	144	1008	18	287	10	886	95	906	301
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	796	159	184	1190	21	372	923	1745	272	2371	732
Arrive On Green	0.20	0.20	0.20	0.10	0.33	0.33	0.11	0.49	0.49	0.08	0.46	0.46
Sat Flow, veh/h	28	3943	789	1810	3627	65	3510	1900	3592	3510	5187	1601
Grp Volume(v), veh/h	255	244	248	144	502	524	287	10	886	95	906	301
Grp Sat Flow(s),veh/h/ln	1624	1573	1562	1810	1805	1886	1755	1900	1197	1755	1729	1601
Q Serve(g_s), s	2.4	18.3	18.8	9.7	32.3	32.3	10.0	0.3	21.0	3.2	14.4	15.7
Cycle Q Clear(g_c), s	18.9	18.3	18.8	9.7	32.3	32.3	10.0	0.3	21.0	3.2	14.4	15.7
Prop In Lane	0.05		0.50	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	318	315	184	592	619	372	923	1745	272	2371	732
V/C Ratio(X)	0.71	0.77	0.79	0.78	0.85	0.85	0.77	0.01	0.51	0.35	0.38	0.41
Avail Cap(c_a), veh/h	573	516	512	245	881	921	520	923	1745	295	2371	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	47.1	47.3	54.8	39.1	39.1	54.4	16.6	21.9	54.7	22.3	22.7
Incr Delay (d2), s/veh	1.0	1.5	1.6	8.0	3.3	3.2	2.8	0.0	1.1	0.3	0.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	7.3	7.4	4.8	14.7	15.4	4.5	0.2	6.0	1.4	5.9	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	48.6	49.0	62.8	42.4	42.3	57.2	16.6	23.0	55.0	22.8	24.4
LnGrp LOS	D	D	D	E	D	D	E	B	C	D	C	C
Approach Vol, veh/h		746			1170			1183			1302	
Approach Delay, s/veh		48.3			44.9			31.3			25.5	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	65.8		46.0	16.7	62.2	15.8	30.2				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+l1), s	5.2	23.0		34.3	12.0	17.7	11.7	20.9				
Green Ext Time (p_c), s	0.0	2.3		4.7	0.3	4.5	0.1	3.0				

Intersection Summary

HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

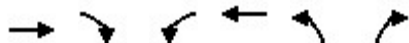
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	206	0	0	203	1088	103
Future Volume (veh/h)	206	0	0	203	1088	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	206	0	0	203	1184	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	939	0	0	1785	1303	580
Arrive On Green	0.49	0.00	0.00	0.49	0.36	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	206	0	0	203	1184	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	2.8	0.0	0.0	1.4	14.1	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	1.4	14.1	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	939	0	0	1785	1303	580
V/C Ratio(X)	0.22	0.00	0.00	0.11	0.91	0.00
Avail Cap(c_a), veh/h	939	0	0	1785	2476	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	6.1	13.8	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	1.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.9	0.0	0.0	0.4	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	7.0	0.0	0.0	6.3	14.9	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	206			203	1184	
Approach Delay, s/veh	7.0			6.3	14.9	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		19.3	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	4.8		3.4		16.1	
Green Ext Time (p_c), s	0.2		0.2		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.4

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	209	0	344
Demand Flow Rate, veh/h	209	0	344
Vehicles Circulating, veh/h	0	344	0
Vehicles Exiting, veh/h	344	0	209
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.8	0.0	4.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	209	344
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	209	344
Cap Entry, veh/h	1380	1380
V/C Ratio	0.151	0.249
Control Delay, s/veh	3.8	4.7
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	200	19	26	313	11
Future Vol, veh/h	20	200	19	26	313	11
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	200	19	26	313	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	224
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1357
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1352
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	787	-	-	1352	-
HCM Lane V/C Ratio	0.412	-	-	0.014	-
HCM Control Delay (s)	12.7	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	2	-	-	0	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	148	445	171	1020	117	242	69	15	37	188	74
Future Volume (veh/h)	36	148	445	171	1020	117	242	69	15	37	188	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	148	445	171	1020	117	156	190	15	37	188	74
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	161	1642	697	208	1563	179	193	251	197	176	234	198
Arrive On Green	0.09	0.45	0.45	0.11	0.48	0.48	0.11	0.13	0.13	0.10	0.12	0.12
Sat Flow, veh/h	1810	3610	1532	1810	3251	373	1810	1900	1490	1810	1900	1610
Grp Volume(v), veh/h	36	148	445	171	566	571	156	190	15	37	188	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1819	1810	1900	1490	1810	1900	1610
Q Serve(g_s), s	1.9	2.4	14.4	9.3	24.0	24.0	8.5	9.8	0.7	1.9	9.7	4.3
Cycle Q Clear(g_c), s	1.9	2.4	14.4	9.3	24.0	24.0	8.5	9.8	0.7	1.9	9.7	4.3
Prop In Lane	1.00		1.00	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	1642	697	208	868	874	193	251	197	176	234	198
V/C Ratio(X)	0.22	0.09	0.64	0.82	0.65	0.65	0.81	0.76	0.08	0.21	0.80	0.37
Avail Cap(c_a), veh/h	163	1642	697	353	868	874	340	545	428	176	357	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	15.7	8.6	43.7	19.9	19.9	44.2	42.3	23.5	42.0	43.1	40.8
Incr Delay (d2), s/veh	0.7	0.1	4.4	7.9	3.8	3.8	7.9	4.6	0.2	0.6	7.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	5.2	4.6	10.6	10.7	4.2	4.9	0.3	0.9	5.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	15.8	13.1	51.6	23.7	23.7	52.0	47.0	23.6	42.6	50.7	41.9
LnGrp LOS	D	B	B	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		629			1308			361			299	
Approach Delay, s/veh		15.4			27.3			48.2			47.5	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	51.1	14.9	18.4	14.1	53.7	15.9	17.4				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	11.3	16.4	3.9	11.8	3.9	26.0	10.5	11.7				
Green Ext Time (p_c), s	0.3	2.7	0.0	1.0	0.0	8.3	0.2	0.7				

Intersection Summary

HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	886	0	426	1080	543	0	0	0	39	264	40
Future Volume (veh/h)	93	886	0	426	1080	543	0	0	0	39	264	40
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	93	886	0	426	1080	543				39	264	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	114	978		499	1481	655				345	317	307
Arrive On Green	0.07	0.29	0.00	0.36	0.59	0.59				0.23	0.23	0.23
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	93	886	0	426	1080	543				39	264	40
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	5.9	26.8	0.0	39.0	37.0	48.3				2.5	23.0	2.9
Cycle Q Clear(g_c), s	5.9	26.8	0.0	39.0	37.0	48.3				2.5	23.0	2.9
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	114	978		499	1481	655				345	317	307
V/C Ratio(X)	0.81	0.91		0.85	0.73	0.83				0.11	0.83	0.13
Avail Cap(c_a), veh/h	242	1376		673	1955	853				471	429	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	70.3	53.6	0.0	47.1	23.8	31.0				44.8	59.1	45.0
Incr Delay (d2), s/veh	12.8	6.7	0.0	8.0	1.0	5.4				0.1	10.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	78.7	30.3	198.2				0.0	72.6	0.0
%ile BackOfQ(50%),veh/ln	4.0	17.3	0.0	31.4	24.7	60.9				1.2	19.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.1	60.4	0.0	133.7	55.1	234.6				45.0	141.7	45.2
LnGrp LOS	F	E		F	E	F				D	F	D
Approach Vol, veh/h	979		A	2049		343						
Approach Delay, s/veh	62.5			119.0		119.4						
Approach LOS	E			F		F						
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	46.9	38.9		31.0	12.1	73.7						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+H), s	41.0	28.8		25.0	7.9	50.3						
Green Ext Time (p_c), s	1.3	5.7		1.4	0.1	14.2						

Intersection Summary

HCM 6th Ctrl Delay 102.6
 HCM 6th LOS F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑		↖↖	↑	↖↖↖	↖↖	↑↑↑	↖
Traffic Volume (veh/h)	23	1222	150	255	841	15	119	32	777	111	1304	208
Future Volume (veh/h)	23	1222	150	255	841	15	119	32	777	111	1304	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	23	1222	150	255	841	15	119	32	777	111	1304	208
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	47	1398	170	248	1744	31	297	604	1141	295	1646	498
Arrive On Green	0.32	0.32	0.32	0.14	0.48	0.48	0.08	0.32	0.32	0.08	0.32	0.32
Sat Flow, veh/h	45	4409	537	1810	3627	65	3510	1900	3589	3510	5187	1569
Grp Volume(v), veh/h	508	439	448	255	419	437	119	32	777	111	1304	208
Grp Sat Flow(s),veh/h/ln	1815	1573	1603	1810	1805	1886	1755	1900	1196	1755	1729	1569
Q Serve(g_s), s	14.4	30.7	30.7	15.9	18.2	18.2	3.7	1.4	21.9	3.5	26.6	12.1
Cycle Q Clear(g_c), s	30.5	30.7	30.7	15.9	18.2	18.2	3.7	1.4	21.9	3.5	26.6	12.1
Prop In Lane	0.05		0.34	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	608	499	508	248	868	907	297	604	1141	295	1646	498
V/C Ratio(X)	0.84	0.88	0.88	1.03	0.48	0.48	0.40	0.05	0.68	0.38	0.79	0.42
Avail Cap(c_a), veh/h	671	556	567	248	934	976	318	604	1141	318	1646	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	37.5	37.5	50.0	20.4	20.4	50.3	27.4	34.4	50.3	36.1	31.2
Incr Delay (d2), s/veh	7.6	13.1	12.9	64.6	0.2	0.1	0.3	0.2	3.3	0.3	4.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	13.5	13.7	11.6	7.6	7.9	1.7	0.6	6.7	1.5	11.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	50.7	50.5	114.7	20.5	20.5	50.6	27.6	37.7	50.5	40.1	33.7
LnGrp LOS	D	D	D	F	C	C	D	C	D	D	D	C
Approach Vol, veh/h		1395			1111			928			1623	
Approach Delay, s/veh		48.4			42.1			39.0			40.0	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	42.0		60.8	13.3	41.9	19.0	41.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	5.5	23.9		20.2	5.7	28.6	17.9	32.7				
Green Ext Time (p_c), s	0.1	1.6		3.8	0.1	2.2	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

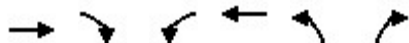
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	146	0	0	290	1019	91
Future Volume (veh/h)	146	0	0	290	1019	91
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	146	0	0	290	1104	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	969	0	0	1841	1230	547
Arrive On Green	0.51	0.00	0.00	0.51	0.34	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	146	0	0	290	1104	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	1.8	0.0	0.0	1.9	12.7	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.9	12.7	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	969	0	0	1841	1230	547
V/C Ratio(X)	0.15	0.00	0.00	0.16	0.90	0.00
Avail Cap(c_a), veh/h	969	0	0	1841	2554	1136
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.7	13.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.5	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	0.0	0.0	5.9	14.8	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	146			290	1104	
Approach Delay, s/veh	6.0			5.9	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		17.9	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	3.8		3.9		14.7	
Green Ext Time (p_c), s	0.1		0.4		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.5

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	367	0	180
Demand Flow Rate, veh/h	367	0	180
Vehicles Circulating, veh/h	0	180	0
Vehicles Exiting, veh/h	180	0	367
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	0.0	3.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	367	180
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	367	180
Cap Entry, veh/h	1380	1380
V/C Ratio	0.266	0.130
Control Delay, s/veh	4.9	3.7
LOS	A	A
95th %tile Queue, veh	1	0

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	386	48	45	166	23
Future Vol, veh/h	32	386	48	45	166	23
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	32	386	48	45	166	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	422
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1148
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1144
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	618	-	-	1144	-
HCM Lane V/C Ratio	0.306	-	-	0.042	-
HCM Control Delay (s)	13.4	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1223	348	7	289	77	291	84	138	236	136	146
Future Volume (veh/h)	79	1223	348	7	289	77	291	84	138	236	136	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	79	1223	348	7	289	77	188	229	138	236	136	146
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	144	1655	702	128	1264	330	221	270	213	268	320	271
Arrive On Green	0.08	0.46	0.46	0.07	0.45	0.45	0.12	0.14	0.14	0.15	0.17	0.17
Sat Flow, veh/h	1810	3610	1532	1810	2812	733	1810	1900	1498	1810	1900	1610
Grp Volume(v), veh/h	79	1223	348	7	183	183	188	229	138	236	136	146
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1740	1810	1900	1498	1810	1900	1610
Q Serve(g_s), s	4.7	31.3	10.1	0.4	7.0	7.3	11.5	13.3	7.9	14.4	7.2	9.4
Cycle Q Clear(g_c), s	4.7	31.3	10.1	0.4	7.0	7.3	11.5	13.3	7.9	14.4	7.2	9.4
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1655	702	128	811	782	221	270	213	268	320	271
V/C Ratio(X)	0.55	0.74	0.50	0.05	0.23	0.23	0.85	0.85	0.65	0.88	0.43	0.54
Avail Cap(c_a), veh/h	165	1655	702	128	811	782	355	303	239	353	320	271
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	25.0	6.7	48.9	19.0	19.1	48.5	47.2	29.4	47.0	42.0	42.9
Incr Delay (d2), s/veh	3.2	3.0	2.5	0.2	0.6	0.7	10.5	18.0	5.1	17.7	0.9	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	13.7	3.5	0.2	3.1	3.1	5.8	7.6	3.1	7.8	3.5	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	28.0	9.2	49.0	19.7	19.8	58.9	65.2	34.4	64.7	42.9	45.0
LnGrp LOS	D	C	A	D	B	B	E	E	C	E	D	D
Approach Vol, veh/h	1650			373			555			518		
Approach Delay, s/veh	25.3			20.3			55.4			53.4		
Approach LOS	C			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	21.7	21.2	14.1	55.8	18.9	24.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	33.3	16.4	15.3	6.7	9.3	13.5	11.4				
Green Ext Time (p_c), s	0.0	10.1	0.3	0.5	0.0	2.4	0.3	0.6				

Intersection Summary

HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1362	0	101	1365	756	0	0	0	69	292	103
Future Volume (veh/h)	100	1362	0	101	1365	756	0	0	0	69	292	103
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	100	1362	0	101	1365	756				69	292	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1519		111	1205	526				217	228	193
Arrive On Green	0.05	0.57	0.00	0.12	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	100	1362	0	101	1365	756				69	292	103
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	72.0	0.0	16.8	101.5	101.5				9.6	36.5	17.1
Cycle Q Clear(g_c), s	8.5	72.0	0.0	16.8	101.5	101.5				9.6	36.5	17.1
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1519		111	1205	526				217	228	193
V/C Ratio(X)	1.41	0.90		0.91	1.13	1.44				0.32	1.28	0.53
Avail Cap(c_a), veh/h	71	1519		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	30.2	0.0	69.9	29.3	29.2				55.6	61.7	60.9
Incr Delay (d2), s/veh	249.9	7.4	0.0	47.0	70.4	207.3				0.8	155.3	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				50.3	157.8	165.6
%ile BackOfQ(50%),veh/ln	7.8	24.2	0.0	5.6	33.8	49.5				8.1	29.1	23.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	325.6	37.6	0.0	116.9	99.7	236.5				106.7	374.8	229.3
LnGrp LOS	F	D		F	F	F				F	F	F
Approach Vol, veh/h	1462		A	2222					464			
Approach Delay, s/veh	57.3			147.0					302.7			
Approach LOS	E			F					F			
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	23.1	95.9		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+110.8), s	110.8	74.0		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.1	8.1		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	132.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔		↔	↔↔		↔↔	↑	↔↔↔	↔↔	↔↔↔	↔
Traffic Volume (veh/h)	12	625	150	151	1008	18	386	27	1138	95	1071	301
Future Volume (veh/h)	12	625	150	151	1008	18	386	27	1138	95	1071	301
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	12	625	150	151	1008	18	386	27	1138	95	1071	301
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	806	188	191	1223	22	466	906	1712	272	2185	674
Arrive On Green	0.21	0.21	0.21	0.11	0.34	0.34	0.13	0.48	0.48	0.08	0.42	0.42
Sat Flow, veh/h	29	3893	910	1810	3627	65	3510	1900	3592	3510	5187	1600
Grp Volume(v), veh/h	280	253	253	151	502	524	386	27	1138	95	1071	301
Grp Sat Flow(s),veh/h/ln	1722	1573	1537	1810	1805	1886	1755	1900	1197	1755	1729	1600
Q Serve(g_s), s	3.7	19.0	19.6	10.2	31.9	31.9	13.4	0.9	30.3	3.2	18.8	16.8
Cycle Q Clear(g_c), s	19.3	19.0	19.6	10.2	31.9	31.9	13.4	0.9	30.3	3.2	18.8	16.8
Prop In Lane	0.04		0.59	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	386	326	318	191	609	636	466	906	1712	272	2185	674
V/C Ratio(X)	0.73	0.78	0.80	0.79	0.82	0.82	0.83	0.03	0.66	0.35	0.49	0.45
Avail Cap(c_a), veh/h	595	516	504	245	881	921	520	906	1712	295	2185	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	46.9	47.1	54.6	38.0	38.0	52.8	17.4	25.1	54.7	26.4	25.8
Incr Delay (d2), s/veh	1.0	1.5	1.8	9.6	2.8	2.7	8.8	0.1	2.1	0.3	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	7.6	7.6	5.2	14.5	15.1	6.5	0.4	8.8	1.4	7.9	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	48.4	48.9	64.2	40.8	40.7	61.6	17.4	27.1	55.0	27.2	27.9
LnGrp LOS	D	D	D	E	D	D	E	B	C	D	C	C
Approach Vol, veh/h		787			1177			1551			1467	
Approach Delay, s/veh		48.2			43.8			35.5			29.1	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	64.7		47.1	20.1	57.8	16.3	30.9				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+I1), s	5.2	32.3		33.9	15.4	20.8	12.2	21.6				
Green Ext Time (p_c), s	0.0	2.3		4.7	0.2	4.6	0.1	3.2				

Intersection Summary

HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

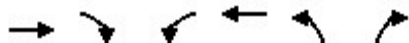
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	206	0	0	203	1088	103
Future Volume (veh/h)	206	0	0	203	1088	103
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	206	0	0	203	1184	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	939	0	0	1785	1303	580
Arrive On Green	0.49	0.00	0.00	0.49	0.36	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	206	0	0	203	1184	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	2.8	0.0	0.0	1.4	14.1	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	1.4	14.1	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	939	0	0	1785	1303	580
V/C Ratio(X)	0.22	0.00	0.00	0.11	0.91	0.00
Avail Cap(c_a), veh/h	939	0	0	1785	2476	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	6.1	13.8	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.4	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.0	0.0	0.0	6.3	14.9	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	206			203	1184	
Approach Delay, s/veh	7.0			6.3	14.9	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		19.3	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	4.8		3.4		16.1	
Green Ext Time (p_c), s	0.2		0.2		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.4

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	209	0	344
Demand Flow Rate, veh/h	209	0	344
Vehicles Circulating, veh/h	0	344	0
Vehicles Exiting, veh/h	344	0	209
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.8	0.0	4.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	209	344
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	209	344
Cap Entry, veh/h	1380	1380
V/C Ratio	0.151	0.249
Control Delay, s/veh	3.8	4.7
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 8.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	76	256	34	38	338	39
Future Vol, veh/h	76	256	34	38	338	39
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	76	256	34	38	338	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	336
Stage 1	-	-	208
Stage 2	-	-	110
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1235	679
Stage 1	-	-	832
Stage 2	-	-	920
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1230	655
Mov Cap-2 Maneuver	-	-	655
Stage 1	-	-	829
Stage 2	-	-	891

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	669	-	-	1230	-
HCM Lane V/C Ratio	0.564	-	-	0.028	-
HCM Control Delay (s)	17.1	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	3.5	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	219	445	171	1068	145	242	69	15	71	188	110
Future Volume (veh/h)	62	219	445	171	1068	145	242	69	15	71	188	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	62	219	445	171	1068	145	156	190	15	71	188	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	161	1640	696	208	1527	207	193	251	197	178	235	199
Arrive On Green	0.09	0.45	0.45	0.11	0.48	0.48	0.11	0.13	0.13	0.10	0.12	0.12
Sat Flow, veh/h	1810	3610	1532	1810	3180	431	1810	1900	1490	1810	1900	1610
Grp Volume(v), veh/h	62	219	445	171	605	608	156	190	15	71	188	110
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1806	1810	1900	1490	1810	1900	1610
Q Serve(g_s), s	3.3	3.6	14.4	9.3	26.5	26.7	8.5	9.8	0.7	3.7	9.7	6.5
Cycle Q Clear(g_c), s	3.3	3.6	14.4	9.3	26.5	26.7	8.5	9.8	0.7	3.7	9.7	6.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	1640	696	208	867	867	193	251	197	178	235	199
V/C Ratio(X)	0.39	0.13	0.64	0.82	0.70	0.70	0.81	0.76	0.08	0.40	0.80	0.55
Avail Cap(c_a), veh/h	163	1640	696	352	867	867	340	544	427	178	357	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	16.0	8.6	43.8	20.6	20.6	44.2	42.4	23.5	42.8	43.1	41.7
Incr Delay (d2), s/veh	1.5	0.2	4.5	7.9	4.7	4.7	7.9	4.7	0.2	1.4	7.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	5.2	4.6	11.8	11.9	4.2	4.9	0.3	1.7	5.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	16.2	13.1	51.7	25.2	25.3	52.1	47.0	23.7	44.3	50.4	44.1
LnGrp LOS	D	B	B	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		726			1384			361			369	
Approach Delay, s/veh		16.8			28.5			48.2			47.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	51.1	15.0	18.5	14.1	53.7	15.9	17.5				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	11.3	16.4	5.7	11.8	5.3	28.7	10.5	11.7				
Green Ext Time (p_c), s	0.3	3.2	0.0	1.0	0.0	8.6	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary 6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	1006	0	340	1255	477	0	0	0	30	314	64
Future Volume (veh/h)	315	1006	0	340	1255	477	0	0	0	30	314	64
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	315	1006	0	340	1255	477				30	314	64
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		428	1426	623				345	313	307
Arrive On Green	0.10	0.37	0.00	0.29	0.55	0.55				0.25	0.25	0.25
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	315	1006	0	340	1255	477				30	314	64
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	36.6	0.0	40.4	69.2	53.2				2.4	35.7	6.0
Cycle Q Clear(g_c), s	15.6	36.6	0.0	40.4	69.2	53.2				2.4	35.7	6.0
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		428	1426	623				345	313	307
V/C Ratio(X)	1.79	1.00		0.79	0.88	0.77				0.09	1.00	0.21
Avail Cap(c_a), veh/h	188	1330		524	1520	664				366	333	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	50.2	33.8	33.8				46.8	60.8	48.2
Incr Delay (d2), s/veh	375.3	22.8	0.0	6.8	6.0	5.1				0.1	49.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	76.0	72.1	183.9				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	25.7	23.5	0.0	26.1	42.3	56.1				0.9	30.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	447.5	80.5	0.0	132.9	111.9	222.8				46.9	259.8	48.6
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1321		A	2072					408			
Approach Delay, s/veh	168.0			140.9					211.0			
Approach LOS	F			F					F			
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	47.9	59.8		42.4	20.1	87.6						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+H), s	42.4	38.6		37.7	17.6	71.2						
Green Ext Time (p_c), s	1.0	3.3		0.2	0.0	11.9						

Intersection Summary

HCM 6th Ctrl Delay	157.9
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

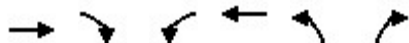
11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑		↑↑	↑	↑↑↑	↑↑	↑↑↑	↑
Traffic Volume (veh/h)	23	1192	116	229	873	15	112	13	666	110	1043	208
Future Volume (veh/h)	23	1192	116	229	873	15	112	13	666	110	1043	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	23	1192	116	229	873	15	112	13	666	110	1043	208
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	47	1383	133	248	1704	29	295	626	1182	295	1707	517
Arrive On Green	0.31	0.31	0.31	0.14	0.47	0.47	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	47	4522	437	1810	3630	62	3510	1900	3590	3510	5187	1571
Grp Volume(v), veh/h	481	418	432	229	434	454	112	13	666	110	1043	208
Grp Sat Flow(s),veh/h/ln	1806	1573	1626	1810	1805	1887	1755	1900	1197	1755	1729	1571
Q Serve(g_s), s	13.5	29.1	29.1	14.5	19.5	19.5	3.5	0.5	17.7	3.4	19.6	11.9
Cycle Q Clear(g_c), s	28.9	29.1	29.1	14.5	19.5	19.5	3.5	0.5	17.7	3.4	19.6	11.9
Prop In Lane	0.05		0.27	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	585	481	497	248	848	886	295	626	1182	295	1707	517
V/C Ratio(X)	0.82	0.87	0.87	0.92	0.51	0.51	0.38	0.02	0.56	0.37	0.61	0.40
Avail Cap(c_a), veh/h	667	556	575	248	934	976	318	626	1182	318	1707	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	38.1	38.1	49.4	21.5	21.5	50.3	26.3	32.0	50.2	32.7	30.1
Incr Delay (d2), s/veh	6.4	11.3	11.0	36.5	0.2	0.2	0.3	0.1	1.9	0.3	1.6	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	12.6	13.0	9.0	8.2	8.5	1.6	0.3	5.3	1.5	8.4	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	49.3	49.1	85.9	21.7	21.7	50.6	26.3	34.0	50.5	34.3	32.4
LnGrp LOS	D	D	D	F	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1331			1117			791			1361	
Approach Delay, s/veh		47.4			34.8			36.2			35.3	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	43.3		59.5	13.3	43.3	19.0	40.5				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	5.4	19.7		21.5	5.5	21.6	16.5	31.1				
Green Ext Time (p_c), s	0.1	1.6		4.0	0.1	4.2	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay				38.8								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	150	0	0	314	1019	93
Future Volume (veh/h)	150	0	0	314	1019	93
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	150	0	0	314	1106	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	968	0	0	1840	1232	548
Arrive On Green	0.51	0.00	0.00	0.51	0.34	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	150	0	0	314	1106	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	1.8	0.0	0.0	2.1	12.8	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	2.1	12.8	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	968	0	0	1840	1232	548
V/C Ratio(X)	0.15	0.00	0.00	0.17	0.90	0.00
Avail Cap(c_a), veh/h	968	0	0	1840	2552	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.8	13.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.6	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.1	0.0	0.0	6.0	14.8	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	150			314	1106	
Approach Delay, s/veh	6.1			6.0	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		18.0	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	3.8		4.1		14.8	
Green Ext Time (p_c), s	0.1		0.4		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection			
Intersection Delay, s/veh	4.5		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	367	0	180
Demand Flow Rate, veh/h	367	0	180
Vehicles Circulating, veh/h	0	180	0
Vehicles Exiting, veh/h	180	0	367
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	0.0	3.7
Approach LOS	A	-	A
Lane	Left	Left	
Designated Moves	R	LT	
Assumed Moves	R	LT	
RT Channelized			
Lane Util	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	
Critical Headway, s	4.976	4.976	
Entry Flow, veh/h	367	180	
Cap Entry Lane, veh/h	1380	1380	
Entry HV Adj Factor	1.000	1.000	
Flow Entry, veh/h	367	180	
Cap Entry, veh/h	1380	1380	
V/C Ratio	0.266	0.130	
Control Delay, s/veh	4.9	3.7	
LOS	A	A	
95th %tile Queue, veh	1	0	

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	348	16	18	129	17
Future Vol, veh/h	26	348	16	18	129	17
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	26	348	16	18	129	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	378
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1192
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1187
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	731	-	-	1187	-
HCM Lane V/C Ratio	0.2	-	-	0.013	-
HCM Control Delay (s)	11.2	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	1161	348	7	217	39	291	84	138	205	136	106
Future Volume (veh/h)	73	1161	348	7	217	39	291	84	138	205	136	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	73	1161	348	7	217	39	188	229	138	205	136	106
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	148	1690	718	131	1401	247	222	272	215	239	290	246
Arrive On Green	0.08	0.47	0.47	0.07	0.46	0.46	0.12	0.14	0.14	0.13	0.15	0.15
Sat Flow, veh/h	1810	3610	1533	1810	3050	537	1810	1900	1498	1810	1900	1610
Grp Volume(v), veh/h	73	1161	348	7	127	129	188	229	138	205	136	106
Grp Sat Flow(s),veh/h/ln	1810	1805	1533	1810	1805	1783	1810	1900	1498	1810	1900	1610
Q Serve(g_s), s	4.3	27.8	10.0	0.4	4.5	4.7	11.2	13.0	7.6	12.2	7.2	6.6
Cycle Q Clear(g_c), s	4.3	27.8	10.0	0.4	4.5	4.7	11.2	13.0	7.6	12.2	7.2	6.6
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1690	718	131	829	819	222	272	215	239	290	246
V/C Ratio(X)	0.49	0.69	0.48	0.05	0.15	0.16	0.85	0.84	0.64	0.86	0.47	0.43
Avail Cap(c_a), veh/h	169	1690	718	131	829	819	362	310	244	361	308	261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.5	23.0	6.8	47.7	17.4	17.4	47.4	46.1	28.3	46.9	42.7	42.4
Incr Delay (d2), s/veh	2.6	2.3	2.3	0.2	0.4	0.4	9.6	16.7	4.7	12.3	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	12.0	3.4	0.2	2.0	2.0	5.6	7.4	3.0	6.3	3.5	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	25.3	9.1	47.8	17.8	17.8	57.0	62.8	33.0	59.2	43.9	43.6
LnGrp LOS	D	C	A	D	B	B	E	E	C	E	D	D
Approach Vol, veh/h	1582			263			555			447		
Approach Delay, s/veh	22.9			18.6			53.4			50.9		
Approach LOS	C			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	19.6	20.9	14.1	55.8	18.7	21.9				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	29.8	14.2	15.0	6.3	6.7	13.2	9.2				
Green Ext Time (p_c), s	0.0	10.6	0.3	0.5	0.0	1.6	0.3	0.7				

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1289	0	90	1006	584	0	0	0	80	171	38
Future Volume (veh/h)	36	1289	0	90	1006	584	0	0	0	80	171	38
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	36	1289	0	90	1006	584				80	171	38
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	42	1570		100	1261	538				197	217	178
Arrive On Green	0.03	0.62	0.00	0.10	0.69	0.69				0.19	0.19	0.19
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	36	1289	0	90	1006	584				80	171	38
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	4.0	53.1	0.0	13.7	51.4	101.5				11.0	24.7	5.6
Cycle Q Clear(g_c), s	4.0	53.1	0.0	13.7	51.4	101.5				11.0	24.7	5.6
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	42	1570		100	1261	538				197	217	178
V/C Ratio(X)	0.86	0.82		0.90	0.80	1.09				0.41	0.79	0.21
Avail Cap(c_a), veh/h	77	1639		146	1311	572				236	248	210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	73.8	25.1	0.0	67.8	18.5	27.5				56.0	59.5	55.4
Incr Delay (d2), s/veh	36.5	3.4	0.0	36.5	3.5	63.9				1.3	13.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				70.4	72.5	115.5
%ile BackOfQ(50%),veh/ln	1.8	18.9	0.0	4.5	12.8	28.5				9.2	13.4	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	110.3	28.4	0.0	104.3	22.0	91.3				127.7	145.8	171.6
LnGrp LOS	F	C		F	C	F				F	F	F
Approach Vol, veh/h	1325		A	1680		289						
Approach Delay, s/veh	30.6			50.5		144.2						
Approach LOS	C			D		F						
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	9.9	95.2		32.1	9.1	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+11.5), s	11.5	55.1		26.7	6.0	103.5						
Green Ext Time (p_c), s	0.1	12.3		0.9	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 50.7
 HCM 6th LOS D

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	621	125	147	1013	18	287	10	892	102	906	301
Future Volume (veh/h)	12	621	125	147	1013	18	287	10	892	102	906	301
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	12	621	125	147	1013	18	287	10	892	102	906	301
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	807	158	187	1201	21	372	916	1732	274	2356	727
Arrive On Green	0.20	0.20	0.20	0.10	0.33	0.33	0.11	0.48	0.48	0.08	0.45	0.45
Sat Flow, veh/h	28	3972	780	1810	3627	64	3510	1900	3592	3510	5187	1601
Grp Volume(v), veh/h	261	247	251	147	504	527	287	10	892	102	906	301
Grp Sat Flow(s),veh/h/ln	1642	1573	1564	1810	1805	1887	1755	1900	1197	1755	1729	1601
Q Serve(g_s), s	2.7	18.5	19.0	9.9	32.4	32.4	10.0	0.3	21.4	3.4	14.4	15.8
Cycle Q Clear(g_c), s	19.1	18.5	19.0	9.9	32.4	32.4	10.0	0.3	21.4	3.4	14.4	15.8
Prop In Lane	0.05		0.50	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	364	320	318	187	598	625	372	916	1732	274	2356	727
V/C Ratio(X)	0.72	0.77	0.79	0.79	0.84	0.84	0.77	0.01	0.52	0.37	0.38	0.41
Avail Cap(c_a), veh/h	577	516	513	245	881	921	520	916	1732	295	2356	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	47.1	47.3	54.7	38.8	38.8	54.4	16.9	22.3	54.7	22.6	22.9
Incr Delay (d2), s/veh	1.0	1.5	1.7	8.7	3.3	3.2	2.8	0.0	1.1	0.3	0.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	7.4	7.5	5.0	14.8	15.4	4.5	0.2	6.1	1.5	6.0	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	48.6	48.9	63.4	42.1	42.0	57.2	16.9	23.4	55.0	23.0	24.7
LnGrp LOS	D	D	D	E	D	D	E	B	C	E	C	C
Approach Vol, veh/h		758			1178			1189			1309	
Approach Delay, s/veh		48.3			44.7			31.5			25.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	65.4		46.4	16.7	61.9	16.0	30.4				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+l1), s	5.4	23.4		34.4	12.0	17.8	11.9	21.1				
Green Ext Time (p_c), s	0.0	2.3		4.8	0.3	4.4	0.1	3.1				

Intersection Summary

HCM 6th Ctrl Delay 36.2

HCM 6th LOS D

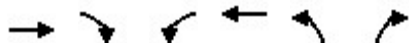
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	231	0	0	216	1088	112
Future Volume (veh/h)	231	0	0	216	1088	112
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	231	0	0	216	1193	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	936	0	0	1778	1311	583
Arrive On Green	0.49	0.00	0.00	0.49	0.36	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	231	0	0	216	1193	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	3.2	0.0	0.0	1.5	14.3	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	1.5	14.3	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	936	0	0	1778	1311	583
V/C Ratio(X)	0.25	0.00	0.00	0.12	0.91	0.00
Avail Cap(c_a), veh/h	936	0	0	1778	2467	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	6.2	13.8	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	1.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	0.0	0.0	0.4	4.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	7.3	0.0	0.0	6.4	14.9	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	231			216	1193	
Approach Delay, s/veh	7.3			6.4	14.9	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		19.5	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	5.2		3.5		16.3	
Green Ext Time (p_c), s	0.2		0.3		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.4

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	209	0	344
Demand Flow Rate, veh/h	209	0	344
Vehicles Circulating, veh/h	0	344	0
Vehicles Exiting, veh/h	344	0	209
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.8	0.0	4.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	209	344
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	209	344
Cap Entry, veh/h	1380	1380
V/C Ratio	0.151	0.249
Control Delay, s/veh	3.8	4.7
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	201	19	26	314	11
Future Vol, veh/h	20	201	19	26	314	11
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	201	19	26	314	11

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	225
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1356
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1351
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.3	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	786	-	-	1351	-
HCM Lane V/C Ratio	0.413	-	-	0.014	-
HCM Control Delay (s)	12.8	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	2	-	-	0	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	148	445	171	1020	118	242	69	15	38	188	74
Future Volume (veh/h)	36	148	445	171	1020	118	242	69	15	38	188	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	148	445	171	1020	118	156	190	15	38	188	74
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	161	1642	697	208	1561	180	193	251	197	176	234	198
Arrive On Green	0.09	0.45	0.45	0.11	0.48	0.48	0.11	0.13	0.13	0.10	0.12	0.12
Sat Flow, veh/h	1810	3610	1532	1810	3248	375	1810	1900	1490	1810	1900	1610
Grp Volume(v), veh/h	36	148	445	171	567	571	156	190	15	38	188	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1818	1810	1900	1490	1810	1900	1610
Q Serve(g_s), s	1.9	2.4	14.4	9.3	24.0	24.1	8.5	9.8	0.7	2.0	9.7	4.3
Cycle Q Clear(g_c), s	1.9	2.4	14.4	9.3	24.0	24.1	8.5	9.8	0.7	2.0	9.7	4.3
Prop In Lane	1.00		1.00	1.00		0.21	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	1642	697	208	868	874	193	251	197	176	234	198
V/C Ratio(X)	0.22	0.09	0.64	0.82	0.65	0.65	0.81	0.76	0.08	0.22	0.80	0.37
Avail Cap(c_a), veh/h	163	1642	697	353	868	874	340	545	428	176	357	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	15.7	8.6	43.7	19.9	19.9	44.2	42.3	23.5	42.1	43.1	40.8
Incr Delay (d2), s/veh	0.7	0.1	4.4	7.9	3.8	3.8	7.9	4.6	0.2	0.6	7.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	5.2	4.6	10.6	10.7	4.2	4.9	0.3	0.9	5.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	15.8	13.1	51.6	23.7	23.7	52.0	47.0	23.6	42.7	50.7	41.9
LnGrp LOS	D	B	B	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		629			1309			361			300	
Approach Delay, s/veh		15.4			27.3			48.2			47.5	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	51.1	14.9	18.4	14.1	53.7	15.9	17.4				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+l1), s	11.3	16.4	4.0	11.8	3.9	26.1	10.5	11.7				
Green Ext Time (p_c), s	0.3	2.7	0.0	1.0	0.0	8.3	0.2	0.7				

Intersection Summary

HCM 6th Ctrl Delay 29.7
 HCM 6th LOS C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	887	0	426	1080	543	0	0	0	39	264	40
Future Volume (veh/h)	93	887	0	426	1080	543	0	0	0	39	264	40
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	93	887	0	426	1080	543				39	264	40
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	114	979		499	1481	655				345	317	307
Arrive On Green	0.07	0.30	0.00	0.36	0.59	0.59				0.23	0.23	0.23
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	93	887	0	426	1080	543				39	264	40
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	5.9	26.8	0.0	39.1	37.0	48.3				2.5	23.0	2.9
Cycle Q Clear(g_c), s	5.9	26.8	0.0	39.1	37.0	48.3				2.5	23.0	2.9
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	114	979		499	1481	655				345	317	307
V/C Ratio(X)	0.81	0.91		0.85	0.73	0.83				0.11	0.83	0.13
Avail Cap(c_a), veh/h	242	1374		673	1953	852				471	428	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	70.3	53.7	0.0	47.1	23.8	31.0				44.9	59.1	45.1
Incr Delay (d2), s/veh	12.8	6.8	0.0	8.0	1.0	5.4				0.1	10.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	78.8	30.3	198.2				0.0	72.7	0.0
%ile BackOfQ(50%),veh/ln	4.0	17.3	0.0	31.5	24.7	60.9				1.2	19.8	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.1	60.4	0.0	133.9	55.1	234.5				45.0	141.8	45.2
LnGrp LOS	F	E		F	E	F				D	F	D
Approach Vol, veh/h	980		A	2049		343						
Approach Delay, s/veh	62.6			119.0		119.5						
Approach LOS	E			F		F						
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	46.9	39.0		31.0	12.1	73.8						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+H), s	41.1	28.8		25.0	7.9	50.3						
Green Ext Time (p_c), s	1.3	5.7		1.4	0.1	14.2						

Intersection Summary

HCM 6th Ctrl Delay	102.7
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1224	150	260	850	15	119	32	778	112	1304	208
Future Volume (veh/h)	23	1224	150	260	850	15	119	32	778	112	1304	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	23	1224	150	260	850	15	119	32	778	112	1304	208
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	47	1399	170	248	1745	31	297	603	1140	295	1645	497
Arrive On Green	0.32	0.32	0.32	0.14	0.48	0.48	0.08	0.32	0.32	0.08	0.32	0.32
Sat Flow, veh/h	45	4410	536	1810	3628	64	3510	1900	3589	3510	5187	1569
Grp Volume(v), veh/h	509	440	448	260	423	442	119	32	778	112	1304	208
Grp Sat Flow(s),veh/h/ln	1814	1573	1603	1810	1805	1887	1755	1900	1196	1755	1729	1569
Q Serve(g_s), s	14.5	30.7	30.7	15.9	18.4	18.4	3.7	1.4	21.9	3.5	26.6	12.1
Cycle Q Clear(g_c), s	30.5	30.7	30.7	15.9	18.4	18.4	3.7	1.4	21.9	3.5	26.6	12.1
Prop In Lane	0.05		0.33	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	608	499	509	248	868	908	297	603	1140	295	1645	497
V/C Ratio(X)	0.84	0.88	0.88	1.05	0.49	0.49	0.40	0.05	0.68	0.38	0.79	0.42
Avail Cap(c_a), veh/h	671	556	567	248	934	976	318	603	1140	318	1645	497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	37.5	37.5	50.0	20.4	20.4	50.3	27.5	34.5	50.3	36.1	31.2
Incr Delay (d2), s/veh	7.6	13.2	13.0	70.4	0.2	0.2	0.3	0.2	3.3	0.3	4.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	13.5	13.7	12.0	7.7	8.0	1.7	0.6	6.7	1.6	11.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	50.7	50.5	120.4	20.5	20.5	50.6	27.6	37.8	50.6	40.2	33.8
LnGrp LOS	D	D	D	F	C	C	D	C	D	D	D	C
Approach Vol, veh/h		1397			1125			929			1624	
Approach Delay, s/veh		48.5			43.6			39.1			40.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.3	41.9		60.8	13.3	41.9	19.0	41.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	5.5	23.9		20.4	5.7	28.6	17.9	32.7				
Green Ext Time (p_c), s	0.1	1.6		3.9	0.1	2.2	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay 43.0

HCM 6th LOS D

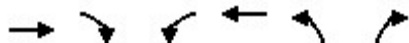
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	150	0	0	314	1019	93
Future Volume (veh/h)	150	0	0	314	1019	93
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	150	0	0	314	1106	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	968	0	0	1840	1232	548
Arrive On Green	0.51	0.00	0.00	0.51	0.34	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	150	0	0	314	1106	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	1.8	0.0	0.0	2.1	12.8	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	2.1	12.8	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	968	0	0	1840	1232	548
V/C Ratio(X)	0.15	0.00	0.00	0.17	0.90	0.00
Avail Cap(c_a), veh/h	968	0	0	1840	2552	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.7	0.0	0.0	5.8	13.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	1.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.6	0.0	0.0	0.6	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	6.1	0.0	0.0	6.0	14.8	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	150			314	1106	
Approach Delay, s/veh	6.1			6.0	14.8	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		18.0	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	3.8		4.1		14.8	
Green Ext Time (p_c), s	0.1		0.4		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection			
Intersection Delay, s/veh	4.5		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	367	0	180
Demand Flow Rate, veh/h	367	0	180
Vehicles Circulating, veh/h	0	180	0
Vehicles Exiting, veh/h	180	0	367
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	0.0	3.7
Approach LOS	A	-	A
Lane	Left	Left	
Designated Moves	R	LT	
Assumed Moves	R	LT	
RT Channelized			
Lane Util	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	
Critical Headway, s	4.976	4.976	
Entry Flow, veh/h	367	180	
Cap Entry Lane, veh/h	1380	1380	
Entry HV Adj Factor	1.000	1.000	
Flow Entry, veh/h	367	180	
Cap Entry, veh/h	1380	1380	
V/C Ratio	0.266	0.130	
Control Delay, s/veh	4.9	3.7	
LOS	A	A	
95th %tile Queue, veh	1	0	

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	387	48	45	166	23
Future Vol, veh/h	32	387	48	45	166	23
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	32	387	48	45	166	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	423
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1147
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1143
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	618	-	-	1143	-
HCM Lane V/C Ratio	0.306	-	-	0.042	-
HCM Control Delay (s)	13.4	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1223	348	7	289	77	291	84	138	237	136	146
Future Volume (veh/h)	79	1223	348	7	289	77	291	84	138	237	136	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	79	1223	348	7	289	77	188	229	138	237	136	146
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	144	1654	702	128	1263	329	221	270	213	269	321	272
Arrive On Green	0.08	0.46	0.46	0.07	0.45	0.45	0.12	0.14	0.14	0.15	0.17	0.17
Sat Flow, veh/h	1810	3610	1532	1810	2812	733	1810	1900	1498	1810	1900	1610
Grp Volume(v), veh/h	79	1223	348	7	183	183	188	229	138	237	136	146
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1740	1810	1900	1498	1810	1900	1610
Q Serve(g_s), s	4.7	31.3	10.1	0.4	7.0	7.3	11.5	13.3	7.9	14.5	7.2	9.4
Cycle Q Clear(g_c), s	4.7	31.3	10.1	0.4	7.0	7.3	11.5	13.3	7.9	14.5	7.2	9.4
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1654	702	128	811	782	221	270	213	269	321	272
V/C Ratio(X)	0.55	0.74	0.50	0.05	0.23	0.23	0.85	0.85	0.65	0.88	0.42	0.54
Avail Cap(c_a), veh/h	165	1654	702	128	811	782	354	303	239	353	321	272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	25.1	6.7	48.9	19.1	19.1	48.5	47.2	29.4	47.0	42.0	42.9
Incr Delay (d2), s/veh	3.2	3.0	2.5	0.2	0.6	0.7	10.5	18.0	5.1	17.9	0.9	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	13.7	3.5	0.2	3.1	3.1	5.8	7.6	3.1	7.8	3.5	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	28.1	9.2	49.1	19.7	19.8	59.0	65.2	34.5	64.9	42.9	45.0
LnGrp LOS	D	C	A	D	B	B	E	E	C	E	D	D
Approach Vol, veh/h	1650			373			555			519		
Approach Delay, s/veh	25.3			20.3			55.5			53.5		
Approach LOS	C			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	21.8	21.2	14.1	55.8	18.9	24.1				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	33.3	16.5	15.3	6.7	9.3	13.5	11.4				
Green Ext Time (p_c), s	0.0	10.1	0.3	0.5	0.0	2.4	0.3	0.6				

Intersection Summary

HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1362	0	101	1365	756	0	0	0	69	292	103
Future Volume (veh/h)	100	1362	0	101	1365	756	0	0	0	69	292	103
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	100	1362	0	101	1365	756				69	292	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1519		111	1205	526				217	228	193
Arrive On Green	0.05	0.57	0.00	0.12	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	100	1362	0	101	1365	756				69	292	103
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	72.0	0.0	16.8	101.5	101.5				9.6	36.5	17.1
Cycle Q Clear(g_c), s	8.5	72.0	0.0	16.8	101.5	101.5				9.6	36.5	17.1
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1519		111	1205	526				217	228	193
V/C Ratio(X)	1.41	0.90		0.91	1.13	1.44				0.32	1.28	0.53
Avail Cap(c_a), veh/h	71	1519		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	30.2	0.0	69.9	29.3	29.2				55.6	61.7	60.9
Incr Delay (d2), s/veh	249.9	7.4	0.0	47.0	70.4	207.3				0.8	155.3	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				50.3	157.8	165.6
%ile BackOfQ(50%),veh/ln	7.8	24.2	0.0	5.6	33.8	49.5				8.1	29.1	23.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	325.6	37.6	0.0	116.9	99.7	236.5				106.7	374.8	229.3
LnGrp LOS	F	D		F	F	F				F	F	F
Approach Vol, veh/h	1462		A	2222					464			
Approach Delay, s/veh	57.3			147.0					302.7			
Approach LOS	E			F					F			
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	23.1	95.9		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+110.8), s	110.8	74.0		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.1	8.1		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	132.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	637	150	154	1013	18	386	27	1144	102	1071	301
Future Volume (veh/h)	12	637	150	154	1013	18	386	27	1144	102	1071	301
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	12	637	150	154	1013	18	386	27	1144	102	1071	301
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	818	188	194	1235	22	466	899	1699	274	2169	669
Arrive On Green	0.21	0.21	0.21	0.11	0.34	0.34	0.13	0.47	0.47	0.08	0.42	0.42
Sat Flow, veh/h	29	3924	901	1810	3627	64	3510	1900	3592	3510	5187	1600
Grp Volume(v), veh/h	287	256	256	154	504	527	386	27	1144	102	1071	301
Grp Sat Flow(s),veh/h/ln	1742	1573	1539	1810	1805	1887	1755	1900	1197	1755	1729	1600
Q Serve(g_s), s	4.0	19.2	19.8	10.4	32.0	32.0	13.4	0.9	30.8	3.4	18.9	16.9
Cycle Q Clear(g_c), s	19.4	19.2	19.8	10.4	32.0	32.0	13.4	0.9	30.8	3.4	18.9	16.9
Prop In Lane	0.04		0.59	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	393	328	321	194	614	642	466	899	1699	274	2169	669
V/C Ratio(X)	0.73	0.78	0.80	0.79	0.82	0.82	0.83	0.03	0.67	0.37	0.49	0.45
Avail Cap(c_a), veh/h	599	516	505	245	881	921	520	899	1699	295	2169	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	46.8	47.0	54.5	37.7	37.7	52.8	17.6	25.5	54.7	26.7	26.1
Incr Delay (d2), s/veh	1.0	1.5	2.1	10.3	2.8	2.6	8.8	0.1	2.2	0.3	0.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	7.7	7.7	5.3	14.5	15.1	6.5	0.4	9.0	1.5	8.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	48.3	49.0	64.8	40.5	40.4	61.6	17.7	27.6	55.0	27.5	28.3
LnGrp LOS	D	D	D	E	D	D	E	B	C	E	C	C
Approach Vol, veh/h		799			1185			1557			1474	
Approach Delay, s/veh		48.2			43.6			35.9			29.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.2	64.2		47.5	20.1	57.4	16.5	31.1				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+I1), s	5.4	32.8		34.0	15.4	20.9	12.4	21.8				
Green Ext Time (p_c), s	0.0	2.2		4.8	0.2	4.6	0.1	3.3				

Intersection Summary

HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

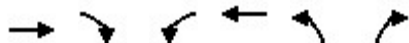
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/02/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	231	0	0	216	1088	112
Future Volume (veh/h)	231	0	0	216	1088	112
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	231	0	0	216	1193	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	936	0	0	1778	1311	583
Arrive On Green	0.49	0.00	0.00	0.49	0.36	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	231	0	0	216	1193	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	3.2	0.0	0.0	1.5	14.3	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	1.5	14.3	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	936	0	0	1778	1311	583
V/C Ratio(X)	0.25	0.00	0.00	0.12	0.91	0.00
Avail Cap(c_a), veh/h	936	0	0	1778	2467	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	6.2	13.8	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.4	4.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	0.0	0.0	6.4	14.9	0.0
LnGrp LOS	A	A	A	A	B	A
Approach Vol, veh/h	231			216	1193	
Approach Delay, s/veh	7.3			6.4	14.9	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		19.5	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	5.2		3.5		16.3	
Green Ext Time (p_c), s	0.2		0.3		0.2	

Intersection Summary

HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/02/2021

Intersection

Intersection Delay, s/veh 4.4

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	209	0	344
Demand Flow Rate, veh/h	209	0	344
Vehicles Circulating, veh/h	0	344	0
Vehicles Exiting, veh/h	344	0	209
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.8	0.0	4.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	209	344
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	209	344
Cap Entry, veh/h	1380	1380
V/C Ratio	0.151	0.249
Control Delay, s/veh	3.8	4.7
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/02/2021

Intersection

Int Delay, s/veh 8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	76	257	34	38	339	39
Future Vol, veh/h	76	257	34	38	339	39
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	76	257	34	38	339	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	337
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1234
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1229
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	668	-	-	1229	-
HCM Lane V/C Ratio	0.566	-	-	0.028	-
HCM Control Delay (s)	17.2	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	3.6	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/02/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	219	445	171	1068	146	242	69	15	72	188	110
Future Volume (veh/h)	62	219	445	171	1068	146	242	69	15	72	188	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	62	219	445	171	1068	146	156	190	15	72	188	110
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	161	1640	696	208	1526	208	193	251	197	178	235	199
Arrive On Green	0.09	0.45	0.45	0.11	0.48	0.48	0.11	0.13	0.13	0.10	0.12	0.12
Sat Flow, veh/h	1810	3610	1532	1810	3177	434	1810	1900	1490	1810	1900	1610
Grp Volume(v), veh/h	62	219	445	171	606	608	156	190	15	72	188	110
Grp Sat Flow(s),veh/h/ln	1810	1805	1532	1810	1805	1806	1810	1900	1490	1810	1900	1610
Q Serve(g_s), s	3.3	3.6	14.4	9.3	26.6	26.7	8.5	9.8	0.7	3.8	9.7	6.5
Cycle Q Clear(g_c), s	3.3	3.6	14.4	9.3	26.6	26.7	8.5	9.8	0.7	3.8	9.7	6.5
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	1640	696	208	867	867	193	251	197	178	235	199
V/C Ratio(X)	0.39	0.13	0.64	0.82	0.70	0.70	0.81	0.76	0.08	0.40	0.80	0.55
Avail Cap(c_a), veh/h	163	1640	696	352	867	867	340	544	427	178	357	302
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	16.0	8.6	43.8	20.6	20.6	44.2	42.4	23.5	42.8	43.1	41.7
Incr Delay (d2), s/veh	1.5	0.2	4.5	7.9	4.7	4.7	7.9	4.7	0.2	1.5	7.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	5.2	4.6	11.8	11.9	4.2	4.9	0.3	1.8	5.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	16.2	13.1	51.7	25.2	25.3	52.1	47.0	23.7	44.3	50.4	44.1
LnGrp LOS	D	B	B	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		726			1385			361			370	
Approach Delay, s/veh		16.8			28.5			48.2			47.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.7	51.1	15.0	18.5	14.1	53.7	15.9	17.5				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	11.3	16.4	5.8	11.8	5.3	28.7	10.5	11.7				
Green Ext Time (p_c), s	0.3	3.2	0.0	1.0	0.0	8.6	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/02/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	1007	0	340	1255	477	0	0	0	30	314	64
Future Volume (veh/h)	315	1007	0	340	1255	477	0	0	0	30	314	64
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	315	1007	0	340	1255	477				30	314	64
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		428	1426	623				345	313	307
Arrive On Green	0.10	0.37	0.00	0.29	0.55	0.55				0.25	0.25	0.25
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	315	1007	0	340	1255	477				30	314	64
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	36.7	0.0	40.4	69.2	53.2				2.4	35.7	6.0
Cycle Q Clear(g_c), s	15.6	36.7	0.0	40.4	69.2	53.2				2.4	35.7	6.0
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		428	1426	623				345	313	307
V/C Ratio(X)	1.79	1.00		0.79	0.88	0.77				0.09	1.00	0.21
Avail Cap(c_a), veh/h	188	1330		524	1520	664				366	333	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	50.2	33.8	33.8				46.8	60.8	48.2
Incr Delay (d2), s/veh	375.3	23.1	0.0	6.8	6.0	5.1				0.1	49.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	76.0	72.1	183.9				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	25.7	23.5	0.0	26.1	42.3	56.1				0.9	30.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	447.5	80.8	0.0	132.9	111.9	222.8				46.9	259.8	48.6
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1322		A	2072					408			
Approach Delay, s/veh	168.2			140.9					211.0			
Approach LOS	F			F					F			
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	47.9	59.8		42.4	20.1	87.6						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+H), s	42.4	38.7		37.7	17.6	71.2						
Green Ext Time (p_c), s	1.0	3.3		0.2	0.0	11.9						

Intersection Summary

HCM 6th Ctrl Delay 157.9

HCM 6th LOS F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1442	168	338	973	16	121	33	879	413	1697	235
Future Volume (veh/h)	24	1442	168	338	973	16	121	33	879	413	1697	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	1442	168	338	973	16	121	33	879	413	1697	235
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	1544	179	248	1859	31	297	533	1006	318	1485	448
Arrive On Green	0.35	0.35	0.35	0.14	0.51	0.51	0.08	0.28	0.28	0.09	0.29	0.29
Sat Flow, veh/h	40	4438	513	1810	3633	60	3510	1900	3588	3510	5187	1565
Grp Volume(v), veh/h	593	514	527	338	483	506	121	33	879	413	1697	235
Grp Sat Flow(s),veh/h/ln	1808	1573	1610	1810	1805	1888	1755	1900	1196	1755	1729	1565
Q Serve(g_s), s	19.3	36.7	36.8	15.9	20.7	20.7	3.8	1.5	27.1	10.5	33.2	14.6
Cycle Q Clear(g_c), s	36.7	36.7	36.8	15.9	20.7	20.7	3.8	1.5	27.1	10.5	33.2	14.6
Prop In Lane	0.04		0.32	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	661	548	560	248	924	966	297	533	1006	318	1485	448
V/C Ratio(X)	0.90	0.94	0.94	1.36	0.52	0.52	0.41	0.06	0.87	1.30	1.14	0.52
Avail Cap(c_a), veh/h	671	556	569	248	934	976	318	533	1006	318	1485	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	36.6	36.7	50.0	18.9	18.9	50.3	30.6	39.8	52.8	41.4	34.8
Incr Delay (d2), s/veh	14.2	23.6	23.4	187.0	0.2	0.2	0.3	0.2	10.4	156.1	72.7	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	17.4	17.8	20.0	8.5	8.9	1.7	0.7	8.9	11.5	23.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	60.2	60.0	237.1	19.1	19.1	50.7	30.8	50.2	208.9	114.1	39.1
LnGrp LOS	D	E	E	F	B	B	D	C	D	F	F	D
Approach Vol, veh/h		1634			1327			1033			2345	
Approach Delay, s/veh		56.6			74.6			49.6			123.3	
Approach LOS		E			E			D			F	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	37.6		64.4	13.3	38.3	19.0	45.4				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	12.5	29.1		22.7	5.8	35.2	17.9	38.8				
Green Ext Time (p_c), s	0.0	0.9		4.7	0.1	0.0	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay 83.9

HCM 6th LOS F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑↑	
Traffic Volume (veh/h)	590	0	0	451	1125	160
Future Volume (veh/h)	590	0	0	451	1125	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	590	0	0	451	1274	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	906	0	0	1721	1385	616
Arrive On Green	0.48	0.00	0.00	0.48	0.38	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	590	0	0	451	1274	0
Grp Sat Flow(s),veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	11.1	0.0	0.0	3.5	15.8	0.0
Cycle Q Clear(g_c), s	11.1	0.0	0.0	3.5	15.8	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	906	0	0	1721	1385	616
V/C Ratio(X)	0.65	0.00	0.00	0.26	0.92	0.00
Avail Cap(c_a), veh/h	906	0	0	1721	2388	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	7.4	13.8	0.0
Incr Delay (d2), s/veh	3.6	0.0	0.0	0.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0	1.1	5.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.0	0.0	0.0	7.7	15.8	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	590			451	1274	
Approach Delay, s/veh	13.0			7.7	15.8	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.0	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+l1), s	13.1		5.5		17.8	
Green Ext Time (p_c), s	0.6		0.6		0.2	

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection			
Intersection Delay, s/veh	6.9		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	389	357	531
Demand Flow Rate, veh/h	389	357	531
Vehicles Circulating, veh/h	303	139	103
Vehicles Exiting, veh/h	193	495	589
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.7	5.8	7.2
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	389	357	531
Cap Entry Lane, veh/h	1013	1197	1242
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	389	357	531
Cap Entry, veh/h	1013	1197	1242
V/C Ratio	0.384	0.298	0.427
Control Delay, s/veh	7.7	5.8	7.2
LOS	A	A	A
95th %tile Queue, veh	2	1	2

HCM 6th AWSC
4: Blomquist St & Maple St

11/03/2021

Intersection												
Intersection Delay, s/veh	124.7											
Intersection LOS	F											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	85	28	580	27	25	0	275	251	18	0	388	115
Future Vol, veh/h	85	28	580	27	25	0	275	251	18	0	388	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	85	28	580	27	25	0	275	251	18	0	388	115
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	2			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			2		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			2			1		
HCM Control Delay	183.9			14.8			106.8			73.9		
HCM LOS	F			B			F			F		
Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1							
Vol Left, %	51%	12%	100%	0%	0%							
Vol Thru, %	46%	4%	0%	100%	77%							
Vol Right, %	3%	84%	0%	0%	23%							
Sign Control	Stop	Stop	Stop	Stop	Stop							
Traffic Vol by Lane	544	693	27	25	503							
LT Vol	275	85	27	0	0							
Through Vol	251	28	0	25	388							
RT Vol	18	580	0	0	115							
Lane Flow Rate	544	693	27	25	503							
Geometry Grp	2	5	7	7	2							
Degree of Util (X)	1.114	1.33	0.076	0.067	1.005							
Departure Headway (Hd)	8.392	7.296	11.454	10.927	8.347							
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes							
Cap	435	506	315	330	438							
Service Time	6.392	5.296	9.154	8.627	6.347							
HCM Lane V/C Ratio	1.251	1.37	0.086	0.076	1.148							
HCM Control Delay	106.8	183.9	15.1	14.4	73.9							
HCM Lane LOS	F	F	C	B	F							
HCM 95th-tile Q	16.8	28.9	0.2	0.2	12.9							

HCM 6th Roundabout
4: Blomquist St & Maple St

11/03/2021

Intersection				
Intersection Delay, s/veh	12.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	693	52	544	503
Demand Flow Rate, veh/h	693	52	544	503
Vehicles Circulating, veh/h	415	611	113	327
Vehicles Exiting, veh/h	415	46	995	336
Ped Vol Crossing Leg, #/h	4	4	4	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	19.6	5.6	7.4	9.9
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	693	52	544	503
Cap Entry Lane, veh/h	904	740	1230	989
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	693	52	544	503
Cap Entry, veh/h	903	740	1229	989
V/C Ratio	0.767	0.070	0.443	0.509
Control Delay, s/veh	19.6	5.6	7.4	9.9
LOS	C	A	A	A
95th %tile Queue, veh	8	0	2	3

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	1283	366	7	301	175	306	256	145	277	349	203
Future Volume (veh/h)	356	1283	366	7	301	175	306	256	145	277	349	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	356	1283	366	7	301	175	281	291	145	277	349	203
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	158	1581	670	123	919	518	309	290	229	308	288	244
Arrive On Green	0.09	0.44	0.44	0.07	0.42	0.42	0.17	0.15	0.15	0.17	0.15	0.15
Sat Flow, veh/h	1810	3610	1530	1810	2196	1238	1810	1900	1504	1810	1900	1610
Grp Volume(v), veh/h	356	1283	366	7	246	230	281	291	145	277	349	203
Grp Sat Flow(s),veh/h/ln	1810	1805	1530	1810	1805	1629	1810	1900	1504	1810	1900	1610
Q Serve(g_s), s	10.3	36.6	11.4	0.4	10.8	11.3	18.0	18.0	8.5	17.7	17.9	14.5
Cycle Q Clear(g_c), s	10.3	36.6	11.4	0.4	10.8	11.3	18.0	18.0	8.5	17.7	17.9	14.5
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	1581	670	123	755	681	309	290	229	308	288	244
V/C Ratio(X)	2.26	0.81	0.55	0.06	0.33	0.34	0.91	1.00	0.63	0.90	1.21	0.83
Avail Cap(c_a), veh/h	158	1581	670	123	755	681	339	290	229	337	288	244
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	28.9	7.3	51.5	23.1	23.3	48.0	50.0	29.7	48.0	50.1	48.6
Incr Delay (d2), s/veh	584.8	4.7	3.2	0.2	1.1	1.3	26.0	54.1	5.5	24.5	123.0	21.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.3	16.5	4.0	0.2	4.8	4.6	10.3	12.9	3.4	10.1	18.3	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	638.7	33.6	10.5	51.7	24.3	24.6	74.0	104.1	35.2	72.6	173.1	69.6
LnGrp LOS	F	C	B	D	C	C	E	F	D	E	F	E
Approach Vol, veh/h	2005		483				717		829			
Approach Delay, s/veh	136.8		24.8				78.4		114.2			
Approach LOS	F		C				E		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	25.1	23.1	15.4	54.5	25.3	22.9				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	38.6	19.7	20.0	12.3	13.3	20.0	19.9				
Green Ext Time (p_c), s	0.0	8.5	0.2	0.0	0.0	3.3	0.2	0.0				

Intersection Summary

HCM 6th Ctrl Delay	108.4
HCM 6th LOS	F

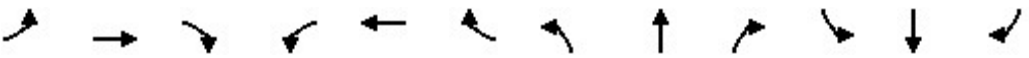
Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	1559	0	156	1688	849	0	0	0	81	324	153
Future Volume (veh/h)	174	1559	0	156	1688	849	0	0	0	81	324	153
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	174	1559	0	156	1688	849				81	324	153
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1455		134	1205	526				217	228	193
Arrive On Green	0.05	0.55	0.00	0.14	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	174	1559	0	156	1688	849				81	324	153
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	87.5	0.0	22.5	101.5	101.5				11.5	36.5	27.3
Cycle Q Clear(g_c), s	8.5	87.5	0.0	22.5	101.5	101.5				11.5	36.5	27.3
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1455		134	1205	526				217	228	193
V/C Ratio(X)	2.46	1.07		1.16	1.40	1.61				0.37	1.42	0.79
Avail Cap(c_a), veh/h	71	1455		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	36.2	0.0	68.8	29.3	29.2				56.3	61.7	61.8
Incr Delay (d2), s/veh	695.8	45.4	0.0	128.8	185.3	284.9				1.1	212.8	19.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				54.7	157.8	279.5
%ile BackOfQ(50%),veh/ln	16.6	36.9	0.0	10.3	53.0	60.9				8.8	32.8	31.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	771.5	81.7	0.0	197.6	214.5	314.1				112.1	432.4	361.1
LnGrp LOS	F	F		F	F	F				F	F	F
Approach Vol, veh/h	1733		A	2693						558		
Approach Delay, s/veh	150.9			245.0						366.3		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	27.0	92.0		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+l1), s	24.5	89.5		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	225.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	882	158	215	1251	16	379	28	1380	250	1149	340
Future Volume (veh/h)	13	882	158	215	1251	16	379	28	1380	250	1149	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	13	882	158	215	1251	16	379	28	1380	250	1149	340
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	1048	185	245	1507	19	460	749	1416	295	1802	555
Arrive On Green	0.25	0.25	0.25	0.14	0.41	0.41	0.13	0.39	0.39	0.08	0.35	0.35
Sat Flow, veh/h	25	4143	733	1810	3649	47	3510	1900	3591	3510	5187	1598
Grp Volume(v), veh/h	377	337	339	215	619	648	379	28	1380	250	1149	340
Grp Sat Flow(s),veh/h/ln	1752	1573	1575	1810	1805	1890	1755	1900	1197	1755	1729	1598
Q Serve(g_s), s	7.1	25.4	25.6	14.6	38.3	38.3	13.1	1.1	47.3	8.8	23.2	22.1
Cycle Q Clear(g_c), s	25.4	25.4	25.6	14.6	38.3	38.3	13.1	1.1	47.3	8.8	23.2	22.1
Prop In Lane	0.03		0.47	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	398	398	245	745	781	460	749	1416	295	1802	555
V/C Ratio(X)	0.80	0.85	0.85	0.88	0.83	0.83	0.82	0.04	0.97	0.85	0.64	0.61
Avail Cap(c_a), veh/h	601	516	517	245	881	923	520	749	1416	295	1802	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	44.4	44.5	53.0	32.8	32.8	52.9	23.3	37.2	56.5	34.2	33.8
Incr Delay (d2), s/veh	4.5	8.0	8.5	27.5	5.0	4.8	8.4	0.1	18.6	19.1	1.7	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	10.8	10.9	8.5	17.5	18.3	6.3	0.5	16.0	4.7	10.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	52.4	53.0	80.6	37.8	37.6	61.3	23.4	55.8	75.6	35.9	38.8
LnGrp LOS	D	D	D	F	D	D	E	C	E	E	D	D
Approach Vol, veh/h		1053			1482			1787			1739	
Approach Delay, s/veh		51.1			43.9			56.5			42.2	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	54.4		56.6	19.9	48.5	20.0	36.6				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+I1), s	10.8	49.3		40.3	15.1	25.2	16.6	27.6				
Green Ext Time (p_c), s	0.0	0.0		6.0	0.2	3.6	0.0	4.0				

Intersection Summary

HCM 6th Ctrl Delay 48.4

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↖↗	
Traffic Volume (veh/h)	536	0	0	487	1166	152
Future Volume (veh/h)	536	0	0	487	1166	152
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	536	0	0	487	1308	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	893	0	0	1697	1417	630
Arrive On Green	0.47	0.00	0.00	0.47	0.39	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	536	0	0	487	1308	0
Grp Sat Flow(s),veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	9.9	0.0	0.0	3.9	16.4	0.0
Cycle Q Clear(g_c), s	9.9	0.0	0.0	3.9	16.4	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	893	0	0	1697	1417	630
V/C Ratio(X)	0.60	0.00	0.00	0.29	0.92	0.00
Avail Cap(c_a), veh/h	893	0	0	1697	2354	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.3	0.0	0.0	7.7	13.8	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	0.4	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.0	1.3	5.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.3	0.0	0.0	8.2	16.4	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	536			487	1308	
Approach Delay, s/veh	12.3			8.2	16.4	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.7	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	11.9		5.9		18.4	
Green Ext Time (p_c), s	0.5		0.7		0.2	
Intersection Summary						
HCM 6th Ctrl Delay			13.7			
HCM 6th LOS			B			
Notes						

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection			
Intersection Delay, s/veh	11.8		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	395	727	571
Demand Flow Rate, veh/h	395	727	571
Vehicles Circulating, veh/h	626	268	102
Vehicles Exiting, veh/h	369	405	919
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	13.3	14.2	7.6
Approach LOS	B	B	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	395	727	571
Cap Entry Lane, veh/h	729	1050	1244
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	395	727	571
Cap Entry, veh/h	729	1050	1244
V/C Ratio	0.542	0.692	0.459
Control Delay, s/veh	13.3	14.2	7.6
LOS	B	B	A
95th %tile Queue, veh	3	6	2

HCM 6th AWSC
4: Blomquist St & Maple St

11/03/2021

Intersection

Intersection Delay, s/veh 298.9
Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	125	25	365	20	29	0	457	612	22	0	231	153
Future Vol, veh/h	125	25	365	20	29	0	457	612	22	0	231	153
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	125	25	365	20	29	0	457	612	22	0	231	153
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	61.6	15.5	517.6	32.1
HCM LOS	F	C	F	D

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	42%	24%	100%	0%	0%
Vol Thru, %	56%	5%	0%	100%	60%
Vol Right, %	2%	71%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1091	515	20	29	384
LT Vol	457	125	20	0	0
Through Vol	612	25	0	29	231
RT Vol	22	365	0	0	153
Lane Flow Rate	1091	515	20	29	384
Geometry Grp	2	5	7	7	2
Degree of Util (X)	2.099	0.949	0.053	0.072	0.735
Departure Headway (Hd)	6.927	8.553	12.27	11.739	8.648
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	524	427	294	307	422
Service Time	5.022	6.553	9.97	9.439	6.648
HCM Lane V/C Ratio	2.082	1.206	0.068	0.094	0.91
HCM Control Delay	517.6	61.6	15.7	15.3	32.1
HCM Lane LOS	F	F	C	C	D
HCM 95th-tile Q	75.8	11	0.2	0.2	5.8

HCM 6th Roundabout
4: Blomquist St & Maple St

11/03/2021

Intersection				
Intersection Delay, s/veh	20.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	515	49	1091	384
Demand Flow Rate, veh/h	515	49	1091	384
Vehicles Circulating, veh/h	251	1194	150	506
Vehicles Exiting, veh/h	639	47	616	737
Ped Vol Crossing Leg, #/h	4	4	4	0
Ped Cap Adj	0.999	1.000	0.999	1.000
Approach Delay, s/veh	8.9	10.6	29.7	10.5
Approach LOS	A	B	D	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	515	49	1091	384
Cap Entry Lane, veh/h	1068	408	1184	824
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	515	49	1091	384
Cap Entry, veh/h	1068	408	1183	824
V/C Ratio	0.482	0.120	0.922	0.466
Control Delay, s/veh	8.9	10.6	29.7	10.5
LOS	A	B	D	B
95th %tile Queue, veh	3	0	15	3

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	231	468	180	1124	92	254	373	16	157	312	324
Future Volume (veh/h)	181	231	468	180	1124	92	254	373	16	157	312	324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	181	231	468	180	1124	92	254	373	16	157	312	324
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	143	1390	587	212	1425	116	282	413	332	188	314	266
Arrive On Green	0.08	0.38	0.38	0.12	0.42	0.42	0.16	0.22	0.22	0.10	0.17	0.17
Sat Flow, veh/h	1810	3610	1524	1810	3369	275	1810	1900	1529	1810	1900	1610
Grp Volume(v), veh/h	181	231	468	180	602	614	254	373	16	157	312	324
Grp Sat Flow(s),veh/h/ln	1810	1805	1524	1810	1805	1840	1810	1900	1529	1810	1900	1610
Q Serve(g_s), s	9.1	4.8	21.6	11.2	33.2	33.3	15.8	22.0	0.7	9.8	18.8	19.0
Cycle Q Clear(g_c), s	9.1	4.8	21.6	11.2	33.2	33.3	15.8	22.0	0.7	9.8	18.8	19.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1390	587	212	763	778	282	413	332	188	314	266
V/C Ratio(X)	1.26	0.17	0.80	0.85	0.79	0.79	0.90	0.90	0.05	0.83	0.99	1.22
Avail Cap(c_a), veh/h	143	1390	587	310	763	778	299	479	386	188	314	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	23.2	14.9	49.7	28.7	28.7	47.6	43.8	21.9	50.5	47.9	48.0
Incr Delay (d2), s/veh	162.5	0.3	10.8	13.7	8.1	8.0	27.2	18.6	0.1	26.4	48.9	126.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	2.1	8.9	5.9	15.7	16.1	9.2	12.4	0.4	5.8	13.1	17.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	215.4	23.5	25.7	63.4	36.8	36.8	74.8	62.4	22.0	76.9	96.8	174.9
LnGrp LOS	F	C	C	E	D	D	E	E	C	E	F	F
Approach Vol, veh/h	880				1396		643				793	
Approach Delay, s/veh	64.1				40.2		66.3				124.7	
Approach LOS	E				D		E				F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.6	49.3	17.0	30.1	14.2	53.7	23.0	24.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	13.2	23.6	11.8	24.0	11.1	35.3	17.8	21.0				
Green Ext Time (p_c), s	0.2	3.0	0.0	1.0	0.0	6.8	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay 68.5

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	400	1086	0	526	1449	573	0	0	0	38	436	159
Future Volume (veh/h)	400	1086	0	526	1449	573	0	0	0	38	436	159
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	400	1086	0	526	1449	573				38	436	159
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		491	1426	623				344	313	305
Arrive On Green	0.10	0.28	0.00	0.40	0.58	0.58				0.24	0.24	0.24
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	400	1086	0	526	1449	573				38	436	159
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	44.5	0.0	63.5	92.4	76.7				3.3	38.5	17.4
Cycle Q Clear(g_c), s	15.6	44.5	0.0	63.5	92.4	76.7				3.3	38.5	17.4
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		491	1426	623				344	313	305
V/C Ratio(X)	2.27	1.08		1.07	1.02	0.92				0.11	1.39	0.52
Avail Cap(c_a), veh/h	176	1004		491	1426	623				344	313	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	48.3	33.8	33.8				47.4	60.8	52.7
Incr Delay (d2), s/veh	587.9	53.2	0.0	60.8	27.8	19.1				0.1	195.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	146.5	126.2	253.3				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	36.1	27.7	0.0	47.8	57.3	70.5				1.2	42.7	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	660.1	110.9	0.0	255.5	187.8	306.2				47.5	406.0	54.3
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1486		A	2548						633		
Approach Delay, s/veh	258.7			228.4						296.2		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	68.0	49.0		43.0	20.1	96.9						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+l1), s	65.5	46.5		40.5	17.6	94.4						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	247.3
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1443	168	340	980	16	121	33	879	414	1697	235
Future Volume (veh/h)	24	1443	168	340	980	16	121	33	879	414	1697	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	1443	168	340	980	16	121	33	879	414	1697	235
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	1545	179	248	1860	30	297	533	1006	318	1485	448
Arrive On Green	0.35	0.35	0.35	0.14	0.51	0.51	0.08	0.28	0.28	0.09	0.29	0.29
Sat Flow, veh/h	40	4438	513	1810	3633	59	3510	1900	3588	3510	5187	1565
Grp Volume(v), veh/h	593	515	527	340	487	509	121	33	879	414	1697	235
Grp Sat Flow(s),veh/h/ln	1807	1573	1610	1810	1805	1888	1755	1900	1196	1755	1729	1565
Q Serve(g_s), s	19.3	36.8	36.8	15.9	20.9	20.9	3.8	1.5	27.1	10.5	33.2	14.6
Cycle Q Clear(g_c), s	36.7	36.8	36.8	15.9	20.9	20.9	3.8	1.5	27.1	10.5	33.2	14.6
Prop In Lane	0.04		0.32	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	661	548	561	248	924	966	297	533	1006	318	1485	448
V/C Ratio(X)	0.90	0.94	0.94	1.37	0.53	0.53	0.41	0.06	0.87	1.30	1.14	0.52
Avail Cap(c_a), veh/h	671	556	569	248	934	976	318	533	1006	318	1485	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	36.6	36.7	50.0	18.9	18.9	50.3	30.6	39.8	52.8	41.4	34.8
Incr Delay (d2), s/veh	14.2	23.7	23.5	190.4	0.3	0.2	0.3	0.2	10.5	157.4	72.9	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	17.5	17.9	20.3	8.6	9.0	1.7	0.7	8.9	11.6	24.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	60.3	60.1	240.4	19.2	19.2	50.7	30.8	50.2	210.1	114.3	39.1
LnGrp LOS	D	E	E	F	B	B	D	C	D	F	F	D
Approach Vol, veh/h		1635			1336			1033			2346	
Approach Delay, s/veh		56.7			75.5			49.7			123.7	
Approach LOS		E			E			D			F	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	37.6		64.4	13.3	38.3	19.0	45.4				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	12.5	29.1		22.9	5.8	35.2	17.9	38.8				
Green Ext Time (p_c), s	0.0	0.9		4.7	0.1	0.0	0.0	1.6				

Intersection Summary

HCM 6th Ctrl Delay 84.2

HCM 6th LOS F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑↑	
Traffic Volume (veh/h)	593	0	0	465	1125	161
Future Volume (veh/h)	593	0	0	465	1125	161
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	593	0	0	465	1275	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	905	0	0	1720	1386	617
Arrive On Green	0.48	0.00	0.00	0.48	0.38	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	593	0	0	465	1275	0
Grp Sat Flow(s),veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	11.2	0.0	0.0	3.6	15.8	0.0
Cycle Q Clear(g_c), s	11.2	0.0	0.0	3.6	15.8	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	905	0	0	1720	1386	617
V/C Ratio(X)	0.65	0.00	0.00	0.27	0.92	0.00
Avail Cap(c_a), veh/h	905	0	0	1720	2387	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.4	0.0	0.0	7.4	13.8	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0	0.4	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0	1.2	5.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.0	0.0	0.0	7.8	15.8	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	593			465	1275	
Approach Delay, s/veh	13.0			7.8	15.8	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.0	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+l1), s	13.2		5.6		17.8	
Green Ext Time (p_c), s	0.6		0.6		0.2	

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection			
Intersection Delay, s/veh	7.0		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	389	359	541
Demand Flow Rate, veh/h	389	359	541
Vehicles Circulating, veh/h	305	139	103
Vehicles Exiting, veh/h	193	505	591
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.7	5.8	7.3
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	389	359	541
Cap Entry Lane, veh/h	1011	1197	1242
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	389	359	541
Cap Entry, veh/h	1011	1197	1242
V/C Ratio	0.385	0.300	0.436
Control Delay, s/veh	7.7	5.8	7.3
LOS	A	A	A
95th %tile Queue, veh	2	1	2

HCM 6th AWSC
4: Blomquist St & Maple St

11/03/2021

Intersection

Intersection Delay, s/veh 128.1
Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	86	28	580	27	25	0	275	252	18	0	391	122
Future Vol, veh/h	86	28	580	27	25	0	275	252	18	0	391	122
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	86	28	580	27	25	0	275	252	18	0	391	122
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	187.4	14.9	109.1	79.4
HCM LOS	F	B	F	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	50%	12%	100%	0%	0%
Vol Thru, %	46%	4%	0%	100%	76%
Vol Right, %	3%	84%	0%	0%	24%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	545	694	27	25	513
LT Vol	275	86	27	0	0
Through Vol	252	28	0	25	391
RT Vol	18	580	0	0	122
Lane Flow Rate	545	694	27	25	513
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.12	1.338	0.076	0.067	1.025
Departure Headway (Hd)	8.445	7.334	11.535	11.008	8.371
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	436	500	312	328	436
Service Time	6.445	5.334	9.235	8.708	6.371
HCM Lane V/C Ratio	1.25	1.388	0.087	0.076	1.177
HCM Control Delay	109.1	187.4	15.2	14.5	79.4
HCM Lane LOS	F	F	C	B	F
HCM 95th-tile Q	17	29.2	0.2	0.2	13.5

HCM 6th Roundabout
4: Blomquist St & Maple St

11/03/2021

Intersection				
Intersection Delay, s/veh	12.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	694	52	545	513
Demand Flow Rate, veh/h	694	52	545	513
Vehicles Circulating, veh/h	418	613	114	327
Vehicles Exiting, veh/h	422	46	998	338
Ped Vol Crossing Leg, #/h	4	4	4	0
Ped Cap Adj	0.999	0.999	0.999	1.000
Approach Delay, s/veh	19.9	5.6	7.5	10.1
Approach LOS	C	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	694	52	545	513
Cap Entry Lane, veh/h	901	738	1228	989
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	694	52	545	513
Cap Entry, veh/h	900	738	1228	989
V/C Ratio	0.771	0.070	0.444	0.519
Control Delay, s/veh	19.9	5.6	7.5	10.1
LOS	C	A	A	B
95th %tile Queue, veh	8	0	2	3

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	1283	366	7	301	175	306	256	145	279	349	205
Future Volume (veh/h)	356	1283	366	7	301	175	306	256	145	279	349	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	356	1283	366	7	301	175	281	291	145	279	349	205
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	158	1581	670	123	919	518	309	290	229	308	288	244
Arrive On Green	0.09	0.44	0.44	0.07	0.42	0.42	0.17	0.15	0.15	0.17	0.15	0.15
Sat Flow, veh/h	1810	3610	1530	1810	2196	1238	1810	1900	1504	1810	1900	1610
Grp Volume(v), veh/h	356	1283	366	7	246	230	281	291	145	279	349	205
Grp Sat Flow(s),veh/h/ln	1810	1805	1530	1810	1805	1629	1810	1900	1504	1810	1900	1610
Q Serve(g_s), s	10.3	36.6	11.4	0.4	10.8	11.3	18.0	18.0	8.5	17.9	17.9	14.6
Cycle Q Clear(g_c), s	10.3	36.6	11.4	0.4	10.8	11.3	18.0	18.0	8.5	17.9	17.9	14.6
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	1581	670	123	755	681	309	290	229	308	288	244
V/C Ratio(X)	2.26	0.81	0.55	0.06	0.33	0.34	0.91	1.00	0.63	0.91	1.21	0.84
Avail Cap(c_a), veh/h	158	1581	670	123	755	681	339	290	229	337	288	244
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	28.9	7.3	51.5	23.1	23.3	48.0	50.0	29.7	48.1	50.1	48.7
Incr Delay (d2), s/veh	584.8	4.7	3.2	0.2	1.1	1.3	26.0	54.1	5.5	25.7	123.0	22.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.3	16.5	4.0	0.2	4.8	4.6	10.3	12.9	3.4	10.2	18.3	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	638.7	33.6	10.5	51.7	24.3	24.6	74.0	104.1	35.2	73.8	173.1	70.9
LnGrp LOS	F	C	B	D	C	C	E	F	D	E	F	E
Approach Vol, veh/h	2005				483		717		833			
Approach Delay, s/veh	136.8				24.8		78.4		114.7			
Approach LOS	F				C		E		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	25.1	23.1	15.4	54.5	25.3	22.9				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+l1), s	2.4	38.6	19.9	20.0	12.3	13.3	20.0	19.9				
Green Ext Time (p_c), s	0.0	8.5	0.2	0.0	0.0	3.3	0.2	0.0				

Intersection Summary

HCM 6th Ctrl Delay	108.5
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	175	1559	0	158	1688	849	0	0	0	81	324	157
Future Volume (veh/h)	175	1559	0	158	1688	849	0	0	0	81	324	157
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	175	1559	0	158	1688	849				81	324	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1455		134	1205	526				217	228	193
Arrive On Green	0.05	0.55	0.00	0.14	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	175	1559	0	158	1688	849				81	324	157
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	87.5	0.0	22.5	101.5	101.5				11.5	36.5	28.1
Cycle Q Clear(g_c), s	8.5	87.5	0.0	22.5	101.5	101.5				11.5	36.5	28.1
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1455		134	1205	526				217	228	193
V/C Ratio(X)	2.47	1.07		1.18	1.40	1.61				0.37	1.42	0.81
Avail Cap(c_a), veh/h	71	1455		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	36.2	0.0	68.8	29.3	29.2				56.3	61.7	61.8
Incr Delay (d2), s/veh	702.0	45.4	0.0	134.1	185.3	284.9				1.1	212.8	22.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				54.7	157.8	288.8
%ile BackOfQ(50%),veh/ln	16.7	36.9	0.0	10.5	53.0	60.9				8.8	32.8	31.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	777.8	81.7	0.0	202.8	214.5	314.1				112.1	432.4	373.2
LnGrp LOS	F	F		F	F	F				F	F	F
Approach Vol, veh/h	1734		A	2695						562		
Approach Delay, s/veh	151.9			245.2						369.7		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	27.0	92.0		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	22.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+I1), s	24.5	89.5		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	226.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	890	158	216	1255	16	379	28	1382	257	1149	340
Future Volume (veh/h)	13	890	158	216	1255	16	379	28	1382	257	1149	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	13	890	158	216	1255	16	379	28	1382	257	1149	340
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	1056	185	245	1512	19	460	746	1411	295	1794	553
Arrive On Green	0.25	0.25	0.25	0.14	0.41	0.41	0.13	0.39	0.39	0.08	0.35	0.35
Sat Flow, veh/h	25	4151	728	1810	3649	47	3510	1900	3591	3510	5187	1598
Grp Volume(v), veh/h	380	339	342	216	621	650	379	28	1382	257	1149	340
Grp Sat Flow(s),veh/h/ln	1754	1573	1576	1810	1805	1890	1755	1900	1197	1755	1729	1598
Q Serve(g_s), s	7.2	25.6	25.8	14.7	38.4	38.4	13.1	1.1	47.5	9.0	23.3	22.1
Cycle Q Clear(g_c), s	25.6	25.6	25.8	14.7	38.4	38.4	13.1	1.1	47.5	9.0	23.3	22.1
Prop In Lane	0.03		0.46	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	476	400	401	245	748	783	460	746	1411	295	1794	553
V/C Ratio(X)	0.80	0.85	0.85	0.88	0.83	0.83	0.82	0.04	0.98	0.87	0.64	0.62
Avail Cap(c_a), veh/h	602	516	517	245	881	923	520	746	1411	295	1794	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	44.3	44.4	53.1	32.7	32.7	52.9	23.4	37.5	56.6	34.3	34.0
Incr Delay (d2), s/veh	4.6	8.2	8.7	28.3	5.0	4.8	8.4	0.1	19.6	22.7	1.8	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.7	10.9	11.0	8.6	17.6	18.4	6.3	0.5	16.2	4.9	10.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	52.5	53.0	81.4	37.7	37.5	61.3	23.5	57.0	79.3	36.1	39.0
LnGrp LOS	D	D	D	F	D	D	E	C	E	E	D	D
Approach Vol, veh/h		1061			1487			1789			1746	
Approach Delay, s/veh		51.2			44.0			57.4			43.0	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.0	54.2		56.8	19.9	48.3	20.0	36.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+l1), s	11.0	49.5		40.4	15.1	25.3	16.7	27.8				
Green Ext Time (p_c), s	0.0	0.0		6.0	0.2	3.6	0.0	4.0				

Intersection Summary

HCM 6th Ctrl Delay 48.9

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑↑	
Traffic Volume (veh/h)	552	0	0	495	1166	159
Future Volume (veh/h)	552	0	0	495	1166	159
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	552	0	0	495	1314	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	891	0	0	1693	1422	633
Arrive On Green	0.47	0.00	0.00	0.47	0.39	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	552	0	0	495	1314	0
Grp Sat Flow(s),veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	10.4	0.0	0.0	4.0	16.5	0.0
Cycle Q Clear(g_c), s	10.4	0.0	0.0	4.0	16.5	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	891	0	0	1693	1422	633
V/C Ratio(X)	0.62	0.00	0.00	0.29	0.92	0.00
Avail Cap(c_a), veh/h	891	0	0	1693	2348	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	7.8	13.8	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.0	0.4	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0	1.3	5.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.7	0.0	0.0	8.2	16.5	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	552			495	1314	
Approach Delay, s/veh	12.7			8.2	16.5	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.8	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	12.4		6.0		18.5	
Green Ext Time (p_c), s	0.5		0.7		0.2	

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection			
Intersection Delay, s/veh	12.1		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	395	738	576
Demand Flow Rate, veh/h	395	738	576
Vehicles Circulating, veh/h	637	268	102
Vehicles Exiting, veh/h	369	410	930
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	13.6	14.6	7.7
Approach LOS	B	B	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	395	738	576
Cap Entry Lane, veh/h	721	1050	1244
Entry HV Adj Factor	1.000	1.000	1.000
Flow Entry, veh/h	395	738	576
Cap Entry, veh/h	721	1050	1244
V/C Ratio	0.548	0.703	0.463
Control Delay, s/veh	13.6	14.6	7.7
LOS	B	B	A
95th %tile Queue, veh	3	6	3

HCM 6th AWSC
4: Blomquist St & Maple St

11/03/2021

Intersection

Intersection Delay, s/veh 304.8
Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	132	25	365	20	29	0	457	615	22	0	233	157
Future Vol, veh/h	132	25	365	20	29	0	457	615	22	0	233	157
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	132	25	365	20	29	0	457	615	22	0	233	157
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	65.6	15.6	528.5	33.7
HCM LOS	F	C	F	D

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	42%	25%	100%	0%	0%
Vol Thru, %	56%	5%	0%	100%	60%
Vol Right, %	2%	70%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	1094	522	20	29	390
LT Vol	457	132	20	0	0
Through Vol	615	25	0	29	233
RT Vol	22	365	0	0	157
Lane Flow Rate	1094	522	20	29	390
Geometry Grp	2	5	7	7	2
Degree of Util (X)	2.123	0.966	0.053	0.073	0.75
Departure Headway (Hd)	6.985	8.614	12.397	11.866	8.735
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	525	428	291	304	417
Service Time	5.085	6.614	10.097	9.566	6.735
HCM Lane V/C Ratio	2.084	1.22	0.069	0.095	0.935
HCM Control Delay	528.5	65.6	15.8	15.5	33.7
HCM Lane LOS	F	F	C	C	D
HCM 95th-tile Q	76.6	11.4	0.2	0.2	6.1

HCM 6th Roundabout
4: Blomquist St & Maple St

11/03/2021

Intersection				
Intersection Delay, s/veh	21.2			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	522	49	1094	390
Demand Flow Rate, veh/h	522	49	1094	390
Vehicles Circulating, veh/h	253	1204	157	506
Vehicles Exiting, veh/h	643	47	618	747
Ped Vol Crossing Leg, #/h	4	4	4	0
Ped Cap Adj	0.999	1.000	0.999	1.000
Approach Delay, s/veh	9.0	10.7	31.2	10.6
Approach LOS	A	B	D	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	522	49	1094	390
Cap Entry Lane, veh/h	1066	404	1176	824
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	522	49	1094	390
Cap Entry, veh/h	1065	404	1175	824
V/C Ratio	0.490	0.121	0.931	0.474
Control Delay, s/veh	9.0	10.7	31.2	10.6
LOS	A	B	D	B
95th %tile Queue, veh	3	0	16	3

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	231	468	180	1124	94	254	373	16	158	312	325
Future Volume (veh/h)	183	231	468	180	1124	94	254	373	16	158	312	325
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	183	231	468	180	1124	94	254	373	16	158	312	325
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	143	1390	587	212	1422	119	282	413	332	188	314	266
Arrive On Green	0.08	0.38	0.38	0.12	0.42	0.42	0.16	0.22	0.22	0.10	0.17	0.17
Sat Flow, veh/h	1810	3610	1524	1810	3363	281	1810	1900	1529	1810	1900	1610
Grp Volume(v), veh/h	183	231	468	180	603	615	254	373	16	158	312	325
Grp Sat Flow(s),veh/h/ln	1810	1805	1524	1810	1805	1838	1810	1900	1529	1810	1900	1610
Q Serve(g_s), s	9.1	4.8	21.6	11.2	33.3	33.4	15.8	22.0	0.7	9.9	18.8	19.0
Cycle Q Clear(g_c), s	9.1	4.8	21.6	11.2	33.3	33.4	15.8	22.0	0.7	9.9	18.8	19.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1390	587	212	763	777	282	413	332	188	314	266
V/C Ratio(X)	1.28	0.17	0.80	0.85	0.79	0.79	0.90	0.90	0.05	0.84	0.99	1.22
Avail Cap(c_a), veh/h	143	1390	587	310	763	777	299	479	386	188	314	266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	23.2	14.9	49.7	28.7	28.8	47.6	43.8	21.9	50.5	47.9	48.0
Incr Delay (d2), s/veh	167.8	0.3	10.8	13.7	8.2	8.1	27.2	18.6	0.1	27.2	48.9	128.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	2.1	8.9	5.9	15.8	16.1	9.2	12.4	0.4	5.9	13.1	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	220.7	23.5	25.7	63.4	36.9	36.9	74.8	62.4	22.0	77.8	96.8	176.3
LnGrp LOS	F	C	C	E	D	D	E	E	C	E	F	F
Approach Vol, veh/h	882		1398				643		795			
Approach Delay, s/veh	65.6		40.3				66.3		125.5			
Approach LOS	E		D				E		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.6	49.3	17.0	30.1	14.2	53.7	23.0	24.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+l1), s	13.2	23.6	11.9	24.0	11.1	35.4	17.8	21.0				
Green Ext Time (p_c), s	0.2	3.0	0.0	1.0	0.0	6.8	0.1	0.0				

Intersection Summary

HCM 6th Ctrl Delay 69.0

HCM 6th LOS E

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (veh/h)	405	1086	0	527	1449	573	0	0	0	38	436	161
Future Volume (veh/h)	405	1086	0	527	1449	573	0	0	0	38	436	161
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	405	1086	0	527	1449	573				38	436	161
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		491	1426	623				344	313	305
Arrive On Green	0.10	0.28	0.00	0.40	0.58	0.58				0.24	0.24	0.24
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	405	1086	0	527	1449	573				38	436	161
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	44.5	0.0	63.5	92.4	76.7				3.3	38.5	17.6
Cycle Q Clear(g_c), s	15.6	44.5	0.0	63.5	92.4	76.7				3.3	38.5	17.6
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		491	1426	623				344	313	305
V/C Ratio(X)	2.30	1.08		1.07	1.02	0.92				0.11	1.39	0.53
Avail Cap(c_a), veh/h	176	1004		491	1426	623				344	313	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	48.3	33.8	33.8				47.4	60.8	52.8
Incr Delay (d2), s/veh	600.5	53.2	0.0	61.4	27.8	19.1				0.1	195.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	146.5	126.2	253.3				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	36.7	27.7	0.0	47.9	57.3	70.5				1.2	42.7	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	672.7	110.9	0.0	256.2	187.8	306.2				47.5	406.0	54.5
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1491		A	2549						635		
Approach Delay, s/veh	263.5			228.6						295.4		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	68.0	49.0		43.0	20.1	96.9						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+l1), s	65.5	46.5		40.5	17.6	94.4						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 248.8

HCM 6th LOS F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1461	190	374	980	16	127	33	926	190	1750	235
Future Volume (veh/h)	24	1461	190	374	980	16	127	33	926	190	1750	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	1461	190	374	980	16	127	33	926	190	1750	235
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	1539	199	248	1873	31	298	535	1009	302	1465	442
Arrive On Green	0.35	0.35	0.35	0.14	0.52	0.52	0.08	0.28	0.28	0.09	0.28	0.28
Sat Flow, veh/h	39	4377	565	1810	3633	59	3510	1900	3588	3510	5187	1564
Grp Volume(v), veh/h	609	528	537	374	487	509	127	33	926	190	1750	235
Grp Sat Flow(s),veh/h/ln	1809	1573	1598	1810	1805	1888	1755	1900	1196	1755	1729	1564
Q Serve(g_s), s	20.4	38.0	38.1	15.9	20.8	20.8	4.0	1.5	29.0	6.1	32.8	14.7
Cycle Q Clear(g_c), s	38.0	38.0	38.1	15.9	20.8	20.8	4.0	1.5	29.0	6.1	32.8	14.7
Prop In Lane	0.04		0.35	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	668	553	562	248	930	973	298	535	1009	302	1465	442
V/C Ratio(X)	0.91	0.95	0.96	1.51	0.52	0.52	0.43	0.06	0.92	0.63	1.19	0.53
Avail Cap(c_a), veh/h	672	556	565	248	934	976	318	535	1009	318	1465	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	36.7	36.7	50.0	18.7	18.7	50.4	30.5	40.4	51.2	41.6	35.1
Incr Delay (d2), s/veh	16.3	26.9	26.9	248.4	0.3	0.2	0.4	0.2	14.3	2.6	94.5	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.5	18.5	18.8	24.3	8.6	8.9	1.8	0.7	9.8	2.8	26.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	63.6	63.7	298.4	18.9	18.9	50.8	30.7	54.7	53.8	136.1	39.7
LnGrp LOS	D	E	E	F	B	B	D	C	D	D	F	D
Approach Vol, veh/h		1675			1370			1086			2175	
Approach Delay, s/veh		59.6			95.2			53.5			118.5	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	37.7		64.8	13.3	37.9	19.0	45.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	8.1	31.0		22.8	6.0	34.8	17.9	40.1				
Green Ext Time (p_c), s	0.1	0.4		4.7	0.1	0.0	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay	86.6
HCM 6th LOS	F

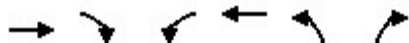
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	
Traffic Volume (veh/h)	432	0	0	543	1125	195
Future Volume (veh/h)	432	0	0	543	1125	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	432	0	0	543	1307	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	894	0	0	1698	1416	630
Arrive On Green	0.47	0.00	0.00	0.47	0.39	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	432	0	0	543	1307	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	7.4	0.0	0.0	4.5	16.4	0.0
Cycle Q Clear(g_c), s	7.4	0.0	0.0	4.5	16.4	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	894	0	0	1698	1416	630
V/C Ratio(X)	0.48	0.00	0.00	0.32	0.92	0.00
Avail Cap(c_a), veh/h	894	0	0	1698	2355	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.6	0.0	0.0	7.9	13.8	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.5	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.4	5.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	0.0	0.0	8.4	16.4	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	432			543	1307	
Approach Delay, s/veh	10.5			8.4	16.4	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.6	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	9.4		6.5		18.4	
Green Ext Time (p_c), s	0.4		0.7		0.2	

Intersection Summary

HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection

Intersection Delay, s/veh 4.6

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	389	0	192
Demand Flow Rate, veh/h	389	0	192
Vehicles Circulating, veh/h	0	192	0
Vehicles Exiting, veh/h	192	0	389
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.0	0.0	3.7
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	389	192
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	389	192
Cap Entry, veh/h	1380	1380
V/C Ratio	0.282	0.139
Control Delay, s/veh	5.0	3.7
LOS	A	A
95th %tile Queue, veh	1	0

HCM 6th TWSC
4: Blomquist St & Maple St

11/03/2021

Intersection						
Int Delay, s/veh	7.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	665	49	46	293	24
Future Vol, veh/h	33	665	49	46	293	24
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	33	665	49	46	293	24
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	702	0	518	374
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	905	-	521	677
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	902	-	489	672
Mov Cap-2 Maneuver	-	-	-	-	489	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	833	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.8		23.9	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	499	-	-	902	-	
HCM Lane V/C Ratio	0.635	-	-	0.054	-	
HCM Control Delay (s)	23.9	-	-	9.2	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	4.4	-	-	0.2	-	

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	1286	366	7	305	176	306	88	145	277	143	217
Future Volume (veh/h)	390	1286	366	7	305	176	306	88	145	277	143	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	390	1286	366	7	305	176	197	241	145	277	143	217
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	160	1599	678	124	932	522	229	276	218	306	357	303
Arrive On Green	0.09	0.44	0.44	0.07	0.42	0.42	0.13	0.15	0.15	0.17	0.19	0.19
Sat Flow, veh/h	1810	3610	1531	1810	2202	1233	1810	1900	1500	1810	1900	1610
Grp Volume(v), veh/h	390	1286	366	7	248	233	197	241	145	277	143	217
Grp Sat Flow(s),veh/h/ln	1810	1805	1531	1810	1805	1630	1810	1900	1500	1810	1900	1610
Q Serve(g_s), s	10.3	36.0	11.0	0.4	10.7	11.2	12.5	14.5	8.5	17.5	7.7	14.8
Cycle Q Clear(g_c), s	10.3	36.0	11.0	0.4	10.7	11.2	12.5	14.5	8.5	17.5	7.7	14.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	1599	678	124	764	690	229	276	218	306	357	303
V/C Ratio(X)	2.44	0.80	0.54	0.06	0.33	0.34	0.86	0.87	0.67	0.91	0.40	0.72
Avail Cap(c_a), veh/h	160	1599	678	124	764	690	343	293	231	341	357	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	28.1	7.0	50.8	22.5	22.6	50.0	48.8	29.8	47.6	41.6	44.5
Incr Delay (d2), s/veh	667.4	4.4	3.1	0.2	1.1	1.3	13.3	23.0	6.5	25.0	0.7	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.3	16.1	3.9	0.2	4.8	4.5	6.5	8.6	3.5	10.0	3.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	720.6	32.5	10.0	51.0	23.6	24.0	63.3	71.8	36.3	72.5	42.3	52.4
LnGrp LOS	F	C	B	D	C	C	E	E	D	E	D	D
Approach Vol, veh/h	2042				488		583				637	
Approach Delay, s/veh	159.9				24.2		60.1				58.9	
Approach LOS	F				C		E				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	24.7	22.1	15.4	54.5	19.9	26.9				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	38.0	19.5	16.5	12.3	13.2	14.5	16.8				
Green Ext Time (p_c), s	0.0	8.8	0.2	0.3	0.0	3.3	0.3	0.2				

Intersection Summary

HCM 6th Ctrl Delay	109.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1570	0	125	1684	851	0	0	0	85	335	111
Future Volume (veh/h)	120	1570	0	125	1684	851	0	0	0	85	335	111
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	120	1570	0	125	1684	851				85	335	111
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1455		134	1205	526				217	228	193
Arrive On Green	0.05	0.55	0.00	0.14	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	120	1570	0	125	1684	851				85	335	111
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	87.5	0.0	20.8	101.5	101.5				12.1	36.5	18.6
Cycle Q Clear(g_c), s	8.5	87.5	0.0	20.8	101.5	101.5				12.1	36.5	18.6
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1455		134	1205	526				217	228	193
V/C Ratio(X)	1.69	1.08		0.93	1.40	1.62				0.39	1.47	0.57
Avail Cap(c_a), veh/h	71	1455		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	36.2	0.0	68.0	29.3	29.2				56.6	61.7	61.6
Incr Delay (d2), s/veh	365.4	48.2	0.0	57.7	183.8	286.6				1.1	233.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				56.4	157.8	181.8
%ile BackOfQ(50%),veh/ln	0.1	37.4	0.0	7.2	52.8	61.1				9.1	34.1	25.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	441.1	84.4	0.0	125.7	213.1	315.8				114.1	452.7	247.4
LnGrp LOS	F	F		F	F	F				F	F	F
Approach Vol, veh/h	1690		A	2660						531		
Approach Delay, s/veh	109.7			241.8						355.6		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	27.0	92.0		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	27.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+Q), s	27.8	89.5		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay 208.5
 HCM 6th LOS F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	935	164	281	1260	19	435	28	1442	191	1167	340
Future Volume (veh/h)	13	935	164	281	1260	19	435	28	1442	191	1167	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	13	935	164	281	1260	19	435	28	1442	191	1167	340
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	1102	191	245	1538	23	510	739	1396	281	1677	516
Arrive On Green	0.26	0.26	0.26	0.14	0.42	0.42	0.15	0.39	0.39	0.08	0.32	0.32
Sat Flow, veh/h	24	4197	729	1810	3639	55	3510	1900	3591	3510	5187	1597
Grp Volume(v), veh/h	405	352	355	281	625	654	435	28	1442	191	1167	340
Grp Sat Flow(s),veh/h/ln	1800	1573	1576	1810	1805	1889	1755	1900	1197	1755	1729	1597
Q Serve(g_s), s	8.1	26.6	26.8	16.9	38.2	38.2	15.1	1.1	48.6	6.6	24.6	22.9
Cycle Q Clear(g_c), s	26.4	26.6	26.8	16.9	38.2	38.2	15.1	1.1	48.6	6.6	24.6	22.9
Prop In Lane	0.03		0.46	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	502	413	414	245	763	798	510	739	1396	281	1677	516
V/C Ratio(X)	0.81	0.85	0.86	1.15	0.82	0.82	0.85	0.04	1.03	0.68	0.70	0.66
Avail Cap(c_a), veh/h	615	516	517	245	881	922	520	739	1396	295	1677	516
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	43.8	43.9	54.1	31.9	31.9	52.1	23.7	38.2	56.0	36.9	36.4
Incr Delay (d2), s/veh	5.2	9.2	9.6	103.6	4.7	4.5	12.1	0.1	33.0	4.7	2.4	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	11.4	11.5	14.7	17.4	18.2	7.5	0.5	18.2	3.1	10.7	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	53.0	53.5	157.6	36.6	36.4	64.2	23.8	71.2	60.6	39.3	42.8
LnGrp LOS	D	D	D	F	D	D	E	C	F	E	D	D
Approach Vol, veh/h		1112			1560			1905			1698	
Approach Delay, s/veh		51.6			58.3			68.9			42.4	
Approach LOS		D			E			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	53.7		57.8	21.7	45.5	20.0	37.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+I1), s	8.6	50.6		40.2	17.1	26.6	18.9	28.8				
Green Ext Time (p_c), s	0.0	0.0		6.1	0.0	3.1	0.0	4.0				

Intersection Summary

HCM 6th Ctrl Delay 56.0

HCM 6th LOS E

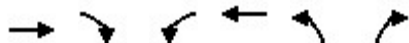
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	↑↑
Traffic Volume (veh/h)	593	0	0	647	1166	229
Future Volume (veh/h)	593	0	0	647	1166	229
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	593	0	0	647	1380	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	866	0	0	1646	1483	660
Arrive On Green	0.46	0.00	0.00	0.46	0.41	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	593	0	0	647	1380	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	12.1	0.0	0.0	5.8	17.9	0.0
Cycle Q Clear(g_c), s	12.1	0.0	0.0	5.8	17.9	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	866	0	0	1646	1483	660
V/C Ratio(X)	0.68	0.00	0.00	0.39	0.93	0.00
Avail Cap(c_a), veh/h	866	0	0	1646	2284	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	0.0	8.9	13.8	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.0	0.7	3.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	5.0	0.0	0.0	1.9	6.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.9	0.0	0.0	9.6	17.8	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	593			647	1380	
Approach Delay, s/veh	14.9			9.6	17.8	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		23.1	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	14.1		7.8		19.9	
Green Ext Time (p_c), s	0.5		0.9		0.3	

Intersection Summary

HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection

Intersection Delay, s/veh 4.5

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	227	0	369
Demand Flow Rate, veh/h	227	0	369
Vehicles Circulating, veh/h	0	369	0
Vehicles Exiting, veh/h	369	0	227
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.9	0.0	4.9
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	227	369
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	227	369
Cap Entry, veh/h	1380	1380
V/C Ratio	0.165	0.267
Control Delay, s/veh	3.9	4.9
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/03/2021

Intersection

Int Delay, s/veh 18

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	400	35	39	474	40
Future Vol, veh/h	77	400	35	39	474	40
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	77	400	35	39	474	40

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	481
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1092
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1088
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	36.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	600	-	-	1088	-
HCM Lane V/C Ratio	0.857	-	-	0.032	-
HCM Control Delay (s)	36.7	-	-	8.4	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	9.5	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	237	468	180	1128	174	254	73	16	152	198	486
Future Volume (veh/h)	134	237	468	180	1128	174	254	73	16	152	198	486
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	134	237	468	180	1128	174	164	200	16	152	198	486
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	151	1486	629	214	1393	214	198	254	200	271	331	281
Arrive On Green	0.08	0.41	0.41	0.12	0.45	0.45	0.11	0.13	0.13	0.15	0.17	0.17
Sat Flow, veh/h	1810	3610	1527	1810	3121	480	1810	1900	1492	1810	1900	1610
Grp Volume(v), veh/h	134	237	468	180	651	651	164	200	16	152	198	486
Grp Sat Flow(s),veh/h/ln	1810	1805	1527	1810	1805	1795	1810	1900	1492	1810	1900	1610
Q Serve(g_s), s	8.0	4.5	16.6	10.6	34.0	34.3	9.7	11.1	0.8	8.5	10.5	19.0
Cycle Q Clear(g_c), s	8.0	4.5	16.6	10.6	34.0	34.3	9.7	11.1	0.8	8.5	10.5	19.0
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	1486	629	214	806	801	198	254	200	271	331	281
V/C Ratio(X)	0.89	0.16	0.74	0.84	0.81	0.81	0.83	0.79	0.08	0.56	0.60	1.73
Avail Cap(c_a), veh/h	151	1486	629	327	806	801	316	506	397	271	331	281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	20.2	9.4	47.0	26.1	26.2	47.5	45.6	26.1	43.0	41.4	45.0
Incr Delay (d2), s/veh	41.9	0.2	7.8	11.4	8.5	8.8	9.7	5.3	0.2	2.6	2.9	343.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	1.9	6.5	5.4	16.0	16.2	4.9	5.6	0.4	4.0	5.2	34.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.3	20.4	17.2	58.4	34.7	35.0	57.2	51.0	26.3	45.6	44.3	388.0
LnGrp LOS	F	C	B	E	C	D	E	D	C	D	D	F
Approach Vol, veh/h		839			1482			380			836	
Approach Delay, s/veh		29.9			37.7			52.6			244.4	
Approach LOS		C			D			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	49.9	21.3	19.7	14.2	53.7	17.0	24.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	12.6	18.6	10.5	13.1	10.0	36.3	11.7	21.0				
Green Ext Time (p_c), s	0.3	3.3	0.0	1.0	0.0	6.9	0.2	0.0				

Intersection Summary

HCM 6th Ctrl Delay	86.3
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	1096	0	464	1452	541	0	0	0	44	441	83
Future Volume (veh/h)	330	1096	0	464	1452	541	0	0	0	44	441	83
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	330	1096	0	464	1452	541				44	441	83
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		491	1426	623				344	313	305
Arrive On Green	0.10	0.29	0.00	0.38	0.58	0.58				0.24	0.24	0.24
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	330	1096	0	464	1452	541				44	441	83
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	46.5	0.0	59.1	92.4	68.1				3.9	38.5	8.5
Cycle Q Clear(g_c), s	15.6	46.5	0.0	59.1	92.4	68.1				3.9	38.5	8.5
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		491	1426	623				344	313	305
V/C Ratio(X)	1.87	1.09		0.94	1.02	0.87				0.13	1.41	0.27
Avail Cap(c_a), veh/h	176	1050		491	1426	623				344	313	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	48.3	33.8	33.8				47.6	60.8	49.4
Incr Delay (d2), s/veh	412.5	56.7	0.0	27.2	28.4	12.6				0.2	202.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	121.5	126.2	230.2				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	27.5	28.2	0.0	39.8	57.4	65.4				1.4	43.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	484.7	114.5	0.0	196.9	188.4	276.5				47.8	412.8	49.8
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1426		A	2457						568		
Approach Delay, s/veh	200.2			209.4						331.5		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	66.0	51.0		43.0	20.1	96.9						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+D1), s	61.1	48.5		40.5	17.6	94.4						
Green Ext Time (p_c), s	0.4	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	222.0
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/04/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1463	190	379	989	16	127	33	927	191	1750	235
Future Volume (veh/h)	24	1463	190	379	989	16	127	33	927	191	1750	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	24	1463	190	379	989	16	127	33	927	191	1750	235
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	46	1540	198	248	1874	30	298	534	1009	302	1464	441
Arrive On Green	0.35	0.35	0.35	0.14	0.52	0.52	0.08	0.28	0.28	0.09	0.28	0.28
Sat Flow, veh/h	39	4377	564	1810	3634	59	3510	1900	3588	3510	5187	1564
Grp Volume(v), veh/h	610	529	538	379	491	514	127	33	927	191	1750	235
Grp Sat Flow(s),veh/h/ln	1809	1573	1599	1810	1805	1888	1755	1900	1196	1755	1729	1564
Q Serve(g_s), s	20.5	38.1	38.2	15.9	21.0	21.0	4.0	1.5	29.0	6.1	32.7	14.7
Cycle Q Clear(g_c), s	38.1	38.1	38.2	15.9	21.0	21.0	4.0	1.5	29.0	6.1	32.7	14.7
Prop In Lane	0.04		0.35	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	668	553	562	248	931	973	298	534	1009	302	1464	441
V/C Ratio(X)	0.91	0.96	0.96	1.53	0.53	0.53	0.43	0.06	0.92	0.63	1.20	0.53
Avail Cap(c_a), veh/h	671	556	565	248	934	976	318	534	1009	318	1464	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	36.7	36.7	50.0	18.7	18.7	50.4	30.5	40.4	51.2	41.6	35.2
Incr Delay (d2), s/veh	16.4	27.1	27.1	257.0	0.3	0.3	0.4	0.2	14.5	2.7	94.8	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.5	18.5	18.8	24.9	8.7	9.0	1.8	0.7	9.8	2.8	26.6	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	63.8	63.9	307.1	19.0	19.0	50.8	30.7	54.9	53.9	136.4	39.7
LnGrp LOS	D	E	E	F	B	B	D	C	D	D	F	D
Approach Vol, veh/h		1677			1384			1087			2176	
Approach Delay, s/veh		59.8			97.9			53.7			118.7	
Approach LOS		E			F			D			F	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	37.7		64.8	13.3	37.8	19.0	45.8				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	31.9		60.0	9.5	* 32	14.9	41.0				
Max Q Clear Time (g_c+I1), s	8.1	31.0		23.0	6.0	34.7	17.9	40.2				
Green Ext Time (p_c), s	0.1	0.3		4.8	0.1	0.0	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay 87.4

HCM 6th LOS F

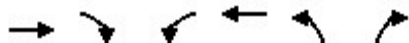
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/04/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	
Traffic Volume (veh/h)	436	0	0	567	1125	197
Future Volume (veh/h)	436	0	0	567	1125	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	436	0	0	567	1309	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	893	0	0	1696	1418	631
Arrive On Green	0.47	0.00	0.00	0.47	0.39	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	436	0	0	567	1309	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	7.5	0.0	0.0	4.7	16.4	0.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0	4.7	16.4	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	893	0	0	1696	1418	631
V/C Ratio(X)	0.49	0.00	0.00	0.33	0.92	0.00
Avail Cap(c_a), veh/h	893	0	0	1696	2353	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.7	0.0	0.0	7.9	13.8	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	0.5	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	0.0	1.5	5.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.6	0.0	0.0	8.5	16.4	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	436			567	1309	
Approach Delay, s/veh	10.6			8.5	16.4	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		21.7	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+l1), s	9.5		6.7		18.4	
Green Ext Time (p_c), s	0.4		0.8		0.2	

Intersection Summary

HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/04/2021

Intersection			
Intersection Delay, s/veh	4.6		
Intersection LOS	A		
Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	389	0	192
Demand Flow Rate, veh/h	389	0	192
Vehicles Circulating, veh/h	0	192	0
Vehicles Exiting, veh/h	192	0	389
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.0	0.0	3.7
Approach LOS	A	-	A
Lane	Left	Left	
Designated Moves	R	LT	
Assumed Moves	R	LT	
RT Channelized			
Lane Util	1.000	1.000	
Follow-Up Headway, s	2.609	2.609	
Critical Headway, s	4.976	4.976	
Entry Flow, veh/h	389	192	
Cap Entry Lane, veh/h	1380	1380	
Entry HV Adj Factor	1.000	1.000	
Flow Entry, veh/h	389	192	
Cap Entry, veh/h	1380	1380	
V/C Ratio	0.282	0.139	
Control Delay, s/veh	5.0	3.7	
LOS	A	A	
95th %tile Queue, veh	1	0	

HCM 6th TWSC
4: Blomquist St & Maple St

11/04/2021

Intersection

Int Delay, s/veh 7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	666	49	46	293	24
Future Vol, veh/h	33	666	49	46	293	24
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	33	666	49	46	293	24

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	703
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	904
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	901
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.8	23.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	499	-	-	901	-
HCM Lane V/C Ratio	0.635	-	-	0.054	-
HCM Control Delay (s)	23.9	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	4.4	-	-	0.2	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/04/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	1286	366	7	305	176	306	88	145	278	143	217
Future Volume (veh/h)	390	1286	366	7	305	176	306	88	145	278	143	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	390	1286	366	7	305	176	197	241	145	278	143	217
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	160	1598	678	124	931	521	229	276	218	307	358	303
Arrive On Green	0.09	0.44	0.44	0.07	0.42	0.42	0.13	0.15	0.15	0.17	0.19	0.19
Sat Flow, veh/h	1810	3610	1531	1810	2202	1233	1810	1900	1499	1810	1900	1610
Grp Volume(v), veh/h	390	1286	366	7	248	233	197	241	145	278	143	217
Grp Sat Flow(s),veh/h/ln	1810	1805	1531	1810	1805	1630	1810	1900	1499	1810	1900	1610
Q Serve(g_s), s	10.3	36.0	11.1	0.4	10.7	11.2	12.5	14.5	8.5	17.6	7.7	14.8
Cycle Q Clear(g_c), s	10.3	36.0	11.1	0.4	10.7	11.2	12.5	14.5	8.5	17.6	7.7	14.8
Prop In Lane	1.00		1.00	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	1598	678	124	764	689	229	276	218	307	358	303
V/C Ratio(X)	2.44	0.80	0.54	0.06	0.33	0.34	0.86	0.87	0.67	0.91	0.40	0.72
Avail Cap(c_a), veh/h	160	1598	678	124	764	689	342	293	231	341	358	303
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	28.2	7.0	50.9	22.5	22.7	50.0	48.8	29.8	47.6	41.6	44.4
Incr Delay (d2), s/veh	668.2	4.4	3.1	0.2	1.1	1.3	13.4	23.0	6.5	25.1	0.7	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.3	16.1	3.9	0.2	4.8	4.5	6.5	8.6	3.5	10.0	3.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	721.4	32.6	10.0	51.0	23.7	24.0	63.3	71.9	36.4	72.7	42.3	52.2
LnGrp LOS	F	C	B	D	C	C	E	E	D	E	D	D
Approach Vol, veh/h		2042			488			583			638	
Approach Delay, s/veh		160.1			24.2			60.2			58.9	
Approach LOS		F			C			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	56.8	24.8	22.1	15.4	54.5	19.9	27.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	8.0	51.7	22.0	18.0	10.3	49.4	22.1	17.9				
Max Q Clear Time (g_c+I1), s	2.4	38.0	19.6	16.5	12.3	13.2	14.5	16.8				
Green Ext Time (p_c), s	0.0	8.8	0.2	0.3	0.0	3.3	0.3	0.2				

Intersection Summary

HCM 6th Ctrl Delay	109.7
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/04/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1570	0	125	1684	851	0	0	0	85	335	111
Future Volume (veh/h)	120	1570	0	125	1684	851	0	0	0	85	335	111
Initial Q (Qb), veh	0	0	0	0	0	0				15	10	20
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1400	1400	0	1000	1000	1000				1000	1000	1000
Adj Flow Rate, veh/h	120	1570	0	125	1684	851				85	335	111
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	71	1455		134	1205	526				217	228	193
Arrive On Green	0.05	0.55	0.00	0.14	0.63	0.63				0.23	0.23	0.23
Sat Flow, veh/h	1333	2730	0	952	1900	829				952	1000	846
Grp Volume(v), veh/h	120	1570	0	125	1684	851				85	335	111
Grp Sat Flow(s),veh/h/ln	1333	1330	0	952	950	829				952	1000	846
Q Serve(g_s), s	8.5	87.5	0.0	20.8	101.5	101.5				12.1	36.5	18.6
Cycle Q Clear(g_c), s	8.5	87.5	0.0	20.8	101.5	101.5				12.1	36.5	18.6
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	71	1455		134	1205	526				217	228	193
V/C Ratio(X)	1.69	1.08		0.93	1.40	1.62				0.39	1.47	0.57
Avail Cap(c_a), veh/h	71	1455		134	1205	526				217	228	193
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	36.2	0.0	68.0	29.3	29.2				56.6	61.7	61.6
Incr Delay (d2), s/veh	365.4	48.2	0.0	57.7	183.8	286.6				1.1	233.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				56.4	157.8	181.8
%ile BackOfQ(50%),veh/ln	0.1	37.4	0.0	7.2	52.8	61.1				9.1	34.1	25.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	441.1	84.4	0.0	125.7	213.1	315.8				114.1	452.7	247.4
LnGrp LOS	F	F		F	F	F				F	F	F
Approach Vol, veh/h	1690		A	2660						531		
Approach Delay, s/veh	109.7			241.8						355.6		
Approach LOS	F			F						F		
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	27.0	92.0		41.0	13.0	106.0						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	27.5	87.5		36.5	8.5	101.5						
Max Q Clear Time (g_c+Q), s	27.8	89.5		38.5	10.5	103.5						
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	208.5
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary

1: Whipple Ave & Veterans Blvd

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↖	↑↑		↖↖	↑	↖↖↖	↖↖	↑↑↑	↖
Traffic Volume (veh/h)	13	947	164	284	1265	19	435	28	1448	198	1167	340
Future Volume (veh/h)	13	947	164	284	1265	19	435	28	1448	198	1167	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	13	947	164	284	1265	19	435	28	1448	198	1167	340
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	36	1114	191	245	1545	23	510	735	1388	281	1667	513
Arrive On Green	0.26	0.26	0.26	0.14	0.42	0.42	0.15	0.39	0.39	0.08	0.32	0.32
Sat Flow, veh/h	24	4209	722	1810	3639	55	3510	1900	3591	3510	5187	1597
Grp Volume(v), veh/h	410	356	358	284	627	657	435	28	1448	198	1167	340
Grp Sat Flow(s),veh/h/ln	1804	1573	1578	1810	1805	1889	1755	1900	1197	1755	1729	1597
Q Serve(g_s), s	8.3	26.9	27.0	16.9	38.3	38.3	15.1	1.1	48.3	6.9	24.6	23.0
Cycle Q Clear(g_c), s	26.6	26.9	27.0	16.9	38.3	38.3	15.1	1.1	48.3	6.9	24.6	23.0
Prop In Lane	0.03		0.46	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	507	416	417	245	766	802	510	735	1388	281	1667	513
V/C Ratio(X)	0.81	0.85	0.86	1.16	0.82	0.82	0.85	0.04	1.04	0.71	0.70	0.66
Avail Cap(c_a), veh/h	616	516	517	245	881	922	520	735	1388	295	1667	513
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	43.7	43.7	54.1	31.7	31.7	52.1	23.9	38.3	56.1	37.1	36.6
Incr Delay (d2), s/veh	5.4	9.5	9.9	108.0	4.7	4.5	12.1	0.1	36.2	5.8	2.5	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	11.5	11.6	15.0	17.5	18.2	7.5	0.5	18.5	3.3	10.8	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	53.2	53.6	162.0	36.4	36.3	64.2	24.0	74.5	61.9	39.6	43.2
LnGrp LOS	D	D	D	F	D	D	E	C	F	E	D	D
Approach Vol, veh/h		1124			1568			1911			1705	
Approach Delay, s/veh		51.7			59.1			71.4			42.9	
Approach LOS		D			E			E			D	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	53.4		58.1	21.7	45.3	20.0	38.1				
Change Period (Y+Rc), s	4.5	5.1		5.0	4.5	* 5.1	4.1	5.0				
Max Green Setting (Gmax), s	9.5	39.9		61.0	17.5	* 32	15.9	41.0				
Max Q Clear Time (g_c+I1), s	8.9	50.3		40.3	17.1	26.6	18.9	29.0				
Green Ext Time (p_c), s	0.0	0.0		6.1	0.0	3.1	0.0	4.1				

Intersection Summary

HCM 6th Ctrl Delay	57.1
HCM 6th LOS	E

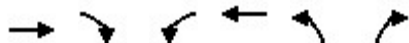
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

2: US 101 NB Off Ramp & Whipple Ave

11/03/2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑↑	↑↑	
Traffic Volume (veh/h)	618	0	0	660	1166	238
Future Volume (veh/h)	618	0	0	660	1166	238
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	0	0	1900	1900	1900
Adj Flow Rate, veh/h	618	0	0	660	1388	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	863	0	0	1640	1490	663
Arrive On Green	0.45	0.00	0.00	0.45	0.41	0.00
Sat Flow, veh/h	1900	0	0	3800	3619	1610
Grp Volume(v), veh/h	618	0	0	660	1388	0
Grp Sat Flow(s), veh/h/ln	1900	0	0	1805	1810	1610
Q Serve(g_s), s	13.0	0.0	0.0	6.0	18.0	0.0
Cycle Q Clear(g_c), s	13.0	0.0	0.0	6.0	18.0	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	863	0	0	1640	1490	663
V/C Ratio(X)	0.72	0.00	0.00	0.40	0.93	0.00
Avail Cap(c_a), veh/h	863	0	0	1640	2276	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.9	0.0	0.0	9.0	13.8	0.0
Incr Delay (d2), s/veh	5.1	0.0	0.0	0.7	4.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	5.4	0.0	0.0	2.0	6.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	15.9	0.0	0.0	9.7	17.9	0.0
LnGrp LOS	B	A	A	A	B	A
Approach Vol, veh/h	618			660	1388	
Approach Delay, s/veh	15.9			9.7	17.9	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		6		8	
Phs Duration (G+Y+Rc), s	26.0		26.0		23.3	
Change Period (Y+Rc), s	3.6		3.6		3.0	
Max Green Setting (Gmax), s	22.4		22.4		31.0	
Max Q Clear Time (g_c+I1), s	15.0		8.0		20.0	
Green Ext Time (p_c), s	0.5		0.9		0.3	

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Roundabout
3: Bair Island Rd & E Bayshore Rd

11/03/2021

Intersection

Intersection Delay, s/veh 4.5

Intersection LOS A

Approach	WB	NB	SB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	227	0	369
Demand Flow Rate, veh/h	227	0	369
Vehicles Circulating, veh/h	0	369	0
Vehicles Exiting, veh/h	369	0	227
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.9	0.0	4.9
Approach LOS	A	-	A

Lane	Left	Left
Designated Moves	R	LT
Assumed Moves	R	LT
RT Channelized		
Lane Util	1.000	1.000
Follow-Up Headway, s	2.609	2.609
Critical Headway, s	4.976	4.976
Entry Flow, veh/h	227	369
Cap Entry Lane, veh/h	1380	1380
Entry HV Adj Factor	1.000	1.000
Flow Entry, veh/h	227	369
Cap Entry, veh/h	1380	1380
V/C Ratio	0.165	0.267
Control Delay, s/veh	3.9	4.9
LOS	A	A
95th %tile Queue, veh	1	1

HCM 6th TWSC
4: Blomquist St & Maple St

11/03/2021

Intersection

Int Delay, s/veh 18.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	401	35	39	475	40
Future Vol, veh/h	77	401	35	39	475	40
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	77	401	35	39	475	40

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	482
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1091
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1087
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	37.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	-	-	1087	-
HCM Lane V/C Ratio	0.86	-	-	0.032	-
HCM Control Delay (s)	37.1	-	-	8.4	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	9.6	-	-	0.1	-

HCM 6th Signalized Intersection Summary

5: Bayshore Rd/Blomquist St & Seaport Blvd

11/03/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	237	468	180	1128	175	254	73	16	153	198	486
Future Volume (veh/h)	134	237	468	180	1128	175	254	73	16	153	198	486
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.97	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	134	237	468	180	1128	175	164	200	16	153	198	486
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	151	1486	629	214	1391	215	198	254	200	271	331	281
Arrive On Green	0.08	0.41	0.41	0.12	0.45	0.45	0.11	0.13	0.13	0.15	0.17	0.17
Sat Flow, veh/h	1810	3610	1527	1810	3118	482	1810	1900	1492	1810	1900	1610
Grp Volume(v), veh/h	134	237	468	180	651	652	164	200	16	153	198	486
Grp Sat Flow(s),veh/h/ln	1810	1805	1527	1810	1805	1795	1810	1900	1492	1810	1900	1610
Q Serve(g_s), s	8.0	4.5	16.6	10.6	34.0	34.4	9.7	11.1	0.8	8.6	10.5	19.0
Cycle Q Clear(g_c), s	8.0	4.5	16.6	10.6	34.0	34.4	9.7	11.1	0.8	8.6	10.5	19.0
Prop In Lane	1.00		1.00	1.00		0.27	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	1486	629	214	806	801	198	254	200	271	331	281
V/C Ratio(X)	0.89	0.16	0.74	0.84	0.81	0.81	0.83	0.79	0.08	0.56	0.60	1.73
Avail Cap(c_a), veh/h	151	1486	629	327	806	801	316	506	397	271	331	281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	20.2	9.4	47.0	26.1	26.2	47.5	45.6	26.1	43.0	41.4	45.0
Incr Delay (d2), s/veh	41.9	0.2	7.8	11.4	8.6	8.9	9.7	5.3	0.2	2.7	2.9	343.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	1.9	6.5	5.4	16.1	16.2	4.9	5.6	0.4	4.0	5.2	34.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.3	20.4	17.2	58.4	34.7	35.1	57.2	51.0	26.3	45.7	44.3	388.0
LnGrp LOS	F	C	B	E	C	D	E	D	C	D	D	F
Approach Vol, veh/h		839			1483			380			837	
Approach Delay, s/veh		29.9			37.7			52.6			244.1	
Approach LOS		C			D			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	49.9	21.3	19.7	14.2	53.7	17.0	24.0				
Change Period (Y+Rc), s	5.1	5.1	5.0	5.1	5.1	5.1	5.1	5.0				
Max Green Setting (Gmax), s	19.7	38.0	9.0	29.0	9.1	48.6	19.0	19.0				
Max Q Clear Time (g_c+I1), s	12.6	18.6	10.6	13.1	10.0	36.4	11.7	21.0				
Green Ext Time (p_c), s	0.3	3.3	0.0	1.0	0.0	6.9	0.2	0.0				

Intersection Summary

HCM 6th Ctrl Delay	86.3
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary 6: US 101 SB On Ramp/Veterans Blvd & Woodside Rd

11/03/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	1097	0	464	1452	541	0	0	0	44	441	83
Future Volume (veh/h)	330	1097	0	464	1452	541	0	0	0	44	441	83
Initial Q (Qb), veh	0	0	0	20	50	50				0	13	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach	No			No						No		
Adj Sat Flow, veh/h/ln	1900	1900	0	1300	1300	1300				1500	1300	1500
Adj Flow Rate, veh/h	330	1097	0	464	1452	541				44	441	83
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	176	1004		491	1426	623				344	313	305
Arrive On Green	0.10	0.29	0.00	0.38	0.58	0.58				0.24	0.24	0.24
Sat Flow, veh/h	1810	3705	0	1238	2470	1078				1429	1300	1270
Grp Volume(v), veh/h	330	1097	0	464	1452	541				44	441	83
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1238	1235	1078				1429	1300	1270
Q Serve(g_s), s	15.6	46.5	0.0	59.1	92.4	68.1				3.9	38.5	8.5
Cycle Q Clear(g_c), s	15.6	46.5	0.0	59.1	92.4	68.1				3.9	38.5	8.5
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	176	1004		491	1426	623				344	313	305
V/C Ratio(X)	1.87	1.09		0.94	1.02	0.87				0.13	1.41	0.27
Avail Cap(c_a), veh/h	176	1050		491	1426	623				344	313	305
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	57.7	0.0	48.3	33.8	33.8				47.6	60.8	49.4
Incr Delay (d2), s/veh	412.5	57.1	0.0	27.2	28.4	12.6				0.2	202.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	121.5	126.2	230.2				0.0	149.6	0.0
%ile BackOfQ(50%),veh/ln	27.5	28.3	0.0	39.8	57.4	65.4				1.4	43.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	484.7	114.9	0.0	196.9	188.4	276.5				47.8	412.8	49.8
LnGrp LOS	F	F		F	F	F				D	F	D
Approach Vol, veh/h	1427		A	2457		568						
Approach Delay, s/veh	200.4			209.4		331.5						
Approach LOS	F			F		F						
Timer - Assigned Phs	1	2		4	5	6						
Phs Duration (G+Y+Rc), s	66.0	51.0		43.0	20.1	96.9						
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5						
Max Green Setting (Gmax), s	63.5	44.5		38.5	15.6	92.4						
Max Q Clear Time (g_c+D1), s	61.1	48.5		40.5	17.6	94.4						
Green Ext Time (p_c), s	0.4	0.0		0.0	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	222.1
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix D

Signal Warrant Worksheets

Blomquist St & Maple St

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: LJ date: 11/5/21Major Street: Maple StCritical Approach Speed* (mph) 25Minor Street: Blomquist StCritical Approach Speed* (mph) 25

*Posted Speed.

Critical speed of major street traffic > 50 mph (64 km/h).....

☒☐☐

Rural (R)

Urban (U)

AM PEAK PERIOD

Warrant 3 - Peak Hour

The need for a traffic control signal should be considered if an engineering study finds that the criteria in either of the following two categories (Parts A and B) are met:

PART A

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

	AM PEAK PERIOD							
	Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
Minor Street Approach Direction w/ Highest Delay	NB	NB	NB	NB	NB	NB	NB	NB
Highest Minor Street Average Delay (sec/veh)	11.2	11.2	13.4	13.4	106.8	109.1	23.9	23.9
Corresponding Minor Street Approach Volume (veh/hr)	146	146	189	189	544	545	317	317
Minor Street Total Delay (veh-hrs)	0.5	0.5	0.7	0.7	16.1	16.5	2.1	2.1
Total Entering Volume (veh/hr)	553	554	700	701	1792	1804	1110	1111
1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; <u>AND</u>	No	No	No	No	Yes	Yes	No	No
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; <u>AND</u>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Signal Warranted based on Part A?	No	No	No	No	Yes	Yes	No	No

* 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

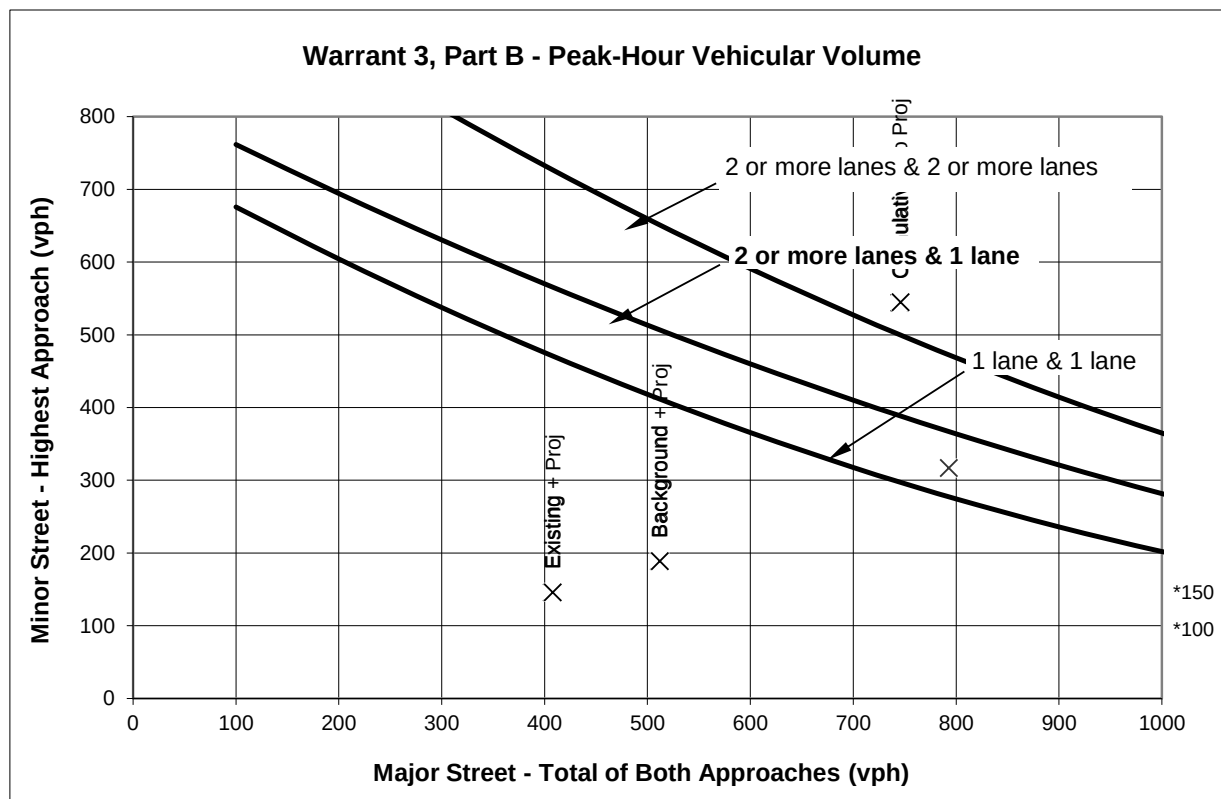
PART B

				AM PEAK PERIOD							
				Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
		Approach Lanes									
		One	2 or More								
Major Street - Both Approaches	Maple St	X		407	408	511	512	745	746	793	794
Minor Street - Highest Approach	Blomquist St	X		146	146	189	189	544	545	317	317
Signal Warranted based on Part B?				No	No	No	No	Yes	Yes	Yes	Yes

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

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).
Notes:

Blomquist St & Maple St

Blomquist St & Maple St**AM PEAK PERIOD**

Source: Figure 4C-3 California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

* 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.

Warrant 3, Part B - Peak-Hour Vehicular Volume

					AM PEAK PERIOD									
					Approach Lanes		Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
					One	2 or More								
Major Street - Both Approaches	Maple St		X		407	408	511	512	745	746	793	794		
Minor Street - Highest Approach	Blomquist St		X		146	146	189	189	544	545	317	317		
Signal Warranted Based on Part B - Peak-Hour Volumes?					No	No	No	No	Yes	Yes	Yes	Yes		

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.

Blomquist St & Maple St

TRAFFIC SIGNAL WARRANTS WORKSHEET

Analyst: LJ date: 11/5/21Major Street: Maple StCritical Approach Speed* (mph) 25Minor Street: Blomquist StCritical Approach Speed* (mph) 25

*Posted Speed.

Critical speed of major street traffic > 50 mph (64 km/h).....



Rural (R)

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

Urban (U)

PM PEAK HOUR

Warrant 3 - Peak Hour

The need for a traffic control signal should be considered if an engineering study finds that the criteria in either of the following two categories (Parts A and B) are met:

PART A

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

PM PEAK HOUR

	Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
Minor Street Approach Direction w/ Highest Delay	NB	NB	NB	NB	NB	NB	NB	NB
Highest Minor Street Average Delay (sec/veh)	12.7	12.8	17.1	17.2	517.6	528.5	36.7	37.1
Corresponding Minor Street Approach Volume (veh/hr)	324	325	377	378	1091	1094	514	515
Minor Street Total Delay (veh-hrs)	1.1	1.2	1.8	1.8	156.9	160.6	5.2	5.3
Total Entering Volume (veh/hr)	589	591	781	783	2039	2055	1065	1067

1. The total delay experienced for traffic on one minor street approach controlled by a STOP sign equals or exceeds 4 vehicle-hours for a 1-lane approach and 5 vehicle-hours for a 2-lane approach; <u>AND</u>	No	No	No	No	Yes	Yes	Yes	Yes
2. The volume on the same minor street approach equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes; <u>AND</u>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with 4 or more approaches or 650 vph for intersections with 3 approaches.	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Signal Warranted based on Part A?	No	No	No	No	Yes	Yes	Yes	Yes

* 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

PART B

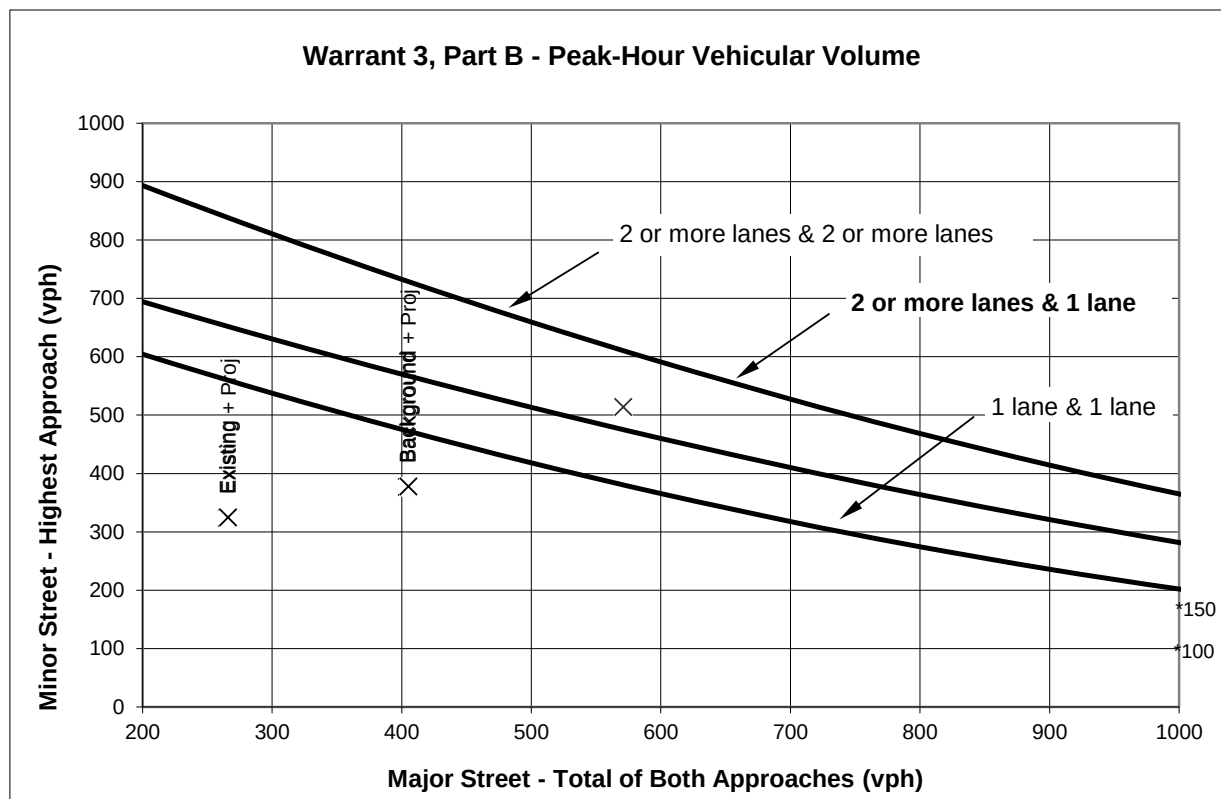
PM PEAK HOUR

		Approach Lanes		Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
		One	2 or More								
Major Street - Both Approaches	Maple St	X		265	266	404	405	564	571	571	552
Minor Street - Highest Approach	Blomquist St	X		324	325	377	378	1091	1094	514	515
Signal Warranted based on Part B?				No	No	No	No	Yes	Yes	Yes	Yes

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

Source: California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 20090 Edition, as amended for use in California Notes:

Blomquist St & Maple St

Blomquist St & Maple St**PM PEAK HOUR**

Source: Figure 4C-3 California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2009 Edition, as amended for use in California).

* 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.

Warrant 3, Part B - Peak-Hour Vehicular Volume

					PM PEAK HOUR									
					Approach Lanes		Existing	Existing + Proj	Background	Background + Proj	Cumulative No Proj	Cumulative	Cumulative No Proj (No BE)	Cumulative (No BE)
					One	2 or More								
Major Street - Both Approaches		Maple St		X		265	266	404	405	564	571	571	552	
Minor Street - Highest Approach		Blomquist St		X		324	325	377	378	1091	1094	514	515	
Signal Warranted Based on Part B - Peak-Hour Volumes?						No	No	No	No	Yes	Yes	Yes	Yes	

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.