HEXAGON TRANSPORTATION CONSULTANTS, INC.

320 Sheridan Drive

Transportation Impact Analysis

Prepared for:

EMC Planning Group

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Executive Summary

This report presents the results of the Transportation Impact Analysis (TIA) conducted for the proposed affordable housing development at 320 Sheridan Drive in Menlo Park, California (see Figure 1). The project proposes to construct three new three-story residential apartment buildings totaling 88 below market rate (BMR) housing units, with a 2,200 square foot (s.f.) community center located on the ground floor of one of the buildings. The project site is currently vacant. The project proposes 120 surface parking spaces. Vehicle access to the project site would be provided via one driveway on Sheridan Drive.

CEQA Vehicle-Miles Traveled Analysis

As shown in Table ES-1, the proposed project's residential land use would not generate VMT exceeding the threshold. Therefore, the project's VMT impact would be less than significant.

Table ES-1
Project VMT Evaluation

	VMT per Resident			
Project	**Regional Average**	**VMT Threshold [1]**	**Project VMT**	**VMT Impact?**
320 Sheridan Drive	13.1	11.2	10.0	No

Notes:
* *All data referenced the latest Menlo Park citywide travel demand forecasting model.*
[1] Based on the City of Menlo Park TIA guidelines, adopted on June 23, 2020, and updated on January 11, 2022,

Non-CEQA Levels of Service Transportation Analysis

The study intersections operate at an acceptable level of service during each peak hour for each study scenario (see Table ES-2).

Table ES-2
Intersection Level of Service Summary

#	Intersection	Peak Hour	Traffic Control	Existing Conditions		Near-Term (2027) Conditions[2]						
						No Project			Project Conditions[3]			
				Avg. Delay (sec)[1]	LOS	Avg. Delay (sec)[1]	LOS	Avg. Critical Delay	Avg. Delay (sec)[1]	LOS	Avg. Critical Delay	Incr. in Avg. Delay	Incr. in Avg. Critical Delay
1	Sheridan Drive & Hedge Road	AM	TWSC	8.6	A	8.6	A	-	8.9	A	-	<4	-
		PM		8.6	A	8.6	A	-	8.8	A	-	<4	-
2	Hedge Road/Dunsmuir Way & Greenwood Drive	AM	TWSC	9.3	A	9.3	A	-	9.6	A	-	<4	-
		PM		9.8	A	9.8	A	-	10.0	B	-	<4	-
3	Bay Road & Greenwood Drive	AM	TWSC	14.8	B	15.4	C	-	16.5	C	-	<4	-
		PM		14.2	B	14.2	B	-	15.1	C	-	<4	-
4	Bay Road & Marsh Road	AM	Signal	17.8	B	21.4	C	31.0	22.0	C	31.5	<4	<0.8
		PM		24.0	C	27.8	C	47.0	28.5	C	48.2	<4	1.3

Notes:

TWSC - Two Way Stop Control.

[1] Average delay is reported for signalized intersections. For TWSC intersections, the delay for the worst stop-controlled movement is reported.

Intersection Queuing Analysis

The analysis of intersection levels of service was supplemented with a vehicle queuing analysis for intersection left-turning movements where the proposed project would add significant trips per lane in the vicinity of the project site and affect intersection operations. Queuing issues are operational issues resulting from signal timing and queue storage provisions. Queuing issues are not considered a CEQA issue related to hazards because they are not related to a geometric design feature or incompatible use.

The analysis showed that the project would add to the queue extending beyond the available storage for westbound left-turns on Marsh Road at Bay Road. If desired by the city, the left turn pocket could be extended by restriping.

Site Access, Circulation, and Parking

Hexagon recommends and concludes the following regarding the internal project site circulation and parking:

- The proposed project does not meet the City's vehicle and bicycle parking requirements. Hexagon recommends the project provide enough vehicle and bicycle parking spaces to meet the City's requirements.

1. Introduction

This report presents the results of the Transportation Impact Analysis (TIA) conducted for the proposed affordable housing development at 320 Sheridan Drive in Menlo Park, California (see Figure 1). The project proposes to construct three new three-story residential apartment buildings totaling 88 below market rate (BMR) housing units, with a 2,200 square foot (s.f.) community center located on the ground floor of one of the buildings. The project site is currently vacant. The project proposes 120 surface parking spaces. Vehicle access to the project site would be provided via one driveway on Sheridan Drive.

For the purpose of this report, streets that run parallel to US 101 are assumed to run in a north-south direction, such as Bay Road, Sheridan Drive, and portions of Hedge Road. Streets that run perpendicular to US 101 are assumed to run in an east-west direction, such as Marsh Road, Greenwood Drive, and portions of Hedge Road.

Scope of Study

The purpose of the transportation study is to identify any transportation operational issues in accordance with City of Menlo Park standards and procedures. This report includes a CEQA VMT analysis, multimodal analysis, non-CEQA level of service (LOS) analysis (or roadway congestion analysis), and on-site access and circulation review.

Figure 1
Site Location and Study Intersections

Figure 2
Project Site Plan

CEQA VMT Analysis

The VMT of the project was analyzed per the City of Menlo Park VMT guidelines adopted in July 2020 and updated in January 2022. The City's TIA Guidelines state that a residential project is considered to have a significant VMT impact if its projected VMT per resident exceeds 15 percent below the regional average.

Non-CEQA Level of Service Transportation Analysis

An LOS analysis was conducted to identify whether the proposed project would comply with local policies.

The traffic analysis is based on the AM and PM peak-hour level of service for one signalized intersection and three unsignalized intersections in the vicinity of the project site as illustrated in Figure 1. Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of adjacent street traffic. The AM peak hour is expected to occur between 7:00 AM and 9:00 AM, and the PM peak hour between 4:00 PM and 6:00 PM on a typical weekday. These are the hours during which most traffic congestion occurs on the roadways.

The proposed project would not generate more than 100 peak-hour trips. The San Mateo County City/County Association of Governments (C/CAG) administers the Congestion Management Plan (CMP). Therefore, an analysis in accordance with the C/CAG CMP guidelines is not included.

Study Intersections

1. Sheridan Drive and Hedge Road (unsignalized)
2. Hedge Road and Greenwood Drive (unsignalized)
3. Bay Road and Greenwood Drive (unsignalized)
4. Bay Road and Marsh Road

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes at the study intersections are based on counts collected on September 24 and October 22, 2024.

Scenario 2: *Background Conditions.* Background traffic volumes were estimated by referencing the *Parkline Transportation Impact Analysis, July 2024*. Newly approved projects since that report are also included to form the background conditions.

Scenario 3: *Background plus Project Conditions.* Project-generated traffic was added to the background condition traffic volumes. The background plus project scenario was evaluated relative to the background scenario.

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 criteria used to determine if a project is compliant with local policies.

Data Requirements

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

- existing peak-hour intersection turning-movement volumes,
- existing lane configurations,
- signal timing and phasing, and
- list of approved and pending projects.

Intersection Level of Service Methodologies

Traffic conditions 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 forced-flow conditions with extreme delays.

While LOS is no longer a CEQA threshold, the General Plan and City's TIA Guidelines require that the TIA also analyze LOS for local planning purposes (per General Plan Program Circ-3.A Transportation Impact Metrics):

> Supplement Vehicle Miles Traveled (VMT) and greenhouse gas emissions per service population (or other efficiency metric) metrics with Level of Service (LOS) in the transportation impact review process, and utilize LOS for identification of potential operational improvements, such as traffic signal upgrades and coordination, as part of the Transportation Master Plan.

The LOS analysis would determine whether the project traffic would cause an intersection LOS to exceed the City's LOS thresholds or cause either the average delay or average critical delay to exceed the City's intersection delay thresholds under background conditions. The LOS and delay thresholds vary depending on the street classifications as well as whether the intersection is on a State route or not.

The City's TIA Guidelines further require an analysis of the proposed project in relation to relevant policies of the Circulation Element and consideration of specific measures to address noncompliance with local policies which may occur as a result of the addition of project traffic.

Signalized Intersections

Traffic operations at the signalized study intersection were evaluated using VISTRO software based on the level of service method described in the Highway Capacity Manual (HCM) 7th Edition. Table 1 shows the level of service definitions for signalized intersections.

Unsignalized Intersections

Peak-hour levels of motor vehicle delay at the unsignalized study intersections were evaluated using VISTRO software based on the HCM 7th Edition. With this methods, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. At side-street controlled intersections (two-way or one-way stop control), the control delay (and LOS) is reported for the approach with the highest delay. For all-way stop-controlled intersections, the average delay (and LOS) for all movements is reported. Table 2 summarizes the relationship between average control delay per vehicle and LOS for unsignalized intersections.

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 that 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 the be the limit of acceptable delay. These high delays values generally indicated 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, *Highway Capacity Manual 7th Edition,* (Washington, D.C., 2023).

Table 2
Unsignalized Intersection Level of Service Definition Based on Average 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 7th Edition, (Washington, D.C., 2023).

Level of Service Standards and Adverse Effect Criteria

Signalized Intersection Definition of Adverse Effect

The following thresholds are from the City of Menlo Park's TIA Guidelines, and the proposed project's compliance with local policies was evaluated based on these thresholds.

- A project is considered potentially noncompliant with local policies if the addition of project traffic causes an intersection on a collector street operating at LOS "A" through "C" to operate at an unacceptable level (LOS "D," "E" or "F") or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first. Potential noncompliance shall also include a project that causes an intersection on arterial streets or local approaches to State controlled signalized intersections operating at LOS "A" through "D" to operate at an unacceptable level (LOS "E" or "F") or have an increase of 23 seconds or greater in average vehicle delay, whichever comes first.
- A project is also considered potentially noncompliant if the addition of project traffic causes an increase of more than 0.8 seconds of average delay to vehicles on all critical movements for intersections operating at a near-term LOS "D" through "F" for collector streets and at a near-term LOS "E" or "F" for arterial streets. For local approaches to State controlled signalized intersections, a project is considered to be potentially noncompliant if the addition of project traffic causes an increase of more than 0.8 seconds of delay to vehicles on the most critical movements for intersections operating at a near-term LOS "E" or "F."

Unsignalized Intersection Definition of Adverse Effect

At an unsignalized intersection, the proposed project is considered to have an adverse effect if it:

- Causes operations to degrade from LOS D or better to LOS E or F; or
- Exacerbates LOS E or F conditions by increasing control delay by five or more seconds; and
- Causes volumes under project conditions to exceed the Caltrans Peak-Hour Volume Warrant Criteria.

Intersection Vehicle Queuing Analysis

For selected high-demand movements at the study intersections, the estimated maximum vehicle queues were compared to the existing or planned storage capacity. The queuing analysis is used to determine the appropriate storage lengths for the high demand turn lanes where the proposed project would add a substantial number of trips to these movements. Vehicle queues were estimated using VISTRO for intersections analyzed with this software.

The basis of the analysis is as follows: (1) VISTRO is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement.

For signalized intersections, the 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95th percent of the signal cycles. In other words, a queue length larger than the 95th percentile queue would only occur on five percent of the signal cycles (about three cycles during the peak hour for a signal with a 60-second cycle length). Therefore, left-turn storage pocket designs based on the 95th percentile queue length would ensure that storage space would be exceeded only five percent of the time. The 95th percentile queue length is also known as the “design queue length.”

2. CEQA VMT Analysis

Project VMT is defined as the total distance traveled by vehicles traveling to and from the Proposed Project over a typical day. In order to estimate VMT for the project, the citywide travel demand forecast model was used. The citywide model is the best available model to represent travel within the City of Menlo Park and serves as the primary forecasting tool for the City. The model is a mathematical representation of travel within the nine Bay Area counties, as well as the Santa Cruz, San Benito, Monterey and San Joaquin counties. The base model structure was developed by the Metropolitan Transportation Commission (MTC) and further refined by the City/County Association of Governments and Santa Clara Valley Transportation Authority for use within San Mateo County and Santa Clara County. The City further refined this model for application with Menlo Park to add more detail to the zone structure and transportation network. The model has a base year of year 2019.

There are four main components of the model: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) trip assignment. The model uses socioeconomic inputs (i.e., population, income, employment) aggregated into geographic areas, called transportation analysis zones (TAZ) to estimate travel within the model area. There are 81 TAZs within the model to represent the City of Menlo Park. The model was used to estimate the Proposed Project's effect on VMT in accordance with the City's VMT guidelines.

VMT Evaluation

According to the City's VMT guidelines, the evaluation of residential land use is based on a daily VMT per capita metric. Using the model, this metric is calculated only for home-based trips. Based on the latest citywide travel demand model, the regional average residential daily VMT is 13.1 per capita. Therefore, the City's residential VMT impact threshold, at 15% below regional average, is 11.2 daily VMT per capita.

The project was coded into the model as an affordable housing project. As shown in Table 3 below, the project's residential land use would generate 10.0 daily VMT per resident, which is below the impact threshold of 11.2 VMT per resident. Therefore, the project would have a less-than-significant VMT impact on the transportation system.

Affordable housing projects typically result in less-than-significant VMT impacts on the transportation system due to factors such as shorter trip distances, higher rates of carpooling, and reduced reliance on personal vehicles among residents. Additionally, affordable housing developments often serve residents working nearby, resulting in fewer and shorter vehicle trips, further contributing to a lower VMT.

Table 3
VMT Analysis

Project	VMT per Resident			
	Regional Average	VMT Threshold [1]	Project VMT	VMT Impact?
320 Sheridan Drive	13.1	11.2	10.0	No

Notes:
** All data referenced the latest Menlo Park citywide travel demand forecasting model.*
[1] Based on the City of Menlo Park TIA guidelines, adopted on June 23, 2020, and updated on January 11, 2022,

Impacts on Pedestrian, Bicycle and Transit Facilities

Pedestrian and Bicycle Facilities

In the immediate vicinity of the project site, pedestrian facilities include sidewalks along both sides of the nearby streets. There are continuous pedestrian facilities from the project site to Flood Park and Kelly Park. The project would not affect current or planned pedestrian or bicycle facilities in the project vicinity. The project would also not require any new pedestrian or bicycle facilities.

Pedestrian and Bicycle Access to Schools

Schools in the immediate vicinity of the project site include Beechwood School, Nativity Catholic School, Menlo-Atherton High School, Encinal Elementary School, Menlo School, and Laurel Elementary School. All the schools are outside of walking distance but are within biking distance. Bicycle access to each school is described below:

- **Beechwood School.** This school is located approximately 0.9 miles east of the project site at the north end of Terminal Avenue. Bicycle access from the project site to the school would be via Van Buren Road, Pierce Road, Del Norte Avenue, and the pedestrian overcrossing at US 101. There are no striped bike lanes on Van Buren Road, Pierce Road, and Del Norte Avenue.
- **Laurel Elementary School (Lower Campus).** This school is located approximately 0.9 miles west of the project site on Edge Road. Bicycle access from the project site to the school would be via Van Buren Road, Ringwood Avenue, and Edge Road. There are Class II bicycle lanes and Class III bike routes on both sides of the road except on Van Buren Road.
- **Peninsula School.** This school is located approximately 1.1 mile southwest of the project site on Peninsula Way. Bicycle access from the project site to the school would be via Van Buren Road, Menlo Oaks Drive, and Peninsula, which do not have existing bike lanes.
- **Menlo-Atherton High School.** This school is located approximately 1.4 miles west of the project site at the east side of the Middlefield Road/Ravenswood Avenue intersection. Bicycle access from the project site to the school would be via Van Buren Road and Ringwood Avenue. Ringwood Avenue has existing Class II bicycle lanes and Class III bike routes on both sides of the road.
- **Nativity Catholic School.** This school is located approximately 2.1 miles west of the project site at the northeast corner of Laurel Street and Oak Grove Avenue. Bicycle access from the project site to the school would be via Van Buren Road, Ringwood Avenue, Middlefield Road,

Oak Grove Avenue, and Laurel Street, which have existing Class II bicycle lanes and Class III bike routes on both sides of the road except on Van Buren Road.

- **Encinal Elementary School.** This school is located approximately 2.3 miles west of the project site at the northwest corner of Middlefield Road and Encinal Avenue. Bicycle access from the project site to the school would be via Van Buren Road, Ringwood Avenue, Middlefield Road, and Encinal Avenue, which have existing Class II bicycle lanes and Class III bike routes on both sides of the road except on Van Buren Road.
- **Menlo School.** This school is located approximately 2.9 miles west of the project site on Valparaiso Avenue. Bicycle access from the project site to the school would be via Van Buren Road, Ringwood Avenue, Middlefield Road, Glenwood Avenue, and Valparaiso Avenue, which have existing Class II bicycle lanes and Class III bike routes on both sides of the road except on Van Buren Road.

Transit Facilities

SamTrans routes 82, 83, and 88 serve the immediate vicinity of the project site during the AM and PM peak commute hours and are described below:

Route 82 is a school-oriented service that provides service from Bay/Marsh to Hillview School. Route 82 operates Monday through Friday from 7:40 AM to 8:10 AM in the westbound direction, Wednesday and Thursday from 2:42 PM to 3:17 PM and Monday, Tuesday, Friday from 3:17 PM to 3:52 PM in the eastbound direction.

Route 83 is a school-oriented service that provides service from Bay/Marsh to Hillview School. Route 83 operates Monday through Friday from 7:23 AM to 8:07 AM in the westbound direction, Wednesday and Thursday from 2:43 PM to 3:27 PM and Monday, Tuesday, Friday from 3:18 PM to 4:05 PM in the eastbound direction.

Route 88 is a school-oriented service that provides service from Bay/Marsh to Encinal School. Route 88 operates Monday, Tuesday, Wednesday, and Friday from 3:15 PM to 3:36 PM and Thursday 2:05 PM to 2:26 PM in the eastbound direction.

Bus stops are within a typical walking distance (one-quarter mile or 5 minutes) of the project site on Bay Road at Greenwood Drive. The proposed project would make no change to existing public transit facilities. The small transit demand increase is expected to be accommodated by the existing transit capacity.

3. Non-CEQA Level of Service Transportation Analysis

This chapter describes the existing conditions level of service and observed traffic conditions at roadway facilities in the vicinity of the site. It also describes the method by which project traffic is estimated and any adverse effects to intersection levels of service caused by the proposed project under existing and background conditions.

Existing Intersection Lane Configurations and Traffic Volumes

The existing lane configurations at the study intersections were confirmed by observations in the field and are shown on Figure 3. Existing traffic volumes were obtained from new peak-hour counts collected in 2024. The existing AM and PM peak hour intersection volumes are shown in Figure 4. Intersection turning-movement count data are presented in Appendix A.

Existing Intersection Levels of Service

The results of the intersection level-of-service analysis under existing conditions show that the study intersections currently operate at an acceptable level of service during both peak hours (see Table 4):

Table 4
Existing Intersection Levels of Service

#	Intersection	Peak Hour	Traffic Control	Existing Conditions Avg. Delay (sec)[1]	Existing Conditions LOS
1	Sheridan Drive & Hedge Road	AM	TWSC	8.6	A
		PM		8.6	A
2	Hedge Road/Dunsmuir Way & Greenwood Drive	AM	TWSC	9.3	A
		PM		9.8	A
3	Bay Road & Greenwood Drive	AM	TWSC	14.8	B
		PM		14.2	B
4	Bay Road & Marsh Road	AM	Signal	17.8	B
		PM		24.0	C

Notes:

TWSC - Two Way Stop Control.

[1] Average delay is reported for signalized intersections. For TWSC intersections, the delay for the worst stop-controlled movement is reported.

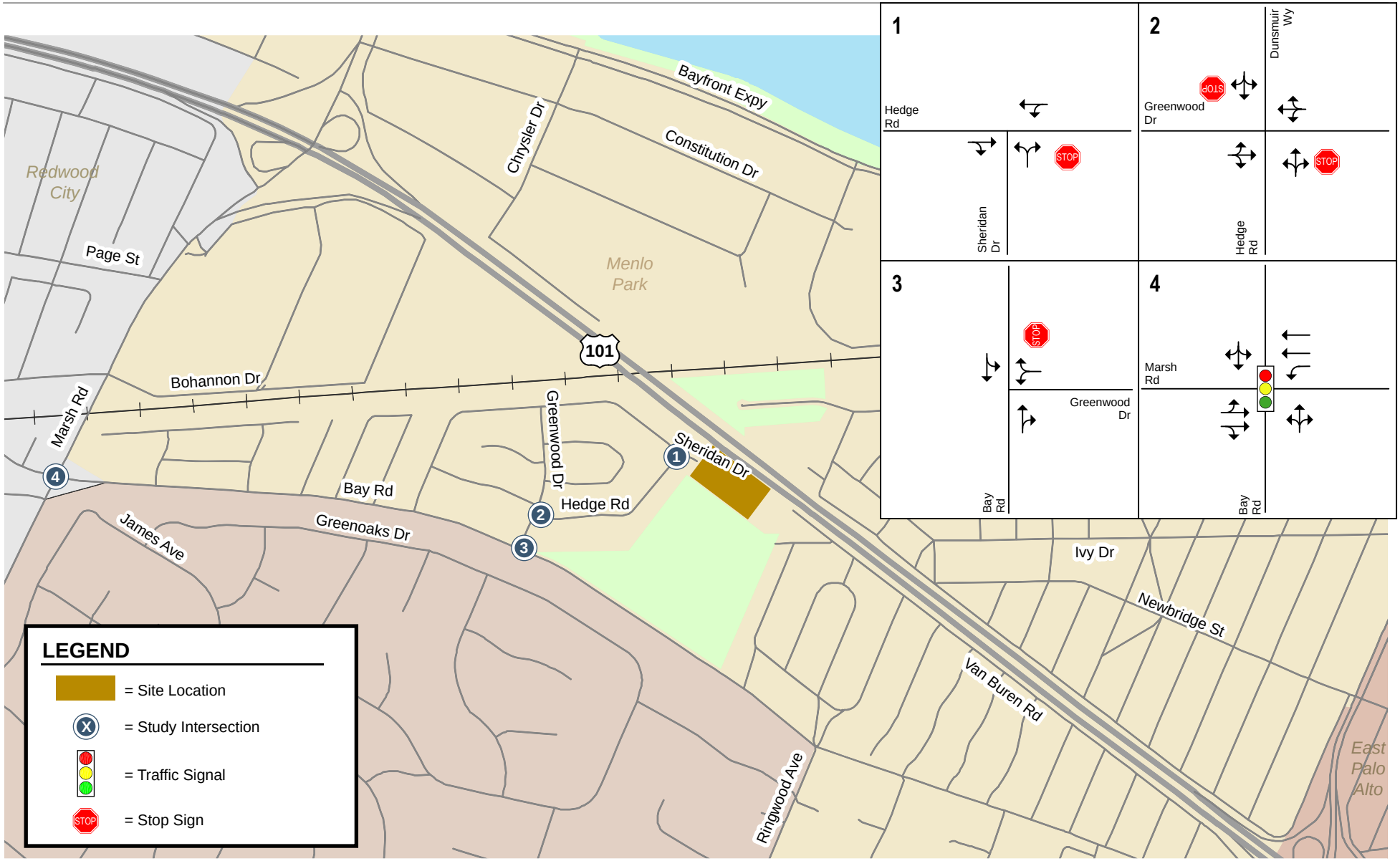


Figure 3
Existing Lane Configurations

NORTH
Not to Scale

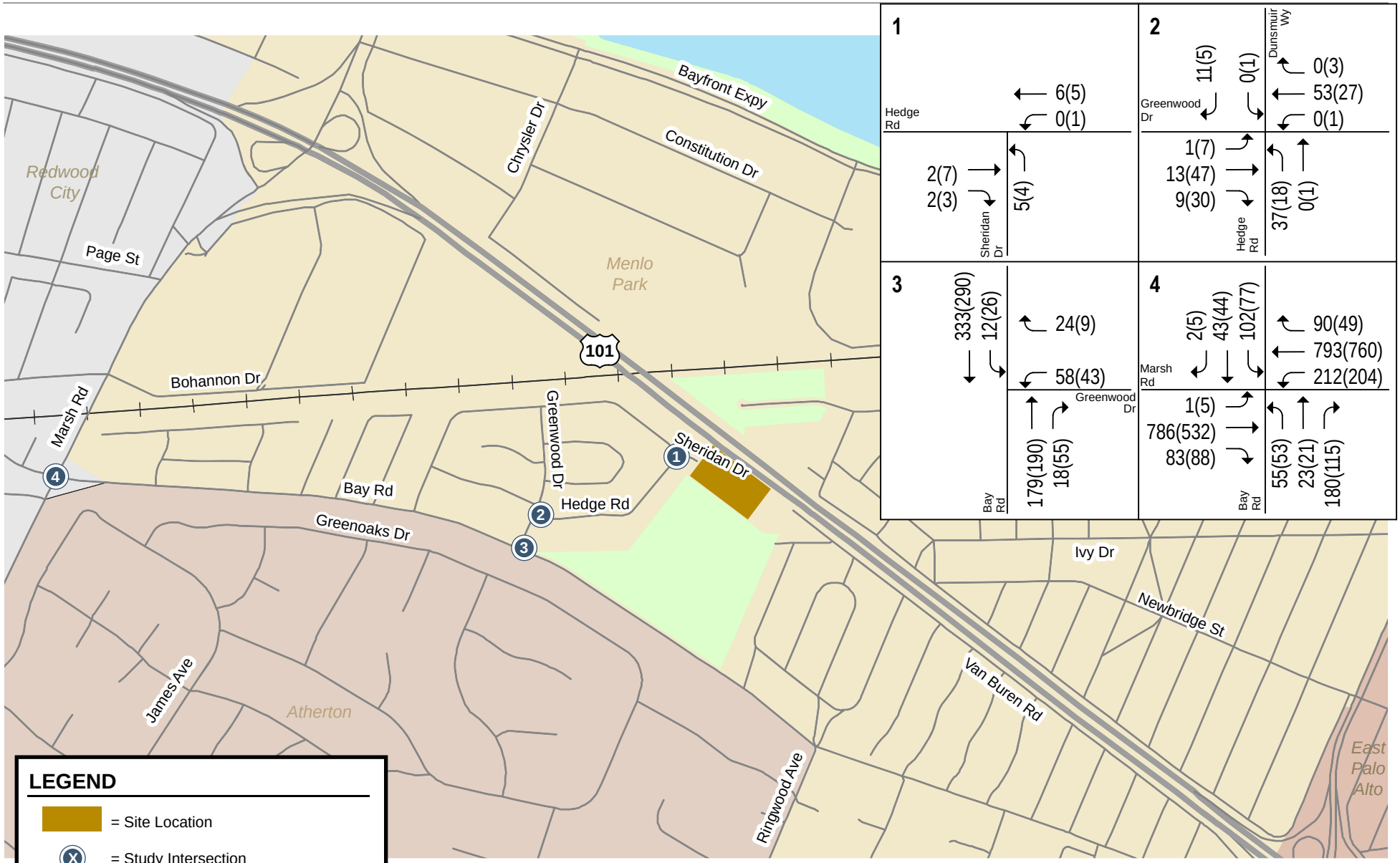


Figure 4
Existing Traffic Volumes

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 site is estimated for the AM and PM peak hours. As part of the project trip distribution, the directions to and from which the project trips would travel are estimated. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

The magnitude of traffic produced by a new development is estimated by applying the size of the project to the applicable trip generation rates contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition. Trips that would be generated by the proposed project were estimated using the ITE trip rates for "Affordable Housing – Income Limits" (Land Use Code 223).

Project Trips

Based on the trip generation rates, the proposed project would generate 423 daily trips with 44 trips (13 inbound and 31 outbound) during the AM peak hour and 40 trips (24 inbound and 16 outbound) during the PM peak hour (see Table 5).

Table 5
Project Trip Generation Estimates

Land Use	Size	Daily Rate	Daily Trips	AM Peak Hour Rate	AM In	AM Out	AM Total	PM Peak Hour Rate	PM In	PM Out	PM Total
Proposed											
Multi-family [1]	88 d.u.	4.81	423	0.50	13	31	44	0.46	24	16	40

Notes
d.u. = dwelling units
[1] Trip generations rate for the proposed project are based on the ITE's Trip Generation Manual, 11th Edition rates for Land Use Code Land Use Code 223 "Affordable Housing - Income Limits" in a General Urban/Suburban area.

Trip Distribution and Assignment

The trip distribution pattern for the project trips was estimated based on the surrounding roadway network, the locations of complementary land uses, and highway access points (see Figure 5). The PM peak-hour vehicle trips generated by the project were assigned to the roadway network in accordance with the trip distribution patterns (see Figure 5).

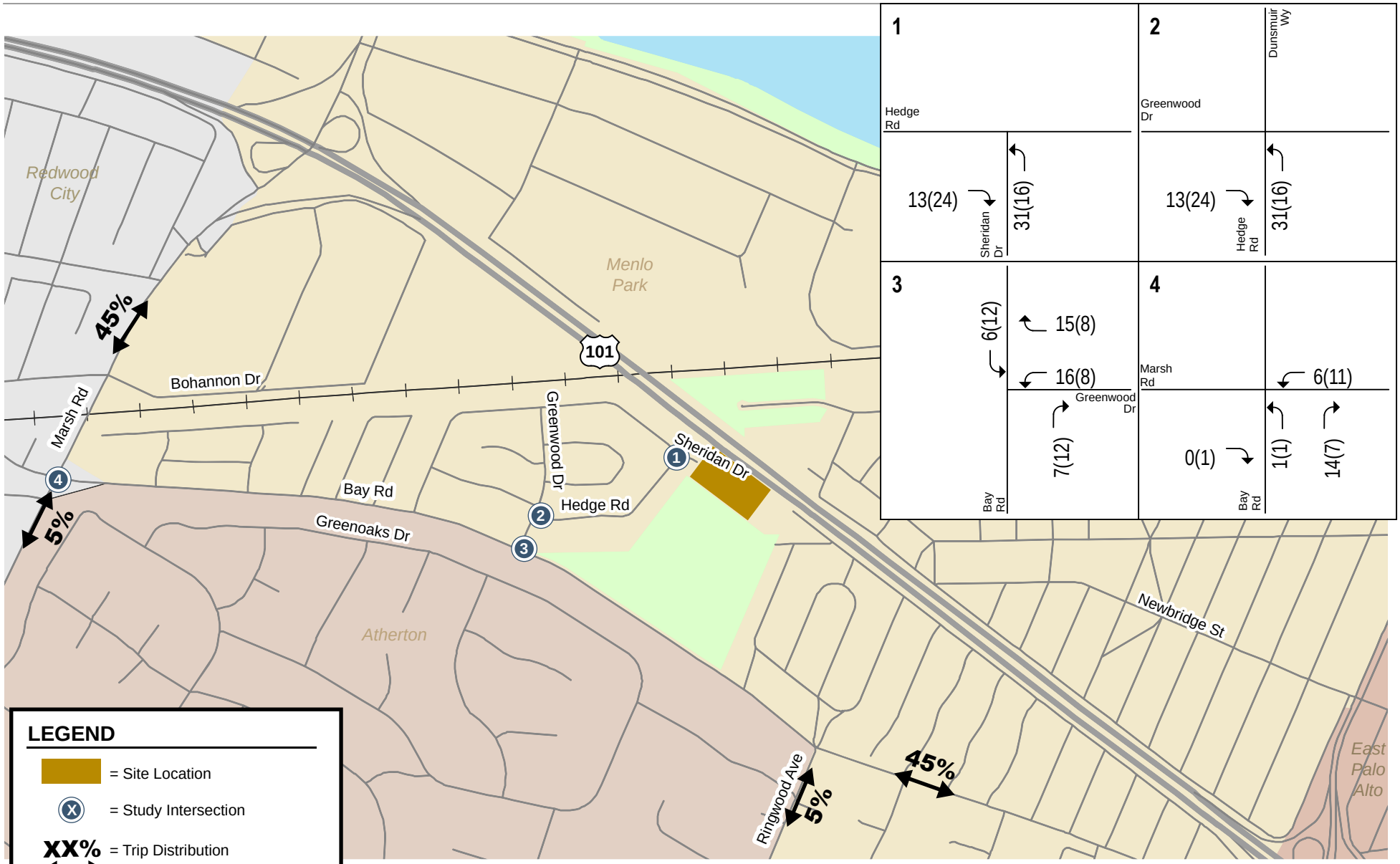


Figure 5
Project Trip Distribution and Assignment

NORTH
Not to Scale

Background Traffic Volumes

Hexagon recently completed a study for the Parkline project in Menlo Park. Since the initiation of the Parkline study, there has been only one project (123 Independence Drive) that has been approved in the vicinity of the project. Traffic volumes for the 123 Independence Drive project were added onto the background volumes in the Parkline traffic study to derive the background traffic volumes for this study for Marsh Road and Bay Road.

None of the other study intersections were evaluated as part of the Parkline study. At the intersection of Greenwood Drive and Bay Road, a growth rate was applied to the through movements on Bay Road to develop the background traffic volumes at this intersection. The growth rate was developed using volume growth at the Marsh Road and Bay Road intersection. The other intersections are minor intersections in a residential neighborhood, so no traffic growth was assumed under background conditions.

Background Intersection Levels of Service

The results of the intersection level of service analysis under background conditions show that study intersections would operate at an acceptable level of service during both peak hours (see Table 6). The intersection level of service calculation sheets are included in Appendix B.

Background Plus Project Intersection Levels of Service

The results of the intersection level of service analysis under background plus project conditions show that the study intersections (see Table 6) would continue to operate at acceptable levels of service during both peak hours. The intersection level of service calculation sheets are included in Appendix B.

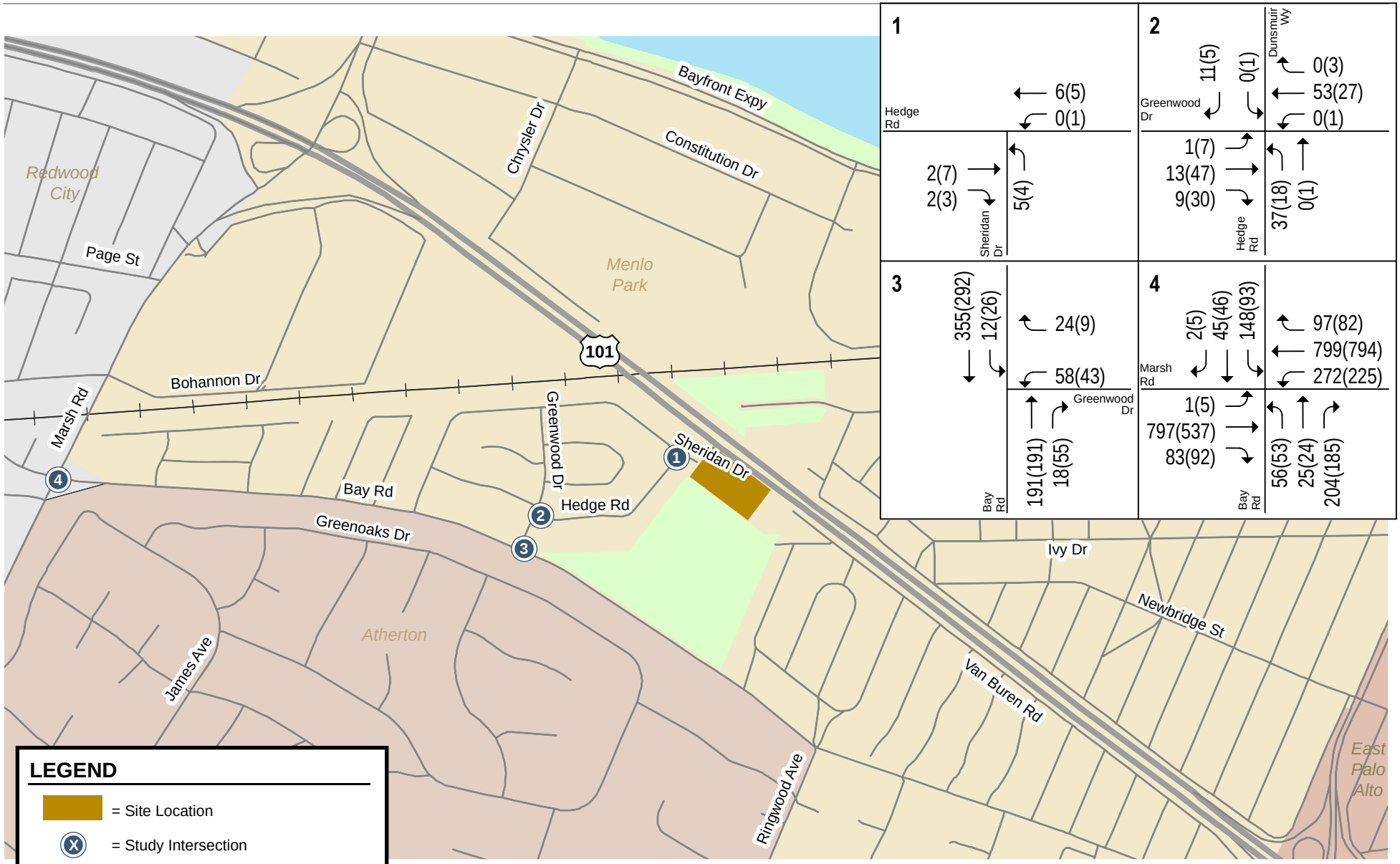


Figure 6
Background Traffic Volumes

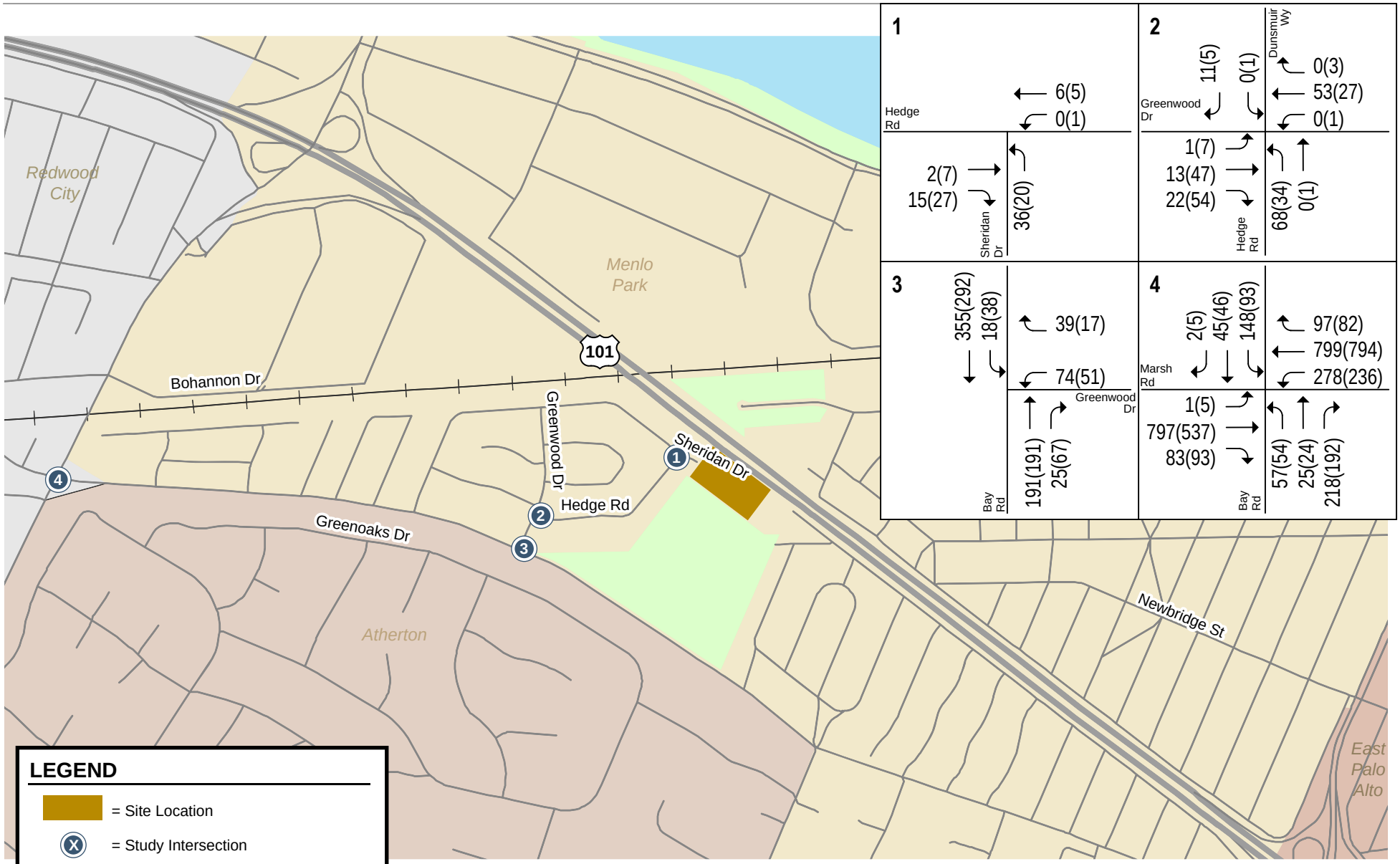


Figure 7
Background Plus Project Traffic Volumes

NORTH
Not to Scale

Table 6
Background Intersection Levels of Service

#	Intersection	Peak Hour	Traffic Control	Near-Term (2027) Conditions[2]							
				No Project			Project Conditions[3]				
				Avg. Delay (sec)[1]	LOS	Avg. Critical Delay	Avg. Delay (sec)[1]	LOS	Avg. Critical Delay	Incr. in Avg. Delay	Incr. in Avg. Critical Delay
1	Sheridan Drive & Hedge Road	AM	TWSC	8.6	A	-	8.9	A	8.9	<4	-
		PM		8.6	A	-	8.8	A	8.8	<4	-
2	Hedge Road/Dunsmuir Way & Greenwood Drive	AM	TWSC	9.3	A	-	9.6	A	9.6	<4	-
		PM		9.8	A	-	10.0	B	10.0	<4	-
3	Bay Road & Greenwood Drive	AM	TWSC	15.4	C	-	16.5	C	16.5	<4	-
		PM		14.2	B	-	15.1	C	15.1	<4	-
4	Bay Road & Marsh Road	AM	Signal	21.4	C	31.0	22.0	C	31.5	<4	<0.8
		PM		27.8	C	47.0	28.5	C	48.2	<4	1.3

Notes:
TWSC - Two Way Stop Control.
[1] Average delay is reported for signalized intersections. For TWSC intersections, the delay for the worst stop-controlled movement is reported.

Intersection Vehicle Queuing

The analysis of intersection levels of service was supplemented with a vehicle queuing analysis for intersection left-turning movements where the proposed project would add significant trips per lane. Vehicle queues were estimated using the methodology described in Chapter 1. The following movement was selected for evaluation, and the vehicle queuing analysis results based on the VISTRO software are summarized in Table 7:

- Westbound left turn from Marsh Road to southbound Bay Road

Table 7
Intersection Vehicle Queuing Results

Movement	Bay Rd & Marsh Rd WBL	
Peak Hour Period	AM	PM
Existing		
Volume (vphpl)	212	204
95th %. Queue (veh/ln)[1]	9	14
95th %. Queue (ft/ln)[1]	225	350
Storage (ft/ln)	280	280
Adequate (Y/N)	Y	N
Background		
Volume (vphpl)	272	225
95th %. Queue (veh)[1]	11	15
95th %. Queue (ft/ln)[1]	275	375
Storage (ft./ln)	280	280
Adequate (Y/N)	Y	N
Background Plus Project		
Volume (vphpl)	278	236
95th %. Queue (veh/ln)[1]	11	16
95th %. Queue (ft/ln)[1]	275	400
Storage (ft./ln)	280	280
Adequate (Y/N)	Y	N

Notes:
WBL = westbound left-turn

[1] Vehicle queues are from Vistro outputs and are rounded up to the next whole number. Assumes one vehicle equals 25 feet of queue.

Westbound Left-Turn from Marsh Road to Southbound Bay Road

The existing vehicle storage for the westbound left-turn lane on Marsh Road at Bay Road is 280 feet, which provides enough space for about 11 vehicles. Under existing and background conditions, the 95th percentile queue is shown to exceed the storage of the left-turn lane by three and four vehicles,

respectively, in the PM peak hour. The project would add one vehicle to the 95th percentile queue during the PM peak hour. If desired by the city, the left turn pocket could be extended by restriping.

Site Access and Circulation

Site access and on-site circulation were evaluated using commonly accepted transportation principles. This review is based on the site plan prepared by Alliant Strategic Development dated February 26, 2024.

Vehicle Site Access and Circulation

The project consists of three separate residential buildings with access provided via one driveway that is an extension of Sheridan Drive. This driveway would provide access to the site parking lot and residential buildings.

On-Site Circulation

The site plan shows that the width of the main drive aisle is 26 feet, and the width of the parking aisles are 23 feet. According to the City of Menlo Park standard details (T-1 and T-3), the minimum drive aisle width for multi-family residential is 24 feet, and the minimum parking aisle width for 90-degree stalls is 23 feet. The project would meet the City's standards.

Garbage Truck Access and Circulation

The site plan shows two trash enclosures located at the east and west sides of the project site. The driveway would serve as the access point for garbage trucks. Figure 8 shows the turning movements of the garbage trucks. The turning movements show that the project would provide adequate space for garbage trucks to maneuver around the site.

Emergency Vehicle Access and Circulation

The site plan shows a steel gate at the northeast corner of the project site that connects to Van Buren Road. This gate and the project driveway on Sheridan Drive would serve as access points for emergency vehicles. Figure 9 shows the turning movements of an emergency vehicle. The turning movements show that the project would provide adequate space for emergency vehicles to maneuver around the site.

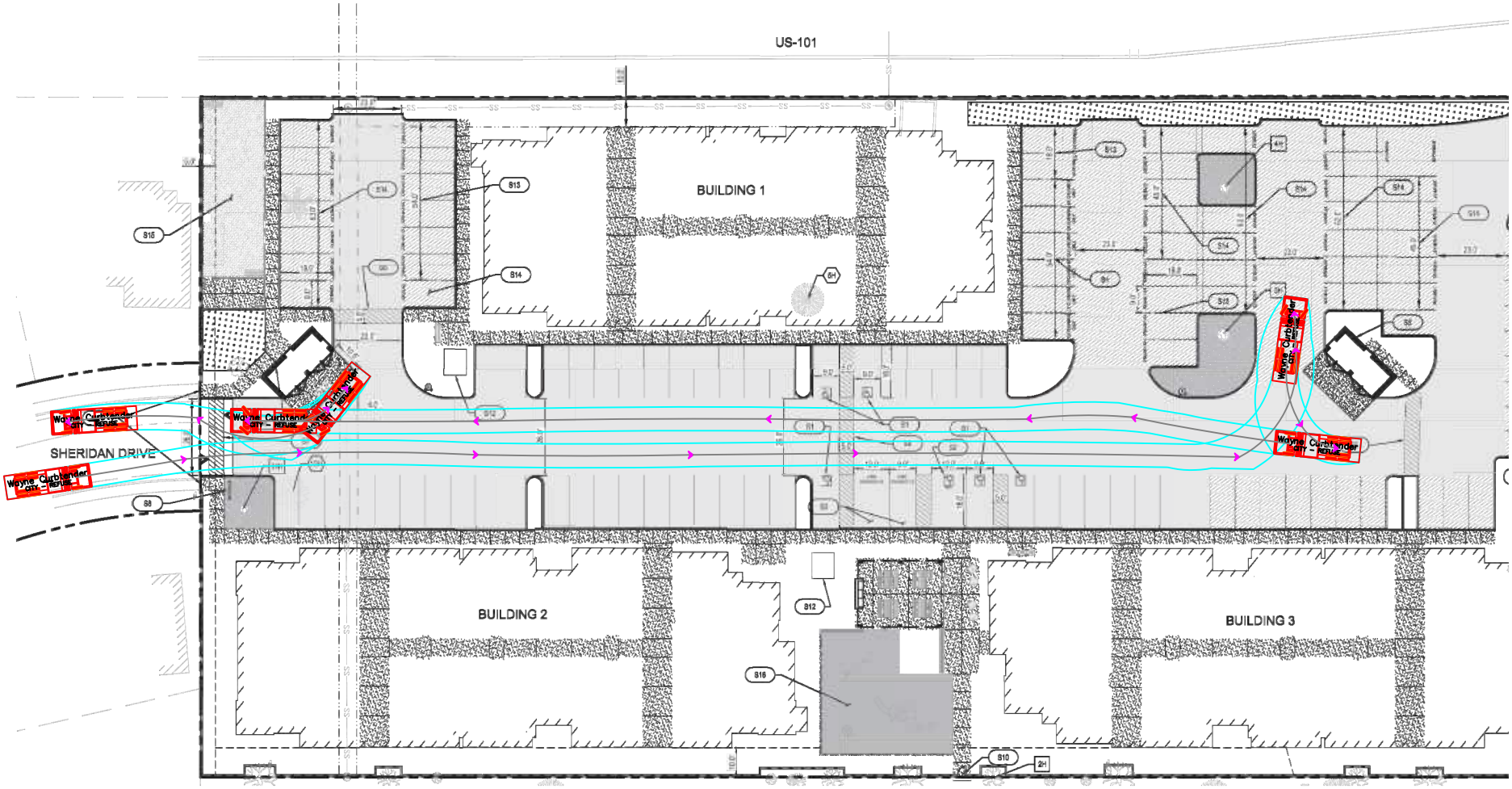


Figure 8
Garbage Truck Turning Movements

NORTH
Not to Scale

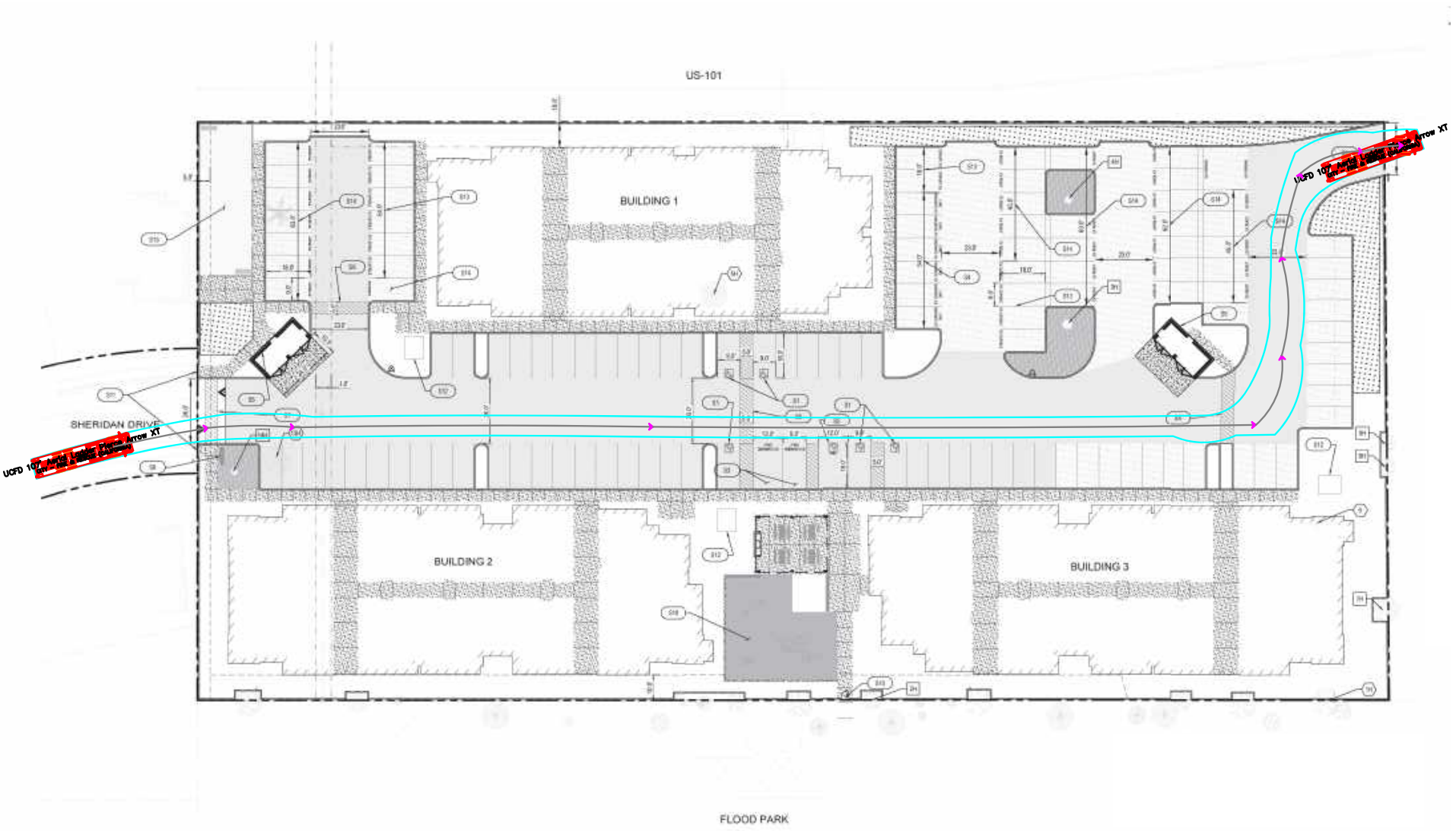


Figure 9
Emergency Vehicle Turning Movement

NORTH
Not to Scale

Parking

Vehicle Parking

According to the City of Menlo Park Zoning Code (16.20.030, Table 1), projects are required to provide two spaces per unit, one of which must be covered. The project proposes 88 apartments. Therefore, the project would be required to provide 176 parking spaces. The project proposes to provide 120 parking spaces in a surface parking lot, none of which would be covered. This would not meet the City's parking requirements. Hexagon recommends the project provide enough vehicle parking spaces to meet the City's requirements.

EV Parking

According to the City's Zoning Code (12.18.040), new multi-family construction requires at least 15% of dedicated parking spaces be electrical vehicle charging station (EVCS). The project would be required to provide 176 parking spaces with 27 of the spaces be EVCS. The project proposes 50 EV parking spaces which would meet the City's requirement.

Bicycle Parking

According to the City of Menlo Park Zoning Code (16.20.030, Table 1), projects are required to provide at minimum 1.5 long-term bicycle parking spaces per unit and 10% additional short-term bicycle parking spaces for guests. The project would be required to provide 132 long-term bicycle parking spaces and 14 short-term bicycle parking spaces. The project proposes five bicycle racks that could store 10 bicycles. This would not meet the City's requirements. Hexagon recommends the project provide enough long-term and short-term parking spaces to meet the City's requirements.

320 Sheridan Drive TIA

Technical Appendices

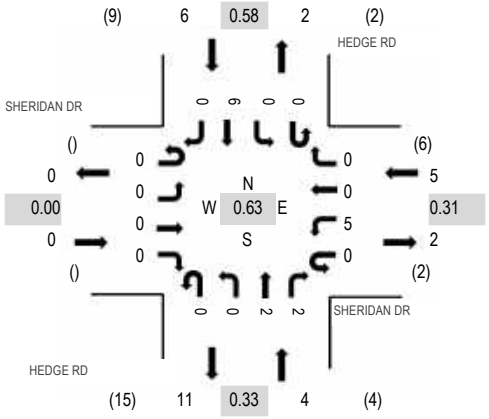
November 26, 2024

Appendix A
Traffic Counts

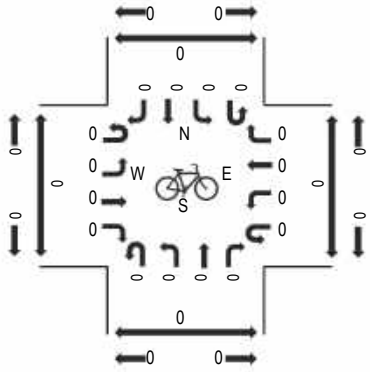
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 HEDGE RD & SHERIDAN DR AM
Date: Tuesday, September 24, 2024
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

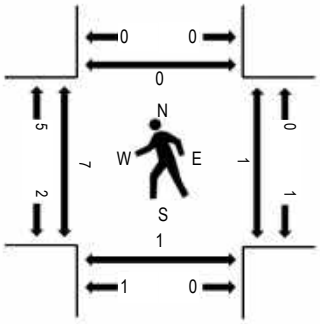
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SHERIDAN DR Eastbound				SHERIDAN DR Westbound				HEDGE RD Northbound				HEDGE RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	10	1	2	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	13	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	15	2	0	1	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	1	0	0	0	1	0	6	13	3	0	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	4	9	2	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3		0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		2	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2		2	0	0	0

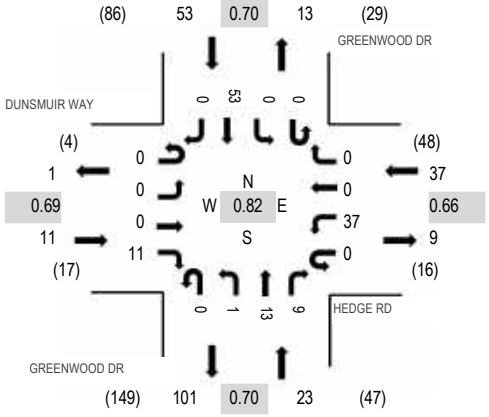
Peak Rolling Hour Flow Rates

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	0	0	0	0	0	0	0	0
Lights	0	0	0	0	0	5	0	0	0	0	2	2	0	0	6	0	15
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	5	0	0	0	0	2	2	0	0	6	0	15

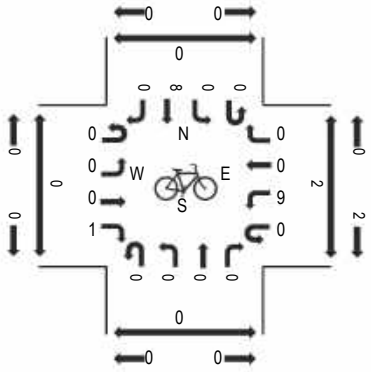
(303) 216-2439
www.alltrafficdata.net

Location: 2 GREENWOOD DR & HEDGE RD AM
Date: Tuesday, October 22, 2024
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

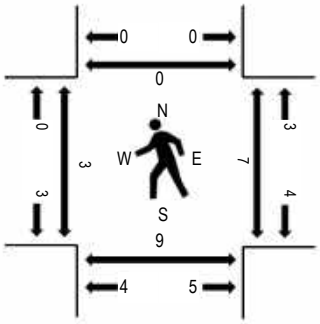
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DUNSMUIR WAY Eastbound				HEDGE RD Westbound				GREENWOOD DR Northbound				GREENWOOD DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	1	0	0	0	0	0	0	4	0	0	0	2	0	7	91	8	5	7	1
7:15 AM	0	0	0	1	0	1	0	0	0	0	4	2	1	0	8	0	17	121	5	13	10	1
7:30 AM	0	0	0	3	0	14	0	0	0	1	1	0	0	0	10	0	29	124	1	3	2	0
7:45 AM	0	0	0	3	0	6	0	0	0	0	6	4	0	0	19	0	38	119	0	3	4	0
8:00 AM	0	0	0	4	0	11	0	0	0	0	3	4	0	0	15	0	37	107	2	0	1	0
8:15 AM	0	0	0	1	0	6	0	0	0	0	3	1	0	0	9	0	20		0	1	2	0
8:30 AM	0	0	0	1	0	7	0	0	0	0	3	4	0	0	9	0	24		0	1	0	0
8:45 AM	0	1	0	2	0	3	0	0	0	3	3	1	0	0	13	0	26		0	1	0	0

Peak Rolling Hour Flow Rates

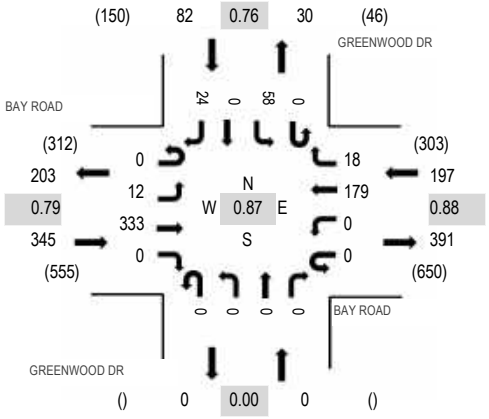
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lights	0	0	0	11	0	37	0	0	0	1	13	9	0	0	53	0	124
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	11	0	37	0	0	0	1	13	9	0	0	53	0	124

ALL TRAFFIC DATA SERVICES

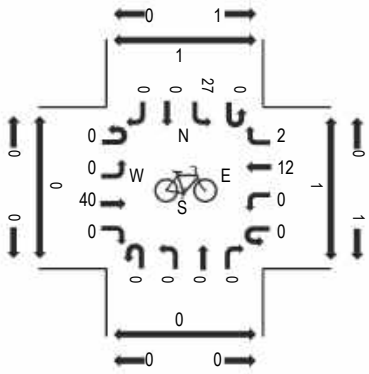
(303) 216-2439
www.alltrafficdata.net

Location: 3 GREENWOOD DR & BAY ROAD AM
Date: Tuesday, September 24, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

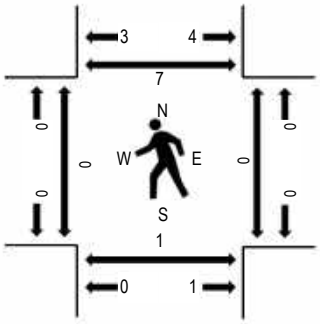
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BAY ROAD Eastbound				BAY ROAD Westbound				GREENWOOD DR Northbound				GREENWOOD DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	2	32	0	0	0	15	2	0	0	0	0	0	7	0	0	58	425	0	0	0	5
7:15 AM	0	0	27	0	0	0	20	3	0	0	0	0	0	9	0	5	64	527	0	5	0	5
7:30 AM	0	3	62	0	0	0	24	4	0	0	0	0	0	24	0	6	123	600	0	9	0	2
7:45 AM	0	4	105	0	0	0	35	3	0	0	0	0	0	23	0	10	180	624	0	0	0	2
8:00 AM	0	2	84	0	0	0	46	5	0	0	0	0	0	19	0	4	160	583	0	0	1	0
8:15 AM	0	3	71	0	0	0	49	3	0	0	0	0	0	7	0	4	137		0	0	0	3
8:30 AM	0	3	73	0	0	0	49	7	0	0	0	0	0	9	0	6	147		0	0	0	2
8:45 AM	0	1	83	0	0	0	37	1	0	0	0	0	0	15	0	2	139		0	0	0	7

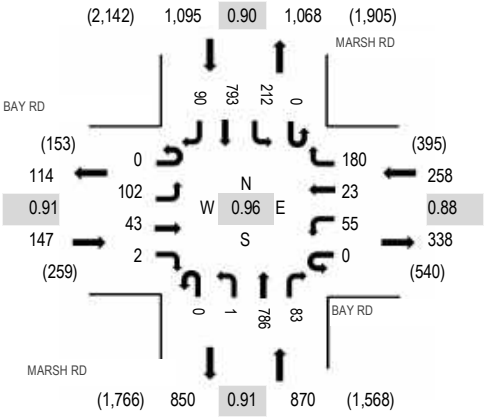
Peak Rolling Hour Flow Rates

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	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3
Lights	0	12	324	0	0	0	174	18	0	0	0	0	0	58	0	23	609
Mediums	0	0	7	0	0	0	4	0	0	0	0	0	0	0	0	1	12
Total	0	12	333	0	0	0	179	18	0	0	0	0	0	58	0	24	624

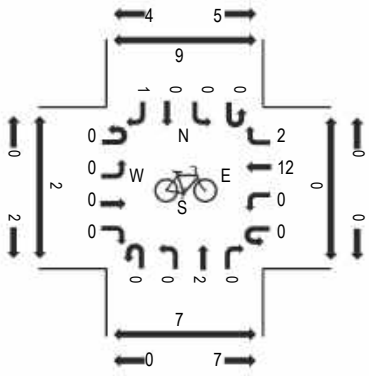
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 MARSH RD & BAY RD AM
Date: Tuesday, September 24, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

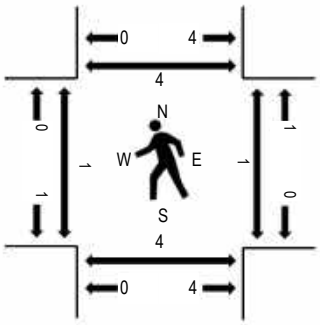
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BAY RD Eastbound				BAY RD Westbound				MARSH RD Northbound				MARSH RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	13	0	0	0	3	1	13	0	0	128	10	0	23	213	3	407	2,020	0	0	0	0
7:15 AM	0	25	4	0	0	9	1	21	0	0	135	4	0	15	257	10	481	2,167	2	0	1	0
7:30 AM	0	25	6	0	0	15	1	21	0	0	155	14	0	50	244	7	538	2,304	1	0	0	4
7:45 AM	0	26	10	0	0	19	7	32	0	1	153	24	0	71	229	22	594	2,370	0	0	0	1
8:00 AM	0	24	14	0	0	15	6	41	0	0	186	17	0	55	166	30	554	2,344	0	0	0	2
8:15 AM	0	25	6	1	0	9	7	57	0	0	238	22	0	48	186	19	618		0	1	3	0
8:30 AM	0	27	13	1	0	12	3	50	0	0	209	20	0	38	212	19	604		1	0	1	1
8:45 AM	0	29	10	0	0	10	4	38	0	1	234	17	0	49	165	11	568		1	0	0	2

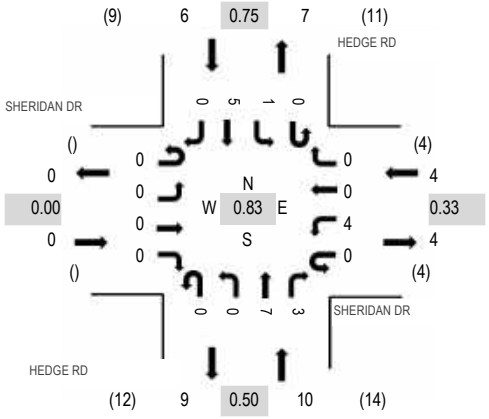
Peak Rolling Hour Flow Rates

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	1	0	0	2	1	0	1	0	0	5
Lights	0	102	43	2	0	54	23	176	0	1	770	82	0	205	767	89	2,314
Mediums	0	0	0	0	0	1	0	3	0	0	14	0	0	6	26	1	51
Total	0	102	43	2	0	55	23	180	0	1	786	83	0	212	793	90	2,370

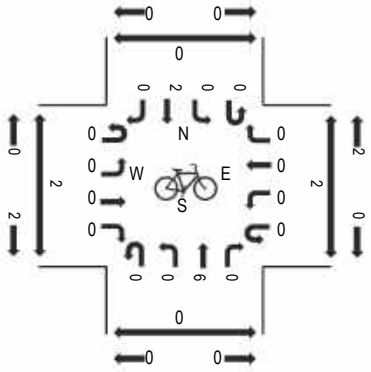
(303) 216-2439
www.alltrafficdata.net

Location: 1 HEDGE RD & SHERIDAN DR PM
Date: Tuesday, September 24, 2024
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

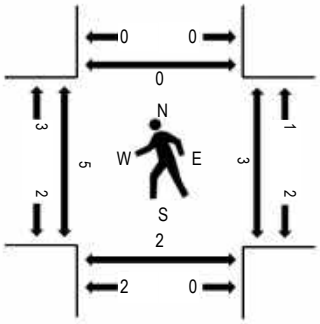
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	SHERIDAN DR Eastbound				SHERIDAN DR Westbound				HEDGE RD Northbound				HEDGE RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	20	2	2	2	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	1	1	0	0	2	0	5	19	1	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	4	1	0	1	0	0	6	16	0	1	0	0
4:45 PM	0	0	0	0	0	3	0	0	0	0	1	1	0	0	1	0	6	12	2	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	7	4	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2		1	3	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2		2	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1		2	1	1	0

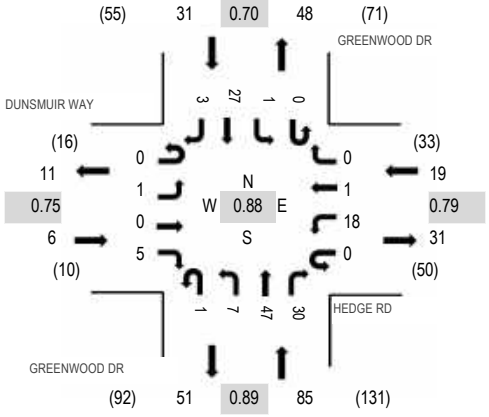
Peak Rolling Hour Flow Rates

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	0	0	0	0	0	0	0	0
Lights	0	0	0	0	0	4	0	0	0	0	7	3	0	1	5	0	20
Mediums	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	4	0	0	0	0	7	3	0	1	5	0	20

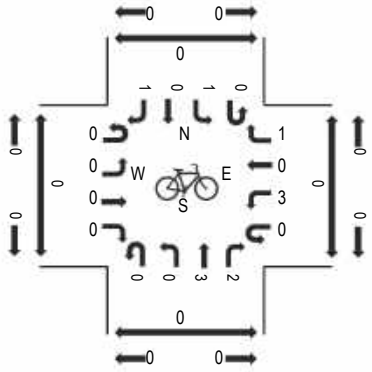
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 GREENWOOD DR & HEDGE RD PM
Date: Tuesday, October 22, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

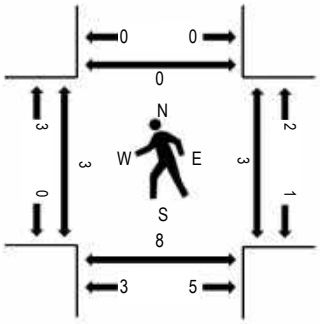
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	DUNSMUIR WAY Eastbound				HEDGE RD Westbound				GREENWOOD DR Northbound				GREENWOOD DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	1	0	3	0	0	0	2	8	6	0	0	8	0	28	88	0	0	0	0
4:15 PM	0	0	0	1	0	4	0	0	0	1	5	4	0	0	6	0	21	91	0	1	0	0
4:30 PM	0	0	0	1	0	5	0	0	0	1	5	5	0	0	7	0	24	102	1	0	2	0
4:45 PM	0	1	0	0	0	2	0	0	0	1	4	4	0	0	3	0	15	118	0	0	0	0
5:00 PM	0	0	0	2	0	5	1	0	0	2	10	5	0	0	5	1	31	141	0	1	1	0
5:15 PM	0	0	0	1	0	3	0	0	0	2	15	4	0	1	6	0	32		1	0	1	0
5:30 PM	0	0	0	1	0	5	0	0	0	2	11	10	0	0	10	1	40		1	0	3	0
5:45 PM	0	1	0	1	0	5	0	0	1	1	11	11	0	0	6	1	38		1	2	3	0

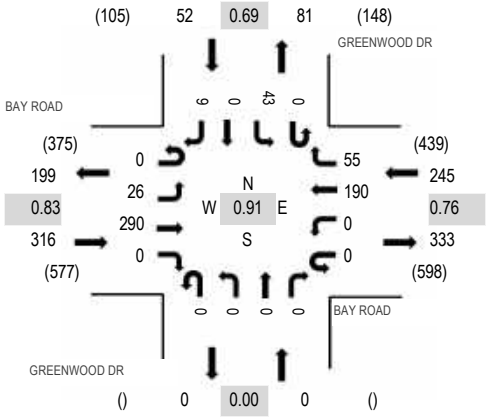
Peak Rolling Hour Flow Rates

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	0	0	0	0	0	0	0	0	0	0	0
Lights	0	1	0	5	0	18	1	0	1	7	46	30	0	1	26	3	139
Mediums	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
Total	0	1	0	5	0	18	1	0	1	7	47	30	0	1	27	3	141

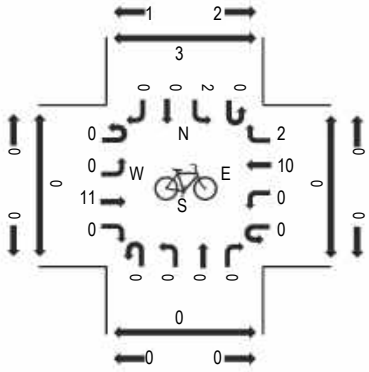
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 GREENWOOD DR & BAY ROAD PM
Date: Tuesday, September 24, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

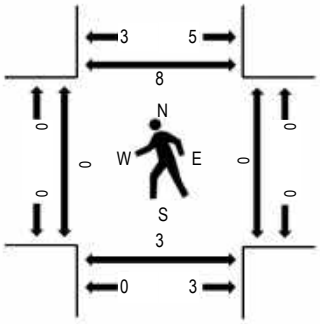
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BAY ROAD Eastbound				BAY ROAD Westbound				GREENWOOD DR Northbound				GREENWOOD DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	5	60	0	0	0	32	7	0	0	0	0	0	7	0	9	120	508	0	0	1	0
4:15 PM	0	8	77	0	0	0	32	12	0	0	0	0	0	9	0	9	147	535	0	5	1	1
4:30 PM	0	7	61	0	0	0	38	12	0	0	0	0	0	5	0	2	125	557	0	0	1	3
4:45 PM	0	3	40	0	0	0	48	13	0	0	0	0	0	6	0	6	116	578	0	0	0	3
5:00 PM	0	8	78	0	0	0	39	10	0	0	0	0	0	10	0	2	147	613	0	0	1	2
5:15 PM	0	4	91	0	0	0	39	15	0	0	0	0	0	18	0	2	169		0	0	2	2
5:30 PM	0	6	48	0	0	0	63	18	0	0	0	0	0	9	0	2	146		0	0	0	1
5:45 PM	0	8	73	0	0	0	49	12	0	0	0	0	0	6	0	3	151		0	0	0	3

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	0	0	0	0	0	0
Lights	0	25	289	0	0	0	189	54	0	0	0	0	0	43	0	9	609
Mediums	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	4
Total	0	26	290	0	0	0	190	55	0	0	0	0	0	43	0	9	613

ALL TRAFFIC DATA SERVICES

(303) 216-2439
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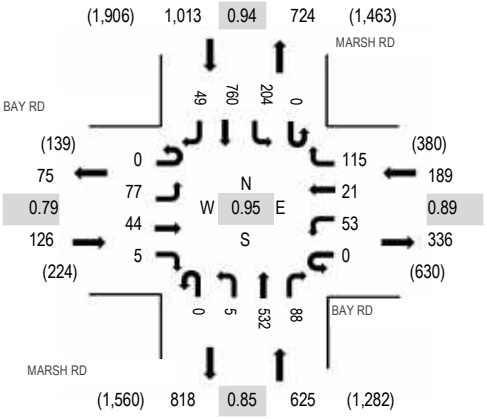
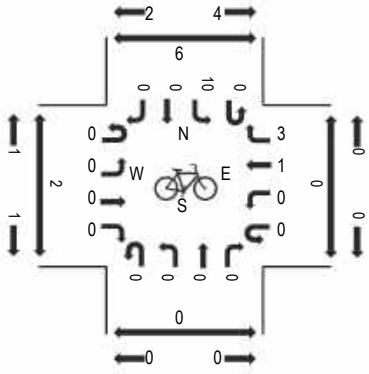
Location: 4 MARSH RD & BAY RD PM
Date: Tuesday, September 24, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

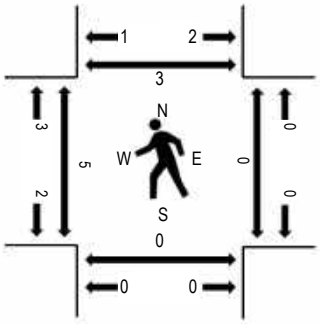
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BAY RD Eastbound				BAY RD Westbound				MARSH RD Northbound				MARSH RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	11	14	0	0	9	5	32	0	1	92	19	0	39	166	18	406	1,839	7	1	0	1
4:15 PM	0	22	9	3	0	16	4	32	0	0	155	47	0	40	152	9	489	1,916	0	0	0	4
4:30 PM	0	16	5	1	0	19	2	18	0	1	152	14	0	54	195	12	489	1,942	11	0	0	0
4:45 PM	0	11	4	2	0	13	0	41	0	1	157	18	0	31	166	11	455	1,928	0	0	0	1
5:00 PM	0	19	13	1	0	10	6	22	0	0	130	14	0	58	202	8	483	1,953	0	0	0	1
5:15 PM	0	24	14	2	0	19	6	24	0	2	131	37	0	61	184	11	515		0	0	0	2
5:30 PM	0	12	5	2	0	8	7	37	0	0	127	15	0	37	205	20	475		3	0	0	0
5:45 PM	0	22	12	0	0	16	2	32	0	3	144	22	0	48	169	10	480		2	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	0	1	0	0	0	1	0	2
Lights	0	77	44	5	0	53	21	114	0	5	523	88	0	203	755	49	1,937
Mediums	0	0	0	0	0	0	0	1	0	0	8	0	0	1	4	0	14
Total	0	77	44	5	0	53	21	115	0	5	532	88	0	204	760	49	1,953

Appendix B
Level of Service Analysis

Vistro File: P:\...\320 Sheridan Dr_AM 2024.11.08.vistro
Report File: P:\...\EAM.pdf

Scenario 16 Existing AM
11/14/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.573	17.8	B
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.152	14.8	B
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Left	0.051	9.3	A
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.008	8.6	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	17.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	786	83	212	793	90	102	43	2	55	23	180
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	786	83	212	793	90	102	43	2	55	23	180
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	205	22	55	207	23	27	11	1	14	6	47
Total Analysis Volume [veh/h]	1	819	86	221	826	94	106	45	2	57	24	188
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			5			0			5		
v_di, Inbound Pedestrian Volume crossing m	0			5			0			5		
v_co, Outbound Pedestrian Volume crossing	1			1			1			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			1			1			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			2			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	8.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	56	34	56	22	56	34	34	34	34	0	34	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	7	0	7	0	7	0	7	7	7	0	7	0
Pedestrian Clearance [s]	17	0	17	0	17	0	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	45	45	15	63	63	23	23
g / C, Green / Cycle	0.50	0.50	0.17	0.70	0.70	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.12	0.25	0.25	0.15	0.16
s, saturation flow rate [veh/h]	1869	1634	1781	1870	1794	1037	1641
c, Capacity [veh/h]	970	813	297	1305	1252	328	461
d1, Uniform Delay [s]	15.34	15.38	35.73	5.50	5.51	30.10	30.16
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.23	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.82	2.39	3.67	0.77	0.81	2.20	2.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.52	0.74	0.36	0.36	0.47	0.58
d, Delay for Lane Group [s/veh]	17.16	17.76	39.41	6.27	6.32	32.29	32.65
Lane Group LOS	B	B	D	A	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.63	5.95	4.78	3.07	2.98	3.16	5.40
50th-Percentile Queue Length [ft/ln]	165.85	148.77	119.59	76.66	74.48	79.06	134.89
95th-Percentile Queue Length [veh/ln]	10.86	9.95	8.37	5.52	5.36	5.69	9.21
95th-Percentile Queue Length [ft/ln]	271.45	248.78	209.27	137.98	134.06	142.32	230.13

Movement, Approach, & Intersection Results

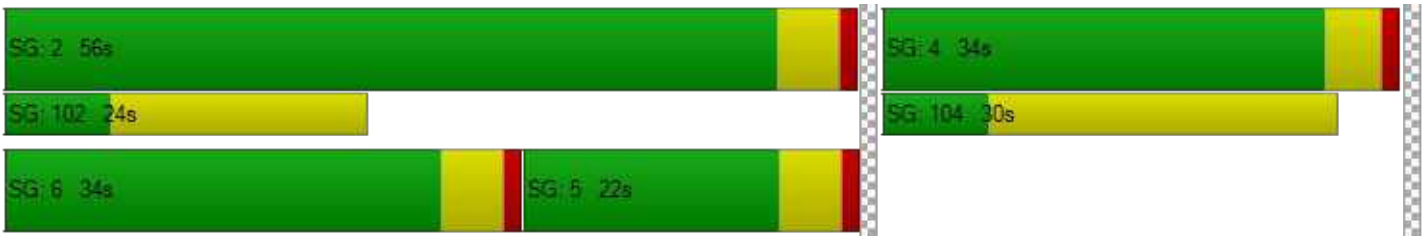
d_M, Delay for Movement [s/veh]	17.16	17.41	17.76	39.41	6.29	6.32	32.29	32.29	32.29	32.65	32.65	32.65
Movement LOS	B	B	B	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	17.44			12.71			32.29			32.65		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	17.83											
Intersection LOS	B											
Intersection V/C	0.573											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	28.9
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.72	34.72	34.72	20.78
l_p,int, Pedestrian LOS Score for Intersectio	2.721	2.963	1.826	1.997
Crosswalk LOS	B	C	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	642	1130	650	650
d_b, Bicycle Delay [s]	20.79	8.54	20.54	20.53
l_b,int, Bicycle LOS Score for Intersection	2.307	2.501	1.812	2.003
Bicycle LOS	B	B	A	B

Sequence

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



Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	58	24	12	333	179	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	24	12	333	179	18
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	7	3	96	51	5
Total Analysis Volume [veh/h]	67	28	14	383	206	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.76	10.97	7.70	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.68	0.68	0.02	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.90	16.90	0.59	0.59	0.00	0.00
d_A, Approach Delay [s/veh]	13.65		0.27		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	37	0	0	0	0	11	1	13	9	0	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	0	0	0	0	11	1	13	9	0	53	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	0	0	0	0	3	0	4	3	0	16	0
Total Analysis Volume [veh/h]	45	0	0	0	0	13	1	16	11	0	65	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.33	9.72	8.63	9.06	9.57	8.65	7.34	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.16	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.06	4.06	4.06	0.99	0.99	0.99	0.05	0.05	0.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.33			8.65			0.26			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.57											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	5	0	2	2	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	2	2	0	6
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	1	1	0	2
Total Analysis Volume [veh/h]	8	0	3	3	0	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.61	8.37	0.00	0.00	7.23	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.60	0.60	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.61		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.87					
Intersection LOS	A					

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Report File: P:\...\EPM.pdf

Scenario 16 Existing PM
11/14/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.450	24.0	C
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.106	14.2	B
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Thru	0.001	9.8	A
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.005	8.6	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.450

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	532	88	204	760	49	77	44	5	53	21	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	532	88	204	760	49	77	44	5	53	21	115
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	140	23	54	200	13	20	12	1	14	6	30
Total Analysis Volume [veh/h]	5	560	93	215	800	52	81	46	5	56	22	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			6			0			6		
v_di, Inbound Pedestrian Volume crossing m	0			6			0			6		
v_co, Outbound Pedestrian Volume crossing	0			3			3			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			3			3			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			5			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	4.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	105	70	105	35	105	70	45	45	45	0	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	0	7	0	0	0	7	7	7	7	0	7	0
Pedestrian Clearance [s]	0	17	0	0	0	17	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	92	92	22	117	117	28	28
g / C, Green / Cycle	0.61	0.61	0.15	0.78	0.78	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.19	0.19	0.12	0.23	0.23	0.12	0.13
s, saturation flow rate [veh/h]	1855	1604	1781	1870	1824	1073	1586
c, Capacity [veh/h]	1166	987	262	1463	1427	239	327
d1, Uniform Delay [s]	13.65	13.72	62.04	4.61	4.62	57.23	56.49
k, delay calibration	0.50	0.50	0.17	0.50	0.50	0.23	0.23
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.66	0.82	9.79	0.51	0.53	4.19	3.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.31	0.82	0.29	0.30	0.55	0.61
d, Delay for Lane Group [s/veh]	14.32	14.54	71.83	5.13	5.15	61.42	60.35
Lane Group LOS	B	B	E	A	A	E	E
Critical Lane Group	No	Yes	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.80	5.14	8.64	3.55	3.48	5.08	7.38
50th-Percentile Queue Length [ft/ln]	145.11	128.39	215.99	88.74	87.10	126.99	184.54
95th-Percentile Queue Length [veh/ln]	9.76	8.85	13.46	6.39	6.27	8.78	11.84
95th-Percentile Queue Length [ft/ln]	243.89	221.31	336.50	159.74	156.78	219.39	295.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.32	14.40	14.54	71.83	5.13	5.15	61.42	61.42	61.42	60.35	60.35	60.35
Movement LOS	B	B	B	E	A	A	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	14.42			18.57			61.42			60.35		
Approach LOS	B			B			E			E		
d_I, Intersection Delay [s/veh]	24.04											
Intersection LOS	C											
Intersection V/C	0.450											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	99.9	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	64.39	8.36	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	2.855	1.750	0.000
Crosswalk LOS	F	C	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	866	1332	537	537
d_b, Bicycle Delay [s]	24.14	8.36	40.20	40.12
l_b,int, Bicycle LOS Score for Intersection	2.102	2.440	1.777	1.888
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.106

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	43	9	26	290	190	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	9	26	290	190	55
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	7	80	52	15
Total Analysis Volume [veh/h]	47	10	29	319	209	60
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.16	10.51	7.81	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.05	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.05	10.05	1.23	1.23	0.00	0.00
d_A, Approach Delay [s/veh]	13.52		0.65		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.48					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	18	1	0	1	0	5	7	47	30	1	27	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	1	0	1	0	5	7	47	30	1	27	3
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	0	0	0	1	2	13	9	0	8	1
Total Analysis Volume [veh/h]	20	1	0	1	0	6	8	53	34	1	31	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.39	9.82	8.74	9.27	9.83	8.48	7.29	0.00	0.00	7.39	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.08	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.93	1.93	1.93	0.52	0.52	0.52	0.36	0.36	0.36	0.04	0.04	0.04
d_A, Approach Delay [s/veh]	9.41			8.60			0.61			0.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.05											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	4	0	7	3	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	7	3	1	5
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	1	0	2
Total Analysis Volume [veh/h]	5	0	8	4	1	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.62	8.38	0.00	0.00	7.24	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.38	0.38	0.00	0.00	0.04	0.04
d_A, Approach Delay [s/veh]	8.62		0.00		1.03	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.10					
Intersection LOS	A					

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Report File: P:\...\BAM.pdf

Scenario 17 Background AM
11/18/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.657	21.4	C
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.160	15.4	C
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Left	0.051	9.3	A
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.008	8.6	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	21.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.657

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	797	83	272	799	97	148	45	2	56	25	204
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	797	83	272	799	97	148	45	2	56	25	204
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	208	22	71	208	25	39	12	1	15	7	53
Total Analysis Volume [veh/h]	1	830	86	283	832	101	154	47	2	58	26	213
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			5			0			5		
v_di, Inbound Pedestrian Volume crossing m	0			5			0			5		
v_co, Outbound Pedestrian Volume crossing	1			1			1			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			1			1			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			2			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	8.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	56	34	56	22	56	34	34	34	34	0	34	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	7	0	7	0	7	0	7	7	7	0	7	0
Pedestrian Clearance [s]	17	0	17	0	17	0	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	38	38	18	58	58	27	27
g / C, Green / Cycle	0.42	0.42	0.20	0.65	0.65	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.16	0.25	0.26	0.21	0.18
s, saturation flow rate [veh/h]	1869	1635	1781	1870	1790	984	1677
c, Capacity [veh/h]	819	681	354	1213	1161	366	551
d1, Uniform Delay [s]	20.74	20.79	34.38	7.45	7.47	29.19	26.86
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.29	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.19	4.38	4.19	0.95	1.01	3.55	1.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.63	0.80	0.39	0.39	0.55	0.54
d, Delay for Lane Group [s/veh]	23.93	25.17	38.57	8.40	8.48	32.73	28.73
Lane Group LOS	C	C	D	A	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.29	7.50	6.11	3.93	3.81	4.35	5.57
50th-Percentile Queue Length [ft/ln]	207.25	187.42	152.79	98.13	95.31	108.75	139.15
95th-Percentile Queue Length [veh/ln]	13.01	11.99	10.17	7.07	6.86	7.77	9.43
95th-Percentile Queue Length [ft/ln]	325.30	299.68	254.14	176.64	171.56	194.26	235.87

Movement, Approach, & Intersection Results

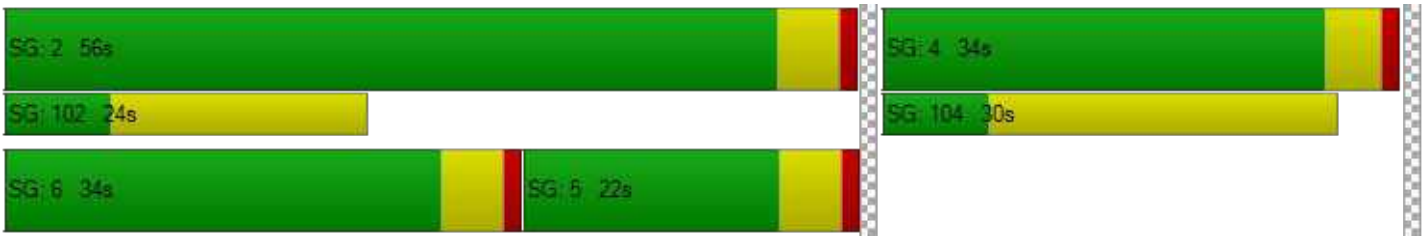
d_M, Delay for Movement [s/veh]	23.93	24.44	25.17	38.57	8.44	8.48	32.73	32.73	32.73	28.73	28.73	28.73
Movement LOS	C	C	C	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	24.51			15.45			32.73			28.73		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	21.44											
Intersection LOS	C											
Intersection V/C	0.657											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	28.9
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.70	34.70	34.70	20.76
l_p,int, Pedestrian LOS Score for Intersectio	2.728	3.067	1.850	2.041
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	642	1131	651	651
d_b, Bicycle Delay [s]	20.77	8.52	20.52	20.51
l_b,int, Bicycle LOS Score for Intersection	2.316	2.563	1.895	2.050
Bicycle LOS	B	B	A	B

Sequence

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



Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	58	24	12	355	191	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	24	12	355	191	18
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	7	3	102	55	5
Total Analysis Volume [veh/h]	67	28	14	408	220	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.38	11.23	7.73	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.72	0.72	0.02	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	17.88	17.88	0.59	0.59	0.00	0.00
d_A, Approach Delay [s/veh]	14.16		0.26		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.92					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	37	0	0	0	0	11	1	13	9	0	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	0	0	0	0	11	1	13	9	0	53	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	0	0	0	0	3	0	4	3	0	16	0
Total Analysis Volume [veh/h]	45	0	0	0	0	13	1	16	11	0	65	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.33	9.72	8.63	9.06	9.57	8.65	7.34	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.16	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.06	4.06	4.06	0.99	0.99	0.99	0.05	0.05	0.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.33			8.65			0.26			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.57											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	5	0	2	2	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	2	2	0	6
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	1	1	0	2
Total Analysis Volume [veh/h]	8	0	3	3	0	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.61	8.37	0.00	0.00	7.23	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.60	0.60	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.61		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.87					
Intersection LOS	A					

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Report File: P:\...\BPM.pdf

Scenario 17 Background PM
11/18/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.513	27.8	C
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.107	14.2	B
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Thru	0.001	9.8	A
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.005	8.6	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	27.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	537	92	225	794	82	93	46	5	53	24	185
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	537	92	225	794	82	93	46	5	53	24	185
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	141	24	59	209	22	24	12	1	14	6	49
Total Analysis Volume [veh/h]	5	565	97	237	836	86	98	48	5	56	25	195
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			6			0			6		
v_di, Inbound Pedestrian Volume crossing m	0			6			0			6		
v_co, Outbound Pedestrian Volume crossing	0			3			3			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			3			3			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			5			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	4.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	105	70	105	35	105	70	45	45	45	0	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	0	7	0	0	0	7	7	7	7	0	7	0
Pedestrian Clearance [s]	0	17	0	0	0	17	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	83	83	24	110	110	35	35
g / C, Green / Cycle	0.56	0.56	0.16	0.74	0.74	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.19	0.19	0.13	0.25	0.25	0.17	0.17
s, saturation flow rate [veh/h]	1853	1601	1781	1870	1800	878	1654
c, Capacity [veh/h]	1056	892	283	1376	1324	245	415
d1, Uniform Delay [s]	18.18	18.27	61.16	6.99	7.00	55.07	52.79
k, delay calibration	0.50	0.50	0.22	0.50	0.50	0.31	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.86	1.08	12.40	0.67	0.71	6.95	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.35	0.84	0.34	0.34	0.62	0.66
d, Delay for Lane Group [s/veh]	19.04	19.35	73.56	7.66	7.71	62.02	57.69
Lane Group LOS	B	B	E	A	A	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.01	6.20	9.70	5.20	5.06	6.02	10.16
50th-Percentile Queue Length [ft/ln]	175.17	154.97	242.47	129.96	126.43	150.43	254.09
95th-Percentile Queue Length [veh/ln]	11.35	10.28	14.81	8.94	8.75	10.04	15.39
95th-Percentile Queue Length [ft/ln]	283.69	257.05	370.16	223.43	218.63	251.00	384.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.04	19.16	19.35	73.56	7.68	7.71	62.02	62.02	62.02	57.69	57.69	57.69
Movement LOS	B	B	B	E	A	A	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	19.18			21.15			62.02			57.69		
Approach LOS	B			C			E			E		
d_I, Intersection Delay [s/veh]	27.79											
Intersection LOS	C											
Intersection V/C	0.513											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	99.9	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	64.37	8.35	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	2.922	1.773	0.000
Crosswalk LOS	F	C	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	866	1333	538	538
d_b, Bicycle Delay [s]	24.12	8.35	40.18	40.10
l_b,int, Bicycle LOS Score for Intersection	2.110	2.516	1.809	2.015
Bicycle LOS	B	B	A	B

Sequence

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

Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.107

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	43	9	26	292	191	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	9	26	292	191	55
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	7	80	52	15
Total Analysis Volume [veh/h]	47	10	29	321	210	60
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.01	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.20	10.53	7.82	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.05	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.09	10.09	1.23	1.23	0.00	0.00
d_A, Approach Delay [s/veh]	13.56		0.65		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.48					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	18	1	0	1	0	5	7	47	30	1	27	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	1	0	1	0	5	7	47	30	1	27	3
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	0	0	0	1	2	13	9	0	8	1
Total Analysis Volume [veh/h]	20	1	0	1	0	6	8	53	34	1	31	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.39	9.82	8.74	9.27	9.83	8.48	7.29	0.00	0.00	7.39	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.08	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.93	1.93	1.93	0.52	0.52	0.52	0.36	0.36	0.36	0.04	0.04	0.04
d_A, Approach Delay [s/veh]	9.41			8.60			0.61			0.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.05											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	4	0	7	3	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	7	3	1	5
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	1	0	2
Total Analysis Volume [veh/h]	5	0	8	4	1	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.62	8.38	0.00	0.00	7.24	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.38	0.38	0.00	0.00	0.04	0.04
d_A, Approach Delay [s/veh]	8.62		0.00		1.03	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.10					
Intersection LOS	A					

Vistro File: P:\...\320 Sheridan Dr_AM 2024.11.08.vistro
Report File: P:\...\BPAM.pdf

Scenario 18 Background Plus Project AM
11/22/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.667	22.0	C
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.210	16.5	C
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Left	0.096	9.6	A
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.058	8.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	1	797	83	278	799	97	148	45	2	57	25	218
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	797	83	278	799	97	148	45	2	57	25	218
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	208	22	72	208	25	39	12	1	15	7	57
Total Analysis Volume [veh/h]	1	830	86	290	832	101	154	47	2	59	26	227
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			5			0			5		
v_di, Inbound Pedestrian Volume crossing m	0			5			0			5		
v_co, Outbound Pedestrian Volume crossing	1			1			1			1		
v_ci, Inbound Pedestrian Volume crossing mi	1			1			1			1		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			2			3			2		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	8.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	56	34	56	22	56	34	34	34	34	0	34	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	7	0	7	0	7	0	7	7	7	0	7	0
Pedestrian Clearance [s]	17	0	17	0	17	0	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	37	37	18	58	58	28	28
g / C, Green / Cycle	0.41	0.41	0.20	0.64	0.64	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.26	0.26	0.16	0.25	0.26	0.21	0.19
s, saturation flow rate [veh/h]	1869	1635	1781	1870	1790	958	1680
c, Capacity [veh/h]	801	666	360	1202	1150	364	562
d1, Uniform Delay [s]	21.42	21.46	34.24	7.70	7.73	29.00	26.70
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.30	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.43	4.76	4.25	0.97	1.03	3.73	2.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.64	0.80	0.40	0.40	0.56	0.56
d, Delay for Lane Group [s/veh]	24.85	26.23	38.49	8.68	8.76	32.73	28.77
Lane Group LOS	C	C	D	A	A	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	8.48	7.68	6.26	4.02	3.91	4.37	5.87
50th-Percentile Queue Length [ft/ln]	212.08	192.09	156.56	100.54	97.66	109.26	146.81
95th-Percentile Queue Length [veh/ln]	13.26	12.23	10.37	7.24	7.03	7.80	9.85
95th-Percentile Queue Length [ft/ln]	331.50	305.74	259.16	180.97	175.80	194.97	246.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.85	25.42	26.23	38.49	8.71	8.76	32.73	32.73	32.73	28.77	28.77	28.77
Movement LOS	C	C	C	D	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	25.50			15.78			32.73			28.77		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	21.96											
Intersection LOS	C											
Intersection V/C	0.667											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	28.9
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.70	34.70	34.70	20.76
l_p,int, Pedestrian LOS Score for Intersectio	2.729	3.072	1.850	2.052
Crosswalk LOS	B	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	642	1131	651	651
d_b, Bicycle Delay [s]	20.77	8.52	20.52	20.51
l_b,int, Bicycle LOS Score for Intersection	2.316	2.569	1.895	2.074
Bicycle LOS	B	B	A	B

Sequence

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

Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.210

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	74	39	18	355	191	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	74	39	18	355	191	25
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	11	5	102	55	7
Total Analysis Volume [veh/h]	85	45	21	408	220	29
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.06	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.52	12.11	7.76	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.06	1.06	0.04	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	26.49	26.49	0.89	0.89	0.00	0.00
d_A, Approach Delay [s/veh]	14.99		0.38		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.61					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	68	0	0	0	0	11	1	13	22	0	53	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	0	0	0	0	11	1	13	22	0	53	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	0	0	0	0	3	0	4	7	0	16	0
Total Analysis Volume [veh/h]	83	0	0	0	0	13	1	16	27	0	65	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.60	9.98	8.89	9.11	9.67	8.65	7.34	0.00	0.00	7.30	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.32	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.93	7.93	7.93	0.99	0.99	0.99	0.05	0.05	0.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.60			8.65			0.17			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.47											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	36	0	2	15	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	0	2	15	0	6
Peak Hour Factor	0.6300	0.6300	0.6300	0.6300	0.6300	0.6300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	0	1	6	0	2
Total Analysis Volume [veh/h]	57	0	3	24	0	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.86	8.60	0.00	0.00	7.27	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.57	4.57	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.86		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.37					
Intersection LOS	A					

Vistro File: P:\...\320 Sheridan Dr_PM 2024.11.08.vistro
Report File: P:\...\BPPM.pdf

Scenario 18 Background Plus Project PM
11/22/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Marsh Rd/Bay Rd	Signalized	HCM 7th Edition	SB Left	0.523	28.5	C
82	Greenwood Dr/Bay Rd	Two-way stop	HCM 7th Edition	SB Left	0.135	15.1	C
298	Greenwood Dr/Hedge Rd/Dunsmuir Wy	Two-way stop	HCM 7th Edition	NB Thru	0.001	10.0	B
299	Hedge Rd/Sheridan Dr	Two-way stop	HCM 7th Edition	NB Left	0.024	8.8	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Marsh Rd/Bay Rd

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Marsh Road			Marsh Road			Bay Road			Bay Road		
Base Volume Input [veh/h]	5	537	93	236	794	82	93	46	5	54	24	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	537	93	236	794	82	93	46	5	54	24	192
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	141	24	62	209	22	24	12	1	14	6	51
Total Analysis Volume [veh/h]	5	565	98	248	836	86	98	48	5	57	25	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			6			0			6		
v_di, Inbound Pedestrian Volume crossing m	0			6			0			6		
v_co, Outbound Pedestrian Volume crossing	0			3			3			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			3			3			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	1			1			5			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	150
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	4.0
Offset Reference	LagCoordGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	2	6	2	5	2	6	4	4	4	8	4	8
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	Lag	-	-	Lag	-	-	-	-	-
Minimum Green [s]	6	7	6	7	6	7	8	8	8	0	8	0
Maximum Green [s]	40	40	40	30	40	40	30	30	30	0	30	0
Amber [s]	4.1	4.1	4.1	4.1	4.1	4.1	3.7	3.7	3.7	0.0	3.7	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	105	70	105	35	105	70	45	45	45	0	45	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	5.0	5.0	5.0	0.0	5.0	0.0
Walk [s]	0	7	0	0	0	7	7	7	7	0	7	0
Pedestrian Clearance [s]	0	17	0	0	0	17	23	23	23	0	23	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	0.0
l2, Clearance Lost Time [s]	0.5	0.5	0.5	1.0	0.5	0.5	0.1	0.1	0.1	0.0	0.1	0.0
Minimum Recall		No		No	No			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	C	L	C	C	C	C
C, Cycle Length [s]	150	150	150	150	150	150	150
L, Total Lost Time per Cycle [s]	2.50	2.50	3.00	2.50	2.50	2.10	2.10
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	0.50	0.50	1.00	0.50	0.50	0.10	0.10
g_i, Effective Green Time [s]	82	82	25	110	110	36	36
g / C, Green / Cycle	0.55	0.55	0.16	0.73	0.73	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.19	0.19	0.14	0.25	0.25	0.17	0.17
s, saturation flow rate [veh/h]	1853	1600	1781	1870	1800	864	1656
c, Capacity [veh/h]	1039	876	293	1369	1318	245	421
d1, Uniform Delay [s]	18.96	19.06	60.73	7.17	7.18	54.79	52.61
k, delay calibration	0.50	0.50	0.24	0.50	0.50	0.31	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.90	1.13	13.65	0.68	0.72	7.10	5.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.36	0.85	0.34	0.34	0.62	0.67
d, Delay for Lane Group [s/veh]	19.87	20.19	74.38	7.85	7.90	61.89	57.80
Lane Group LOS	B	C	E	A	A	E	E
Critical Lane Group	No	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.20	6.37	10.24	5.29	5.14	6.03	10.49
50th-Percentile Queue Length [ft/ln]	179.98	159.17	255.92	132.18	128.61	150.68	262.27
95th-Percentile Queue Length [veh/ln]	11.60	10.51	15.48	9.06	8.86	10.05	15.80
95th-Percentile Queue Length [ft/ln]	289.98	262.63	387.09	226.45	221.61	251.34	395.07

Movement, Approach, & Intersection Results

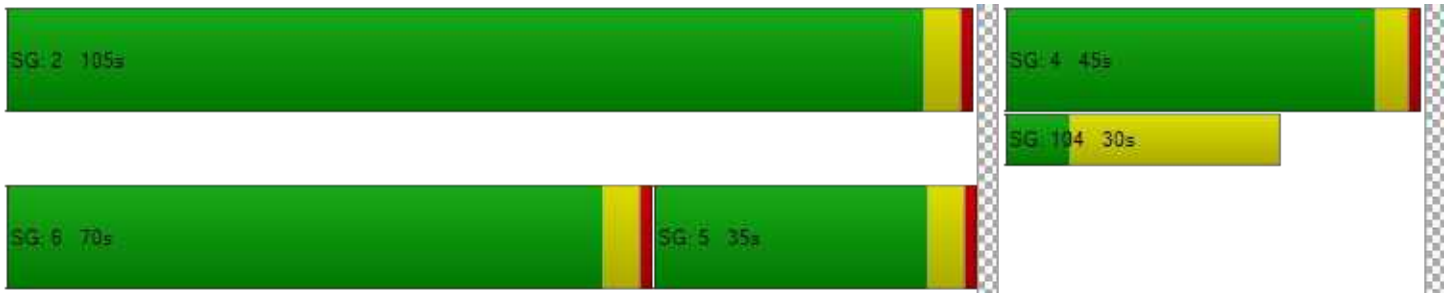
d_M, Delay for Movement [s/veh]	19.87	19.99	20.19	74.38	7.87	7.90	61.89	61.89	61.89	57.80	57.80	57.80
Movement LOS	B	B	C	E	A	A	E	E	E	E	E	E
d_A, Approach Delay [s/veh]	20.02			21.97			61.89			57.80		
Approach LOS	C			C			E			E		
d_I, Intersection Delay [s/veh]	28.53											
Intersection LOS	C											
Intersection V/C	0.523											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	99.9	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	64.37	8.35	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	2.927	1.773	0.000
Crosswalk LOS	F	C	A	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	866	1333	538	538
d_b, Bicycle Delay [s]	24.12	8.35	40.18	40.10
l_b,int, Bicycle LOS Score for Intersection	2.111	2.525	1.809	2.028
Bicycle LOS	B	B	A	B

Sequence

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



Intersection Level Of Service Report
Intersection 82: Greenwood Dr/Bay Rd

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.135

Intersection Setup

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

Volumes

Name	Greenwood Dr		Bay Rd		Bay Rd	
Base Volume Input [veh/h]	51	17	38	292	191	67
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	17	38	292	191	67
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	5	10	80	52	18
Total Analysis Volume [veh/h]	56	19	42	321	210	74
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.02	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.10	10.98	7.86	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.56	0.56	0.07	0.07	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.00	14.00	1.79	1.79	0.00	0.00
d_A, Approach Delay [s/veh]	14.06		0.91		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.92					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 298: Greenwood Dr/Hedge Rd/Dunsmuir Wy

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hedge Rd			Dunsmuir Wy			Greenwood Dr			Greenwood Dr		
Base Volume Input [veh/h]	34	1	0	1	0	5	7	47	54	1	27	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	1	0	1	0	5	7	47	54	1	27	3
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	0	0	0	0	1	2	13	15	0	8	1
Total Analysis Volume [veh/h]	39	1	0	1	0	6	8	53	61	1	31	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.59	10.02	8.91	9.36	10.00	8.48	7.29	0.00	0.00	7.44	0.00	0.00
Movement LOS	A	B	A	A	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.15	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.83	3.83	3.83	0.53	0.53	0.53	0.37	0.37	0.37	0.04	0.04	0.04
d_A, Approach Delay [s/veh]	9.60			8.61			0.48			0.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.50											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 299: Hedge Rd/Sheridan Dr

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

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

Volumes

Name	Sheridan Dr		Hedge Rd		Hedge Rd	
Base Volume Input [veh/h]	20	0	7	27	1	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	0	7	27	1	5
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	2	8	0	2
Total Analysis Volume [veh/h]	24	0	8	33	1	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.76	8.51	0.00	0.00	7.30	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.88	1.88	0.00	0.00	0.04	0.04
d_A, Approach Delay [s/veh]	8.76		0.00		1.04	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.02					
Intersection LOS	A					