

Transportation Report

Technical Appendix – Transportation

PORT GAMBLE – ENVIRONMENTAL IMPACT STATEMENT

Prepared for:
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Introduction

This technical appendix describes the existing transportation system and traffic operations on and in the vicinity of the Port Gamble site, and evaluates potential impacts associated with proposed development under the EIS alternatives. The following sections describe the affected environment, forecast conditions under each alternative, and summarize potential mitigation and unavoidable impacts.

Alternatives Evaluated

Two Action Alternatives and three No Action Alternatives were evaluated and the results summarized in this report. The Alternatives evaluated in this study are defined as follows:

1. No Action Alternatives
 - o Scenario A – No development would occur under this scenario.
 - o Scenario B – Minimal development would occur under this alternative and would include approximately 200,000 sf of industrial park, 35,000 sf of retail, 5,000 sf of restaurant, 27 residential townhouses/condominiums, and 138 single-family detached homes. Transportation impacts of this alternative are being compared to a future 2027 Action Alternatives which assume more growth in Port Gamble.
 - o Scenario C – This alternative development of approximately 35,000 sf of retail, 5,000 sf of restaurant, 31 residential townhouses/condominiums, and 138 single-family detached homes. Transportation impacts of this alternative are being compared to a future 2027 Action Alternatives which assume more growth in Port Gamble.
2. Alternative 1 – Full build of this alternative includes development of approximately 100 hotel rooms, 3 breweries or wineries, 151 residential townhouses/condominiums, 15,000 sf of restaurant, 156,000 sf retail, 114 single-family detached homes, and 14,300 sf of wildlife shelter. It is anticipated that this Alternative would be constructed in four phases.
 - o Additionally, an alternative was evaluated without the proposed NE Carver Drive extension.
3. Alternative 2 – Full build of this alternative includes development of approximately 100 hotel rooms, 3 breweries or wineries, 112 residential townhouses/condominiums, 15,000 sf of restaurant, 35,000 sf of retail, 114 single-family detached homes, and 14,300 sf of wildlife shelter. It is anticipated that this Alternative would be constructed in four phases.
 - o Additionally, an alternative was evaluated without the proposed NE Carver Drive extension.

Affected Environment

This section describes the existing transportation conditions within the Port Gamble site and vicinity, including the roadway network, non-motorized transportation facilities, transit service, safety, traffic volumes, and traffic operations.

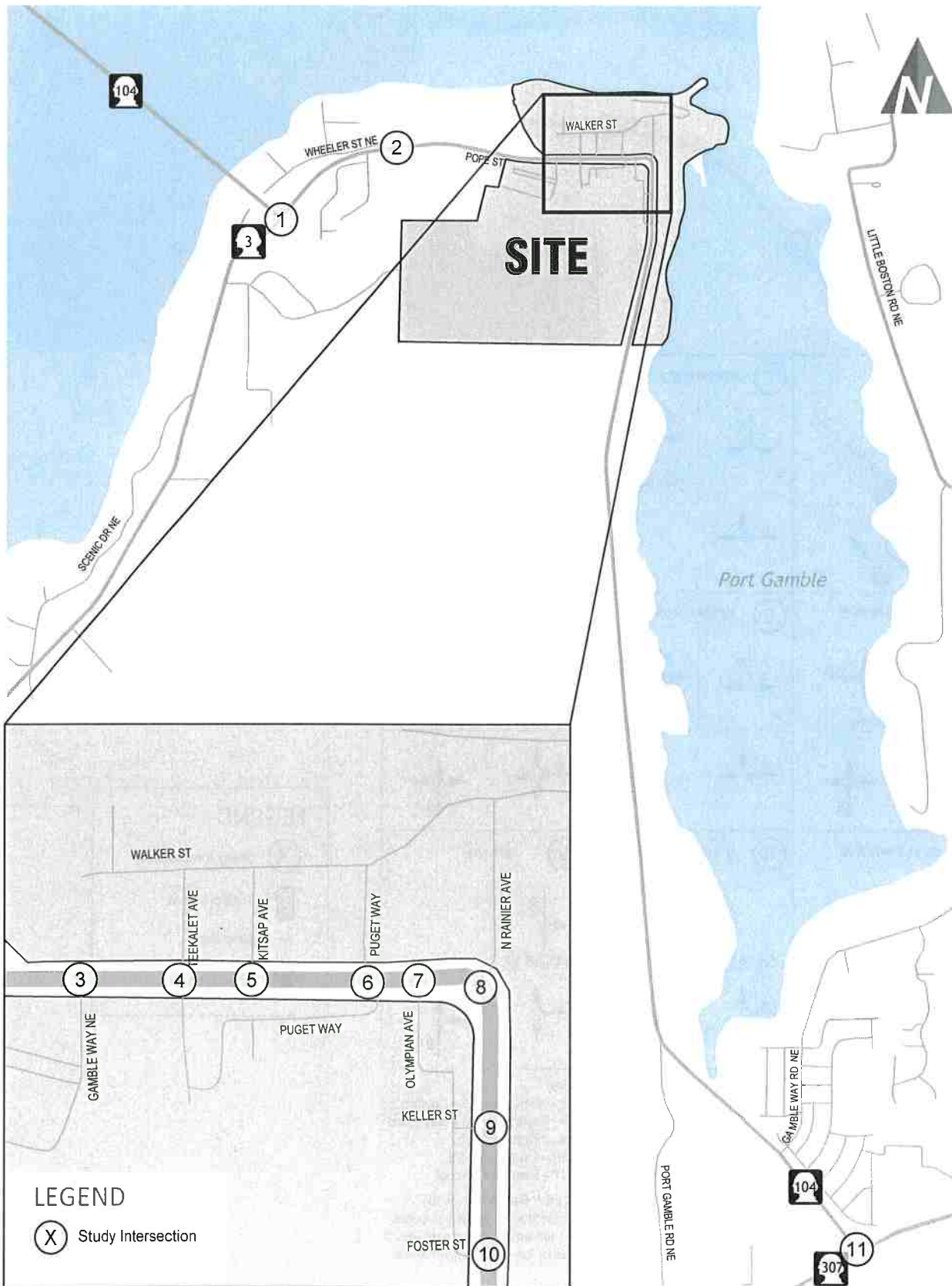
Study Area

The study area for the transportation analysis is consistent with previously completed work and evaluates roadways and intersections consistent with previous studies. The study area, which generally includes the roadway network between the west terminus of the Hood Canal Bridge to the intersection of SR 104/SR 307 includes 11 intersections, as shown in Figure 1. With the exception of two signalized intersections, the study area intersections are typically stop-controlled on the minor street approaches with free-flow travel along the major roadways such as SR 104. Figure 2 illustrates the existing lane configurations and traffic control devices at each study intersection.

Roadway Network

Circulation within the Port Gamble site includes a multi-modal network of internal streets to accommodate vehicular, bicycle, and pedestrian traffic. The internal streets within the site primarily consist of two travel lanes with stop controlled intersections, parking, and sidewalks. See Figure 3 for a depiction of the street system on and in the vicinity of the Port Gamble site.

The roadway network serving the Port Gamble site consists of a combination of regional highways and local roads. Regional highways include SR 104, SR 3, and SR 307, and connect Port Gamble to Poulsbo and Kingston, southern portions of the Kitsap Peninsula, and the Olympic Peninsula. State highways within the study area are classified as Principal Arterials by the Washington State Department of Transportation (WSDOT) and carry the greatest traffic volumes. As Principal Arterials, these roadways provide limited access to surrounding land uses. Local streets provide access and circulation within the Port Gamble site. Figure 3 illustrates the functional classification of roads on and within the vicinity of the site. The following sections describe the regional highways and local roads within the study area.

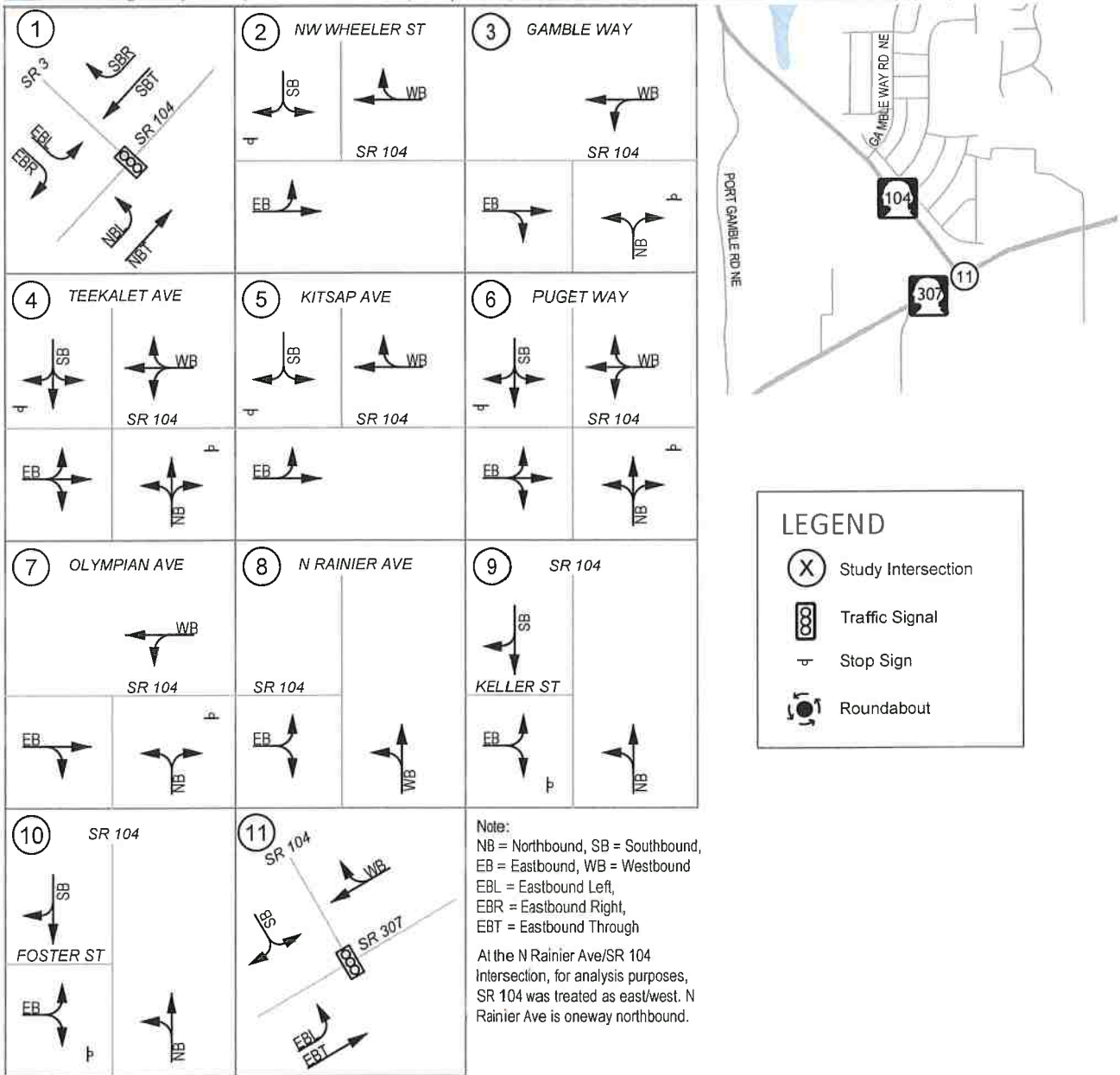
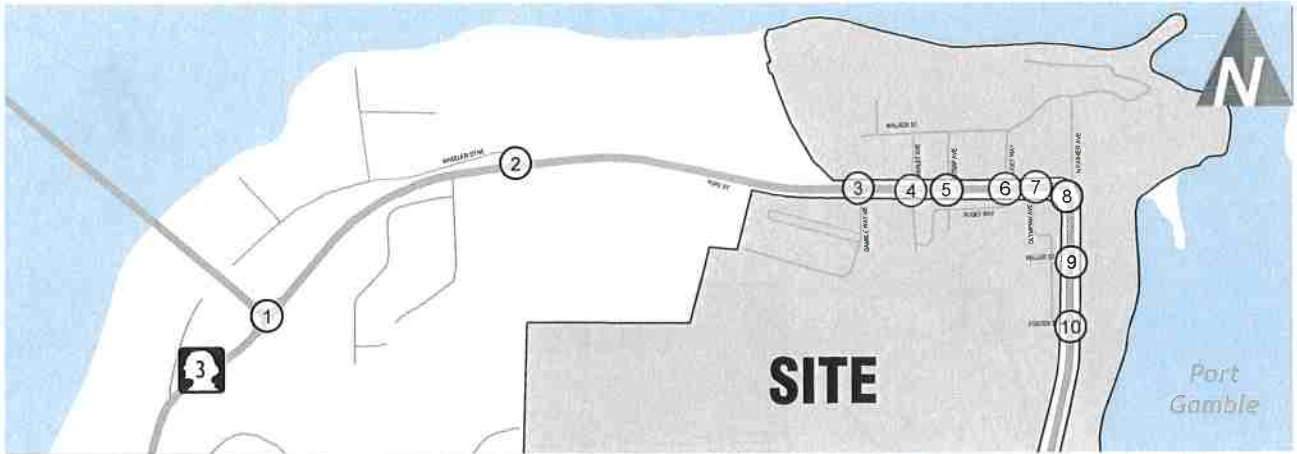


Site Vicinity & Study Intersections

Port Gamble EIS

FIGURE

1



Existing Study Intersection Lane Configurations & Traffic Control Devices **FIGURE**



Functional Classification

Port Gamble EIS

FIGURE

3

Regional Highways

Regional highways operate as the highest classified roadways within the study area. These highways typically provide higher travel speeds with greater volumes.

SR 104 (Pope Street) is the main east-west roadway through Port Gamble and provides regional access to the community. This state highway travels along the west side of Port Gamble Bay, curves at N Rainier Avenue, and heads west from the community over the Hood Canal Bridge. It is a two-lane roadway with shoulders and sidewalks provided along sections within Port Gamble. Shoulder widths range from 0-4 feet. The posted speed limit is 25 mph in the immediate vicinity of the Port Gamble community (Rural Historic Town Residential (RHTR) and Rural Historic Town Commercial (RHTC)-zoned areas), but 50 mph elsewhere in the study area.

SR 3 is a north-south state highway that connects the east terminus of the Hood Canal Bridge to Poulsbo and Bremerton. In the vicinity of the site, SR 3 is a two-lane highway with turn lanes at major intersections. Outside of the study area at the northern edge of Poulsbo it changes to a divided highway with grade-separated interchanges. Shoulders are present throughout the length of the highway with no sidewalks provided. The posted speed limit is 50 mph within the study area.

SR 307 (Bond Road NE) begins at the intersection with SR 104 near the southern end of Port Gamble Bay and continues west to Poulsbo. It is a two-lane roadway with shoulders and no sidewalks. The posted speed limit is 35 mph near Poulsbo, but 50 mph along most of the highway.

Local Streets

Local Streets are defined as roadways that connect two or more neighborhoods or commercial areas and provide a high degree of access to adjacent properties. These roadways collect traffic and carry it to the higher capacity arterial/state highway system. Local streets located off and on-site are described in the following sections.

Off-Site Local Streets

- **Bridge Way NE** is a two-lane roadway that provides access to homes on the north side of SR 104, just southwest of the Hood Canal Bridge. Sidewalks are not provided on either side of the street.
- **Wheeler Street NE** is a two-lane roadway that provides access to homes north of SR 104, just northeast of the Hood Canal Bridge. Sidewalks are not provided on either side of the street.

On-Site Local Streets

The existing street system on the Port Gamble site is illustrated on Figure 2, and described below.

- **Gamble Way NE** connects NE Carver Drive and N Power Drive to SR 104. It is a two-lane roadway with a posted speed limit of 25 mph.
- **Teekalet Avenue** is a narrow two-way road that provides access to homes on the north and south sides of SR 104. Sidewalks are not provided on either side of the street.
- **Puget Way** connects SR 104 to Walker Street. It is a two-lane roadway with a posted speed limit of 15 mph. Angled on-street parking stalls are provided on the west side of the street, and parallel parking is available on the east side. A wide, non-motorized pathway is provided on the east side of the street.

- **Olympian Avenue** is a narrow two-way road that provides access to homes and a coffee stand on the south side of SR 104. A sidewalk is available on the east side of the street.
- **N Rainier Avenue** connects SR 104 to Walker Street and View Drive. It is a one-lane northbound roadway with a posted speed limit of 10 mph. Parallel on-street parking stalls are provided on the west side of the street, and angled parking is available on the east side. Sidewalks are provided on both sides of the road.
- **Keller Street** is a narrow two-way road that provides access to homes and a parking lot on the west side of SR 104. Sidewalks are not provided on either side of the street.
- **Foster Street** is a narrow two-way road at the southern end of Port Gamble and provides access to homes on the west side of SR 104. Sidewalks are not provided on either side of the street.

Additionally, NE Carver Drive may be extended to/from Gamble Way NE turning north and connecting with SR 104 at Puget Way. Given the uncertainty of the completion of this roadway connection, Action Alternatives 1 and 2 were evaluated with and without the connection.

With the exception of two signalized intersections, study area intersections are typically stop-controlled on the minor street approaches with free-flow travel along the major roadways such as SR 104. Figure 2 illustrates the existing lane configurations and traffic control devices at each study area intersection.

Parking

On-street parking is provided for local business on Rainier Ave NE, NE View Drive, and Puget Way NE. Parking is not allowed on SR 104. Individual residences also have informal parking areas along roads and alleys, as well as off street within private garages. Off street parking is provided for the church in a gravel lot located behind the building. Off street parking is also available for restaurant, coffee shop, and service station parking located south of SR 104 at the intersection of Puget Way NE. Off street parking is also provided near the Rural Residential (RR) zone for the Hood Canal Nursery and maintenance facility. Other informal parking occurs throughout the site in gravel lots or grassy fields, which are sometimes used for overflow parking when events occur on site.

Non-Motorized Transportation Facilities

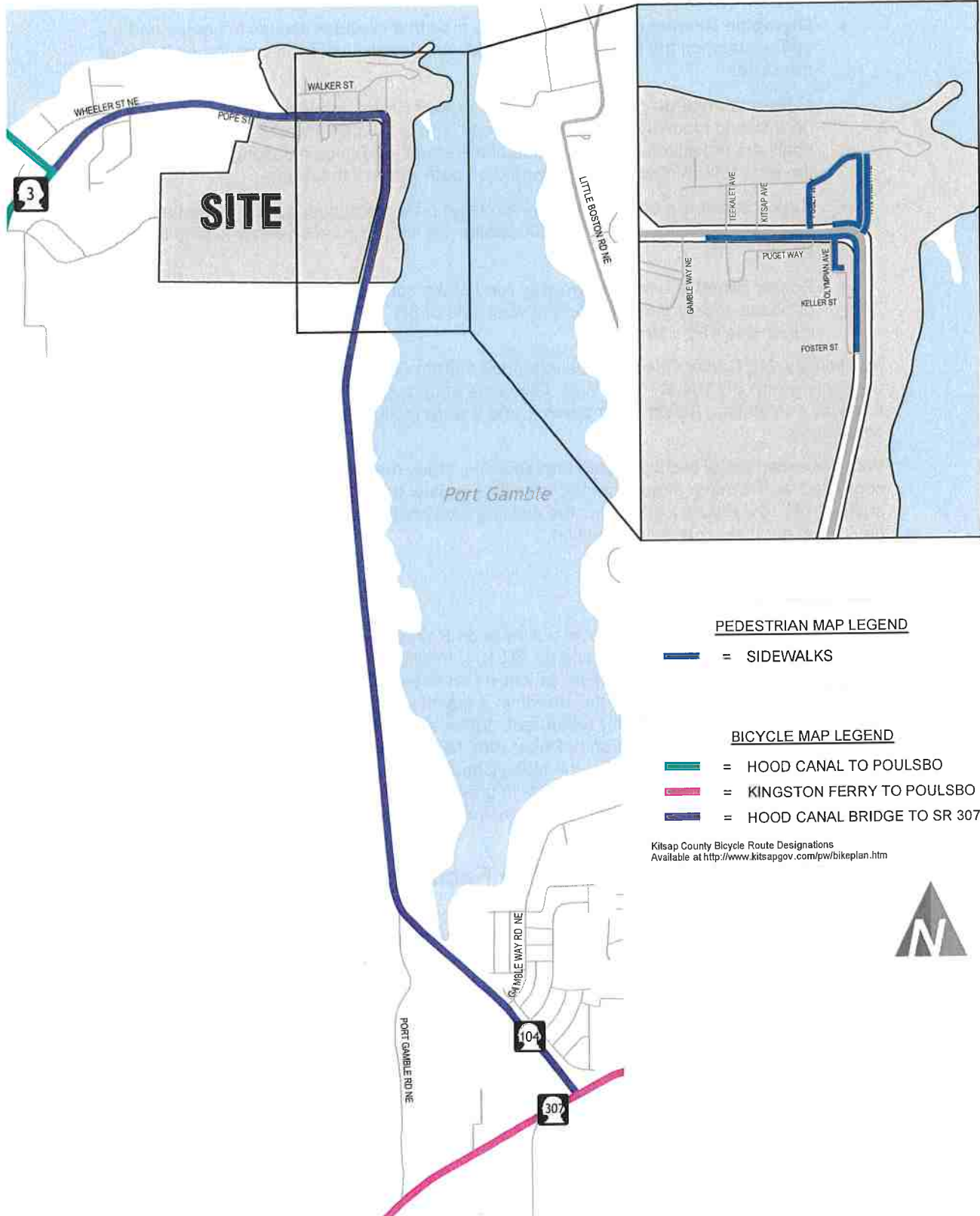
The non-motorized transportation network on the Port Gamble site and in the site vicinity includes sidewalks and bicycle routes. Sidewalks are generally present within the Port Gamble site, but typically only on one side of a roadway and are set back from the paved roadway by 10 to 20 feet.

Designated bicycle routes¹ are present on all of the state highways in the vicinity of the site. Bicycle lanes are not provided on any of the roadways, but most arterials include shoulders for bicyclists. Shoulder widths along SR 104 range from 0-4 feet. Local streets typically have low speeds (sometimes posted as low as 10 mph) that are generally safe for cycling and do not include any dedicated bicycle facilities. Refer to Figure 4 for a graphic depicting the non-motorized transportation network.

¹ Bicycle routes 35, 41, and 71 are identified along SR 307, 104, and 3 within the study area per the Kitsap County Bike Route Numbering System (2005).

Bicycle Routes

Pedestrian Facilities



Existing Non-Motorized Facilities

FIGURE

Port Gamble EIS

transpogroup

4

Transit

There is currently no bus service to the Port Gamble site; the nearest bus stops, operated by Jefferson Transit, are located on the east side of the Hood Canal Bridge. Route #7 - Poulsbo/Port Ludlow/Tri-Area Route serves the stops on either side of the Hood Canal Bridge. This is a commuter route to/from Poulsbo which runs four times in each direction on weekdays, twice in the morning and twice in the evening.

Kitsap Transit also operates bus routes in the area, but none of the routes are within walking distance of the Port Gamble site. Kitsap Transit staff have also indicated that no transit service has historically been provided to Port Gamble over the past several years nor is any anticipated in the near future. Park and Ride facilities near Poulsbo (Nazarene Park & Ride) and Kingston (Georges Corner Park& Ride) are the closest parking areas that connect to Kitsap Transit routes.

Safety

Collision records were reviewed for a six-year period (2011 to 2016) within the study area to document existing traffic safety. A summary of the total number of reported collisions at each study area intersection, by severity and collision type, is provided in Table 1.

Table 1. Intersection Collision Summary (2011-2016)

Intersection	Year						Total Collisions	Average Collisions Per Year	Collisions per MEV ¹
	2011	2012	2013	2014	2015	2016			
1. SR 104/SR 3	0	3	4	1	1	1	10	1.7	0.25
2. NW Wheeler Street/SR 104	0	0	0	1	0	0	1	0.2	0.08
3. Gamble Way/SR 104	0	0	0	0	0	0	0	0.0	0.00
4. Teekalet Avenue/SR 104	0	0	0	0	0	0	0	0.0	0.00
5. Kitsap Avenue/SR 104	0	0	0	0	0	0	0	0.0	0.00
6. Puget Way/SR 104	0	0	0	0	0	0	0	0.0	0.00
7. Olympian Avenue/SR 104	0	0	0	0	0	0	0	0.0	0.00
8. N Ranier Avenue/SR 104	1	0	1	0	1	0	3	0.5	0.24
9. SR 104/Keller Street	0	0	0	0	0	1	1	0.2	0.08
10. SR 104/Foster Street	0	0	0	0	0	0	0	0.0	0.00
11. SR 104/SR 307	3	3	2	5	3	2	18	3.0	0.45

Source: WSDOT July 2017.

1. Million Entering Vehicles

As shown in Table 1, the two intersections with the highest number of collisions are the SR 104/SR 307 intersection (18 collisions between 2011 and 2016, 3 collisions per year) and the SR 3/SR 104 intersection (10 collisions between 2011 and 2016, 1.7 collisions per year). At both intersections and the study intersections in general, rear-end collisions are the predominant collision type and the collisions primarily resulted in property damage only. Of the reported collisions at the study intersections, no collisions resulted in a fatality; however, one collision did involve a bicycle. The collision with the bicyclist occurred at the SR 104/SR 307 intersection and was the result of a bicyclist not granting right of way to the vehicle.

In general, collision rates above a rate of 1.0 collisions per million entering vehicles (MEV) at intersections are identified for further analysis to identify safety concerns.² All study intersections fall below this threshold and thus were not examined further.

Collisions on roadway segments were also reviewed and are summarized in Table 2. The roadway segments were subdivided based on average daily traffic (ADT) volumes on SR 104 and exclude collisions that occurred at an intersection.

Table 2. Roadway Segment Collision Summary (2011- 2016)

SR 104 Roadway Segment	Length ¹	Total	Collisions/ year	ADT	Collisions/ MVM ²
SR 3 to Wheeler St NE	0.44 mi	2	0.3	6,200	0.33
Wheeler St NE to Gamble Way NE	0.53 mi	6	1.0	5,800	0.89
Gamble Way NE to Foster St	0.48 mi	7	1.2	5,800	1.15
Foster St to Gamble Bay Rd NE	3.19 mi	31	5.2	5,800	0.77
Gamble Bay Rd NE to SR 307	0.40 mi	2	0.3	7,500	0.30

Source: WSDOT July 2017.

1. Length calculated based on the WSDOT Olympic Region 2012 State Highway Log

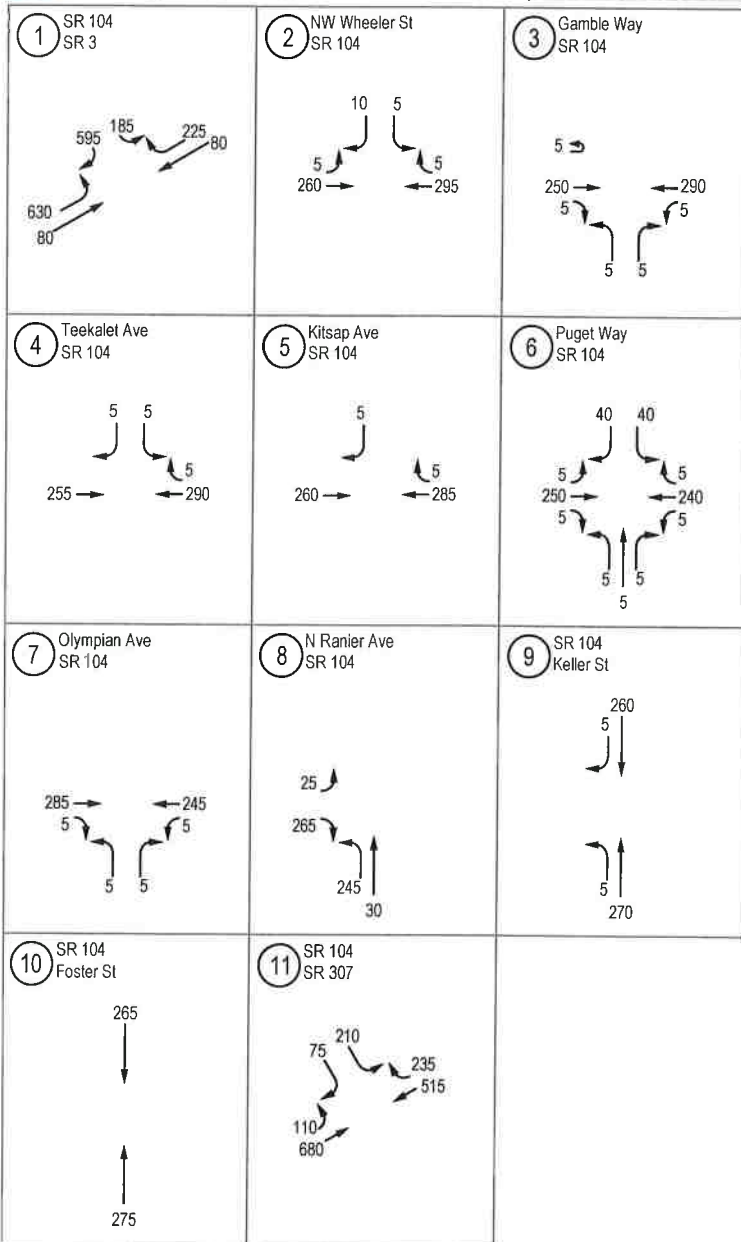
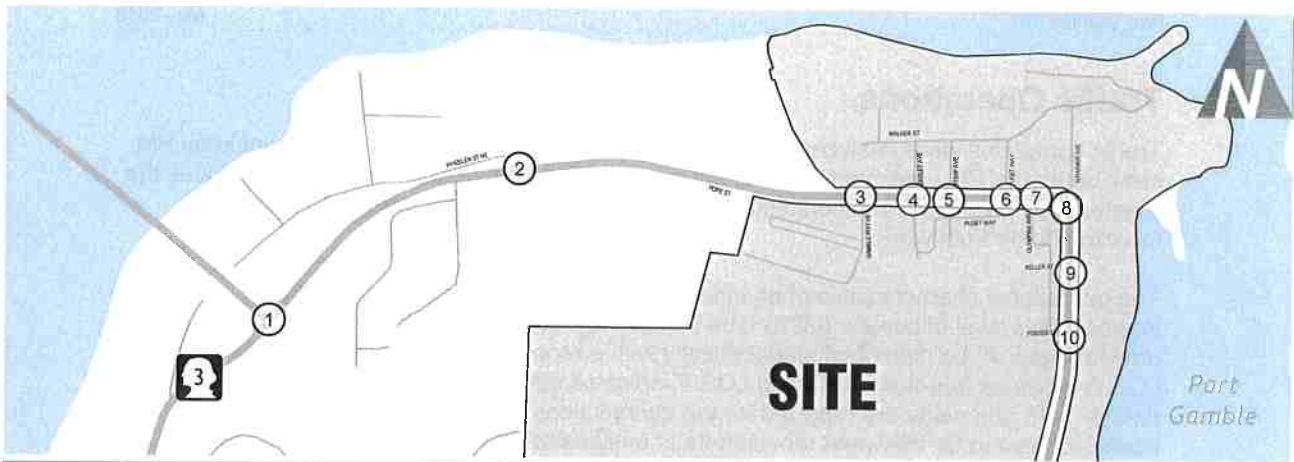
2. Collisions/MVM – Average number of collisions per million vehicle miles of travel for each roadway section.

During the study period (2011-2016), no fatalities were reported along the roadway segments. Additionally, no pedestrian or bicyclist collisions were reported along the roadway segments. Between study intersections, collisions were most frequently the result of collisions with fixed objects and primarily resulted in property damage only.

Traffic Volumes

Traffic volumes for this DEIS were collected in August 2016. Detailed turning movement count sheets are provided in Appendix A. The highest traffic volumes are on the state highways in the site vicinity, including SR 104 which passes through the Port Gamble site. Volumes on SR 104 in the site vicinity range from 6,200 to 6,500 vehicles per day (vpd) during the average mid-week day. The major highway intersections of SR 104 with SR 3 and SR 307 have the highest traffic volumes. The 2016 traffic volumes were forecast to 2017 conditions by applying a background growth rate of 1.5 percent consistent with past studies and verified based on historical traffic data. Figure 5 illustrates the PM peak hour volumes for the existing conditions (2017) for the study area intersections.

² Institute of Transportation Engineers' Recommended Practice: *Transportation Impact Analyses for Site Development*, 2005.



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

Existing (2017) Weekday PM Peak Hour Traffic Volumes

FIGURE

Traffic Operations

Traffic operations were analyzed for the 11 study area intersections during the weekday PM peak hour. The PM peak hour is the focus of analysis as this period typically experiences the greatest traffic volumes and congestion through a typical weekday when commuters are traveling home from work.³

The operational characteristics of an intersection are evaluated by determining the intersection's level of service (LOS). The intersection as a whole and its individual turning movements, can be described alphabetically with a range of levels of service (LOS A to F). LOS A indicates free-flow traffic and LOS F indicates extreme congestion and long vehicle delays. LOS and delay are reported for the intersections as a whole at signalized intersections and for the worst movements at unsignalized intersections. A more detailed explanation of LOS is provided in Appendix B.

Signalized and stop controlled intersection operations analyses at the study intersections were evaluated using the *Highway Capacity Manual* (HCM), Transportation Research Board 2010 methodology using the Synchro software version 9.1.

Table 3 summarizes the results of the LOS analysis conducted during the existing (2017) weekday PM peak hour. Detailed LOS worksheets are provided in Appendix C.

Table 3. Existing Intersection LOS Summary

ID	Intersection	Traffic Control	Existing Conditions (2017)		
			LOS ¹	Delay ²	WM ³
1	SR 3/SR 104	Signalized	B	18	-
2	SR 104/Wheeler Street NE	Side-Street Stop Controlled	B	12	SB
3	SR 104/Gamble Way NE	Side-Street Stop Controlled	B	12	NB
4	SR 104/S Teekalet Avenue	Side-Street Stop Controlled	B	13	SB
5	SR 104/Kitsap Avenue	Side-Street Stop Controlled	B	10	SB
6	SR 104/Puget Way	Side-Street Stop Controlled	B	14	SB
7	SR 104/Olympia Avenue	Side-Street Stop Controlled	B	13	NB
8	SR 104/N Rainier Avenue	Side-Street Stop Controlled	A	8	EB
9	Keller Street/SR 104	Side-Street Stop Controlled	A	8	NB
10	Foster Street/SR 104	Side-Street Stop Controlled	A	0	EB
11	SR 307/SR 104	Signalized	C	21	-

1. LOS is the level-of-service based on the methodology outlined in the Highway Capacity Manual (HCM 2010).
2. Delay is measured in seconds per vehicle. At signalized intersections, it represents average delay for all movements in the intersection. For two-way stop-controlled intersections, it represents average delay for the worst movement.
3. Worst Movement (WM) reported for side-street stop-controlled intersections.

As shown in Table 3, all of the study area intersections operate at LOS C or better under existing conditions.

Study intersections were evaluated for typical operating conditions. Although study area intersections typically operate acceptably, the Hood Canal Bridge frequently closes for naval, commercial, and private boat traffic and can cause backups from the bridge extending along SR 3 and SR 104.

By law, WSDOT is required to open the Hood Canal Bridge to marine traffic within one hour of notification. WSDOT does have an agreement with the US Coast Guard to reduce the

³ The weekday PM peak hour was typically found to occur between 4:00 and 5:00 p.m.

drawspan openings. From May 22nd to September 30th every year, private vessels are prohibited from requiring bridge openings between 3:00 p.m. and 6:15 p.m. daily during the PM peak hour commute period. This agreement does not apply to commercial, U.S. Navy, or other Department of Defense vessels.

The length of time a bridge opening lasts depends on the type of boat that has to pass but typically openings take between 10 and 45 minutes. Drivers should expect up to 60-minute delays with each opening.

No Action Alternatives Impacts

The following sections summarize the transportation related impacts of the three no-action scenarios.

Programmed and Planned Improvements

The Kitsap County 2017-2022 Transportation Improvement Program (TIP) and WSDOT Statewide Transportation Improvement Program (STIP) were reviewed to identify any planned improvement projects within the study area. No specific transportation improvement projects that would impact street system capacity, safety, or operations are planned by either Kitsap County or WSDOT. As a result, no improvements to the street system within the study area were included for the analysis of the EIS Alternatives.

Scenario A – Continuation of Existing Conditions

Under this scenario no development would occur and as such, this scenario was utilized for comparative purposes for the following No Action scenarios and the Action Alternatives.

Construction

Under No Action Scenario A, no redevelopment would occur, and no transportation impacts would occur from construction.

Street System

Under No Action Scenario A, no on-site redevelopment or changes to the existing street system would occur.

Non-Motorized Transportation System

Under No Action Scenario A, no changes to the pedestrian and bicycle system would occur.

Parking

Under No Action Scenario A, no changes to existing parking conditions would occur.

Transit

Under No Action Scenario A, no increase in transit ridership would be anticipated as no redevelopment would occur on the site.

Safety

With the forecasted increase in background traffic volumes of 1.5 percent per year, a proportionate increase in the probability of collisions would likely occur. However, no safety hazards or significantly increased collisions would be anticipated to result.

Traffic Volumes

Traffic volumes for the No Action Alternative conditions were forecasted by increasing existing traffic volumes at a rate of 1.5 percent per year to 2027. This growth rate is consistent with studies previously completed for Port Gamble.

Trip Generation

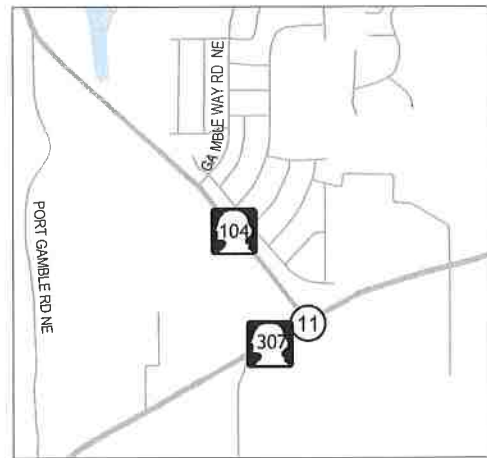
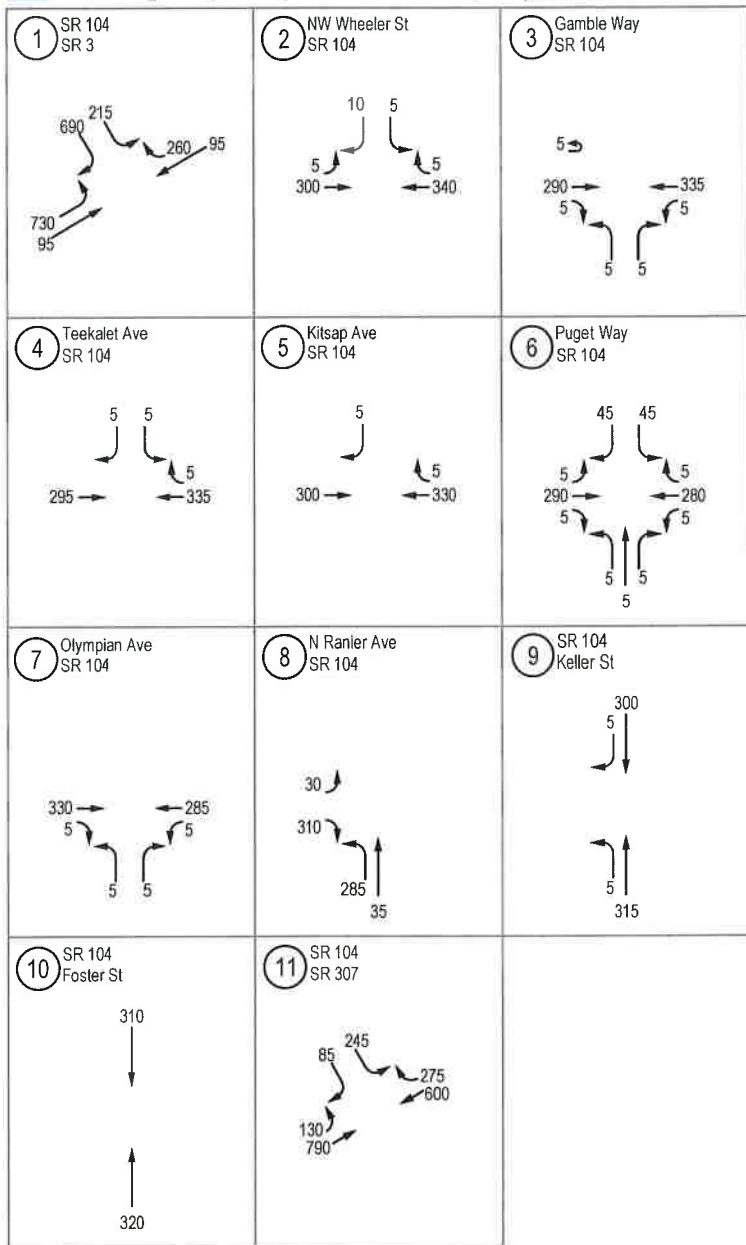
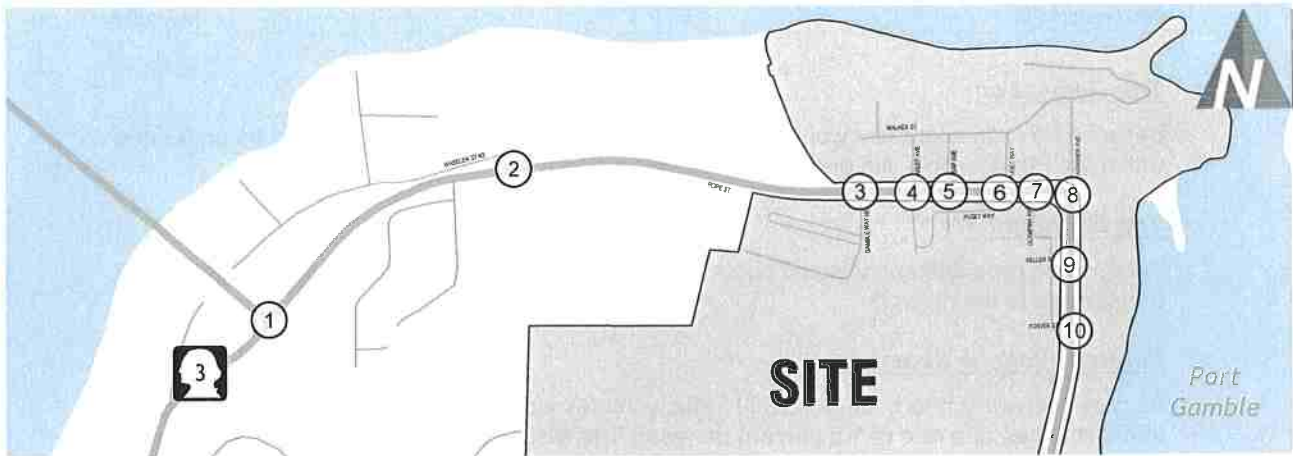
Because no redevelopment would occur under this scenario no new trips would be generated within the Port Gamble site under No Action Scenario A.

Trip Distribution

Because no redevelopment would occur under this scenario no new trips would be generated or assigned to the network.

Forecast Volume Summary

As previously described, future (2027) traffic volumes were forecasted by increasing existing traffic volumes at a rate of 1.5 percent per year. The resulting No Action Scenario A traffic volume forecast is summarized in Figure 6.



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 No Action Scenario A Weekday PM Peak Hour Traffic Volumes

FIGURE

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). For signalized locations, LOS is measured in average delay per vehicle and is reported for the intersection as a whole. At side-street stop-controlled intersections LOS is measured in average delay per vehicle during the peak hour of traffic and is reported for the worst operating approach of the intersection. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions.

Individual intersection LOS were calculated at the 11 study area intersections. Table 4 summarize the future (2027) weekday PM peak hour LOS results for No Action Scenario A. Detailed LOS worksheets are provided in Appendix C. For future (2027) analysis, signal timing splits were optimized, all other parameters such as channelization, traffic control, and signal cycle length was held consistent with existing (2017) conditions.

Table 4. No Action Scenario A (2027) Intersection LOS Summary

ID	Intersection	Traffic Control	Future (2027) Baseline		
			LOS ¹	Delay ²	WM ³
1	SR 3/SR 104	Signalized	C	24	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB
6	SR 104/Puget Way	Unsignalized	C	16	SB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB
11	SR 307/SR 104	Signalized	C	34	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.

As shown in Table 4, all study area intersections are anticipated to operate at LOS C or better under the No Action Scenario A forecasted (2027) conditions.

Scenario B – Redevelopment by Others Under Existing Zoning

This alternative would develop approximately 200,000 sf of industrial park, 35,000 sf of retail space, 5,000 sf of restaurant, 27 residential townhouses/condominium, and 138 detached single-family homes.

Street System

Under No Action Scenario B, the on-site street system would be similar to existing conditions and the No Action Scenario A.

Parking

The parking supply for each separate redevelopment proposal would be subject to County code requirements (Kitsap Municipal Code Title 17) to ensure that adequate parking supply is provided to meet parking demands. With County parking code requirements incorporated into any final site design, no adverse parking impacts are anticipated.

Non-Motorized Transportation System

Under No Action Scenario B, redevelopment throughout Port Gamble would be sponsored by different developers and would occur on a case-by-case basis and changes or additions to the non-motorized transportation system would occur in conjunction with each individual redevelopment proposal. Pedestrian and bicycle paths would be provided as required by reviewing authorities throughout the site.

Transit

No impact to Kitsap Transit's service or operations would be anticipated to result from redevelopment of the site under No Action Scenario B.

Safety

With the forecasted increase in traffic volumes under the No Action Scenario B, a proportionate increase in the probability of collisions would be likely to occur. However, it is not anticipated that a safety hazard would be created, or that the number of reported collisions would significantly increase.

Traffic Volumes

The following sections describe the anticipated trip generation for No Action Alternative Scenario B, the trip distribution, and the anticipated future (2027) No Action Scenario B weekday PM peak hour traffic volumes.

Trip Generation

Trip generation estimates for No Action Scenario B are based on rates identified in the *ITE Trip Generation Manual* (9th Edition). The mixed-use nature of redevelopment is anticipated to generate both pass-by and internal trips. Pass-by trips represent trips that are currently passing by the site on SR 104 that would stop at the site before continuing on their way. As such, these trips were accounted for within the site and at access points but do not represent new trips to the street system outside of the Port Gamble site. Pass-by rates were based on data from the *ITE Trip Generation Handbook* (3th Edition).

In addition, trips between retail, employment, and residential land uses within the site would also occur but would not impact the street system outside the Port Gamble site since these uses are located within close proximity to one another. These trips are referred to as internal trips. The *ITE Trip Generation Handbook* provides a procedure for estimating the number of internal trips. Using this procedure, internal trips may account for up to 13 percent of the development trips considering the mix of land uses. To provide a conservative analysis, internalization has been limited to no more than five percent.

The weekday PM peak hour trip generation estimates for No Action Scenario B are summarized in Table 5 (see Appendix D for a detailed trip generation summary).

Table 5. No Action Alternative Scenario B Weekday PM Peak Hour Trip Generation Summary

Land Use Assumptions	Size	PM Peak Hour Trips		
		Total	In	Out
<u>Rural Historic Town Residential (RHTR)</u>				
Single-Family Detached Housing (LU 210)	127 units	121	76	45
Townhouse/Condominium (LU 230)	10 units	5	3	2
<u>Rural Historic Town Commercial (RHTC)</u>				
Restaurant (LU 932)	5,000 sf	47	26	21
	<i>-less pass-by (43%)</i>	<i>-20</i>	<i>-10</i>	<i>-10</i>
Townhouse/Condominium (LU 230)	17 units	9	6	3
General Commercial (LU 826)	34,490 sf	88	41	47
	<i>-less pass-by (34%)</i>	<i>-30</i>	<i>-15</i>	<i>-15</i>
<u>Rural Historic Town Waterfront (RHTW)</u>				
Industrial Park (LU 130)	200,000 sf	161	34	127
<u>Rural Residential/Rural Wooded (RR/RW)</u>				
Single-Family Detached Housing (LU 210)	11 units	10	6	4
Total Net New Trips		391	167	224

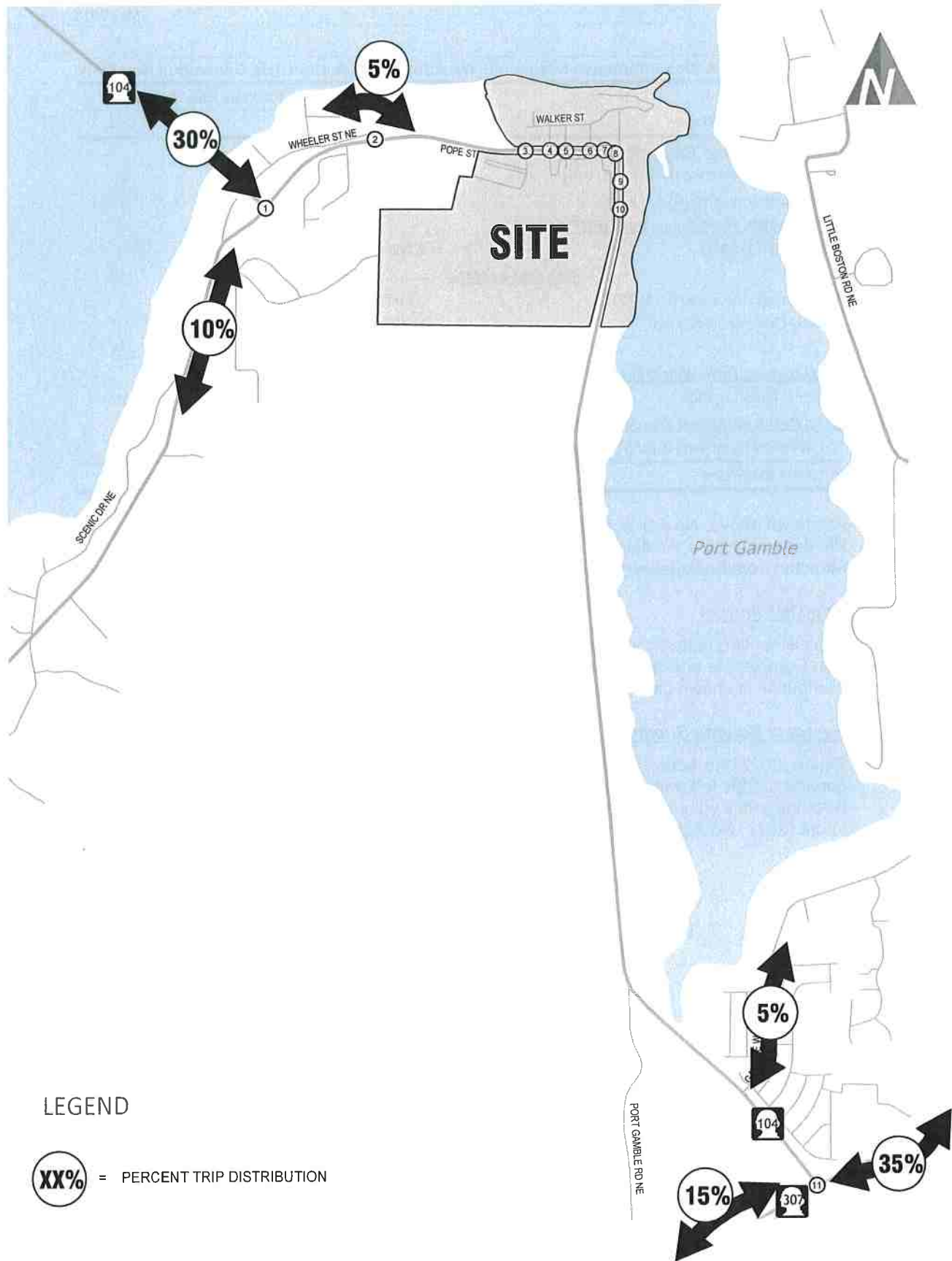
As shown above, No Action Scenario B is estimated to generate approximately 391 weekday PM peak hour trips. An estimated 50 weekday PM peak hour trips would be pass-by trips attracted from background traffic volumes.

Trip Distribution

Trip distribution patterns were developed using existing traffic patterns in the vicinity of the Port Gamble site and is consistent with distributions previously used in the area. The trip distribution is shown on Figure 7.

Forecast Volume Summary

Future (2027) No Action Scenario B traffic volumes were forecast by adding development generated trips following the previously described trip distribution to the No Action Scenario A Baseline traffic volumes. The project trip assignment is shown on Figure 8 and the resulting future (2027) No Action Scenario B volumes are shown on Figure 9.



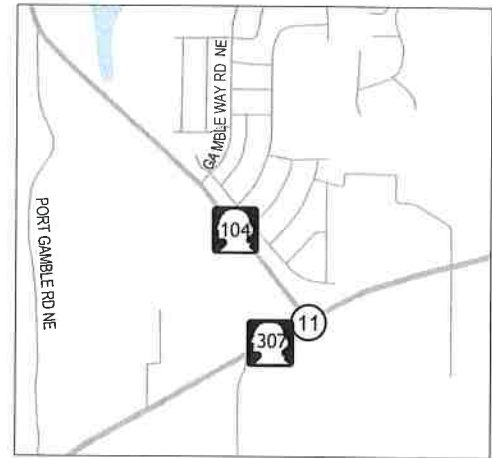
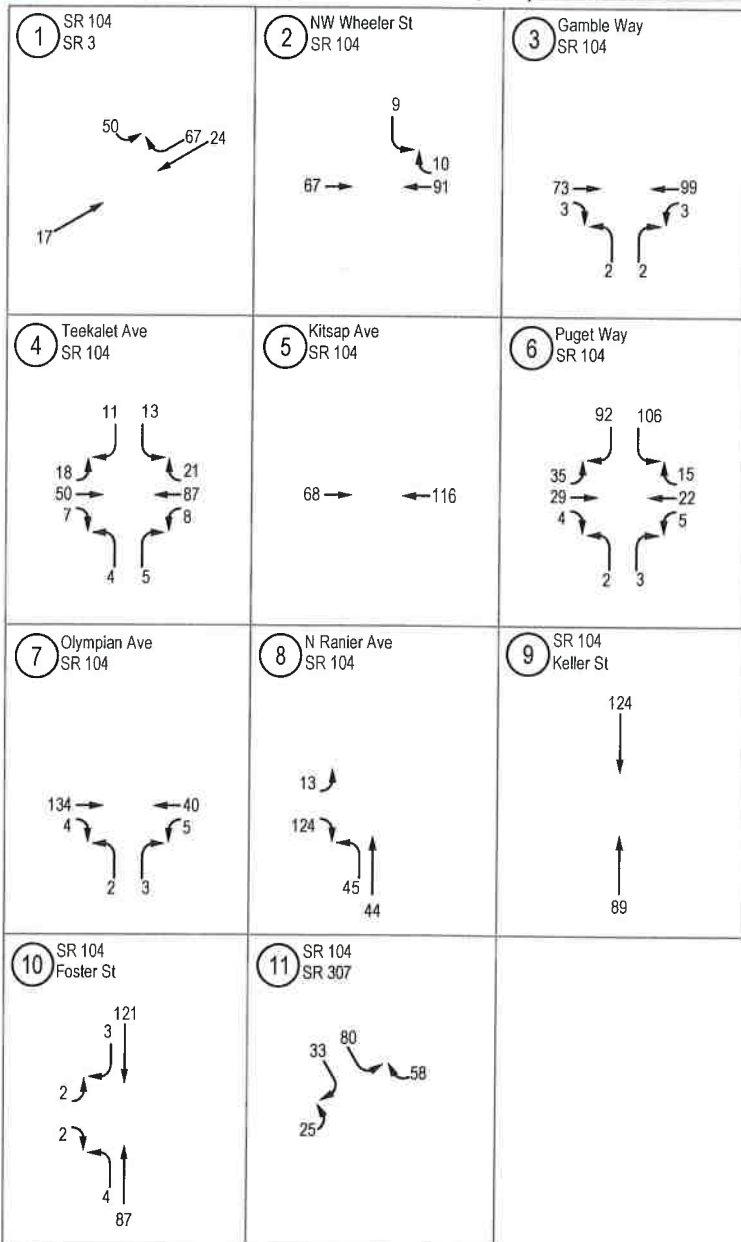
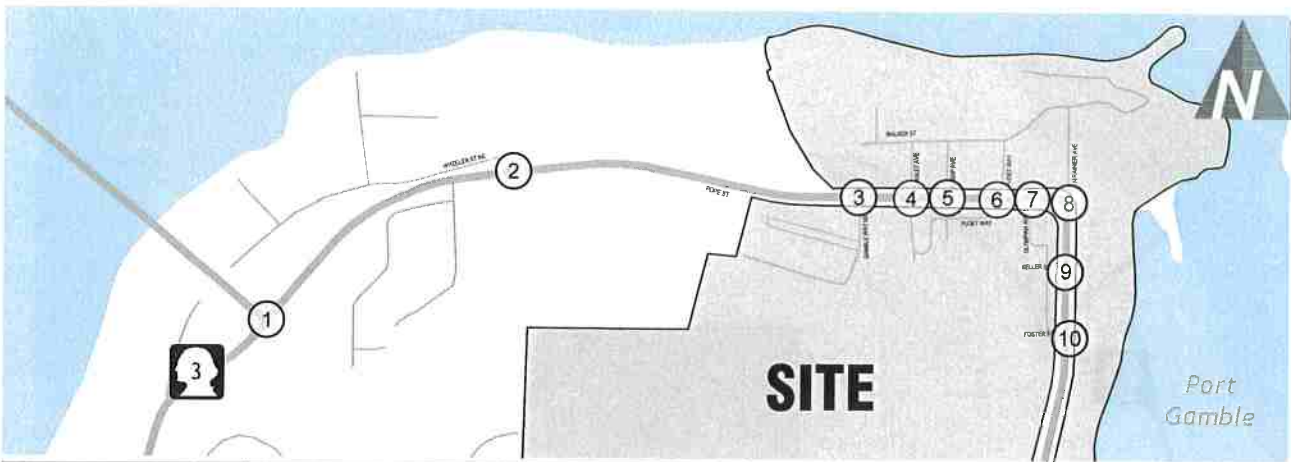
Redevelopment Trip Distribution

FIGURE

Port Gamble EIS

transpogroup

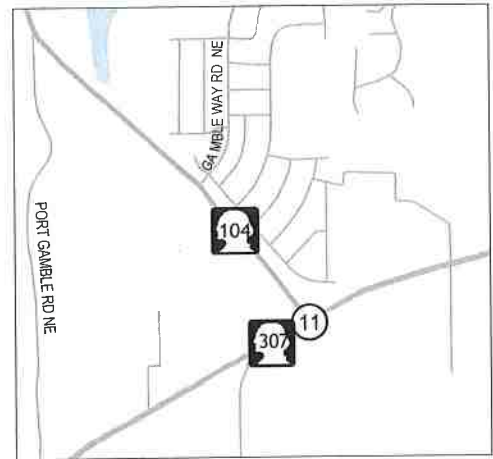
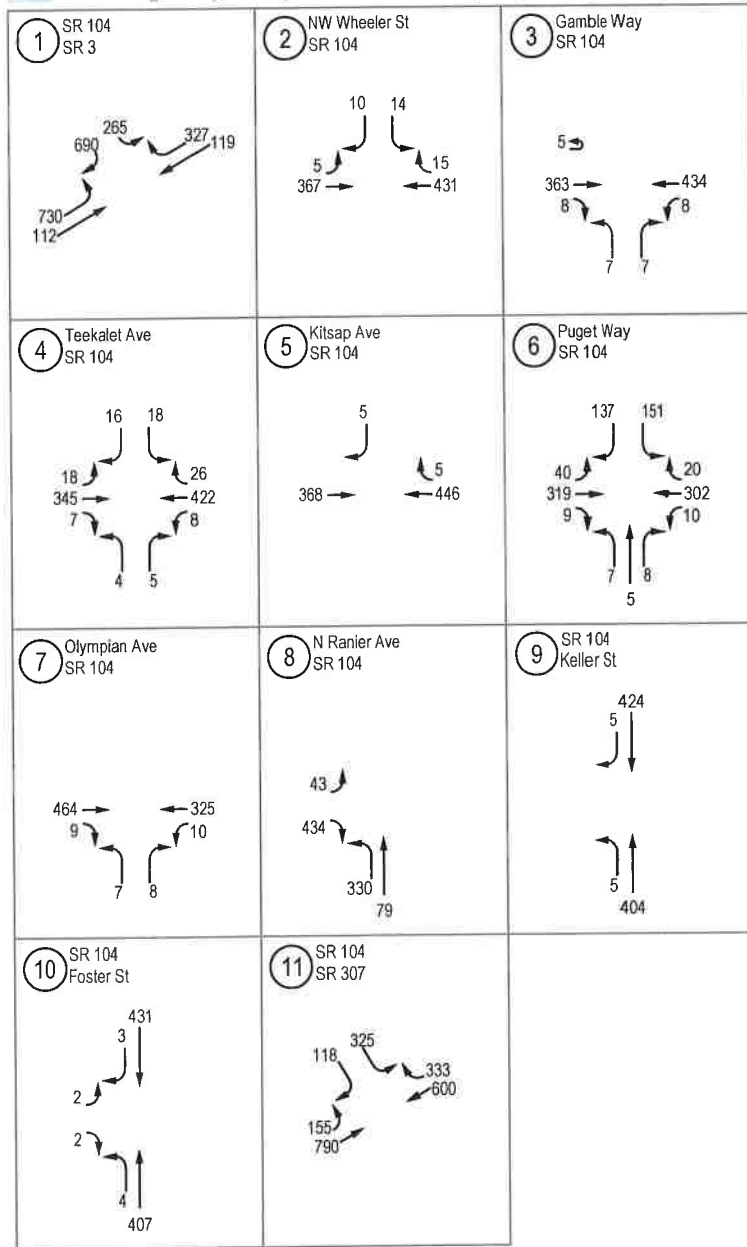
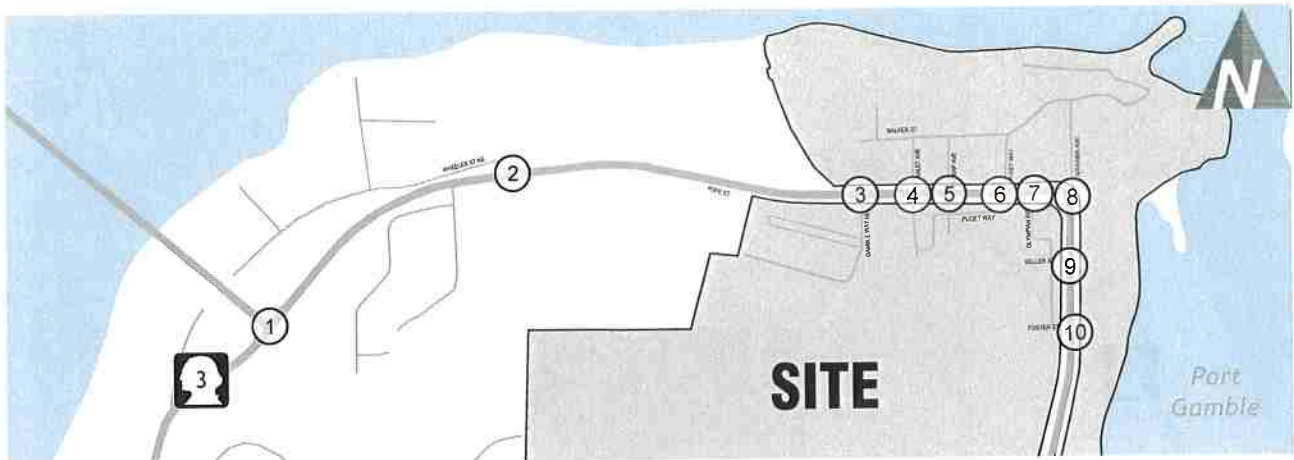
7



LEGEND

- (X) Study Intersection
- X Weekday PM Peak Hour Traffic Volumes ✓

2027 No Action Scenario B Weekday PM Peak Hour Project Trip Assignment FIGURE



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 No Action Scenario B Weekday PM Peak Hour Traffic Volumes

FIGURE

Traffic Operations

The traffic operations results for No Action Scenario B as compared to No Action Scenario A (Baseline) are summarized in Table 6.

Table 6. No Action Scenario B (2027) Intersection LOS Summary

ID	Intersection	Traffic Control	No Action Scenario A (2027)			No Action Scenario B (2027)		
			LOS ¹	Delay ²	WM ⁴	LOS ¹	Delay ²	WM ⁴
1	SR 3/SR 104	Signalized	C	24	-	C	29	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	18	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	C	16	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	20	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	12	SB
6	SR 104/Puget Way	Unsignalized	C	16	SB	F	121	SB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	17	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	9	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	C	16	EB
11	SR 307/SR 104	Signalized	C	34	-	E	66	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.

As shown in Table 6, under future (2027) No Action Scenario B conditions, most study intersections are anticipated to continue to operate at LOS C with the exception of two intersections. The SR 104/Puget Way intersection is anticipated to degrade from LOS C to LOS F and the SR 307/SR 104 intersection is anticipated to degrade from LOS C to LOS E. N Rainier Avenue is a one-way street northbound, as a result, Puget Way serves as the primary outbound route for traffic leaving town center and waterfront.

The potential for backups from Hood Canal Bridge closures for naval, commercial, or private boat traffic are anticipated to continue in the foreseeable future.

Scenario C – Redevelopment of Upland

Development under this scenario would be completed by others under existing zoning/purchase of mill site by others for restoration.

Construction

Due to staggered development and possibly for several different property owners/developers, this Scenario C could include a lack of coordination for residential construction. As a result, construction related impacts to the transportation system are likely to be less concentrated during any particular time period. As a result, construction related transportation impacts of Scenario C would be less than those identified for Alternatives 1 or 2, described in a later section.

Street System

Under No Action Scenario C, the on-site street system would be similar to that under No Action Scenarios A and B, with the exception of no new roadways on the Mill Site.

Non-Motorized Transportation System

With the redevelopment of the Port Gamble site under No Action Scenario C, changes or additions to the non-motorized system would occur similarly to those described for No Action Scenario B. That is, pedestrian and bicycle paths would be provided as required by reviewing authorities throughout the site.

Parking

The parking supply for each separate redevelopment proposal would be subject to County code requirements (Kitsap Municipal Code Title 17) to ensure that adequate parking supply is provided to meet parking demands. With County parking code requirements incorporated into any final site design, no adverse parking impacts are anticipated.

Transit

Similar to No Action Scenario B, no impact to Kitsap Transit's service or operations are anticipated.

Safety

With the forecasted increase in traffic volumes under the No Action Scenario C, a proportionate increase in the probability of collisions would be likely to occur. However, it is not anticipated that a safety hazard would be created, or that the number of reported collisions would significantly increase.

Traffic Volumes

The following sections describe the anticipated trip generation for No Action Alternative Scenario C, the trip distribution, and the anticipated future (2027) No Action Scenario C weekday PM peak hour traffic volumes.

Trip Generation

The weekday PM peak hour trip generation estimates for No Action Scenario C are summarized in Table 7 (see Appendix D for a detailed trip generation summary).

Table 7. No Action Alternative Scenario C PM Peak Hour Trip Generation Summary

Land Use Assumptions	Size	PM Peak Hour Trips		
		Total	In	Out
<u>Rural Historic Town Residential (RHTR)</u>				
Single-Family Detached Housing (LU 210)	127 units	121	76	45
Townhouse/Condominium (LU 230)	10 units	5	3	2
<u>Rural Historic Town Commercial (RHTC)</u>				
Restaurant (LU 932)	5,000 sf	47	26	21
	<i>-less pass-by (43%)</i>	<i>-20</i>	<i>-10</i>	<i>-10</i>
Townhouse/Condominium (LU 230)	21 units	10	7	3
General Commercial (LU 826)	34,490 sf	88	41	47
	<i>-less pass-by (34%)</i>	<i>-30</i>	<i>-15</i>	<i>-15</i>
<u>Rural Historic Town Waterfront (RHTW)</u>				
None	-	-	-	-
<u>Rural Residential/Rural Wooded (RR/RW)</u>				
Single-Family Detached Housing (LU 210)	11 units	10	6	4
Total Net New Trips		231	134	97

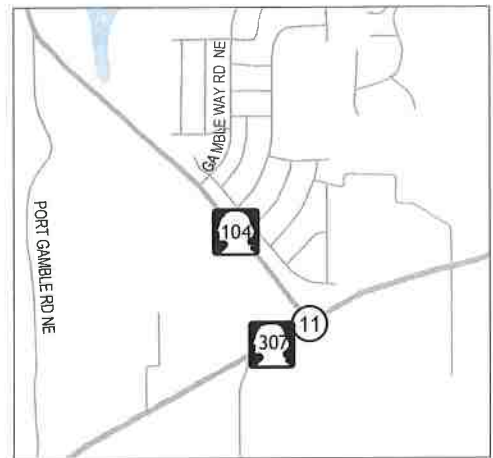
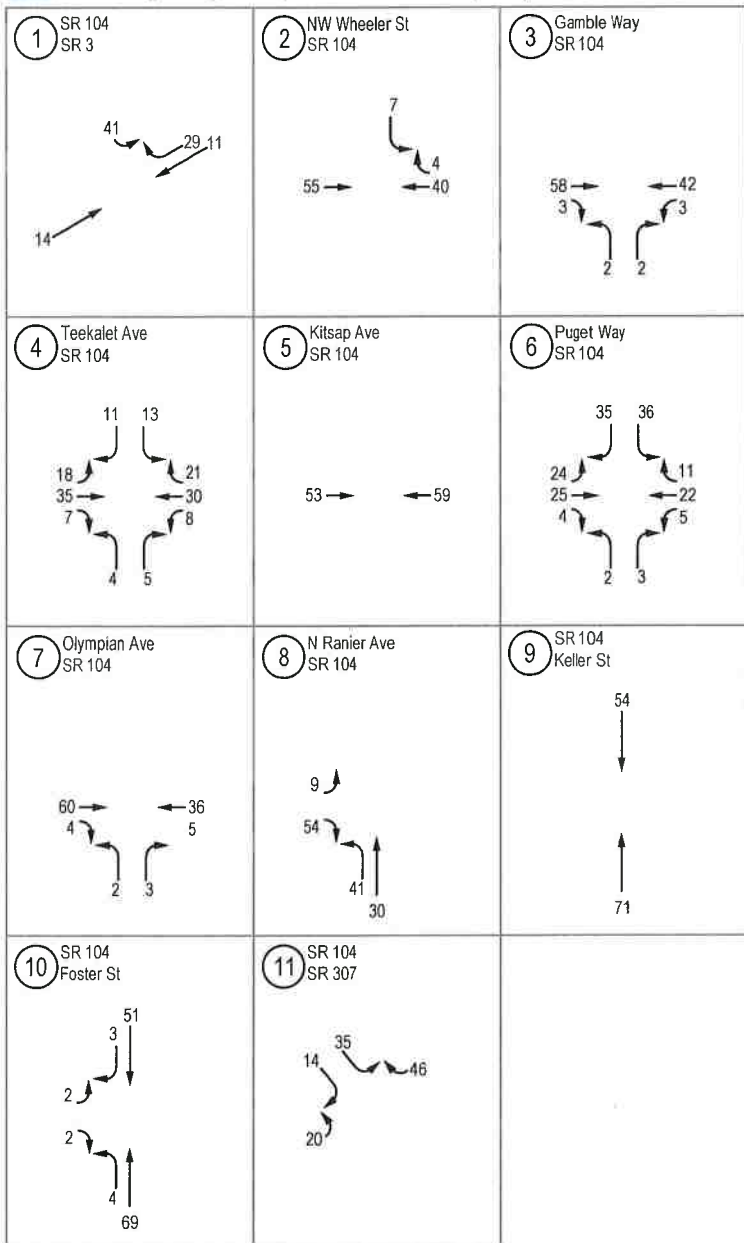
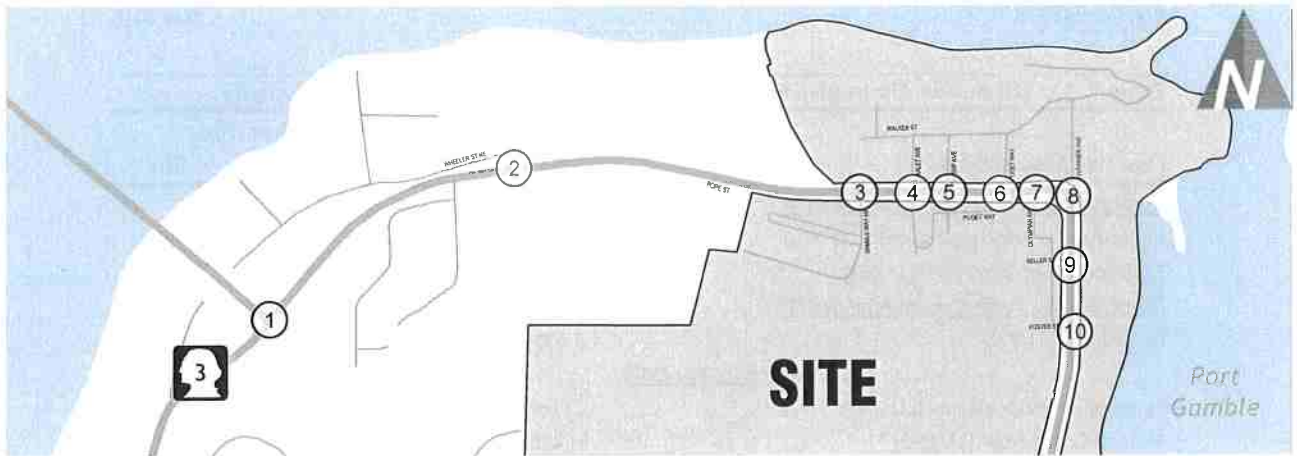
As shown in Table 7, under No Action Scenario C conditions, redevelopment is estimated to generate approximately 231 weekday PM peak hour trips. An estimated 50 weekday PM peak hour trips would be pass-by trips attracted from background traffic volumes.

Trip Distribution

Trip distribution patterns were developed using existing traffic patterns in the vicinity of the Port Gamble site, as described for No Action Scenario B (see Figure 7, page 20).

Forecast Volume Summary

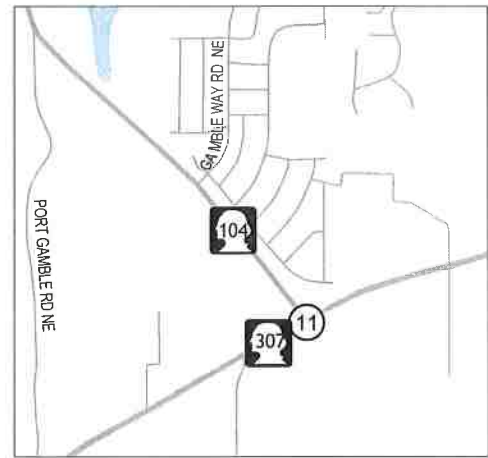
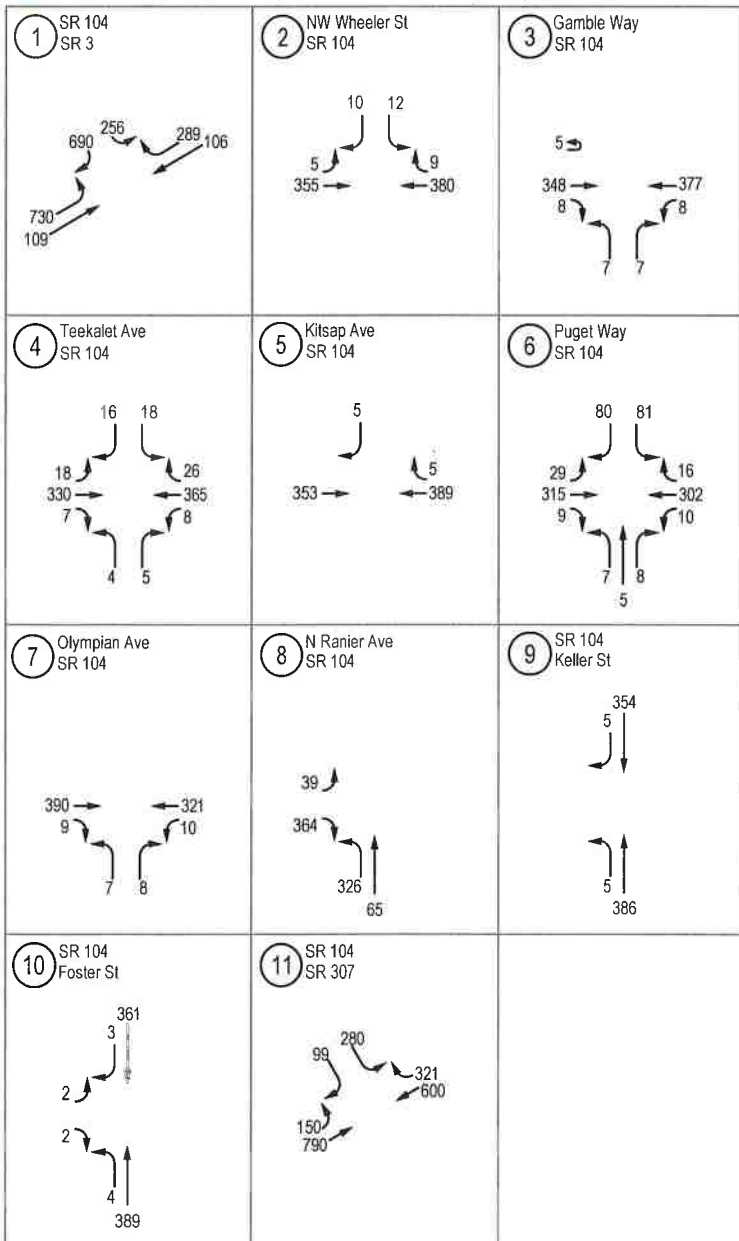
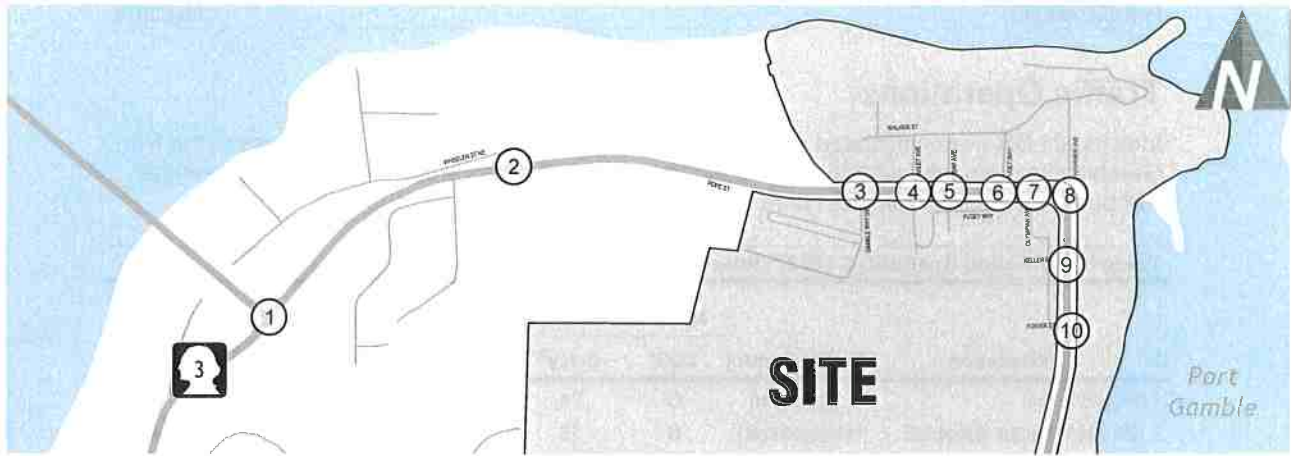
Figure 10 shows the project trip assignment volumes at the study intersections for the No Action Scenario C. These assignments were then added to the No Action Scenario A (continuation of existing conditions) traffic volumes to provide the forecasted total traffic volumes, which are shown in Figure 11.



LEGEND

- ⊗ Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 No Action Scenario C Weekday PM Peak Hour Project Trip Assignment FIGURE



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 No Action Scenario C Weekday PM Peak Hour Traffic Volumes

FIGURE

Traffic Operations

Individual LOS were calculated at the 11 study area intersections providing access to the Port Gamble site during the weekday PM peak hour. Table 8 summarizes future (2027) weekday PM peak hour LOS results for No Action Scenario C.

Table 8. No Action Scenario C (2027) Intersection LOS Summary

ID	Intersection	Traffic Control	No Action Scenario A (2027)			No Action Scenario C (2027)		
			LOS ¹	Delay ²	WM ⁴	LOS ¹	Delay ²	WM ⁴
1	SR 3/SR 104	Signalized	C	24	-	C	27	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	16	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	B	15	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	18	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	11	SB
6	SR 104/Puget Way	Unsignalized	C	16	SB	D	29	SB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	15	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	8	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	B	14	EB
11	SR 307/SR 104	Signalized	C	34	-	D	49	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.

As shown in Table 8, most study intersections are anticipated to operate acceptably at LOS C with the exception of two intersections. The SR 104/Puget Way and SR 307/SR 104 intersections are anticipated to operate at LOS D.

The potential for backups from Hood Canal Bridge closures for naval, commercial, or private boat traffic are anticipated to continue in the foreseeable future.

Alternative 1 Impacts

This section describes future transportation conditions under Alternative 1 at the assumed buildout year of 2027. It includes detailed trip generation and assesses how increased vehicular traffic; transit ridership and pedestrian/bicycle traffic would affect the transportation system on and in the site vicinity.

Alternative Description

The transportation assessment described in this section includes the redevelopment as depicted in the “Alternative Plan” in the development permits submitted to Kitsap County in January 2013. It would feature infill development on the entire site, including the Mill Site, as proposed in the submitted application.

The proposed redevelopment will include a mix of residential and retail development in and around Port Gamble. It is not anticipated that parking would be constructed as part of the proposed alternative. Parking areas indicated on the site plan is to allow for future construction of parking lots by others. The Port Gamble redevelopment has been split into four zones that include:

Rural Historic Town Residential (RHTR) – Located north and south of SR 104.

Rural Historic Town Commercial (RHTC) – Located in the existing town center between Puget Way and Rainier Avenue north of SR 104 and a small parcel located south of SR 104 and east of Olympian Avenue.

Rural Historic Town Waterfront (RHTW) – Located in the former Mill site location along the waterfront.

Rural Residential/Rural Wooded (RR/RW) – Located South of the RHTR area and is accessed via Gamble Way and Carver Drive.

As mentioned previously, it is anticipated that Alternative 1 could be completed in phases. Land uses assumed by phase under Alternative 1 by zone are summarized in Table 9.

Table 9. Land Use Summary – Alternative 1

Land Use	Size (Alt 1)
<i>Rural Historic Town Residential (RHTR)</i>	
Single-Family Detached Housing	104 dus
Townhouse/Condominium	40 dus
<i>Rural Historic Town Commercial (RHTC)</i>	
Townhouse/Condominium	33 dus
General Commercial/Retail	35,000 sf
<i>Rural Historic Town Waterfront (RHTW)</i>	
Townhouse/Condominium	78 dus
Lodge/Hotel	100 rooms
General Commercial	121,000 sf
Restaurant	15,000 sf
<i>Rural Residential/Rural Wooded (RR/RW)</i>	
Single-Family Detached Housing	10 dus
Winery	3 establishments
Wildlife Shelter	14,300 sf

Note: sf = square feet, du = dwelling units

Programmed and Planned Improvements

The Kitsap County 2017-2022 Transportation Improvement Program (TIP) and WSDOT Statewide Transportation Improvement Program (STIP) were reviewed to identify any planned improvement projects within the study area. No specific transportation improvement projects that would impact street system capacity, safety, or operations are planned by either Kitsap County or WSDOT. As a result, no improvements to the street system within the study area were included for the analysis of the EIS Alternatives.

It should be noted that WSDOT has identified the need for future improvements at the SR 3/SR 104 intersection. The *SR 3 Route Development Plan, SR 3 from SR 305 to SR 104*, Washington State Department of Transportation Olympic Region, April 2005 included the widening of SR 3 from the SR 305 interchange to SR 104 and intersection improvements including the SR 3/SR 104 intersection. The study identified that, between 2005 and 2020, a single lane "jughandle" configuration would improve operations at the intersection. The jughandle configuration would create a four-way at-grade intersection where the south leg would be utilized by vehicles heading for the Hood Canal Bridge. By 2030 the SR 3/SR 104 signal would need to be replaced by an interchange/fly-over ramp for westbound traffic in conjunction with a four-lane Hood Canal Bridge is needed to prevent LOS F operations. Funding for the project has not been identified at this time and therefore was not assumed in the analysis.

Construction

Under Alternative 1, approximately 175,000 cubic yards of fill would be provided on the Mill Site and would likely occur during dryer periods (i.e. April to October) over a two-year period. This would result in an increased number of truck trips to the area during construction. Truck trips would occur throughout the day and would not have a significant impact on weekday peak hour traffic operations at study intersections or roadways near the project site. In addition to truck trips, construction employees would also travel to the site during the construction period. However, overall construction traffic is anticipated to be less than traffic generated by build-out of the planned uses.

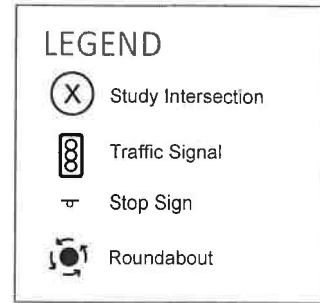
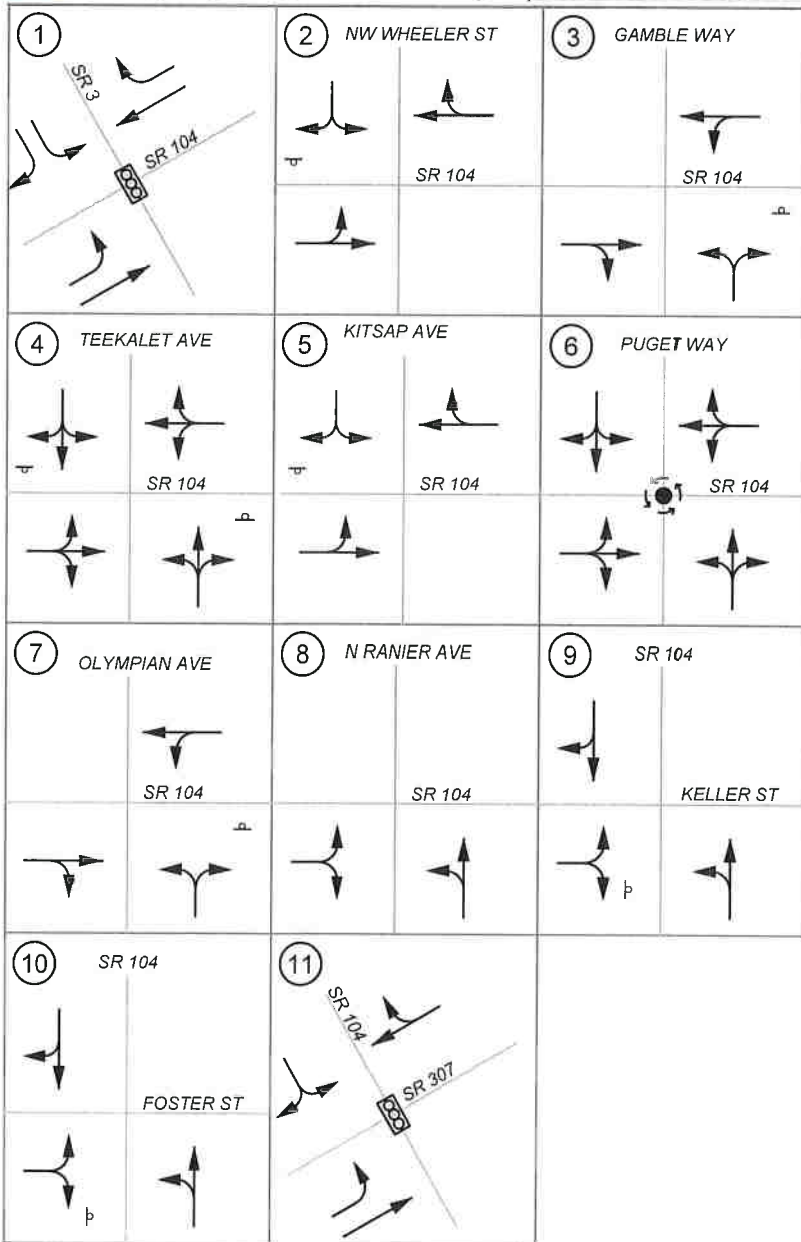
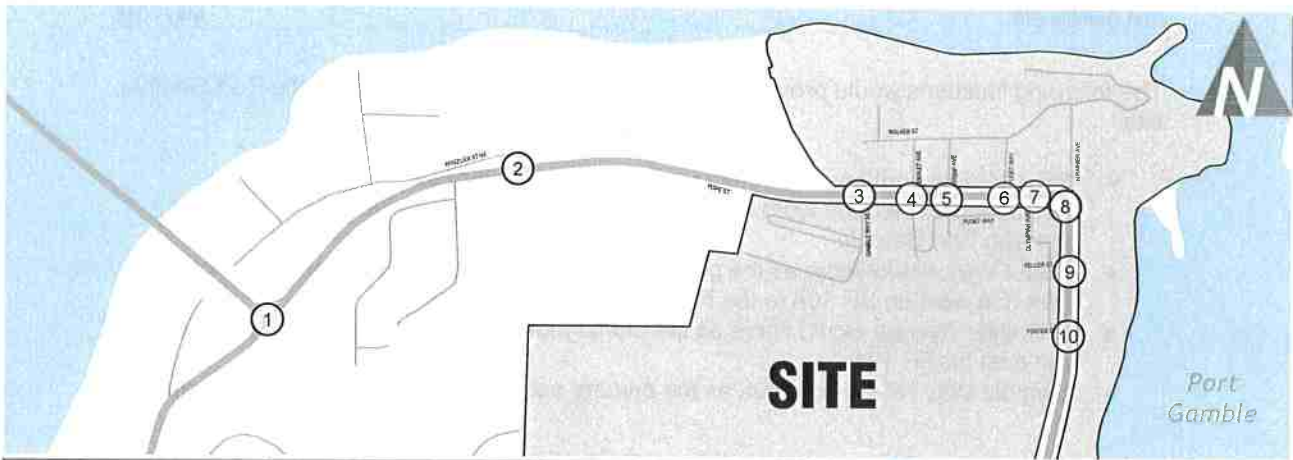
Street System

Under Alternative 1, changes to street alignments and intersection control devices could occur at certain intersections. Improvements include realignment of Puget Way and construction of a roundabout at the Puget Way/SR 104. Figure 12 illustrates the lane configurations and traffic control devices assumed under Alternative 1 full build.

Intersection improvements at the SR 104/Puget Way intersection would be necessary to accommodate additional traffic volumes generated under Alternative 1 full build, it is anticipated some level of development could occur before construction of the roundabout is required. This intersection would serve as the primary access to the redeveloped site, with higher traffic volumes entering and exiting SR 104. A roundabout was determined to be the most effective traffic control for the intersection to provide safe and efficient vehicular, bicycle, and pedestrian traffic flow. In addition, it would calm traffic and provide a new gateway for the site. The single-lane roundabout would accommodate truck traffic along SR 104 and facilitate safe pedestrian crossings.

As mentioned previously, NE Carver Drive may be extended from Gamble Way NE turning north and connecting with SR 104 at Puget Way. Alternative 1 was evaluated with and without this potential connection.

Timing of when improvements would be constructed is summarized in the mitigation section of this document.



Alternative 1 & 2 Lane Configurations and Traffic Control Devices

FIGURE

The following locations would provide the primary vehicular access points to the Port Gamble site:

- SR 104 runs northbound/southbound east of N Rainier Avenue and eastbound/westbound west of N Rainier Avenue and serves as a major roadway through Port Gamble.
- Puget Way would serve as the primary inbound/outbound access for traffic coming from the west on SR 104 to the Port Gamble redevelopment.
- N Rainier Avenue would serve as the primary inbound access for traffic to and from the east on SR 104.
- Gamble Way NE would serve as the primary access to the southern RR/RW area.

Non-Motorized Transportation System

Alternative 1 includes a network of sidewalks, trails, and shared use paths that would accommodate pedestrian and bicycle activity. Pedestrian and bicycle paths would be provided throughout the site, including a hiking trail and a multi-use trail extending north from Foster Street on the east side of SR 104. Figure 13 shows the locations of existing and proposed trails, sidewalks, and multi-use paths. In addition, shoulders along SR 104 would be increased by one foot west of Puget Way to provide adequate width for a bicycle lane (5 ft⁴).

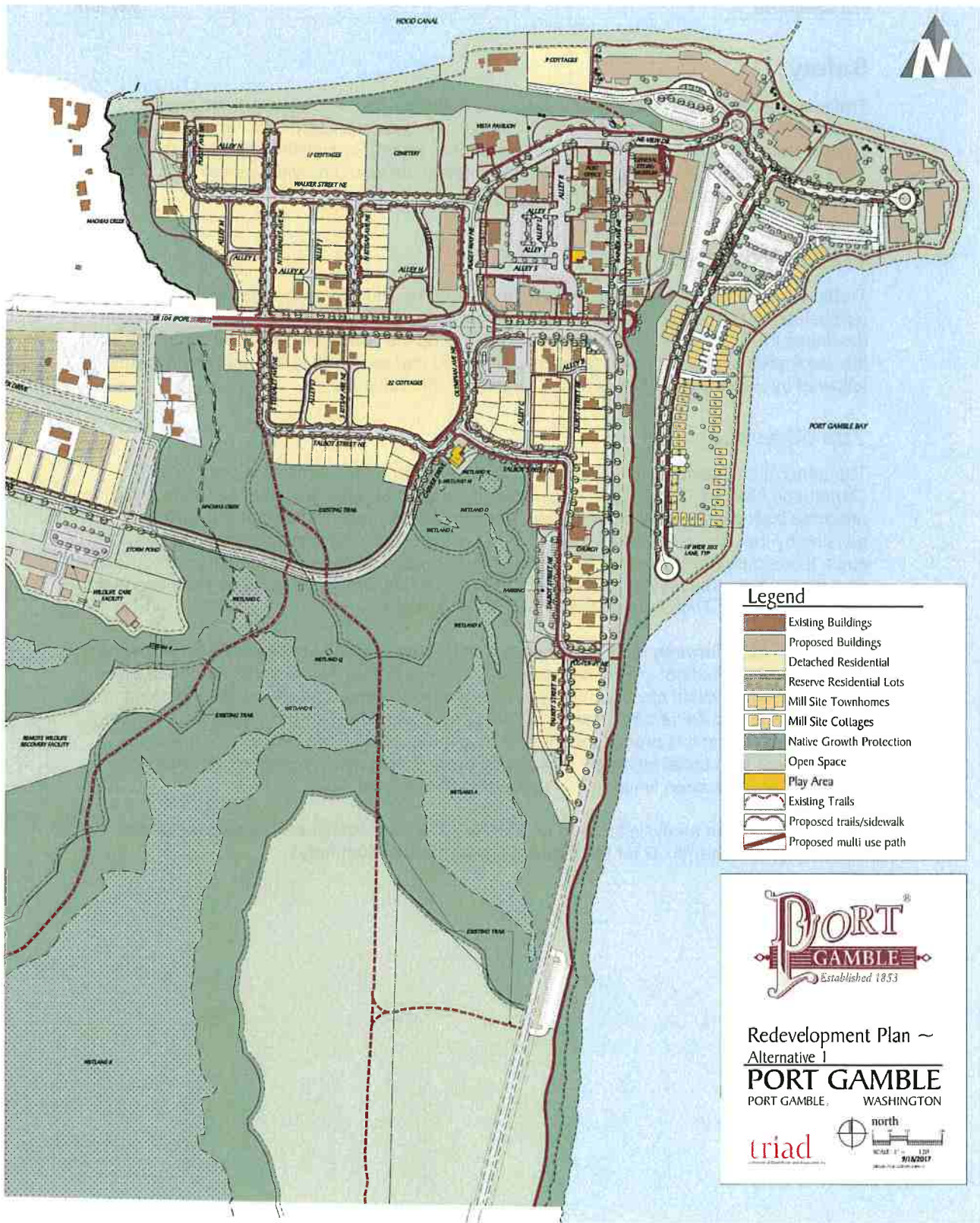
Parking

The parking supply within the redeveloped area would be subject to County code requirements (Kitsap Municipal Code Title 17) to ensure that adequate parking supply is provided to meet parking demands. With County parking code requirements incorporated into any final site design, no adverse parking impacts are anticipated.

Transit

New resident and employment populations on the site would provide the potential for increased transit ridership; however, given the relatively modest transit facilities in the site vicinity Alternative 1 is not anticipated to noticeably impact transit operations or performance within the study area. Future Kitsap Transit stops are envisioned as part of the proposal to best facilitate future transit operations and use. To provide for a conservative operations analysis, increased transit use was not assumed to reduce traffic volumes. Any increase in transit ridership as a result of the redevelopment would likely reduce passenger car travel demands providing some benefit to traffic operations. With proposed mitigation measures, increased roadway and intersection delays resulting from the addition of project generated traffic would not be anticipated to significantly decrease transit route performance.

⁴ Kitsap County Road Standards (2007) 3.7



Alternative 1 Bicycle and Pedestrian Facilities

FIGURE

Safety

Traffic generated under Alternative 1 would be anticipated to result in a proportionate increase in the probability of collisions. However, it is not anticipated that the additional traffic generated under Alternative 1 would create a safety hazard or significantly increase the number of reported collisions. The proposed roundabout would provide a safer form of traffic control for the intersection of SR 104/ Puget Way.

Traffic Volumes

Traffic volumes under Alternative 1 were forecasted by adding traffic generated by the redevelopment under Alternative 1, to future baseline 2027 volumes. The following section describes the forecasting methodology for estimating the number of vehicular trips added to the study area and how these trips were distributed and assigned to the roadway network, followed by a summary of the resulting forecast traffic volumes.

Trip Generation

Trip generation estimates for Alternative 1 are based on rates identified in the *ITE Trip Generation Manual* (9th Edition). The mixed-use nature of redevelopment is anticipated to generate both pass-by and internal trips. Pass-by trips represent trips that are currently passing by the site on SR 104 that would stop at the site before continuing on their way. As such, these trips were accounted for within the site and at access points but do not represent new trips to the street system outside of the Port Gamble site. Pass-by rates were based on data from the *ITE Trip Generation Handbook* (3th Edition).

In addition, trips between retail, employment, and residential land uses within the site would also occur but would not impact the street system outside the Port Gamble site since these uses are located within close proximity to one another. These trips are referred to as internal trips. The *ITE Trip Generation Handbook* provides a procedure for estimating the number of internal trips. Using this procedure, internal trips may account for up to 13 percent of the development trips considering the mix of land uses. To provide a conservative analysis, internalization has been limited to no more than five percent.

The trip generation analysis focused on the PM peak hour conditions, as summarized in Table 10 (see Appendix D for the detailed trip generation summary).

Table 10. Alternative 1 Weekday PM Peak Hour Trip Generation Summary

Land Use Assumptions	Size	PM Peak Hour Trips		
		Total	In	Out
<u>Rural Historic Town Residential (RHTR)</u>				
Single-Family Detached Housing (LU 210)	104 units	99	62	37
Townhouse/Condominium (LU 230)	40 units	20	13	7
<u>Rural Historic Town Commercial (RHTC)</u>				
Townhouse/Condominium (LU 230)	33 units	16	11	5
General Commercial (LU 826)	35,000 sf	90	41	49
	<i>-less pass-by (35%)</i>	<u>-30</u>	<u>-15</u>	<u>-15</u>
<u>Rural Historic Town Waterfront (RHTW)</u>				
Townhouse/Condominium (LU 230)	78 units	39	26	13
Lodge (LU 310)	100 rooms	66	32	34
General Commercial (LU 826)	121,000 sf	312	144	168
	<i>-less pass-by (35%)</i>	<u>-106</u>	<u>-53</u>	<u>-53</u>
Restaurant (LU 932)	15,000 sf	141	79	62
	<i>-less pass-by (43%)</i>	<u>-60</u>	<u>-30</u>	<u>-30</u>
<u>Rural Residential/Rural Wooded (RR/RW)</u>				
Single-Family Detached Housing (LU 210)	10 units	9	6	3
West Sound Wildlife Shelter ¹	14,300 sf	22	7	15
Brewery/Winery ²	3 Brewery/Winery	57	29	28
Total Net New Trips		675	352	323

1. Trip generation based on data collected at the existing West Sound Wildlife Shelter on Bainbridge Island

2. Trip Generation based on data collected at three Washington wineries as documented in Murr Winery Traffic Impact Analysis

As shown, Alternative 1 is anticipated to generate 675 trips during the weekday PM peak hour with approximately 196 pass-by trips attracted from background traffic volumes.

Proposed land uses are for planning purposes and may change as individual occupants are identified. In the event that there is a difference between land uses identified under Alternative 1 and the identified occupant, additional traffic analysis may be required.

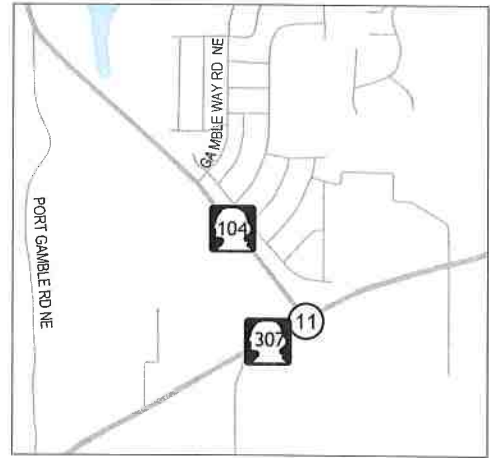
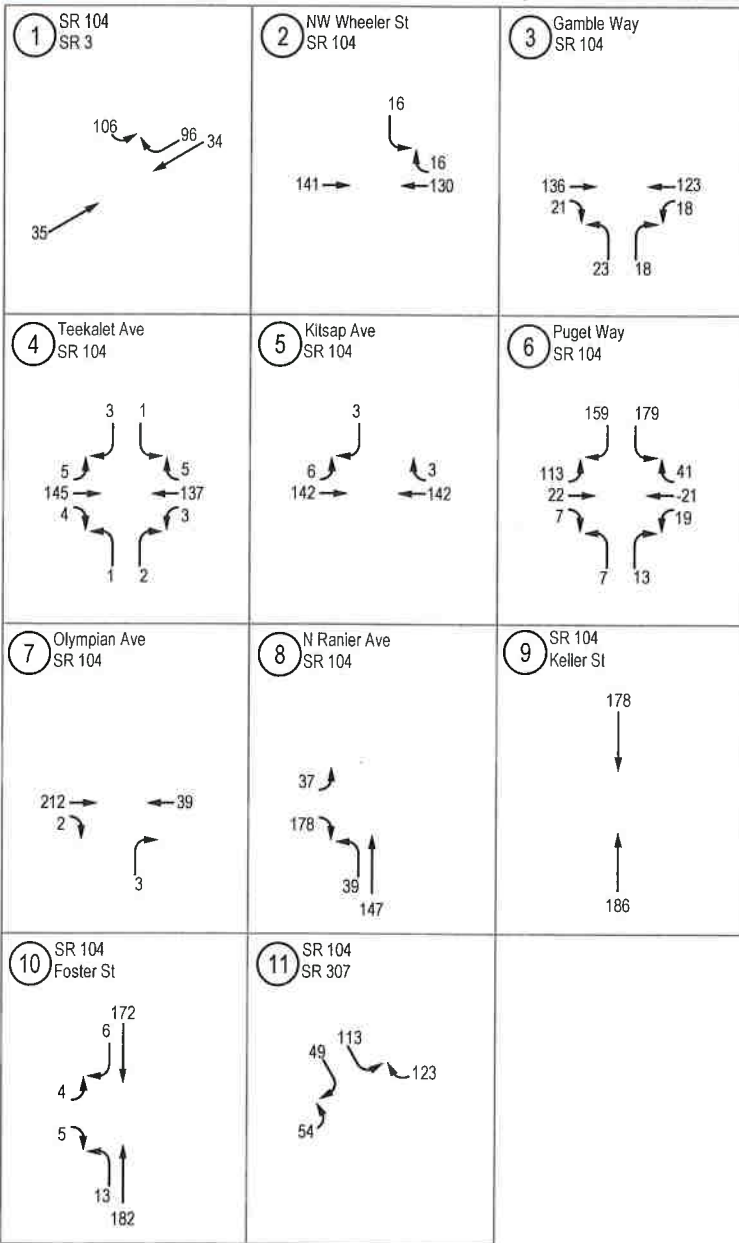
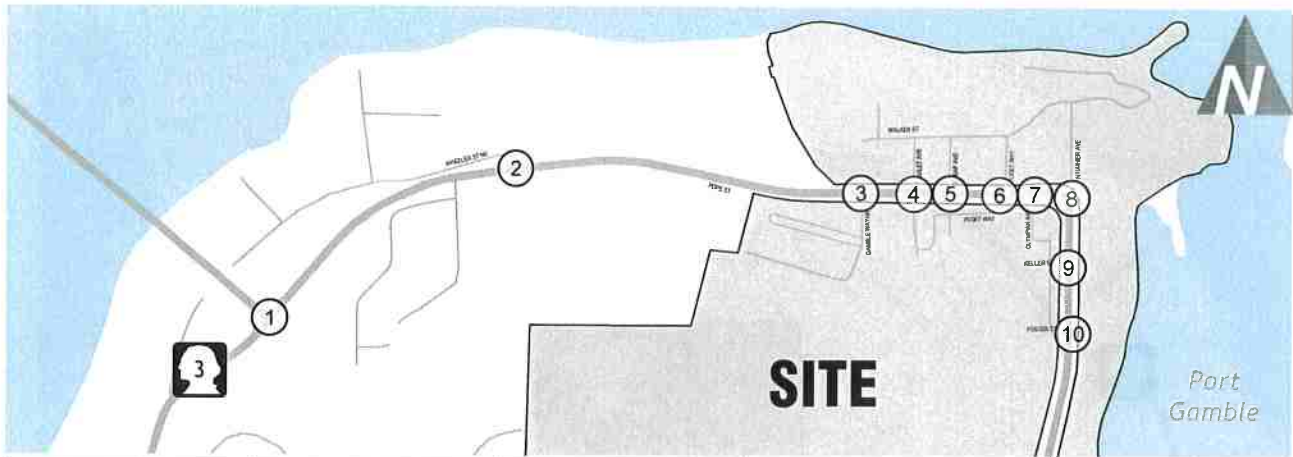
Trip Distribution

Similar to the No Action Scenario B and C, the trip distribution patterns were developed using existing traffic patterns in the vicinity of Port Gamble and consistent with studies previously completed in the area. Based on existing traffic volume data, PM peak hour traffic distributes nearly evenly along SR 104 with 45 percent traveling to/from the west and 55 percent traveling to/from the south. The distribution of trips onto the street system was based on the proposed site access points to the Port Gamble site and is depicted in Figure 7 (page 20).

Forecast Volume Summary

Traffic volume forecasts were based on the 2027 No Action Scenario A (continuation of existing conditions) and adding the trip generation estimates shown in Table 10. As discussed previously, future 2027 baseline volumes were forecast by applying an average annual growth rate of 1.5 percent to existing volumes. Trips associated with Alternative 1 development were distributed throughout the roadway network based on the trip distribution pattern and assigned to individual study intersections. Figure 14 shows the trip assignment volumes at the study intersections with completion of the NE Carter Drive extension. This assignment was then added to baseline volumes to provide the forecast total traffic volumes under Alternative 1. The forecasted Alternative 1 traffic volumes are summarized in Figure

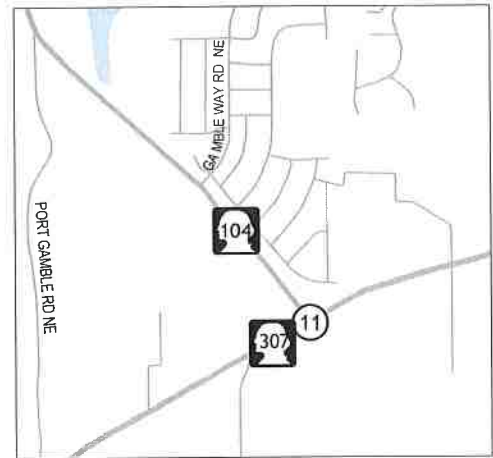
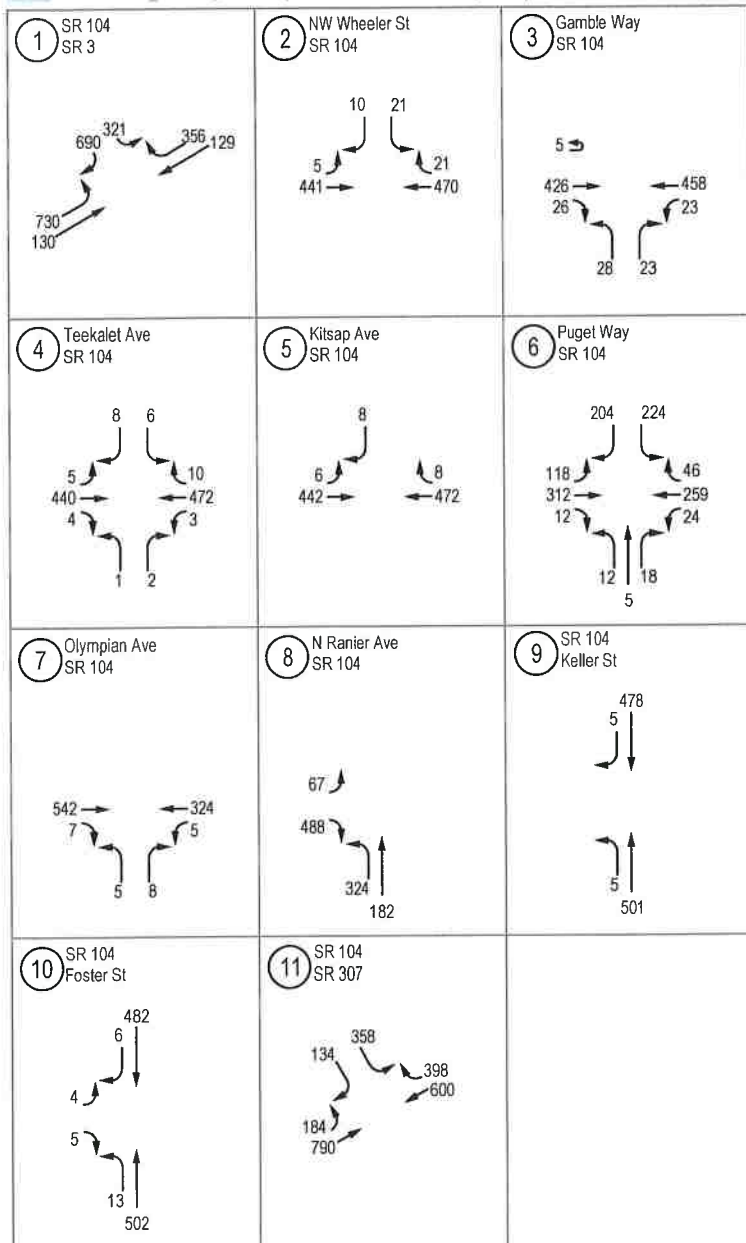
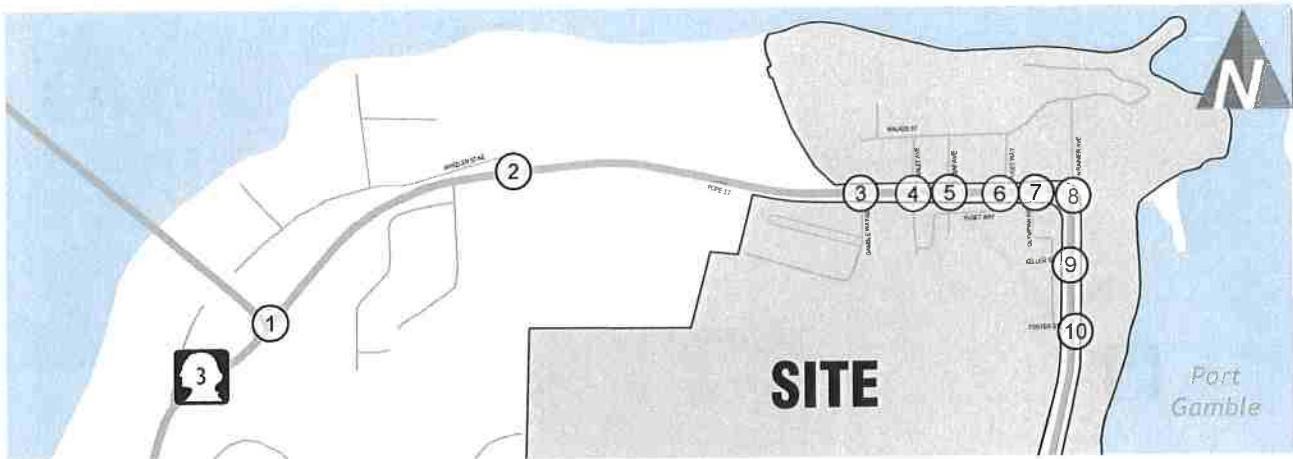
15. Figure 16 shows the trip assignment volumes without completion of the NE Carter Drive extension and the resulting future Alternative 1 traffic volumes are summarized on Figure 17.



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

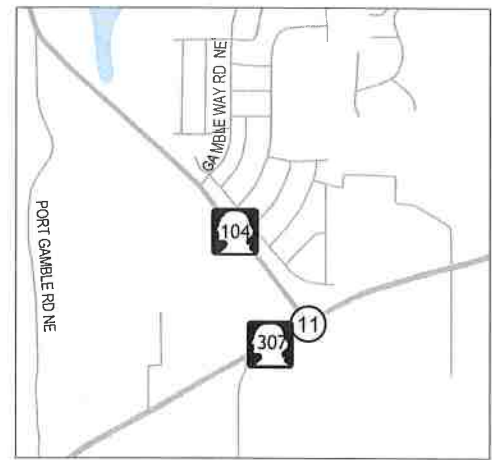
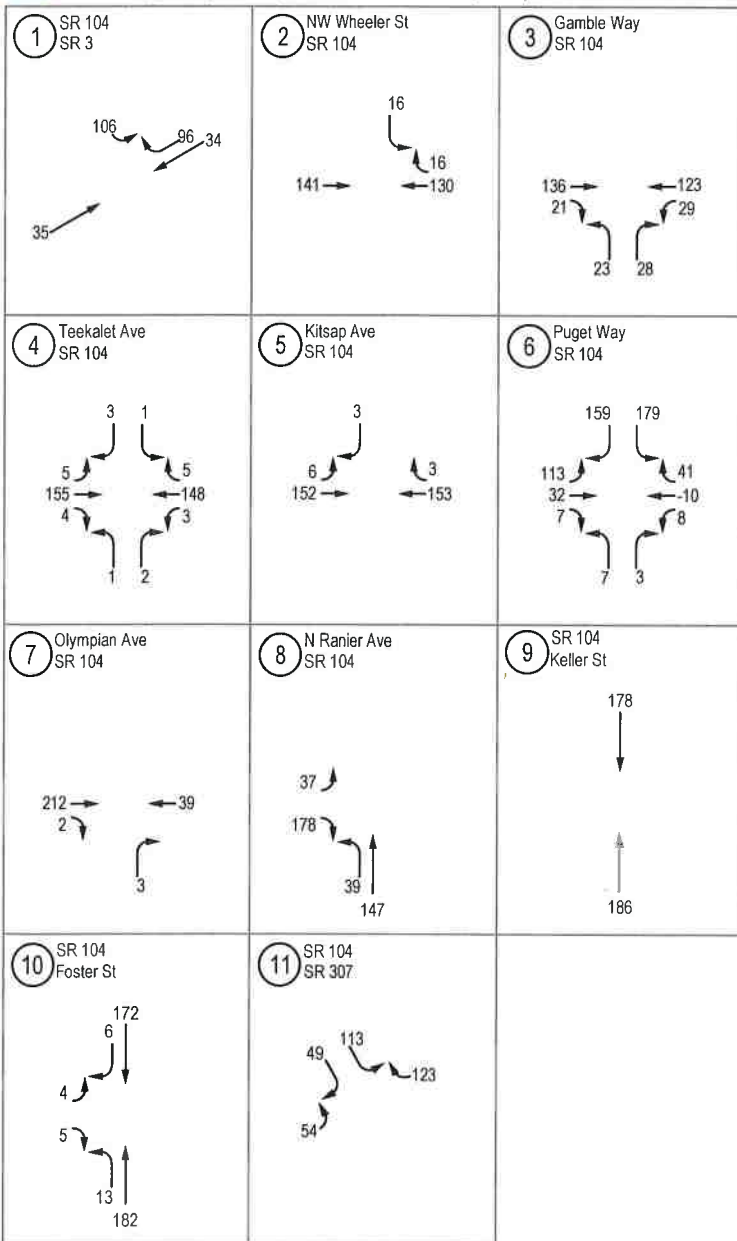
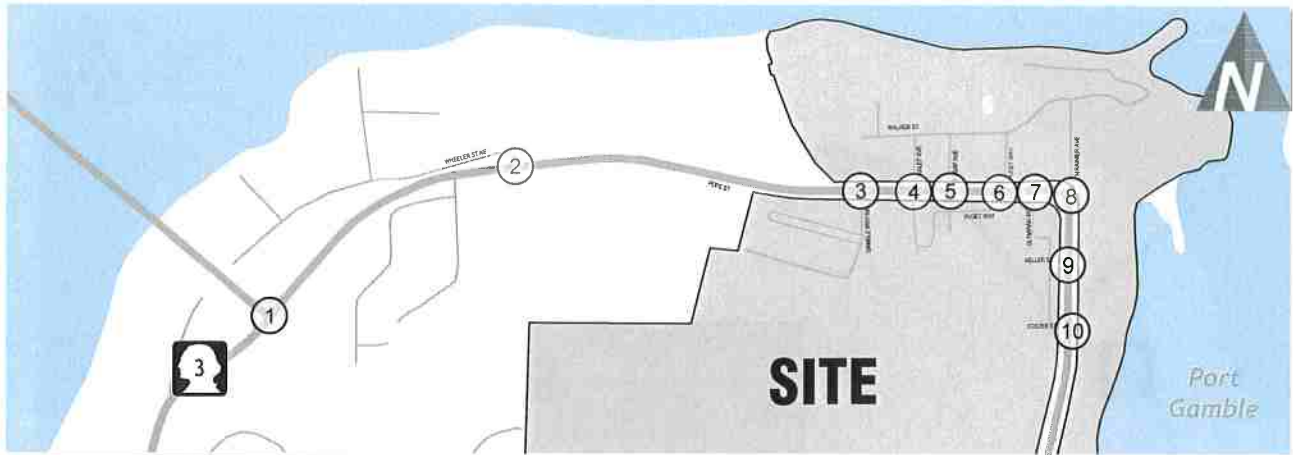
2027 Alternative 1 Weekday PM Peak Hour Project Trip Assignment - With Carver Drive Extension FIGURE



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

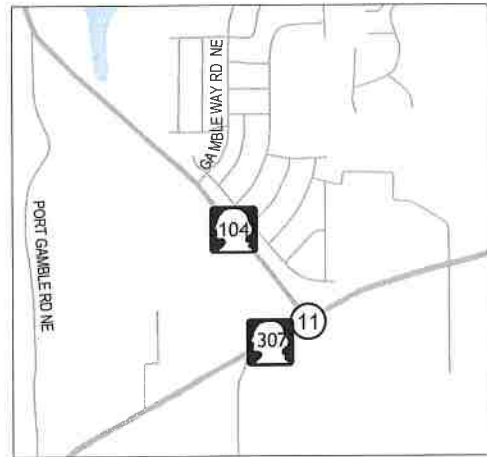
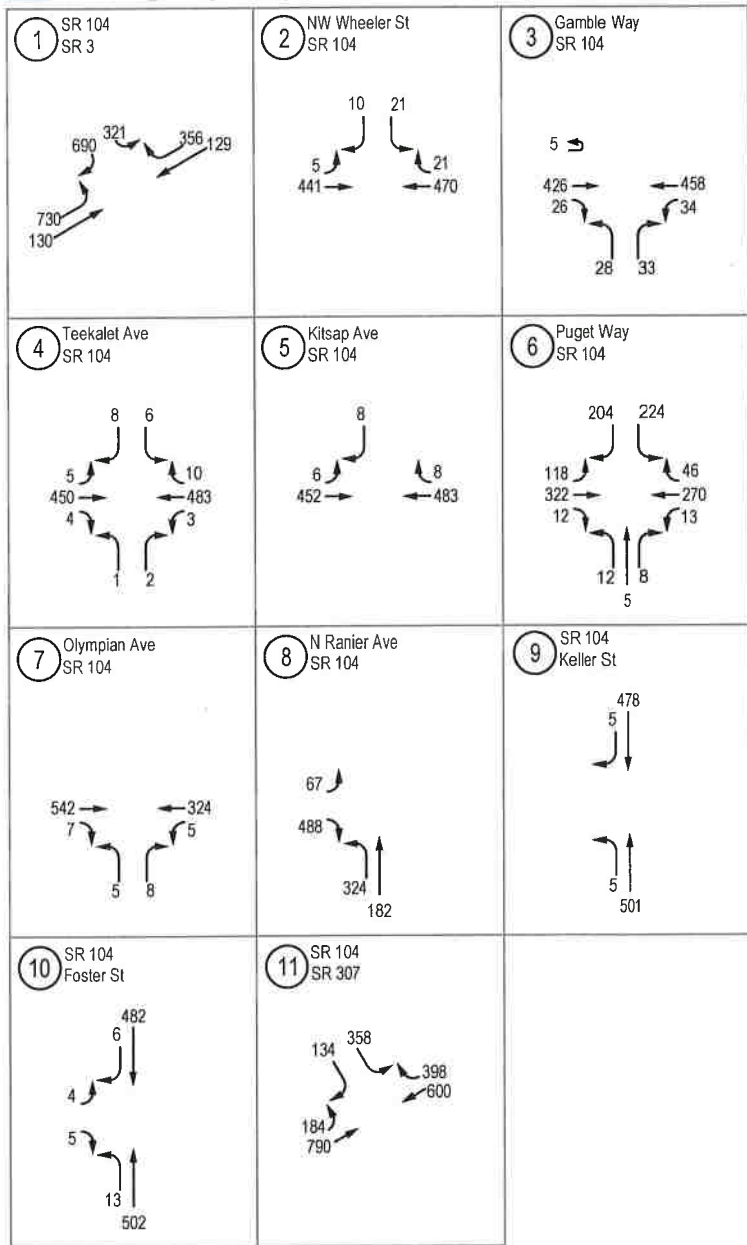
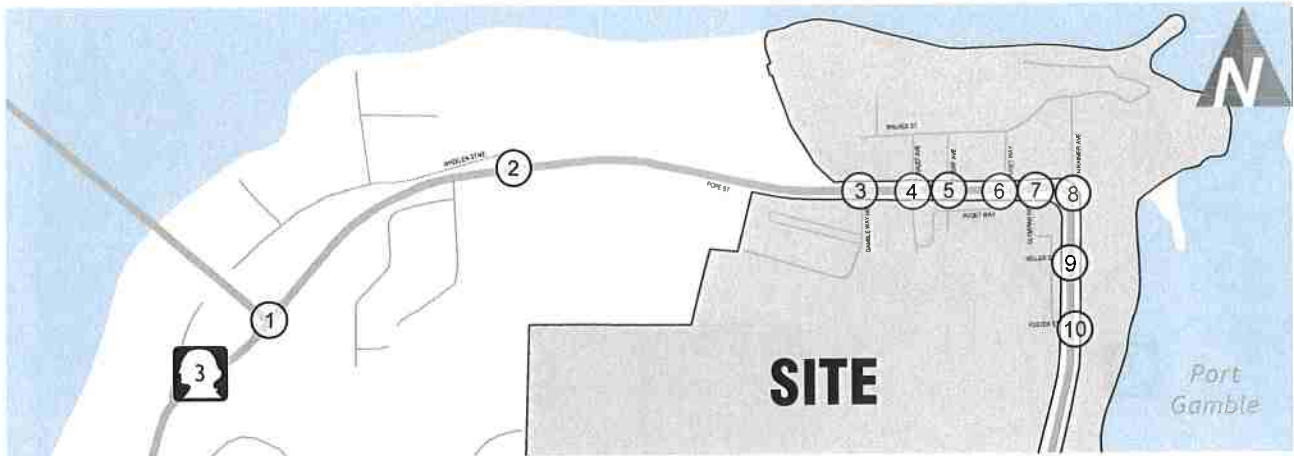
2027 Alternative 1 Weekday PM Peak Hour Traffic Volumes - With Carver Drive Extension FIGURE



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 Alternative 1 Weekday PM Peak Hour Project Trip Assignment - Without Carver Drive Extension **FIGURE**



LEGEND

- (X) Study Intersection
- X Weekday PM Peak Hour Traffic Volumes

2027 Alternative 1 Road Closure Weekday PM Peak Hour Traffic Volumes - Without Carver Drive Extension **FIGURE**

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). For signalized locations, LOS is measured in average delay per vehicle and is reported for the intersection as a whole. At side-street stop-controlled intersections LOS is measured in average delay per vehicle during the peak hour of traffic and is reported for the worst operating approach of the intersection. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix B contains a detailed explanation of LOS criteria and definitions.

Individual intersection LOS was calculated at the 11 study intersections providing access to the Port Gamble site during the weekday PM peak hour. Table 11 shows the results of the LOS analysis conducted during the weekday PM peak hour under full development of Alternative 1 in 2027 with completion of the NE Carter Drive extension. See Appendix C for detailed LOS worksheets. Table 12 shows the results of the LOS analysis for the weekday PM peak hour under full development of Alternative 1 in 2027 without the NE Carter Drive extension.

As mentioned previously, for future (2027) analysis, signal timing splits were optimized but all other parameters such as channelization, traffic control, and signal cycle length was held consistent with existing (2017) conditions with the exception of the roundabout assumed at SR 104/Puget Way.

Table 11. Alternative 1 (2027) Intersection LOS Summary – With NE Carver Drive Extension

ID	Intersection	Traffic Control	No Action Scenario A (2027)			Alternative 1 (2027)		
			LOS ¹	Delay ²	WM ³	LOS ¹	Delay ²	WM ³
1	SR 3/SR 104	Signalized	C	24	-	D	36	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	22	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	C	22	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	18	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	12	SB
6	SR 104/Puget Way	Roundabout ⁴	C	16	SB	A	10	NB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	18	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	9	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	C	18	EB
11	SR 307/SR 104	Signalized	C	34	-	F	88	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.
4. Roundabout under Alternative 1 full build, unsignalized under the No Action Scenario A.

As shown in Table 11, all of the study area intersections would operate at LOS C or better with trips generated under Alternative 1, with the exceptions of the signalized SR 3/SR 104 and SR 307/SR 104 intersections. Under Alternative 1 conditions the SR 3/SR 104 intersection is anticipate to operate at LOS D and the SR 307/SR 104 intersection is anticipated to operate at LOS F.

Table 12. Alternative 1 (2027) Intersection LOS Summary – No NE Carver Drive Connection

ID	Intersection	Traffic Control	No Action Scenario A (2027)			Alternative 1 (2027)		
			LOS ¹	Delay ²	WM ³	LOS ¹	Delay ²	WM ³
1	SR 3/SR 104	Signalized	C	24	-	D	36	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	22	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	C	23	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	18	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	12	SB
6	SR 104/Puget Way	Roundabout ⁴	C	16	SB	A	10	NB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	18	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	9	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	C	18	EB
11	SR 307/SR 104	Signalized	C	34	-	F	88	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual (HCM)*, Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.
4. Roundabout under Alternative 1 full build, unsignalized under the No Action Scenario A.

As shown in Table 12, all of the study area intersections would operate at LOS C or better with trips generated under Alternative 1 without the NE Carver Drive connection, with the exceptions of the signalized SR 3/SR 104 and SR 307/SR 104 intersections. Under Alternative 1 conditions the SR 3/SR 104 intersection is anticipated to operate at LOS D and the SR 307/SR 104 intersection is anticipated to operate at LOS F.

The potential for backups from Hood Canal Bridge closures for naval, commercial, or private boat traffic are anticipated to continue in the foreseeable future.

Alternative 2 Impacts

This section describes future transportation conditions under Alternative 2 at the assumed buildout year of 2027. It includes detailed trip generation and assesses how increased vehicular traffic; transit ridership and pedestrian/bicycle traffic would affect the transportation system on and in the site vicinity.

Alternative Description

Similar to Alternative 1, it is anticipated that Alternative 2 would be completed in phases. Land uses assumed for the full build under Alternative 2 by zone are summarized in Table 13 and includes a comparison to Alternative 1. It is not anticipated that parking would be constructed as part of the proposed alternative. Parking areas indicated on the site plan is to allow for future construction of parking lots by others.

Table 13. Land Use Summary – Alternative 2		
Land Use	Size (Alt 2)	Size (Alt 1)
<i>Rural Historic Town Residential (RHTR)</i>		
Single-Family Detached Housing	104 dus	104 dus
Townhouse/Condominium	40 dus	40 dus
<i>Rural Historic Town Commercial (RHTC)</i>		
Townhouse/Condominium	33 dus	33 dus
General Commercial/Retail	35,000 sf	35,000 sf
<i>Rural Historic Town Waterfront (RHTW)</i>		
Townhouse/Condominium	39 dus	78 dus
Lodge/Hotel	100 rooms	100 rooms
General Commercial/Retail	0 sf	121,000 sf
Restaurant	15,000 sf	15,000 sf
<i>Rural Residential/Rural Wooded (RR/RW)</i>		
Single-Family Detached Housing	10 dus	10 dus
Winery	3 establishments	3 establishments
Wildlife Shelter	14,300 sf	14,300 sf

Note: sf = square feet, du = dwelling units

As shown in Table 13, development in the RHTR, RHTC, and RR/RW areas are anticipated to be similar to Alternative 1 and development of residential is anticipated to be lower in the RHTW area with no development of general commercial or educational/industrial under Alternative 2.

Programmed and Planned Improvements

The Kitsap County 2017-2022 Transportation Improvement Program (TIP) and WSDOT Statewide Transportation Improvement Program (STIP) were reviewed to identify any planned improvement projects within the study area. No specific transportation improvement projects that would impact street system capacity, safety, or operations are planned by either Kitsap County or WSDOT. As a result, no improvements to the street system within the study area were included for the analysis of the EIS Alternatives.

It should be noted that WSDOT has identified the need for future improvements at the SR 3/SR 104 intersection. The *SR 3 Route Development Plan, SR 3 from SR 305 to SR 104*, Washington State Department of Transportation Olympic Region, April 2005 included the widening of SR 3 from the SR 305 interchange to SR 104 and intersection improvements including the SR 3/SR 104 intersection. The study identified that, between 2005 and 2020, a single lane "jughandle" configuration would improve operations at the intersection. The jughandle configuration would create a four-way at-grade intersection where the south leg would be utilized by vehicles heading for the Hood Canal Bridge. By 2030 the SR 3/SR 104 signal would need to be replaced by an interchange/fly-over ramp for westbound traffic in conjunction with a four-lane Hood Canal Bridge is needed to prevent LOS F operations. Funding for the project has not been identified at this time and therefore was not assumed in the analysis.

Construction

Under Alternative 2, on-site grading and fill would be similar to Alternative 1. This would result in an increased number of truck trips to the area during construction. Truck trips would occur throughout the day and would not have a significant impact on weekday peak hour traffic operations at study intersections or roadways near the project site. In addition to truck trips, construction employees would also travel to the site during the construction period. However, overall construction traffic is anticipated to be less than traffic generated by build-out of the planned uses.

Street System

Similar to Alternative 1, changes to street alignments and intersection control devices could occur at certain intersections. Improvements could include realignment of Puget Way and construction of a roundabout at the Puget Way/SR 104. Figure 12 (Page 31) illustrates the lane configurations and traffic control devices assumed under Alternative 2.

Intersection improvements at the SR 104/Puget Way intersection would be necessary to accommodate additional traffic volumes generated under Alternative 2 full build, it is anticipated that some level of development could occur before the improvement is required. This intersection would serve as the primary access to the redeveloped site, with higher traffic volumes entering and exiting SR 104. A roundabout was determined to be the most effective traffic control for the intersection to provide safe and efficient vehicular, bicycle, and pedestrian traffic flow. In addition, it would calm traffic and provide a new gateway for the site. The roundabout would accommodate pedestrian crosswalks at all four legs of the intersection. The single-lane roundabout would accommodate truck traffic along SR 104 and facilitate safe pedestrian crossings.

As mentioned previously, NE Carver Drive may be extended from Gamble Way NE turning north and connecting with SR 104 at Puget Way. Alternative 2 was evaluated with and without this potential connection.

Timing of when improvements would be constructed is summarized in the mitigation section of this document.

Non-Motorized Transportation System

Similar to Alternative 1, Alternative 2 includes a network of sidewalks, trails, and shared use paths that would accommodate pedestrian and bicycle activity. Pedestrian and bicycle paths would be provided throughout the site, including a hiking trail and a multi-use trail extending north from Foster Street on the east side of SR 104, as shown on Figure 18. In addition,

shoulders along SR 104 would be increased by one foot west of Puget Way to provide adequate width for a bicycle lane (5 ft⁵).

Parking

The parking supply within the redeveloped area would be subject to County code requirements (Kitsap Municipal Code Title 17) to ensure that adequate parking supply is provided to meet parking demands. With County parking code requirements incorporated into any final site design, no adverse parking impacts are anticipated.

⁵ Kitsap County Road Standards (2007) 3.7



Alternative 2 Bicycle and Pedestrian Facilities

FIGURE

Transit

As described for Alternative 1, Alternative 2 is not anticipated to noticeably impact transit operations or performance within the study area. Any increase in transit ridership as a result of the redevelopment would likely reduce passenger car travel demands providing nominal benefit to traffic operations. Any increased roadway and intersection delays resulting from the addition of project generated traffic would cause a similar decrease in transit operational performance.

Safety

Traffic generated under Alternative 2 would be anticipated to result in a proportionate increase in the probability of collisions. As noted for Alternative 1, it is not anticipated that the addition of traffic under Alternative 2 would create a safety hazard or significantly increase the number of reported collisions.

Traffic Volumes

Similar to Alternative 1, traffic volumes under Alternative 2 were forecasted by adding traffic generated by the redevelopment to future No Action Scenario A volumes. The forecasting methodology for estimating the number of vehicular trips added to the study area and distribution/assignment of these trips to the roadway network was performed utilizing the methodology described for Alternative 1.

Trip Generation

The trip generation analysis focused on the daily and weekday PM peak hour conditions and is consistent with those summarized for Alternative 1. The daily and weekday PM peak hour trip generation estimates for Alternative 2 are summarized below in Table 14 (see Appendix D for the detailed trip generation summary).

Table 14. Alternative 2 Trip Generation Summary

Land Use Assumptions	Size	PM Peak Hour		
		Total	In	Out
<u>Rural Historic Town Residential (RHTR)</u>				
Single-Family Detached Housing (LU 210)	104 units	99	62	37
Townhouse/Condominium (LU 230)	40 units	20	13	7
<u>Rural Historic Town Commercial (RHTC)</u>				
Townhouse/Condominium (LU 230)	33 units	16	11	5
General Commercial (LU 826)	35,000 sf	90	41	49
	<i>-less pass-by (35%)</i>	<i>-30</i>	<i>-15</i>	<i>-15</i>
<u>Rural Historic Town Waterfront (RHTW)</u>				
Townhouse/Condominium (LU 230)	39 units	19	13	6
Lodge (LU 310)	100 rooms	66	32	34
Restaurant (LU 932)	15,000 sf	141	79	62
	<i>-less pass-by (43%)</i>	<i>-60</i>	<i>-30</i>	<i>-30</i>
<u>Rural Residential/Rural Wooded (RR/RW)</u>				
Single-Family Detached Housing (LU 210)	10 units	9	6	3
West Sound Wildlife Shelter ¹	14,300 sf	22	7	15
Brewery/Winery ²	3 Brewery/Winery	57	29	28
Total Net New Trips		449	248	201

1. Trip generation based on data collected at the existing West Sound Wildlife Shelter on Bainbridge Island
 2. Trip Generation based on data collected at three Washington wineries as documented in Murr Winery Traffic Impact Analysis (2001).

As shown in Table 14, redevelopment under Alternative 2 is anticipated to generate approximately 449 weekday PM peak hour trips. An additional 90 weekday PM peak hour trips would be pass-by trips attracted from background traffic volumes.

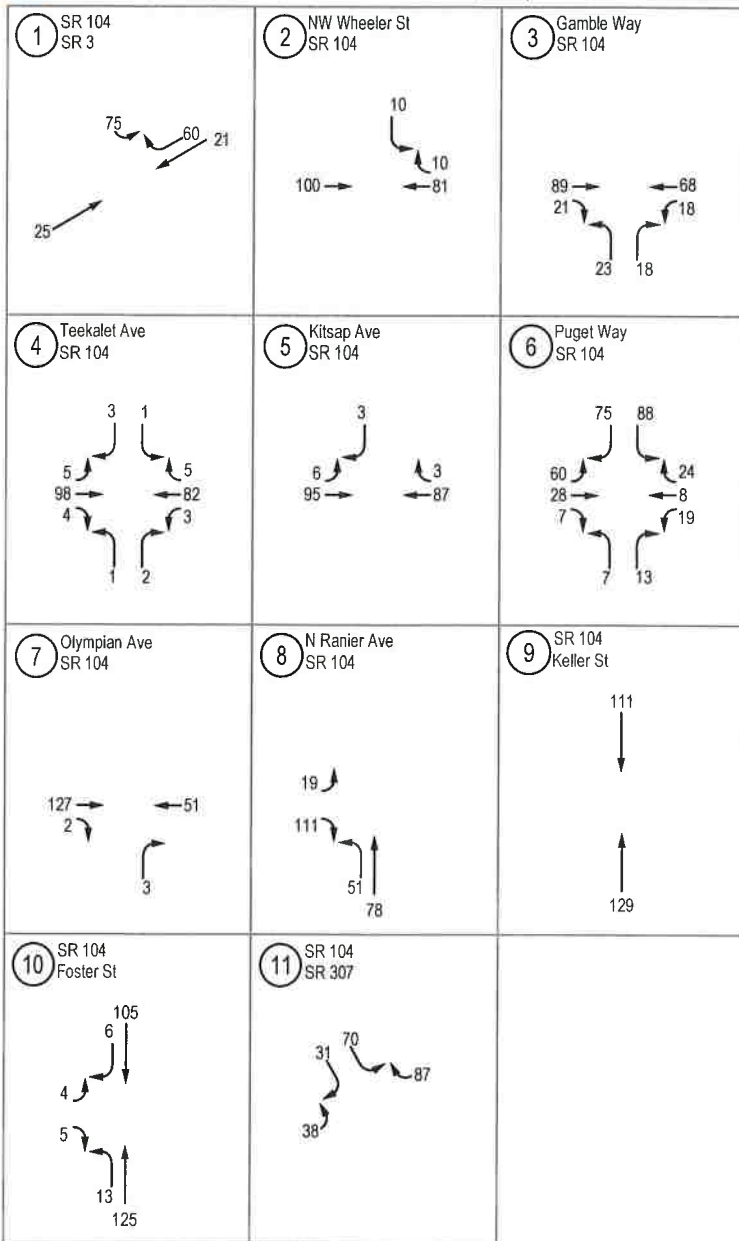
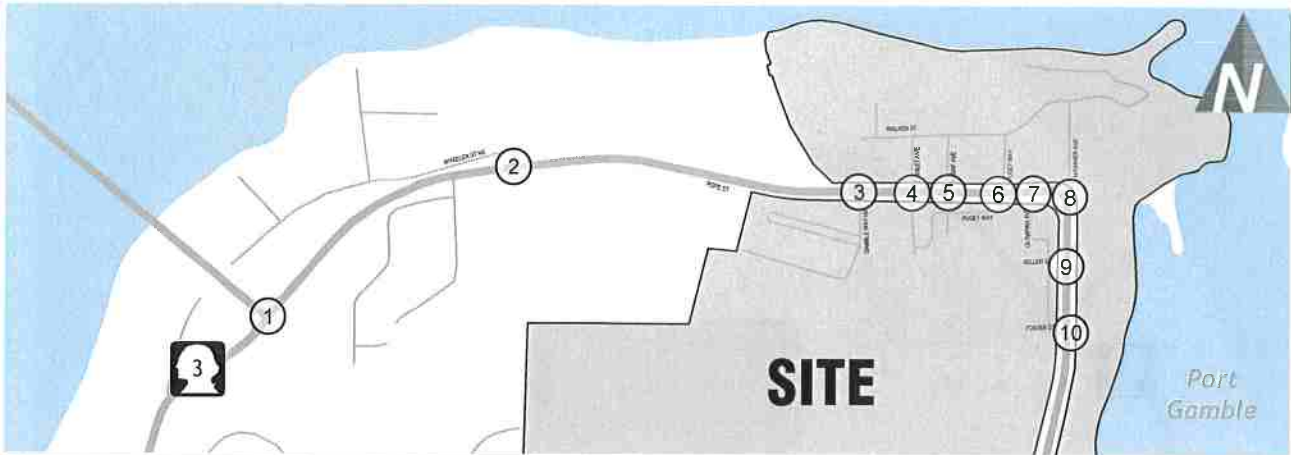
Proposed land uses are for planning purposes and may change as individual occupants are identified. In the event that there is a difference between land uses identified under Alternative 2 and the identified occupant, additional traffic analysis may be required.

Trip Distribution

Trip distribution patterns were developed using existing traffic patterns in the vicinity of Port Gamble and assumed the same distribution as under Alternative 1, with 45 percent traveling to/from the west and 55 percent traveling to/from the south. The distribution of trips within the Port Gamble site was based on internal connections and development intensity. The trip distribution is shown in Figure 7 (page 20).

Forecast Volume Summary

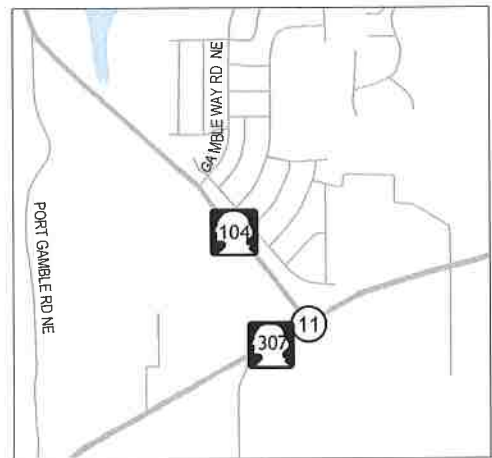
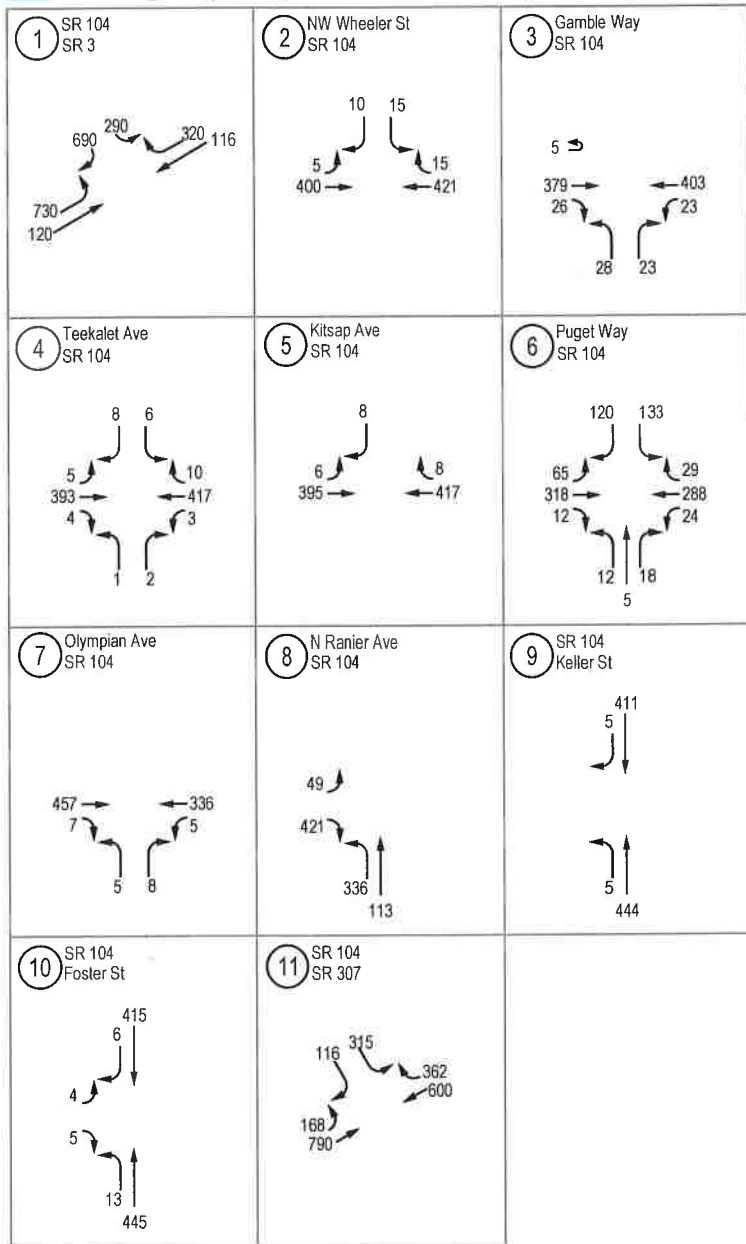
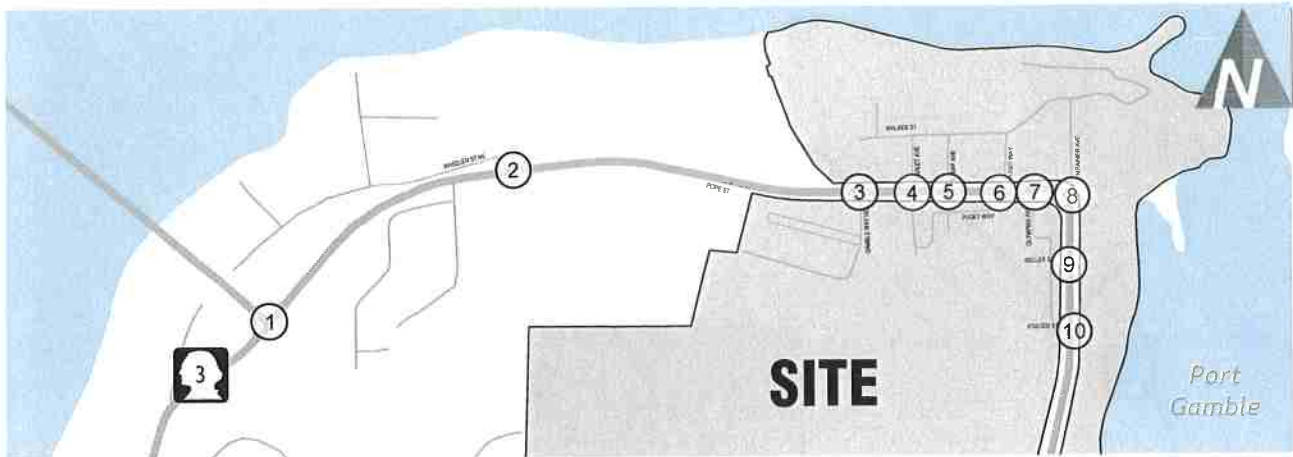
Traffic volume forecasts were based on the 2027 No Action Scenario A (continuation of existing conditions) and adding the trip generation estimates shown in Table 14. Trips associated with Alternative 2 were distributed on the roadway network based on the trip distribution pattern and assigned to individual study intersections. Figure 19 shows the trip assignment volumes at the study intersections with completion of the NE Carter Drive extension. This assignment was then added to baseline volumes to provide the forecast total traffic volumes under Alternative 2. The forecast Alternative 2 traffic volumes are summarized on Figure 20. Figure 21 shows the trip assignment volumes without completion of the NE Carter Drive extension and the resulting future Alternative 2 traffic volumes are summarized on Figure 22.



LEGEND

- Study Intersection
- Weekday PM Peak Hour Traffic Volumes

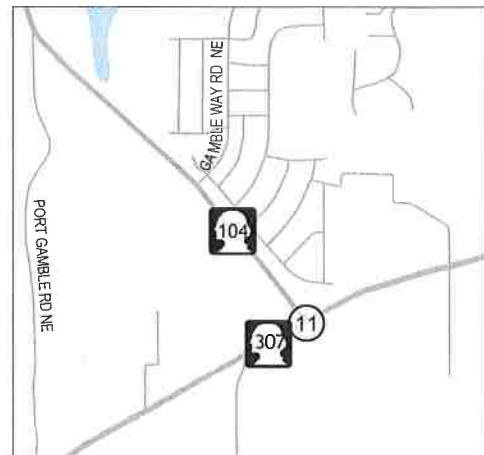
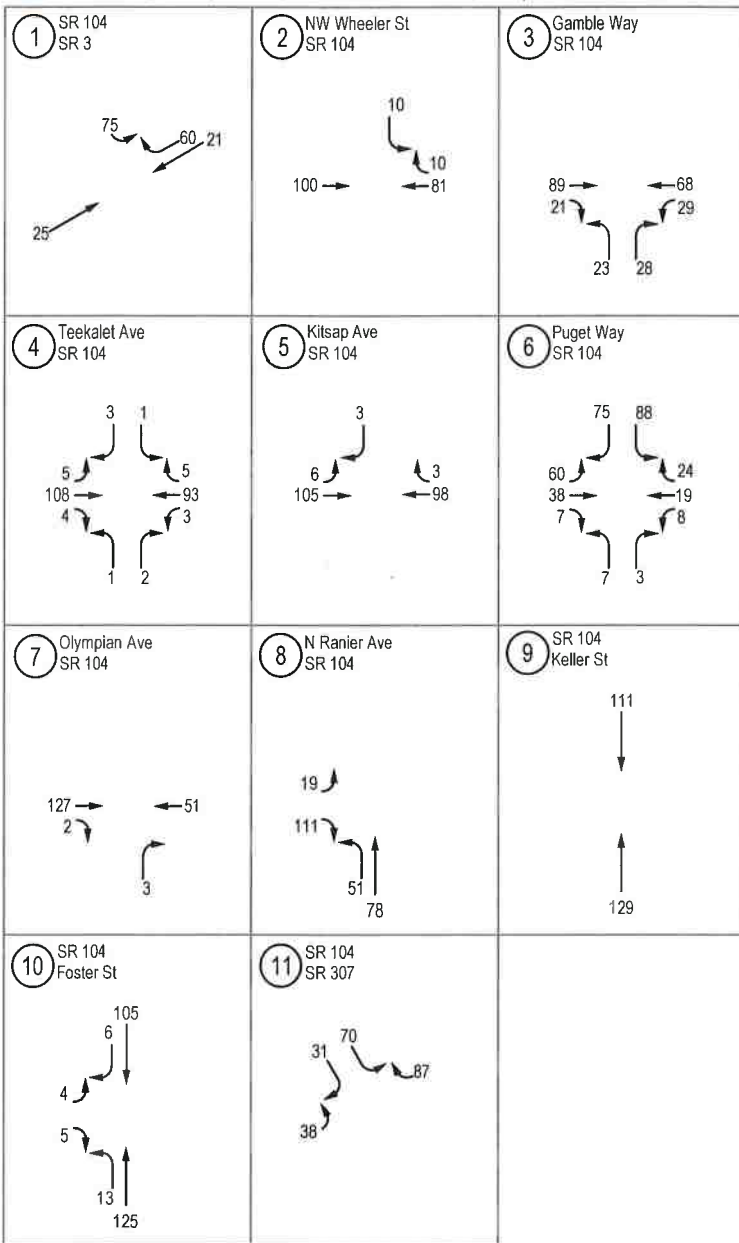
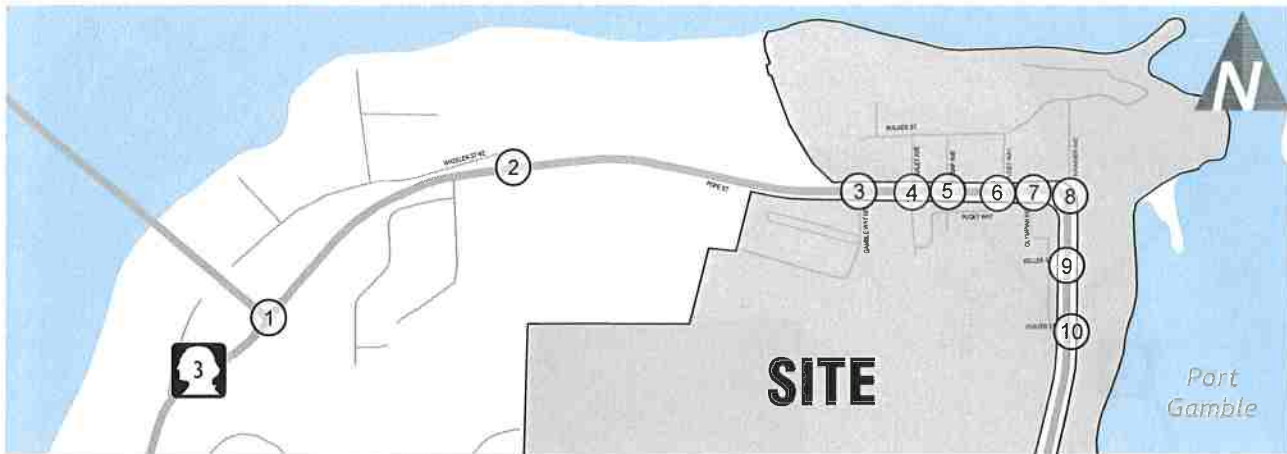
2027 Alternative 2 Weekday PM Peak Hour Project Trip Assignment - With Carver Drive Extension FIGURE



LEGEND

- (X) Study Intersection
- X Weekday PM Peak Hour Traffic Volumes

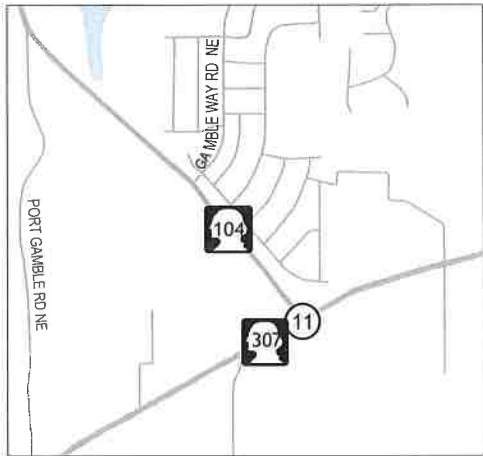
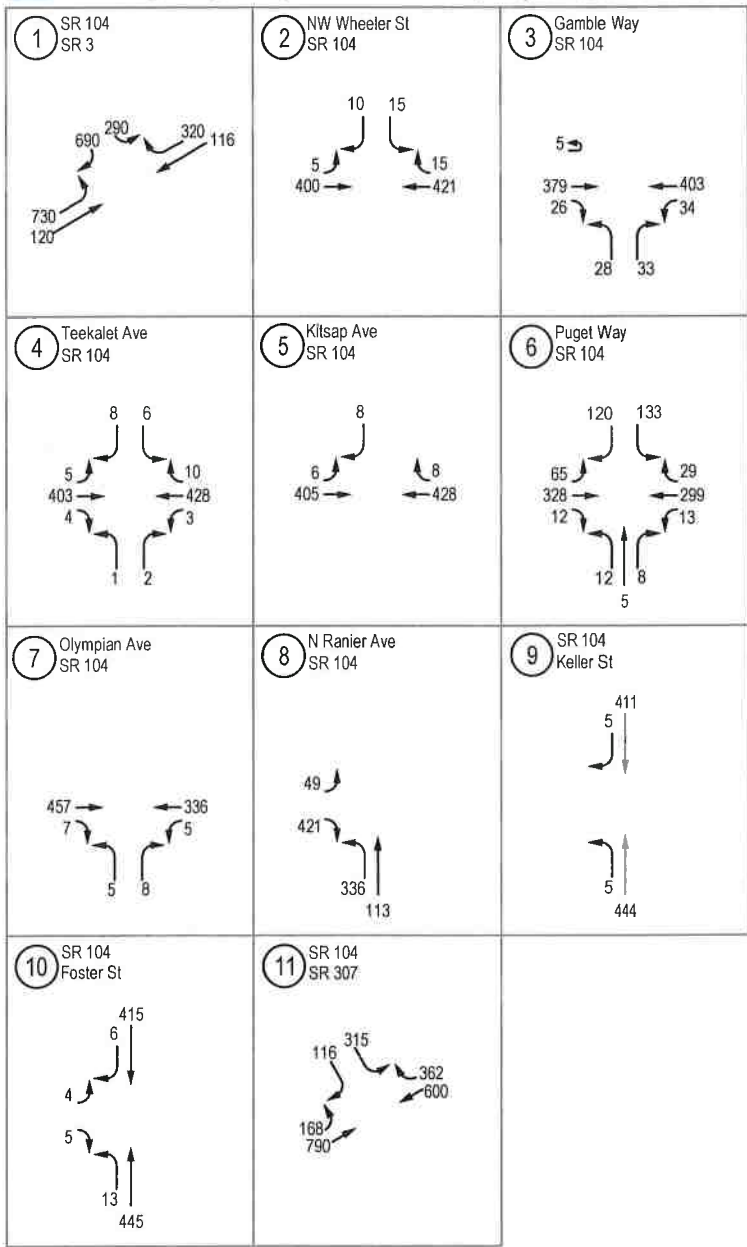
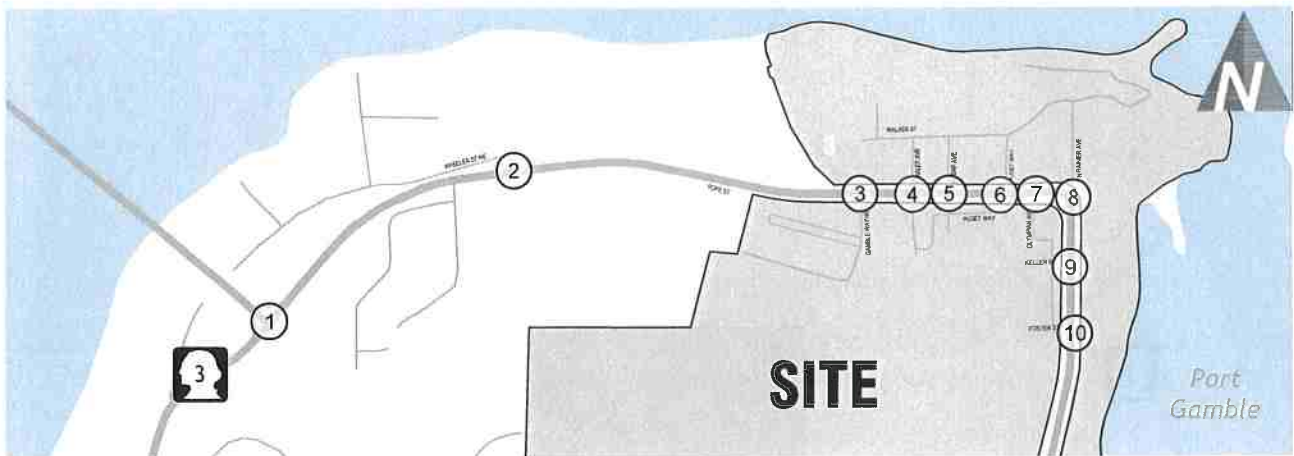
2027 Alternative 2 Weekday PM Peak Hour Traffic Volumes - With Carver Drive Extension FIGURE



LEGEND

- (X) Study Intersection
- x Weekday PM Peak Hour Traffic Volumes

2027 Alternative 2 Weekday PM Peak Hour Project Trip Assignment - Without Carver Drive Extension **FIGURE**



LEGEND

(X) Study Intersection

x Weekday PM Peak Hour Traffic Volumes

2027 Alternative 2 Weekday PM Peak Hour Traffic Volumes - Without Carver Drive Extension FIGURE

Traffic Operations

Table 15 shows the results of the level of service analysis conducted during the weekday PM peak hour 2027 under full development of Alternative 2. As mentioned previously, the WSDOT LOS standard for this section of road is LOS C because it is a Highway of Statewide Significance (HSS) under Rural classification (see Appendix C for Detailed LOS worksheets). Intersections operating below the WSDOT LOS standard are identified by an asterisk.

Table 15. Alternative 2 (2027) Intersection LOS Summary – With NE Carver Drive Extension

ID	Intersection	Traffic Control	No Action Scenario A (2027)			Alternative 2 (2027)		
			LOS ¹	Delay ²	WM ³	LOS ¹	Delay ²	WM ⁴
1	SR 3/SR 104	Signalized	C	24	-	C	31	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	18	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	C	19	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	16	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	12	SB
6	SR 104/Puget Way	Roundabout ⁴	C	16	SB	A	9	SB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	16	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	9	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	C	16	EB
11	SR 307/SR 104*	Signalized	C	34	-	E	67	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.
4. Roundabout under Alternative 2 full build, unsignalized under the No Action Scenario A.

As shown in Table 15, all of the study area intersections would operate at LOS C or better with trips generated under Alternative 2, with the exception of the SR 307/SR 104 intersection. The signalized SR 307/SR 104 intersection is anticipated to operate at LOS E.

Table 16. Alternative 2 (2027) Intersection LOS Summary – No NE Carver Drive Extension

ID	Intersection	Traffic Control	No Action Scenario A (2027)			Alternative 2 (2027)		
			LOS ¹	Delay ²	WM ³	LOS ¹	Delay ²	WM ³
1	SR 3/SR 104	Signalized	C	24	-	C	31	-
2	SR 104/Wheeler Street NE	Unsignalized	B	13	SB	C	18	SB
3	SR 104/Gamble Way NE	Unsignalized	B	13	NB	C	19	NB
4	SR 104/S Teekalet Avenue	Unsignalized	B	14	SB	C	16	SB
5	SR 104/Kitsap Avenue	Unsignalized	B	11	SB	B	12	SB
6	SR 104/Puget Way	Roundabout ⁴	C	16	SB	A	9	NB
7	SR 104/Olympia Avenue	Unsignalized	B	14	NB	C	16	NB
8	SR 104/N Rainier Avenue	Unsignalized	A	8	EB	A	9	EB
9	Keller Street/SR 104	Unsignalized	A	8	NB	A	9	NB
10	Foster Street/SR 104	Unsignalized	A	0	EB	C	16	EB
11	SR 307/SR 104*	Signalized	C	34	-	E	67	-

1. Level of Service (A – F) as defined by the 2010 *Highway Capacity Manual* (HCM), Transportation Research Board unless otherwise noted.
2. Average delay per vehicle in seconds.
3. Worst movement reported for unsignalized intersections where WB = westbound approach, EB = eastbound approach, NB = northbound approach, SB = southbound approach.
4. Roundabout under Alternative 2 full build, unsignalized under the No Action Scenario A.

As shown in Table 16, all of the study area intersections would operate at LOS C or better with trips generated under Alternative 2 without the NE Carver Drive extension, with the exception of the SR 307/SR 104 intersection. The signalized SR 307/SR 104 intersection is anticipated to operate at LOS E.

The potential for backups from Hood Canal Bridge closures for naval, commercial, or private boat traffic are anticipated to continue in the foreseeable future.

Mitigation Measures

Transportation improvements are proposed to mitigate impacts at two intersections under full build out of Alternative 1 or Alternative 2. Given the alternatives would be constricted in phases, an evaluation was completed to identify at what point mitigation measures would be triggered. The following section describes the anticipated phasing for developing Alternative 1 and 2 and mitigation for the proposed impacted intersections.

Proposed Development Phasing

The anticipated development phasing for Alternative 1 and 2 are provided in Table 17. This provides context for evaluating what improvements are triggered in each phase.

Table 17. Phasing Summary

Area	Land Use	Alternative 1 Size	Alternative 2 Size
Phase 1			
Rural Historic Town Residential (RHTR)	Single-Family Detached Housing	63 dus	63 dus
Rural Historic Town Residential (RHTR)	Townhouse/Condominium	16 dus	16 dus
Rural Residential/Rural Wooded (RR/RW)	Wildlife Shelter	14,300 sf	14,300 sf
Phase 2			
Rural Historic Town Commercial (RHTR)	General Commercial/Retail	35,000 sf	35,000 sf
Rural Historic Town Residential (RHTR)	Single-Family Detached Housing	41 dus	41 dus
Rural Historic Town Residential (RHTR)	Townhouse/Condominium	24 dus	24 dus
Rural Historic Town Commercial (RHTR)	Townhouse/Condominium	33 dus	33 dus
Phase 3			
Rural Historic Town Waterfront (RHTW)	Lodge/Hotel	100 rooms	100 rooms
Rural Historic Town Waterfront (RHTW)	Restaurant	15,000 sf	15,000 sf
Rural Historic Town Waterfront (RHTW)	General Commercial/Retail	121,000 sf	-
Rural Historic Town Waterfront (RHTW)	Townhouse/Condominium	78 dus	39 dus
Phase 4			
Rural Residential/Rural Wooded (RR/RW)	Single-Family Detached Housing	10 dus	10 dus
Rural Residential/Rural Wooded (RR/RW)	Winery	3 establishments	3 establishments

Note: sf = square feet, du = dwelling units

Intersection Improvements

Further analysis was completed for the two locations where mitigation was identified under full build out conditions to quantify the level of development that would trigger the need for mitigation. The specific mitigation and trigger is described below under each location.

Puget Way/SR 104

A roundabout is proposed to provide traffic control at this intersection given operations are projected to degrade to LOS F under full build out conditions for both Alternative 1 and 2. A roundabout would improve operations to LOS A and provide safe and efficient vehicular, bicycle, and pedestrian traffic flow. In addition, it would calm traffic and provide a new gateway for the site.

The intersection degrades to LOS F after approximately 195-200 project trips are generated. The range is due to slight differences in traffic distribution between the with and without the

Carver Drive extension conditions. The impact would be triggered mid-way through the development of Phase 2 as summarized in Table 18 below.

Table 18. Puget Way/SR 104 Mitigation Trigger

Intersection/Phase	Land Use	Development Size Before Mitigation is Required	Net New PM Peak Hour Trips
<u>Puget Way/SR 104</u>			
<i>With Carver Drive Extension</i>			
Phase 1	Single-Family Detached Housing	63 dus	60
	Townhouse/Condominium	16 dus	8
	Wildlife Shelter	14,300 sf	22
Phase 2	General Commercial/Retail	23,000 sf	39
	Single-Family Detached Housing	41 dus	39
	Townhouse/Condominium	24 dus	11
	Townhouse/Condominium	33 dus	16
Total Trips			195
<u>Puget Way/SR 104</u>			
<i>Without Carver Drive Extension</i>			
Phase 1	Single-Family Detached Housing	63 dus	60
	Townhouse/Condominium	16 dus	8
	Wildlife Shelter	14,300 sf	22
Phase 2	General Commercial/Retail	27,000 sf	45
	Single-Family Detached Housing	41 dus	39
	Townhouse/Condominium	24 dus	11
	Townhouse/Condominium	33 dus	16
Total Trips			201
Note: sf = square feet, du = dwelling units			

SR 104/SR 307

At this intersection, the installation of a westbound right-turn lane with an overlap signal phase is proposed to improve operations from LOS F under Alternative 1 and LOS E under Alternative 2 to LOS C under Alternative 1 and Alternative 2 conditions. These improvements would provide additional capacity for the more heavily used westbound right turn movement.

The intersection degrades to LOS E early in Phase 1 under both Alternatives after approximately 8 trips are generated. This would occur after 16 townhouses/condominiums are developed as summarized in Table 19.

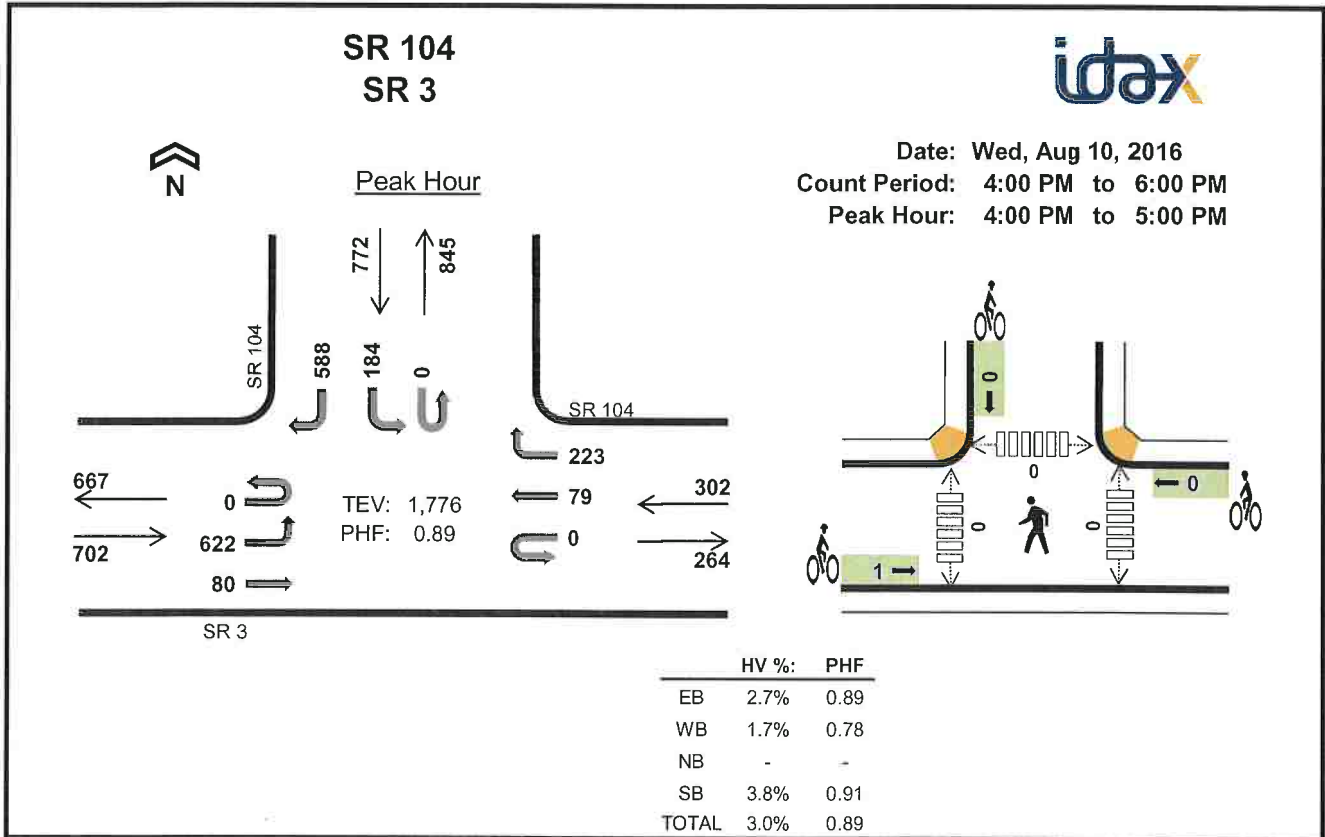
Table 19. SR 104/SR 307 Mitigation Trigger

Intersection/Phase	Land Use	Development Size Before Mitigation is Required	Net New PM Peak Hour Trips
<u>SR 104/SR 107</u>			
Phase 1	Townhouse/Condominium	16 dus	8
Total Trips			8
Note: sf = square feet, du = dwelling units			

Significant Unavoidable Adverse Impacts

With the implementation of the required/proposed mitigation measures listed above, no significant unavoidable adverse transportation-related impacts are anticipated with redevelopment of the Port Gamble site.

Appendix A: Traffic Counts



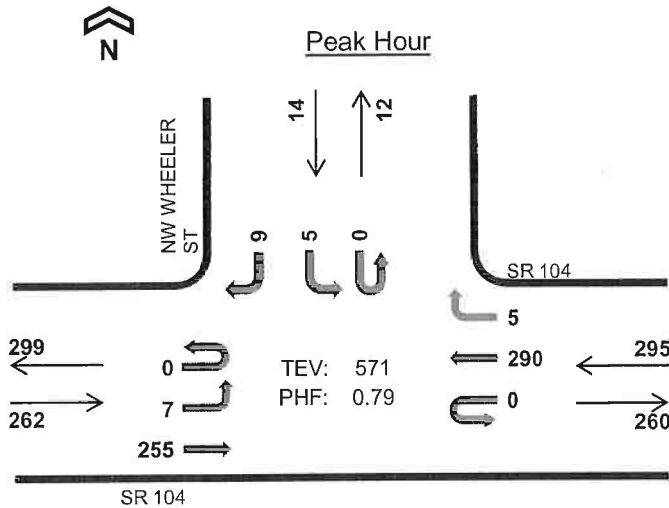
Two-Hour Count Summaries

Interval Start	SR 3				SR 104				0				SR 104				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	175	23	0	0	0	25	72	0	0	0	0	0	59	0	143	497	0
4:15 PM	0	160	11	0	0	0	21	41	0	0	0	0	0	44	0	140	417	0
4:30 PM	0	139	15	0	0	0	15	31	0	0	0	0	0	36	0	138	374	0
4:45 PM	0	148	31	0	0	0	18	79	0	0	0	0	0	45	0	167	488	1,776
5:00 PM	0	137	21	0	0	0	15	37	0	0	0	0	0	50	0	109	369	1,648
5:15 PM	0	137	21	0	0	0	17	51	0	0	0	0	0	45	0	122	393	1,624
5:30 PM	0	126	22	0	0	0	16	51	0	0	0	0	0	40	0	109	364	1,614
5:45 PM	0	116	19	0	0	0	19	28	0	0	0	0	0	39	0	111	332	1,458
Count Total	0	1,138	163	0	0	0	146	390	0	0	0	0	0	358	0	1,039	3,234	0
Peak Hour	0	622	80	0	0	0	79	223	0	0	0	0	0	184	0	588	1,776	0

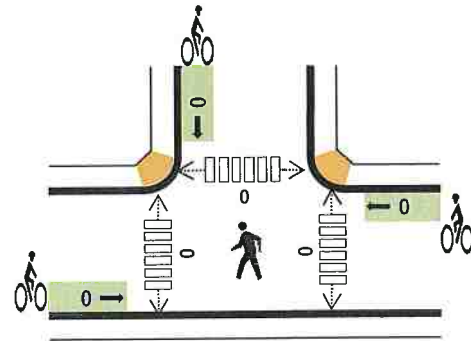
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	2	0	8	16	0	0	0	0	0	0	0	0	0	0
4:15 PM	4	1	0	8	13	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	0	0	6	10	1	0	0	0	1	0	0	0	0	0
4:45 PM	5	2	0	7	14	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	0	0	6	10	0	0	0	0	0	0	0	0	0	0
5:15 PM	5	1	0	4	10	0	0	0	0	0	0	0	0	0	0
5:30 PM	5	1	0	8	14	0	3	0	0	3	0	0	0	0	0
5:45 PM	3	2	0	5	10	0	0	0	0	0	0	0	0	0	0
Count Total	36	9	0	52	97	1	3	0	0	4	0	0	0	0	0
Peak Hr	19	5	0	29	53	1	0	0	0	1	0	0	0	0	0

NW WHEELER ST SR 104



Date: Wed, Aug 10, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	3.1%	0.77
WB	2.0%	0.78
NB	-	-
SB	7.1%	0.70
TOTAL	2.6%	0.79

Two-Hour Count Summaries

Interval Start	SR 104 Eastbound				SR 104 Westbound				0 Northbound				NW WHEELER ST Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	84	0	0	0	91	0	0	0	0	0	0	1	0	4	181	0
4:15 PM	0	2	52	0	0	0	61	2	0	0	0	0	0	1	0	1	119	0
4:30 PM	0	2	58	0	0	0	44	2	0	0	0	0	0	1	0	2	109	0
4:45 PM	0	2	61	0	0	0	94	1	0	0	0	0	0	2	0	2	162	571
5:00 PM	0	3	63	0	0	0	49	3	0	0	0	0	0	2	0	2	122	512
5:15 PM	0	9	56	0	0	0	62	2	0	0	0	0	0	1	0	4	134	527
5:30 PM	0	8	53	0	0	0	68	1	0	0	0	0	0	3	0	3	136	554
5:45 PM	0	1	60	0	0	0	39	2	0	0	0	0	0	1	0	2	105	497
Count Total	0	28	487	0	0	0	508	13	0	0	0	0	0	12	0	20	1,068	0
Peak Hour	0	7	255	0	0	0	290	5	0	0	0	0	0	5	0	9	571	0

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

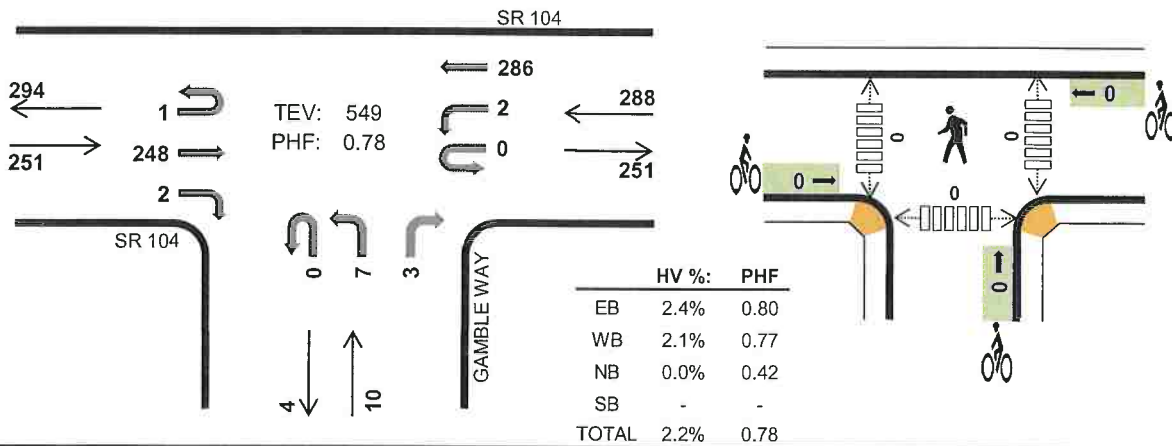
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	1	0	1	6	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	12	10	0	1	23	0	2	0	0	2	0	0	0	0	0
Peak Hr	8	6	0	1	15	0	0	0	0	0	0	0	0	0	0

GAMBLE WAY SR 104



Peak Hour

Date: Wed, Aug 10, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:00 PM to 5:00 PM

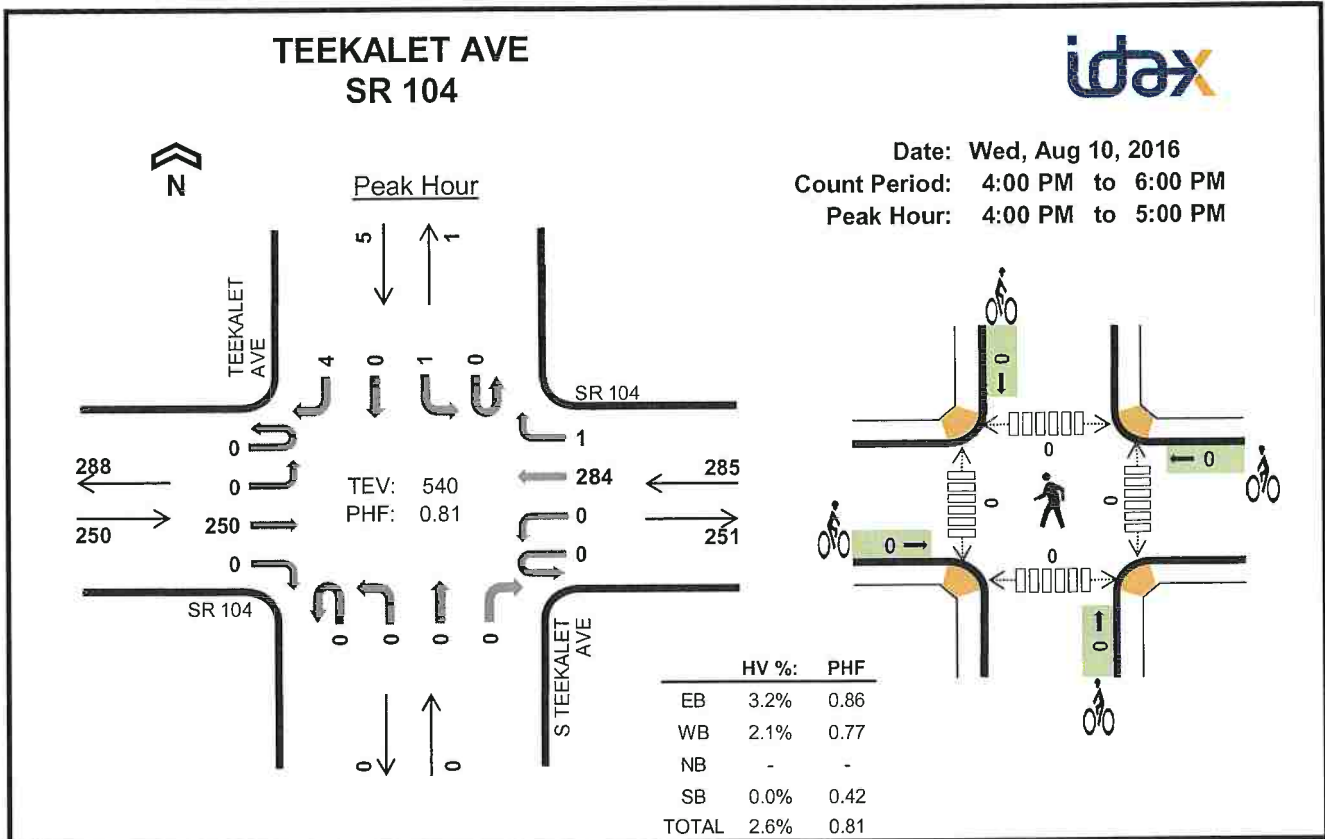


Two-Hour Count Summaries

Interval Start	SR 104 Eastbound				SR 104 Westbound				GAMBLE WAY Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	1	0	76	1	0	2	91	0	0	5	0	1	0	0	0		
4:15 PM	0	0	59	0	0	0	52	0	0	2	0	1	0	0	0	0	114	0
4:30 PM	0	0	54	0	0	0	49	0	0	0	0	1	0	0	0	0	104	0
4:45 PM	0	0	59	1	0	0	94	0	0	0	0	0	0	0	0	0	154	549
5:00 PM	0	0	67	0	0	0	52	0	0	0	0	0	0	0	0	0	119	491
5:15 PM	0	0	60	1	0	0	62	0	0	2	0	1	0	0	0	0	126	503
5:30 PM	0	0	55	0	0	0	69	0	0	0	0	0	0	0	0	0	124	523
5:45 PM	0	0	61	0	0	0	39	0	0	0	0	0	0	0	0	0	100	469
Count Total	1	0	491	3	0	2	508	0	0	9	0	4	0	0	0	0	1,018	0
Peak Hour	1	0	248	2	0	2	286	0	0	7	0	3	0	0	0	0	549	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	11	10	0	0	21	0	2	0	0	2	0	0	0	0	0
Peak Hr	6	6	0	0	12	0	0	0	0	0	0	0	0	0	0

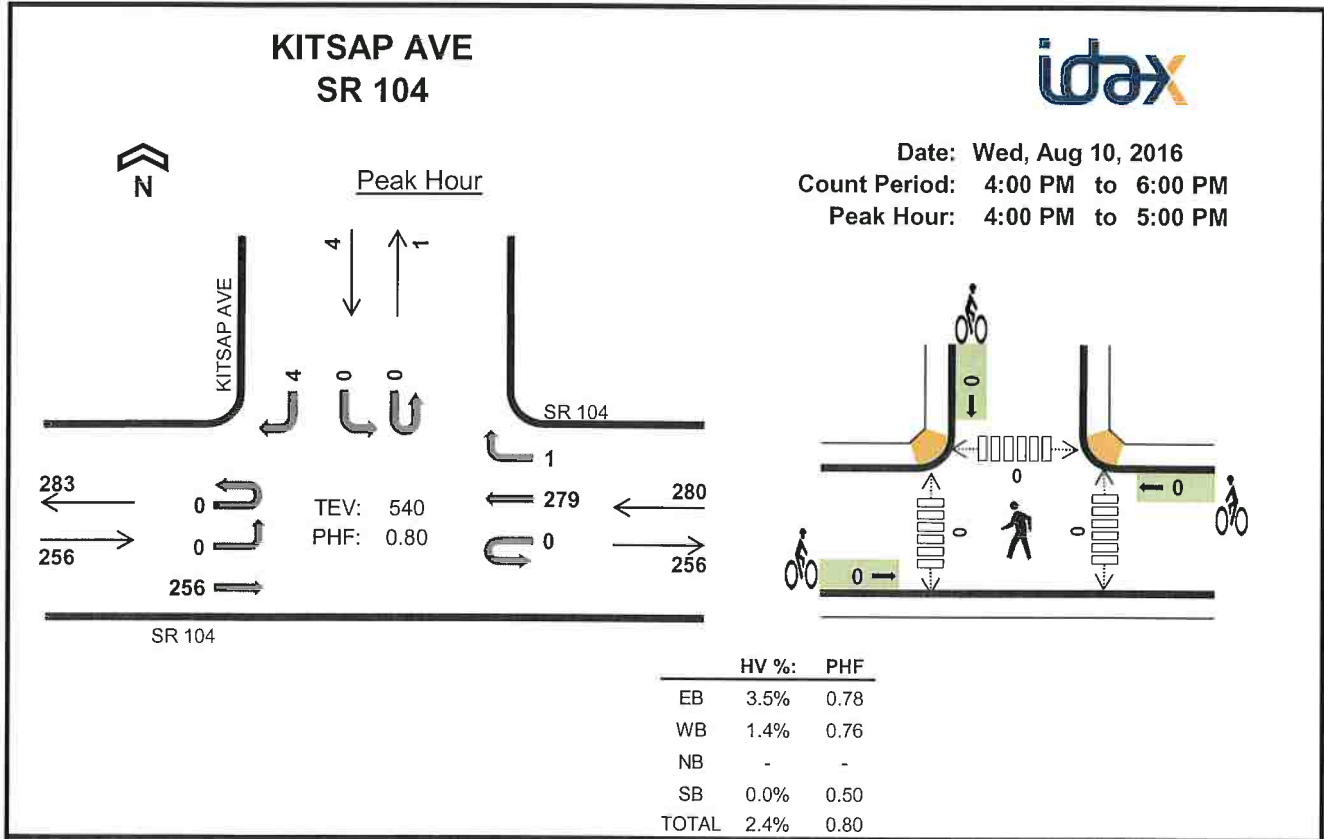


Two-Hour Count Summaries

Interval Start	SR 104 Eastbound				SR 104 Westbound				S TEEKALET AVE Northbound				TEEKALET AVE Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	73	0	0	0	90	1	0	0	0	0	0	0	0	3	167	0
4:15 PM	0	0	64	0	0	0	52	0	0	0	0	0	0	1	0	0	117	0
4:30 PM	0	0	56	0	0	0	49	0	0	0	0	0	0	0	0	1	106	0
4:45 PM	0	0	57	0	0	0	93	0	0	0	0	0	0	0	0	0	150	540
5:00 PM	0	0	68	0	0	0	52	0	0	0	0	0	0	0	0	0	120	493
5:15 PM	0	0	62	0	0	0	61	1	0	0	0	0	0	1	0	1	126	502
5:30 PM	0	0	54	0	0	0	69	0	0	0	0	0	0	0	0	1	124	520
5:45 PM	0	1	61	0	0	0	37	0	0	0	0	0	0	0	0	1	100	470
Count Total	0	1	495	0	0	0	503	2	0	0	0	0	0	2	0	7	1,010	0
Peak Hour	0	0	250	0	0	0	284	1	0	0	0	0	0	1	0	4	540	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1
5:30 PM	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	13	10	0	0	23	0	2	0	0	2	0	0	0	1	1
Peak Hour	8	6	0	0	14	0	0	0	0	0	0	0	0	0	0

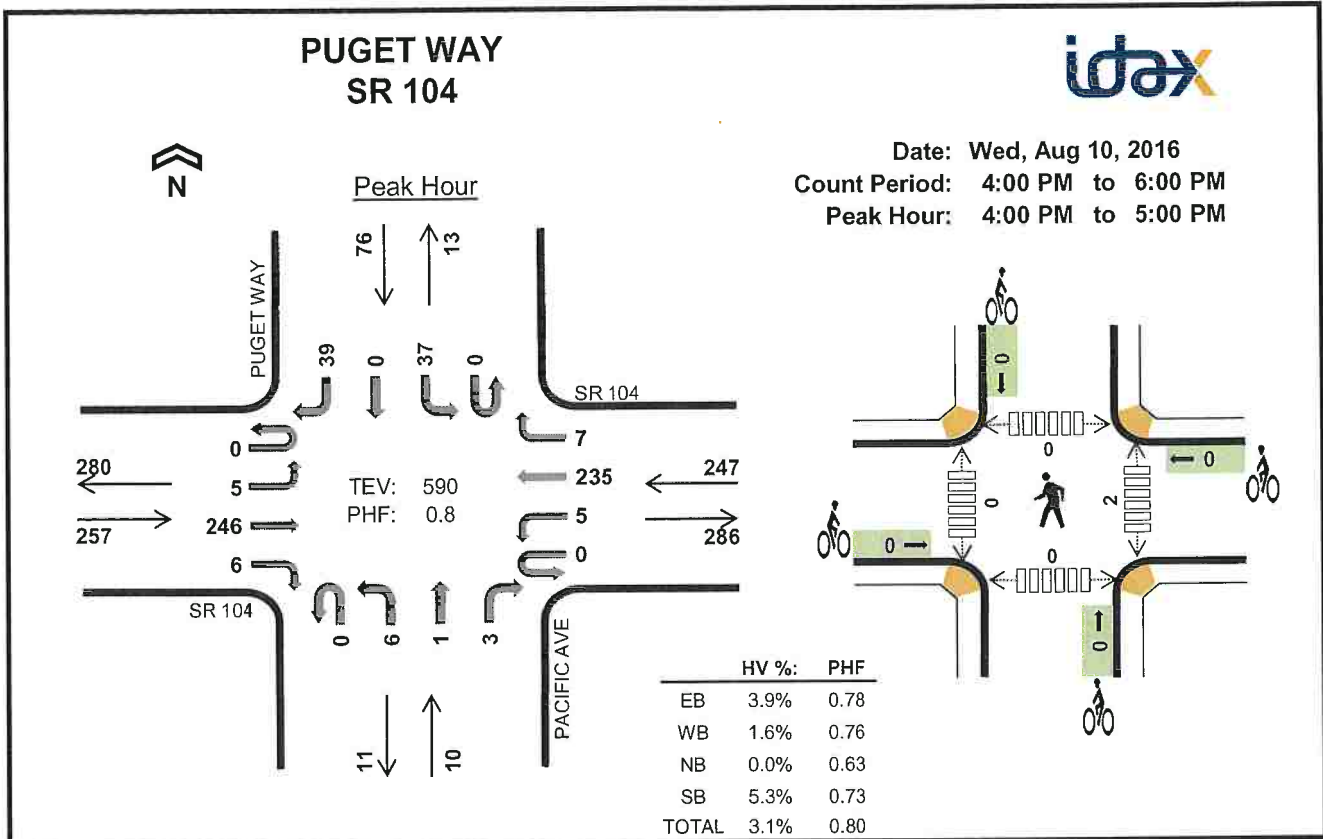


Two-Hour Count Summaries

Interval Start	SR 104				SR 104				0				KITSAP AVE				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	82	0	0	0	86	0	0	0	0	0	0	0	0	0	168	0
4:15 PM	0	0	56	0	0	0	49	0	0	0	0	0	0	0	0	2	107	0
4:30 PM	0	0	57	0	0	0	52	1	0	0	0	0	0	0	0	1	111	0
4:45 PM	0	0	61	0	0	0	92	0	0	0	0	0	0	0	0	1	154	540
5:00 PM	0	0	66	0	0	0	48	0	0	0	0	0	0	0	0	0	114	486
5:15 PM	0	1	58	0	0	0	67	0	0	0	0	0	0	0	0	1	127	506
5:30 PM	0	0	56	0	0	0	68	0	0	0	0	0	0	1	0	0	125	520
5:45 PM	0	0	61	0	0	0	34	0	0	0	0	0	0	0	0	0	95	461
Count Total	0	1	497	0	0	0	496	1	0	0	0	0	0	1	0	5	1,001	0
Peak Hour	0	0	256	0	0	0	279	1	0	0	0	0	0	0	0	4	540	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	1	0	0	2	0	2	0	1	3	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	14	8	0	0	22	0	2	0	1	3	0	0	0	0	0
Peak Hr	9	4	0	0	13	0	0	0	0	0	0	0	0	0	0



Two-Hour Count Summaries

Interval Start	SR 104 Eastbound				SR 104 Westbound				PACIFIC AVE Northbound				PUGET WAY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	81	0	0	2	71	3	0	1	0	0	0	13	0	13	185	0
4:15 PM	0	1	53	2	0	1	40	2	0	2	1	1	0	9	0	7	119	0
4:30 PM	0	1	53	3	0	2	45	0	0	0	0	1	0	6	0	9	120	0
4:45 PM	0	2	59	1	0	0	79	2	0	3	0	1	0	9	0	10	166	590
5:00 PM	0	2	62	0	0	1	38	0	0	1	0	0	0	19	0	8	131	536
5:15 PM	0	0	57	1	0	1	61	0	0	0	0	0	0	10	0	6	136	553
5:30 PM	0	0	56	2	0	0	60	0	0	1	0	0	0	7	1	7	134	567
5:45 PM	0	2	57	2	0	0	26	0	0	0	0	2	0	8	1	8	106	507
Count Total	0	9	478	11	0	7	420	7	0	8	1	5	0	81	2	68	1,097	0
Peak Hour	0	5	246	6	0	5	235	7	0	6	1	3	0	37	0	39	590	0

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

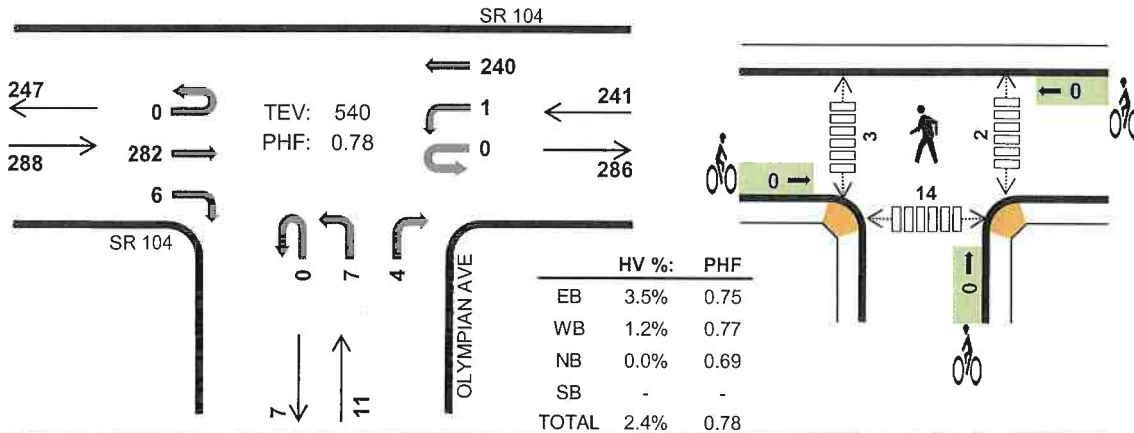
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	0	0	1	6	0	0	0	0	0	2	0	0	0	2
4:15 PM	1	2	0	1	4	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	1	0	2	6	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	1	0	0	2	0	1	0	1	2	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	15	8	0	5	28	0	1	0	1	2	2	0	0	0	2
Peak Hour	10	4	0	4	18	0	0	0	0	0	2	0	0	0	2

OLYMPIAN AVE SR 104



Peak Hour

Date: Wed, Aug 10, 2016
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

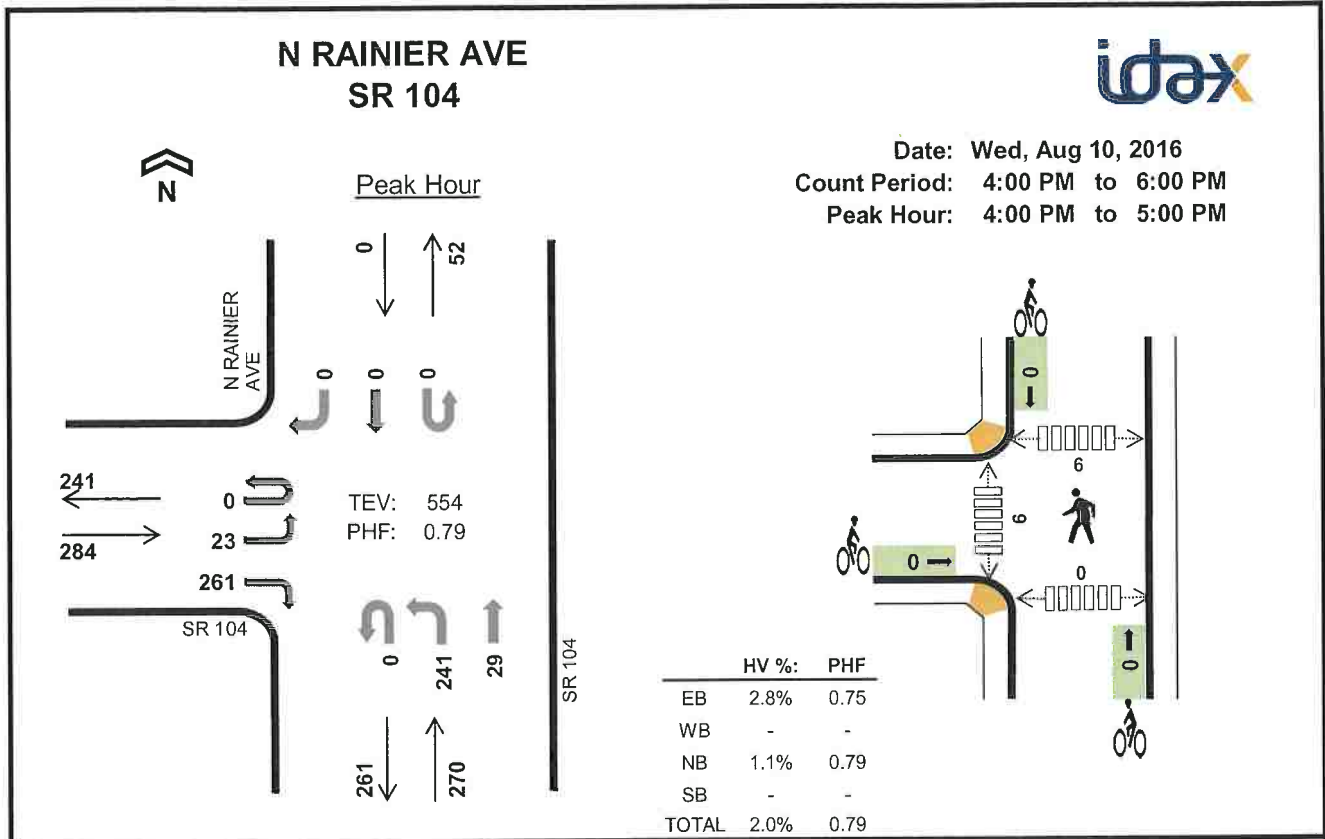


Two-Hour Count Summaries

Interval Start	SR 104 Eastbound				SR 104 Westbound				OLYMPIAN AVE Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	0	94	2	0	0	75	0	0	0	0	3	0	0	0		
4:15 PM	0	0	61	3	0	1	40	0	0	4	0	0	0	0	0	0	109	0
4:30 PM	0	0	58	1	0	0	47	0	0	3	0	0	0	0	0	0	109	0
4:45 PM	0	0	69	0	0	0	78	0	0	0	0	1	0	0	0	0	148	540
5:00 PM	0	0	80	1	0	2	39	0	0	0	0	1	0	0	0	0	123	489
5:15 PM	0	0	66	2	0	1	60	0	0	2	0	0	0	0	0	0	131	511
5:30 PM	0	0	61	0	0	0	58	0	0	1	0	2	0	0	0	0	122	524
5:45 PM	0	0	64	3	0	4	29	0	0	0	0	0	0	0	0	0	100	476
Count Total	0	0	553	12	0	8	426	0	0	10	0	7	0	0	0	0	1,016	0
Peak Hour	0	0	282	6	0	1	240	0	0	7	0	4	0	0	0	0	540	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	0	0	0	5	0	0	0	0	0	2	0	0	9	11
4:15 PM	2	1	0	0	3	0	0	0	0	0	0	3	0	2	5
4:30 PM	3	1	0	0	4	0	0	0	0	0	0	0	0	1	1
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	2	2
5:00 PM	4	0	0	0	4	0	0	0	0	0	2	2	0	1	5
5:15 PM	1	1	0	0	2	0	1	0	0	1	2	0	0	4	6
5:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	1	1
5:45 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	2	2
Count Total	16	8	0	0	24	0	1	0	0	1	6	5	0	22	33
Peak Hr	10	3	0	0	13	0	0	0	0	0	2	3	0	14	19



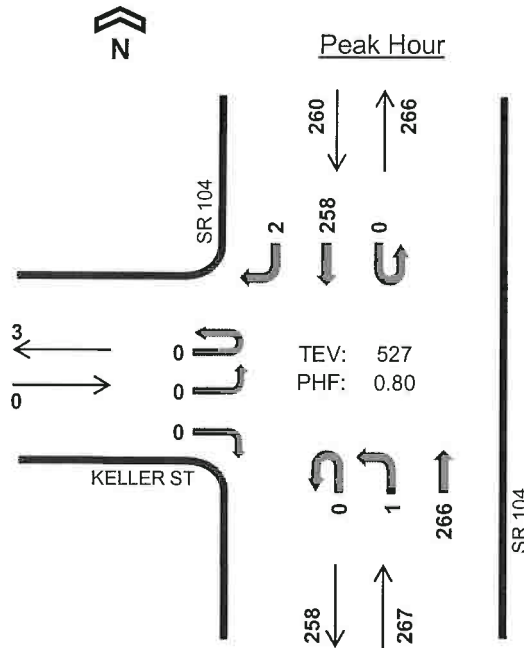
Two-Hour Count Summaries

Interval Start	SR 104				0				SR 104				N RAINIER AVE				15-min Total	Rolling One Hour
	Eastbound		Westbound		Northbound		Southbound		UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	11	0	84	0	0	0	0	0	75	6	0	0	0	0	0	176	0
4:15 PM	0	2	0	58	0	0	0	0	0	41	9	0	0	0	0	0	110	0
4:30 PM	0	4	0	55	0	0	0	0	0	47	7	0	0	0	0	0	113	0
4:45 PM	0	6	0	64	0	0	0	0	0	78	7	0	0	0	0	0	155	554
5:00 PM	0	6	0	75	0	0	0	0	0	40	4	0	0	0	0	0	125	503
5:15 PM	0	4	0	62	0	0	0	0	0	60	4	0	0	0	0	0	130	523
5:30 PM	0	1	0	63	0	0	0	0	0	59	7	0	0	0	0	0	130	540
5:45 PM	0	2	0	62	0	0	0	0	0	32	6	0	0	0	0	0	102	487
Count Total	0	36	0	523	0	0	0	0	0	432	50	0	0	0	0	0	1,041	0
Peak Hour	0	23	0	261	0	0	0	0	0	241	29	0	0	0	0	0	554	0

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

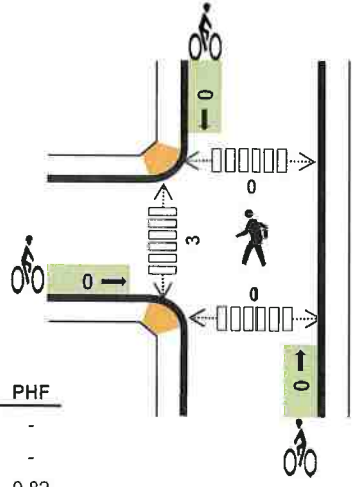
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	0	0	3	0	0	0	0	0	0	3	2	0	5
4:15 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	3	4	0	7
5:00 PM	4	0	0	0	4	0	0	0	0	0	0	1	2	0	3
5:15 PM	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1
5:30 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	13	0	7	0	20	0	0	1	0	1	0	7	9	0	16
Peak Hr	8	0	3	0	11	0	0	0	0	0	0	6	6	0	12

SR 104 KELLER ST



Date: Wed, Aug 10, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:00 PM to 5:00 PM

TEV: 527
 PHF: 0.80



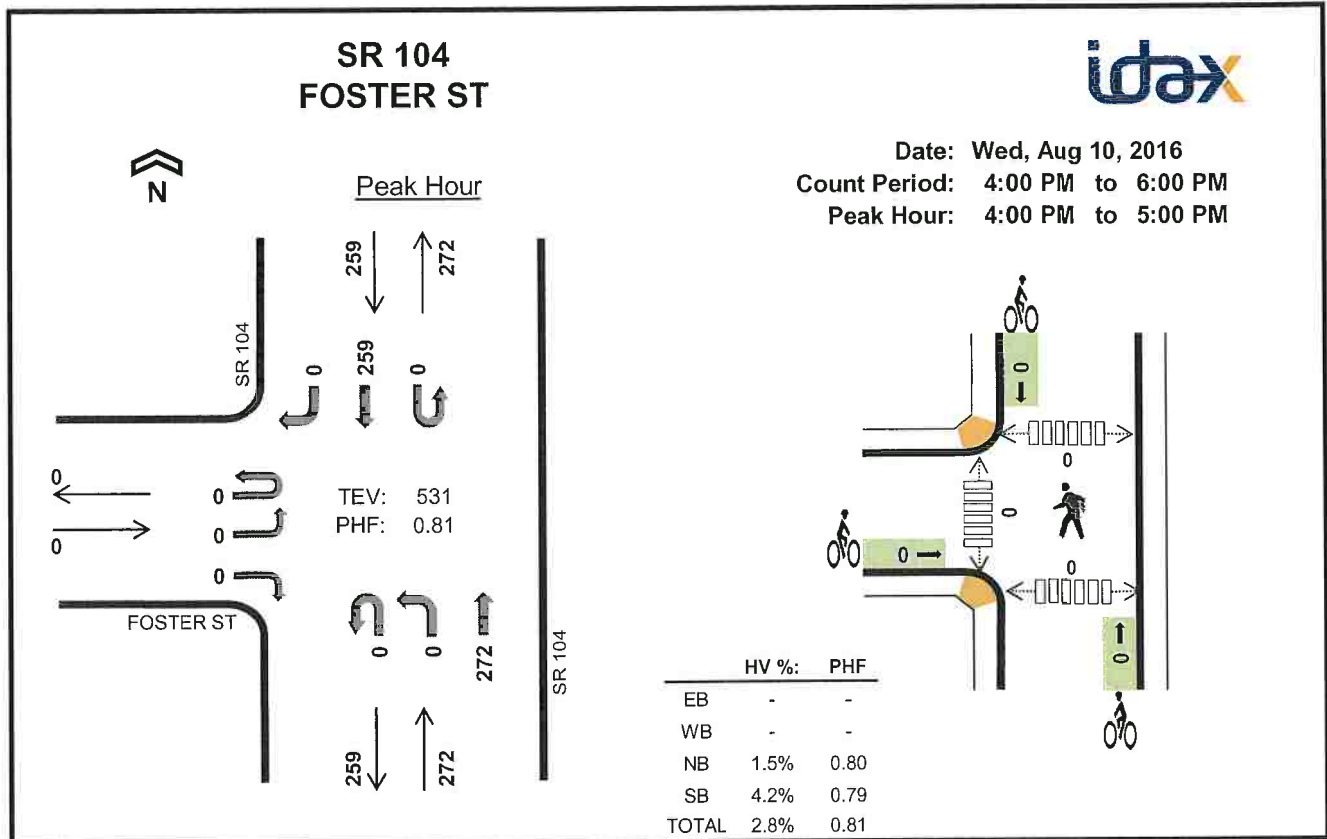
	HV %:	PHF
EB	-	-
WB	-	-
NB	1.9%	0.82
SB	3.5%	0.77
TOTAL	2.7%	0.80

Two-Hour Count Summaries

Interval Start	KELLER ST				0				SR 104				SR 104				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	81	0	0	0	83	1	165	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	46	0	0	0	57	1	105	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	59	0	0	0	55	0	114	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	80	0	0	0	63	0	143	527
5:00 PM	0	0	0	0	0	0	0	0	0	0	45	0	0	0	75	0	120	482
5:15 PM	0	0	0	0	0	0	0	0	0	0	66	0	0	0	63	0	129	506
5:30 PM	0	0	0	0	0	0	0	0	0	0	63	0	0	0	62	1	126	518
5:45 PM	0	0	0	1	0	0	0	0	0	0	41	0	0	0	61	0	103	478
Count Total	0	0	0	1	0	0	0	0	0	1	481	0	0	0	519	3	1,005	0
Peak Hour	0	0	0	0	0	0	0	0	0	1	266	0	0	0	258	2	527	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	1	4	5	0	0	0	0	0	0	3	0	0	3
4:15 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	1	2	0	0	2	0	2	0	0	0	0	0
5:30 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	10	15	25	0	0	2	0	2	0	3	0	0	3
Peak Hr	0	0	5	9	14	0	0	0	0	0	0	3	0	0	3

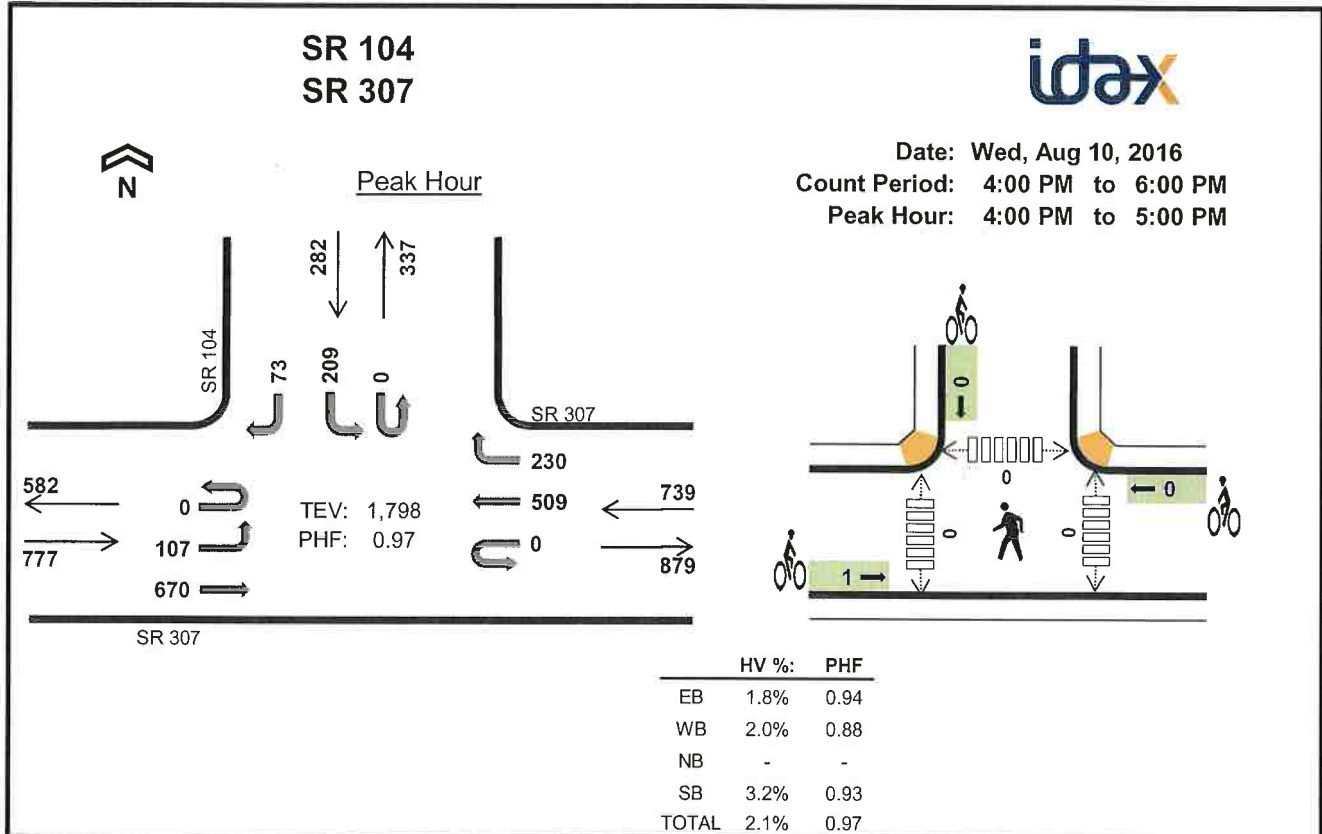


Two-Hour Count Summaries

Interval Start	FOSTER ST				0				SR 104				SR 104				15-min Total	Rolling One Hour
	Eastbound		Westbound		Northbound		Southbound		UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	82	0	0	0	82	0	164	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	51	0	0	0	64	0	115	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	54	0	0	0	51	0	105	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	85	0	0	0	62	0	147	531
5:00 PM	0	0	0	0	0	0	0	0	0	0	43	0	0	0	77	0	120	487
5:15 PM	0	0	0	0	0	0	0	0	0	0	65	0	0	0	62	0	127	499
5:30 PM	0	2	0	0	0	0	0	0	0	1	63	0	0	0	63	1	130	524
5:45 PM	0	0	0	0	0	0	0	0	0	0	38	0	0	0	54	0	92	469
Count Total	0	2	0	0	0	0	0	0	0	1	481	0	0	0	515	1	1,000	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	272	0	0	0	259	0	531	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	1	2	0	0	2	0	2	0	0	0	0	0
5:30 PM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	9	16	25	0	0	2	0	2	0	0	0	0	0
Peak Hr	0	0	4	11	15	0	0	0	0	0	0	0	0	0	0



Two-Hour Count Summaries

Interval Start	SR 307				SR 307				0				SR 104				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	31	158	0	0	0	141	68	0	0	0	0	0	51	0	16	465	0
4:15 PM	0	21	186	0	0	0	109	33	0	0	0	0	0	58	0	18	425	0
4:30 PM	0	27	164	0	0	0	124	69	0	0	0	0	0	51	0	19	454	0
4:45 PM	0	28	162	0	0	0	135	60	0	0	0	0	0	49	0	20	454	1,798
5:00 PM	0	28	159	0	0	0	120	38	0	0	0	0	0	66	0	13	424	1,757
5:15 PM	0	33	151	0	0	0	120	68	0	0	0	0	0	58	0	14	444	1,776
5:30 PM	0	17	152	0	0	0	117	45	0	0	0	0	0	44	0	8	383	1,705
5:45 PM	0	29	150	0	0	0	72	26	0	0	0	0	0	55	0	13	345	1,596
Count Total	0	214	1,282	0	0	0	938	407	0	0	0	0	0	432	0	121	3,394	0
Peak Hour	0	107	670	0	0	0	509	230	0	0	0	0	0	209	0	73	1,798	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	3	0	1	9	0	0	0	0	0	0	0	0	0	0
4:15 PM	4	6	0	2	12	0	0	0	0	0	0	0	0	0	0
4:30 PM	2	5	0	5	12	0	0	0	0	0	0	0	0	0	0
4:45 PM	3	1	0	1	5	1	0	0	0	1	0	0	0	0	0
5:00 PM	2	5	0	2	9	0	0	0	0	0	0	0	1	0	1
5:15 PM	2	0	0	2	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0
5:45 PM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0
Count Total	18	25	0	14	57	2	0	0	0	2	0	0	1	0	1
Peak Hr	14	15	0	9	38	1	0	0	0	1	0	0	0	0	0

Appendix B: LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Highway Capacity Manual 2010

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F ¹	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F ¹	>50













Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Appendix C: LOS Worksheets

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Existing (2017) Weekday PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	185	595	630	80	80	225		
Future Volume (veh/h)	185	595	630	80	80	225		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	208	0	708	90	90	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	278	248	842	1266	200	170		
Arrive On Green	0.16	0.00	0.47	0.67	0.11	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	208	0	708	90	90	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	6.2	0.0	18.8	0.9	2.5	0.0		
Cycle Q Clear(g_c), s	6.2	0.0	18.8	0.9	2.5	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	278	248	842	1266	200	170		
V/C Ratio(X)	0.75	0.00	0.84	0.07	0.45	0.00		
Avail Cap(c_a), veh/h	816	728	1655	1390	682	579		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	22.0	0.0	12.8	3.2	22.8	0.0		
Incr Delay (d2), s/veh	3.7	0.0	3.3	0.0	1.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.3	0.0	10.0	0.5	1.4	0.0		
LnGrp Delay(d),s/veh	25.6	0.0	16.2	3.2	24.2	0.0		
LnGrp LOS	C		B	A	C			
Approach Vol, veh/h	208			798	90			
Approach Delay, s/veh	25.6			14.7	24.2			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	30.4	11.0				41.4		13.2
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	50.0	* 20				40.0		25.4
Max Q Clear Time (g_c+I1), s	20.8	4.5				2.9		8.2
Green Ext Time (p_c), s	4.6	0.9				1.2		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			17.6					
HCM 2010 LOS			B					
Notes								

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	5	260	295	5	5	10
Future Vol, veh/h	5	260	295	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	329	373	6	6	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	380	0	719
Stage 1	-	-	377
Stage 2	-	-	342
Critical Hdwy	4.13	-	6.47
Critical Hdwy Stg 1	-	-	5.47
Critical Hdwy Stg 2	-	-	5.47
Follow-up Hdwy	2.227	-	3.563
Pot Cap-1 Maneuver	1173	-	388
Stage 1	-	-	683
Stage 2	-	-	708
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1173	-	386
Mov Cap-2 Maneuver	-	-	386
Stage 1	-	-	683
Stage 2	-	-	704

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1173	-	-	-	533
HCM Lane V/C Ratio	0.005	-	-	-	0.036
HCM Control Delay (s)	8.1	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection							
Int Delay, s/veh	0.3						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↗			↖	↘	
Traffic Vol, veh/h	5	250	5	5	290	5	5
Future Vol, veh/h	5	250	5	5	290	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	321	6	6	372	6	6

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	-	0	0	327	0	709	324
Stage 1	-	-	-	-	-	324	-
Stage 2	-	-	-	-	-	385	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1233	-	404	722
Stage 1	-	-	-	-	-	738	-
Stage 2	-	-	-	-	-	692	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1233	-	402	722
Mov Cap-2 Maneuver	-	-	-	-	-	402	-
Stage 1	-	-	-	-	-	738	-
Stage 2	-	-	-	-	-	688	-

Approach	EB	WB	NB
HCM Control Delay, s		0.1	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	516	-	-	1233	-
HCM Lane V/C Ratio	0.025	-	-	0.005	-
HCM Control Delay (s)	12.2	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	255	0	0	290	5	0	0	0	5	0	5
Future Vol, veh/h	0	255	0	0	290	5	0	0	0	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	315	0	0	358	6	0	0	0	6	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	364	0	0	315	0	0	679	679	315	676	676	361
Stage 1	-	-	-	-	-	-	315	315	-	361	361	-
Stage 2	-	-	-	-	-	-	364	364	-	315	315	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1189	-	-	1245	-	-	368	376	730	370	378	688
Stage 1	-	-	-	-	-	-	700	659	-	662	629	-
Stage 2	-	-	-	-	-	-	659	627	-	700	659	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1189	-	-	1245	-	-	365	376	730	370	378	688
Mov Cap-2 Maneuver	-	-	-	-	-	-	365	376	-	370	378	-
Stage 1	-	-	-	-	-	-	700	659	-	662	629	-
Stage 2	-	-	-	-	-	-	653	627	-	700	659	-

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

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1189	-	-	1245	-	-	481
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.026
HCM Control Delay (s)	0	0	-	-	0	-	-	12.7
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.1

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	260	285	5	0	5
Future Vol, veh/h	0	260	285	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	325	356	6	0	6

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	363	0	684
Stage 1	-	-	359
Stage 2	-	-	325
Critical Hdwy	4.14	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.236	-	3.5
Pot Cap-1 Maneuver	1185	-	417
Stage 1	-	-	711
Stage 2	-	-	737
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1185	-	417
Mov Cap-2 Maneuver	-	-	417
Stage 1	-	-	711
Stage 2	-	-	737

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1185	-	-	-	690
HCM Lane V/C Ratio	-	-	-	-	0.009
HCM Control Delay (s)	0	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	250	5	5	240	5	5	5	5	40	0	40
Future Vol, veh/h	5	250	5	5	240	5	5	5	5	40	0	40
Conflicting Peds, #/hr	0	0	0	2	0	2	0	0	2	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	5	5	5
Mvmt Flow	6	313	6	6	300	6	6	6	6	50	0	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	308	0	0	321	0	0	671	651	320	654	651	305
Stage 1	-	-	-	-	-	-	330	330	-	318	318	-
Stage 2	-	-	-	-	-	-	341	321	-	336	333	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1241	-	-	1239	-	-	373	390	725	376	384	728
Stage 1	-	-	-	-	-	-	687	649	-	687	648	-
Stage 2	-	-	-	-	-	-	678	655	-	672	638	-
Platoon blocked, %		-	-		-	-		-	-		-	-
Mov Cap-1 Maneuver	1241	-	-	1237	-	-	344	384	723	364	378	727
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	384	-	364	378	-
Stage 1	-	-	-	-	-	-	682	644	-	682	643	-
Stage 2	-	-	-	-	-	-	628	650	-	655	633	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	13.6	14.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	435	1241	-	-	1237	-	-	485
HCM Lane V/C Ratio	0.043	0.005	-	-	0.005	-	-	0.206
HCM Control Delay (s)	13.6	7.9	0	-	7.9	0	-	14.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.8

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Traffic Vol, veh/h	285	5	5	245	5	5
Future Vol, veh/h	285	5	5	245	5	5
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	365	6	6	314	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	389	0	730	402
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	344	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1175	-	392	653
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1159	-	379	635
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	708	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	475	-	-	1159	-
HCM Lane V/C Ratio	0.027	-	-	0.006	-
HCM Control Delay (s)	12.8	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	25	265	245	30	0	0
Future Vol, veh/h	25	265	245	30	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	32	335	310	38	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	360	0	746
Stage 1	-	-	341
Stage 2	-	-	405
Critical Hdwy	4.13	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.227	-	3.5
Pot Cap-1 Maneuver	1193	-	384
Stage 1	-	-	725
Stage 2	-	-	678
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1181	-	364
Mov Cap-2 Maneuver	-	-	364
Stage 1	-	-	718
Stage 2	-	-	649

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1181	-	-	-	-
HCM Lane V/C Ratio	0.027	-	-	-	-
HCM Control Delay (s)	8.1	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	0	0	5	270	260	5
Future Vol, veh/h	0	0	5	270	260	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	338	325	6

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	684	334	334
Stage 1	331	-	-
Stage 2	353	-	-
Critical Hdwy	6.4	6.2	4.12
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	417	712	1225
Stage 1	732	-	-
Stage 2	716	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	412	708	1222
Mov Cap-2 Maneuver	412	-	-
Stage 1	730	-	-
Stage 2	710	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1222	-	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-	-
HCM Control Delay (s)	8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection							
Int Delay, s/veh	0						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Vol, veh/h	0	0	0	275	265	0	
Future Vol, veh/h	0	0	0	275	265	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	81	81	81	81	81	81	
Heavy Vehicles, %	0	0	2	2	4	4	
Mvmt Flow	0	0	0	340	327	0	












Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	667	327	327	0	-	0
Stage 1	327	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	427	719	1233	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	427	719	1233	-	-	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1233	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Existing (2017) Weekday PM Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	110	680	515	235	210	75		
Future Volume (veh/h)	110	680	515	235	210	75		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	113	701	531	242	216	77		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	158	1234	631	287	252	90		
Arrive On Green	0.09	0.66	0.52	0.52	0.20	0.20		
Sat Flow, veh/h	1774	1863	1213	553	1251	446		
Grp Volume(v), veh/h	113	701	0	773	294	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1765	1703	0		
Q Serve(g_s), s	5.2	17.1	0.0	31.3	14.0	0.0		
Cycle Q Clear(g_c), s	5.2	17.1	0.0	31.3	14.0	0.0		
Prop In Lane	1.00			0.31	0.73	0.26		
Lane Grp Cap(c), veh/h	158	1234	0	918	343	0		
V/C Ratio(X)	0.72	0.57	0.00	0.84	0.86	0.00		
Avail Cap(c_a), veh/h	540	1234	0	1144	901	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	37.1	7.6	0.0	17.2	32.3	0.0		
Incr Delay (d2), s/veh	6.0	0.6	0.0	4.8	6.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.8	8.8	0.0	16.3	7.1	0.0		
LnGrp Delay(d),s/veh	43.1	8.3	0.0	22.0	38.5	0.0		
LnGrp LOS	D	A		C	D			
Approach Vol, veh/h		814	773		294			
Approach Delay, s/veh		13.1	22.0		38.5			
Approach LOS		B	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	49.3				61.2		22.6
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	25.5	54.3				54.3		44.3
Max Q Clear Time (g_c+1), s	7.2	33.3				19.1		16.0
Green Ext Time (p_c), s	0.2	10.3				14.7		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			20.7					
HCM 2010 LOS			C					
Notes								

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) No Action Scenario A Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	215	690	730	95	95	260		
Future Volume (veh/h)	215	690	730	95	95	260		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	242	0	820	107	107	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	299	267	917	1304	192	163		
Arrive On Green	0.17	0.00	0.51	0.69	0.10	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	242	0	820	107	107	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	8.9	0.0	27.3	1.3	3.7	0.0		
Cycle Q Clear(g_c), s	8.9	0.0	27.3	1.3	3.7	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	299	267	917	1304	192	163		
V/C Ratio(X)	0.81	0.00	0.89	0.08	0.56	0.00		
Avail Cap(c_a), veh/h	633	565	1190	2167	756	643		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	26.7	0.0	14.9	3.5	28.5	0.0		
Incr Delay (d2), s/veh	4.8	0.0	8.1	0.0	2.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	4.7	0.0	15.5	0.7	2.0	0.0		
LnGrp Delay(d),s/veh	31.5	0.0	23.0	3.5	30.8	0.0		
LnGrp LOS	C		C	A	C			
Approach Vol, veh/h	242			927	107			
Approach Delay, s/veh	31.5			20.7	30.8			
Approach LOS	C			C	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	38.9	12.0				50.9		16.0
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	44.0	* 28				76.3		24.1
Max Q Clear Time (g_c+11), s	29.3	5.7				3.3		10.9
Green Ext Time (p_c), s	4.6	1.3				1.6		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			23.6					
HCM 2010 LOS			C					
Notes								

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	5	300	340	5	5	10
Future Vol, veh/h	5	300	340	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	380	430	6	6	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	437	0	826
Stage 1	-	-	434
Stage 2	-	-	392
Critical Hdwy	4.13	-	6.47
Critical Hdwy Stg 1	-	-	5.47
Critical Hdwy Stg 2	-	-	5.47
Follow-up Hdwy	2.227	-	3.563
Pot Cap-1 Maneuver	1117	-	335
Stage 1	-	-	643
Stage 2	-	-	672
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1117	-	333
Mov Cap-2 Maneuver	-	-	333
Stage 1	-	-	643
Stage 2	-	-	667

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1117	-	-	-	478
HCM Lane V/C Ratio	0.006	-	-	-	0.04
HCM Control Delay (s)	8.2	0	-	-	12.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection							
Int Delay, s/veh	0.3						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↔			↕	↕	
Traffic Vol, veh/h	5	290	5	5	335	5	5
Future Vol, veh/h	5	290	5	5	335	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	372	6	6	429	6	6

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	-	0	0	378	0	817	375
Stage 1	-	-	-	-	-	375	-
Stage 2	-	-	-	-	-	442	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1180	-	349	676
Stage 1	-	-	-	-	-	699	-
Stage 2	-	-	-	-	-	652	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1180	-	347	676
Mov Cap-2 Maneuver	-	-	-	-	-	347	-
Stage 1	-	-	-	-	-	699	-
Stage 2	-	-	-	-	-	647	-

Approach	EB	WB	NB
HCM Control Delay, s		0.1	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	459	-	-	1180	-
HCM Lane V/C Ratio	0.028	-	-	0.005	-
HCM Control Delay (s)	13.1	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 2010 TWSC
4: Teekalet Ave & SR 104

Port Gamble EIS
Future (2027) No Action Scenario A Weekday PM Peak Hour

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	295	0	0	335	5	0	0	0	5	0	5
Future Vol, veh/h	0	295	0	0	335	5	0	0	0	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	0	364	0	0	414	6	0	0	0	6	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	364	0	0	784	784	364	781	781	417
Stage 1	-	-	-	-	-	-	364	364	-	417	417	-
Stage 2	-	-	-	-	-	-	420	420	-	364	364	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1134	-	-	1195	-	-	313	327	685	315	329	640
Stage 1	-	-	-	-	-	-	659	627	-	617	595	-
Stage 2	-	-	-	-	-	-	615	593	-	659	627	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1134	-	-	1195	-	-	310	327	685	315	329	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	327	-	315	329	-
Stage 1	-	-	-	-	-	-	659	627	-	617	595	-
Stage 2	-	-	-	-	-	-	609	593	-	659	627	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	13.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1134	-	-	1195	-	-	422
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.029
HCM Control Delay (s)	0	0	-	-	0	-	-	13.8
HCM Lane LOS	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.1

Intersection							
Int Delay, s/veh	0.1						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↕	↕		↕		
Traffic Vol, veh/h	0	300	330	5	0	5	
Future Vol, veh/h	0	300	330	5	0	5	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	80	80	80	80	80	80	
Heavy Vehicles, %	4	4	1	1	0	0	
Mvmt Flow	0	375	413	6	0	6	

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	419	0	-	0	791	416
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	375	-
Critical Hdwy	4.14	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.236	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1129	-	-	-	361	641
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1129	-	-	-	361	641
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	699	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1129	-	-	-	641
HCM Lane V/C Ratio	-	-	-	-	0.01
HCM Control Delay (s)	0	-	-	-	10.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	290	5	5	280	5	5	5	5	45	0	45
Future Vol, veh/h	5	290	5	5	280	5	5	5	5	45	0	45
Conflicting Peds, #/hr	0	0	0	2	0	2	0	0	2	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	5	5	5
Mvmt Flow	6	363	6	6	350	6	6	6	6	56	0	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	358	0	0	371	0	0	774	751	370	754	751	355
Stage 1	-	-	-	-	-	-	380	380	-	368	368	-
Stage 2	-	-	-	-	-	-	394	371	-	386	383	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1190	-	-	1188	-	-	318	342	680	322	336	682
Stage 1	-	-	-	-	-	-	646	617	-	646	616	-
Stage 2	-	-	-	-	-	-	635	623	-	631	607	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1190	-	-	1186	-	-	289	337	678	311	331	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	289	337	-	311	331	-
Stage 1	-	-	-	-	-	-	641	612	-	641	611	-
Stage 2	-	-	-	-	-	-	579	618	-	614	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	15	16.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	380	1190	-	-	1186	-	-	427
HCM Lane V/C Ratio	0.049	0.005	-	-	0.005	-	-	0.263
HCM Control Delay (s)	15	8	0	-	8.1	0	-	16.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	1

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Traffic Vol, veh/h	330	5	5	285	5	5
Future Vol, veh/h	330	5	5	285	5	5
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	423	6	6	365	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	446	0	838	459
Stage 1	-	-	-	-	443	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1120	-	339	606
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	685	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1105	-	327	589
Mov Cap-2 Maneuver	-	-	-	-	327	-
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	421	-	-	1105	-
HCM Lane V/C Ratio	0.03	-	-	0.006	-
HCM Control Delay (s)	13.8	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	1		2	
Traffic Vol, veh/h	30	310	285	35	0	0
Future Vol, veh/h	30	310	285	35	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	38	392	361	44	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	417	0	407
Stage 1	-	-	395
Stage 2	-	-	474
Critical Hdwy	4.13	-	6.2
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.227	-	3.3
Pot Cap-1 Maneuver	1137	-	648
Stage 1	-	-	685
Stage 2	-	-	630
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1126	-	635
Mov Cap-2 Maneuver	-	-	305
Stage 1	-	-	678
Stage 2	-	-	597

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1126	-	-	-	-
HCM Lane V/C Ratio	0.034	-	-	-	-
HCM Control Delay (s)	8.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection							
Int Delay, s/veh	0.1						
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Vol, veh/h	0	0	5	315	300	5	
Future Vol, veh/h	0	0	5	315	300	5	
Conflicting Peds, #/hr	3	3	3	0	0	3	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	0	-	-	-	-	-	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	80	80	80	80	80	80	
Heavy Vehicles, %	0	0	2	2	4	4	
Mvmt Flow	0	0	6	394	375	6	

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	790	384	384	0	-	0
Stage 1	381	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	362	668	1174	-	-	-
Stage 1	695	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	358	665	1171	-	-	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1171	-	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-	-
HCM Control Delay (s)	8.1	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	0	0	0	320	310	0
Future Vol, veh/h	0	0	0	320	310	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	0	395	383	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	778	383	383
Stage 1	383	-	-
Stage 2	395	-	-
Critical Hdwy	6.4	6.2	4.12
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	368	669	1175
Stage 1	694	-	-
Stage 2	685	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	368	669	1175
Mov Cap-2 Maneuver	368	-	-
Stage 1	694	-	-
Stage 2	685	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1175	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-













HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) No Action Scenario A Weekday PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	130	790	600	275	245	85		
Future Volume (veh/h)	130	790	600	275	245	85		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	134	814	619	284	253	88		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	162	1292	686	315	272	95		
Arrive On Green	0.09	0.69	0.57	0.57	0.22	0.22		
Sat Flow, veh/h	1774	1863	1210	555	1261	439		
Grp Volume(v), veh/h	134	814	0	903	342	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1765	1704	0		
Q Serve(g_s), s	9.4	30.0	0.0	57.2	24.8	0.0		
Cycle Q Clear(g_c), s	9.4	30.0	0.0	57.2	24.8	0.0		
Prop In Lane	1.00			0.31	0.74	0.26		
Lane Grp Cap(c), veh/h	162	1292	0	1001	368	0		
V/C Ratio(X)	0.83	0.63	0.00	0.90	0.93	0.00		
Avail Cap(c_a), veh/h	232	1452	0	1082	409	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	56.3	10.5	0.0	24.2	48.5	0.0		
Incr Delay (d2), s/veh	15.2	0.7	0.0	10.0	26.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.3	15.4	0.0	30.4	14.4	0.0		
LnGrp Delay(d),s/veh	71.5	11.2	0.0	34.3	74.8	0.0		
LnGrp LOS	E	B		C	E			
Approach Vol, veh/h		948	903		342			
Approach Delay, s/veh		19.8	34.3		74.8			
Approach LOS		B	C		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.0	77.2				93.2		32.9
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	16.5	77.3				98.3		30.3
Max Q Clear Time (g_c+I1), s	11.4	59.2				32.0		26.8
Green Ext Time (p_c), s	0.1	12.3				24.3		0.4
Intersection Summary								
HCM 2010 Ctrl Delay			34.3					
HCM 2010 LOS			C					
Notes								

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) No Action Scenario B Weekday PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	265	690	730	112	119	327		
Future Volume (veh/h)	265	690	730	112	119	327		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	298	0	820	126	134	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	347	310	894	1285	213	181		
Arrive On Green	0.20	0.00	0.49	0.68	0.12	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	298	0	820	126	134	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	12.5	0.0	32.0	1.8	5.3	0.0		
Cycle Q Clear(g_c), s	12.5	0.0	32.0	1.8	5.3	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	347	310	894	1285	213	181		
V/C Ratio(X)	0.86	0.00	0.92	0.10	0.63	0.00		
Avail Cap(c_a), veh/h	556	496	1045	1902	664	564		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	29.5	0.0	17.8	4.3	32.1	0.0		
Incr Delay (d2), s/veh	7.2	0.0	11.9	0.0	2.7	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.7	0.0	18.7	0.9	2.8	0.0		
LnGrp Delay(d),s/veh	36.7	0.0	29.7	4.3	34.8	0.0		
LnGrp LOS	D		C	A	C			
Approach Vol, veh/h	298			946	134			
Approach Delay, s/veh	36.7			26.3	34.8			
Approach LOS	D			C	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	42.7	13.9				56.6		19.7
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	44.0	* 28				76.3		24.1
Max Q Clear Time (g_c+1), s	34.0	7.3				3.8		14.5
Green Ext Time (p_c), s	3.7	1.6				1.9		0.6
Intersection Summary								
HCM 2010 Ctrl Delay			29.4					
HCM 2010 LOS			C					
Notes								

Intersection							
Int Delay, s/veh	0.5						
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↕	↔		↕		
Traffic Vol, veh/h	5	367	431	15	14	10	
Future Vol, veh/h	5	367	431	15	14	10	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	-	-	0	-	
Veh in Median Storage, #	-	0	0	-	0	-	
Grade, %	-	0	0	-	0	-	
Peak Hour Factor	79	79	79	79	79	79	
Heavy Vehicles, %	3	3	2	2	7	7	
Mvmt Flow	6	465	546	19	18	13	

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	565	0	-	0	1032	555
Stage 1	-	-	-	-	555	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	4.13	-	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	-	3.563	3.363
Pot Cap-1 Maneuver	1002	-	-	-	252	522
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1002	-	-	-	250	522
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	609	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1002	-	-	-	319
HCM Lane V/C Ratio	0.006	-	-	-	0.095
HCM Control Delay (s)	8.6	0	-	-	17.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection							
Int Delay, s/veh	0.4						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↑			↑	↑	
Traffic Vol, veh/h	5	363	8	8	434	7	7
Future Vol, veh/h	5	363	8	8	434	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	465	10	10	556	9	9

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	-	0	0	476	0	1048	471
Stage 1	-	-	-	-	-	471	-
Stage 2	-	-	-	-	-	577	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1086	-	255	597
Stage 1	-	-	-	-	-	632	-
Stage 2	-	-	-	-	-	566	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1086	-	252	597
Mov Cap-2 Maneuver	-	-	-	-	-	252	-
Stage 1	-	-	-	-	-	632	-
Stage 2	-	-	-	-	-	559	-

Approach	EB	WB	NB
HCM Control Delay, s		0.2	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	354	-	-	1086	-
HCM Lane V/C Ratio	0.051	-	-	0.009	-
HCM Control Delay (s)	15.7	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	345	7	8	422	26	4	0	5	18	0	16
Future Vol, veh/h	18	345	7	8	422	26	4	0	5	18	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	22	426	9	10	521	32	5	0	6	22	0	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	553	0	0	435	0	0	1042	1048	430	1035	1036	537
Stage 1	-	-	-	-	-	-	475	475	-	557	557	-
Stage 2	-	-	-	-	-	-	567	573	-	478	479	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1012	-	-	1125	-	-	210	230	629	212	233	548
Stage 1	-	-	-	-	-	-	574	561	-	518	515	-
Stage 2	-	-	-	-	-	-	512	507	-	572	558	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1012	-	-	1125	-	-	196	220	629	203	223	548
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	220	-	203	223	-
Stage 1	-	-	-	-	-	-	557	545	-	503	508	-
Stage 2	-	-	-	-	-	-	487	500	-	550	542	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	16.8	19.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	317	1012	-	-	1125	-	-	288
HCM Lane V/C Ratio	0.035	0.022	-	-	0.009	-	-	0.146
HCM Control Delay (s)	16.8	8.6	0	-	8.2	0	-	19.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	368	446	5	0	5
Future Vol, veh/h	0	368	446	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	460	558	6	0	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	564	0	-	0	1021	561
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	460	-
Critical Hdwy	4.14	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.236	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	998	-	-	-	264	531
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	640	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	998	-	-	-	264	531
Mov Cap-2 Maneuver	-	-	-	-	264	-
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	998	-	-	-	531
HCM Lane V/C Ratio	-	-	-	-	0.012
HCM Control Delay (s)	0	-	-	-	11.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection

Int Delay, s/veh 35.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	319	9	10	302	20	7	5	8	151	0	137
Future Vol, veh/h	40	319	9	10	302	20	7	5	8	151	0	137
Conflicting Peds, #/hr	0	0	0	2	0	2	0	0	2	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	5	5	5
Mvmt Flow	50	399	11	13	378	25	9	6	10	189	0	171

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	405	0	0	412	0	0	1007	936	408	932	929	392
Stage 1	-	-	-	-	-	-	506	506	-	417	417	-
Stage 2	-	-	-	-	-	-	501	430	-	515	512	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1143	-	-	1147	-	-	221	267	648	244	265	650
Stage 1	-	-	-	-	-	-	552	543	-	607	586	-
Stage 2	-	-	-	-	-	-	556	587	-	537	532	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1143	-	-	1145	-	-	154	247	646	222	245	649
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	247	-	222	245	-
Stage 1	-	-	-	-	-	-	520	511	-	571	576	-
Stage 2	-	-	-	-	-	-	403	577	-	492	501	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.2	20.6	121
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	256	1143	-	-	1145	-	-	323
HCM Lane V/C Ratio	0.098	0.044	-	-	0.011	-	-	1.115
HCM Control Delay (s)	20.6	8.3	0	-	8.2	0	-	121
HCM Lane LOS	C	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	14.2

Intersection

Int Delay, s/veh 0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↰	↱	
Traffic Vol, veh/h	464	9	10	325	7	8
Future Vol, veh/h	464	9	10	325	7	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	595	12	13	417	9	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	623	0	1077	634
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	459	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	963	-	245	483
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	950	-	234	470
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	621	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	17
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	320	-	-	950	-
HCM Lane V/C Ratio	0.06	-	-	0.013	-
HCM Control Delay (s)	17	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	43	434	330	79	0	0
Future Vol, veh/h	43	434	330	79	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	54	549	418	100	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	530	0	1144
Stage 1	-	-	480
Stage 2	-	-	664
Critical Hdwy	4.13	-	7.1
Critical Hdwy Stg 1	-	-	6.1
Critical Hdwy Stg 2	-	-	6.1
Follow-up Hdwy	2.227	-	3.5
Pot Cap-1 Maneuver	1032	-	179
Stage 1	-	-	571
Stage 2	-	-	453
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1022	-	166
Mov Cap-2 Maneuver	-	-	166
Stage 1	-	-	522
Stage 2	-	-	416

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1022	-	-	-	-
HCM Lane V/C Ratio	0.053	-	-	-	-
HCM Control Delay (s)	8.7	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↓			↑	↑	
Traffic Vol, veh/h	0	0	5	404	424	5
Future Vol, veh/h	0	0	5	404	424	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	505	530	6

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1057	539	539
Stage 1	536	-	-
Stage 2	521	-	-
Critical Hdwy	6.4	6.2	4.12
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	251	546	1029
Stage 1	591	-	-
Stage 2	600	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	248	543	1026
Mov Cap-2 Maneuver	248	-	-
Stage 1	590	-	-
Stage 2	594	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1026	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.5	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	2	2	4	407	431	3
Future Vol, veh/h	2	2	4	407	431	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	2	2	5	502	532	4












Major/Minor	Minor2		Major1		Major2
Conflicting Flow All	1046	534	536	0	- 0
Stage 1	534	-	-	-	- -
Stage 2	512	-	-	-	- -
Critical Hdwy	6.4	6.2	4.12	-	- -
Critical Hdwy Stg 1	5.4	-	-	-	- -
Critical Hdwy Stg 2	5.4	-	-	-	- -
Follow-up Hdwy	3.5	3.3	2.218	-	- -
Pot Cap-1 Maneuver	255	550	1032	-	- -
Stage 1	592	-	-	-	- -
Stage 2	606	-	-	-	- -
Platoon blocked, %				-	- -
Mov Cap-1 Maneuver	253	550	1032	-	- -
Mov Cap-2 Maneuver	253	-	-	-	- -
Stage 1	592	-	-	-	- -
Stage 2	602	-	-	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	15.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1032	-	347	-	-
HCM Lane V/C Ratio	0.005	-	0.014	-	-
HCM Control Delay (s)	8.5	0	15.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-













HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) No Action Scenario B Weekday PM Peak Hour

									
Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations									
Traffic Volume (veh/h)	155	790	600	333	325	118			
Future Volume (veh/h)	155	790	600	333	325	118			
Number	1	6	2	12	3	18			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900			
Adj Flow Rate, veh/h	160	814	619	343	335	122			
Adj No. of Lanes	1	1	1	0	0	0			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	2	2	0	0			
Cap, veh/h	185	1310	639	354	266	97			
Arrive On Green	0.10	0.70	0.57	0.57	0.21	0.21			
Sat Flow, veh/h	1774	1863	1128	625	1245	453			
Grp Volume(v), veh/h	160	814	0	962	458	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1752	1702	0			
Q Serve(g_s), s	12.2	31.6	0.0	72.4	29.3	0.0			
Cycle Q Clear(g_c), s	12.2	31.6	0.0	72.4	29.3	0.0			
Prop In Lane	1.00			0.36	0.73	0.27			
Lane Grp Cap(c), veh/h	185	1310	0	993	363	0			
V/C Ratio(X)	0.87	0.62	0.00	0.97	1.26	0.00			
Avail Cap(c_a), veh/h	213	1348	0	1000	363	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	60.5	10.7	0.0	28.6	54.0	0.0			
Incr Delay (d2), s/veh	26.7	0.8	0.0	21.1	137.5	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.4	16.4	0.0	40.6	27.6	0.0			
LnGrp Delay(d),s/veh	87.3	11.6	0.0	49.7	191.5	0.0			
LnGrp LOS	F	B		D	F				
Approach Vol, veh/h		974	962		458				
Approach Delay, s/veh		24.0	49.7		191.5				
Approach LOS		C	D		F				
Timer	1	2	3	4	5	6	7	8	
Assigned Phs	1	2				6		8	
Phs Duration (G+Y+Rc), s	18.8	83.5				102.2		35.0	
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7	
Max Green Setting (Gmax), s	16.5	78.3				99.3		29.3	
Max Q Clear Time (g_c+1), s	14.2	74.4				33.6		31.3	
Green Ext Time (p_c), s	0.1	3.4				26.4		0.0	
Intersection Summary									
HCM 2010 Ctrl Delay			66.4						
HCM 2010 LOS			E						
Notes									

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) No Action Scenario C Weekday PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	256	690	730	109	106	289		
Future Volume (veh/h)	256	690	730	109	106	289		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	288	0	820	122	119	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	339	303	901	1284	200	170		
Arrive On Green	0.19	0.00	0.50	0.68	0.11	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	288	0	820	122	119	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	11.6	0.0	30.5	1.6	4.5	0.0		
Cycle Q Clear(g_c), s	11.6	0.0	30.5	1.6	4.5	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	339	303	901	1284	200	170		
V/C Ratio(X)	0.85	0.00	0.91	0.10	0.60	0.00		
Avail Cap(c_a), veh/h	578	516	1087	1978	691	587		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	28.5	0.0	16.9	4.1	31.1	0.0		
Incr Delay (d2), s/veh	5.4	0.0	10.6	0.0	2.6	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.1	0.0	17.7	0.9	2.4	0.0		
LnGrp Delay(d),s/veh	33.9	0.0	27.4	4.2	33.6	0.0		
LnGrp LOS	C		C	A	C			
Approach Vol, veh/h	288			942	119			
Approach Delay, s/veh	33.9			24.4	33.6			
Approach LOS	C			C	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	41.5	13.0				54.5		18.8
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	44.0	* 28				76.3		24.1
Max Q Clear Time (g_c+1), s	32.5	6.5				3.6		13.6
Green Ext Time (p_c), s	4.0	1.5				1.8		0.6
Intersection Summary								
HCM 2010 Ctrl Delay			27.3					
HCM 2010 LOS			C					
Notes								

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	355	380	9	12	10
Future Vol, veh/h	5	355	380	9	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	449	481	11	15	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	492	0	-	0	949 487
Stage 1	-	-	-	-	487 -
Stage 2	-	-	-	-	462 -
Critical Hdwy	4.13	-	-	-	6.47 6.27
Critical Hdwy Stg 1	-	-	-	-	5.47 -
Critical Hdwy Stg 2	-	-	-	-	5.47 -
Follow-up Hdwy	2.227	-	-	-	3.563 3.363
Pot Cap-1 Maneuver	1066	-	-	-	283 571
Stage 1	-	-	-	-	608 -
Stage 2	-	-	-	-	624 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1066	-	-	-	281 571
Mov Cap-2 Maneuver	-	-	-	-	281 -
Stage 1	-	-	-	-	608 -
Stage 2	-	-	-	-	619 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1066	-	-	-	365
HCM Lane V/C Ratio	0.006	-	-	-	0.076
HCM Control Delay (s)	8.4	0	-	-	15.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection							
Int Delay, s/veh	0.4						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↶			↷	↶	↷
Traffic Vol, veh/h	5	348	8	8	377	7	7
Future Vol, veh/h	5	348	8	8	377	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	446	10	10	483	9	9

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	-	0	0	456	0	955	451
Stage 1	-	-	-	-	-	451	-
Stage 2	-	-	-	-	-	504	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1105	-	289	613
Stage 1	-	-	-	-	-	646	-
Stage 2	-	-	-	-	-	611	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1105	-	286	613
Mov Cap-2 Maneuver	-	-	-	-	-	286	-
Stage 1	-	-	-	-	-	646	-
Stage 2	-	-	-	-	-	604	-

Approach	EB	WB	NB
HCM Control Delay, s		0.2	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	390	-	-	1105	-
HCM Lane V/C Ratio	0.046	-	-	0.009	-
HCM Control Delay (s)	14.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	330	7	8	365	26	4	0	5	18	0	16
Future Vol, veh/h	18	330	7	8	365	26	4	0	5	18	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	22	407	9	10	451	32	5	0	6	22	0	20

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	483	0	0	416	0	0	952	958	412	945	946	467
Stage 1	-	-	-	-	-	-	456	456	-	486	486	-
Stage 2	-	-	-	-	-	-	496	502	-	459	460	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1074	-	-	1143	-	-	241	259	644	244	264	600
Stage 1	-	-	-	-	-	-	588	572	-	566	554	-
Stage 2	-	-	-	-	-	-	559	545	-	586	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1074	-	-	1143	-	-	226	249	644	235	254	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	249	-	235	254	-
Stage 1	-	-	-	-	-	-	572	557	-	551	547	-
Stage 2	-	-	-	-	-	-	534	538	-	565	554	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	15.5	17.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	353	1074	-	-	1143	-	-	329
HCM Lane V/C Ratio	0.031	0.021	-	-	0.009	-	-	0.128
HCM Control Delay (s)	15.5	8.4	0	-	8.2	0	-	17.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	0	353	389	5	0	5
Future Vol, veh/h	0	353	389	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	441	486	6	0	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	493	0	0	930	489
Stage 1	-	-	-	489	-
Stage 2	-	-	-	441	-
Critical Hdwy	4.14	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.236	-	-	3.5	3.3
Pot Cap-1 Maneuver	1060	-	-	299	583
Stage 1	-	-	-	621	-
Stage 2	-	-	-	653	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1060	-	-	299	583
Mov Cap-2 Maneuver	-	-	-	299	-
Stage 1	-	-	-	621	-
Stage 2	-	-	-	653	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1060	-	-	-	583
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s)	0	-	-	-	11.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	315	9	10	302	16	7	5	8	81	0	80
Future Vol, veh/h	29	315	9	10	302	16	7	5	8	81	0	80
Conflicting Peds, #/hr	0	0	0	2	0	2	0	0	2	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	4	4	4	2	2	2	0	0	0	5	5	5
Mvmt Flow	36	394	11	13	378	20	9	6	10	101	0	100

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	400	0	0	407	0	0	937	899	403	897	895	390
Stage 1	-	-	-	-	-	-	474	474	-	415	415	-
Stage 2	-	-	-	-	-	-	463	425	-	482	480	-
Critical Hdwy	4.14	-	-	4.12	-	-	7.1	6.5	6.2	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.15	5.55	-
Follow-up Hdwy	2.236	-	-	2.218	-	-	3.5	4	3.3	3.545	4.045	3.345
Pot Cap-1 Maneuver	1148	-	-	1152	-	-	247	281	652	257	277	652
Stage 1	-	-	-	-	-	-	575	561	-	609	587	-
Stage 2	-	-	-	-	-	-	583	590	-	560	549	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1148	-	-	1150	-	-	200	265	650	237	261	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	265	-	237	261	-
Stage 1	-	-	-	-	-	-	551	537	-	583	577	-
Stage 2	-	-	-	-	-	-	486	580	-	522	526	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.7		0.2		18		28.9
HCM LOS					C		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	1148	-	-	1150	-	-	346
HCM Lane V/C Ratio	0.083	0.032	-	-	0.011	-	-	0.582
HCM Control Delay (s)	18	8.2	0	-	8.2	0	-	28.9
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	3.5

Intersection

Int Delay, s/veh 0.4

Movement EBT EBR WBL WBT NBL NBR

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	390	9	10	321	7	8
Future Vol, veh/h	390	9	10	321	7	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	500	12	13	412	9	10

Major/Minor Major1 Major2 Minor1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	529
Stage 1	-	-	523
Stage 2	-	-	454
Critical Hdwy	-	4.11	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.209	3.5
Pot Cap-1 Maneuver	-	1043	281
Stage 1	-	-	599
Stage 2	-	-	644
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1029	269
Mov Cap-2 Maneuver	-	-	269
Stage 1	-	-	591
Stage 2	-	-	625

Approach EB WB NB

HCM Control Delay, s 0 0.3 15.4
HCM LOS C

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	365	-	-	1029	-
HCM Lane V/C Ratio	0.053	-	-	0.012	-
HCM Control Delay (s)	15.4	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	39	364	326	65	0	0
Future Vol, veh/h	39	364	326	65	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	49	461	413	82	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	507	0	-	0	1031 478
Stage 1	-	-	-	-	466 -
Stage 2	-	-	-	-	565 -
Critical Hdwy	4.13	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.227	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1053	-	-	-	261 591
Stage 1	-	-	-	-	636 -
Stage 2	-	-	-	-	573 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1042	-	-	-	240 579
Mov Cap-2 Maneuver	-	-	-	-	240 -
Stage 1	-	-	-	-	630 -
Stage 2	-	-	-	-	532 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1042	-	-	-	-
HCM Lane V/C Ratio	0.047	-	-	-	-
HCM Control Delay (s)	8.6	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations	Y				↑	↑
Traffic Vol, veh/h	0	0	5	386	354	5
Future Vol, veh/h	0	0	5	386	354	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	483	443	6

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	947	452	452	0	-	0
Stage 1	449	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	292	612	1109	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	289	609	1106	-	-	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	609	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s 0 0.1 0
HCM LOS A

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1106	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.3	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	2	2	4	389	361	3
Future Vol, veh/h	2	2	4	389	361	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	2	2	5	480	446	4

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	938	448	449	0	-	0
Stage 1	448	-	-	-	-	-
Stage 2	490	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	296	615	1111	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	615	1111	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	616	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s 14.2 0.1 0
HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	1111	-	398	-	-
HCM Lane V/C Ratio	0.004	-	0.012	-	-
HCM Control Delay (s)	8.3	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) No Action Scenario C Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR			
Lane Configurations	↖	↑	↗		↙	↘			
Traffic Volume (veh/h)	150	790	600	321	280	99			
Future Volume (veh/h)	150	790	600	321	280	99			
Number	1	6	2	12	3	18			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900			
Adj Flow Rate, veh/h	155	814	619	331	289	102			
Adj No. of Lanes	1	1	1	0	0	0			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	2	2	0	0			
Cap, veh/h	179	1285	635	340	286	101			
Arrive On Green	0.10	0.69	0.56	0.56	0.23	0.23			
Sat Flow, veh/h	1774	1863	1143	611	1256	443			
Grp Volume(v), veh/h	155	814	0	950	392	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1755	1704	0			
Q Serve(g_s), s	11.8	33.1	0.0	72.1	31.3	0.0			
Cycle Q Clear(g_c), s	11.8	33.1	0.0	72.1	31.3	0.0			
Prop In Lane	1.00			0.35	0.74	0.26			
Lane Grp Cap(c), veh/h	179	1285	0	975	388	0			
V/C Ratio(X)	0.86	0.63	0.00	0.97	1.01	0.00			
Avail Cap(c_a), veh/h	206	1317	0	980	388	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	60.9	11.8	0.0	29.6	53.1	0.0			
Incr Delay (d2), s/veh	26.9	1.0	0.0	22.5	48.6	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.0			
%ile BackOfQ(50%),veh/ln	7.2	17.3	0.0	40.9	19.9	0.0			
LnGrp Delay(d),s/veh	87.8	12.7	0.0	52.1	101.8	0.0			
LnGrp LOS	F	B		D	F				
Approach Vol, veh/h		969	950		392				
Approach Delay, s/veh		24.7	52.1		101.8				
Approach LOS		C	D		F				
Timer	1	2	3	4	5	6	7	8	
Assigned Phs	1	2				6		8	
Phs Duration (G+Y+Rc), s	18.4	82.2				100.6		37.0	
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7	
Max Green Setting (Gmax), s	16.0	76.8				97.3		31.3	
Max Q Clear Time (g_c+I1), s	13.8	74.1				35.1		33.3	
Green Ext Time (p_c), s	0.1	2.3				25.5		0.0	
Intersection Summary									
HCM 2010 Ctrl Delay			49.1						
HCM 2010 LOS			D						
Notes									

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) Alternative 1 Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	↘	↗	↘	↑	↑	↗		
Traffic Volume (veh/h)	321	690	730	130	129	356		
Future Volume (veh/h)	321	690	730	130	129	356		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	361	0	820	146	145	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	400	357	889	1260	211	179		
Arrive On Green	0.23	0.00	0.49	0.66	0.12	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	361	0	820	146	145	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	17.6	0.0	37.1	2.5	6.7	0.0		
Cycle Q Clear(g_c), s	17.6	0.0	37.1	2.5	6.7	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	400	357	889	1260	211	179		
V/C Ratio(X)	0.90	0.00	0.92	0.12	0.69	0.00		
Avail Cap(c_a), veh/h	474	423	1050	1658	439	373		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	33.0	0.0	20.8	5.4	37.4	0.0		
Incr Delay (d2), s/veh	18.3	0.0	12.4	0.1	3.6	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	10.6	0.0	21.5	1.3	3.6	0.0		
LnGrp Delay(d),s/veh	51.3	0.0	33.2	5.5	41.0	0.0		
LnGrp LOS	D		C	A	D			
Approach Vol, veh/h	361			966	145			
Approach Delay, s/veh	51.3			29.0	40.9			
Approach LOS	D			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	48.2	15.1				63.3		24.6
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	51.0	* 21				76.7		23.7
Max Q Clear Time (g_c+I1), s	39.1	8.7				4.5		19.6
Green Ext Time (p_c), s	4.1	1.4				2.2		0.4
Intersection Summary								
HCM 2010 Ctrl Delay			35.7					
HCM 2010 LOS			D					
Notes								

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		←	→		←	→
Traffic Vol, veh/h	5	441	470	21	21	10
Future Vol, veh/h	5	441	470	21	21	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	558	595	27	27	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	622	0	0
Stage 1	-	-	608
Stage 2	-	-	571
Critical Hdwy	4.13	-	6.47
Critical Hdwy Stg 1	-	-	5.47
Critical Hdwy Stg 2	-	-	5.47
Follow-up Hdwy	2.227	-	3.563
Pot Cap-1 Maneuver	954	-	206
Stage 1	-	-	534
Stage 2	-	-	555
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	954	-	204
Mov Cap-2 Maneuver	-	-	204
Stage 1	-	-	534
Stage 2	-	-	550

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	954	-	-	-	251
HCM Lane V/C Ratio	0.007	-	-	-	0.156
HCM Control Delay (s)	8.8	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection

Int Delay, s/veh 1.3

Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↑			↑	↑	
Traffic Vol, veh/h	5	426	26	23	458	28	23
Future Vol, veh/h	5	426	26	23	458	28	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	546	33	29	587	36	29

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	-	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	995
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	995
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		0.4	22.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	273	-	-	995	-
HCM Lane V/C Ratio	0.24	-	-	0.03	-
HCM Control Delay (s)	22.3	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	434	4	3	469	13	1	0	2	6	0	11
Future Vol, veh/h	11	434	4	3	469	13	1	0	2	6	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	14	536	5	4	579	16	1	0	2	7	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	595	0	0	541	0	0	1166	1167	538	1161	1162	587
Stage 1	-	-	-	-	-	-	565	565	-	594	594	-
Stage 2	-	-	-	-	-	-	601	602	-	567	568	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	976	-	-	1028	-	-	172	195	547	174	197	513
Stage 1	-	-	-	-	-	-	513	511	-	495	496	-
Stage 2	-	-	-	-	-	-	491	492	-	512	510	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	976	-	-	1028	-	-	164	190	547	170	192	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	190	-	170	192	-
Stage 1	-	-	-	-	-	-	502	500	-	485	493	-
Stage 2	-	-	-	-	-	-	475	489	-	499	499	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			16.8			17.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	976	-	-	1028	-	-	300
HCM Lane V/C Ratio	0.012	0.014	-	-	0.004	-	-	0.07
HCM Control Delay (s)	16.8	8.7	0	-	8.5	0	-	17.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection

Int Delay, s/veh 0.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	442	475	5	0	5
Future Vol, veh/h	0	442	475	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	553	594	6	0	6

Major/Minor Major1 Major2 Minor2

Conflicting Flow All	600	0	-	0	1150	597
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	553	-
Critical Hdwy	4.14	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.236	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	967	-	-	-	221	507
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	580	-
Platoon blocked, %						
Mov Cap-1 Maneuver	967	-	-	-	221	507
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	580	-

Approach EB WB SB

HCM Control Delay, s 0 0 12.2
HCM LOS B

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h)	967	-	-	-	507
HCM Lane V/C Ratio	-	-	-	-	0.012
HCM Control Delay (s)	0	-	-	-	12.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

MOVEMENT SUMMARY

 Site: Puget Way & SR 104 - Int 6 Alt 1 2027

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Pacific Avenue											
3	L2	13	0.0	0.042	13.1	LOS B	0.2	6.1	0.66	0.66	35.6
8	T1	5	0.0	0.042	7.0	LOS A	0.2	6.1	0.66	0.66	35.4
18	R2	20	0.0	0.042	6.9	LOS A	0.2	6.1	0.66	0.66	34.3
Approach		38	0.0	0.042	9.0	LOS A	0.2	6.1	0.66	0.66	34.9
East: SR 104											
1	L2	26	2.0	0.266	10.6	LOS B	1.5	38.7	0.34	0.45	37.2
6	T1	282	2.0	0.266	4.5	LOS A	1.5	38.7	0.34	0.45	37.0
16	R2	50	2.0	0.266	4.4	LOS A	1.5	38.7	0.34	0.45	35.7
Approach		358	2.0	0.266	4.9	LOS A	1.5	38.7	0.34	0.45	36.8
North: Puget Way											
7	L2	243	5.0	0.399	11.6	LOS B	2.5	65.0	0.54	0.67	35.4
4	T1	1	5.0	0.399	5.5	LOS A	2.5	65.0	0.54	0.67	35.3
14	R2	222	5.0	0.399	5.4	LOS A	2.5	65.0	0.54	0.67	34.1
Approach		466	5.0	0.399	8.7	LOS A	2.5	65.0	0.54	0.67	34.8
West: SR 104											
5	L2	128	4.0	0.400	11.4	LOS B	2.6	67.2	0.52	0.56	36.0
2	T1	339	4.0	0.400	5.3	LOS A	2.6	67.2	0.52	0.56	35.8
12	R2	13	4.0	0.400	5.2	LOS A	2.6	67.2	0.52	0.56	34.6
Approach		480	4.0	0.400	6.9	LOS A	2.6	67.2	0.52	0.56	35.8
All Vehicles		1342	3.7	0.400	7.1	LOS A	2.6	67.2	0.48	0.57	35.7

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: THE TRANSPRO GROUP | Processed: Thursday, March 29, 2018 10:40:33 AM

Project: \\srv-dfs-wa\Projects\12\12085.02 - Port Gamble EIS 2013\2017 UPDATE - Port Gamble EIS\Traffic Analysis\Traffic Operations\Alternate Plan - Alt 1
 \Sidra\Puget Way & SR104 Alt1 - 2018-02-05.sip6

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	542	7	5	324	5	8
Future Vol, veh/h	542	7	5	324	5	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	695	9	6	415	6	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	721	0	1161
Stage 1	-	-	-	-	716
Stage 2	-	-	-	-	445
Critical Hdwy	-	-	4.11	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.209	-	3.5
Pot Cap-1 Maneuver	-	-	885	-	218
Stage 1	-	-	-	-	488
Stage 2	-	-	-	-	650
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	873	-	210
Mov Cap-2 Maneuver	-	-	-	-	210
Stage 1	-	-	-	-	481
Stage 2	-	-	-	-	635

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	-	-	873	-
HCM Lane V/C Ratio	0.055	-	-	0.007	-
HCM Control Delay (s)	17.7	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	67	488	324	182	0	0
Future Vol, veh/h	67	488	324	182	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	85	618	410	230	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	653	0	-	0	1330 549
Stage 1	-	-	-	-	537 -
Stage 2	-	-	-	-	793 -
Critical Hdwy	4.13	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.227	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	929	-	-	-	172 539
Stage 1	-	-	-	-	590 -
Stage 2	-	-	-	-	449 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	920	-	-	-	145 528
Mov Cap-2 Maneuver	-	-	-	-	145 -
Stage 1	-	-	-	-	584 -
Stage 2	-	-	-	-	382 -

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	920	-	-	-	-
HCM Lane V/C Ratio	0.092	-	-	-	-
HCM Control Delay (s)	9.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	0	0	5	501	478	5
Future Vol, veh/h	0	0	5	501	478	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	626	598	6

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1246	607	607	0	-	0
Stage 1	604	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	194	500	971	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	191	498	969	-	-	-
Mov Cap-2 Maneuver	191	-	-	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	522	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.7	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	
Traffic Vol, veh/h	4	5	13	502	482	6
Future Vol, veh/h	4	5	13	502	482	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	5	6	16	620	595	7












Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1251	599	602	0	-	0
Stage 1	599	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	192	505	975	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	187	505	975	-	-	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	975	-	288	-	-
HCM Lane V/C Ratio	0.016	-	0.039	-	-
HCM Control Delay (s)	8.8	0	18	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-













HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 1 Weekday PM Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	184	790	600	398	358	134		
Future Volume (veh/h)	184	790	600	398	358	134		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	190	814	619	410	369	138		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	203	1241	544	361	312	117		
Arrive On Green	0.11	0.67	0.52	0.52	0.25	0.25		
Sat Flow, veh/h	1774	1863	1047	693	1236	462		
Grp Volume(v), veh/h	190	814	0	1029	508	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1740	1701	0		
Q Serve(g_s), s	14.9	36.2	0.0	72.8	35.3	0.0		
Cycle Q Clear(g_c), s	14.9	36.2	0.0	72.8	35.3	0.0		
Prop In Lane	1.00			0.40	0.73	0.27		
Lane Grp Cap(c), veh/h	203	1241	0	905	429	0		
V/C Ratio(X)	0.94	0.66	0.00	1.14	1.18	0.00		
Avail Cap(c_a), veh/h	203	1241	0	905	429	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	61.5	13.8	0.0	33.6	52.4	0.0		
Incr Delay (d2), s/veh	45.6	1.3	0.0	75.2	104.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.9	19.0	0.0	53.6	29.0	0.0		
LnGrp Delay(d),s/veh	107.1	15.1	0.0	108.8	156.7	0.0		
LnGrp LOS	F	B		F	F			
Approach Vol, veh/h		1004	1029		508			
Approach Delay, s/veh		32.5	108.8		156.7			
Approach LOS		C	F		F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	20.5	78.5				99.0		41.0
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	16.0	72.8				93.3		35.3
Max Q Clear Time (g_c+11), s	16.9	74.8				38.2		37.3
Green Ext Time (p_c), s	0.0	0.0				27.1		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			88.2					
HCM 2010 LOS			F					
Notes								

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) Alternative 1 Road Closure Weekday PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	321	690	730	130	129	356		
Future Volume (veh/h)	321	690	730	130	129	356		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	361	0	820	146	145	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	400	357	889	1260	211	179		
Arrive On Green	0.23	0.00	0.49	0.66	0.12	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	361	0	820	146	145	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	17.6	0.0	37.1	2.5	6.7	0.0		
Cycle Q Clear(g_c), s	17.6	0.0	37.1	2.5	6.7	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	400	357	889	1260	211	179		
V/C Ratio(X)	0.90	0.00	0.92	0.12	0.69	0.00		
Avail Cap(c_a), veh/h	474	423	1050	1658	439	373		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	33.0	0.0	20.8	5.4	37.4	0.0		
Incr Delay (d2), s/veh	18.3	0.0	12.4	0.1	3.6	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	10.6	0.0	21.5	1.3	3.6	0.0		
LnGrp Delay(d),s/veh	51.3	0.0	33.2	5.5	41.0	0.0		
LnGrp LOS	D		C	A	D			
Approach Vol, veh/h	361			966	145			
Approach Delay, s/veh	51.3			29.0	40.9			
Approach LOS	D			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	48.2	15.1				63.3		24.6
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	51.0	* 21				76.7		23.7
Max Q Clear Time (g_c+I1), s	39.1	8.7				4.5		19.6
Green Ext Time (p_c), s	4.1	1.4				2.2		0.4
Intersection Summary								
HCM 2010 Ctrl Delay			35.7					
HCM 2010 LOS			D					
Notes								

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	441	470	21	21	10
Future Vol, veh/h	5	441	470	21	21	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	558	595	27	27	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	622	0	0
Stage 1	-	-	608
Stage 2	-	-	571
Critical Hdwy	4.13	-	6.47
Critical Hdwy Stg 1	-	-	5.47
Critical Hdwy Stg 2	-	-	5.47
Follow-up Hdwy	2.227	-	3.563
Pot Cap-1 Maneuver	954	-	206
Stage 1	-	-	534
Stage 2	-	-	555
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	954	-	204
Mov Cap-2 Maneuver	-	-	204
Stage 1	-	-	534
Stage 2	-	-	550

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	954	-	-	-	251
HCM Lane V/C Ratio	0.007	-	-	-	0.156
HCM Control Delay (s)	8.8	0	-	-	22
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection							
Int Delay, s/veh	1.7						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↔			↔	↔	
Traffic Vol, veh/h	5	426	26	34	458	28	33
Future Vol, veh/h	5	426	26	34	458	28	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	546	33	44	587	36	42

Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	-	0	0	579	0	1237	563
Stage 1	-	-	-	-	-	563	-
Stage 2	-	-	-	-	-	674	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	995	-	196	530
Stage 1	-	-	-	-	-	574	-
Stage 2	-	-	-	-	-	510	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	995	-	183	530
Mov Cap-2 Maneuver	-	-	-	-	-	183	-
Stage 1	-	-	-	-	-	574	-
Stage 2	-	-	-	-	-	476	-

Approach	EB	WB	NB
HCM Control Delay, s		0.6	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	283	-	-	995	-
HCM Lane V/C Ratio	0.276	-	-	0.044	-
HCM Control Delay (s)	22.5	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	444	4	3	480	13	1	0	2	6	0	11
Future Vol, veh/h	11	444	4	3	480	13	1	0	2	6	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	14	548	5	4	593	16	1	0	2	7	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	609	0	0	553	0	0	1193	1194	551	1187	1188	601
Stage 1	-	-	-	-	-	-	578	578	-	608	608	-
Stage 2	-	-	-	-	-	-	615	616	-	579	580	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	965	-	-	1017	-	-	165	188	538	167	190	504
Stage 1	-	-	-	-	-	-	505	504	-	486	489	-
Stage 2	-	-	-	-	-	-	482	485	-	504	503	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	965	-	-	1017	-	-	157	183	538	163	185	504
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	183	-	163	185	-
Stage 1	-	-	-	-	-	-	494	493	-	476	486	-
Stage 2	-	-	-	-	-	-	466	482	-	491	492	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	17.3	18.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	297	965	-	-	1017	-	-	290
HCM Lane V/C Ratio	0.012	0.014	-	-	0.004	-	-	0.072
HCM Control Delay (s)	17.3	8.8	0	-	8.6	0	-	18.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	452	486	5	0	5
Future Vol, veh/h	0	452	486	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	565	608	6	0	6

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	614	0	0
Stage 1	-	-	611
Stage 2	-	-	565
Critical Hdwy	4.14	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.236	-	3.5
Pot Cap-1 Maneuver	956	-	213
Stage 1	-	-	546
Stage 2	-	-	573
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	956	-	213
Mov Cap-2 Maneuver	-	-	213
Stage 1	-	-	546
Stage 2	-	-	573

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	956	-	-	-	497
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	12.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

MOVEMENT SUMMARY

 Site: Puget Way & SR 104 - Int 6 Alt 1 - Road Closure 2027

New Site
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance ft		per veh	mph	
South: Pacific Avenue												
3	L2	13	0.0	0.030	13.1	LOS B	0.2	4.4	0.66	0.65	35.1	
8	T1	5	0.0	0.030	7.0	LOS A	0.2	4.4	0.66	0.65	34.9	
18	R2	9	0.0	0.030	6.9	LOS A	0.2	4.4	0.66	0.65	33.8	
Approach		27	0.0	0.030	9.9	LOS A	0.2	4.4	0.66	0.65	34.7	
East: SR 104												
1	L2	14	2.0	0.266	10.6	LOS B	1.5	38.6	0.34	0.44	37.3	
6	T1	293	2.0	0.266	4.5	LOS A	1.5	38.6	0.34	0.44	37.1	
16	R2	50	2.0	0.266	4.4	LOS A	1.5	38.6	0.34	0.44	35.8	
Approach		358	2.0	0.266	4.7	LOS A	1.5	38.6	0.34	0.44	36.9	
North: Puget Way												
7	L2	243	5.0	0.399	11.6	LOS B	2.5	65.0	0.54	0.67	35.4	
4	T1	1	5.0	0.399	5.5	LOS A	2.5	65.0	0.54	0.67	35.3	
14	R2	222	5.0	0.399	5.4	LOS A	2.5	65.0	0.54	0.67	34.1	
Approach		466	5.0	0.399	8.7	LOS A	2.5	65.0	0.54	0.67	34.8	
West: SR 104												
5	L2	128	4.0	0.406	11.3	LOS B	2.7	69.1	0.52	0.56	36.0	
2	T1	350	4.0	0.406	5.2	LOS A	2.7	69.1	0.52	0.56	35.8	
12	R2	13	4.0	0.406	5.1	LOS A	2.7	69.1	0.52	0.56	34.7	
Approach		491	4.0	0.406	6.8	LOS A	2.7	69.1	0.52	0.56	35.8	
All Vehicles		1342	3.7	0.406	7.0	LOS A	2.7	69.1	0.48	0.57	35.7	

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: \\srv-dfs-wa\Projects\12\12085.02 - Port Gamble EIS 2013\2017 UPDATE - Port Gamble EIS\Traffic Analysis\Traffic Operations\Alternate Plan - Alt 1
 \Sidra\Puget Way & SR104 Alt1 - 2018-02-05.sip6

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	542	7	5	324	5	8
Future Vol, veh/h	542	7	5	324	5	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	695	9	6	415	6	10

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	721	0	1161
Stage 1	-	-	-	-	716
Stage 2	-	-	-	-	445
Critical Hdwy	-	-	4.11	-	6.4
Critical Hdwy Stg 1	-	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	-	5.4
Follow-up Hdwy	-	-	2.209	-	3.5
Pot Cap-1 Maneuver	-	-	885	-	218
Stage 1	-	-	-	-	488
Stage 2	-	-	-	-	650
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	873	-	210
Mov Cap-2 Maneuver	-	-	-	-	210
Stage 1	-	-	-	-	481
Stage 2	-	-	-	-	635

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	301	-	-	873	-
HCM Lane V/C Ratio	0.055	-	-	0.007	-
HCM Control Delay (s)	17.7	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	67	488	324	182	0	0
Future Vol, veh/h	67	488	324	182	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	85	618	410	230	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	653	0	-	0	1330 549
Stage 1	-	-	-	-	537 -
Stage 2	-	-	-	-	793 -
Critical Hdwy	4.13	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.227	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	929	-	-	-	172 539
Stage 1	-	-	-	-	590 -
Stage 2	-	-	-	-	449 -
Platoon blocked, %					
Mov Cap-1 Maneuver	920	-	-	-	145 528
Mov Cap-2 Maneuver	-	-	-	-	145 -
Stage 1	-	-	-	-	584 -
Stage 2	-	-	-	-	382 -

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	920	-	-	-	-
HCM Lane V/C Ratio	0.092	-	-	-	-
HCM Control Delay (s)	9.3	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	0	0	5	501	478	5
Future Vol, veh/h	0	0	5	501	478	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	626	598	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1246	607	607	0	-
Stage 1	604	-	-	-	-
Stage 2	642	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	194	500	971	-	-
Stage 1	550	-	-	-	-
Stage 2	528	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	191	498	969	-	-
Mov Cap-2 Maneuver	191	-	-	-	-
Stage 1	549	-	-	-	-
Stage 2	522	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	969	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.7	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			A	B	
Traffic Vol, veh/h	4	5	13	502	482	6
Future Vol, veh/h	4	5	13	502	482	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	5	6	16	620	595	7

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1251	599	602	0	-	0
Stage 1	599	-	-	-	-	-
Stage 2	652	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	192	505	975	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	187	505	975	-	-	-
Mov Cap-2 Maneuver	187	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	975	-	288	-	-
HCM Lane V/C Ratio	0.016	-	0.039	-	-
HCM Control Delay (s)	8.8	0	18	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 1 Road Closure Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	184	790	600	398	358	134		
Future Volume (veh/h)	184	790	600	398	358	134		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	190	814	619	410	369	138		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	203	1241	544	361	312	117		
Arrive On Green	0.11	0.67	0.52	0.52	0.25	0.25		
Sat Flow, veh/h	1774	1863	1047	693	1236	462		
Grp Volume(v), veh/h	190	814	0	1029	508	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1740	1701	0		
Q Serve(g_s), s	14.9	36.2	0.0	72.8	35.3	0.0		
Cycle Q Clear(g_c), s	14.9	36.2	0.0	72.8	35.3	0.0		
Prop In Lane	1.00			0.40	0.73	0.27		
Lane Grp Cap(c), veh/h	203	1241	0	905	429	0		
V/C Ratio(X)	0.94	0.66	0.00	1.14	1.18	0.00		
Avail Cap(c_a), veh/h	203	1241	0	905	429	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	61.5	13.8	0.0	33.6	52.4	0.0		
Incr Delay (d2), s/veh	45.6	1.3	0.0	75.2	104.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	9.9	19.0	0.0	53.6	29.0	0.0		
LnGrp Delay(d),s/veh	107.1	15.1	0.0	108.8	156.7	0.0		
LnGrp LOS	F	B		F	F			
Approach Vol, veh/h		1004	1029		508			
Approach Delay, s/veh		32.5	108.8		156.7			
Approach LOS		C	F		F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	20.5	78.5				99.0		41.0
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	16.0	72.8				93.3		35.3
Max Q Clear Time (g_c+1), s	16.9	74.8				38.2		37.3
Green Ext Time (p_c), s	0.0	0.0				27.1		0.0













Intersection Summary

HCM 2010 Ctrl Delay	88.2
HCM 2010 LOS	F

Notes

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) Alternative 2 Weekday PM Peak Hour

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	290	690	730	120	116	320		
Future Volume (veh/h)	290	690	730	120	116	320		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	326	0	820	135	130	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	370	330	902	1274	202	172		
Arrive On Green	0.21	0.00	0.50	0.67	0.11	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	326	0	820	135	130	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	14.5	0.0	33.6	2.0	5.5	0.0		
Cycle Q Clear(g_c), s	14.5	0.0	33.6	2.0	5.5	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	370	330	902	1274	202	172		
V/C Ratio(X)	0.88	0.00	0.91	0.11	0.64	0.00		
Avail Cap(c_a), veh/h	487	435	1142	1834	506	430		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	30.9	0.0	18.6	4.7	34.4	0.0		
Incr Delay (d2), s/veh	13.5	0.0	9.8	0.1	3.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.5	0.0	19.1	1.1	3.0	0.0		
LnGrp Delay(d),s/veh	44.4	0.0	28.4	4.8	37.5	0.0		
LnGrp LOS	D		C	A	D			
Approach Vol, veh/h	326			955	130			
Approach Delay, s/veh	44.4			25.1	37.5			
Approach LOS	D			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	45.3	13.9				59.2		21.6
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	51.0	* 22				78.0		22.4
Max Q Clear Time (g_c+I1), s	35.6	7.5				4.0		16.5
Green Ext Time (p_c), s	4.7	1.4				2.0		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			30.7					
HCM 2010 LOS			C					
Notes								

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	400	421	15	15	10
Future Vol, veh/h	5	400	421	15	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	506	533	19	19	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	552	0	0	1061	542
Stage 1	-	-	-	542	-
Stage 2	-	-	-	519	-
Critical Hdwy	4.13	-	-	6.47	6.27
Critical Hdwy Stg 1	-	-	-	5.47	-
Critical Hdwy Stg 2	-	-	-	5.47	-
Follow-up Hdwy	2.227	-	-	3.563	3.363
Pot Cap-1 Maneuver	1013	-	-	242	531
Stage 1	-	-	-	573	-
Stage 2	-	-	-	587	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1013	-	-	240	531
Mov Cap-2 Maneuver	-	-	-	240	-
Stage 1	-	-	-	573	-
Stage 2	-	-	-	582	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	307
HCM Lane V/C Ratio	0.006	-	-	-	0.103
HCM Control Delay (s)	8.6	0	-	-	18.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection							
Int Delay, s/veh	1.3						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↗			↖	↘	↙
Traffic Vol, veh/h	5	379	26	23	403	28	23
Future Vol, veh/h	5	379	26	23	403	28	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	486	33	29	517	36	29

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	-	0	0	519	0	1079	503
Stage 1	-	-	-	-	-	503	-
Stage 2	-	-	-	-	-	576	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1047	-	244	573
Stage 1	-	-	-	-	-	612	-
Stage 2	-	-	-	-	-	566	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1047	-	234	573
Mov Cap-2 Maneuver	-	-	-	-	-	234	-
Stage 1	-	-	-	-	-	612	-
Stage 2	-	-	-	-	-	544	-

Approach	EB	WB	NB
HCM Control Delay, s		0.5	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	1047	-
HCM Lane V/C Ratio	0.205	-	-	0.028	-
HCM Control Delay (s)	19.2	-	-	8.5	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	11	387	4	3	414	13	1	0	2	6	0	11
Future Vol, veh/h	11	387	4	3	414	13	1	0	2	6	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	14	478	5	4	511	16	1	0	2	7	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	527	0	0	483	0	0	1040	1042	480	1036	1037	519
Stage 1	-	-	-	-	-	-	507	507	-	527	527	-
Stage 2	-	-	-	-	-	-	533	535	-	509	510	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1035	-	-	1080	-	-	210	232	590	212	233	561
Stage 1	-	-	-	-	-	-	552	543	-	538	532	-
Stage 2	-	-	-	-	-	-	534	527	-	550	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1035	-	-	1080	-	-	201	227	590	207	228	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	227	-	207	228	-
Stage 1	-	-	-	-	-	-	542	533	-	528	529	-
Stage 2	-	-	-	-	-	-	518	524	-	538	531	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.2		0.1		15.1		15.9	
HCM LOS					C		C	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	359	1035	-	-	1080	-	-	350
HCM Lane V/C Ratio	0.01	0.013	-	-	0.003	-	-	0.06
HCM Control Delay (s)	15.1	8.5	0	-	8.3	0	-	15.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	395	420	5	0	5
Future Vol, veh/h	0	395	420	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	494	525	6	0	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	531	0	-	0	1022 528
Stage 1	-	-	-	-	528 -
Stage 2	-	-	-	-	494 -
Critical Hdwy	4.14	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.236	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1026	-	-	-	264 554
Stage 1	-	-	-	-	596 -
Stage 2	-	-	-	-	617 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1026	-	-	-	264 554
Mov Cap-2 Maneuver	-	-	-	-	264 -
Stage 1	-	-	-	-	596 -
Stage 2	-	-	-	-	617 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1026	-	-	-	554
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s)	0	-	-	-	11.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

MOVEMENT SUMMARY

Site: Puget Way & SR 104 - Int 6 Alt 2 2027

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Pacific Avenue											
3	L2	13	0.0	0.036	12.1	LOS B	0.2	4.8	0.56	0.61	36.0
8	T1	5	0.0	0.036	6.0	LOS A	0.2	4.8	0.56	0.61	35.8
18	R2	20	0.0	0.036	5.9	LOS A	0.2	4.8	0.56	0.61	34.6
Approach		38	0.0	0.036	8.0	LOS A	0.2	4.8	0.56	0.61	35.3
East: SR 104											
1	L2	26	2.0	0.263	10.3	LOS B	1.4	36.7	0.25	0.42	37.5
6	T1	313	2.0	0.263	4.2	LOS A	1.4	36.7	0.25	0.42	37.3
16	R2	32	2.0	0.263	4.1	LOS A	1.4	36.7	0.25	0.42	36.1
Approach		371	2.0	0.263	4.7	LOS A	1.4	36.7	0.25	0.42	37.2
North: Puget Way											
7	L2	145	5.0	0.239	11.5	LOS B	1.3	33.5	0.48	0.66	35.5
4	T1	1	5.0	0.239	5.4	LOS A	1.3	33.5	0.48	0.66	35.4
14	R2	130	5.0	0.239	5.3	LOS A	1.3	33.5	0.48	0.66	34.3
Approach		276	5.0	0.239	8.6	LOS A	1.3	33.5	0.48	0.66	34.9
West: SR 104											
5	L2	71	4.0	0.332	10.8	LOS B	2.0	51.4	0.39	0.49	36.7
2	T1	346	4.0	0.332	4.7	LOS A	2.0	51.4	0.39	0.49	36.5
12	R2	13	4.0	0.332	4.6	LOS A	2.0	51.4	0.39	0.49	35.3
Approach		429	4.0	0.332	5.7	LOS A	2.0	51.4	0.39	0.49	36.5
All Vehicles		1114	3.4	0.332	6.1	LOS A	2.0	51.4	0.37	0.51	36.3

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	↙
Traffic Vol, veh/h	457	7	5	336	5	8
Future Vol, veh/h	457	7	5	336	5	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	586	9	6	431	6	10

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	612	0
Stage 1	-	-	-	607
Stage 2	-	-	-	461
Critical Hdwy	-	-	4.11	-
Critical Hdwy Stg 1	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	5.4
Follow-up Hdwy	-	-	2.209	-
Pot Cap-1 Maneuver	-	-	972	-
Stage 1	-	-	-	548
Stage 2	-	-	-	639
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	959	-
Mov Cap-2 Maneuver	-	-	-	239
Stage 1	-	-	-	540
Stage 2	-	-	-	625

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	345	-	-	959	-
HCM Lane V/C Ratio	0.048	-	-	0.007	-
HCM Control Delay (s)	16	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	49	421	336	113	0	0
Future Vol, veh/h	49	421	336	113	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	62	533	425	143	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	580	0	0
Stage 1	-	-	509
Stage 2	-	-	663
Critical Hdwy	4.13	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.227	-	3.5
Pot Cap-1 Maneuver	989	-	215
Stage 1	-	-	608
Stage 2	-	-	516
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	979	-	192
Mov Cap-2 Maneuver	-	-	192
Stage 1	-	-	602
Stage 2	-	-	465

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	979	-	-	-	-
HCM Lane V/C Ratio	0.063	-	-	-	-
HCM Control Delay (s)	8.9	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	0	0	5	444	411	5
Future Vol, veh/h	0	0	5	444	411	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	555	514	6

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1091	523	523	0	-	0
Stage 1	520	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	240	558	1043	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	555	1040	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	563	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.5	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	4	5	13	445	415	6
Future Vol, veh/h	4	5	13	445	415	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	5	6	16	549	512	7

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1097	516	520	0	0
Stage 1	516	-	-	-	-
Stage 2	581	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	238	563	1046	-	-
Stage 1	603	-	-	-	-
Stage 2	563	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	233	563	1046	-	-
Mov Cap-2 Maneuver	233	-	-	-	-
Stage 1	603	-	-	-	-
Stage 2	551	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1046	-	346	-	-
HCM Lane V/C Ratio	0.015	-	0.032	-	-
HCM Control Delay (s)	8.5	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 2 Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	168	790	600	362	315	116		
Future Volume (veh/h)	168	790	600	362	315	116		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	173	814	619	373	325	120		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	197	1262	582	351	298	110		
Arrive On Green	0.11	0.68	0.53	0.53	0.24	0.24		
Sat Flow, veh/h	1774	1863	1090	657	1240	458		
Grp Volume(v), veh/h	173	814	0	992	446	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1747	1702	0		
Q Serve(g_s), s	13.3	34.7	0.0	74.1	33.3	0.0		
Cycle Q Clear(g_c), s	13.3	34.7	0.0	74.1	33.3	0.0		
Prop In Lane	1.00			0.38	0.73	0.27		
Lane Grp Cap(c), veh/h	197	1262	0	933	409	0		
V/C Ratio(X)	0.88	0.64	0.00	1.06	1.09	0.00		
Avail Cap(c_a), veh/h	214	1280	0	933	409	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	60.7	12.8	0.0	32.3	52.7	0.0		
Incr Delay (d2), s/veh	30.1	1.1	0.0	47.6	71.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.2	18.0	0.0	47.9	23.7	0.0		
LnGrp Delay(d),s/veh	90.8	13.9	0.0	79.9	124.1	0.0		
LnGrp LOS	F	B		F	F			
Approach Vol, veh/h		987	992		446			
Approach Delay, s/veh		27.4	79.9		124.1			
Approach LOS		C	E		F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	19.9	79.8				99.7		39.0
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	16.7	74.1				95.3		33.3
Max Q Clear Time (g_c+I1), s	15.3	76.1				36.7		35.3
Green Ext Time (p_c), s	0.1	0.0				26.5		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			66.7					
HCM 2010 LOS			E					
Notes								

HCM 2010 Signalized Intersection Summary
 1: SR 3/SR 104 & Hood Canal Floating Bridge

Port Gamble EIS
 Future (2027) Alternative 2 Road Closure Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	↖	↗	↖	↑	↑	↗		
Traffic Volume (veh/h)	290	690	730	120	116	320		
Future Volume (veh/h)	290	690	730	120	116	320		
Number	3	18	1	6	2	12		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1845	1845	1900	1900	1827	1827		
Adj Flow Rate, veh/h	326	0	820	135	130	0		
Adj No. of Lanes	1	1	1	1	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	0	0	4	4		
Cap, veh/h	370	330	902	1274	202	172		
Arrive On Green	0.21	0.00	0.50	0.67	0.11	0.00		
Sat Flow, veh/h	1757	1568	1810	1900	1827	1553		
Grp Volume(v), veh/h	326	0	820	135	130	0		
Grp Sat Flow(s),veh/h/ln	1757	1568	1810	1900	1827	1553		
Q Serve(g_s), s	14.5	0.0	33.6	2.0	5.5	0.0		
Cycle Q Clear(g_c), s	14.5	0.0	33.6	2.0	5.5	0.0		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	370	330	902	1274	202	172		
V/C Ratio(X)	0.88	0.00	0.91	0.11	0.64	0.00		
Avail Cap(c_a), veh/h	487	435	1142	1834	506	430		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	30.9	0.0	18.6	4.7	34.4	0.0		
Incr Delay (d2), s/veh	13.5	0.0	9.8	0.1	3.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.5	0.0	19.1	1.1	3.0	0.0		
LnGrp Delay(d),s/veh	44.4	0.0	28.4	4.8	37.5	0.0		
LnGrp LOS	D		C	A	D			
Approach Vol, veh/h	326			955	130			
Approach Delay, s/veh	44.4			25.1	37.5			
Approach LOS	D			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	45.3	13.9				59.2		21.6
Change Period (Y+Rc), s	5.0	* 5				5.0		4.6
Max Green Setting (Gmax), s	51.0	* 22				78.0		22.4
Max Q Clear Time (g_c+1), s	35.6	7.5				4.0		16.5
Green Ext Time (p_c), s	4.7	1.4				2.0		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			30.7					
HCM 2010 LOS			C					
Notes								

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↖	↗
Traffic Vol, veh/h	5	400	421	15	15	10
Future Vol, veh/h	5	400	421	15	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	2	2	7	7
Mvmt Flow	6	506	533	19	19	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	552	0	0 1061 542
Stage 1	-	-	- 542 -
Stage 2	-	-	- 519 -
Critical Hdwy	4.13	-	- 6.47 6.27
Critical Hdwy Stg 1	-	-	- 5.47 -
Critical Hdwy Stg 2	-	-	- 5.47 -
Follow-up Hdwy	2.227	-	- 3.563 3.363
Pot Cap-1 Maneuver	1013	-	- 242 531
Stage 1	-	-	- 573 -
Stage 2	-	-	- 587 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1013	-	- 240 531
Mov Cap-2 Maneuver	-	-	- 240 -
Stage 1	-	-	- 573 -
Stage 2	-	-	- 582 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	307
HCM Lane V/C Ratio	0.006	-	-	-	0.103
HCM Control Delay (s)	8.6	0	-	-	18.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection							
Int Delay, s/veh	1.6						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		↳			↶	↷	
Traffic Vol, veh/h	5	379	26	34	403	28	33
Future Vol, veh/h	5	379	26	34	403	28	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	0	0
Mvmt Flow	6	486	33	44	517	36	42

Major/Minor	Major1	Major2	Minor1				
Conflicting Flow All	-	0	0	519	0	1107	503
Stage 1	-	-	-	-	-	503	-
Stage 2	-	-	-	-	-	604	-
Critical Hdwy	-	-	-	4.12	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	2.218	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	-	1047	-	235	573
Stage 1	-	-	-	-	-	612	-
Stage 2	-	-	-	-	-	550	-
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1047	-	221	573
Mov Cap-2 Maneuver	-	-	-	-	-	221	-
Stage 1	-	-	-	-	-	612	-
Stage 2	-	-	-	-	-	518	-

Approach	EB	WB	NB
HCM Control Delay, s		0.7	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	331	-	-	1047	-
HCM Lane V/C Ratio	0.236	-	-	0.042	-
HCM Control Delay (s)	19.2	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	397	4	3	425	13	1	0	2	6	0	11
Future Vol, veh/h	11	397	4	3	425	13	1	0	2	6	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	2	2	2	0	0	0	0	0	0
Mvmt Flow	14	490	5	4	525	16	1	0	2	7	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	541	0	0	495	0	0	1067	1068	493	1061	1062	533
Stage 1	-	-	-	-	-	-	520	520	-	540	540	-
Stage 2	-	-	-	-	-	-	547	548	-	521	522	-
Critical Hdwy	4.13	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1023	-	-	1069	-	-	202	223	580	203	225	551
Stage 1	-	-	-	-	-	-	543	535	-	530	524	-
Stage 2	-	-	-	-	-	-	525	520	-	542	534	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1023	-	-	1069	-	-	193	218	580	198	220	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	218	-	198	220	-
Stage 1	-	-	-	-	-	-	533	525	-	520	521	-
Stage 2	-	-	-	-	-	-	510	517	-	529	524	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	15.5	16.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	348	1023	-	-	1069	-	-	338
HCM Lane V/C Ratio	0.011	0.013	-	-	0.003	-	-	0.062
HCM Control Delay (s)	15.5	8.6	0	-	8.4	0	-	16.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	405	431	5	0	5
Future Vol, veh/h	0	405	431	5	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	0	506	539	6	0	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	545	0	0	1048	542
Stage 1	-	-	-	542	-
Stage 2	-	-	-	506	-
Critical Hdwy	4.14	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.4	-
Follow-up Hdwy	2.236	-	-	3.5	3.3
Pot Cap-1 Maneuver	1014	-	-	255	544
Stage 1	-	-	-	587	-
Stage 2	-	-	-	610	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1014	-	-	255	544
Mov Cap-2 Maneuver	-	-	-	255	-
Stage 1	-	-	-	587	-
Stage 2	-	-	-	610	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1014	-	-	-	544
HCM Lane V/C Ratio	-	-	-	-	0.011
HCM Control Delay (s)	0	-	-	-	11.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

MOVEMENT SUMMARY

 Site: Puget Way & SR 104 - Int 6 Alt 2 - Road Closure 2027

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Pacific Avenue											
3	L2	13	0.0	0.026	12.1	LOS B	0.1	3.5	0.56	0.62	35.6
8	T1	5	0.0	0.026	6.0	LOS A	0.1	3.5	0.56	0.62	35.3
18	R2	9	0.0	0.026	5.9	LOS A	0.1	3.5	0.56	0.62	34.2
Approach		27	0.0	0.026	8.9	LOS A	0.1	3.5	0.56	0.62	35.1
East: SR 104											
1	L2	14	2.0	0.263	10.3	LOS B	1.4	36.7	0.25	0.41	37.6
6	T1	325	2.0	0.263	4.2	LOS A	1.4	36.7	0.25	0.41	37.4
16	R2	32	2.0	0.263	4.1	LOS A	1.4	36.7	0.25	0.41	36.1
Approach		371	2.0	0.263	4.5	LOS A	1.4	36.7	0.25	0.41	37.3
North: Puget Way											
7	L2	145	5.0	0.239	11.5	LOS B	1.3	33.5	0.48	0.66	35.5
4	T1	1	5.0	0.239	5.4	LOS A	1.3	33.5	0.48	0.66	35.4
14	R2	130	5.0	0.239	5.3	LOS A	1.3	33.5	0.48	0.66	34.3
Approach		276	5.0	0.239	8.6	LOS A	1.3	33.5	0.48	0.66	34.9
West: SR 104											
5	L2	71	4.0	0.338	10.8	LOS B	2.1	53.1	0.38	0.48	36.7
2	T1	357	4.0	0.338	4.6	LOS A	2.1	53.1	0.38	0.48	36.5
12	R2	13	4.0	0.338	4.6	LOS A	2.1	53.1	0.38	0.48	35.3
Approach		440	4.0	0.338	5.6	LOS A	2.1	53.1	0.38	0.48	36.5
All Vehicles		1114	3.5	0.338	6.0	LOS A	2.1	53.1	0.37	0.50	36.3

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay per movement

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: \\srv-dfs-wa\Projects\12\12085.02 - Port Gamble EIS 2013\2017 UPDATE - Port Gamble EIS\Traffic Analysis\Traffic Operations\Preferred Plan - Alt 2\Sidra\Puget Way & SR104 Alt2 2018-02-05.sip6

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	457	7	5	336	5	8
Future Vol, veh/h	457	7	5	336	5	8
Conflicting Peds, #/hr	0	17	16	0	17	16
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	4	4	1	1	0	0
Mvmt Flow	586	9	6	431	6	10

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	612
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	972
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	959
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	345	-	-	959	-
HCM Lane V/C Ratio	0.048	-	-	0.007	-
HCM Control Delay (s)	16	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	49	421	336	113	0	0
Future Vol, veh/h	49	421	336	113	0	0
Conflicting Peds, #/hr	12	0	0	6	6	12
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	3	3	0	0	0	0
Mvmt Flow	62	533	425	143	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	580	0	-	0	1172 521
Stage 1	-	-	-	-	509 -
Stage 2	-	-	-	-	663 -
Critical Hdwy	4.13	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.227	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	989	-	-	-	215 559
Stage 1	-	-	-	-	608 -
Stage 2	-	-	-	-	516 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	979	-	-	-	192 548
Mov Cap-2 Maneuver	-	-	-	-	192 -
Stage 1	-	-	-	-	602 -
Stage 2	-	-	-	-	465 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	979	-	-	-	-
HCM Lane V/C Ratio	0.063	-	-	-	-
HCM Control Delay (s)	8.9	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	0	0	5	444	411	5
Future Vol, veh/h	0	0	5	444	411	5
Conflicting Peds, #/hr	3	3	3	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	0	0	6	555	514	6

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1091	523	523	0	0
Stage 1	520	-	-	-	-
Stage 2	571	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	240	558	1043	-	-
Stage 1	601	-	-	-	-
Stage 2	569	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	237	555	1040	-	-
Mov Cap-2 Maneuver	237	-	-	-	-
Stage 1	599	-	-	-	-
Stage 2	563	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-
HCM Control Delay (s)	8.5	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	13	445	415	6
Future Vol, veh/h	4	5	13	445	415	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	5	6	16	549	512	7

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	1097	516	520	0	0
Stage 1	516	-	-	-	-
Stage 2	581	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	238	563	1046	-	-
Stage 1	603	-	-	-	-
Stage 2	563	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	233	563	1046	-	-
Mov Cap-2 Maneuver	233	-	-	-	-
Stage 1	603	-	-	-	-
Stage 2	551	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1046	-	346	-	-
HCM Lane V/C Ratio	0.015	-	0.032	-	-
HCM Control Delay (s)	8.5	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 2 Road Closure Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↑	↗		↙	↘		
Traffic Volume (veh/h)	168	790	600	362	315	116		
Future Volume (veh/h)	168	790	600	362	315	116		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1845	1900		
Adj Flow Rate, veh/h	173	814	619	373	325	120		
Adj No. of Lanes	1	1	1	0	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	197	1262	582	351	298	110		
Arrive On Green	0.11	0.68	0.53	0.53	0.24	0.24		
Sat Flow, veh/h	1774	1863	1090	657	1240	458		
Grp Volume(v), veh/h	173	814	0	992	446	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1747	1702	0		
Q Serve(g_s), s	13.3	34.7	0.0	74.1	33.3	0.0		
Cycle Q Clear(g_c), s	13.3	34.7	0.0	74.1	33.3	0.0		
Prop In Lane	1.00			0.38	0.73	0.27		
Lane Grp Cap(c), veh/h	197	1262	0	933	409	0		
V/C Ratio(X)	0.88	0.64	0.00	1.06	1.09	0.00		
Avail Cap(c_a), veh/h	214	1280	0	933	409	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	60.7	12.8	0.0	32.3	52.7	0.0		
Incr Delay (d2), s/veh	30.1	1.1	0.0	47.6	71.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.2	18.0	0.0	47.9	23.7	0.0		
LnGrp Delay(d),s/veh	90.8	13.9	0.0	79.9	124.1	0.0		
LnGrp LOS	F	B		F	F			
Approach Voi, veh/h		987	992		446			
Approach Delay, s/veh		27.4	79.9		124.1			
Approach LOS		C	E		F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	19.9	79.8				99.7		39.0
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	16.7	74.1				95.3		33.3
Max Q Clear Time (g_c+1), s	15.3	76.1				36.7		35.3
Green Ext Time (p_c), s	0.1	0.0				26.5		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			66.7					
HCM 2010 LOS			E					
Notes								

HCM 2010 Signalized Intersection Summary
11: SR 307 & SR 104

Port Gamble EIS
Future (2027) Alternative 1 Weekday PM Peak Hour_Mitigation



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	184	790	600	398	358	134		
Future Volume (veh/h)	184	790	600	398	358	134		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1845	1900		
Adj Flow Rate, veh/h	190	814	619	410	369	138		
Adj No. of Lanes	1	1	1	1	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	221	1083	779	662	395	148		
Arrive On Green	0.12	0.58	0.42	0.42	0.32	0.32		
Sat Flow, veh/h	1774	1863	1863	1583	1236	462		
Grp Volume(v), veh/h	190	814	619	410	508	0		
Grp Sat Flow(s), veh/h/ln	1774	1863	1863	1583	1701	0		
Q Serve(g_s), s	12.1	37.4	33.4	23.4	33.4	0.0		
Cycle Q Clear(g_c), s	12.1	37.4	33.4	23.4	33.4	0.0		
Prop In Lane	1.00			1.00	0.73	0.27		
Lane Grp Cap(c), veh/h	221	1083	779	662	544	0		
V/C Ratio(X)	0.86	0.75	0.79	0.62	0.93	0.00		
Avail Cap(c_a), veh/h	300	1314	926	787	698	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	49.5	17.9	29.2	26.3	38.0	0.0		
Incr Delay (d2), s/veh	16.9	2.0	4.1	1.1	17.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.9	19.8	17.9	10.5	18.2	0.0		
LnGrp Delay(d),s/veh	66.4	19.9	33.3	27.4	55.2	0.0		
LnGrp LOS	E	B	C	C	E			
Approach Vol, veh/h		1004	1029		508			
Approach Delay, s/veh		28.7	31.0		55.2			
Approach LOS		C	C		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	18.8	53.9				72.7		42.5
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	19.5	57.3				81.3		47.3
Max Q Clear Time (g_c+I1), s	14.1	35.4				39.4		35.4
Green Ext Time (p_c), s	0.2	12.8				17.7		1.4
Intersection Summary								
HCM 2010 Ctrl Delay			34.9					
HCM 2010 LOS			C					
Notes								

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 1 Road Closure Weekday PM Peak Hour_Mitigation



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↖	↗	↖	↗	↘	↘		
Traffic Volume (veh/h)	184	790	600	398	358	134		
Future Volume (veh/h)	184	790	600	398	358	134		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1845	1900		
Adj Flow Rate, veh/h	190	814	619	410	369	138		
Adj No. of Lanes	1	1	1	1	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	221	1083	779	662	395	148		
Arrive On Green	0.12	0.58	0.42	0.42	0.32	0.32		
Sat Flow, veh/h	1774	1863	1863	1583	1236	462		
Grp Volume(v), veh/h	190	814	619	410	508	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1701	0		
Q Serve(g_s), s	12.1	37.4	33.4	23.4	33.4	0.0		
Cycle Q Clear(g_c), s	12.1	37.4	33.4	23.4	33.4	0.0		
Prop In Lane	1.00			1.00	0.73	0.27		
Lane Grp Cap(c), veh/h	221	1083	779	662	544	0		
V/C Ratio(X)	0.86	0.75	0.79	0.62	0.93	0.00		
Avail Cap(c_a), veh/h	300	1314	926	787	698	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	49.5	17.9	29.2	26.3	38.0	0.0		
Incr Delay (d2), s/veh	16.9	2.0	4.1	1.1	17.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.9	19.8	17.9	10.5	18.2	0.0		
LnGrp Delay(d),s/veh	66.4	19.9	33.3	27.4	55.2	0.0		
LnGrp LOS	E	B	C	C	E			
Approach Vol, veh/h		1004	1029		508			
Approach Delay, s/veh		28.7	31.0		55.2			
Approach LOS		C	C		E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	18.8	53.9				72.7		42.5
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	19.5	57.3				81.3		47.3
Max Q Clear Time (g_c+I1), s	14.1	35.4				39.4		35.4
Green Ext Time (p_c), s	0.2	12.8				17.7		1.4
Intersection Summary								
HCM 2010 Ctrl Delay			34.9					
HCM 2010 LOS			C					
Notes								

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 2 Weekday PM Peak Hour_Mitigation



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	168	790	600	362	315	116		
Future Volume (veh/h)	168	790	600	362	315	116		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1845	1900		
Adj Flow Rate, veh/h	173	814	619	373	325	120		
Adj No. of Lanes	1	1	1	1	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	208	1124	824	700	355	131		
Arrive On Green	0.12	0.60	0.44	0.44	0.29	0.29		
Sat Flow, veh/h	1774	1863	1863	1583	1240	458		
Grp Volume(v), veh/h	173	814	619	373	446	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1702	0		
Q Serve(g_s), s	9.8	31.7	28.6	17.7	26.1	0.0		
Cycle Q Clear(g_c), s	9.8	31.7	28.6	17.7	26.1	0.0		
Prop In Lane	1.00			1.00	0.73	0.27		
Lane Grp Cap(c), veh/h	208	1124	824	700	487	0		
V/C Ratio(X)	0.83	0.72	0.75	0.53	0.92	0.00		
Avail Cap(c_a), veh/h	336	1524	1090	926	732	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	44.5	14.4	24.0	21.0	35.6	0.0		
Incr Delay (d2), s/veh	9.1	1.1	2.1	0.6	11.9	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.3	16.4	15.1	7.8	13.9	0.0		
LnGrp Delay(d),s/veh	53.6	15.5	26.1	21.6	47.5	0.0		
LnGrp LOS	D	B	C	C	D			
Approach Vol, veh/h		987	992		446			
Approach Delay, s/veh		22.2	24.4		47.5			
Approach LOS		C	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.6	51.3				67.9		35.2
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	19.5	60.3				84.3		44.3
Max Q Clear Time (g_c+I1), s	11.8	30.6				33.7		28.1
Green Ext Time (p_c), s	0.3	15.0				18.5		1.4
Intersection Summary								
HCM 2010 Ctrl Delay			27.8					
HCM 2010 LOS			C					
Notes								

HCM 2010 Signalized Intersection Summary
 11: SR 307 & SR 104

Port Gamble EIS
 Future (2027) Alternative 2 Road Closure Weekday PM Peak Hour_Mitigation



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶	↷	↶	↷	↶	↷		
Traffic Volume (veh/h)	168	790	600	362	315	116		
Future Volume (veh/h)	168	790	600	362	315	116		
Number	1	6	2	12	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1845	1900		
Adj Flow Rate, veh/h	173	814	619	373	325	120		
Adj No. of Lanes	1	1	1	1	0	0		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	208	1124	824	700	355	131		
Arrive On Green	0.12	0.60	0.44	0.44	0.29	0.29		
Sat Flow, veh/h	1774	1863	1863	1583	1240	458		
Grp Volume(v), veh/h	173	814	619	373	446	0		
Grp Sat Flow(s),veh/h/ln	1774	1863	1863	1583	1702	0		
Q Serve(g_s), s	9.8	31.7	28.6	17.7	26.1	0.0		
Cycle Q Clear(g_c), s	9.8	31.7	28.6	17.7	26.1	0.0		
Prop In Lane	1.00			1.00	0.73	0.27		
Lane Grp Cap(c), veh/h	208	1124	824	700	487	0		
V/C Ratio(X)	0.83	0.72	0.75	0.53	0.92	0.00		
Avail Cap(c_a), veh/h	336	1524	1090	926	732	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	44.5	14.4	24.0	21.0	35.6	0.0		
Incr Delay (d2), s/veh	9.1	1.1	2.1	0.6	11.9	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	5.3	16.4	15.1	7.8	13.9	0.0		
LnGrp Delay(d),s/veh	53.6	15.5	26.1	21.6	47.5	0.0		
LnGrp LOS	D	B	C	C	D			
Approach Vol, veh/h		987	992		446			
Approach Delay, s/veh		22.2	24.4		47.5			
Approach LOS		C	C		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.6	51.3				67.9		35.2
Change Period (Y+Rc), s	4.5	5.7				5.7		5.7
Max Green Setting (Gmax), s	19.5	60.3				84.3		44.3
Max Q Clear Time (g_c+I1), s	11.8	30.6				33.7		28.1
Green Ext Time (p_c), s	0.3	15.0				18.5		1.4
Intersection Summary								
HCM 2010 Ctrl Delay			27.8					
HCM 2010 LOS			C					
Notes								

Appendix D: Trip Generation Summary

Appendix D

Port Gamble Redevelopment Plan



Alternative 1 - Alternate Plan

Weekday PM Peak Hour Trip Generation

Proposed Land Use	ITE Code	Size	Units	Trip Rate ¹	Total Unadjusted Veh. Trips	Internal Capture Rate	Reduction for Internal Capture	Subtotal	Pass-by Rate ²	Reduction for Pass-by	New PM Peak Hour Trips ³		
											Total	In	Out
Rural Historic: Town Waterfront (RHTW)													
Hotel	310	100	Rooms	0.70	70	5%	-4	66		0	66	32	34
Restaurant	932	15,000	1,000 gsf	9.85	148	5%	-7	141	43%	-60	81	49	32
Retail	826	121,000	1,000 gsf	2.71	328	5%	-16	312	34%	-106	206	91	115
Research and Development Center	760	0	1,000 gsf	1.07	0	5%	0	0		0	0	0	0
Single-Family Detached Housing	210	0	DU	1.00	0	5%	0	0		0	0	0	0
Residential Townhouse	230	78	DU	0.52	41	5%	-2	39		0	39	26	13
Net New Trips					586		-29	557		-166	392	198	194
Rural Historic: Town Commercial (RHTC)													
Retail	826	35,000	1,000 gsf	2.71	95	5%	-5	90	34%	-30	60	26	34
Single-Family Detached Housing	210	0	DU	1	0	5%	0	0		0	0	0	0
Residential Townhouse	230	33	DU	0.52	17	5%	-1	16		0	16	11	5
Net New Trips					112		-6	106		-30	76	37	39
Rural Historic: Town Residential (RHTR)													
Single-Family Detached Housing	210	104	DU	1.00	104	5%	-5	99		0	99	62	37
Residential Townhouse	230	40	DU	0.52	21	5%	-1	20		0	20	13	7
Net New Trips					125		-6	119		0	119	75	44
Rural Residential/Rural Wooded (RR/RW)													
Single-Family Detached Housing	210	10	DU	1.00	10	5%	-1	9		0	9	6	3
West Sound Wildlife Shelter	141,000	3	1,000 gsf	1.59	23	5%	-1	22		0	22	7	15
Brewery/Winery ⁴		3	Brewery/Winery	20.00	60	5%	-3	57		0	57	29	28
Net New Trips					93		-5	88		0	88	42	46
Total Net New Trips					916		-46	870		-196	675	352	323

1. Trip Rates from ITE Trip Generation Manual, 9th Edition (2012), average trip rate used
 2. Pass-by rates for the Retail and Restaurant uses based on ITE Trip Generation Handbook, 3rd Edition (2014).
 3. In/out percentages based on ITE Trip Generation Manual, 9th Edition (2012).
 4. Assumed to be three Brewery/Winery based on email from Ryan Kohlmann.

Appendix D

Port Gamble Redevelopment Plan



Alternative 2 - Pre-Plat Preferred Plan

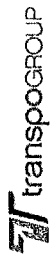
Weekday PM Peak Hour Trip Generation

Proposed Land Use	ITE Code	Size	Units	Trip Rate ¹	Total Unadjusted Veh. Trips	Internal Capture Rate	Reduction for Internal Capture	Subtotal	Pass-by Rate ²	Reduction for Pass-by	New PM Peak Hour Trips ³	
											Total	In
Rural Historic Town Waterfront (RH1W)												
Hotel	310	100	Rooms	0.70	70	5%	-4	66		0	32	34
Restaurant	832	15,000	1,000 gsf	9.85	148	5%	-7	141	43%	-60	49	32
Retail	826	0	1,000 gsf	2.71	0	5%	0	0	34%	0	0	0
Research and Development Center	760	0	1,000 gsf	1.07	0	5%	0	0		0	0	0
Single-Family Detached Housing	210	0	DU	1.00	0	5%	0	0		0	0	0
Residential Townhouse	230	39	DU	0.52	20	5%	-1	19		0	13	6
Net New Trips					238		-12	226		-60	94	72
Rural Historic Town Commercial (RH1C)												
Retail	826	35,000	1,000 gsf	2.71	95	5%	-5	90	34%	-30	26	34
Residential Condominium	230	33	DU	0.52	17	5%	-1	16		0	11	5
Net New Trips					112		-6	106		-30	37	39
Rural Historic Town Residential (RH1R)												
Single-Family Detached Housing	210	104	DU	1.00	104	5%	-5	99		0	62	37
Residential Condominium	230	40	DU	0.52	21	5%	-1	20		0	13	7
Net New Trips					125		-6	119		0	75	44
Rural Residential Rural Wooded (RR1RW)												
Single-Family Detached Housing	210	10	DU	1.00	10	5%	-1	9		0	6	3
West Sound Wildlife Shelter	-	14,300	1,000 gsf	1.03	23	5%	-1	22		0	7	15
Brewery/Winery ⁴	-	3	Brewery/Winery	20.00	60	5%	-3	57		0	29	28
Net New Trips					93		-5	88		0	42	46
Total Net New Trips					568		-29	539		-90	248	201

1. Trip Rates from ITE Trip Generation Manual, 9th Edition (2012), average trip rate used
 2. Pass-by rates for the Retail and Restaurant uses based on ITE Trip Generation Handbook, 3rd Edition (2014).
 3. In/out percentages based on ITE Trip Generation Manual, 9th Edition (2012).
 4. Assumed to be three Brewery/Winery based on email from Ryan Kohlmann.

Appendix D

Port Gamble Redevelopment Plan



No Action - Scenario B

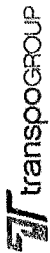
Weekday, PM Peak Hour Trip Generation

Proposed Land Use	ITE Code	Size	Units	Trip Rate ¹	Total Unadjusted Veh. Trips	Internal Capture Rate	Reduction for Internal Capture	Subtotal	Pass-by Rate ²	Reduction for Pass-by	New PM Peak Hour Trips ³		
											Total	In	Out
Rural/Historic Town Waterfront (RHTW)													
Hotel	310	0	Rooms	0.70	0	5%	0	0	0	0	0	0	
Restaurant	932	0	1,000 gsf	9.85	0	5%	0	0	43%	0	0	0	
Retail	826	0	1,000 gsf	2.71	0	5%	0	0	34%	0	0	0	
Industrial Park	130	200,000	1,000 gsf	0.85	170	5%	-8	161	0	0	161	127	
Single-Family Detached Housing	210	0	DU	1.00	0	5%	0	0	0	0	0	0	
Residential Townhouse	230	0	DU	0.52	0	5%	0	0	0	0	0	0	
Net New Trips					170		-9	161		0	161	127	
Rural/Historic Town Commercial (RHIC)													
Retail	826	34,490	1,000 gsf	2.71	93	5%	-5	88	34%	-30	58	32	
Restaurant	932	5,000	1,000 gsf	9.85	49	5%	-2	47	43%	-20	27	11	
Residential Townhouse	230	17	DU	0.52	9	5%	0	9	0	0	9	3	
Net New Trips					152		-7	145		-50	94	48	
Rural/Historic Town Residential (RTR)													
Single-Family Detached Housing	210	127	DU	1.00	127	5%	-6	121	0	0	121	45	
Residential Townhouse	230	10	DU	0.52	5	5%	0	5	0	0	5	2	
Net New Trips					132		-6	126		0	126	47	
Rural Residential/Rural/Wooded (RR/RW)													
Single-Family Detached Housing	210	11	DU	1.00	11	5%	-1	10	0	0	10	4	
Brewery/Minery	-	0	Brewery/Minery	20.00	0	5%	0	0	0	0	0	0	
Net New Trips					11		-1	10		0	10	4	
Total Net New Trips					465		-23	442		-50	391	224	

1. Trip Rates from ITE Trip Generation Manual, 9th Edition (2012), average trip rate used
 2. Pass-by rates for the Retail and Restaurant uses based on ITE Trip Generation Handbook, 3rd Edition (2014).
 3. In/out percentages based on ITE Trip Generation Manual, 9th Edition (2012).

Appendix D

Port Gamble Redevelopment Plan



No Action - Scenario C

Weekday PM Peak Hour Trip Generation

Proposed Land Use	ITE Code	Size	Units	Trip Rate ¹	Total Unadjusted Veh. Trips	Internal Capture Rate	Reduction for Internal Capture	Subtotal	Pass-by Rate ²	Reduction for Pass-by	New PM Peak Hour Trips ³	
											Total	In
Rural/Historic Town Waterfront (RH/TW)												
Hotel	310	0	Rooms	0.70	0	5%	0	0	0	0	0	0
Restaurant	932	0	1,000 gsf	9.85	0	5%	0	0	0	0	0	0
Retail	826	0	1,000 gsf	2.71	0	5%	0	0	43%	0	0	0
Research and Development Center	760	0	1,000 gsf	0.85	0	5%	0	0	34%	0	0	0
Single-Family Detached Housing	210	0	DU	1.00	0	5%	0	0	0	0	0	0
Residential Townhouse	230	0	DU	0.52	0	5%	0	0	0	0	0	0
Net New Trips					0		0	0	0	0	0	0
Rural/Historic Town Commercial (RH/C)												
Retail	826	34,490	1,000 gsf	2.71	93	5%	-5	88	34%	-30	58	32
Restaurant	932	5,000	1,000 gsf	9.85	49	5%	-2	47	43%	-20	27	11
Residential Townhouse	230	21	DU	0.52	11	5%	-1	10	0	0	10	7
Net New Trips					154		-8	146		-50	95	46
Rural/Historic Town Residential (RH/R)												
Single-Family Detached Housing	210	127	DU	1.00	127	5%	-6	121	0	0	121	76
Residential Townhouse	230	10	DU	0.52	5	5%	0	5	0	0	5	3
Net New Trips					132		-6	126		0	126	79
Rural/Residential/Rural Wooded (RR/RW)												
Single-Family Detached Housing	210	11	DU	1.00	11	5%	-1	10	0	0	10	6
Brewery/Winery	-	0	Brewery/Winery	20.00	0	5%	0	0	0	0	0	0
Net New Trips					11		-1	10		0	10	6
Total Net New Trips					297		-15	282		-50	231	97

1. Trip Rates from ITE Trip Generation Manual, 9th Edition (2012), average trip rate used
 2. Pass-by rates for the Retail and Restaurant uses based on ITE Trip Generation Handbook, 3rd Edition (2014).
 3. In/out percentages based on ITE Trip Generation Manual, 9th Edition (2012).