

Transportation Impact Analysis

RESORT SEMIAHMOO ZONE 3

Prepared for:
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June 2016

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Introduction

The purpose of this transportation impact analysis (TIA) is to identify potential transportation-related impacts associated with the proposed Resort Semiahmoo Zone 3 mixed use development.

Project Description

The project is a mixed use development that is primarily residential but also includes 5,000 square-feet of retail and 24,000 square-feet of storage providing 60 storage units. The residential component of the development is still being evaluated but includes mixes of single family, multifamily, and duplex units. The residential uses included for the analysis assume the higher unit options being considered which are 44 single family dwelling units, 41 multifamily units, and 22 duplex units (equivalent of 44 single family dwelling units).

In addition, part of the project site is a 1.75-acre area that is being considered to be developed as a City park; however, if it is not developed as a City park it would be developed as residential units. If developed as residential units this would include 7 single family dwelling units and 4 duplex units, resulting in an overall residential development of 51 single family dwelling units, 41 multifamily units, and 26 duplex units (equivalent of 52 single family dwelling units). The proposed residential unit estimate is conservative. It is possible that a lower unit count would be constructed.

The project will provide 37 parking spaces as well as 2 parking spaces per residential unit. In addition, if the 1.75-acre area is developed as a City park, 12 parking spaces would be provided for that use.

It is anticipated that the project would be completed, fully occupied, and generating traffic by 2020. Figure 1 illustrates the project site and surrounding vicinity.

A preliminary site plan is shown in Figure 2. As shown in the site plan, site access is proposed via two access points. The first access is proposed as the fourth leg (the west leg) of the Semiahmoo Parkway/Gleneagle intersection and the second access is proposed along Semiahmoo Drive/Drayton Harbor Road, west of the Semiahmoo Parkway / Semiahmoo Drive intersection.

Study Area

The analysis focuses on the weekday PM peak period (busiest one hour between 4:00 to 6:00 p.m.) operations at two intersections as well as a proposed site access. This period represents the highest cumulative total traffic for the adjacent street system providing a conservative timeframe for level of service (LOS) analysis. The study intersections include (see also Figure 1):

1. Semiahmoo Parkway / Semiahmoo Drive
2. Semiahmoo Parkway / Gleneagle Drive

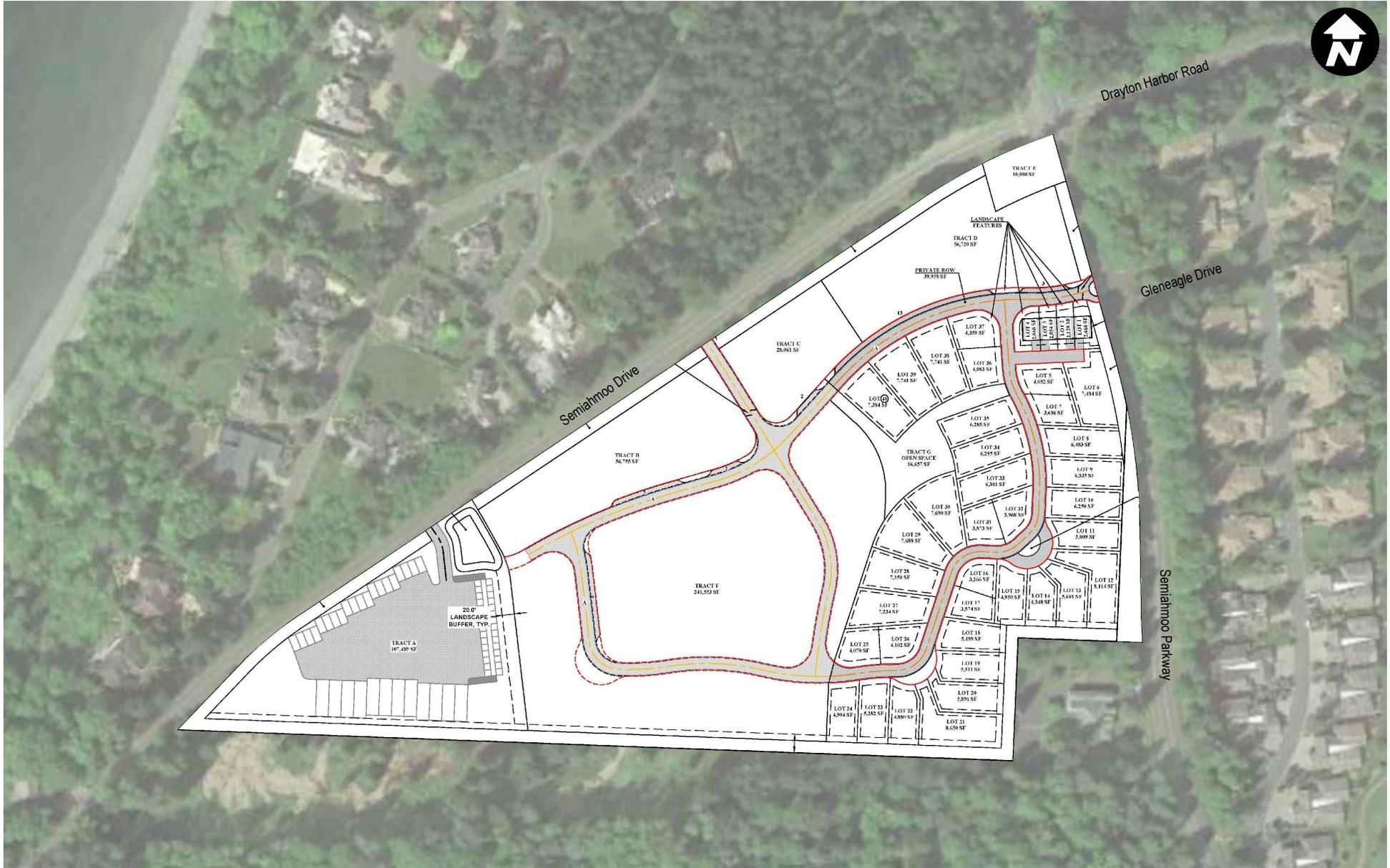


Site Vicinity and Study Intersections

Resort Semiahmoo Zone 3

FIGURE

1



Preliminary Site Plan

Resort Semiahmoo Zone 3

FIGURE

2

Existing and Future Without-Project Conditions

This section describes existing and future without-project conditions within the identified study area. Characteristics are provided for the roadway network, non-motorized facilities, transit service, existing and future without-project traffic volumes, traffic operations, and traffic safety.

Roadway Network

The project site is bounded by Semiahmoo Drive to the northwest and Semiahmoo Parkway to the east. The major roadways within the study area include:

Semiahmoo Parkway is a two-lane major collector south of Semiahmoo Drive and a minor collector north of Semiahmoo Drive. In the project vicinity, paved shoulders exist along both sides of the road, with no curbs, gutter or sidewalks. The posted speed limit is 35 mph. A trail runs along one side within City limits.

Semiahmoo Drive is a two-lane major collector that runs west of Semiahmoo Parkway. Unpaved shoulders exist along both sides of the roadway, with no curbs or sidewalks along either side. A trail is provided along the south side of the roadway, in the project vicinity. The posted speed limit is 35 to 45 mph.

Drayton Harbor Road is a two-lane minor collector that runs east of Semiahmoo Parkway. Unpaved shoulders exist along both sides of the roadway, with no curbs or sidewalks along either side. The posted speed limit is 35 mph. A trail runs along one side within City limits.

Gleneagle Drive is a two-lane roadway classified as a local road providing access to an existing residential development east of Semiahmoo Parkway.

The study intersections are either side-street stop controlled or all-way stop controlled intersections. The Semiahmoo Parkway/Glencagle intersection and proposed site access along Semiahmoo Drive are side-street stop controlled intersections and the Semiahmoo Parkway / Semiahmoo Drive intersection is an all-way stop-controlled intersection.

Non-Motorized Facilities

The study area has both regional recreation and community trails. Regional recreational trails have a county-wide significance drawing users from throughout the region and community trails link neighborhoods, major parks, schools, commercial centers, and other destinations throughout the City. The nearest trail, is a paved trail along the south side of Semiahmoo Drive along the project frontage. In addition, there are two regional recreational trails including the Semiahmoo Split Loop Trail and Coast Millennium Trail. The Semiahmoo Spit trail is an eight-foot bicycle/pedestrian path that parallels Semiahmoo Parkway and is separated by a planting strip which loops around the entire Spit and extends along Semiahmoo Parkway adjacent to the north side of the proposed project site. The Coast Millennium Trail travels from Birch Bay through Semiahmoo across Drayton Harbor on the foot-ferry¹ then along Marine Drive and to the United States/Canadian border. As discussed previously, no sidewalk facilities are provided along most of the roadways within the study area.

¹ The foot-ferry is seasonal and provides a pedestrian link between Semiahmoo Spit and the Wharf District or West Blaine to Central Blaine.

Transit and Ferry Service

Whatcom Transit Authority (WTA) serves the City of Blaine with two routes serving downtown Blaine provide service to Cordata and Bellingham; however, no routes are provided in the vicinity of the project. Although, no routes are available within the vicinity of the project, WTA provides Zone Service to the site area. WTA Zone Service provides limited transit service to rural areas with advance reservations, which is limited to Monday thru Thursday within the project area zone.

Excursion passenger ferry service is provided seasonally north of the project site between the Spit across Drayton Harbor to Blaine on Fridays, Saturdays and Sundays between Memorial Day and Labor Day. The ferry is owned by the City of Blaine and leased to the Drayton Harbor Maritime Society.

Planned Improvements

Based on a review of the City of Blaine's *Six-Year (2016-2021) Transportation Improvement Program (TIP)*, no funded improvements were identified that would change existing conditions at the study intersections. An unfunded improvement was identified which would resurface Semiahmoo Parkway from Drayton Harbor Road to the City Limits, approximately 1.5 miles that is anticipated to occur in 2018; however, this project would not change the existing capacity at the study intersections.

Traffic Volumes

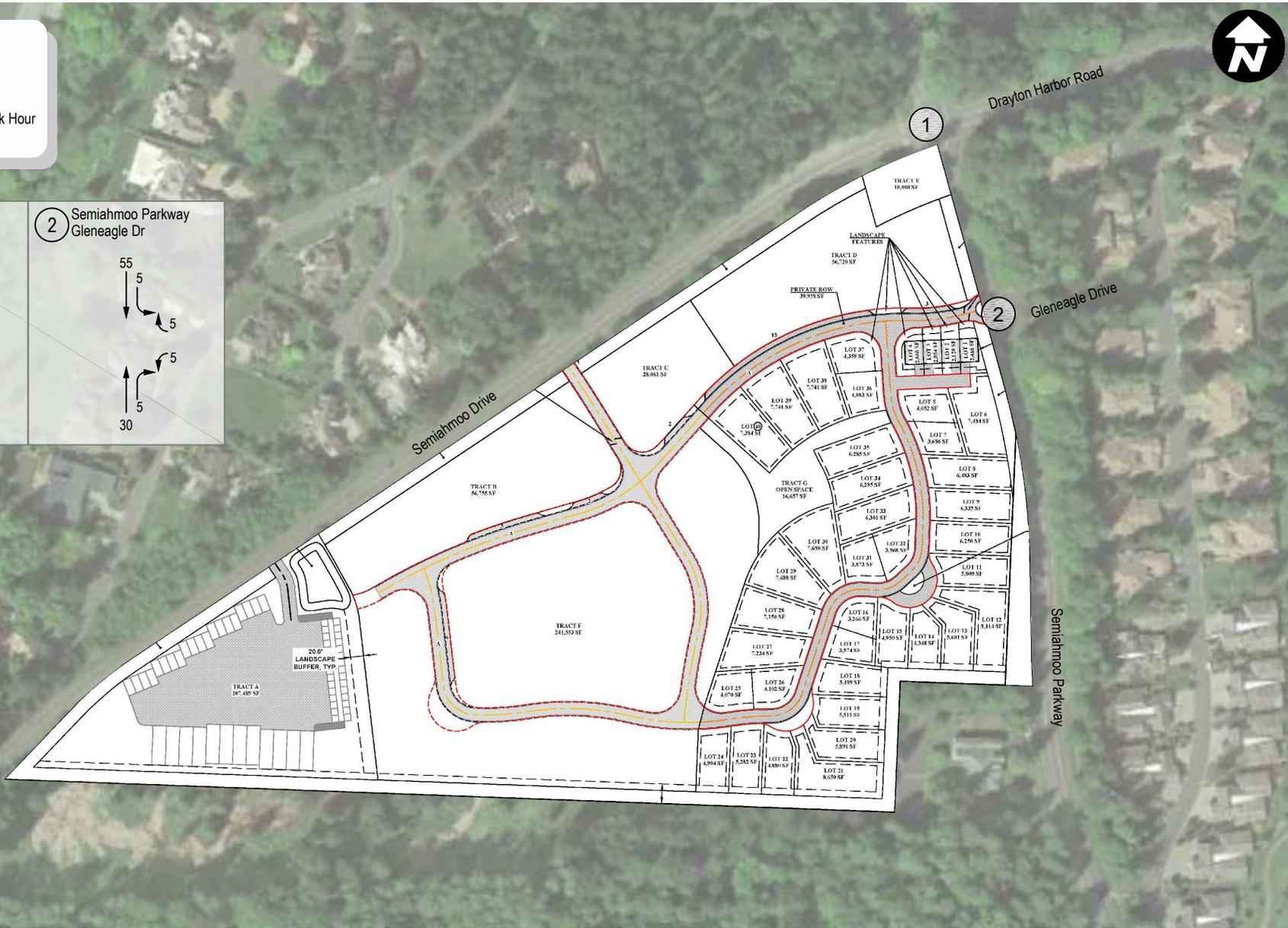
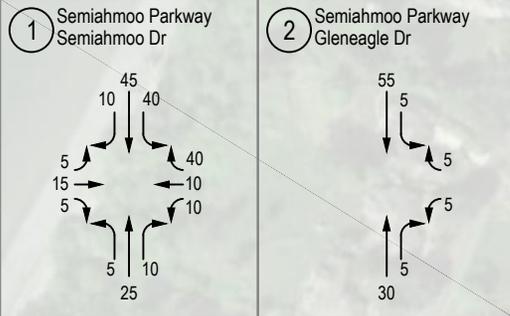
Figure 3 illustrates existing weekday PM peak hour traffic volumes at the study intersections. Traffic counts were collected at each study intersection in May 2016. Detailed intersection traffic counts are provided in Appendix A. Traffic volumes were rounded to the nearest five vehicles since weekday volumes fluctuate day-to-day.

Future without-project weekday PM peak hour traffic volumes were estimated by increasing existing traffic volumes by 2 percent per year to 2020 and adding traffic generated by 2 pipeline developments within the vicinity of the project identified through coordination with City staff, and consistent with previous studies in the vicinity of the project. This growth rate is consistent with previous studies in the vicinity of the site. The pipeline projects included are Semiahmoo Spit Master Plan and Semiahmoo Shores.

Figure 4 illustrates the future 2020 without-project weekday PM peak hour traffic volumes at the study intersections.

Legend

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



Existing Weekday PM Peak Hour Traffic Volumes

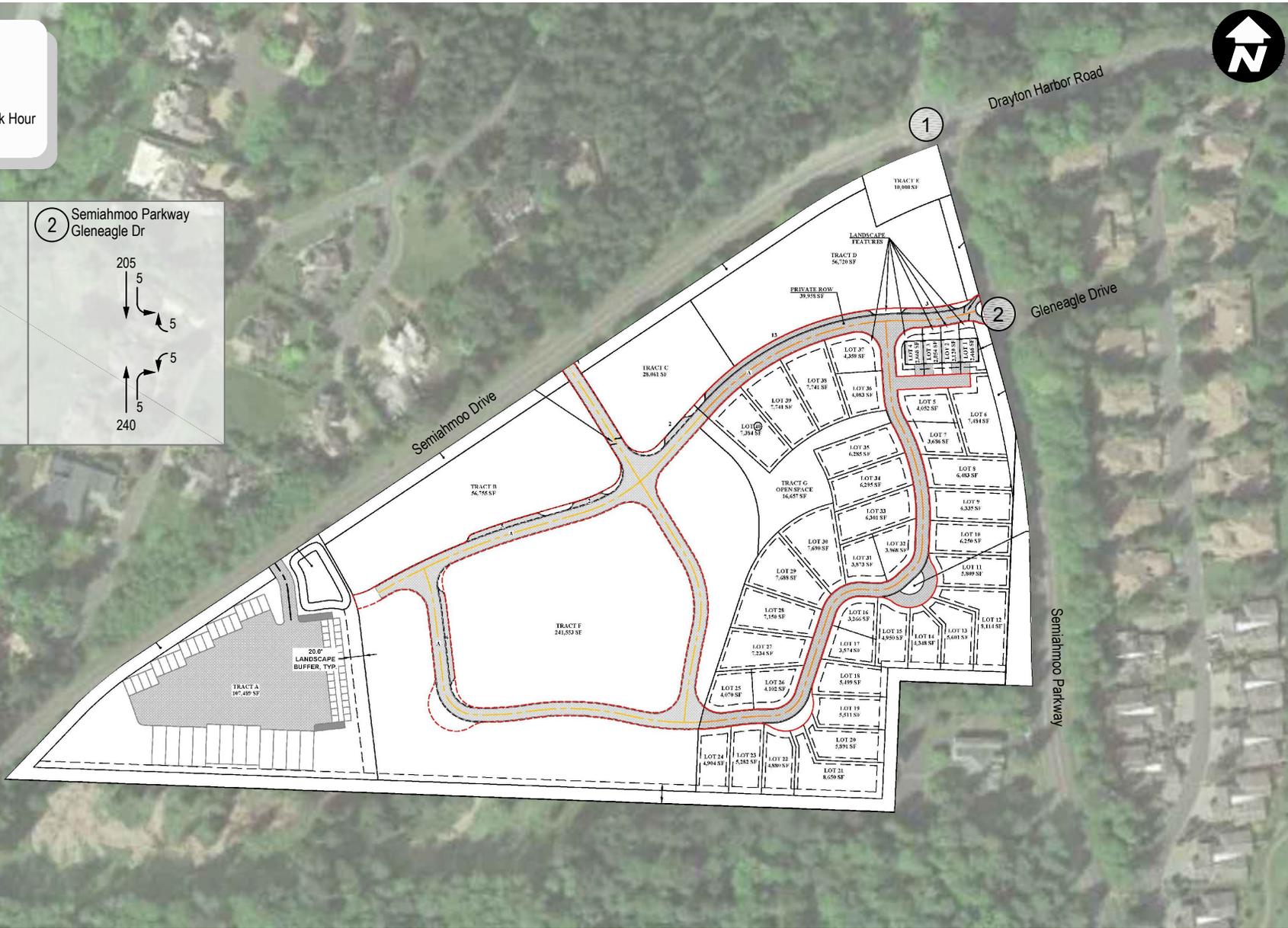
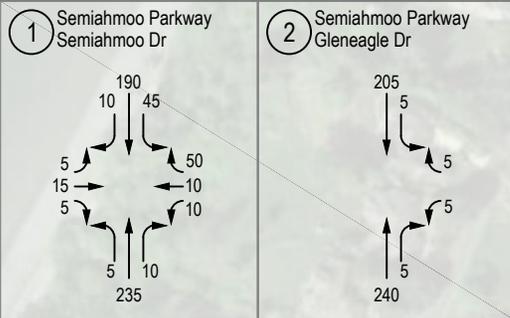
Resort Semiahmo Zone 3

FIGURE

3

Legend

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



Future (2020) Without-Project Weekday PM Peak Hour Traffic Volumes

Resort Semiahmoo Zone 3

FIGURE

4



Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). For all-way stop controlled locations, LOS is measured in average delay per vehicle and is reported for the intersections as a whole. At side-street stop-controlled intersections, LOS is measured in average delay per vehicle and is reported for the worst operating approach or movement 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.

Weekday PM peak hour traffic operations for existing and future without-project conditions were evaluated at the study intersections based on the procedures identified in the *Highway Capacity Manual (HCM)* (2010), and were evaluated using the *Synchro 9* software program. Based on the City of Blaine's *Comprehensive Plan* (2006), the City has adopted an LOS D or better standard. Table 1 summarizes the existing and future without-project weekday PM peak hour LOS at study intersections. The detailed LOS worksheets are included in Appendix C.

Table 1. Existing and Without-Project Weekday Peak Hour Levels of Service

Intersections	2016 Existing			2020 Without-Project		
	LOS ¹	Delay ²	WM ³	LOS	Delay	WM
1. Semiahmoo Parkway / Drayton Harbor Rd	A	8		A	10	
2. Semiahmoo Parkway / Gleneagle Dr	A	9	WB	B	11	WB

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 2010)

2. Average delay per vehicle in seconds.

3. Worst movement reported for unsignalized intersections; WB = westbound approach

As shown in Table 1, all study intersections currently operate at LOS B or better under both existing and future without-project conditions during the PM peak hour, meeting the City's LOS D or better standard.

Traffic Safety

Collision records were reviewed at the study intersections to document any potential traffic safety issues. The most recent summary of collision data from WSDOT is for the three-year period between January 1, 2013 and December 31, 2015. A historical review of collisions was conducted at the study intersections and no collisions were found to be reported during the three-year period.

Project Impacts

This section of the analysis documents potential project-generated impacts on the surrounding street network and study intersections. First, estimated traffic volumes generated by the proposed project are distributed and assigned to the adjacent street system. Next, project trips are added to future without-project traffic volumes and any potential impacts to traffic operations, non-motorized, and safety are identified. Site access operations are also discussed.

Trip Generation

Trip generation for the proposed mixed-use development is summarized in Table 2. Estimates for the project-generated vehicle trips were calculated using average peak hour trip rates for single-family detached housing, apartments, self-storage, City park, and retail published by the Institute of Transportation Engineers (ITE) in *Trip Generation* (9th Edition, 2012). As described previously, the proposed project would construct 44 single family dwelling units, 22 duplex units (equivalent to 44 single family dwelling units), 41 multi-family units, 5,000 square-feet of retail, and 24,000 square-feet of storage providing 60 storage units. In addition, a 1.75-acre area of the site would either be constructed as City park or as residential including 7 single family dwelling units and 4 duplex units. Both of these options are shown in the Table below.

Table 2. Estimated Weekday PM Peak Hour Project Trip Generation

Land Use ¹	Size	Single Family Equivalent	PM Rate	Pass-by			PM Peak Hour Trips			
				Total	%	Total	%	In	Out	Total
Apartments (#220)	41 DU	-	0.62	25	-	65%	16	9	25	
Single Family Detached Housing (#210)	44 DU	-	1.00	44	-	63%	28	16	44	
Duplex ²	22	44	1.00	44	-	63%	28	16	44	
Mini-Warehouse (#151)	24,000 sf	-	0.26	6	-	50%	3	3	6	
Retail (#820)	5,000 sf	-	3.71	19	34%	-6	48%	6	7	13
Subtotal				138				81	51	132
1.75 Acre Area										
<u>Option 1</u>										
City Park (#411)	1.75 Acres	-	3.50	6	-	57%	3	3	6	
<u>Option 2</u>										
Single Family Detached Housing (#210)	7	-	1.00	7	-	63%	4	3	7	
Duplex	4	8	1.00	8	-	63%	5	3	8	
Option 2 Subtotal				15			9	6	15	
Total New Trips With Option 1							84	54	138	
Total New Trips With Option 2							90	57	147	

Note: DU = Dwelling Units, sf = square-feet

1. Trip generation estimates based on the number of units and the average daily and peak hour trip rates from ITE *Trip Generation*, 9th Edition (2012).
2. Duplex evaluated as single family detached housing (#210) assuming 1 duplex is equivalent to 2 single family dwelling units.

The proposed project would generate approximately 138 to 147 new weekday PM peak hour trips depending on if the 1.75-acre area of the site is developed as a park or as residential, respectively. A range of 84 to 90 inbound and 54 to 57 outbound weekday PM peak hour trips

are estimated for the two options. As noted above, this estimate is conservative as it is possible that a lower residential unit count would be constructed.

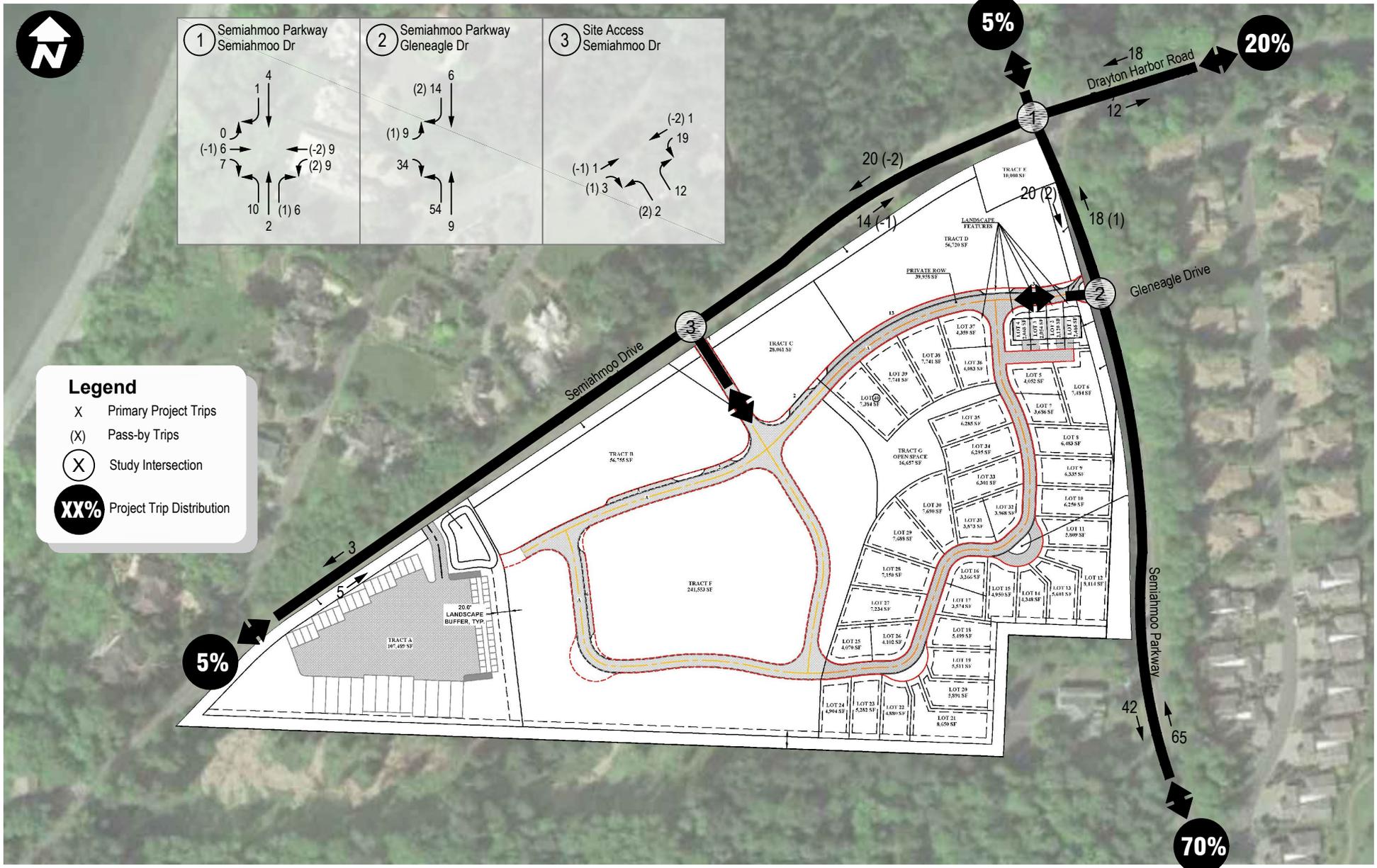
Trip Distribution and Assignment

Project trip distribution was estimated based on existing travel patterns in the study area and previous projects submitted in the vicinity of the project. Figure 5 illustrates the anticipated trip distribution during the weekday PM peak hours. As shown in Figure 5, the trips are distributed with approximately 20 percent to/from the east along Drayton Harbor Road and 70 percent to/from the south along Semiahmoo Parkway and 5 percent to/from the north via Semiahmoo Parkway to the Spit and to/from the west via Semiahmoo Drive.

Weekday PM peak hour project trips were assigned to the study intersections based on the travel patterns described above. In order to provide a conservative analysis, the higher trip generation estimates (Option 2 – the 1.75-acre area being developed as residential) were assumed. The resulting trip assignment is shown in Figure 5.

Future With-Project Traffic Volumes

Site-generated weekday PM peak hour traffic volumes were added to the future without-project traffic volumes at the study intersections. The resulting future (2020) with-project peak hour traffic volumes are illustrated in Figure 6.

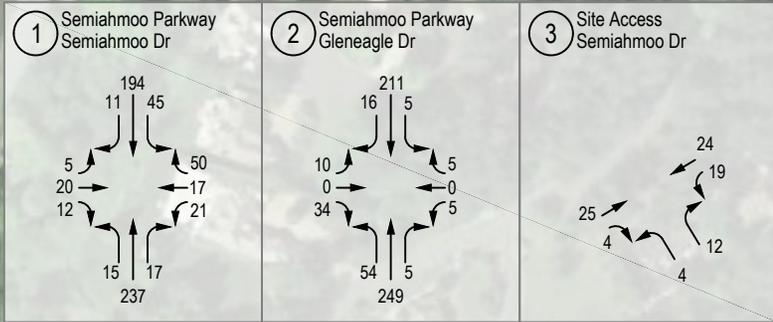


Project Trip Distribution and Assignment

Resort Semiahmoo Zone 3

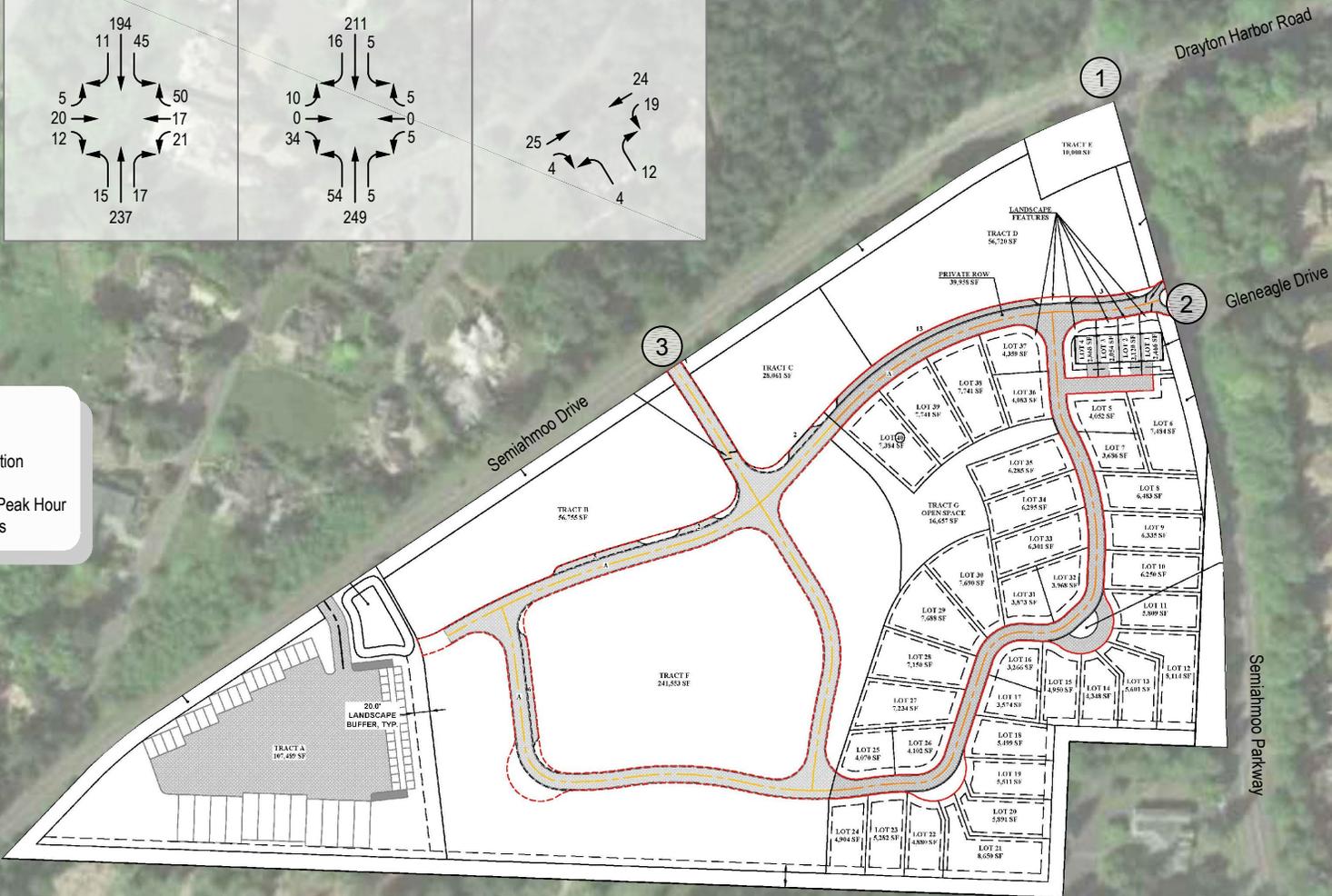
FIGURE

5



Legend

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



Future (2020) Without-Project Weekday PM Peak Hour Traffic Volumes

Resort Semiahmoo Zone 3

FIGURE

Future With-Project Traffic Operations

Future 2020 with-project study intersection operations were evaluated for the weekday PM peak hours. Intersection LOS was calculated using the methodology described previously. The without-project conditions are compared to the with-project conditions to understand the potential traffic impacts of the proposed project. Table 3 summarizes the 2020 without and with-project intersection operations for the weekday PM peak hours. LOS worksheets are included in Appendix C.

Table 3. Future With-Project Weekday Peak Hour Levels of Service

Intersections	2020 Without-Project			2020 With-Project		
	LOS ¹	Delay ²	WM ³	LOS	Delay	WM
1. Semiahmoo Parkway / Drayton Harbor Rd	A	10		A	10	
2. Semiahmoo Parkway / Gleneagle Dr / Site Access	B	11	WB	B	14	WB
3. Site Access / Semiahmoo Dr	-	-	-	A	9	NB

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 2010)
 2. Average delay per vehicle in seconds.
 3. Worst movement reported for unsignalized intersections; NB = northbound approach, WB = westbound approach.

As shown in Table 3, all study intersections are anticipated to operate at LOS B or better under future with-project conditions during the PM peak hour adding approximately 3 seconds of delay or less compared with without-project conditions, meeting the City’s LOS D or better standard.

Site Access Analysis

The proposed project has two proposed accesses; the first via a new west leg of the Semiahmoo Parkway/Gleneagle intersection and the second access along Semiahmoo Drive/Drayton Harbor Road, west of the Semiahmoo Parkway / Semiahmoo Drive intersection (see Figure 2).

As shown in Table 3 above, the proposed site accesses operate at LOS B or better under with-project conditions during the weekday PM peak hour.

The potential need for left- and right-turn lanes were identified using Washington State Department of Transportation (WSDOT) guidelines Exhibits 1310-7a and 1310-11, respectively, which are shown in Appendix D. A left-turn lane is not needed for capacity at either site access per Exhibit 1310-7a as the total entering volumes are below 300 vehicles at both site access intersections (see Figure 6) and left-turn volumes into the site accesses are less than 30 vehicles, or less than 15 percent of the total volumes. Additionally, no right-turn lane is recommended per Exhibit 1310-11 for the site accesses as the peak approach (through plus right-turn) volumes at either site access are less than 100 vehicles with at most 25 right-turn vehicles.

Non-Motorized Facilities

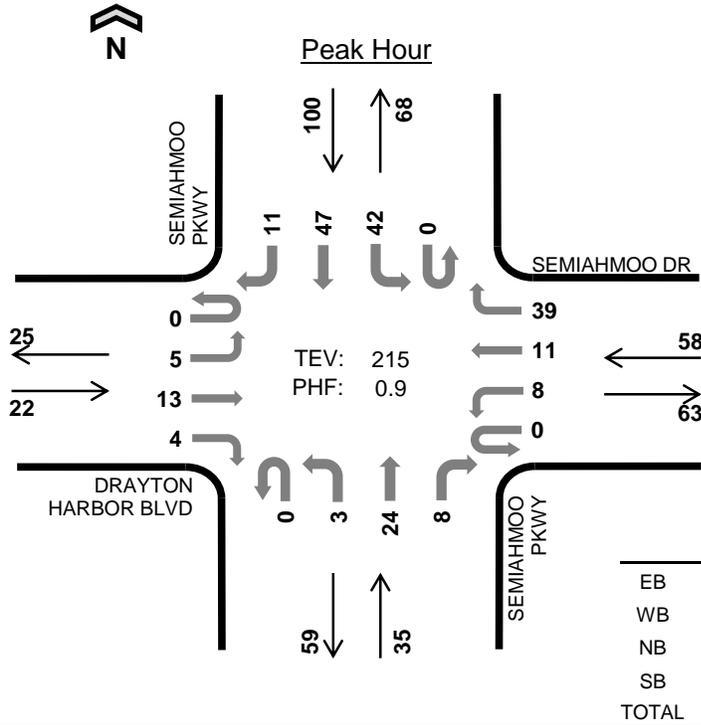
The internal roadway through the project site would provide pedestrian and bicycle access to and from Semiahmoo Drive and Semiahmoo Parkway and connection to the regional and community trail system. Additionally, pedestrian and bicycle facilities would be provided including connections to and from the Semiahmoo Spit.

Findings and Recommendations

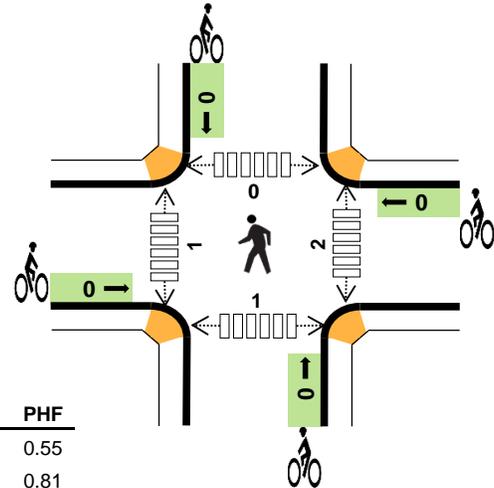
General findings and recommendations of the transportation impact analysis are summarized below.

- The proposed project would construct 44 single family dwelling units, 22 duplex units (equivalent to 44 single family dwelling units), 41 multi-family units, 5,000 square-feet of retail, and 24,000 square-feet of storage providing 60 storage units. In addition, a 1.75-acre area of the site would either be constructed as City park or as residential including 7 single family dwelling units and 4 duplex units.
- The proposed residential project would generate approximately 138 to 147 new weekday PM peak hour vehicular trips with approximately 84 to 90 inbound and 54 to 57 outbound trips, depending on if the 1.75-acre area of the site is developed as a park or as residential, respectively.
- All study intersections are forecast to operate at LOS B or better with the addition of project traffic and meet the City's LOS standard.
- Access to the project site would be provided via two site accesses, one via a new west leg of the Semiahmoo Parkway/Gleneagle intersection and the other access along Semiahmoo Drive/Drayton Harbor Road, west of the Semiahmoo Parkway / Semiahmoo Drive intersection. Both site access intersections would operate at LOS B or better during the weekday PM peak hours and neither location meets left- or right-turn lane warrants.
- No mitigation measures are required as all off-site study intersections continue to meet the LOS standards.

SEMIAMMOO PKWY SEMIAMMOO DR



Date: Wed, May 11, 2016
 Count Period: 4:00 PM to 6:00 PM
 Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	0.0%	0.55
WB	0.0%	0.81
NB	0.0%	0.67
SB	0.0%	0.83
TOTAL	0.0%	0.90

Two-Hour Count Summaries

Interval Start	DRAYTON HARBOR BLVD				SEMIAMMOO DR				SEMIAMMOO PKWY				SEMIAMMOO PKWY				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	3	6	1	0	2	4	9	0	0	10	3	0	6	16	0	60	0
4:15 PM	0	0	1	0	0	5	3	9	0	1	3	0	0	16	8	5	51	0
4:30 PM	0	0	1	1	0	0	2	6	0	1	5	5	0	13	13	4	51	0
4:45 PM	0	2	5	2	0	1	2	15	0	1	6	0	0	7	10	2	53	215
5:00 PM	0	0	1	1	0	2	2	6	0	3	7	0	0	9	8	2	41	196
5:15 PM	0	0	2	1	0	1	5	7	0	4	4	0	0	4	2	0	30	175
5:30 PM	0	0	0	0	0	2	5	8	0	2	6	2	0	13	6	1	45	169
5:45 PM	0	1	0	1	0	0	3	5	0	0	2	4	0	6	10	0	32	148
Count Total	0	6	16	7	0	13	26	65	0	12	43	14	0	74	73	14	363	0
Peak Hour	0	5	13	4	0	8	11	39	0	3	24	8	0	42	47	11	215	0

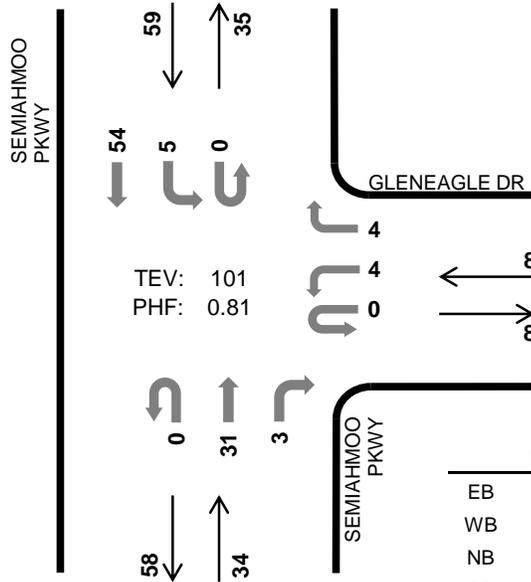
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

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	0	0	0	0	0	0	0	0	1	0	1	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	3	0	3	0	0	0	0	0	2	1	0	1	4
Peak Hour	0	0	0	0	0	0	0	0	0	0	2	1	0	1	4

SEMIAMMOO PKWY GLENEAGLE DR

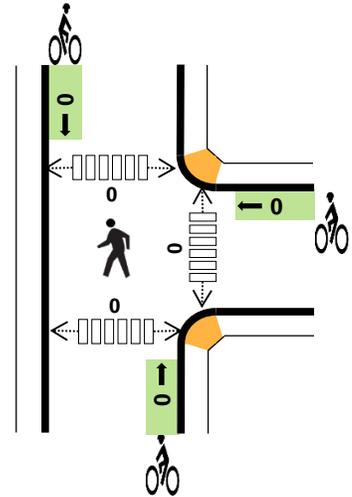


Peak Hour



TEV: 101
PHF: 0.81

Date: Wed, May 11, 2016
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	-	-
WB	0.0%	0.50
NB	0.0%	0.77
SB	0.0%	0.82
TOTAL	0.0%	0.81

Two-Hour Count Summaries

Interval Start	0				GLENEAGLE DR				SEMIAMMOO PKWY				SEMIAMMOO PKWY				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	1	0	1	0	0	11	0	0	1	17	0	31	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	4	1	0	4	10	0	20	0
4:30 PM	0	0	0	0	0	1	0	3	0	0	8	2	0	0	14	0	28	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	8	0	0	0	13	0	22	101
5:00 PM	0	0	0	0	0	1	0	0	0	0	11	0	0	1	11	0	24	94
5:15 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	4	0	11	85
5:30 PM	0	0	0	0	0	0	0	1	0	0	8	0	1	2	5	0	17	74
5:45 PM	0	0	0	0	0	1	0	1	0	0	6	0	0	0	11	0	19	71
Count Total	0	0	0	0	0	6	0	6	0	0	63	3	1	8	85	0	172	0
Peak Hour	0	0	0	0	0	4	0	4	0	0	31	3	0	5	54	0	101	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	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	3	0	4	0	0	0	0	0	0	0	0	0	0
Peak Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B: LOS Definitions

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.

Intersection

Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	15	5	0	10	10	40	0	5	25	10
Future Vol, veh/h	0	5	15	5	0	10	10	40	0	5	25	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	6	17	6	0	11	11	44	0	6	28	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.4	7.2	7.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	20%	17%	42%
Vol Thru, %	62%	60%	17%	47%
Vol Right, %	25%	20%	67%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	25	60	95
LT Vol	5	5	10	40
Through Vol	25	15	10	45
RT Vol	10	5	40	10
Lane Flow Rate	44	28	67	106
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.032	0.071	0.121
Departure Headway (Hd)	4.02	4.133	3.815	4.12
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	883	854	926	866
Service Time	2.081	2.215	1.892	2.165
HCM Lane V/C Ratio	0.05	0.033	0.072	0.122
HCM Control Delay	7.3	7.4	7.2	7.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.2	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	40	45	10
Future Vol, veh/h	0	40	45	10
Peak Hour Factor	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	44	50	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.7
HCM LOS	A

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	5	30	5	5	55
Future Vol, veh/h	5	5	30	5	5	55
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	0	0	0	0
Mvmt Flow	6	6	37	6	6	68

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	120	40	0	0	43	0
Stage 1	40	-	-	-	-	-
Stage 2	80	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	880	1037	-	-	1579	-
Stage 1	988	-	-	-	-	-
Stage 2	948	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	876	1037	-	-	1579	-
Mov Cap-2 Maneuver	876	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	944	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	8.8		0		0.6
HCM LOS	A				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	950	1579	-
HCM Lane V/C Ratio	-	-	0.013	0.004	-
HCM Control Delay (s)	-	-	8.8	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection

Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	15	5	0	10	10	50	0	5	235	10
Future Vol, veh/h	0	5	15	5	0	10	10	50	0	5	235	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	6	17	6	0	11	11	56	0	6	261	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.4	8.3	9.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	20%	14%	18%
Vol Thru, %	94%	60%	14%	78%
Vol Right, %	4%	20%	71%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	25	70	245
LT Vol	5	5	10	45
Through Vol	235	15	10	190
RT Vol	10	5	50	10
Lane Flow Rate	278	28	78	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.342	0.04	0.103	0.338
Departure Headway (Hd)	4.43	5.148	4.752	4.466
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	811	693	751	806
Service Time	2.461	3.2	2.798	2.497
HCM Lane V/C Ratio	0.343	0.04	0.104	0.337
HCM Control Delay	9.8	8.4	8.3	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.5	0.1	0.3	1.5

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	45	190	10
Future Vol, veh/h	0	45	190	10
Peak Hour Factor	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	50	211	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.8
HCM LOS	A

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	5	240	5	5	205
Future Vol, veh/h	5	5	240	5	5	205
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	0	0	0	0
Mvmt Flow	6	6	296	6	6	253

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	564	299	0	0	302	0
Stage 1	299	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	490	745	-	-	1270	-
Stage 1	757	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	488	745	-	-	1270	-
Mov Cap-2 Maneuver	488	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	780	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	11.2		0		0.2
HCM LOS	B				

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	590	1270	-
HCM Lane V/C Ratio	-	-	0.021	0.005	-
HCM Control Delay (s)	-	-	11.2	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	20	12	0	21	17	50	0	15	237	17
Future Vol, veh/h	0	5	20	12	0	21	17	50	0	15	237	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	6	22	13	0	23	19	56	0	17	263	19
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.6	8.8	10.3
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	14%	24%	18%
Vol Thru, %	88%	54%	19%	78%
Vol Right, %	6%	32%	57%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	37	88	250
LT Vol	15	5	21	45
Through Vol	237	20	17	194
RT Vol	17	12	50	11
Lane Flow Rate	299	41	98	278
Geometry Grp	1	1	1	1
Degree of Util (X)	0.376	0.059	0.135	0.354
Departure Headway (Hd)	4.532	5.173	4.958	4.588
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	792	687	719	781
Service Time	2.575	3.242	3.017	2.632
HCM Lane V/C Ratio	0.378	0.06	0.136	0.356
HCM Control Delay	10.3	8.6	8.8	10.1
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	1.8	0.2	0.5	1.6

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	45	194	11
Future Vol, veh/h	0	45	194	11
Peak Hour Factor	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	50	216	12
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.1
HCM LOS	B

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	34	5	0	5	54	249	5	5	211	16
Future Vol, veh/h	10	0	34	5	0	5	54	249	5	5	211	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	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, %	2	2	2	0	2	0	2	0	0	0	0	2
Mvmt Flow	12	0	42	6	0	6	67	307	6	6	260	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	730	730	270	748	737	310	280	0	0	314	0	0
Stage 1	283	283	-	444	444	-	-	-	-	-	-	-
Stage 2	447	447	-	304	293	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.52	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4.018	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	338	349	769	331	346	735	1283	-	-	1258	-	-
Stage 1	724	677	-	597	575	-	-	-	-	-	-	-
Stage 2	591	573	-	710	670	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	318	325	769	297	322	735	1283	-	-	1258	-	-
Mov Cap-2 Maneuver	318	325	-	297	322	-	-	-	-	-	-	-
Stage 1	678	673	-	559	539	-	-	-	-	-	-	-
Stage 2	549	537	-	667	666	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	13.8	1.4	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1283	-	-	582	423	1258	-
HCM Lane V/C Ratio	0.052	-	-	0.093	0.029	0.005	-
HCM Control Delay (s)	8	0	-	11.8	13.8	7.9	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.1	0	-

Intersection

Int Delay, s/veh 3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	4	19	24	4	12
Future Vol, veh/h	25	4	19	24	4	12
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	4	21	26	4	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	32	96
Stage 1	-	-	29
Stage 2	-	-	67
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1580	903
Stage 1	-	-	994
Stage 2	-	-	956
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1580	891
Mov Cap-2 Maneuver	-	-	891
Stage 1	-	-	994
Stage 2	-	-	944

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1002	-	-	1580	-
HCM Lane V/C Ratio	0.017	-	-	0.013	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Appendix D: WSDOT Left and Right-Turn Lane Exhibits

Exhibit 1310-7a Left-Turn Storage Guidelines: Two-Lane, Unsignalized

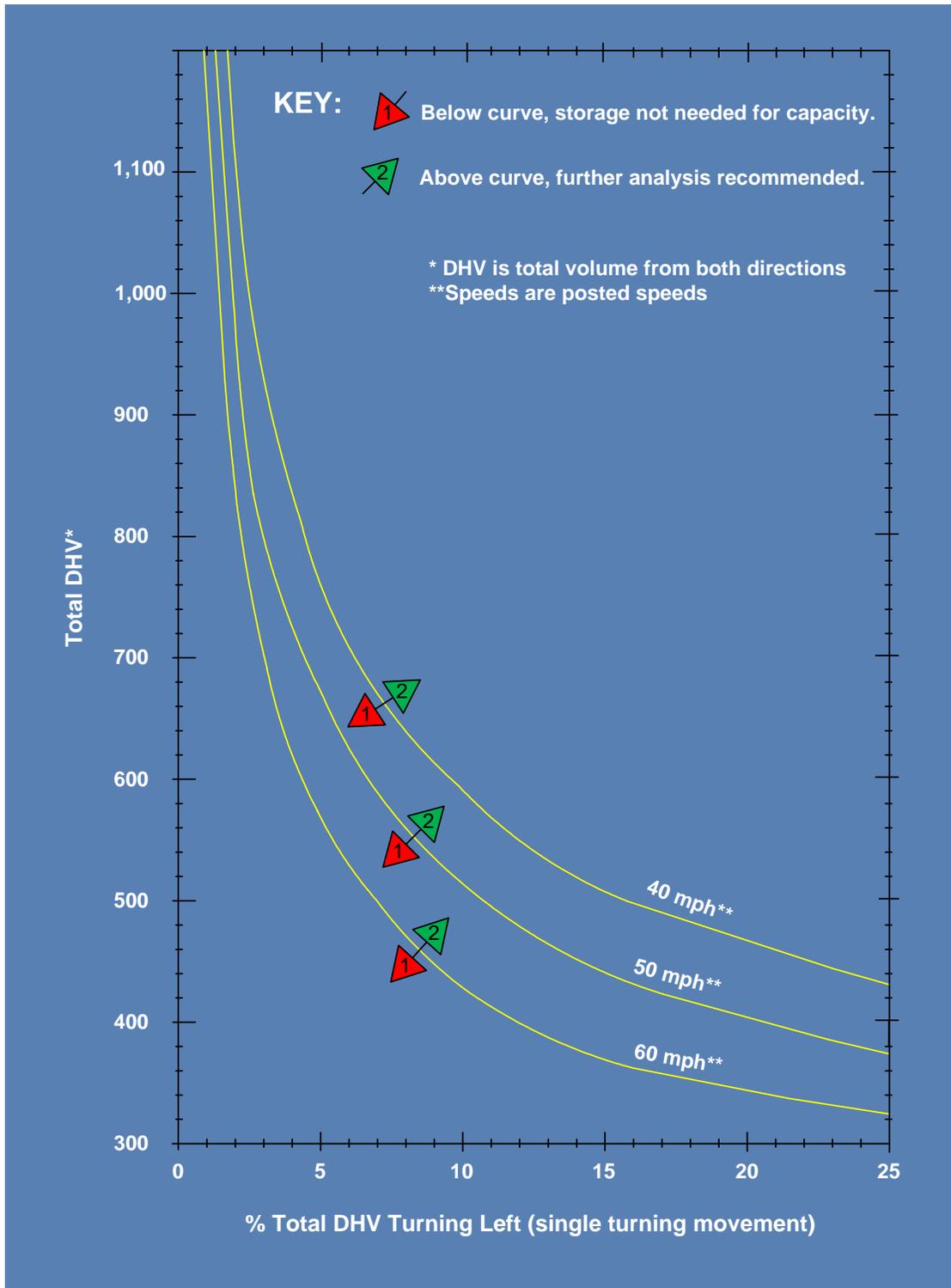
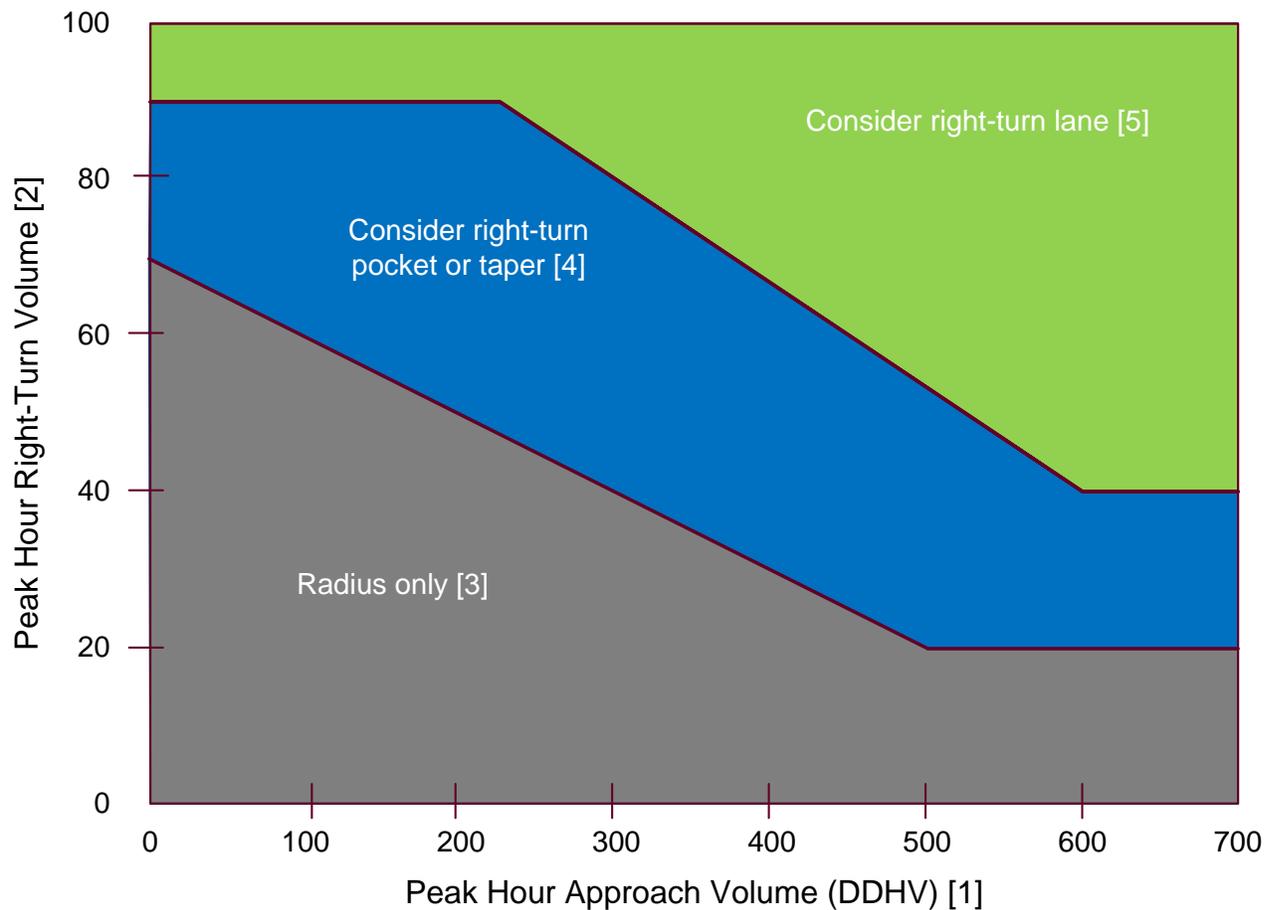


Exhibit 1310-11 Right-Turn Lane Guidelines

**Notes:**

- [1] For two-lane highways, use the peak hour DDHV (through + right-turn).
For multilane, high-speed highways (posted speed 45 mph or above), use the right-lane peak hour approach volume (through + right-turn).
- [2] When all three of the following conditions are met, reduce the right-turn DDHV by 20:
- The posted speed is 45 mph or below
 - The right-turn volume is greater than 40 VPH
 - The peak hour approach volume (DDHV) is less than 300 VPH
- [3] For right-turn corner design, see [Exhibit 1310-6](#).
- [4] For right-turn pocket or taper design, see [Exhibit 1310-12](#).
- [5] For right-turn lane design, see [Exhibit 1310-13](#).

MEMORANDUM

Date:	August 10, 2016	TG:	16192.00
To:	Michael Jones, AICP		
From:	Dan McKinney, Jr.		
cc:	Wayne Schwandt and Pam Andrews		
Subject:	Semiahmoo Zone 3/Burnside Village – Proportionate Share Peace Portal/Bell Road		

The following memorandum provides a proportionate share calculation for the proposed projects impacts to the Peace Portal Drive/Bell Road intersection. This includes identifying the project's trip generation, the distribution anticipated through the intersection, and calculating the proportionate share of traffic volumes.

Trip Generation

Trip generation for the proposed mixed-use development is summarized in Table 1. Estimates for the project-generated vehicle trips were calculated using average peak hour trip rates for single-family detached housing, apartments, self-storage, City park, and retail published by the Institute of Transportation Engineers (ITE) in *Trip Generation* (9th Edition, 2012). As described previously, the proposed project would construct 44 single family dwelling units, 22 duplex units (equivalent to 44 single family dwelling units), 41 multi-family units, 5,000 square-feet of retail, and 24,000 square-feet of storage providing 60 storage units. In addition, a 1.75-acre area of the site would either be constructed as City park or as residential including 7 single family dwelling units and 4 duplex units. Both of these options are shown in the Table below.

Table 1. Estimated Weekday PM Peak Hour Project Trip Generation

Land Use ¹	Size	Single Family Equivalent	PM Rate	Total	Pass-by		% Inbound	PM Peak Hour Trips		
					%	Total		In	Out	Total
Apartments (#220)	41 DU	-	0.62	25	-	-	65%	16	9	25
Single Family Detached Housing (#210)	44 DU	-	1.00	44	-	-	63%	28	16	44
Duplex ²	22	44	1.00	44	-	-	63%	28	16	44
Mini-Warehouse (#151)	24,000 sf	-	0.26	6	-	-	50%	3	3	6
Retail (#820)	5,000 sf	-	3.71	19	34%	-6	48%	6	7	13
Subtotal				138				81	51	132
1.75 Acre Area										
<u>Option 1</u>										
City Park (#411)	1.75 Acres	-	3.50	6	-	-	57%	3	3	6
<u>Option 2</u>										
Single Family Detached Housing (#210)	7	-	1.00	7	-	-	63%	4	3	7
Duplex	4	8	1.00	8	-	-	63%	5	3	8
Option 2 Subtotal				15				9	6	15
Total New Trips With Option 1								84	54	138
Total New Trips With Option 2								90	57	147

Note: DU = Dwelling Units, sf = square-feet

1. Trip generation estimates based on the number of units and the average daily and peak hour trip rates from ITE *Trip Generation*, 9th Edition (2012).
2. Duplex evaluated as single family detached housing (#210) assuming 1 duplex is equivalent to 2 single family dwelling units.

The proposed project would generate approximately 138 to 147 new weekday PM peak hour trips depending on if the 1.75-acre area of the site is developed as a park or as residential, respectively. A range of 84 to 90 inbound and 54 to 57 outbound weekday PM peak hour trips are estimated for the two options. As noted above, this estimate is conservative as it is possible that a lower residential unit count would be constructed.

Trip Distribution

Taking into consideration the discussions and input from the City, we have provided a trip distribution extending through the Peace Portal Drive/Bell Road intersection. This is illustrated in Attachment A. This identifies that 30 percent of the traffic would travel through the Peace Portal Drive/Bell Road intersection. This equates to between 41-44 PM peak hour trips.

Proportional Share

The proportional cost contribution is calculated based on the proportion of project traffic through the intersection as related to the total entering volumes during the PM peak hour applied to the total cost of the improvement. This is summarized in Table 2 below.

Table 2. Proportional Share at Bell Road / Peace Portal Drive Intersection

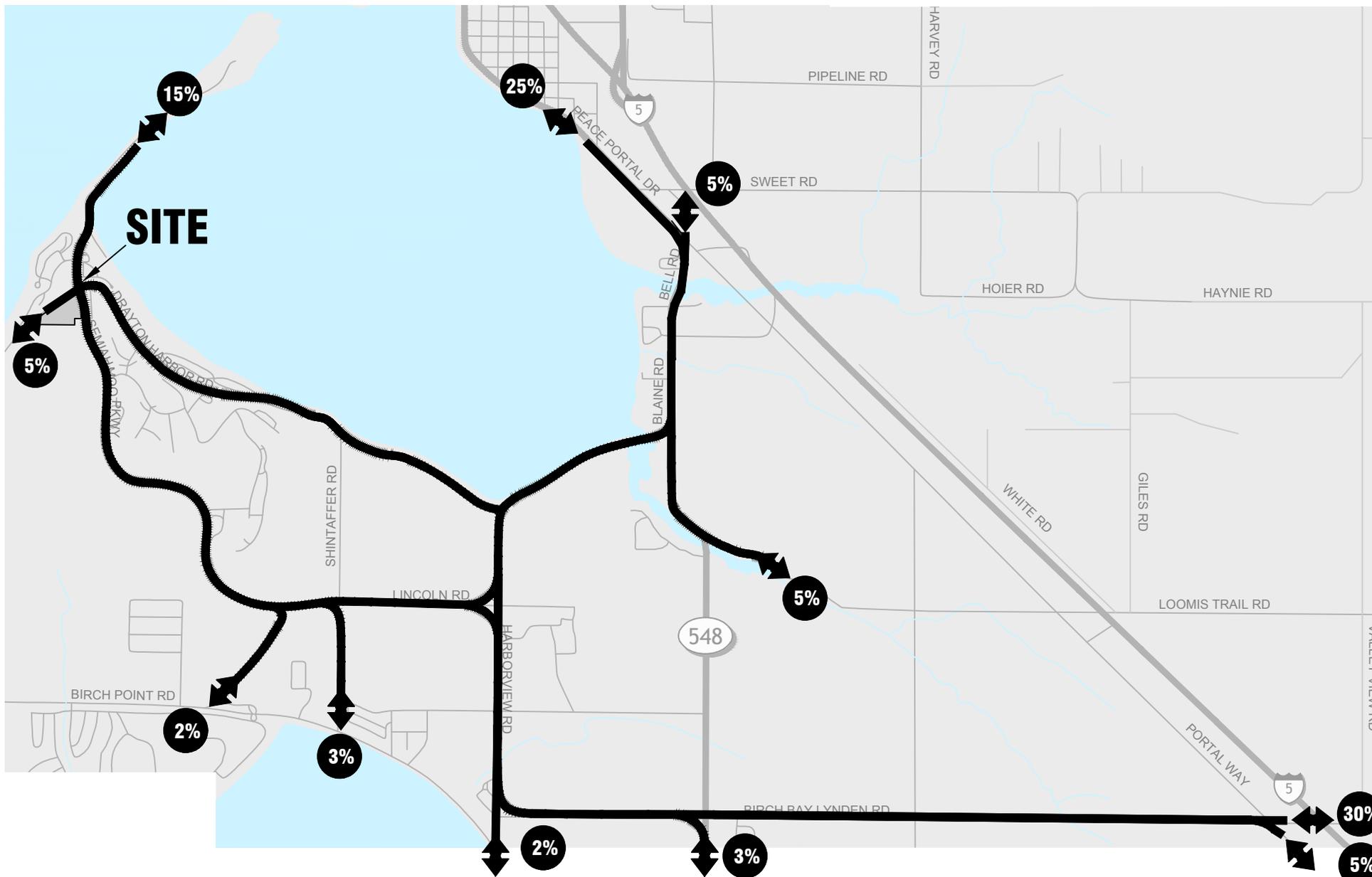
Land Use Option	Total Project Trips	Project Trips ¹	Total Trips (2023)		Percent Impact	Estimated Cost ³	Total Project Share	Share per Trip
			Without Project ²	With-Project				
Option 1	138	41	1550	1591	2.6%	\$720,000	\$18,554.37	\$134.45
Option 2	147	44	1550	1594	2.8%	\$720,000	\$19,874.53	\$135.20

1. Assumes 30 percent of project trips at Bell Road / Peace Portal Drive intersection (see Attachment A)

2. Assumes Semiahmoo Master Plan (with-project) and Semiahmoo Shores.

3. Based on City of Blaine 6-Year Transportation Improvement Program 2016-2021 (see Attachment B)

The cost share for the proposed project represents between 2.6 and 2.8 percent of the total traffic, which equates to approximately \$18,600 - \$19,900 of the total cost. This equates to around \$135 per PM peak hour trip.



Project Trip Distribution

Resort Semiahmoo Zone 3

ATTACHMENT

A

Attachment B

Project Status:

F = Funded Project

P = Partially Funded Project

City of Blaine 6-Year Transportation Improvement Program 2016 - 2021

Project Status	Funded and Partially Funded Projects Project	Length	Prior Years Funding			2016			2017			2018			2019-2021			Project Total	Grand Total
			PE	ROW	Constr	PE	ROW	Constr	PE	ROW	Constr	PE	ROW	Constr	PE	ROW	Constr		
F	Mitchell Avenue Improvements - 200 feet N of Cherry to Boblett	0.16																\$0	\$0
	State		\$82	\$24														\$449	\$555
	Federal																	\$0	\$0
	Local/Other		\$4	\$1														\$24	\$29
	Project		\$86	\$25		\$0	\$0	\$473	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$473	\$584
F	Hughes Ave Improvements - Peace Portal to I-5 Overpass																	\$0	\$0
	Federal		\$50			\$87					\$458							\$545	\$595
	State		\$63			\$110					\$577							\$687	\$750
	Local/Other		\$2			\$3					\$14							\$17	\$19
	Project		\$115	\$0		\$200	\$0	\$0	\$0	\$0	\$1,049	\$0	\$0	\$0	\$0	\$0	\$0	\$1,249	\$1,364
P	Boblett Rd Traffic Channelization and Corridor Improvements	0.03																\$0	\$0
	Federal								\$117			\$130						\$535	\$782
	State								\$18			\$20						\$84	\$122
	Local/Other								\$47									\$218	\$265
	Project					\$0	\$0	\$0	\$182	\$0	\$0	\$0	\$150	\$0	\$0	\$0	\$0	\$837	\$1,169
P	ADA Transition Plan Development					\$10			\$10						\$15			\$35	\$35
P	Semiahmoo Spit Ped Path Safety Improvements - Phase 1 - County Park north 1000 feet	0.25										\$15						\$100	\$115
P	City Wide Pavement Preservation	n/a						\$75			\$100							\$300	\$575
P	City Wide Safety and ADA Sidewalk Improvements	n/a						\$20			\$20							\$90	\$160
	Subtotals		\$201	\$25	\$0	\$200	\$0	\$568	\$182	\$0	\$1,169	\$15	\$150	\$130	\$0	\$0	\$1,327	\$3,741	
	TOTAL				\$226			\$768			\$1,351			\$295			\$1,327	\$3,741	\$3,967

PE = Preliminary Engineering

ROW = Right of Way

Constr = Construction

Unfunded Costs

Attachment B

Project Priority	Projects With No Funding Project	Length	Funding Eligibility			2016			2017			2018			2019-2021			Project Total
			Local	State	Fed	PE	ROW	Constr	PE	ROW	Constr	PE	ROW	Constr	PE	ROW	Constr	
1	**I-5 Exit 274 Interchange/Environmental Review & Preliminary Design	0.20			x				\$40			\$500			\$3,500		\$46,000	\$50,040
2	**Boblett Signalization and SR 543 improvements - Boblett to H St	0.80		x	x							\$210					\$2,500	\$2,710
3	Peace Portal Community Trail - Phase 2 Bayview to Hughes (Bay to Bay Trail conection)	0.28		x		\$44					\$146							\$190
4	Hughes Avenue Reconstruction (Phase 2) - I-5 to Odell	0.36		x	x				\$180					\$600				\$780
5	H Street Sidewalk Improvements 6th to SR 543	0.19		x					\$15		\$80							\$95
6	D Street Improvements SR 543 to 16th	0.23		x								\$260					\$875	\$1,135
7	D Street/16th Intersection Realignment	0.05		x								\$25	\$20				\$120	\$165
8	Peace Portal Drive Sidewalk Gap Elimination - Clark to Boblett	0.12		x								\$55	\$10	\$165				\$230
9	Semiahmoo Parkway Resurfacing - Drayton Harbor Rd to City Limits	1.50		x								\$25		\$405				\$430
10	Marine Drive Phase 3 - LPWRF to Public Pier	0.50		x	x										\$600	\$2,000	\$2,600	
11	H Street (Phase 2) - Terrace to Harvey	0.80		x	x										\$700	\$2,500	\$3,200	
12	Semiahmoo Spit Ped Path Safety Improv - Phase 2 - County Park to Marina	2.00		x	x										\$600	\$1,120	\$1,720	
13	East Blaine Parkway (D/E St) Realignment - 16th to Jerome	0.10	x												\$220	\$900	\$1,120	
14	Boblett /Pipeline Rd Multi-Modal Path	0.60		x	x										\$115	\$380	\$495	
15	Grant Ave/ 14th Intersection Realignment	0.30		x	x									\$150	\$150	\$600	\$900	
16	Peace Portal/Bell Rd Signalization	0.10		x	x									\$120		\$600	\$720	
17	Mitchell Ave/H St Signalization	0.10		x	x									\$90		\$450	\$540	

PE = Preliminary Engineering

ROW = Right of Way

Constr = Construction

** Support for Projects from other Agencies

Subtotals				\$44	\$0	\$0	\$235	\$0	\$226	\$1,075	\$30	\$1,170	\$6,095	\$150	\$58,045	\$67,070
TOTAL						\$44			\$461			\$2,275			\$64,290	\$67,070

Program Total	\$70,811
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All costs in thousands of dollars