

# Transportation Impact Analysis

## THE RIDGE AT SEMIAHMOO

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## Executive Summary

This section provides an executive summary of the transportation impact analysis for The Ridge at Semiahmoo through a set of frequently asked questions (FAQs).

### ***Where is the project located?***

The Ridge at Semiahmoo is located on the east side of Semiahmoo Drive south of Semiahmoo Ridge directly across from 8887 Semiahmoo Drive in Whatcom County

### ***What is the project land use and trip generation?***

The proposed project would develop approximately 30 single-family residential units. Based on ITE *Trip Generation*, the proposed project would generate a total of 288 daily trips with 30 trips occurring during the weekday PM peak hour.

### ***What are the existing and future baseline conditions in the study area?***

All of the study intersections are currently operating at LOS C or better during the weekday PM peak hour except for the Birch Bay-Lynden Road/Portal Way intersection, which operates at LOS F. In 2015, all study intersections would operate at LOS B or better except the Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, and Birch Bay-Lynden/Portal Way intersections, which would operate at LOS F during the PM peak hour. Whatcom County has unfunded planned improvements at these intersections. With construction of a these improvements, the three intersections would operate at LOS D or better during the PM peak hour.

### ***Would the project have any transportation impacts?***

Project traffic would increase traffic volumes at the study intersections by less than one to approximately six percent except at the main project access road (Semiahmoo Ridge) where traffic volumes would increase by approximately 29 percent in 2015. With the addition of project traffic, intersection LOS would be the same as without-project conditions in 2015 during the PM peak hour. The project would meet the County's transportation concurrency LOS standards for roadway segments.

### ***What mitigation measures are recommended?***

Long range improvement plans are identified for the Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, Birch Bay-Lynden/Portal Way intersections; however, these improvements are currently unfunded and it is unknown if these improvements would be completed prior to the development of the project. The construction of the planned improvements at these locations would improve operations to acceptable levels even with the development of the project.

Interim improvements could be considered at the Lincoln Road/Harborview Road intersection. The installation of all-way stop control would improve overall operations to LOS C during the PM peak hour.

## Introduction

The purpose of this traffic impact analysis (TIA) is to identify potential traffic-related impacts associated with the proposed The Ridge at Semiahmoo development. Where minimum Level of Service (LOS) standards are exceeded mitigation measures are identified that would offset or reduce the impact to LOS.

### Project Description

The Ridge at Semiahmoo is located on the east side of Semiahmoo Drive south of Semiahmoo Ridge directly across from 8887 Semiahmoo Drive in Whatcom County (see Figure 1). The project would develop approximately 30 single-family dwelling units on the currently vacant site. Access to and from the site would be provided via an access road along the existing Semiahmoo Ridge roadway. Figure 2 shows the preliminary site plan for The Ridge at Semiahmoo.

### Study Scope

The scope of the analysis was developed in coordination with Whatcom County staff and following the County's traffic study guidelines. This study evaluates weekday PM peak hour intersection operations in the area surrounding the proposed development. The study area primarily focuses on the main intersections along Harborview Road and Birch Bay-Lynden Road. A horizon year of 2015 is assumed for the future analysis consist with the anticipated completion of the development. Traffic forecasts account for specific development plans within Blaine and Whatcom County.

### Study Area

The analysis focuses on the weekday PM peak period (4:00 to 6:00 p.m.) operations at five intersections. 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:

1. Semiahmoo Drive/Semiahmoo Ridge (Site Access Road)
2. Semiahmoo Parkway/Semiahmoo Drive
3. Lincoln Road/Harborview Road
4. Harborview Road/Birch Bay-Lynden Road
5. Birch Bay-Lynden Road/Blaine Road
6. Birch Bay-Lynden Road/Portal Way

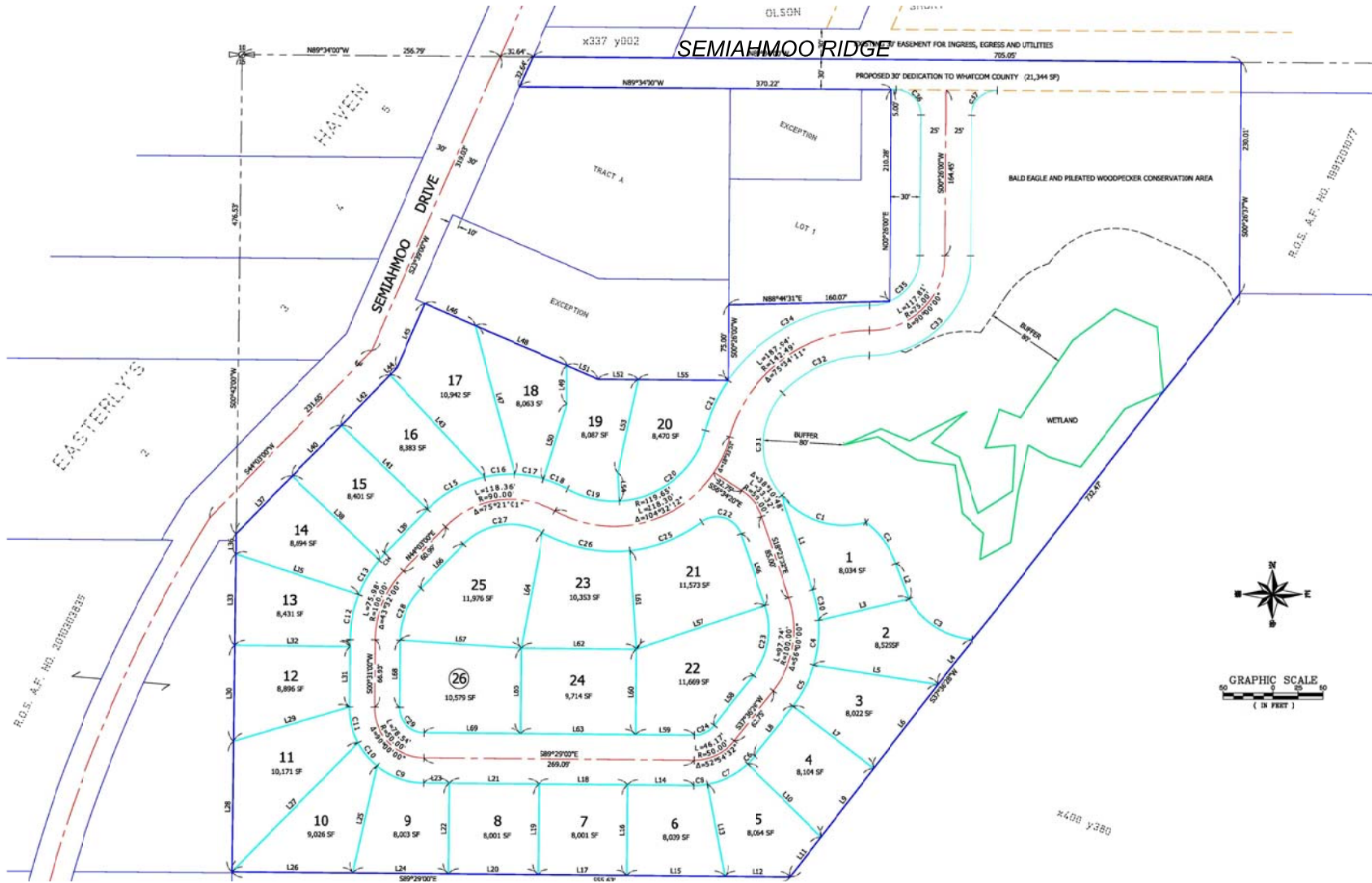
The TIA begins by describing conditions in the site vicinity including roadway network, existing and future 2015 weekday PM peak hour traffic volumes, traffic operations, traffic safety, non-motorized facilities, and transit. Future with the project conditions are evaluated by adding site-generated traffic to future without the project volumes. Analysis of future condition address cumulative impacts of the proposed project and traffic growth in the study area. Site-generated impacts are identified based on differences in transportation conditions between with-and without-project conditions.



## Site Vicinity

*The Ridge at Semiahmoo*

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# Preliminary Site Plan

The Ridge at Semiahmoo

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FIGURE  
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## Existing and Future Baseline Conditions

This section describes existing and future baseline conditions within the identified study area. Characteristics are provided for the roadway network, existing traffic volumes, traffic operations, traffic safety, non-motorized facilities, and transit.

### Roadway Network

The project site is located in Whatcom County along Semiahmoo Drive south of Semiahmoo Ridge. The major roadways within the study area include:

**Lincoln Road** is a two-lane collector that connects to the west with Semiahmoo Parkway and to the east with Harborview Road. Lincoln Road has a missing segment between Harborview Road and Blaine Road. Travel lanes (combined with paved shoulders) along this road range between nine and seventeen feet in width. There is not striped delineation between the travel lanes and paved shoulders. The posted speed limit is 35 mph. Along most sections of the roadway there no shoulders, with a small section between the Blaine City Limits and Shintaffer Road having gravel shoulders.

**Harborview Road** is a two lane major collector roadway with eleven foot lanes along the majority of the roadway and seventeen foot lanes (combined with paved shoulders) near Drayton Harbor Road. There is not striped delineation between the travel lanes and paved shoulders. Along sections of the roadway there are paved shoulders up to five feet in width. There are also gravel shoulders along other sections ranging between four and six feet wide, while other portions of the roadway have no shoulders. To the north it connects with Drayton Harbor Road and to the south it connects to Birch Bay Drive. The posted speed limit along this road is 40 mph.

**Birch Bay-Lynden Road** is the primary east-west road, connecting Birch Bay with I-5. It has two lanes between ten and thirteen feet wide. Generally the minor side streets are stop controlled. However, major streets (Harborview Road, Blaine Road, Portal Way, east I-5 ramps) are all-way stop controlled. Some sections of the roadway have paved shoulders, between three and seven feet in width. There are also nine foot wide gravel shoulders along some sections, while other portions of the roadway have little or no shoulders. The posted speed limit along this road is 50 mph between Blaine Road (SR 548) and I-5. To the west the road connects to Harborview Road and to the east to Guide Meridian Road (SR 539). West of Blaine Road the posted speed limit is 40 mph.

**Blaine Road (SR 548)** serves major north-south travel flows between the City of Blaine and the industrial areas south of Grandview Road. At its north end it connects with I-5 at an interchange in the south part of the City of Blaine (exit 274). It has two travel lanes and a posted speed limit of 45 mph. The roadway has several small hills due to the rolling terrain. Its lanes are relatively narrow and there is little or no shoulder area.

**Portal Way** is runs north-south parallel to I-5 from downtown Blaine to Ferndale. It is a collector with one travel lane in each direction and a posted speed limit of 50 mph. On-street parking is not permitted and gravel shoulders are provided on both sides.

**Semiahmoo Drive** links Birch Point Road to the south and Drayton Harbor Road and Semiahmoo Parkway to the north. It is a two lane collector with travel lanes typically 10 feet wide. The posted speed limit is 45 mph with 30 mph advisory signs on curved sections.

### *Planned Improvements*

The City of Blaine and Whatcom County's Six-Year Transportation Improvement Programs (TIP) as well as long-term planned improvements including in the Comprehensive Plans were reviewed to identify any intersection or roadway improvements anticipated in the study area:

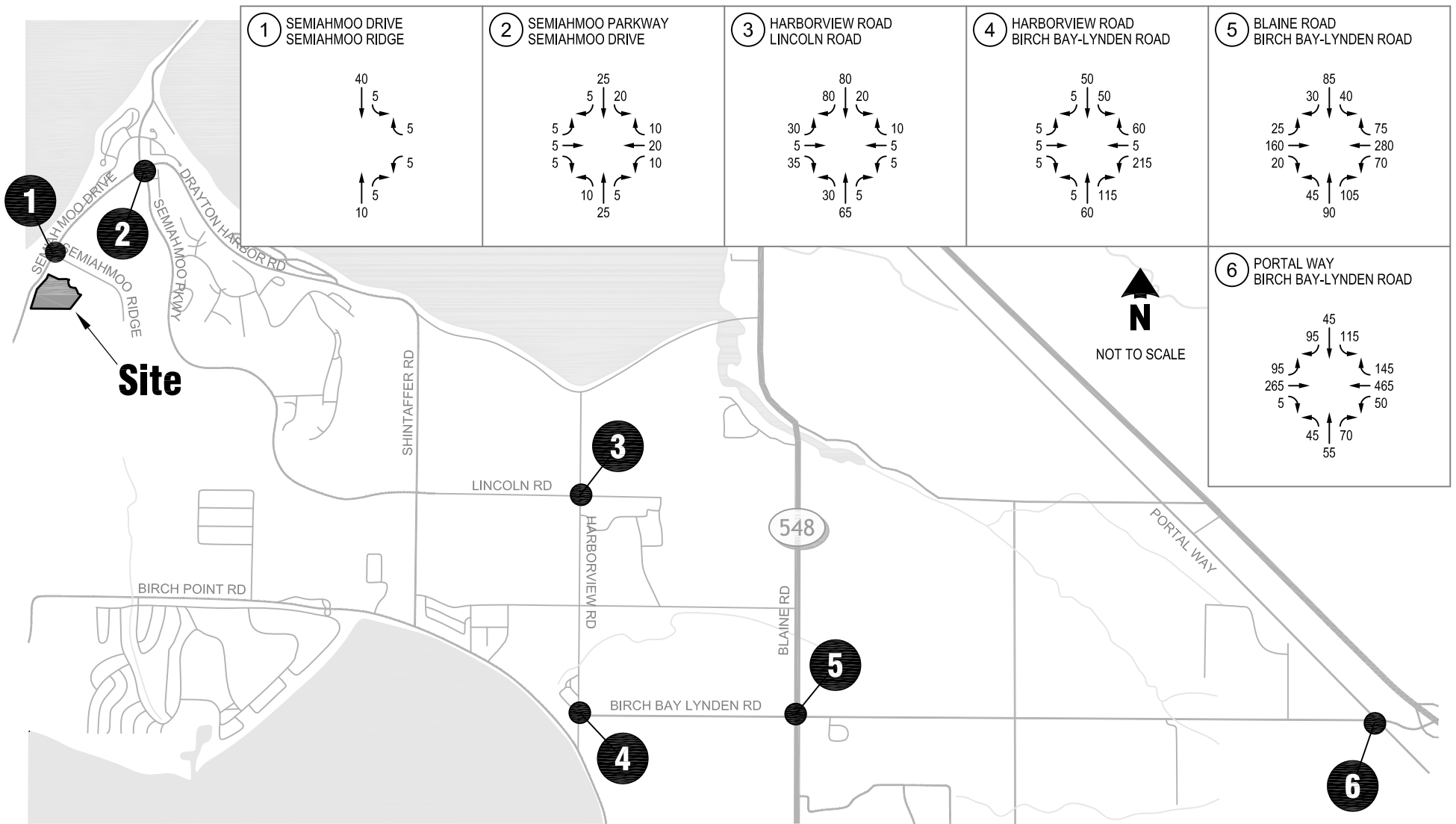
- Lincoln Road I – Reconstruct and provide non-motorized improvements between Shintaffer Road and Harborview Road
- Extend Lincoln Road between Harborview Road and Blaine Road
- Lincoln Road/Harborview Road – Install traffic signal and provide channelization
- Birch Bay-Lynden Road/Portal Way – Construct intersection improvements including turn lanes and a traffic signal
- Birch Bay-Lynden Road/Blaine Road – Construct intersection improvements including a roundabout or traffic signal.

Based on coordination with the County staff, these improvements are not fully funded; therefore, the analysis of future 2015 conditions assumed the roadway system would remain as it is today.

### **Traffic Volumes**

As discussed previously, this traffic analysis focuses on the weekday PM peak hour when traffic conditions would be greatest. Existing turning movement counts at the study intersections were conducted in March 2009 and February 2010. Existing 2010 PM peak hour turning movements for each study intersection counted in 2009 was estimated by applying an average annual growth rate of 2 percent per year to the 2007 traffic counts. Two percent annual growth was based on coordination with Whatcom County staff and the Whatcom Council of Government (WCOG) travel demand model. Existing traffic volumes were rounded to the nearest five vehicles because weekday volumes fluctuate day-to-day. The detailed intersection turning movement traffic counts are provided in Appendix A. Existing weekday PM peak hour traffic volumes are summarized in Figure 3 and were used to establish existing traffic conditions.

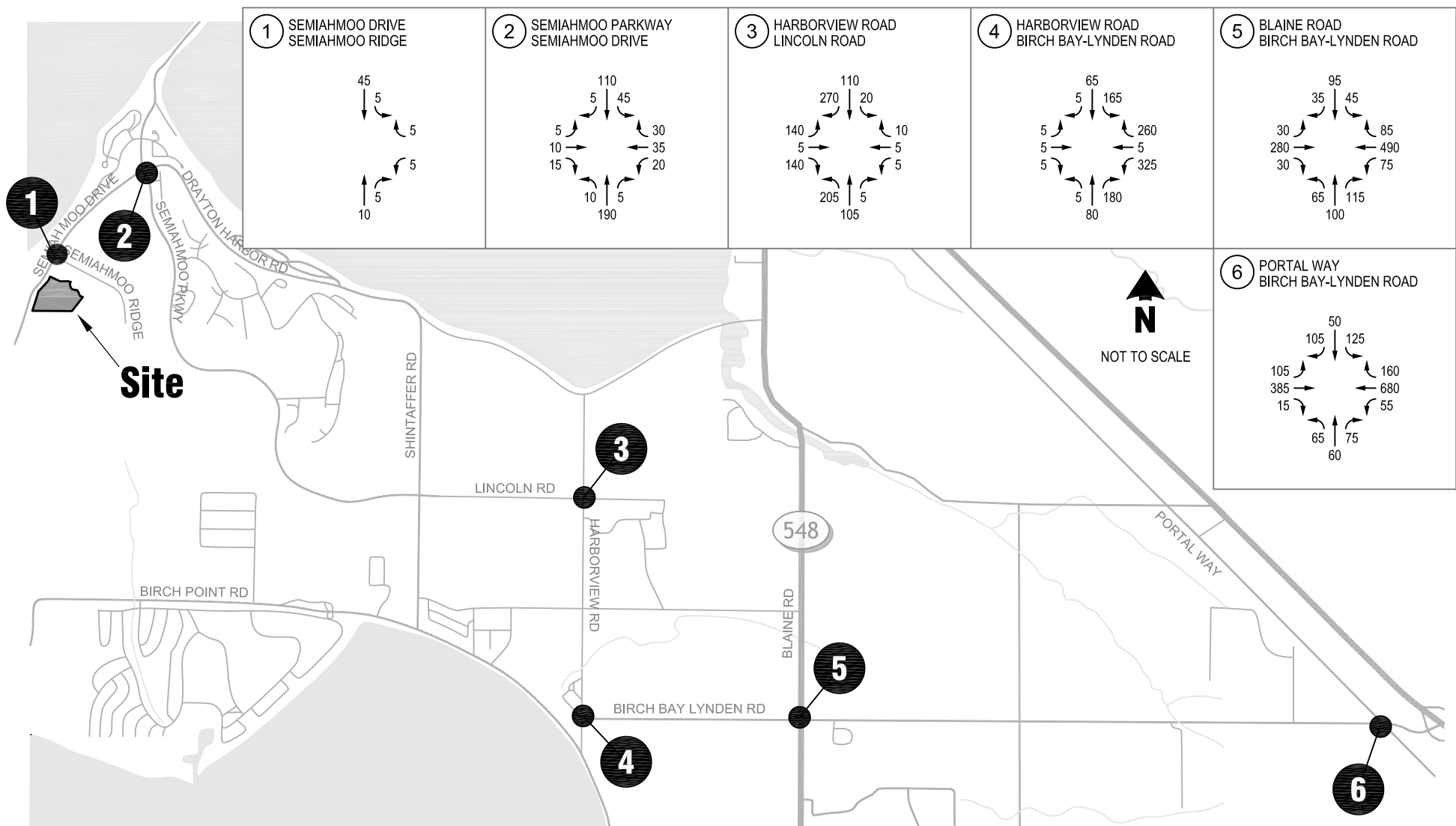
Future background traffic within the study area was determined by applying an annual growth rate to existing traffic volumes. The annual growth rate was based on coordination with County staff as well as information from the current version of the WCOG travel demand model. A 2 percent per year growth was applied to existing traffic volumes to forecast 2015 background traffic volumes. In addition to background growth, traffic from other planned and approved developments within the study area were added to develop the basis for the future baseline (without-project) traffic volumes. Future developments included the Semiahmoo Spit and Burnside Villages development, Seagrass Cottages, Horizons at Semiahmoo, Inverness (Zone 20), Carnoustie (Zone 26), Marin (Lot 3), Drayton Hillside III, Prestwick Woods, Monterey Heights, and full build-out of the Semiahmoo Master Plan. Future without project traffic volumes are shown in Figure 4.



# Existing Weekday PM Peak Hour Traffic Volumes

The Ridge at Semiahmoo

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# 2015 Without-Project PM Peak Hour Traffic Volumes

The Ridge at Semiahmoo

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## Traffic Operations

PM peak hour existing and future baseline traffic operations were evaluated at the study intersections based on levels of service (LOS). The LOS analysis method was based on procedures identified in the *Highway Capacity Manual* (2000), and evaluated using Synchro version 7.0.

At signalized and stop-controlled intersections, LOS is measured in average delay per vehicle. 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. The study intersections are either within the City of Blaine's Urban Growth Area (UGA), in Whatcom County, or part of the state highway system. As described in the City of Blaine's *Comprehensive Plan*, September 2006, the City maintains a LOS D standard for intersections within the Urban Growth Area (UGA) during the weekday peak period. Blaine Road (SR 548) is a state highway and has a current LOS E standard. The County does not have adopted intersection LOS standards. Typically intersections operating at LOS E or worse are considered to have poor operations.

Table 1 summarizes the existing and future baseline weekday PM peak hour LOS at study intersections. The detailed LOS worksheets are included in Appendix C.

**Table 1. Existing and Future Baseline Weekday PM Peak Hour LOS Summary**

Intersection	2009 Existing			2015 Baseline		
	LOS <sup>1</sup>	Delay <sup>2</sup>	V/C <sup>3</sup> or WM <sup>4</sup>	LOS	Delay	V/C or WM
1. Semiahmoo Dr/Semiahmoo Ridge	A	9	WB	A	9	WB
2. Semiahmoo Dr/Semiahmoo Pkwy	A	7	NA	A	9	NA
3. Lincoln Rd/Harborview Rd	B	11	EB	<b>F</b>	<b>&gt;120</b>	<b>EB</b>
4. Birch Bay-Lynden Rd/Harborview Rd	A	9	NA	B	14	NA
5. Birch Bay-Lynden Rd/Blaine Rd (SR 548)	C	16	NA	<b>F</b>	<b>86</b>	<b>NA</b>
6. Birch Bay-Lynden Rd/Portal Way <sup>5</sup>	<b>F</b>	<b>76</b>	<b>NA</b>	<b>F</b>	<b>&gt;120</b>	<b>NA</b>

Source: *Highway Capacity Manual*, 2000 and Transpo Group, 2010

Note: **Bold**: Indicates location would have poor operations.

1. Level of service (LOS), based on 2000 *Highway Capacity Manual* methodology.
2. Average delay in seconds per vehicle. Delay is provided for the worse movement at side-street stop controlled intersections and the overall intersection for signalized and all-way stop controlled locations.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections where EB = eastbound and WB = westbound. NA = not applicable for all-way stop controlled intersections.
5. This intersection is assumed to be signalized in the future consistent with the County's transportation improvement program.

As shown in Table 1, all of the study intersections are currently operating at LOS C or better during the weekday PM peak hour except for the Birch Bay-Lynden Road/Portal Way intersection, which operates at LOS F.

With the addition of future growth, all study intersections would operate at LOS B or better except the Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, and Birch Bay-Lynden/Portal Way intersections, which would operate at LOS F during the PM peak hour. Whatcom County has unfunded planned improvements at these intersections. With construction of a these improvements, the three intersections would operate at LOS D or better during the PM peak hour.

## Traffic Safety

Collision data for the most recent three-year period for intersections within the study area were obtained from Whatcom County and WSDOT. Specifically, the data was reviewed for the period between January 1, 2006 and December 31, 2008, which is the most recent three-year period for which data is available. Table 2 provides a summary of collision history within the study area.

**Table 2. Three-Year Collision Summary – 2006 to 2008**

Location	Number of Collisions			Total	Annual Average	Collisions per MEV <sup>1</sup>
	2006	2007	2008			
1. Semiahmoo Dr/Semiahmoo Ridge	Private Road – Not included in safety analysis.					
2. Semiahmoo Dr/Semiahmoo Pkwy	1	1	0	2	0.67	0.50
3. Lincoln Rd/Harborview Rd	1	1	0	2	0.67	0.50
4. Birch Bay-Lynden Rd/Harborview Rd	0	0	0	0	0.00	0.00
5. Birch Bay-Lynden Rd/Blaine Rd	2	3	1	6	2.00	0.55
6. Birch Bay-Lynden Rd/Portal Way	1	2	2	5	1.67	0.32

Source: Whatcom County and WSDOT.

1. Million Entering Vehicles

As shown in Table 2, the highest number of collisions occurred at the Birch Bay-Lynden Road/Blaine Road and Birch Bay-Lynden Road/Portal Way intersections with an average of one to two collisions per year. The other study intersections experienced less than one collision per year on average. By incorporating the traffic volume at the intersection, the rate of collisions per million entering vehicles (MEV) allows a uniform standard for evaluating accident history. Generally, a collision rate at intersections greater than 1.0 to 1.5 collisions per MEV is considered higher than normal. At all study locations, the collision per MEV is less than 1.0; therefore, the data does not indicate safety issues.

## Non-motorized Facilities

The existing transportation system includes relatively limited facilities for pedestrians and bicyclists. For the majority of the study area, pedestrians must use the roadway shoulders and bicyclists use the shoulders or ride in the main travel lanes. Birch Bay-Lynden Road has up to 9-foot wide paved shoulders between Harborview Road and Blaine Road (SR 548). Harborview Road also has up to 5-foot wide paved shoulders between Anderson Road and Drayton Harbor Road. A paved trail also exists along Semiahmoo Drive with 6-foot wide shoulders.

## Transit Service

The public transportation within the study area is offered by Whatcom Transportation Authority (WTA). WTA does not have a scheduled route serving this development because there is insufficient ridership to support bus services in the area at this time; however, the development is in an area served by Dial-a-Ride bus service. Dial-a-Ride services are an on-demand public transportation where riders schedule with the transit agency pick-up and drop-off times and locations. This service is available on Mondays and Thursdays only within the study area.

WTA's fixed route service includes Route 70X, which is an express service between Birch Bay and Bellingham. The route has one stop in the study area (at Birch Bay-Lynden Road and I-5 to serve Birch Bay Square. Route 70X makes four round trips per day on weekdays

between 6:00 AM and approximately 7:00 PM. Saturday service for Route 70X is provided by Route 55, which is the other fixed route service.

Route 55 serves as a connector route between Blaine, Birch Bay, Ferndale, and the Bellis Fair mall in Bellingham. This route makes three round trips per day, in addition to making "flex" deviations along the route for previously requested stops by individual users. Route 55 runs between 8:40 AM and approximately 4:00 PM on weekdays, and between 8:40 AM and approximately 6:00 PM on Saturdays.

WTA's paratransit service is provided for those users who are not able to use the traditional fixed route services. These users are typically people with disabilities or seniors. The federal Americans with Disabilities Act (ADA) provides standards for paratransit, which includes a policy that passenger capacity constraints are not allowed. WTA strives to meet the demand of all eligible individuals.

## Project Impacts and Mitigations

This section documents project-generated impacts on the surrounding transportation system and at the study intersections. First, project peak hour traffic generation is estimated, distributed, and assigned to the study area. Next, future 2015 traffic volumes with the project are projected and potential impact to operations, non-motorized facilities, and transit are identified.

### Trip Generation

Trip generation for the proposed project was calculated using standard rates from the Institute of Transportation Engineers (ITE) *Trip Generation*, 8<sup>th</sup> Edition. Specifically, rates from the ITE single-family detached homes (#210) land use were used. Table 3 summarizes the resulting trip generation estimates for the proposed project. As shown, the proposed project would generate a total of approximately 288 daily trips with 30 trips occurring during the weekday PM peak hour trips (19 inbound/11 outbound).

**Table 3. Estimated Project Trip Generation**

Land Use	Size	Rate <sup>1</sup>	Project Trips		
			Total	In	Out
<b>Single-Family Detached Homes (#210)</b>					
Daily	30 du	9.57	288	144	144
Weekday PM Peak Hour	30 du	1.01	30	19	11

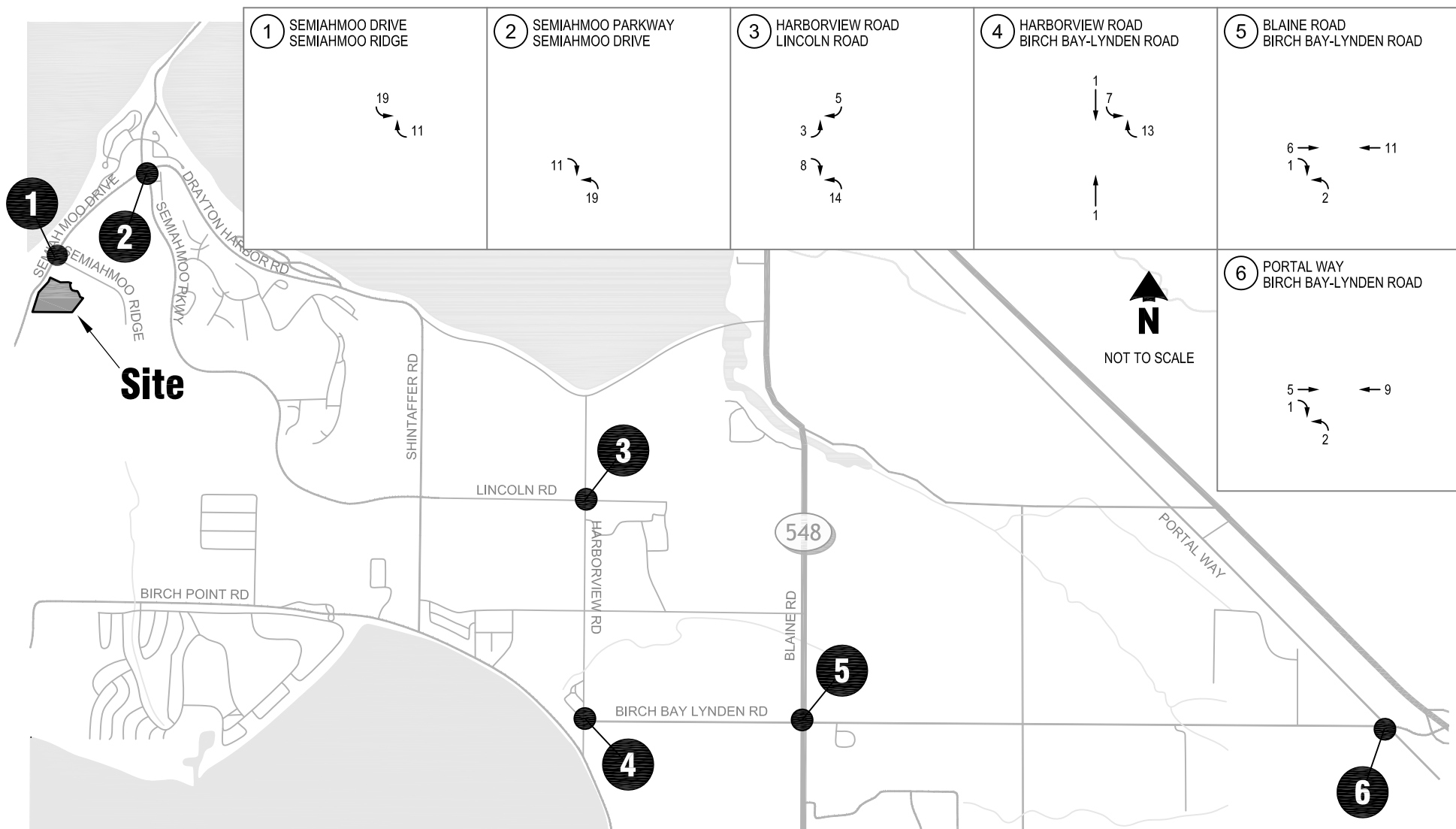
Notes: du = dwelling unit.

1. Trips rates from ITE *Trip Generation*, 8<sup>th</sup> Edition.

### Trip Distribution & Assignment

Trips were distributed based on existing travel patterns and information from previous studies in the area. The specific distribution patterns are shown in Figure 5. As shown in the figure, approximately 25 percent the project traffic is anticipated to and from the north to via Bell Road and Portal Drive, 55 percent is anticipated to and from the east via Birch Bay-Lynden Road, and 20 percent is anticipated to and from the south via Harborview Road and Blaine Road. Figure 6 shows the resulting project trip assignment based on the distribution patterns.





# Weekday PM Peak Hour Project Trip Assignment

*The Ridge at Semiahmoo*

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## Future With-Project Traffic Volumes

Project traffic volumes were added to the future baseline traffic volumes to form the basis of the with project analysis. Figure 7 shows the weekday PM peak hour traffic volumes at the study intersections. Table 4 summarizes the anticipated total intersection traffic with the project as well as the percent of future with-project volume attributable to the proposed project.

**Table 4. 2015 Weekday PM Peak Hour Traffic Volume Impact at Study Intersections**

Study Intersections	With-Project Traffic Volume	Project Traffic	Project Impact
1. Semiahmoo Dr/Semiahmoo Ridge	105	30	28.6%
2. Semiahmoo Dr/Semiahmoo Pkwy	510	30	5.9%
3. Lincoln Rd/Harborview Rd	1,050	30	2.9%
4. Birch Bay-Lynden Rd/Harborview Rd	1,127	22	2.0%
5. Birch Bay-Lynden Rd/Blaine Rd	1,465	20	1.4%
6. Birch Bay-Lynden Rd/Portal Way	1,897	17	0.9%

Source: Transpo Group, January 2010.

As shown in Table 4, project traffic would increase traffic volumes by less than one to approximately six percent at all locations except at the project access where traffic volumes would increase by approximately 29 percent in 2015. The greatest volume increases would occur closest to the project sites at Semiahmoo Drive/Semiahmoo Ridge (i.e., site access) and Semiahmoo Drive/Semiahmoo Parkway. The operational impacts as a result of increases in traffic volumes are discussed in the following section.

## Future With-Project Traffic Operations

An intersection operations analysis was conducted in the study area to evaluate the future (2020) weekday PM peak hour conditions with the development of the project. Intersection operations were calculated using the LOS methodology described previously. Table 5 provides a comparison between the future with and without-project conditions. Detailed LOS worksheets are included in Appendix C.

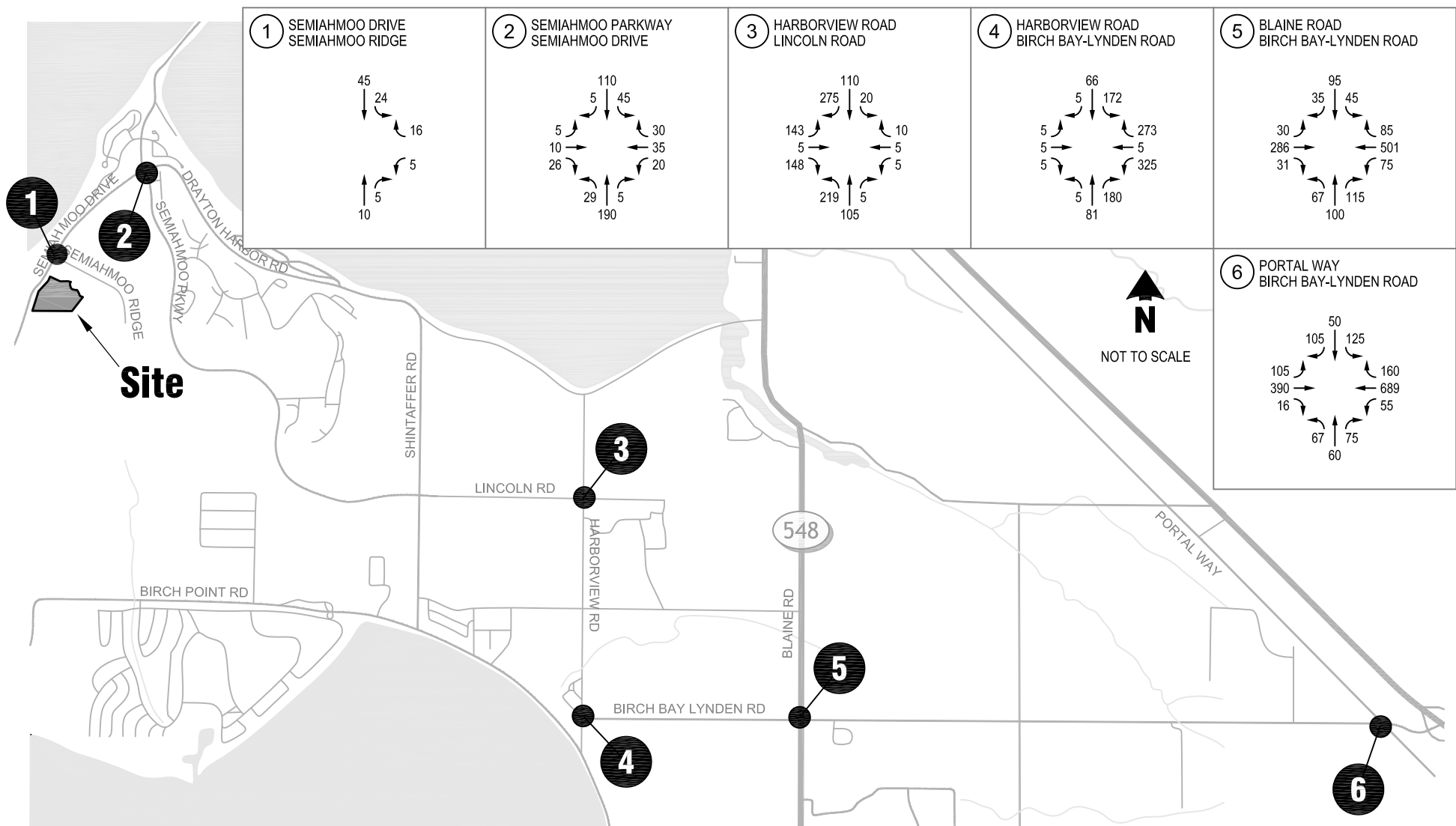
**Table 5. Future (2015) Without and With-Project Weekday PM Peak Hour LOS Summary**

Intersection	Baseline			With-Project		
	LOS <sup>1</sup>	Delay <sup>2</sup>	V/C <sup>3</sup> or WM <sup>4</sup>	LOS <sup>1</sup>	Delay <sup>2</sup>	V/C <sup>3</sup> or WM <sup>4</sup>
1. Semiahmoo Dr/Semiahmoo Ridge	A	9	WB	A	9	WB
2. Semiahmoo Dr/Semiahmoo Pkwy	A	9	NA	A	9	NA
3. Lincoln Rd/Harborview Rd	<b>F</b>	<b>&gt;120</b>	<b>NA</b>	<b>F</b>	<b>&gt;120</b>	<b>NA</b>
4. Birch Bay-Lynden Rd/Harborview Rd	B	14	NA	B	15	NA
5. Birch Bay-Lynden Rd/Blaine Rd	<b>F</b>	<b>86</b>	<b>NA</b>	<b>F</b>	<b>92</b>	<b>WB</b>
6. Birch Bay-Lynden Rd/Portal Way <sup>5</sup>	<b>F</b>	<b>&gt;120</b>	<b>NA</b>	<b>F</b>	<b>&gt;120</b>	<b>NA</b>

Source: *Highway Capacity Manual*, 2000 and Transpo Group, 2010

Note: **Bold**: Indicates location would have poor operations.

1. Level of service (LOS), based on 2000 *Highway Capacity Manual* methodology.
2. Average delay in seconds per vehicle. Delay is provided for the worse movement at side-street stop controlled intersections and the overall intersection for signalized and all-way stop controlled locations.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections where EB = eastbound and WB = westbound. NA = not applicable for all-way stop controlled intersections.
5. This intersection is assumed to be signalized in the future consistent with the County's transportation improvement program.



# 2015 With-Project PM Peak Hour Traffic Volumes

The Ridge at Semiahmoo

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As shown in the table, with the addition of project traffic intersection LOS would be the same as without-project conditions. The Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, and Birch Bay-Lynden/Portal Way intersections would continue to operate at LOS F during the PM peak hour in 2015 with the project. All other intersections would operate at LOS B or better during the PM peak hour in 2015. As discussed previously, there are long range planned improvements at these locations, which would improve operations in 2015 such that the LOS thresholds would be met.

The project would increase traffic volumes at the Lincoln Road/Harborview Road intersection by less than 3 percent. As discussed previously, long-term plans for this location would improve operations to LOS D or better. As an interim improvement, the project could mitigate impacts at this location by provided all-way stop control, which would improve overall intersection operations to LOS C during the PM peak hour under 2015 with-project conditions.

The project would increase traffic volumes at the Birch Bay-Lynden Road/Blaine Road intersection by 1.4 percent and the Birch Bay-Lynden/Portal Way intersection by less than one percent (see Table 4). Daily traffic typically fluctuates between five to ten percent, which is greater than the proposed project change in traffic volumes. Since the increases in traffic volume at the intersection are anticipated to be less than the range of daily fluctuation, changes in operations would be unnoticeable to the driver. As discussed previously, long-term plans for this location would improve operations to LOS D or better.

### *Site Access*

Project traffic would access the site via the existing Semiahmoo Ridge and Semiahmoo Drive intersection. As shown in the operations analysis, with the addition of project traffic, this intersection would operate at LOS A in 2015 during the weekday PM peak hour. Traffic volumes at the intersection would be low; therefore, it is not anticipated that turn lanes would be necessary.

Intersection sight distance measurements were conducted to ensure adequate sight distance at the Semiahmoo Drive/Semiahmoo Ridge intersections. In general, "intersection sight distance" is defined as the distance necessary for a motorist to safely enter the traffic stream without causing traffic on the major street to appreciably reduce its travel speed. Based on a design speed of 40 mph in the vicinity of the site, the County requires a minimum of 450-feet for intersection sight distance<sup>1</sup>. For right-turning vehicles from Semiahmoo Ridge to Semiahmoo Drive, the intersection sight distance would be met. For left-turning vehicles, there is currently vegetation blocking the sight distance; however, as part of the project Semiahmoo Ridge would be widened and the vegetation would be eliminated. Therefore, intersection sight distance would be met.

## **Non-motorized Facilities**

Pedestrian and bicyclist would be accommodated within the development. Traffic volumes within the development are anticipated to be low; therefore, minimal conflicts are anticipated between vehicular and non-motorized traffic. The existing non-motorized facilities within the study area would be adequate to accommodate any minimal increase in pedestrian and bicyclists anticipated as part of the proposed project.

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<sup>1</sup> Chapter 5 Road Standards, Whatcom County.

## Transit Service

The Ridge at Semiahmoo would have a minimal increase in anticipated transit ridership. It is anticipated that any increases in ridership would be adequately accommodated with the existing dial-a-ride transit services or any future WTA service plans.

## Transportation Concurrency

For purposes of transportation concurrency, Whatcom County relies on an evaluation of roadway operations. This analysis is conducted by calculating a v/c ratio, which compares traffic volumes along a roadway segment to available capacity by direction. Whatcom County's Comprehensive Plan establishes the roadway LOS standards, which for the study area is LOS D or a v/c ratio of 0.90. Under state law, the County cannot approve any development that would generate enough traffic to cause the LOS on county arterials and collectors to fall below the adopted standards.

Transportation concurrency is measured based on existing traffic volumes plus traffic from pipeline development and a proposed project. Concurrency applies to all County roadway segments impacted by 10 or more PM peak hour trips. Table 6 summarizes the concurrency analysis for the proposed project. All roadway segments within the County have a threshold of LOS C which equates to a V/C ratio of 0.75 or less. As shown in the table, all roadway segments have a v/c ratio of less than 0.90, meeting the County's concurrency standard of LOS D.

**Table 6. Transportation Concurrency Analysis Weekday PM Peak Hour**

Roadway	Direction	Capacity <sup>1</sup>	Volume	V/C Ratio
Birch Bay-Lynden Rd (Harborview Rd to west of Blaine Rd)	EB	960	374	0.39
	WB	960	653	0.68
Birch Bay-Lynden Rd (west of Blaine Rd to Blaine Rd)	EB	1200	374	0.31
	WB	1200	653	0.54
Birch Bay-Lynden Rd (Blaine Rd to Portal Way)	EB	960	473	0.49
	WB	960	798	0.83
Harborview Rd (Anderson Rd to Lincoln Rd)	NB	980	347	0.35
	SB	980	251	0.26
Harborview Rd (Birch Bay-Lynden Rd to Anderson Rd)	NB	980	347	0.35
	SB	980	251	0.26
Lincoln Rd (Blaine City Limits to east of Blaine City Limits)	EB	960	286	0.30
	WB	960	489	0.51
Lincoln Rd (east of Blaine City Limits to west of Shintaffer Rd)	EB	960	286	0.30
	WB	960	489	0.51
Lincoln Rd (west of Shintaffer Rd to Shintaffer Rd)	EB	960	286	0.30
	WB	960	489	0.51
Lincoln Rd (Shintaffer Rd to Harborview Rd)	EB	840	286	0.34
	WB	840	489	0.58
Portal Way (northwest of Custer School Rd to Birch Bay-Lynden Rd)	NB	850	312	0.37
	SB	850	265	0.31
Semiahmoo Dr (Elderberry Lane to Blaine City Limits)	NB	870	26	0.03
	SB	870	64	0.07

Source: Transpo Group, 2010.

1. Roadway capacities per Whatcom County based on facility type.
2. Traffic volume along roadway segment.
3. V/C ratio calculated as volume divided by capacity.

## Findings and Recommendations

This transportation impact study summarizes the project traffic impacts of The Ridge at Semiahmoo. General findings include:

- The proposed project would develop 30 single-family homes and would generate approximately 30 weekday PM peak hour vehicle trips.
- Project traffic would increase traffic volumes at the off-site intersections by less than one to approximately six percent of the total PM peak hour traffic volume in 2015.
- With the addition of project traffic, the Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, Birch Bay-Lynden Road/Portal Way intersections would continue to operate at LOS F in 2015 during the PM peak hour.

### Potential Mitigation Measures

As discussed above, the intersections of Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, and Birch Bay-Lynden/Portal Way would operate at LOS F during the PM peak hour under future with project conditions.

Long range improvement plans are identified for the Lincoln Road/Harborview Road, Birch Bay-Lynden Road/Blaine Road, Birch Bay-Lynden/Portal Way intersections; however, these improvements are currently unfunded and it is unknown if these improvements would be completed prior to the development of the project. The construction of the planned improvements at these locations would improve operations to acceptable levels even with the development of the project.

The project would increase traffic volumes at the Birch Bay-Lynden Road/Blaine Road intersection by 1.4 percent and the Birch Bay-Lynden/Portal Way intersection by less than one percent. Daily traffic typically fluctuates between five to ten percent, which is greater than the proposed project change in traffic volumes. Since the increases in traffic volume at the intersection are anticipated to be less than the range of daily fluctuation, changes in operations would be unnoticeable to the driver.

Interim improvements could be considered at the Lincoln Road/Harborview Road intersection. The installation of all-way stop control would improve overall operations to LOS C during the PM peak hour.