SR 305 Needs and Opportunities Study

Prepared for

Kitsap Transit
Connecting Communities

December 2017

Prepared by

Parametrix

SR 305 Needs and Opportunities Study

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ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
LOS	level of service
SR	State Route
WSDOT	Washington State Department of Transportation

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

State Route (SR) 305 is a 13.5 mile highway that connects Bainbridge Island ferry terminal to SR 3 near Poulsbo, and serves as a vital corridor for residents, businesses, and visitors alike. The corridor experiences varied traffic volumes, often leading to congestion that affects mobility and accessibility throughout the surrounding communities.

The Washington State Department of Transportation is working collaboratively with the City of Poulsbo, the City of Bainbridge Island, Kitsap County, Suquamish Tribe, and Kitsap Transit to develop a master plan of projects intended to improve traffic flow for vehicles, transit, bicycles, and pedestrians, and to decrease the potential for collisions.

The process initially began with an effort by the West Sound Alliance, which produced a report on Strategic Corridor Investments. In July 2015, the Washington State Legislature included $36.8 million for SR 305 construction and safety improvements between the ferry terminal and Hostmark Street NE as part of the Connecting Washington Transportation revenue package.

Kitsap Transit followed by obtaining a grant to produce the SR 305 Corridor Needs and Opportunities Study. This study will identify a vision for the corridor and create a comprehensive set of intermediate and long-term improvements to address congestion and enhance all modes of transportation. Kitsap County, Kitsap Transit, Suquamish Tribe, City of Bainbridge Island, City of Poulsbo, and the Washington State Department of Transportation (WSDOT) have partnered together on this project.

1.2 Study Purpose

The purpose of this this study is to assess constraints on the SR 305 corridor and provide prioritized potential strategies that will help move people, increase safety and improve traffic patterns along the corridor. This study identifies a comprehensive set of short, intermediate and long-term improvements to address congestion and enhance all modes of transportation on the SR 305 corridor. Short-term improvements will inform WSDOT's – Winslow Ferry to Hostmark Street Safety Improvement projects, scheduled to start in January 2018 and funded with the Connecting Washington revenue package. Intermediate and long-term improvements will be identified and prioritized for use by Kitsap Transit and its partners to pursue additional funding for these projects.

1.3 Study Process

This study uses the new WSDOT Practical Design guidelines to identify needs in the corridors and possible strategies to address those needs. The project scope called for the use of existing data available from various sources including previous studies, public participation, and work already completed by the local jurisdictions as the primary source of data and information. The consultant team completed a comprehensive analysis of baseline conditions to identify project needs. The team worked with communities and stakeholders along the corridor to develop a vision for improvements and create a comprehensive set of short and long term strategies. This study does not include options for replacing the Agate Pass Bridge; however; the study will include highway design concepts that will help to inform future decisions about the replacement of the Agate Pass Bridge. WSDOT's $36.8M- Winslow Ferry to Hostmark Street Safety Improvement Projects included funding for a Type Size and Location (TS&L) Study for the Agate Pass Bridge.

2. PUBLIC AND AGENCY INVOLVEMENT PROCESS

2.1 Partner Agencies

The SR 305 Needs and Opportunities study process has been led by Kitsap Transit and guided by representatives from Kitsap County, the City of Bainbridge Island, the City of Poulsbo, the Suquamish Tribe, and the Washington State Department of Transportation.

The study effort has directed by an executive steering committee (working group) of leadership representatives from these agencies and governments. This project leadership team has been committed to a strong ongoing partnership and fostering a regional perspective and approach to the development of the SR 305 corridor. The following study partners provided ongoing assistance to the project team and participated in monthly technical team and working group meetings.

Technical Team

- Steffani Lillie –Kitsap Transit
- Steve Roark – WSDOT
- Michele Britton – WSDOT
- Barry Loveless – City of Bainbridge Island
- Chris Hammer – City of Bainbridge Island
- Michael J. Bateman – City of Poulsbo
- Diane K. Lenius – City of Poulsbo
- Andrzej L. Kasiniak – City of Poulsbo
- David Forte – Kitsap County
- Andrew Nelson – Kitsap County
- Bob Gatz – Suquamish Tribe
- Linda Owens – Washington State Senate (Staff for Senator Rolfes)

Working Group

- Rob Gelder – Kitsap County
- John Clauson – Kitsap Transit
- Alison O'Sullivan – Suquamish Tribe
- Chris Archunde – Clearwater Casino
- Russell Steele – Clearwater Casino
- Irene Carper – Clearwater Casino
- Chairman Leonard Forsman – Suquamish Tribe
- Councilmember Ed Stern – Poulsbo City Council
- Mayor Becky Erickson – City of Poulsbo
- Councilmember Gary Nystul – Poulsbo City Council
- Doug Schulze – City of Bainbridge Island
- Councilmember Kol Medina – Bainbridge Island City Council
- Mayor Val Tollefson – City of Bainbridge Island
- Councilmember Wayne Roth – Bainbridge Island City Council
- Senator Christine Rolfes – Washington State Senate
- John Wynands – WSDOT

2.2 Community Involvement

The SR 305 Needs and Opportunities Study involved community stakeholders in a series of open houses and online engagement opportunities over the course of the project. In fall 2016, SR 305 partners hosted three open houses along the corridor to hear feedback and improvement suggestions for pedestrians, vehicles, mass transit, and bicycles. During the 2016 open houses, the project team referenced technical studies to guide discussion. The project team also used an online survey to solicit public feedback and help identify key transportation issues within the SR 305 corridor. Project staff hosted over 46 attendees at each 2016 open house and 1,222 people responded to the survey. Community members provided 1,413 comments to help the project team understand their community and their needs.

The 2016 open house dates and locations included:

- October 30, at Poulsbo City Hall;
- November 1, at Suquamish Clearwater Casino Resort;
- November 3, at the Bainbridge High School commons; and
- November 16, online survey

The community was engaged again in the SR 305 Needs and Opportunities Study in fall of 2017. SR 305 partner agencies held three open houses and one online open house during October for the public to discuss how they would like $36.8 million prioritized for intersection improvements along SR 305. Partner agencies advertised the events by postcard, through their social media pages and local newspapers.

The three 2017 open houses were held along the SR 305 corridor at the following locations:

- October 19, at Bainbridge Island City Hall;
- October 24, at Suquamish Tribal Council Chambers; and
- October 25, at Poulsbo City Hall.

The online open house comment period was active from October 17 – 29.

The in-person open houses were well-attended, with 172 attendees and 67 written comments. The online open house received 111 comments, ranging from corridor-wide requests, improvements by segment and suggestions that are outside the scope for corridor improvements.

2.2.1 Poulsbo 2016 Open House

Attendees at the Poulsbo open house suggested ways to improve conditions for bicyclists, including:

- Create a separate bike lane along SR 305 or an underpass for bicycles at intersections
- Provide more separation between cars and non-motorized commuters
- Add lighting on the Agate Pass Bridge

Poulsbo attendees also requested adding a stop light or left turn lane to allow a left turn onto SR 305 from rural roads and to help prevent collisions.

2.2.2 Suquamish Clearwater Casino Resort 2016 Open House

Attendees of the Suquamish Clearwater Casino Resort suggested a shared lane for bicyclists and pedestrians from the casino to Lemolo Shore Drive to improve safety for both pedestrians and vehicles.

To aid congestion in the project area, attendees suggested adding an HOV or bus-only lane on SR 305. Some attendees suggested building an overpass to improve mobility and avoid congestion around the casino.

2.2.3 Bainbridge Island 2016 Open House

Participants noted congestion and safety concerns at the Bainbridge Island open house. Suggested improvements included left hand turns on the egress and ingress of SR 305 and a traffic light at Seabold.

Attendees suggested widening the pedestrian lanes on the Agate Pass Bridge and adding a bicycle lane to improve overall mobility and address the existing bottleneck.

Many attendees favor roundabouts, rather than traffic signals.

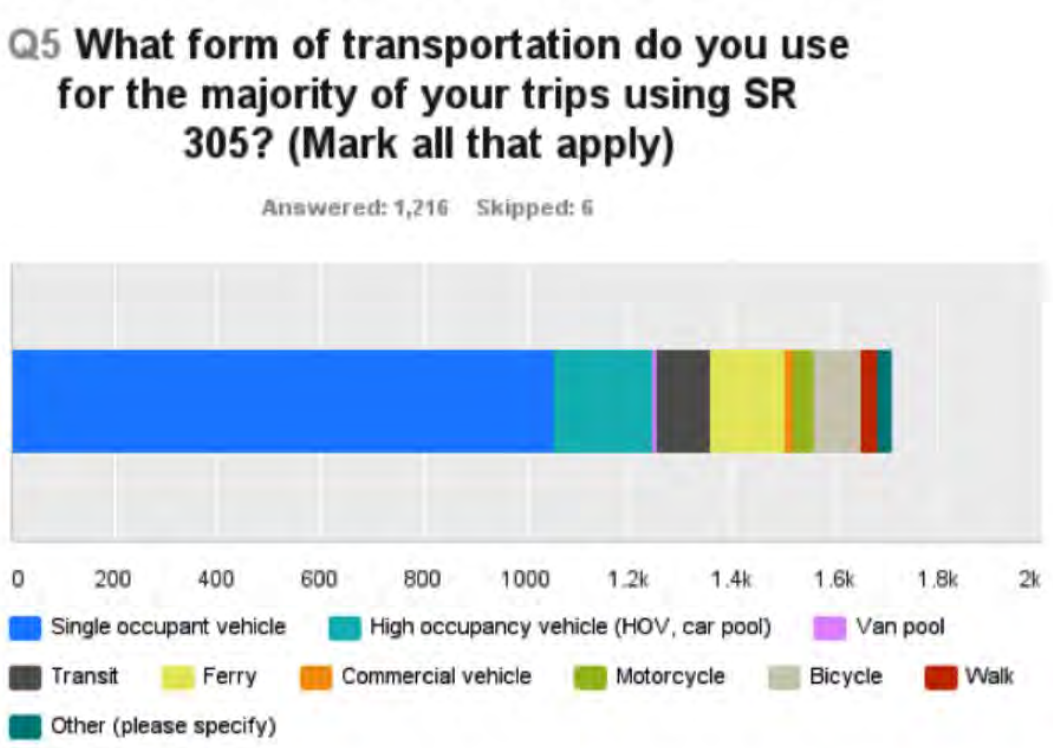
2.2.4 November 2016 Online Open Survey

The SR 305 project team invited community members to provide feedback in an online survey as well. The project team distributed online survey invitations to the partners' email distribution lists, and promoted in newspapers on the Kitsap Peninsula.

The online survey resulted in 1,222 unique responses from residents in following areas:

- 43% – Bainbridge Island
- 39% – Greater Poulsbo area
- 11% – Suquamish, Indianola, Kinston and Hansville areas
- 5% – Central Kitsap
- 1% – South Kitsap
- 1% – Other

Over two-thirds (67%) identified using SR 305 for "daily transportation" or "more than three days a week". One-third (33%) said they use the corridor occasionally. Most respondents (87%) indicated they drive alone for the majority of trips on SR 305.



Respondents to the November 2016 online survey (see **Figure 1**) also identified several issues along the SR 305 corridor:

- **Travel time** Most respondents to the survey (90%) indicated "travel time and speed" is an issue. Over 50% felt this issue occurred throughout the corridor, but cited commute times and ferry off-loads as particularly impactful. The traffic issues identified were mostly directional: southbound for the AM commute and northbound in the PM.
- **Safety** Nearly three quarters of those surveyed (76%) identified safety concerns. Top concerns included congestion due to ferry boarding and off-loading, pedestrian and bicyclist traffic, turns in all directions, and access to SR 305 from side streets.
- **Intersections** Over 70% identified "traffic signals at intersections" as an issue throughout the corridor, specifically around the ferry boarding area, at Clearwater Casino Resort, and at NE Day Road.
- **Left turns** 61% of respondents expressed concern about limited access from side roads throughout the corridor. Respondents also indicated the problem increased during commute times and ferry off-load periods.
- **Transit** Only 30% respondents considered transit an issue. A third of those respondents indicated they used transit for a majority of their trips. 45% of residents expressed concern about transit travel time. Other top concerns included scheduling, bus stops, crossing SR 305, buses caught in traffic, and buses causing traffic problems.
- **Bicycle and pedestrian access** Bicyclists (52%) and pedestrians (60%) identified concerns such as types of bicycle and pedestrian facilities available in the corridor and safety when crossing over SR 305 and biking on the Agate Pass Bridge. The majority of bicyclists start their trips at Bainbridge Island (53%), Poulsbo (North SR 305) (22%), and Suquamish (Central SR 305).

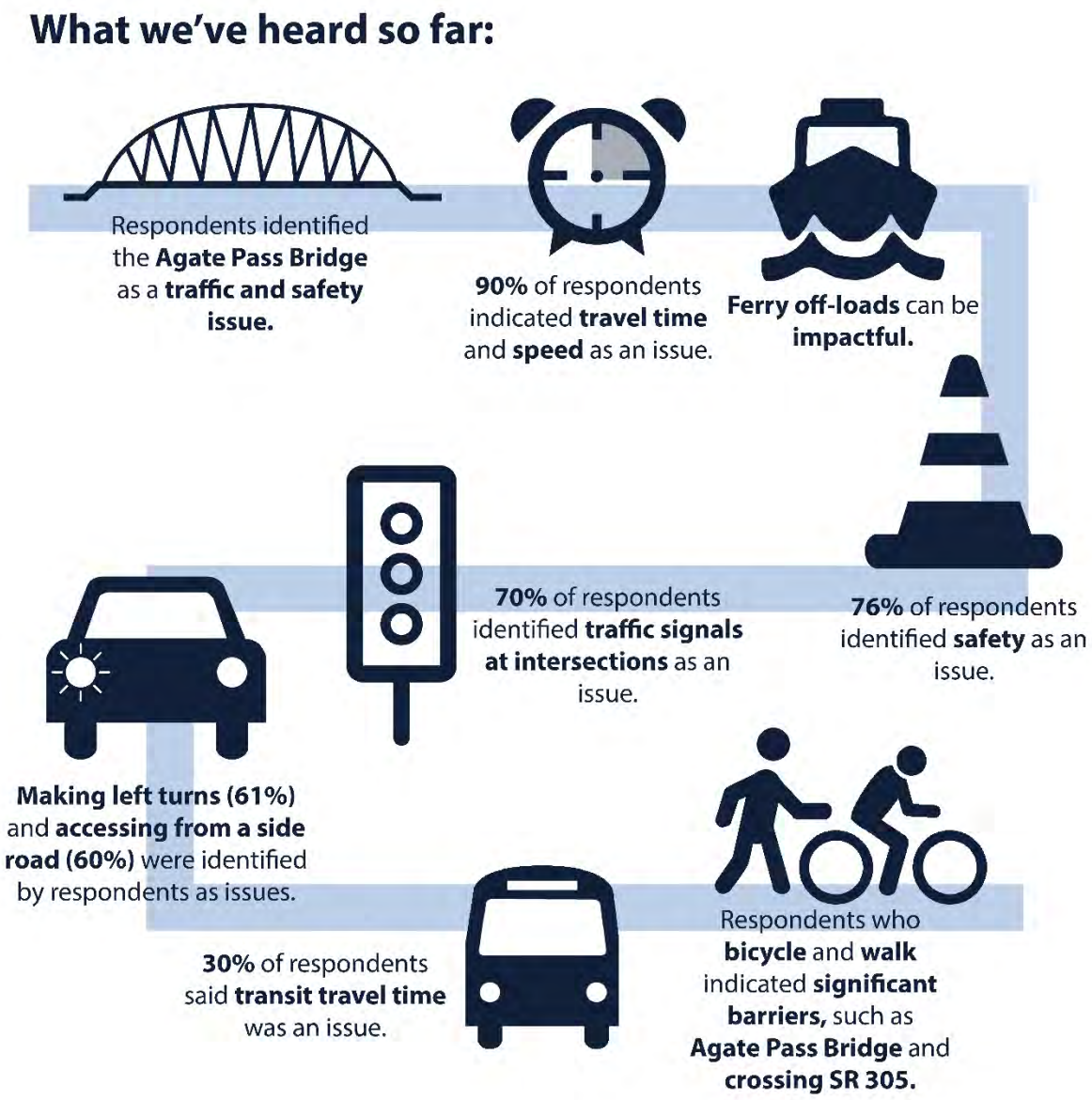


Figure 1. Summary of Public Input on SR 305 Corridor Needs

General comments from respondents also provided the following highlights:

- 177 comments on intersections, including turns, signals, and highway access.
- 99 comments on the ferry and their understanding of its impact on traffic.
- 96 comments on bicycles—specifically the need for additional bike facilities.
- 85 comments on the Agate Pass Bridge, ranging from bicycle and pedestrian facilities, total capacity, and the idea that community members feel Agate Pass Bridge is a choke point.
- 79 comments on traffic near the Clearwater Casino, specifically the intersection and signal.

Feedback collected also showed that traffic was one of the most discussed issues, as highlighted on **Figure 2**.

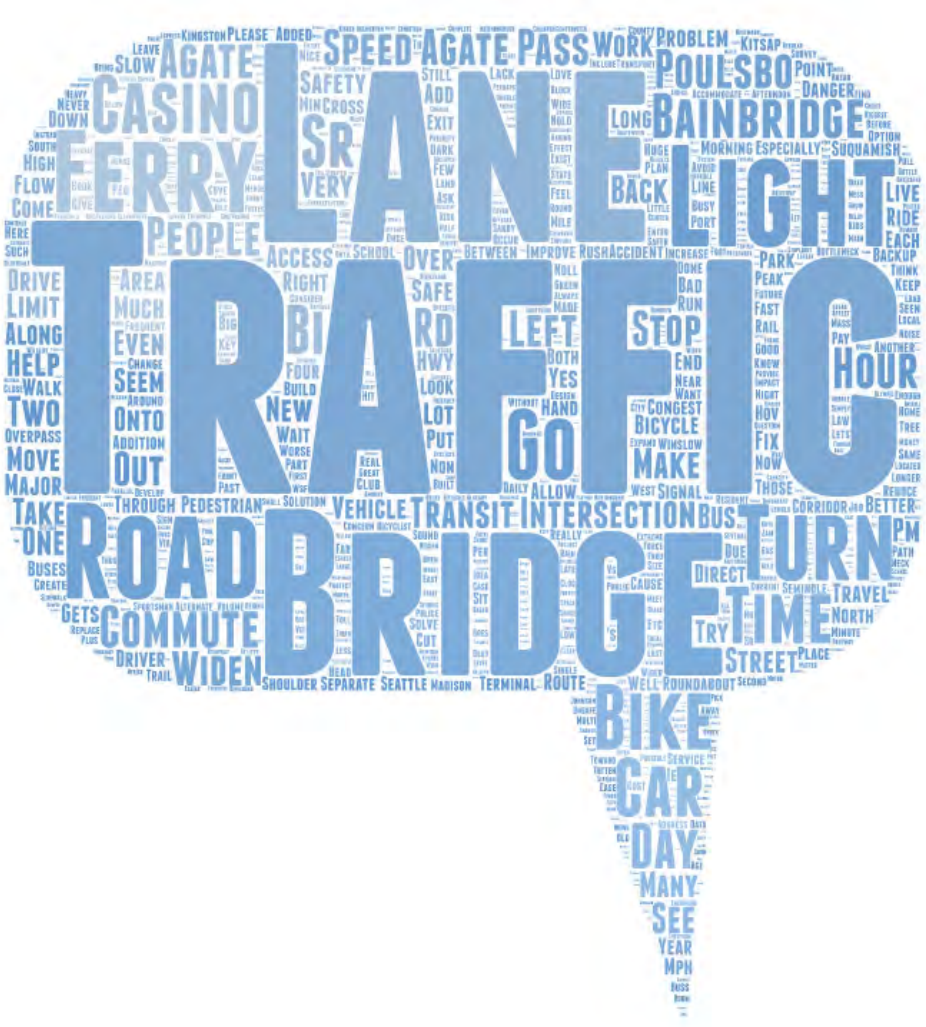


Figure 2. Summary of Public Input from SR 305 Open Houses in November 2016

2.2.5 2017 In-Person and Online Open Houses

Comments received during the fall 2017 open houses were organized by corridor-wide themes and by segments.

Open house participants at Bainbridge Island City Hall

2.2.5.1 Corridor-Wide Themes

Intersection improvements

Most participants expressed concerns about the safety of making left turns off and onto SR 305 from several intersections. Many participants requested traffic lights to manage traffic flow and prevent collisions. Several participants expanded on this concern and requested striping at SR 305 and arterials to prevent blocking at intersections. Participants also requested left turn lanes to maintain traffic flow and an opportunity to prevent collisions.

The following intersections were the most commonly identified for intersection improvements:

- West Port Madison Road
- Seminole Road NE
- NE Seabold Road
- NE Totten Road
- Lemolo Drive NE
- Masi Shop

Roundabouts: traffic flow versus safety

Roundabouts were a hot topic and each open house. A majority of those who commented on the use of roundabouts thought they were a good solution. Participants commented that roundabouts would ease traffic flow concerns, prevent collisions, and allow quick access to SR 305 during peak-periods with high congestion.

The following intersections were identified for a roundabout:

- West Port Madison Road
- Agatewood Road NE
- Johnson Road NE
- NE Totten Road
- Lemolo Drive NE
- Suquamish Way NE
- Masi Shop
- NE Seabold Road
- NE Day Road

For those participants against the use of roundabouts, most questioned their safety in a high-speed corridor and whether they would effectively manage traffic flow.

Increased bus service leads to a more efficient and safer corridor

Many participants expressed a need for increased bus service to reduce the number of cars on SR 305. Several participants commented that reducing the number of cars on SR 305 would improve safety. Attendees also suggested that implementing Q-jumps to prioritize busses at traffic lights may incentivize ridership.

Open house participants at Suquamish Tribal Council Chambers

General improvements

Several participants suggested the following to improve safety and access along the corridor:

- Work with local police jurisdictions to monitor traffic speeds and dangerous driving;
- Extend the current 45 mph speed limit on SR 305 from Agate Pass southward to the West Port Madison Road intersection, as an immediate measure to reduce risk of collision;
- Widen SR 305 to reduce congestion;
- Widen the shoulders for bicyclists; and
- Increase sidewalks along the corridor for pedestrians.

2.2.5.2 Segment Themes

NE Seabold and West Port Madison roads

On Bainbridge Island, a majority of in-person and online open house participants (29) who live on or near West Port Madison Road requested a traffic light to control traffic flow and increase travel safety at this intersection.

Several participants also requested building a roundabout for the same reasons.

Several participants also advocated for a traffic light at NE Seabold Road, that shares the same intersection as West Port Madison Road.

Masi Shop

In Suquamish, a majority of participants requested either a traffic light or roundabout at the Masi Shop. Most commenters felt the intersection in its current configurations forces drivers to make dangerous left hand turns during peak periods or at high speeds.

NE Totten Road, Lemolo Drive NE, and Seminole Road NE

In Poulsbo, the most common requested locations for improvement were NE Totten Road, Lemolo Drive NE, and Seminole Road NE. Commenters suggested installing either traffic lights or building roundabouts at these locations. Their reasons included concerns for blind turns, left turns and to improve traffic flow.

Open house participants at Poulsbo City Hall

3. EXISTING AND FORECASTED CONDITIONS

3.1 Study Area

The study area for this project, shown in **Figure 3**, extends for the full length of the SR 305 corridor, approximately 13.5 miles between the Bainbridge Island ferry terminal in Winslow to SR 3 in Poulsbo.

3.2 Data Collection

Various types of data were collected to understand the existing and future operations of the SR 305 corridor. Data included:

- AM and PM peak hour traffic volumes
- Average daily traffic (ADT)
- Origin/Destination data
- Transit network, activity and capacity data
- Forecasted traffic volumes
- Signal timing data
- Ferry ridership data
- Park-and-ride usage
- Travel speed data
- Crash data
- Public comments
- In-person observations

3.3 Previous Studies

Previous studies of the SR 305 corridor have been completed by local jurisdictions. The following studies have completed analysis in the study area:

- 1997 – SR 305 Corridor Analysis Major Investment Study
- 2008 – SR 305 Corridor Vision
- 2011 – SR 305 Corridor Enhanced Transit Alternatives Analysis Technical Study
- 2013 – Washington State Ferries Origin-Destination Travel Survey Report
- 2013/4 – Suquamish Development Traffic Study
- 2014 – SR 305 Suquamish Way Intersection Improvements Project Phase 1 Report
- 2015 – Johnson Road – SR 305 Intersection Feasibility Study
- 2016 –
  - Kitsap Transit Long Range Plan
  - Kitsap County Comprehensive Plan
  - City of Poulsbo Comprehensive Plan
  - City of Bainbridge Island Wide Transportation Plan Update
- 2017 -Kitsap Transit Comprehensive Route Analysis: Existing Conditions

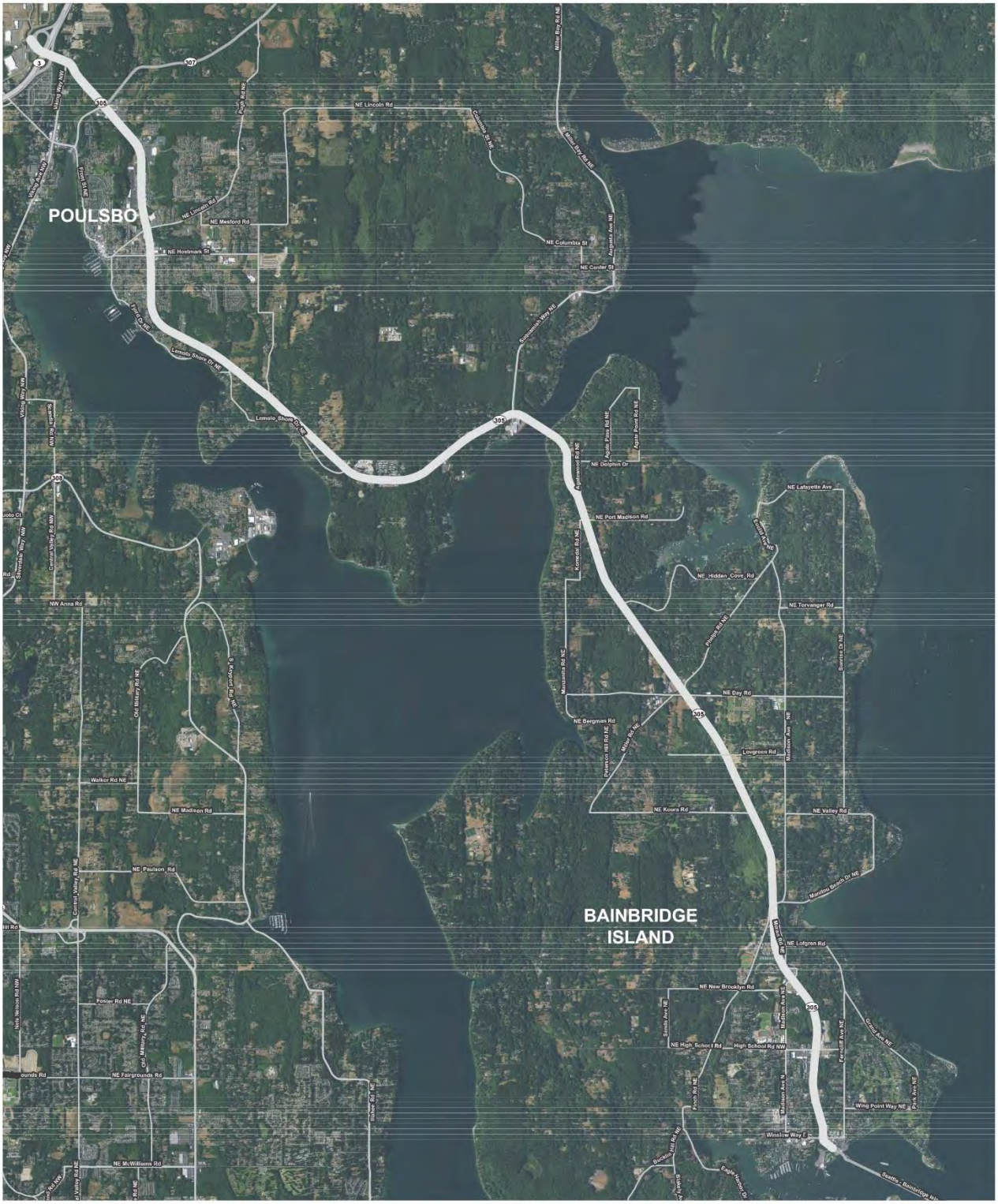


Figure 3. Study Area

3.3.1 SR 305 Corridor Analysis Major Investment Study 1997

The 1997 SR 305 Corridor Analysis Major Investment Study was part of WSDOT's long range route development planning program. The program identified the need and type of future improvements to be made in the SR 305 corridor to accommodate future growth in vehicle, bicycle, and pedestrian volumes in each corridor segment. Input from local transit authorities, cities, counties, tribes, citizen groups, and private individuals was integrated with the WSDOT's needs to develop the route development plan.

The main purpose of the SR 305 Corridor Analysis Major Investment Study was to determine the actions and improvements that would need to be made to the corridor to accommodate future travel demand. The study recommended corridor improvements for the entire corridor and along three segments of the SR 305 corridor, which included:

- Bainbridge Island Segment:
  - Add northbound left turn lane and southbound right turn lane at Winslow Way intersection
  - Add northbound queue jump lane and signal priority for transit at High School Road intersection
  - Add left turn lane at Madison Avenue intersection
  - Implement sidestreet improvements and northbound queue jump lane and transit signal priority at Sportsman Club Road intersection
  - Implement sidestreet improvements and northbound queue jump lane and transit signal priority at Day Road
  - Upgrade access control to Class II between the ferry terminal and Winslow Way
- Suquamish Segment:
  - Add continuous center left turn lane
  - Add left turn pockets with frontage road
  - Add four lane widening with left turn pockets at major intersections
- Poulsbo Segment:
  - Add one lane in each direction for all traffic
  - Add one lane in each direction for HOV (2+) traffic during peak periods
  - Add one lane in each direction for HOV (3+) traffic during peak periods
  - Add one lane in each direction for all traffic with transit bypass lanes at signalized intersections
- Corridor-wide:
  - Designate SR 305 as Class III bicycle route
  - Add 8-foot paved shoulders on both sides of SR 305 and bicycle route signs on Bainbridge Island and Suquamish segments
  - Add bicycle lanes in each direction on Poulsbo segment
  - Implement access management strategies
  - Add park-and-ride lots
  - Implement commute trip reduction and other employer-based TDM efforts
  - Implement parking management strategies in the Bainbridge Island ferry terminal vicinity

3.3.2 SR 305 Corridor Vision 2008

The SR 305 Corridor Vision was completed in 2008 as an update to the 1997 SR 305 Corridor Analysis Major Investment Study. Regional partners worked together to evaluate the SR 305 corridor with more focus on high capacity transit (HCT) options for the corridor. The study identified potential major capital projects that included:

- Transit crossing SR 3
- Agate Pass Bridge improvements or reconstruction
- New transit stations and park-and-ride facilities

The study also evaluated various transit alternatives that included:

- Light rail transit
- Automated fixed guideway transit
- Bus Rapid Transit

The SR 305 Corridor Vision addressed the growing transportation demands of the region and the need for future development of high capacity transit (HCT) service to achieve the following long term transportation and land use goals:

- Increase corridor capacity without adding auto travel lanes.
- Encourage transportation efficient land use.
- Protect the scenic value of SR 305 corridor and surrounding areas.
- Provide an environmentally and community friendly travel option.
- Limit the impacts of traffic and parking.

3.3.3 SR 305 Corridor Enhanced Transit Alternatives Analysis Technical Study 2011

The SR 305 Corridor Alternatives Analysis Technical Study provided additional analysis of Kitsap Transit's work done as part of the SR 305 Corridor Vision. The technical study further refined the set of alternatives to address travel needs in the corridor. The SR 305 Corridor Alternatives Analysis Technical Study provided additional data collection and analysis to evaluate transit options between the Bainbridge Island ferry terminal and SR 3 in Poulsbo. The study evaluated the following transit alternatives in the corridor:

- Light rail
- Monorail
- Automated Fixed Guideway transit
- Magnetic Levitation
- Commuter/heavy rail
- Diesel multiple unit
- Bus rapid transit

3.3.4 Kitsap Transit Long Range Plan 2016

The Kitsap Transit Long Range Plan is the planning tool used to guide Kitsap Transit in examining service needs over the next 20 years. The plan includes sections on comprehensive goals and policies, transit service characteristics as of 2016, local community conditions in the service area including information on planned major developments, information on transit centers and Transit Oriented Development (TOD), routed bus service standards and guidelines, capital project needs for the next 20 years, a fleet replacement plan, and financial outlook. The Plan highlights Kitsap Transit service and improvements along SR 305.

3.3.5 Kitsap County Long Range Plan 2016

The Kitsap County Long Range Plan describes how residents would like the County to look in the future. This document includes Guiding Directives, Goals and Policies, and Strategies for the following seven elements; Land Use, which includes rural and resource lands, Economic Development, Environment, Housing and Human Services, Transportation, and Capital Facilities and Utilities. The Kitsap County Long Range Plan describes the importance of the SR 305 corridor in connecting Kitsap communities to other important regional economies, such as Tacoma and Seattle. The plan also highlights important transportation directives that include the following:

- establish a seamless multi-modal regional transportation system through intergovernmental coordination,
- avoid concentrating people and commercial/industrial areas in sensitive areas, to minimize need for development of transportation systems in such areas,
- emphasize moving people rather than vehicles through support of high capacity transit,
- continue to pursue Growth Management Act requirements of concurrency, and,
- maximize the efficiency of existing transportation corridors before creating new ones.

3.3.6 City of Poulsbo Comprehensive Plan 2016

Poulsbo's Comprehensive Plan is a policy and legal document that reflects the community's desires, goals and needs for the future, within the context of the requirements of the Growth Management Act. Key community goals for transportation include:

- Emphasize development of complete streets that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders regardless of age, ability or mode of transportation.
- Develop standards to improve the function, safety, and appearance of the City street system.
- Maintain a consistent level of service on the City's street system that is appropriate for existing and future growth to improve traffic flow.
- Participate in efforts to enhance the City's connectivity to the region, including telecommuting.

The Plan also includes a policy to adopt LOS D as the applicable level of service standard for SR 305 (Policy TR-2.9).

3.3.7 City of Bainbridge Island Comprehensive Plan 2016

Bainbridge Island's Comprehensive Plan is the long-range vision for the city, pursuant to the requirements of the Growth Management Act. The transportation element of the plan includes goals and policies for

transportation in the city, and describes the importance of SR 305. During commute hours, SR 305 becomes a wall across the island due to congestion and traffic. SR 305 through Bainbridge Island functions as a regional facility connecting Seattle and the Island ferry terminal with the Kitsap and Olympic Peninsulas. Many policies included in the Comprehensive Plan call for safety, nonmotorized, and motorized improvements to the SR 305 corridor.

3.4 Operations Analysis

The operations analysis for the study intersections used the software programs Synchro (version 9.1) for signalized and unsignalized intersections and SIDRA (version 6.1) for roundabout controlled intersections. Synchro is a macroscopic analysis and optimization software application that supports the Transportation Research Board Highway Capacity Manual's methodology (2000 and 2010 methods) for signalized and unsignalized intersections and creates optimized signal timing plans for intersections and corridors. SIDRA is an analytical traffic evaluation software application that uses lane-by-lane and vehicle path models to provide estimates of capacity. The roundabout analysis was consistent with WSDOT's SIDRA Policy and Settings[1].

A common method of measuring traffic operations is level of service (LOS), defined in terms of average intersection delay on a scale ranging from A to F, depending on the delay conditions at the intersection. LOS A represents the best conditions with minimal delay, and LOS F represents the worst conditions with severe congestion. Two factors determine delay: (1) the capacity of the intersection as defined by the number of lanes, lane widths, pedestrian volumes, and other features; and (2) signal timing. Capacity, delay, and LOS are calculated for each traffic movement or group of traffic movements at an intersection. The weighted average delay across all traffic movements determines the overall LOS for a signalized intersection.

The LOS at unsignalized intersections that are stop-controlled on one or two approaches are also defined in terms of delay, but only for the worst stop-controlled approach, which is typically the minor street. For unsignalized intersections that are stop-controlled on each approach, the average intersection delay is reported. The delay thresholds are lowered for stop-controlled intersections because driver behavior considerations make delays at stop-controlled intersections more onerous. For example, at signalized intersections, drivers may relax during the red interval while waiting for the green interval, but drivers on the stopped approach of a stop-controlled intersection must remain attentive to identifying acceptable gaps in traffic. Table 1 summarizes the criteria used to define LOS.

Table 1. Level of Service Criteria

	Average Control Delay (seconds per vehicle [sec/veh])		
LOS	Signalized/ Roundabout Intersections	Unsignalized Intersection	Traffic Flow Characteristics
A	< 10	< 10	Virtually free flow; completely unimpeded.
B	> 10 and < 20	> 10 and < 15	Stable flow with slight delays; less freedom to maneuver.
C	> 20 and < 35	> 15 and < 25	Stable flow with delays; less freedom to maneuver.
D	> 35 and < 55	> 25 and < 35	High density but stable flow.
E	> 55 and < 80	> 35 and < 50	Operating conditions at or near capacity; unstable flow.
F	> 80	> 50	Forced flow; breakdown conditions.

Note: The LOS criteria are based on control delay, which includes initial deceleration delay, final deceleration delay, stopped delay, and queue move-up time.
Source: Transportation Research Board Highway Capacity Manual, 2010

[1] http://www.wsdot.wa.gov/design/traffic/analysis/

3.5 Land Use

There are three distinct sections of SR 305 with different land use types. The southern end of the corridor, roughly between the WSDOT Ferry Port and Madison Avenue NE consists of urban type land use, with commercial, some multi-family housing, and office developments. The north island and Suquamish areas, roughly from Madison Avenue NE to NE Hostmark Street is mostly rural type land use, with single family homes, small pockets of commercial consisting of mostly gas stations and drive-through coffee shops. The Suquamish Clearwater Casino and Resort is located just north of the Agate Pass Bridge and is a major destination along the corridor. The northern section, between NE Hostmark Street and SR 3 consists of urban land use comprised mostly of commercial land use, with some access to multifamily housing.

3.6 Population and Growth

Most of the growth in the corridor is expected around the existing population centers near Poulsbo and the Winslow area of Bainbridge Island. Additional growth is expected surrounding the Suquamish Clearwater Casino, as the tribe continues to develop their lands. These expected improvements are currently under review by tribal officials and are not publically available, but coordinate with the tribe has informed the modeling completed in order to account for their future growth.

3.7 Roadway and Traffic

The following section is a general description of roadway and traffic conditions in the corridor, including both existing and future forecasted traffic levels.

3.7.1 Existing Roadway Conditions

SR 305 is part of Washington's principal arterial system, connecting Kitsap County to the Seattle area, via the Bainbridge Island ferry. The corridor is a two lane highway with one travel lane in each direction with the following exceptions:

- Two lanes in each direction south of Winslow Way at the Bainbridge Island ferry terminal
- Two northbound lanes from Winslow way to High School road merging to one lane north of the intersection
- A center two way left turn lane in various segments of the corridor (existing, under construction, and planned)
- Two lanes in each direction through Poulsbo from the Hostmark vicinity to Highway 3, outer lanes are for high occupant vehicle priority use during peak commuting hours.
- Intersection left and right turn lanes at various locations.

Posted speed limits on the corridor range from 30 mph in core city areas to 55 mph on more rural stretches of the highway. Access management classifications vary throughout the corridor, with the most restrictive being applied on Bainbridge Island.

3.7.2 Existing Traffic Conditions

WSDOT provided daily and PM peak hour traffic volume data. Additional manual count data was collected from recent traffic impact studies on Bainbridge Island. Intersections turning movement counts at select intersections to supplement data. Count data was collected at the following intersections.

- Winslow Way
- High School Road NE
- Madison Avenue N
- Sportsman Club Road NE
- NE Koura Road
- NE Lovgreen Road
- NE Day Road
- NE Hidden Cove
- Agatewood Rd NE
- Sandy Hook
- Masi driveway
- NE Totten Road
- Noll Road NE
- Johnson Way NE
- NE Hostmark St
- NE Lincoln Rd
- NE Liberty Rd
- NE Forest Rock Ln
- SR 307 (Bond Rd NE)
- Viking Ave NW

Figure 4 summarizes existing northbound PM peak hour traffic volumes along SR 305.

3.7.3 Traffic Origins and Destinations

Origin and destination data was evaluated based on travel surveys completed by the WSDOT State Ferries, as well as with StreetLight Data. StreetLight Data collects data from smartphones and devices with location based services to determine the overall origin and destination information through the corridor. The data shows most of the traffic (around 80% of the traffic that arrives at the Agate Pass Bridge) has either an origin or destination within Poulsbo or Bainbridge Island. About 10% of the vehicle traffic at the Agate Pass bridge has an origin east of Puget Sound, and uses the WSDOT Ferry to connect to the southern end of the corridor. This data was confirmed with traffic counts showing increasingly high volumes towards the north end of Bainbridge Island. The WSDOT Ferry travel survey also confirmed this data, which also shows about 75% of the Ferry traffic having an origin or destination south of the Agate Pass Bridge.

Figures 5 through 7 illustrate data collected from StreetLight.

3.7.4 Forecasted Traffic Volumes

Future traffic volumes were estimated using the Kitsap County TransCAD Travel Demand Model. The model uses future land use assumptions to forecast trip demands based on future trip productions and attractions within the model. The model volumes were compared to existing land use and known developments to ensure the assumed volumes represented the future corridor conditions.

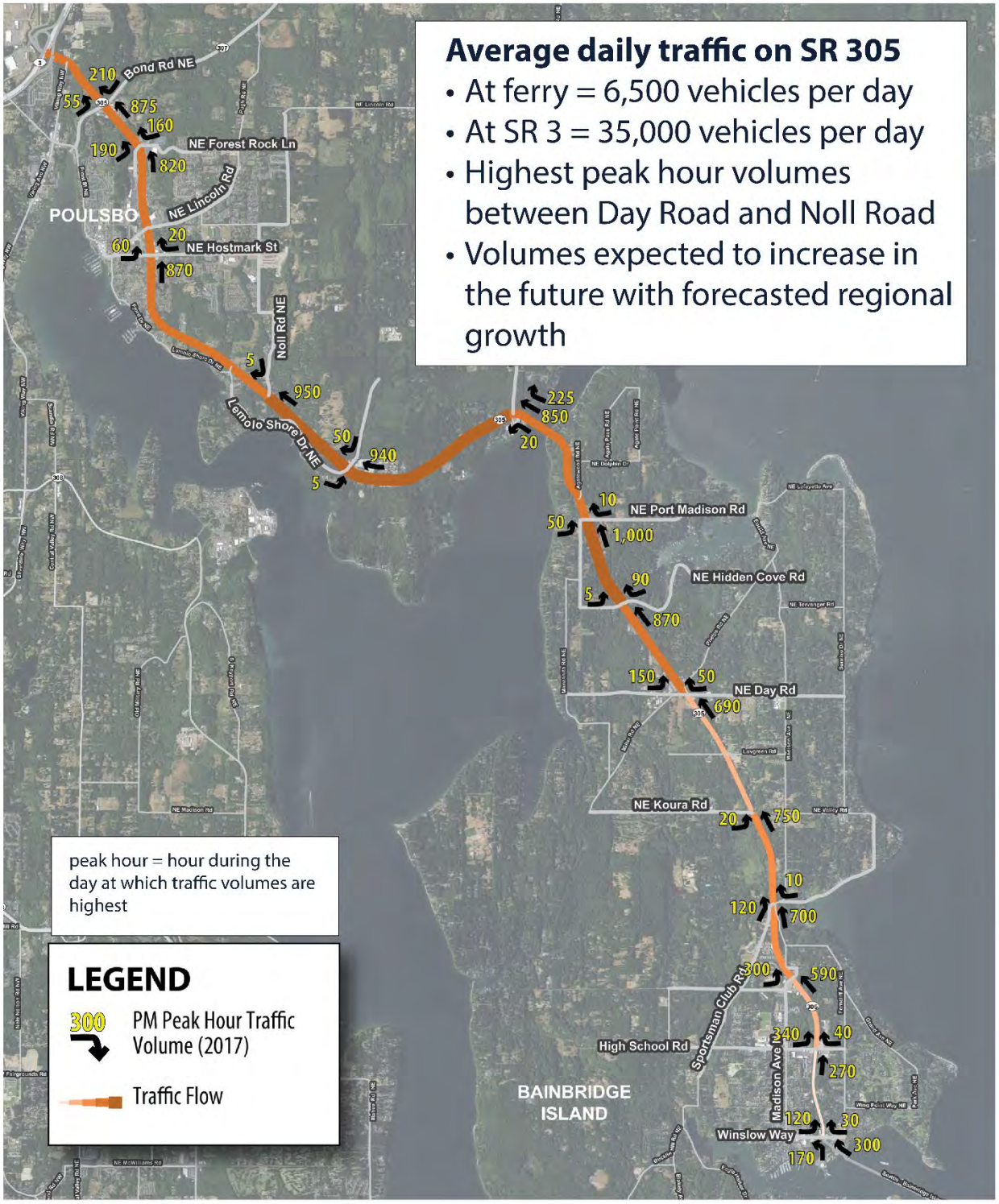


Figure 4. Existing PM Peak Hour Peak Direction Travel Volumes

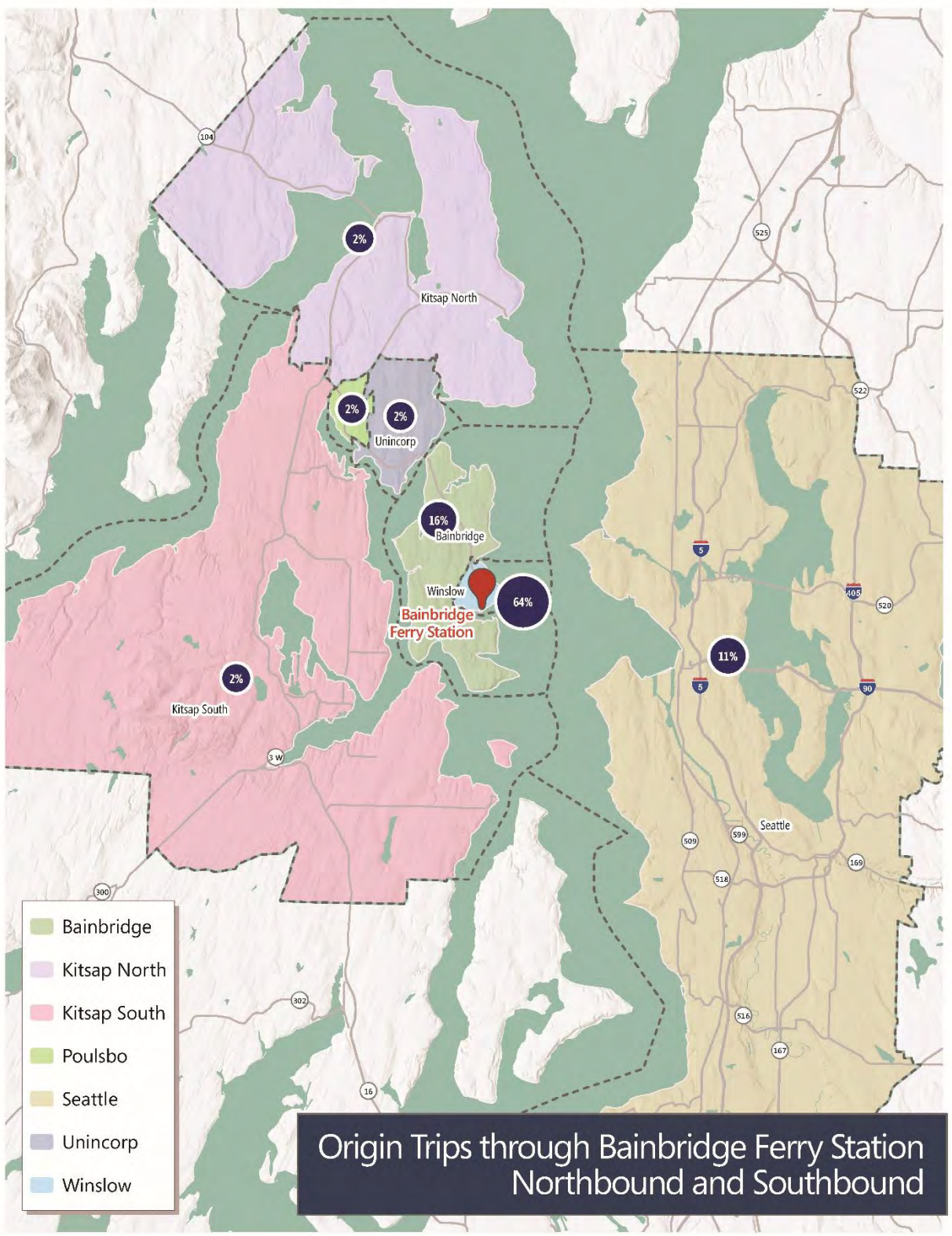


Figure 5. Origin of Trips Passing through the Winslow Ferry Terminal

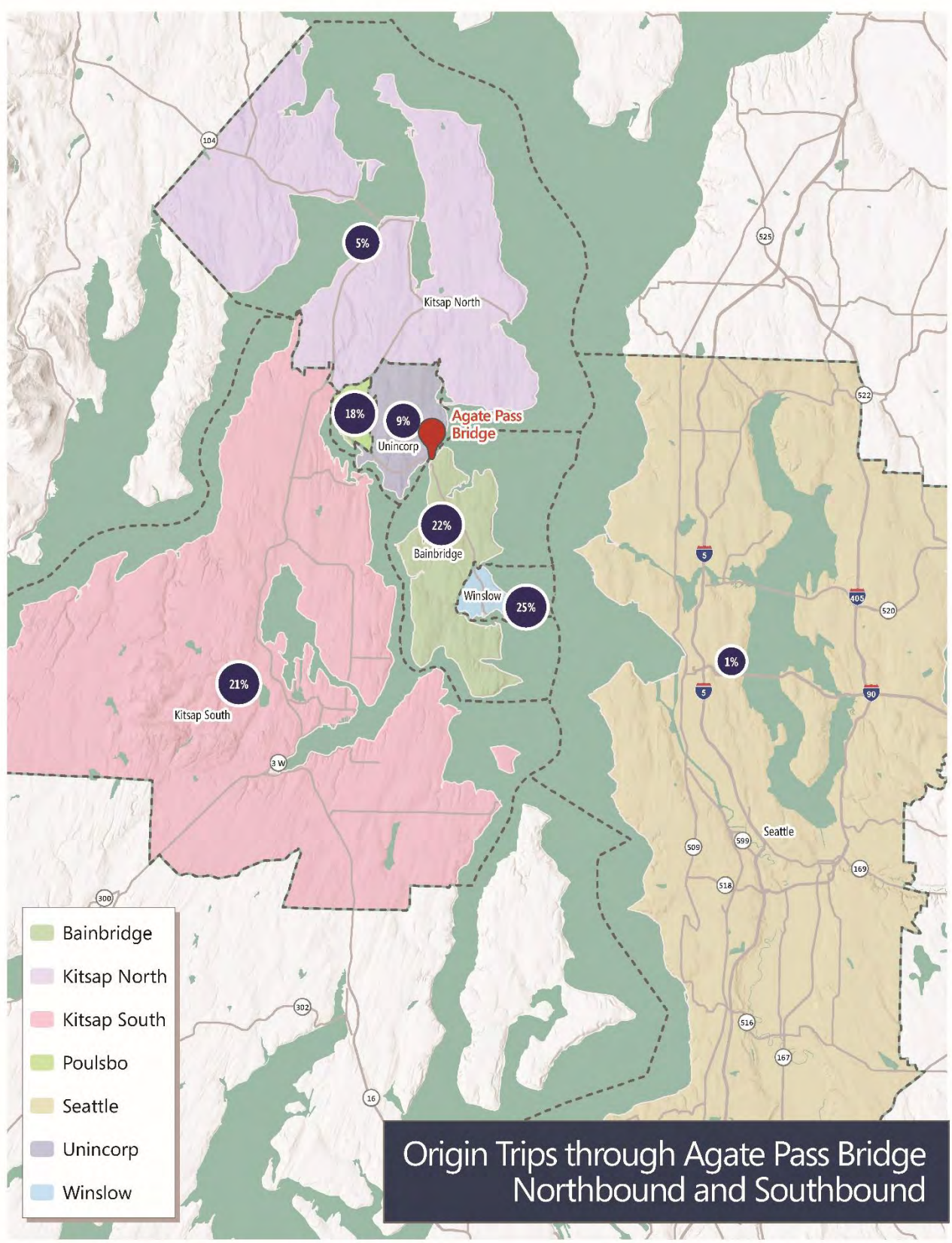


Figure 6. Origin of Trips Passing through SR 305/Suquamish Way Intersection

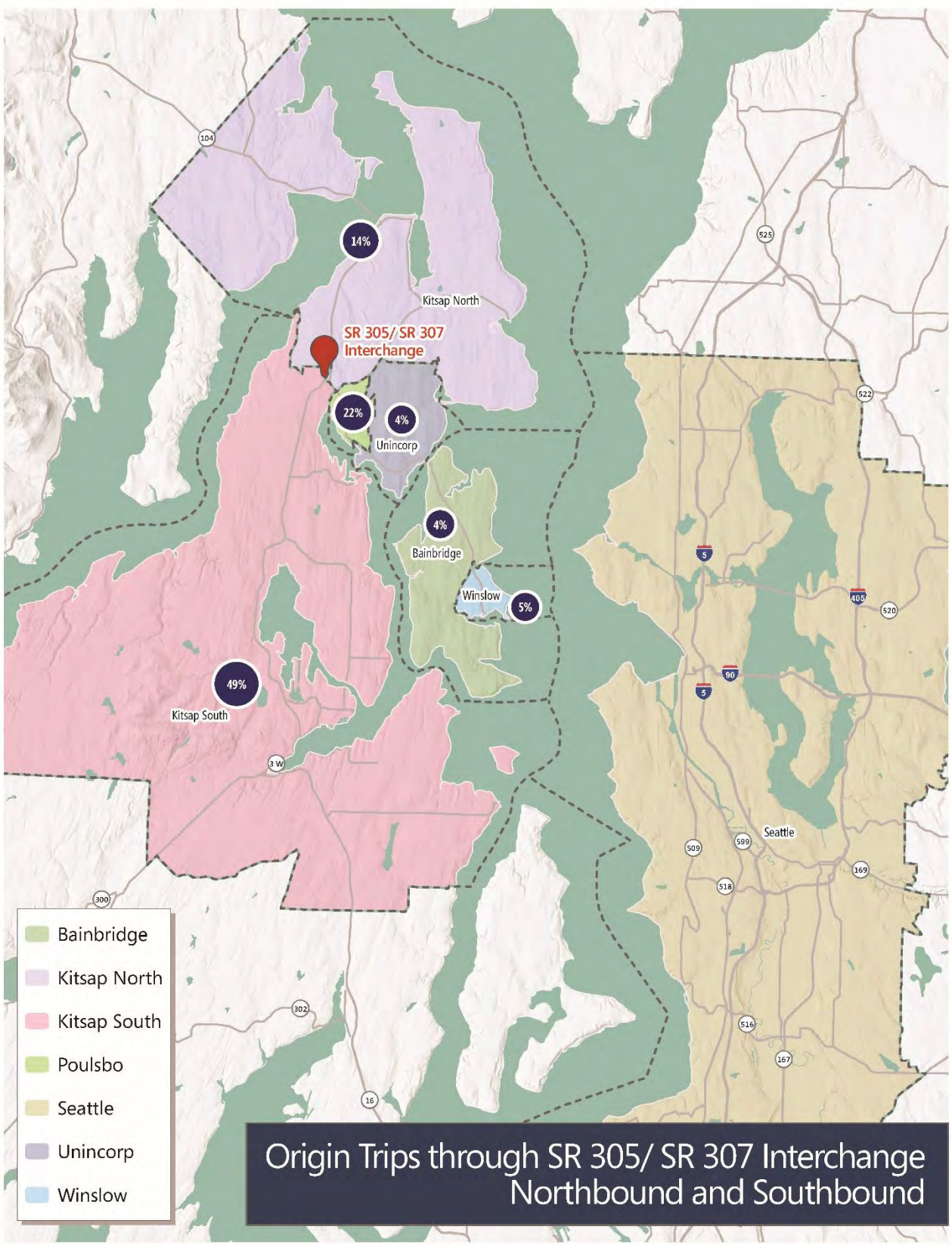


Figure 7. Origin of Trips at Passing through SR 305/SR 307 Intersection

3.7.5 Traffic Operations

The PM peak hour was analyzed because the evening commute volumes are typically higher than morning commute volumes based on typical travel patterns. Other periods such as summer weekend or during special events may have higher traffic volumes and worse congested conditions but were not included in this study.

Figure 8 illustrates existing level of service and queuing along the corridor. Most of the signalized intersections operate under highly congested conditions. Extensive queuing at signalized intersection occurs during the PM peak hour. Queuing on SR 305 in turn causes long delays for traffic trying to access the corridor from stop-controlled side streets.

3.8 Collision Data

The collisions analysis reviewed data from January 2012 through December 2016 provided by WSDOT to assess the frequency and types of collisions along the corridor. The most typical collision type is rear end collisions accounting for two thirds of intersection collisions. The highest collision locations were SR 305 / Bond Road, SR 305 / Viking Avenue and SR 305 /Sportsman Club Road. There were three fatalities during this period. **Figure 9** illustrates the total number of collisions along SR 305 between January 2012 and December 2016.

3.9 Future Traffic Conditions

The growth in traffic from 2017 and 2036 varies by roadway segment and is expected to vary between 5 percent and 30 percent during the PM peak hour. Traffic on the segment of SR 305 between Winslow Way and High School Road is forecasted to grow by approximately 5 percent by the 2036 PM peak hour, indicating forecasted growth in the corridor is a result of overall growth in the county and not related to increases in auto travel from the ferry terminal. The heaviest growth is expected between Totten Road and SR 3.

Congestion is forecasted to be heavy in the corridor under 2036 PM peak conditions. Delays and queuing will continue to be a problem at many of the study intersections during the PM peak hour.

Figure 8. Existing Level of Service and Queues

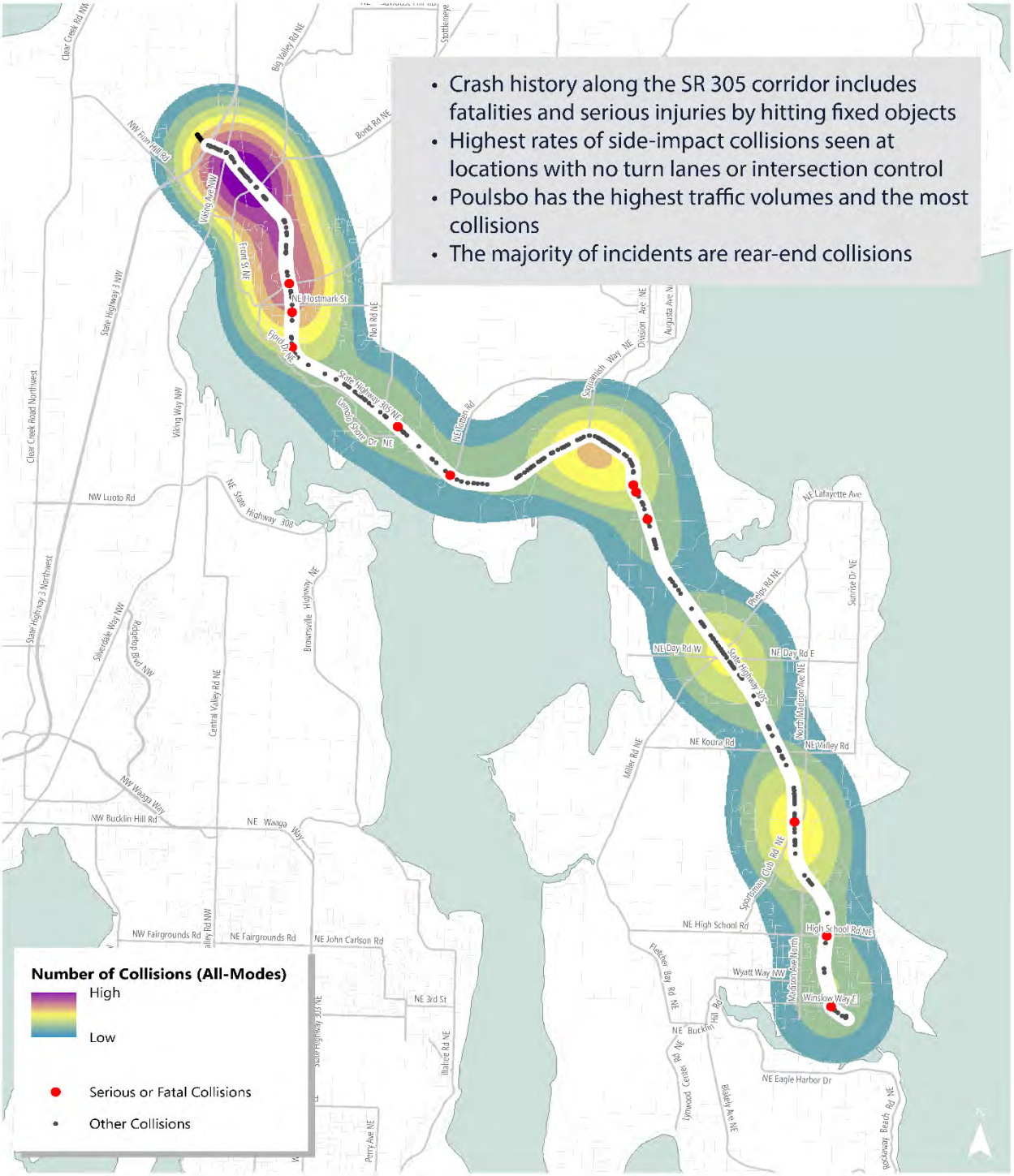


Figure 9. SR 305 Collisions (January 2012 to December 2016)

3.10 Bicycle and Pedestrian

Bicycles facilities currently exist along the corridor consisting of painted shoulder bike lanes. The lanes exist from Winslow Way E to NE Liberty Road. North of NE Liberty Road, widened shoulders exist, but are not marked as bike lanes, and there are not bike lane treatments at signalized intersections. The bike lane/shoulder is shared sporadically throughout the corridor with slow moving traffic, farm equipment, and ferry loading queues.

There is currently no separation between the bike lanes and vehicle traffic on SR 305. Therefore, bicycle level of stress on SR 305 is considered to be level 4, for strong and fearless riders. In other words, while facilities exist throughout the corridor, due to their proximity to traffic and being shared with other types of traffic, only the most experienced riders are likely to use them.

Bicycles must share the lane with vehicle traffic at the Agate Pass bridge.

Pedestrian facilities exist within the urban areas near Winslow, within Poulsbo, and around the Suquamish Clearwater Casino Report. A multiuse trail exists along the east side of SR 305 between Winslow Way E and NE John Nelson Lane. An extension connecting the trail to High School Road NE is currently under construction.

Figures 10 and 11 illustrate locations along SR 305 that have existing dedicated bicycle and pedestrian facilities linked to transit stops. **Figure 12** illustrates how far bicyclists can travel from SR 305 in 15 minutes or less. The gray indicates the distance assuming the bicyclists are comfortable traveling in street with traffic. The colored grading shows how far bicyclists can travel using dedicated bicycle facilities.

Figure 10. Existing Bicycle Connections to Transit Stops on SR 305

Figure 11. Existing Pedestrian Connections to Transit Stops on SR 305

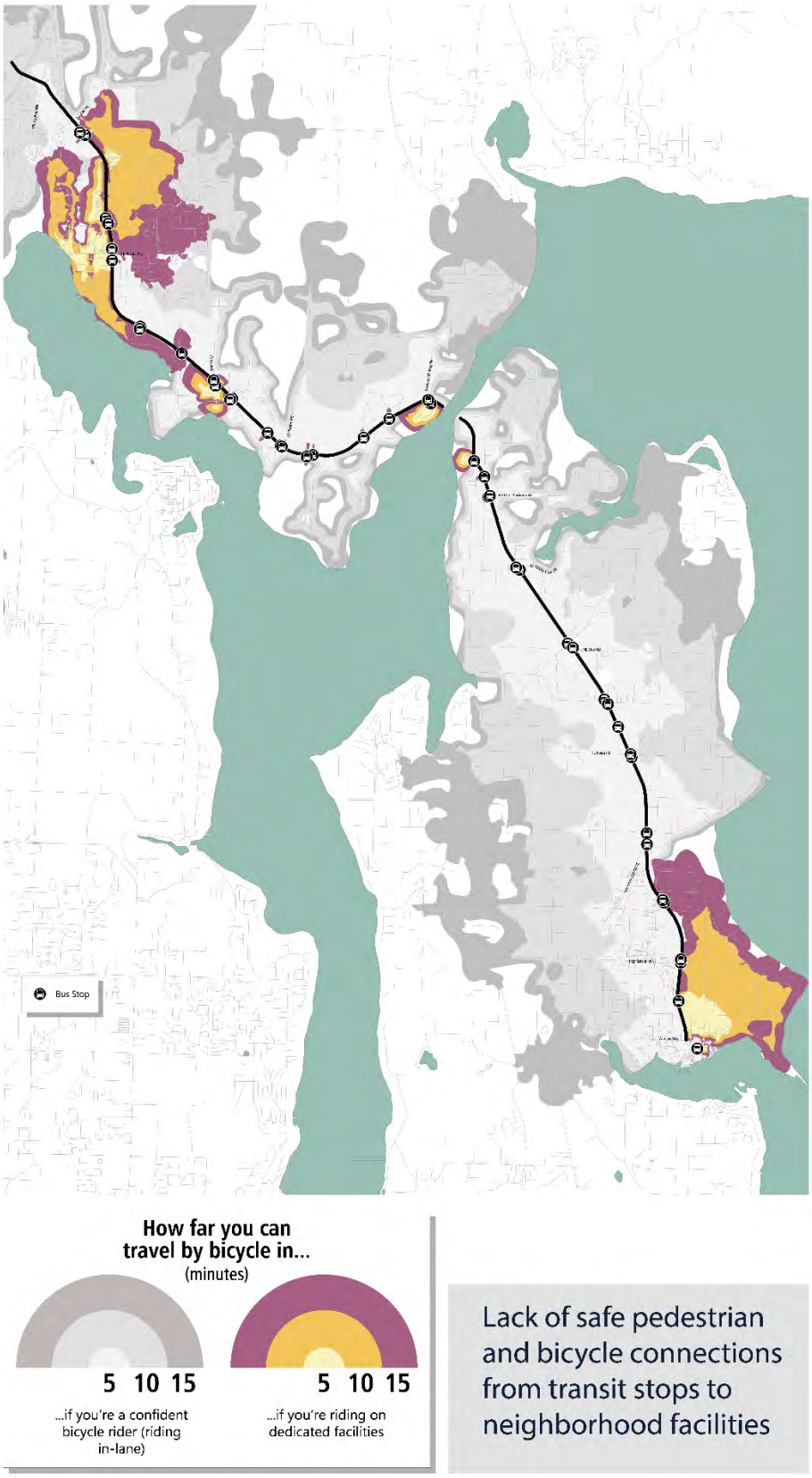


Figure 12. How Far You can Travel by Bicycle to Transit Stops along SR 305

3.11 Transit

Transit demand in the SR 305 corridor is predominantly influenced by ferry terminal-based trips. This is evident by the number of existing Kitsap Transit routes serving the terminal and the peak-hour orientation of routes on and through Bainbridge Island. Demand growth over the next 15 to 25 years, while potentially influenced by population and job growth along with transit service improvements, will be largely a function of ferry ridership growth. This is particularly true of peak demand. Ferry ridership projections, which are based on the Washington State Ferries Long-Range Strategic Plan, account for much of the expected changes in North Kitsap County demographics including population projections and forecasted jobs-housing ratios – the most accurate predictors of transit travel demand.

While ferry service levels are expected to remain constant over the next twenty years, Washington State Ferries (WSF) is forecasting double-digit percent growth in vehicular boardings and a doubling of walk-on boardings at the Bainbridge Island terminal. It is important to recognize that peak hour, peak direction ferries are already operating close to their vehicular capacity. This means that most of the growth in vehicular boardings will come at the off-peak times or on the fringe of the traditional peak. WSF projections are largely based on population and employment growth numbers coupled with vehicular capacity limitations on ferry vessels. WSF cites a large population increase in Kitsap County coupled with lower growth in county employment as the primary drivers of the large projected increase in commuters heading to Seattle each day. The vehicular capacity limitations, both on board and at local parking facilities, result in walk-on boardings increasing from an estimated 45 percent of total boardings today to over 60 percent by 2020. A recent vehicle license plate survey indicates that 48 percent of passengers with cars live off the island in North Kitsap County. This trend is likely to continue as the Poulsbo area is expected to grow more than Bainbridge Island.

Kitsap Transit (KT) operates 14 fixed-route bus lines in the study area. KT provides connections with Jefferson Transit at the Poulsbo Transfer Center and with WSF service at the Bainbridge Island Ferry Terminal. The identified routes primarily serve the Bainbridge Island Ferry Terminal, where 12 KT routes terminate. Ten routes only operate during the peak commute times on weekdays, providing service for the rush of commuters using the ferry system. Kitsap Transit maintains a high mode-share (30 percent) during rush hour in the corridor. Route 90 to Poulsbo serves the entire SR 305 corridor all day, six days a week. This route carries half of the daily ridership in the corridor and over a third of the ridership on ferry-based routes.

There are 860 park-and-ride spaces located in various locations along the SR 305 corridor (not including spaces at the ferry terminal area). Existing park-and-ride occupancy averages 375 vehicles per day, which is 44 percent of total capacity. As shown on **Figure 13**, the park-and-ride with the highest existing occupancy rate is the Gateway Fellowship Park-and-Ride in central Poulsbo. The Clearwater Park-and-Ride near the Agate Pass Bridge has the lowest occupancy rate.

Figure 14 summarizes travel speed and reliability in the corridor in the AM and PM peak periods for both directions of travel. During the AM peak period, travel speeds are slowest in the southbound direction, particularly near the ferry terminal. However, southbound transit travel time reliability is poorer in the north end of the SR 305 corridor during the AM peak period, with reliability being poor between Poulsbo and the Agate Pass Bridge. During the PM peak period, both southbound and northbound travel speeds are slower near the ferry terminal. Transit travel time reliability in the southbound direction during the PM peak period is poor near the ferry terminal. In the northbound direction, transit travel time reliability is poor between Day Road and the Agate Pass Bridge.

Figure 13. Transit Service and Park-and-Ride Utilization

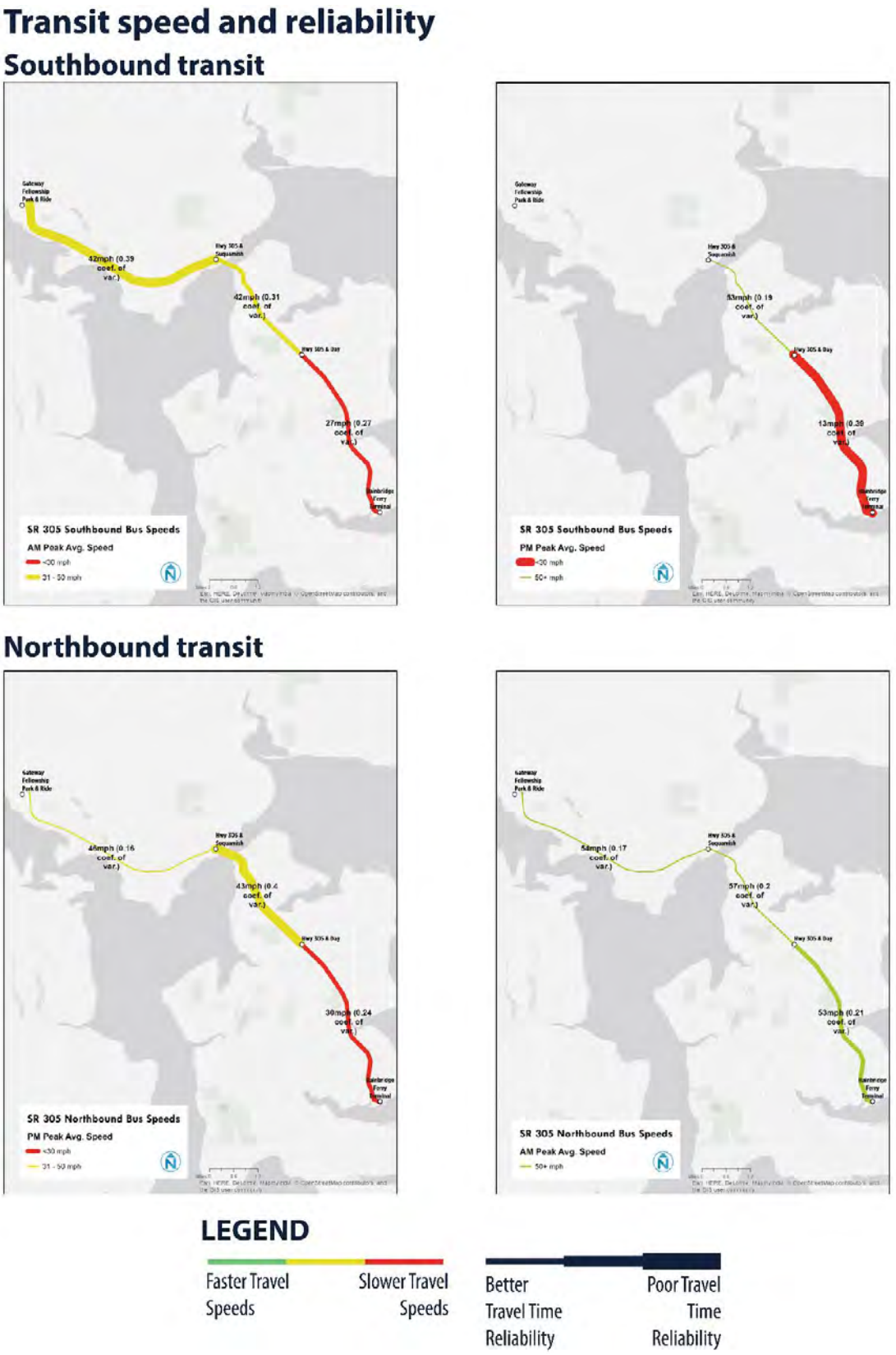


Figure 14. Transit Travel Time Speed and Reliability

3.12 Ferry

Ferry operations are important determinants in the traffic flows and operation along SR-305. A ferry arrival can add surges of 200 vehicles from the auto decks, plus traffic associated with pick-up and drop- off activities and ferry parking lots. Highest vehicle volumes associated with the WSF ferry operations are the 4:40 pm and 4:30 pm (Seattle departures) which influence traffic volumes during the evening pm peak hour. To a lesser extent, the 4:35 pm and 5:30 pm departures from Bainbridge Island may also affect traffic levels during the PM peak hour.

3.13 Environmental Conditions

An inventory of environmental conditions was completed along the SR 305 corridor. The inventory identified salmon streams, fish barriers, wildlife corridors, and wetlands among other critical environmental conditions.

3.13.1 Wildlife Habitat

Potential wildlife corridors were identified in several locations along the SR 305 corridor. As shown on **Figures 15 and 16**, these include areas near:

- NE Totten Rd and Candy Loop NE on either side of SR 305;
- NE Hidden Cove Rd on either side of SR 305; and
- NE Koura Rd, primarily on the southwestern side of SR 305.

Priority avian habitat is also present in and near the corridor, which includes habitat for Bald Eagles, Blue Heron, Osprey, Peregrine Falcon, Pileated Woodpecker, and Purple Martin.

3.13.2 Fish Passage

There are many streams that intersect with SR 305 along the entire length of the corridor. Several are Salmonid Streams, as shown of **Figures 15 and 16**. SR 305 is a partial or total barrier for fish passage in several locations along the corridor, including at:

1. Unnamed tributary to Dogfish Creek near Viking Ave NW (total barrier),
2. Unnamed tributary to Dogfish Creek near Bond Rd NE (partial barrier),
3. Unnamed tributary to Liberty Bay near Baywatch Ct NE (total barrier),
4. Sam Snyder Creek near NE Totten Rd (total barrier),
5. Klebeal Creek near Suquamish Way NE (total barrier),
6. Unnamed tributary to Manzanita Creek near NE Hidden Cove Rd (partial barrier),
7. Unnamed tributary to Port Madison near NE Hidden Cove Rd (partial barrier),
8. Manzanita Creek near NE Lovegreen Rd (total barrier),
9. Unnamed tributary to Murden Cove near NE Morgan Rd (total barrier),
10. Unnamed tributary to to Murden Cove near Sportsman Club Rd NE (partial barrier),
11. Unnamed tributary to Eagle Harbor near High School Rd NE (total barrier), and
12. Unnamed tributary to Eagle Harbor near Wyatt Way NW (total barrier).

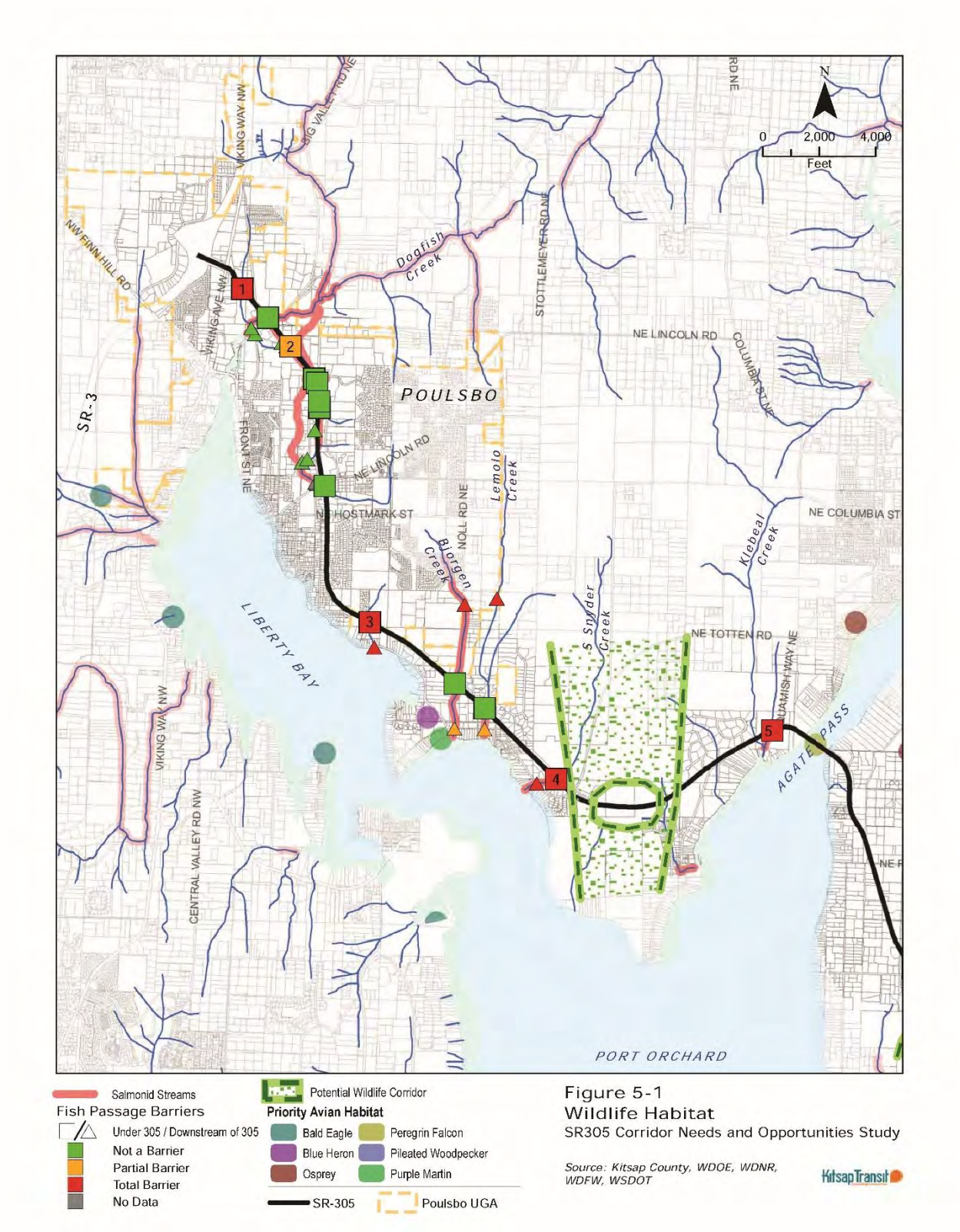


Figure 15. Wildlife Habitat, North Portion

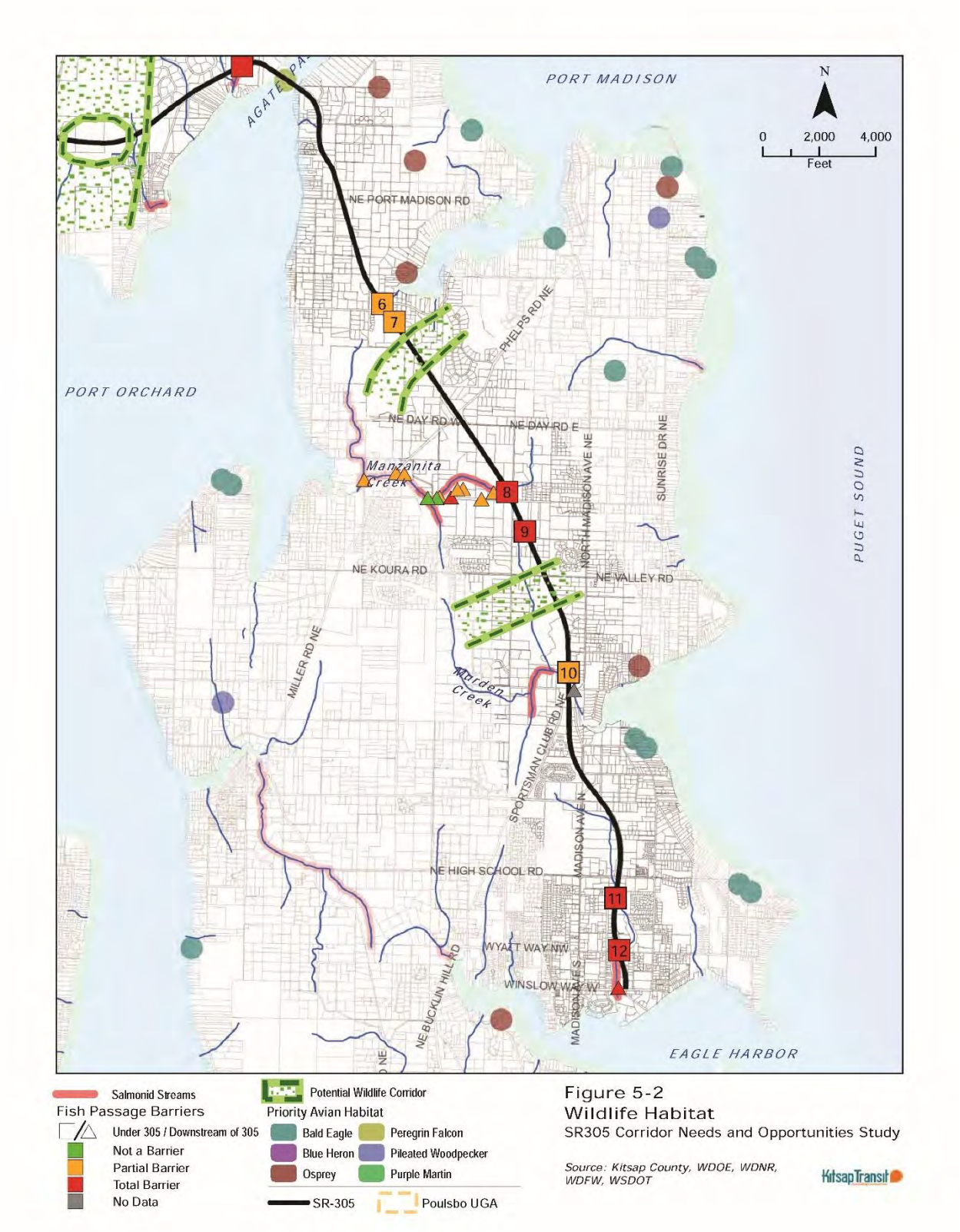


Figure 16. Wildlife Habitat, South Portion

3.13.3 Wetlands and Floodplains

Wetlands and floodplains are also present along the SR 305 corridor, as shown on **Figures 17 and 18**. Wetlands that are located approximately adjacent to the corridor, which could impact roadway widening, primarily occur along the corridor south of the Agate Pass Bridge. There are also some wetlands located near SR 305 in Poulsbo.

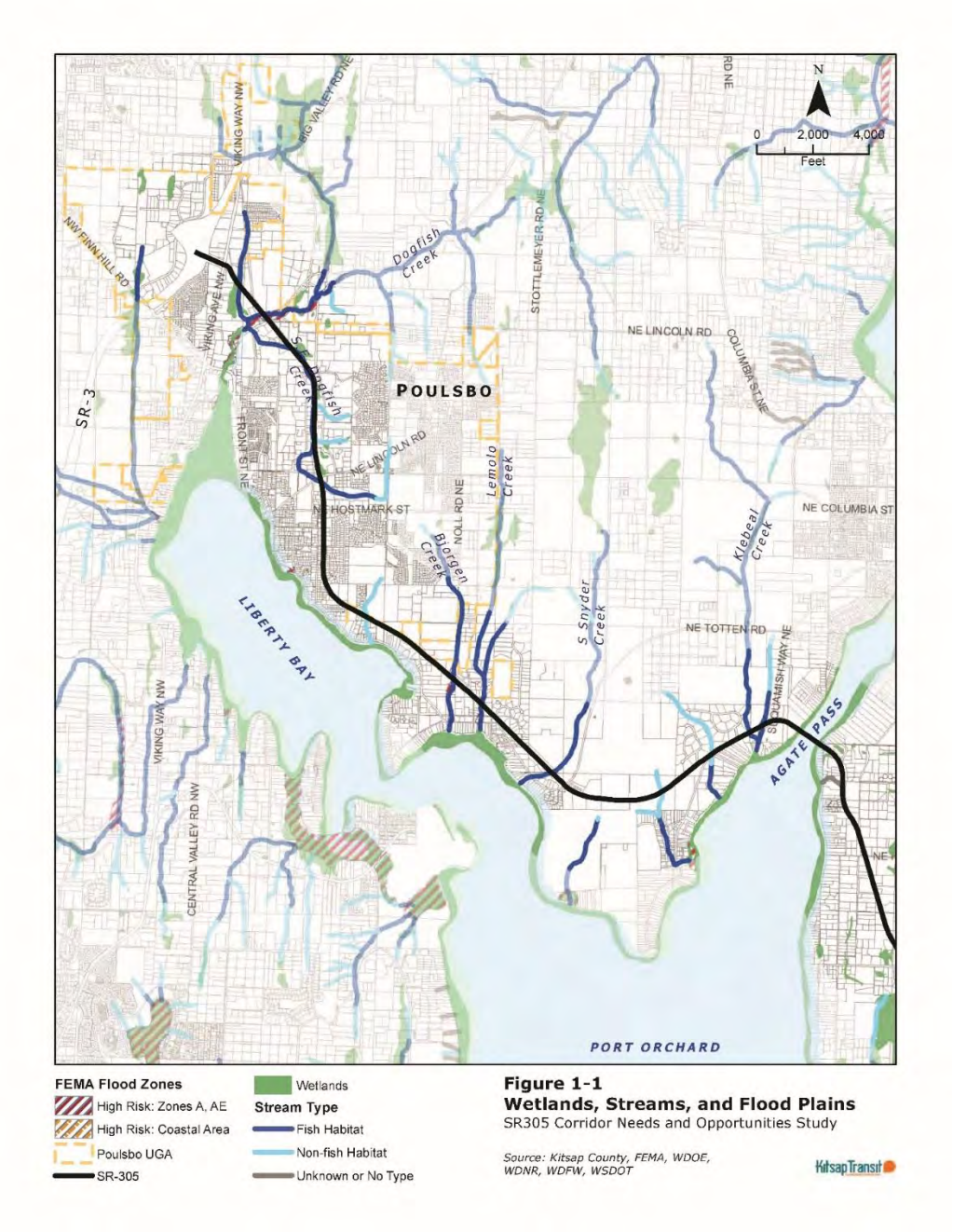


Figure 17. Wetlands, Streams, and Floodplains, North Portion

Figure 18. Wetlands, Streams, and Floodplains, South Portion

4. SCREENING AND EVALUATION PROCESS

4.1 Introduction

The process for addressing SR 305 corridor concerns include identifying project needs, performance based strategies and priorities, and applying practical solutions. The purpose of the evaluation process was to study a range of potential strategies to see how the concepts performed against the study's goals. A key goal of the project was to identify options that address corridor needs that involve less expensive, small scale solutions, requiring little or no new right-of-way, having minimal impact to the environment and could be implemented in a short time frame.

4.2 Identifying Needs

Based on input from previous studies, updated analysis, input from the Technical Team, Working Group, consultant team and the public, a list of needs was identified for the SR 305 corridor. The formal project needs statement is included below.

4.2.1 Project Needs Statement

Congestion along the SR 305 Corridor from Poulsbo to the Winslow Ferry terminal impacts travel times, traveler safety and economic vitality. Performance based strategies are needed to:

1. Improve corridor safety and mobility
2. Address the constraints of the existing Agate Pass bridge
3. Provide multi-modal incorporation through and across the corridor
4. Increase the ability to move people and improve the corridor capacity overall
5. Provide travel time reduction and reliability
6. Address access needs for adjacent properties
7. Protect and enhance the environment

Public engagement is needed to understand the baseline and contextual needs. The project needs include acknowledgement that the community and environmental needs are different along the corridor and access needs must be tailored to the community and businesses in each section of the corridor.

4.3 Strategies to Address Needs

Based on previous studies and feedback from the public, the following strategies were included in this study:

- Improved signal timing, priority and signal control
- Improved corridor lighting
- Changes to lane configurations at intersections
- Priority for transit at intersections
- Transit signal priority
- Widening SR 305 to 3 or 4 lanes
- Increased transit service
- Parking changes in Winslow
- New roundabouts
- Separated pedestrian and bicycle facilities
- New signals
- Bus rapid transit
  - Reversible transit lane
  - Dedicated northbound transit lane
  - Operating with general traffic
- Turn lanes for improved access at intersections
- Left turn restrictions at intersections
- Increased park-and-ride capacity
- Extended HOV lanes
- Grade separation at SR 305/Bond Road
- Improved local street connections off SR 305
- Crash barriers on shoulders

Several transit options were removed from consideration based on recommendations in previous studies. They included:

- Light rail: previous study showed expected ridership within the 20-year planning timeframe would be too low
- Monorail: not appropriate with suburban/rural nature of corridor, and very low cost effectiveness
- Automated fixed guideway: not a tested technology for public transportation in highway corridor setting and not appropriate for level of expected ridership within the 20- year planning time-frame
- Magnetic levitation: low community support, poor reliability in previous applications, and very low cost effectiveness
- Commuter rail: poor integration with ferry terminal and negative safety and traffic impacts

In addition, the following transit alignment were removed from further study in previous analysis and were not included in this study.

- Madison Avenue– dismissed due to potential transit speed and reliability issues on narrow, traffic calmed streets, as well as community concerns about high capacity transit impacting neighborhood character.
- Cave Avenue NE – dismissed due to limited utility, the need for signalization on Winslow Way less than 200 feet from SR 305 intersection, and the high cost of acquiring private property.
- Ferncliff Avenue NE– dismissed due to a lack of community support and the need to travel off the primary corridor for a long distance.
- SR 305 NB and SB Transitways (Winslow to Agate Pass Bridge) - dismissed due to a lack of community support for the required level of construction in the corridor ROW and associated visual impacts.

4.4 Performance Based Analysis

4.4.1 Performance metrics

The purpose of the evaluation process was to study a range of potential strategies to see how the concepts performed against the study's goals. The project team used WSDOT's Draft *Mobility Performance Framework* to identify relevant data-driven performance measures and metrics that would help measure how different strategies address project needs.

Measures and metrics were evaluated for each of the project's six key goals, as shown below. A detail description of the specific measures and the methodology of how they were applied is included in the discussion below.

Table 2. Performance Measures and Metrics

Project Goal			Performance Metric
	**Congestion**	Reduce congestion and improve mobility	Travel Time (minutes) Person Delay –SOVs (hours) Travel Time Reliability (%)
	**Transit**	Improve transit travel time and reliability	Travel speed improvements (%) Person Delay – transit (hours) Travel Time Reliability for transit(%)
	**Access**	Address access needs for adjacent properties	Reduces delays on side streets Provides additional access points
	**Safety**	Improves safety	Percent reduction in crashes
	**Non-motorized**	Improves non-motorized facilities	Provides new or better facilities
	**Environment**	Improves the environment	Improves air quality Improves water quality Improves fish passage(s)

For this study, performance of strategies were evaluated separately, to determine if individual strategies resulted in measurable performance improvements. It is anticipated that under the next phase of work conducted by WSDOT, strategies will be grouped together and analyzed against a performance framework in order to determine what suite of solutions provides the optimal corridor-wide performance while balancing trade-offs.

4.4.1.1 Travel Time and Travel Speeds

One simple way to measure congestion is to measure how different strategies impact corridor travel times. Travel time on the corridor was estimated using data pulled from the software program SimTraffic. 2036 PM peak hour baseline conditions were modeled, using forecasted traffic volumes and existing signal timing data. Results were reported as a percent improvement compared to the 2036 PM peak hour baseline.

Improvements in travel speeds for transit were calculated for strategies that would specifically benefit transit, such as transit lanes or transit queue jumps. Calculations were based on output from Synchro and SimTraffic. For strategies not involving transit specific improvements (e.g. general signal timing improvements) the percent change for transit was assumed to be the same as for autos, as transit and autos would still be traveling in the same lanes.

4.4.1.2 Person Delay

Traditional automobile-focused performance measures, such as travel time and vehicle delay, overlook the number of people in cars but also does not take into account people traveling via other modes such as transit. Just focusing on vehicle mobility provides incomplete information related to overall mobility and can lead decision makers to choices that can adversely impact carpoolers, transit riders, pedestrians and bicyclists.

To provide a more comprehensive evaluation of overall corridor mobility, this study also looked at the amount of person delay, measures in hours, for automobiles and transit, for the SR 305 corridor. Due to the rural nature of most of the highway, person delay was not calculated for bicyclists and pedestrians.

Person delay for automobiles was calculated using automobile delay data pulled from the SimTraffic program. An average vehicle occupancy of 1.2 passengers per car was applied to total corridor vehicle delay to determine the total person delay for automobiles. Results were reported as a percent improvement compared to the 2036 PM peak hour baseline.

Person delay for transit was calculated by first estimating the delay for transit vehicles. Delay was assumed to be similar automobile delay, as transit currently travels with regular auto traffic, with the addition of delays at bus stops for picking-up and dropping off passengers. An estimated total number of passengers riding transit during the PM peak hour was calculated based on ridership data collected from Kitsap Transit to complete the person delay for transit calculations.

Improvements in person delay for transit were calculated for strategies that would specifically benefit transit, such as transit lanes or transit queue jumps. Results were reported as a percent improvement compared to the 2036 PM peak hour baseline. For strategies not involving transit specific improvements (e.g. general signal timing improvements) the percent change for transit was assumed to be the same as for autos, as transit and autos would still be traveling in the same lanes.

4.4.1.3 Travel Time Reliability

Travelers want dependability and consistency in travel times so they can better plan their daily activities. Most travelers are less tolerant of unexpected delays because such delays have larger consequences than drivers face with everyday congestion.

Measures of travel time reliability better represent a commuter's experience than a simple average travel time. One way to measure travel time reliability is by measuring the buffer index. The buffer index represents the extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival.

For example, a buffer index of 80 percent means that for a trip that usually takes 20 minutes a traveler should budget an additional 16 minutes to ensure on-time arrival most of the time. Average travel time = 20 minutes Buffer index = 80 percent Buffer time = 20 minutes × 0.80 = 16 minutes

4.4.1.4 Reductions in crashes

The Crash Modifications Factors Clearinghouse, funded by the U.S. Department of Transportation Federal Highway Administration, was used to estimate the change in crashes expected after implementation of proposed strategies.

4.4.1.5 Side Streets

Delays on stop-controlled side streets for the 2036 PM peak hour were estimated using Synchro. Results were reported as a percent improvement compared to the 2036 PM peak hour baseline. Improvements.

Additionally, strategies were evaluated qualitatively to determine if they improved access and safety to side streets along SR 305.

4.4.1.6 Improvements to pedestrian/bicycle facilities

Bicycle

Through the rural sections of the corridor, existing bicycle facilitates require a level of confidence and ability for bikers to feel comfortable to ride adjacent to traffic. The future planned Olympics to Sound trail will provide separated facilities for less confident riders, but has not been funded or included in short term planning documents. Portions of the trail are currently under construction south of High School Road. To encourage additional bicycle ridership in the corridor interim, targeted improvements on the corridor to connect to viable side streets and parallel routes are needed. These connections should connect to transit service stops to extend the reach of bicycles by coordinating several mode choices over the course of their trip (i.e., a majority of the trip may be completed by ferry and transit with the first/last mile completed via bicycle).

In the urban sections of the corridor, completing the existing bicycle lanes, both along and across the corridor to allow bicycles to safely complete connections without relying on alternative modes are needed. If alternative parallel routes are identified, connections to those routes from transit stops are important to ensure a bicyclists ability to easily access transit services along the corridor.

Pedestrian

Through the rural sections of the corridor, pedestrian facilities are mostly non-existent. The planned Olympics to Sound trail will provide separated facilitates for pedestrians throughout the corridor, but is not funded in short term planning documents. While pedestrian separated pedestrian facilities are needed corridor wide, interim connections are also needed to provide pedestrian access to transit along SR 305 to and from the adjacent commercial and residential properties.

Non-Motorized Metrics

Proposed bicycle and pedestrian projects were evaluated using WSDOT's multimodal performance metrics. These metrics consider the availability of and access to all modes along the corridor. The following metrics were used for evaluating the non-motorized improvement needs.

Bicycle and pedestrian needs were evaluated use level of stress, the percent of the corridor missing bicycle or pedestrian facilities, and the number of pedestrian crossing opportunities per mile. However, additional projects were also considered along corridors parallel to SR 305. These projects did not improve the level of stress or percent of the corridor missing facilities, but were evaluated against the percent of area accessible to transit stops via bicycles and walk routes, and the percent of SR 305 lacking a connecting or parallel pedestrian or bicycle facility.

4.4.1.7 Improvements to the environment

The potential for strategies to improve the environment was evaluated qualitatively. For strategies expected to reduce queuing it was assumed this would equate to improvements in air quality. For projects that would make improvements to water quality through updated design features, such as adding turn lanes to an intersection, an improvement to water quality was assumed. Projects that could potentially include upgrades to fish passages were assumed to be an improvement. A 33% improvement was assigned to each of the three environmental factors used in the performance framework.

4.4.2 Performance Evaluation

4.4.2.1 Preliminary evaluation process

To aid the comparison of strategies, the separate performance metrics evaluated under the congestion, transit, access and non-motorized categories were averaged to one number representing overall percent improvement for those categories, respectively.

Table 3. Performance Measures used for Comparing Strategies

Project Goal			Performance Metrics	Metric used in comparing strategies
	**Congestion**	Reduce congestion and improve mobility	Travel Time (minutes) Person Delay –SOVs (hours) Travel Time Reliability (%)	Average of three metrics
	**Transit**	Improve transit travel time and reliability	Travel speed improvements (%) Person Delay – transit (hours) Travel Time Reliability for transit(%)	Average of three metrics
	**Access**	Address access needs for adjacent properties	Reduces delays on side streets Provides additional access points	Average of two metrics
	**Safety**	Improves safety	Percent reduction in crashes	Same as performance metric
	**Non-motorized**	Improves non-motorized facilities	Provides new or better facilities	Average of bike and ped improvements
	**Environment**	Improves the environment	Improves air quality Improves water quality Improves fish passage(s)	Not averaged

In the initial phases of evaluating strategies, the corridor was divided into four separate sections. The Technical Team and Working Group concurred with the consultant team that because of the contextual differences along the corridor warranted it would be beneficial to evaluate strategies within the following sections:

- Section 1: Bainbridge Island ferry terminal to Day Road
- Section 2: Day Road to Agate Pass Bridge
- Section 3: Agate Pass Bridge to NE Hostmark Street
- Section 4: NE Hostmark Street to SR 3

The next step in the evaluation process was to apply thresholds to the performance measures. Thresholds were not performance goals for the corridor but instead used a tool to filet the highest performing strategies and to compare strategies. Minimum thresholds were set based on industry standards.

To assist stakeholders in prioritizing strategies to be advanced to detailed operations and engineering analysis, results of the performance evaluation were summarized graphically, using the thresholds shown in **Figure 19**.

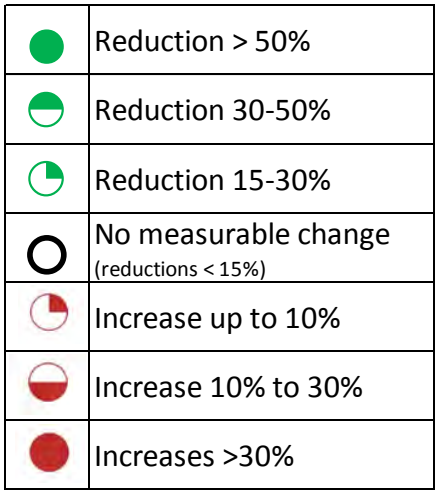


Figure 19. Thresholds applied for comparing strategies

4.4.2.2 Cost Estimating

The consultant team developed planning level cost estimates for each of the strategies evaluated, incorporating probable costs associated with engineering, environmental, construction and project related costs. The cost estimates were conducted in 2017 dollars.

4.4.2.3 Results of Initial Evaluation Process

Over 70 different strategies were evaluated using the data-driven performance metrics listed above. Results of the preliminary evaluation were shared with the public at the October 2017 Open Houses. Strategies were broken out by corridor section and illustrated estimated strategy performance and costs. A full list of the strategies evaluated are shown in **Figures 20 through 27**.

Section 1: Day Road to Winslow		Cost
1-1	Travel demand management strategies: (mode shifts to carpool/vanpool/transit, more park-and-ride capacity, etc)	varies
1-2	Optimize signal timing/phasing	$
1-3	Add striped bike lane on Winslow (SR 305 - Ferncliff Ave NE)	$
1-4	Coordinate signals	$
1-5	Pedestrian-only phase at High School Road/SR 305 intersection	$$
1-6	Add separated bike and pedestrian facilities to connect bus stops on SR 305 to side streets	$$$
1-7	Add separated ped/bike facility on Sportsman Club Road NE to connect school zone to existing facilities.	$$$
1-8	1) Channelization changes at High School Road 2) Channelization changes at Sportsman Club	$$$
1-9	Improve bus stops	$$$
1-10	Adaptive traffic management system	$$$
1-12	Reduce clear zone objects / provide crash barriers	$$$$
1-13	Improve pedestrian/bicycle facilities along Madison Ave NE to connect school to transit stops.	$$$$
1-11	NB/SB transit queue jumps at signalized intersections	$$$$
1-14	Separated grade crossing for STO trail at High School Road/SR 305	$$$$$$
1-15	STO Trail extension	$$$$$$
1-16	1) Channelization changes at High School Road 2) Roundabout at Sportsman Club	$$$$$$
1-17	Improve lighting along corridor	$$$$$$

- Improvements > 50%
- Improvements of 30-50%
- Improvements of 15-30%
- No measurable change (improvements < 15%)
- Conditions worsen by 10%
- Conditions worsen by 10%- 30%
- Conditions > 30%

$	< $250,000
$$	$250,000 - $500,000
$$$	$500,000 - $1M
$$$$	$1M - $2.5M
$$$$$	$2.5M - $5M
$$$$$$	> $5M

Improves air quality
Improves water quality
Provides fish passage

Corridor-wide Strategy

Reduces congestion & queuing
Increases vehicle travel time reliability
Increases transit travel time & reliability
Increases vehicle safety throughout the corridor
Improves access for adjacent properties
Improves pedestrians and bicycle facilities
Improves the environment

Figure 20. SR 305 Section 1 Strategies Performance Comparison

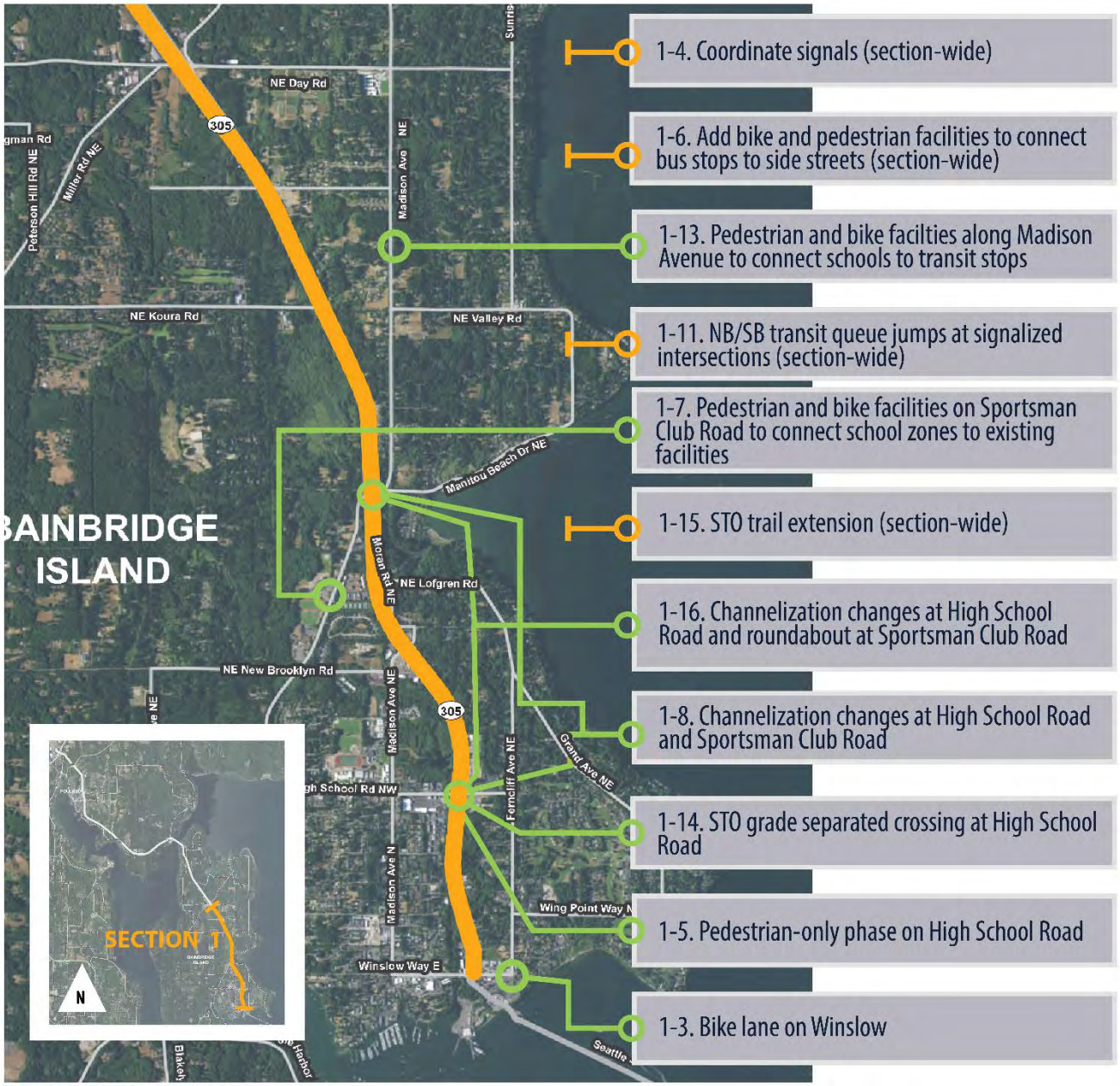


Figure 21. SR 305 Section 1 Strategies: Map of Locations

Section 2: Agate Pass Bridge to Day Road		Cost
2-1	Travel demand management strategies: (mode shifts to carpool/vanpool/transit, more park-and-ride capacity, etc)	varies
2-2	Optimize signal timing/phasing	$
2-3	Improve bus stops	$
2-4	Add separated bike and pedestrian facilities to connect bus stops on SR 305 to side streets	$
2-5	Adaptive traffic management system	$$
2-6	Add NB/SB transit queue jumps at Day Road	$$$
2-7	Close Seabold Rd access; add/extend turn lanes at Port Madison and Seabold Church Rd	$$$
2-8	Day Road: add auxiliary NB/SB through lanes, extend SB RT pocket	$$$$
2-9	New signal at Port Madison	$$$$
2-10	Improve pedestrian/bicycle facilities along Day Road to connect school to transit stops.	$$$$
2-11	Improve lighting along corridor	$$$$
2-12	Reduce clear zone objects / provide crash barriers	$$$$
2-13	Add capacity: two NB lanes, one SB lane	$$$$$
2-14	Add NB transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	$$$$$$
2-15	Add reversible transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	$$$$$$
2-16	Improve access at Agatewood; turn restrictions at Reitan Road & Adas Will Ln	
2-16a	Signal at Agatewood	$$$$
2-16b	Roundabout at Agatewood	$$$$$$
2-16c	Connect Reitan Road to Agate Pass Road	$$$$$$
2-17	Roundabout at Day Road	$$$$$$
2-18	Add capacity: four lanes on SR 305	$$$$$$
2-19	Build STO trail: Day Road to Agate Pass Bridge	$$$$$$
2-20	Build Connections to the STO trail	$$$$$$
2-21	Roundabouts at Day, Hidden Cove and Port Madison	$$$$$$

- Improvements > 50%
- Improvements of 30-50%
- Improvements of 15-30%
- No measurable change (improvements < 15%)
- Conditions worsen by 10%
- Conditions worsen by 10%- 30%
- Conditions > 30%

$	< $250,000
$$	$250,000 - $500,000
$$$	$500,000 - $1M
$$$$	$1M - $2.5M
$$$$$	$2.5M - $5M
$$$$$$	> $5M

Improves air quality
Improves water quality
Provides fish passage

Corridor-wide Strategy

Reduces congestion & queuing
Increases vehicle travel time reliability
Increases transit travel time & reliability
Increases vehicle safety throughout the corridor
Improves access for adjacent properties
Improves pedestrians and bicycle facilities
Improves the environment

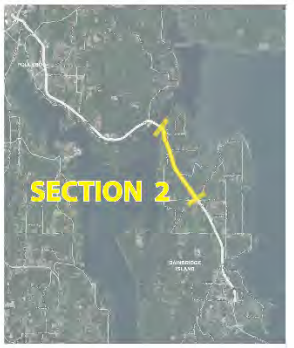


Figure 22. SR 305 Section 2 Strategies Performance Comparison

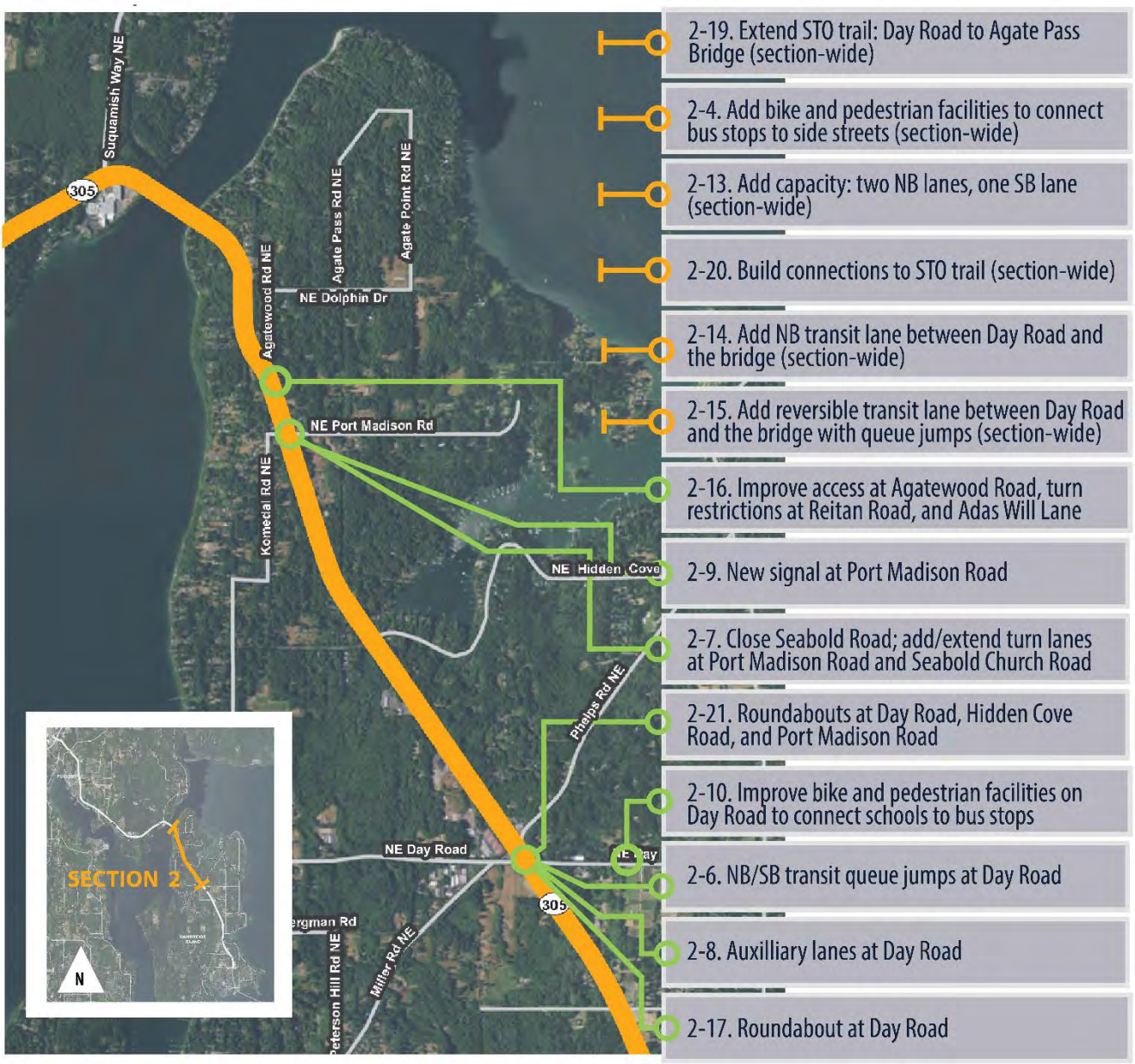


Figure 23. SR 305 Section 2 Strategies: Map of Locations

Section 3: Hostmark to Suquamish			Cost
3-1	Travel demand management strategies: (mode shifts to carpool/vanpool/transit, more park-and-ride capacity, etc)		varies
3-2	Optimize signal timing/phasing		$
3-3	Queue jumps at proposed signals (locations without HOV Transit/HOV Lanes).		$
3-4	Adaptive traffic management system		$$
3-5	Install separated ped/bike facilities between new Sandy Hook Alignment and Suquamish Way.		$$$
3-6	Add separated bike/ped facilities on Lemolo Shore Drive between Totten Road and Johnson Road NE to connect to consolidated bus stops.		$$$$
3-7	Improve bus stops		$$$$
3-8	Access management (right-in, right out, continuous median control) with u-turn facilities		$$$$
3-9	Provide 2WLTL at access at driveways and unsignalized intersections (entire section)		$$$$
3-9a	(In front of Sky Kai Coffee)		$$
3-9b	(Sol Vei St to Tollefson St)		$$
3-9c	(East of Seminole to Delate Rd)		$$$
3-10	Masi/ Totten Project (**) 1) Add intersection control at Totten Road 2) Add intersection control at Masi driveway , new roadway connection from SR 305/Masi to Sandy Hook, turn restrictions at Sandy Hook	Sig	$$$$
		RAB	$$$$$$
3-10a	1) Add intersection control at Totten	Sig	$$$$
		RAB	$$$$$$
3-10b	2) Add intersection control at Masi driveway , new roadway connection from SR 305/Masi to Sandy Hook, turn restrictions at Sandy Hook	Sig	$$$$
		RAB	$$$$$$
3-11	Add separated bike and pedestrian facilities to connect bus stops on SR 305 to side streets		$$$$$$
3-12	Roundabout at Suquamish		$$$$$$
3-13	Seminole Road access consolidation: close Stenbom Ln access and private driveway access e/o Seminole and provide access via Seminole, add TWLT		$$$$$$
3-14	Reduce clear zone objects / provide crash barriers		$$$$$$
3-15	Add HOV lanes (Hostmark to Johnson)		$$$$$$
3-16	Extend turn lanes at Suquamish		$$$$$$
3-17	Johnson Road project: Roundabout at Johnson, turn restrictions at Noll, left-turn lane at Seminole Rd		$$$$$$

- Improvements > 50%
- Improvements of 30-50%
- Improvements of 15-30%
- No measurable change (improvements < 15%)
- Conditions worsen by 10%
- Conditions worsen by 10%- 30%
- Conditions > 30%

$	< $250,000
$$	$250,000 - $500,000
$$$	$500,000 - $1M
$$$$	$1M - $2.5M
$$$$$	$2.5M - $5M
$$$$$$	> $5M

Improves air quality
Improves water quality
Provides fish passage

Corridor-wide Strategy

Sig = signal
RAB = Roundabout

Reduces congestion & queuing
Increases vehicle travel time reliability
Increases transit travel time & reliability
Increases vehicle safety throughout the corridor
Improves access for adjacent properties
Improves pedestrians and bicycle facilities
Improves the environment

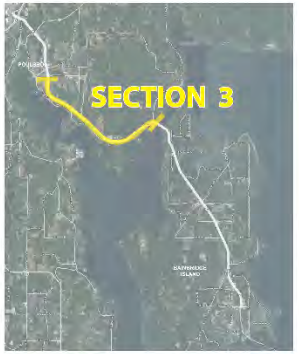


Figure 24. SR 305 Section 3 Strategies Performance Comparison

Figure 25. SR 305 Section 3 Strategies: Map of Locations

Section 4: SR 3 to Hostmark		Cost
4-1	Travel demand management strategies: (mode shifts to carpool/vanpool/transit, more park-and-ride capacity, etc)	varies
4-2	Connect bike lane on Hostmark across SR 305 to 25 MPH zone west of the intersection.	$
4-3	Optimize signal timing/phasing	$
4-4	Consolidate bus stops Liberty Road to facilitate more efficient transfers	$
4-5	Shift HOV lane to center lane	$
4-6	Provide separated bike/ped lane on Lincoln through SR 305 intersection.	$
4-7	Traffic calming to reduce speeds when entering Poulsbo	$
4-8	Lengthen turn lane storage at signalized intersections	$
4-9	Turn restrictions on driveways between Hostmark and Lincoln	$$$
4-10	Adaptive traffic management system	$$$
4-11	Transit signal priority at signalized intersections	$$$$
4-12	Improve dilemma zone detection: signal timing changes to reduce rear-end crashes	$$$$
4-13	Provide separated bike/ped facilities along SR 305 between bus stops and Bond Road	$$$$
4-14	Left-turn restrictions at SR 305/SR 307 (Bond Road)	$$$$$
4-15	Grade separation at SR 305 / Bond Road	$$$$$$

Improvements > 50%
Improvements of 30-50%
Improvements of 15-30%
No measurable change (improvements < 15%)
Conditions worsen by 10%
Conditions worsen by 10%- 30%
Conditions > 30%

$	< $250,000
$$	$250,000 - $500,000
$$$	$500,000 - $1M
$$$$	$1M - $2.5M
$$$$$	$2.5M - $5M
$$$$$$	> $5M

Improves air quality
Improves water quality
Provides fish passage

Corridor-wide Strategy

Reduces congestion & queuing
Increases vehicle travel time reliability
Increases transit travel time & reliability
Increases vehicle safety throughout the corridor
Improves access for adjacent properties
Improves pedestrians and bicycle facilities
Improves the environment

Figure 26. SR 305 Section 4 Strategies Performance Comparison

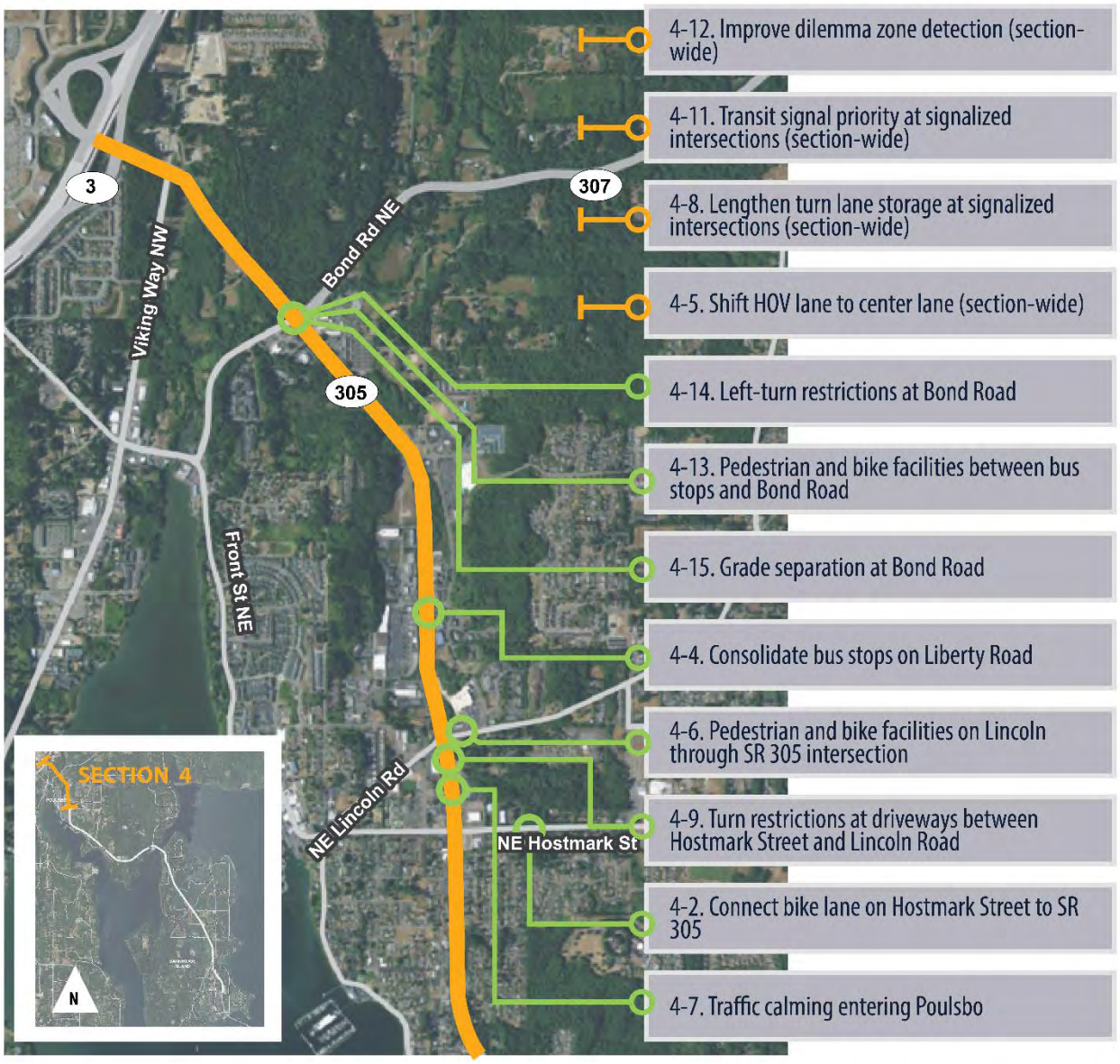


Figure 27. SR 305 Section 4 Strategies: Map of Locations

4.5 Prioritization Process

4.5.1 Practical Solutions Approach

Practical Solutions is a performance based approach used in all phases of the project. WSDOT is using the Practical Solutions approach to increase the focus on transportation system performance and enable more flexible and sustainable transportation investment decisions. Practical Solutions is a performance based approach used in all phases of project development, asset management, planning, program management, environmental analysis, design, construction, and operation. At the earliest stages, there is increased emphasis to ensure alternative solutions consider all modes. Practical solutions also emphasizes concise definition of the project performance needs to include only the work necessary to achieve the needed improvement. In doing so, the system as a whole receives the greatest return on investment.

The SR 305 Needs and Opportunities Study strived to follow WSDOT's Practical Solutions approach by working with project stakeholders and the public to identify need and working to identify least-cost solutions to solve, or achieve performance targets for, the most critical needs in the corridor through robust community engagement and performance-based prioritization.

4.5.2 Prioritization Metrics

During the final phase of the project the project team worked to create a prioritized list of strategies that will address needs along the SR 305 Corridor. Following the performance evaluation process, consultant team asked the Working Group to prioritize proposed strategies for all four sections of the corridor. The City of Poulsbo, City of Bainbridge Island, Kitsap County and Suquamish Tribe ranked all the strategies according to their priorities. Priority rankings are included in Appendix A. Additionally, the consultant team documented priorities heard in public outreach. A summary of public comments are included in Appendix B.

To better help the Technical Team and Working Group prioritize projects, the results of the performance analysis were compiled into an overall "performance score." Instead of using thresholds as described in earlier sections the actual percent changes, across the six project need categories, were summarized into one "performance score." The average score for congestion and safety categories were doubled in weighting when calculating the overall score. To gauge how different strategies impacted the overall corridor performance, results were calculated for the corridor as a whole, instead of by individual section.

Similarly to the threshold analysis, the separate performance metrics evaluated under the congestion, transit, access and non-motorized categories were averaged to one number representing an overall percent improvement for those categories, respectively. For the environmental each possible metric (improvements in air quality, water quality and fish passage) was given a 33% improvement for a total improvement of 100% if all three environmental factors were improved. Different modal strategies were not weighted based on area of the corridor. (e.g. – transit strategies in Winslow area were not given higher priority than car-based strategies compared to other sections) Details regarding performance scores for all strategies evaluated are included in Appendix C.

Cost/Benefit ratios were estimated from performance scores and costs. Low ratios indicate highest benefits for estimated costs.

4.6 Short-Term Priorities

The multiple metrics used to identify corridor priorities were combined and presented to the Technical Team and Working Group. Out of the 70 different strategies identified in the corridor, four corridor wide priorities and nine site specific priorities have been identified through the study process and with the partner agencies.

A key objective of this study was to create a comprehensive set of short-term improvements that will inform WSDOT's – Winslow Ferry to Hostmark Street Safety Improvement projects, scheduled to start in January 2018. Mid and long-term improvements are discussed in the following section.

Figure 28 illustrates the prioritized corridor wide strategies.

Corridor Wide Priorities (Winslow to Hostmark)	Performance Score*	Cost**	Cost/Benefit (C/B) Ratio	Includes strategies with low C/B Ratios	Agency Top 5	Project Needs Met						Priority Heard in Outreach
						C	T	A	S	NM	E	
TDM strategies	1.95	Varies	-	✓	✓	✓	✓			✓	✓	✓
1) Fill park-and-ride capacity 3) Improve walkability to/from bus stops	2) Parking pricing to discourage driving 4) Commute trip reduction programs											
Updates to signal system												
1) Optimize signal timing/phasing ** could include off-system improvements to signals between SR 3 and Hostmark*	2.24	$150K	0.1	✓	✓	✓	✓		✓		✓	✓
2) Adaptive traffic management ** could include off-system improvements to signals between SR 3 and Hostmark*	2.38	$2M	0.8	✓	✓	✓	✓		✓		✓	✓
Tranist Improvements												
1) Improvements to bus stops (upgrade lighting, add shelters, etc) - assume 24 locations	0.8	$1-$2M	0.5 - 0.9	✓					✓	✓		✓
2) Provide transit queue jumps @ all signalized intersections from High School Rd to the north (~ 6 locations)	2.15	$3 M	1.4	✓	✓	✓	✓				✓	✓
Safety Spot Improvements												
1) Improve lighting along corridor (assume 25 locations)	0.6	$500K	0.8	✓					✓			
2) Reduce clear zone objects (1000 feet at 10 locations)	0.44	$2.5M	5.7	✓					✓			

* Performance score based on performance metrics analysis.
** Scoping level costs for comparison purposes

C	Congestion
T	Transit
A	Access
S	Safety
NM	Non-Motorized
E	Environmental

Figure 28. SR 305 Corridor Wide Prioritized Strategies

The "performance score" is a summation of how well a particular strategy performs compared to the 2036 PM Peak hour baseline condition, measured across several performance metrics. The larger the performance score, the better a strategy is expected to perform.

The "project needs met" columns indicate what specific needs saw improvements under the various strategies. Some strategies performed high in just a few categories, while others had less modest impacts in one single category yet had improvements that met multiple project goals.

The cost/benefit ratio illustrates the benefit of each strategy when costs are taken into consideration. Strategies that perform well and have low costs have the lowest cost/benefit ratios. It is these strategies that are expected to provide the highest return on investment.

Figure 29 shows a summary of the prioritized site specific strategies.

Site Specific Priorities: Winslow Way to Hostmark Street	Performance Score*	Cost**	Cost/Benefit (C/B) Ratio	Includes strategies with low C/B Ratios	Agency Top 5	Project Needs Met						Priority Heard in Outreach
						C	T	A	S	NM	E	
Improve access and safety between W Port Madison and Reitan Rd	0.12 - 0.77	$50k - $9M	0.4 - 14.0	✓	✓	✓	✓	✓	✓	✓	✓	✓
Specific strategies could include:												
1) New intersection control at intersection(s):	* Either signal or roundabout at W Port Madison and/or Agatewood Rd; specific control TBD * Would include improvements for pedestrians and bicyclists * Assume new signal would include transit queue jumps (cost included in corridor-wide priorities)											
2) Improve access for turning vehicles:	* Stripe driveways and roadways to prevent blocking & improve sight distance * Add two-way left-turn lane at Seabold Church Road/SR 305											
3) Off system improvements:	* Parallel road to SR 350 between Agatewood Rd and W Port Madison * Connect Reitan Rd (westside of SR 305) to SR 305											
Turn lane improvements at SR 305/ Suquamish	0.62 - 0.65	$500 k - $7M	0.8 - 10.7	✓	✓	✓	✓				✓	
Specific strategies could include:												
1) Extending southbound and eastbound turn lanes	* Could include improvements to fish passage * Would include improvements for pedestrians and bicyclists											
Johnson Road project	0.33 - 0.83	$500k - $5M	1.5 - 13.3	✓	✓	✓	✓	✓	✓	✓	✓	✓
Specific strategies could include:												
1) Install roundabout at Johnson Road	* Completed intersection control analysis (ICA) report recommended a roundabout											
2) SR 305 / Noll Road access changes	* Change to right-in-right-out											
3) Seminole Road/Stenbom Lane/SR 305 intersection reconfiguration	* Consolidate access to one single access point and add turn lanes											
4) SR 305 pedestrian tunnel	* Non-motorized tunnel under roundabout											
Add new intersection control at Totten Road	0.78 - 0.85	$1.5 M - $12M	1.9 - 14.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
Specific strategies could include:												
1) New intersection control at SR 305/ Totten	* Either signal or roundabout; specific control TBD * Roundabout could operate as a system for access management with SR 305/ Johnson Road * Would include improvements for pedestrians and bicyclists * Assume new signal would include transit queue jumps (cost included in corridor-wide priorities) * Could include improvements to fish passage											
Improve intersection operations at High School and Sportsman Club Roads	0.47 - 0.64	$900k - $7M	1.9 - 10.9	✓	✓	✓	✓		✓	✓	✓	
Specific strategies could include:												
1) High School Road	* Modify existing channelization at High School Road * Would include improvements for pedestrians and bicyclists * Assume transit queue jumps (cost included in corridor-wide priorities)											
2) Sportsman Club Road	* Add new turn lanes at Sportsmen Club Road **or** * Change intersection control from signal to roundabout * Would include improvements for pedestrians and bicyclists											
Intersection improvements at Day Road	0.73 - 0.77	$1.5M - $9M	2.0 - 11.7	✓	✓	✓	✓		✓	✓	✓	✓
Specific strategies could include:												
1) Add additional NB/SB lanes through the intersection	* Would operate as auxiliary lanes to reduce queuing and congestion * Would include improvements for pedestrians and bicyclists * Assume transit queue jumps (cost included in corridor-wide priorities)											
2) Change from signal to roundabout	* Would include improvements for pedestrians and bicyclists											
Add new intersection control at Masi driveway	0.82 - 0.85	$2M - $8M	2.4 - 9.8	✓	✓	✓	✓	✓	✓	✓	✓	✓
Specific strategies could include:												
1) New intersection control at intersection:	* Either signal or roundabout; specific control TBD * Would include improvements for pedestrians and bicyclists * Assume new signal would include transit queue jumps (cost included in corridor-wide priorities)											
2) Off system improvements:	* Construct new roadway from SR 305/Masi to Sandy Hook * Modify south-leg of SR 305/Sandy Hook to be right-in-right-out * Would include improvements for pedestrians and bicyclists											
Access management in select locations between Masi driveway and Noll Road	0.28- 0.38	$1.5M - $7M	5.4 - 18.4	✓	✓	✓	✓	✓	✓		✓	
Specific strategies could include:												
1) Two-way-left-turn lanes	* Provides safer access to adjacent streets and driveways * Would include improvements for pedestrians and bicyclists											
2) Limit driveways to right-in-right out	* Couple with continuous median control (e.g. center curb) and u-turn opportunities * Would include improvements for pedestrians and bicyclists											
Add HOV lanes (Hostmark to Johnson)	1.04	$7M	6.7	✓	✓	✓	✓				✓	
1) Extending existing HOV lanes in Poulsbo to Johnson Road	* Would include improvements for pedestrians and bicyclists											
Type, Size and Location Study for Agate Pass Bridge					✓	✓	✓		✓	✓	✓	✓

* Performance score based on performance metrics analysis.
** Scoping level costs for comparison purposes

C	Congestion
T	Transit
A	Access
S	Safety
NM	Non-Motorized
E	Environmental

Figure 29. SR 305 Site Specific Prioritized Strategies

4.7 Mid and Long-Term Priorities

In addition to short-term priorities that could be addressed through the Connecting Washington funding, the project team, in collaboration with the project stakeholders, identified intermediate and long-term improvements for the corridor. These projects were either outside of the WSDOT project limits (e.g. north of Hostmark) so not eligible for Connecting Washington funding, would take more time to implement or were identified as by the agencies as priorities for the future (**Figure 30**).

Mid to Long-Term Priorities: Winslow - Hostmark Street	Performance Score[1]	Cost [2]	Cost/Benefit Ratio	Agency Top 5	Meets > 4 Needs	Priority heard in outreach
Optimize signal timing/phasing (n/o Hostmark)	2.21	$125K	0.1	✓	✓	✓
Connect Bike Lane on Hostmark across SR 305 to 25 MPH zone west of the intersection.	0.70	$50K	0.1			
Adaptive Traffic management system (n/o Hostmark)	2.28	$250K	0.1	✓	✓	
Traffic calming to reduce speeds when entering Poulsbo	1.06	$250K	0.2			
Lengthen turn lane storage (intersections in Poulsbo)	0.76	$200K	0.3			
Provide Separated Bike/Ped faculties between Bus Stops and Bond Road along SR 305	0.79	$250K	0.3			
Add striped bike lane on Winslow: (SR 305 - Ferncliff Ave NE)	0.09	$50k	0.6			
Driveways on Hostmark and Lincoln: rechannelize center TWLT to left-turn only into driveways; no left-turns out of driveways	1.30	$1M	0.8	✓		
Improve Dilemma Zone Detection (n/o Hostmark)	1.44	$2M	1.4			
Michigan left-turns at SR 305/SR 307 (Bond Road)	2.48	$5M	2.0		✓	
Add separated ped/bike facility on Sportsman Club Road NE to connect school zone to existing facilities.	0.30	$800k	2.6			
Grade seperation at SR 305 / Bond Road or additional parallel route	3.56	$15M	4.2	✓	✓	
Add NB transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	1.10	$8M	7.3			
Add reversible transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	1.10	$8M	7.3		✓	
Install separated ped/bike facilities between new Sandy Hook Alignment and Suquamish Way.	0.10	$750k	7.6			
Add separated bike/ped facilities on Lemolo Shore Drive between Totten Road and Johnson Road NE to connect to consolidated bus stops.	0.10	$1.5M	15.3			
Improve pedestrian/bicycle facilities along Day Road to connect school to transit stops.	0.12	$2M	16.5			
Improve pedestrian/bicycle facilities along Madison Ave NE to connect school to transit stops.	0.12	$2M	16.5			
Add additional northbound lane (Day Road to Agate Pass Bridge)	0.21	$5M	23.8			
Four lanes on SR 305 (Day Road to Agate Pass Bridge)	0.61	$15M	24.5			
Seperated grade crossing for STO trail at Highschool Road/SR 305	0.22	$7M	32.0			
Build STO trail: up to Day Road	0.07	$8.5M	124.7			
Build STO trail: Day Road to Agate Pass Bridge	0.07	$15M	220.0			

1) Performance score based on performance metrics analysis. Categories include impacts to congestion, transit, access, safety, non-motorized facilities and the environment

2) High level scoping level costs for comparison purposes

Figure 30. SR 305 Mid to Long-Term Strategies

4.8 Next Steps

The purpose of this this study was to assess constraints on the SR 305 corridor and provide prioritized potential strategies that will help move people, increase safety and improve traffic patterns along the corridor. Short-term improvements will inform WSDOT's – Winslow Ferry to Hostmark Street Safety Improvement projects, scheduled to start in January 2018 and funded with the Connecting Washington revenue package. Intermediate and long-term improvements will be identified and prioritized for use by Kitsap Transit and its partners to pursue additional funding for these projects.

Using the SR 305 Needs and Opportunities Study WSDOT will:

- Finalize the corridor's performance framework to guide and justify investment decisions.
- Identify the "right" grouping of solutions to provide the optimal corridor-wide performance (mobility and safety), while balancing associated trade-offs.
- Make the final investment decisions.
- Proceed with practical design and deliver construction package(s).

WSDOT is open to considering a wide range of potential strategies. All strategies will be evaluated for their performance and impact on all modes of transportation with the result being an improved SR 305 corridor for all users.

Low-cost corridor enhancements could occur as soon as summer 2019. Longer-term projects that may require property acquisition, and environmental review could take longer to implement. All projects could be completed by 2023.

4.8.1 Ongoing study Roles and Responsibilities

It is anticipated the current partners will continue to be involved as important stakeholders in the process and supporting sponsors, including the Kitsap County, Kitsap Transit, Suquamish Tribe, City of Bainbridge Island, City of Poulsbo, and (WSDOT).

4.8.2 Ongoing Public Involvement

Just as public involvement has helped to shape the outcome of SR 305 Need and Opportunities Study, , ongoing public involvement will be critical in the corridor's future planning, design, and development for high capacity transit. The future study phases will need to closely follow NEPA and SEPA procedures related to public involvement. Consistent with the current process, ongoing phases of study will need to actively seek out continuous opportunities for the public and corridor stakeholders to be involved to provide comments and input.

Appendix A

Performance Evaluation Results

How well do the strategies compare to the 2036 PM Peak Average?

#	SECTION 1: Day Road to Winslow	Cost *	Congestion	Transit	Access	Safety	Non motorized	Environmental Benefits	Total "Score"	Priority Rankings				
										Suquamish	Poulsbo	Kitsap Co.	Bainbidge Island	Public Open
IMPROVEMENTS in FOUR CATEGORIES														
2	Optimize signal timing/phasing	$35-$50k	◓	◓	○	◔	○	≈	6	2	1	-	1	✓
4	Coordinate signals	$150 - $200k	◓	◓	○	◔	○	≈	6	10	1	-	5	✓
10	Adaptive Traffic management system	$800-$950k	◓	◓	○	◔	○	≈	6	3	1	-	3	
16	1) Channelization changes at High School Rd 2) Roundabout at Sportsman Club	$8-$9M	◓	◓	○	◔	○	≈ 💧	7	5	2	-	4	
IMPROVEMENTS in THREE CATEGORIES														
1	TDM strategies (mode shifts to carpool/vanpool/transit, additional park-and-ride capacity)	varies	◓	◓	○	○	○	≈	5	1	-	-	2	✓
8	1) Channelization changes at High School Road 2) Channelization changes at Sportsman Club	$700 - $900k	◓	◓	○	○	○	≈ 💧	6	11	-	-	6	
14	Seperated grade crossing for STO trail at Highschool Road/SR 305	$6 - $7M	○	○	○	●	●	≈ 💧	8	8	-	-	7	
IMPROVEMENTS in TWO CATEGORIES														
9	Improvements at bus stops	$800-$950k	○	◔	○	○	◓		3	16	-	-	11	
6	Add separated bike and pedestrian facilities to connect bus stops on SR 350 to side streets	$600k - $800K	○	○	○	○	●	💧	4	13	-	-	13	
7	Add separated ped/bike facility on Sportsman Club Road NE to connect school zone to existing facilities.	$600k - $800K	○	○	○	○	●	💧	4	14	-	-	8	
11	NB/SB transit queue jumps at signalized intersections	$5M - $6M	○	●	○	○	○	≈ 💧 🐟	6	4	-	-	12	✓
IMPROVEMENTS in ONE CATEGORY														
12	Reduce clear zone objects / provide crash barriers	$1.5 - $2M	○	○	○	◓	○		2	6	-	-	17	
15	STO Trail extension	$7-$8.5M	○	○	○	○	●		3	9	-	-	13	
17	Improve lighting along corridor	$10-$11M	○	○	○	◔	○		1	7	-	-	16	
3	Add striped bike lane on Winslow (SR 305 - Ferncliff Ave NE)	$35-$50k	○	○	○	○	◔		1	15	-	-	9	
13	Improve pedestrian/bicycle facilities along Madison Ave NE to connect school to transit stops.	$1.5 - $2M	○	○	○	○	◔		1	17	-	-	9	
DECREASES in PERFORMANCE														
5	Pedestrian scramble at High School Road/SR 305	$250 - $350k	-◓	-◓	○	●	●		2	12	17	-	13	

●	Reduction > 50%
◓	Reduction 30-50%
◔	Reduction 15-30%
○	No measurable change (reductions < 15%)
-◔	Increase up to 10%
-◓	Increase 10% to 30%
-●	Increases >30%

≈ Improves air quality

💧 Improves water quality

🐟 Fish passage

**High-level scoping level costs for comparison purposes only. More detailed costs to be prepared later.*

How well do the strategies compare to the 2036 PM Peak Average?

#	SECTION 2: Agate Pass Bridge to Day Road	Cost *	Congestion	Transit	Access	Safety	Non motorized	Environmental Benefits	Total "Score"	Priority Rankings				
										Suquamish	Poulsbo	Kitsap Co.	Bainbridge Island	Public Open
IMPROVEMENTS in FIVE or more CATEGORIES														
16	Improve access / intersection control at Agatewood	$1-$11	◒	◒	●	◒	◔		12	7	-	-	-	✓
9	Signal at Port Madison	$1.5-$2M	◒	◒	●	◒	○		11	1			7	✓
21	Roundabouts at Day, Hidden Cove and Port Madison	$20-$22M	◒	◒	●	◒	○		11	22	-	-	-	✓
IMPROVEMENTS in FOUR CATEGORIES														
2	Optimize signal timing/phasing	$35-$50k	●	●	○	◔	○		8	3	2	-	1	
5	Adaptive Traffic management system	$300-$500k	●	●	○	◔	○		8	5	2	-	1	
17	Roundabout at Day Road	$8-$9M	◒	◒	○	◔	○		6	18	1	-	3	✓
IMPROVEMENTS in THREE CATEGORIES														
1	TDM strategies (mode shifts to carpool/vanpool/transit, additional park-and-ride capacity)	varies	●	●	○	○	○		7	4	-	-	4	✓
8	Day Road: add auxiliary NB/SB through lanes, extend SB RT pocket	$1.2-$1.5M	●	●	○	○	○		8	2	-	-	7	
13	Two NB lanes, one SB lane	$4 - $5M	●	●	○	○	○		7	6	-	-	14	
6	Add NB/SB transit queue jumps at Day Road	$550-$750k	◒	●	○	○	○		6	11	-	-	6	✓
14	Add NB transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	$7-$8M	◔	●	○	○	○		6	13	-	-	15	
15	Add reversible transit lane (Day Road to Bridge) with queue jumps at Day Rd and Reitan Road	$7-$8M	◔	●	○	○	○		6	14	-	-	15	
7	Close Seabold Rd access; add/extend turn lanes at Port Madison and Seabold Church Rd	$750-$900k	○	○	●	◒	○		7	10	-	-	9	
IMPROVEMENTS in TWO CATEGORIES														
3	Improvements at bus stops	$100-$200k	○	◔	○	○	◒		3	15	-	-	12	
4	Add separated bike and pedestrian facilities to connect bus stops on SR 350 to side streets	$100-$200k	○	○	○	◒	●		5	16	-	-	10	
19	Build STO trail: Day Road to Agate Pass Bridge	$12-$15M	○	○	○	○	●		5	20	-	-	11	
IMPROVEMENTS in ONE CATEGORY														
11	Improve lighting along corridor	$1.5-$2M	○	○	○	◒	○		2	12	-	-	20	
12	Reduce clear zone objects / provide crash barriers	$1.8-$2.2M	○	○	○	◔	○		1	11	-	-	21	
20	Build Connections to the STO trail	$13-$15M	○	○	○	○	●		3	21	-	-	18	
10	Improve pedestrian/bicycle facilities along Day Road to connect school to transit stops.	$1.5-$2M	○	○	○	○	◔		1	17	-	-	17	
DECREASES in PERFORMANCE														
18	Four lanes on SR 305	$12-$15M	●	●	◔	○	○		7	19	-		12	

High-level scoping level costs for comparison purposes only. More detailed costs to be prepared later.

●	Reduction > 50%
◒	Reduction 30-50%
◔	Reduction 15-30%
○	No measurable change (reductions < 15%)
◔	Increase up to 10%
◒	Increase 10% to 30%
●	Increases >30%

Improves air quality

Improves water quality

Fish passage

How well do the strategies compare to the 2036 PM Peak Average?

#	SECTION 3: Hostmark to Suquamish	Cost *	Congestion	Transit	Access	Safety	Non motorized	Environmental Benefits	Total "Score"	Priority Rankings				
										Suquamish	Poulsbo	Kitsap Co.	Bainbridge Island	Public Open Houses
IMPROVEMENTS in FIVE or more CATEGORIES														
8	Access management (right-in, right out, continuous median control) with u-turn facilities	TBD	◔	◔	◓	◓	○	💧	7	15	3		3	
9	Provide 2WLTL at access at driveways and unsignalized intersections (entire section)	$1.5-$2.5M	◔	◔	◓	◓	○	〰 💧	8	13	5		17	✓
9a	*(In front of Sky Kai Coffee)*	*$350-$450k*								10				
9b	*(Sol Vei St to Tollefson St)*	*$350-$450k*								11				
9c	*(East of Seminole to Delate Rd)*	*$800 - $1.6M*								12				
10	Masi/ Totten Project (**) 1) Add intersection control at Totten Road 2) Add intersection control at Masi driveway , new roadway connection from SR 305/Masi to Sandy	$2-$15M	●	●	●	◓	◔	〰 💧 🐟	15	1				
10a	*1) Add intersection control at Totten*	*$1-$8M*	◓	◓	●	◓	◔	〰 💧 🐟	13	2	2	1.1	4	✓
10c	*2) Add intersection control at Masi driveway , new roadway connection from SR 305/Masi to Sandy Hook, RIRO at Sandy Hook*	*$2-$8M*	◓	◓	●	◓	◔	〰 💧	12	3	2	1.2		✓
13	Seminole Road access consolidation: close Stenbom Ln access and private driveway access e/o Seminole and provide access via Seminole, add TWLT	$3.5-$5M	◔	◔	◓	◓	○	🐟	7	9	4		15	
17	Johnson Road project: Roundabout at Johnson, RIRO at Noll, left-turn lane at Seminole Rd									8	1	4	6	
	Roundabout	$4.5 M	◓	◓	●	◓	◔	〰 💧 🐟	13					✓
	SR 305 Pedestrian Tunnel	$2M	○	○	○	◔	●		4					
	Seminole Rd NE / Stenbom Lane NE / SR305 Intersection Reconfiguration	$5M	◔	◔	◓	◓	○	〰 💧	8					
	Noll Road/SR 305 intersection: RIRO	$300k	◔	◔	◓	◓	○	〰 💧	8					
IMPROVEMENTS in FOUR CATEGORIES														
2	Optimize signal timing/phasing	$35-$50k	●	●	○	◔	○	〰	8	5	3	2.1	1	
4	Adaptive Traffic management system	$300-$425k	◓	●	○	◔	○	〰	7	6	3	2.1	3	
12	Roundabout at Suquamish	$3-$5M	●	●	○	◔	○	〰 💧 🐟	10	16			8	
IMPROVEMENTS in THREE CATEGORIES														
1	TDM strategies (mode shifts to carpool/vanpool/transit, additional park-and-ride capacity)	varies	●	●	○	○	○	〰	7	4			2	✓
3	Queue Jumps at proposed signals (locations without HOV Transit/HOV Lanes).	$150-$225k	◓	●	○	○	○	〰	6	14			4	
15	Add HOV lanes (Hostmark to Johnson)	$5-$7M	◓	●	○	○	○	〰 💧	7	18	5		10	
16	Extend turn lanes at Suquamish	$7-$8M	◓	◓	○	○	○	〰 💧 🐟	7	7		2.2	6	
IMPROVEMENTS in TWO CATEGORIES														
7	Improvements at bus stops	$1.3-$1.6M	○	◔	○	○	◓		3	19			13	
11	Add separated bike and pedestrian facilities to connect bus stops on SR 350 to side streets	$2-$3M	○	◔	○	○	●		3	21			15	
IMPROVEMENTS in ONE CATEGORY														
14	Reduce clear zone objects / provide crash barriers	$4-$6M	○	○	○	◓	○		2	17			10	
5	Install separated ped/bike facilities between new Sandy Hook Alignment and Suquamish Way.	$600-$750k	○	○	○	○	●		3	20		6.2	10	
6	Add separated bike/ped facilities on Lemolo Shore Drive between Totten Road and Johnson Road NE to connect to consolidated bus stops.	$1-$1.3M	○	○	○	○	●		3	22		6.1	10	

●	Reduction > 50%
◓	Reduction 30-50%
◔	Reduction 15-30%
○	No measurable change (reductions < 15%)
◔	Increase up to 10%
◓	Increase 10% to 30%
●	Increases >30%

〰 Improves air quality

💧 Improves water quality

🐟 Fish passage

*High-level scoping level costs for comparison purposes only . More detailed costs to be prepared later.

** If Fish Passage is included in this Totten Road intersection improvements, add another $12-$14M

How well do the strategies compare to the 2036 PM Peak Average?

#	SECTION 4: SR 3 to Hostmark	Cost *	Congestion	Transit	Access	Safety	Non motorized	Environmental Benefits	Total "Score"	Priority Rankings				
										Suquamish	Poulsbo	Kitsap Co.	Bainbridge Island	Public Open Houses
IMPROVEMENTS in FIVE CATEGORIES														
15	Grade seperation at SR 305 / Bond Road	$10-$15M	●	●	◒	●	○		12	1	1		7	
IMPROVEMENTS in FOUR CATEGORIES														
14	Michigan left-turns at SR 305/SR 307 (Bond Road)	$3-$5M	◒	◒	○	◒	○	≈ 💧	8	3			5	
3	Optimize signal timing/phasing	$75k-$125k	◒	◒	○	◒	○	≈	7	6	2		1	✓
10	Adaptive Traffic management system	$1-$2M	◒	◒	○	◒	○	≈	7	5	2		3	
IMPROVEMENTS in THREE CATEGORIES														
1	TDM strategies	varies	●	●	○	○	○	≈	7	4	15		2	✓
IMPROVEMENTS in TWO CATEGORIES														
9	Driveways on Hostmark and Lincoln rechannelize center TWLT to left-turn only into driveways; no left-turns out of driveways	$800k-$1M	○	○	◒	●	○		5	2	3		13	
4	Stop Consolidation at Liberty Road to facilitate Transfers	$125-$150k	○	◔	○	○	◔		2	11			5	
13	Provide Separated Bike/Ped faculties between Bus Stops and Bond Road along SR 305	$1-$2M	○	○	○	○	●	≈ 💧	5	13			8	
11	Transit Signal Priority at Signalized Intersections	$1-$2M	○	●	○	○	○	≈	4	7			4	
IMPROVEMENTS in ONE CATEGORY														
6	Provide Separated Bike/Ped faculties on Lincoln through SR 305 intersection.	$150-$250k	○	○	○	○	●		3	12			9	
7	Traffic calming to reduce speeds when entering Poulsbo	$200-$250k	○	○	○	◒	○		2	9			13	
2	Connect Bike Lane on Hostmark across SR 305 to 25 MPH zone west of the intersection.	$35-$50k	○	○	○	○	◔		1	14			10	
12	Improve Dilemma Zone Detection	$1-$2M	○	○	○	●	○		3	8			10	
8	Lengthen turn lane storage	$200-$250k	○	○	○	◔	○		1	10	4		12	
DECREASES in PERFORMANCE														
5	Shift HOV lane to center lane	$100-$200k	○	◒	○	○	○		-2	15			15	

●	Reduction > 50%
◒	Reduction 30-50%
◔	Reduction 15-30%
○	No measurable change (reductions < 15%)
◔	Increase up to 10%
◒	Increase 10% to 30%
●	Increases >30%

≈ Improves air quality

💧 Improves water quality

Fish passage

**High-level scoping level costs for comparison purposes only . More detailed costs to be prepared later.*

Appendix B

Public Comment Summary

SR 305 Needs and Opportunities Study

In-Person Open Houses and Online Open House Summary
December 8, 2017

State Route 305 Corridor

SR 305 in-person open house locations.

In-Person Open Houses and Online Open House Overview

In October 2017, State Route 305 partner agencies held three open houses and one online open house for the public to discuss how they would like $36.8 million prioritized for improvements along SR 305. Partner agencies advertised the events by postcard, through their social media pages and local newspapers.

Three open houses were held along the SR 305 corridor (*in orange on the map*):

- October 19, at Bainbridge Island City Hall;
- October 24, at Suquamish Tribal Council Chambers; and
- October 25, at Poulsbo City Hall.

The online open house comment period was active from October 17 – 29.

The in-person open houses were well-attended, with 172 attendees and 67 written comments. The online open house received 111 comments, ranging from corridor-wide requests, improvements by segment and suggestions that are outside the scope for corridor improvements.

The following sections provide a summary of the most common corridor-wide improvement suggestions heard from the public during the three open houses and the online open house comment period.

What we heard: Corridor-wide themes

Intersection improvements

Most participants expressed concerns about the safety of making left turns off and onto SR 305 from several intersections. Many participants requested traffic lights to manage traffic flow and prevent collisions. Several participants expanded on this concern and requested striping at SR

305 and arterials to prevent blocking at intersections. Participants also requested left turn lanes to maintain traffic flow and an opportunity to prevent collisions.

The following intersections were the most commonly identified for intersection improvements:

- West Port Madison Road
- Seminole Road NE
- NE Seabold Road
- NE Totten Road
- Lemolo Drive NE
- Masi Shop

Open house participants at Bainbridge Island City Hall

Roundabouts: traffic flow versus safety

Roundabouts were a hot topic and each open house. A majority of those who commented on the use of roundabouts thought they were a good solution. Participants commented that roundabouts would ease traffic flow concerns, prevent collisions, and allow quick access to SR 305 during peak-periods with high congestion.

The following intersections were identified for a roundabout:

- West Port Madison Road
- Agatewood Road NE
- Johnson Road NE
- NE Totten Road
- Lemolo Drive NE
- Suquamish Way NE
- Masi Shop
- NE Seabold Road
- NE Day Road

For those participants against the use of roundabouts, most questioned their safety in a high-speed corridor and whether they would effectively manage traffic flow.

Increased bus service leads to a more efficient and safer corridor

Many participants expressed a need for increased bus service to reduce the number of cars on SR 305. Several participants commented that reducing the number of cars on SR 305 would improve safety. Attendees also suggested that implementing Q-jumps to prioritize busses at traffic lights may incentivize ridership.

Open house participants at Suquamish Tribal Council Chambers

General improvements

Several participants suggested the following to improve safety and access along the corridor:

- Work with local police jurisdictions to monitor traffic speeds and dangerous driving;
- Extend the current 45 mph speed limit on SR 305 from Agate Pass southward to the West Port Madison Road intersection, as an immediate measure to reduce risk of collision;
- Widen SR 305 to reduce congestion;
- Widen the shoulders for bicyclists; and
- Increase sidewalks along the corridor for pedestrians.

What we heard: By Segment

NE Seabold and West Port Madison roads

On Bainbridge Island, a majority of in-person and online open house participants (29) who live on or near West Port Madison Road requested a traffic light to control traffic flow and increase travel safety at this intersection.

Several participants also requested building a roundabout for the same reasons.

Several participants also advocated for a traffic light at NE Seabold Road, that shares the same intersection as West Port Madison Road.

Masi Shop

In Suquamish, a majority of participants requested either a traffic light or roundabout at the Masi Shop. Most commenters felt the intersection in its current configurations forces drivers to make dangerous left hand turns during peak periods or at high speeds.

Open house participants at Poulsbo City Hall

NE Totten Road, Lemolo Drive NE, and Seminole Road NE

In Poulsbo, the most common requested locations for improvement were NE Totten Road, Lemolo Drive NE, and Seminole Road NE. Commenters suggested installing either traffic lights or building roundabouts at these locations. Their reasons included concerns for blind turns, left turns and to improve traffic flow.

Next Steps?

SR 305 partner agencies will review public comments and identify prioritized strategies for WSDOT to consider for implementing improvements with the $36.8 million Connecting Washington Account funding. WSDOT will review level of performance and select improvements starting in 2018.

Future SR 305 corridor improvement opportunities

SR 305 partner agencies will identify additional funding packages for improvements not funded by the current Connecting Washington Project.

For a complete list of comments from both in-person open houses and the online open house, please see Enclosed.

Appendix C

Performance Scoring Results

PROPOSED PRIORITIES for CONNECTING WASHINGTON FUNDING

										✓			
										✓			
ALL	**Transit Improvements**												
	Provide transit queue jumps @ all signalized intersections from High School Rd to the north (3 existing locations)									✓			
	Improvements to bus stops (upgrade lighting, add shelters, etc) - assume 24 locations									✓			
										✓			
										✓			

1) *Performance score based on performance metrics analysis. Categories include impacts to congestion, transit, access, safety, non-motorized facilities and the environment*

2) *High level scoping level costs for comparison purposes*

3) *Low cost bike enhancements to be included in all intersection projects*

✓ *Top priority projects based on Least Cost Solutions*

	Stripe driveways and roadways to prevent blocking & improve sight distance								$50k		✓		
	*Install **SIGNAL** at W Port Madison and/or Agatewood*								$1.5M		✓	✓	
	*Install **ROUNDABOUT** at W Port Madison and/or Agatewood*								$6M				✓
	Add two-way-left-turn lane at Seabold Church Road/SR 305								$500k		✓		
	Construct additional parallel route between Agatewood Rd to W Port Madison Rd								$9M				
	Connect Reitan Road (on west side of SR 305) to SR 305								$9M				
	Extend SB and EB turn lanes								$500k		✓	✓	
	Could include fish passage								$7M				
	*Install **SIGNAL** at Totten Road - could operate a system for access management with SR 305/Johnson Rd*								$1.5M		✓	✓	
	*Install **ROUNDABOUT** at Totten Road - could operate a system for access management with SR 305/Johnson Rd*								$6M				✓
	Could include fish passage								$12M				
	Channelization modifications at HS Rd and additional turn lanes at Sportsmen Club Road								$900k		✓		
	*Channelization modifications at HS Rd and **roundabout** at SC Rd*								$7M			✓	
	Add additional NB/SB lanes through the intersection (auxiliary lanes)								$1.5M		✓	✓	
	Change from signal to roundabout control; or								$9M			✓	
	*Install **SIGNAL** at Masi driveway, AND construct new roadway connection from SR 305/Masi south to Sandy Hook Rd; change south leg of SR 305/Sandy Hook intersection to right-in-right-out*								$2M		✓	✓	
	*Install **ROUNDABOUT** at Masi driveway, AND construct new roadway connection from SR 305/Masi south to Sandy Hook Rd; change south leg of SR 305/Sandy Hook intersection to right-in-right-out*								$8M				
	Two-way-left-turn lanes at driveways and roadways								$1.5M		✓	✓	
	Limit driveways to right-in-right out, continuous median control, w/ U-turn facilities								$7M			✓	
	Install roundabout at Johnson Road - could operate a system for access management with SR 305/Totten Rd								$5M		✓		
	SR 305/Noll Road: change to right-in-right-out only								$500k		✓		
	Seminole Rd NE/Stenbom Lane/SR 305 intersection reconfiguration: - consolidate access points and add turn lanes								$4M				
	SR 305 pedestrian tunnel								$1.5M			✓	
	Extend HOV lanes								$7M		✓		

1) *Performance score based on performance metrics analysis. Categories include impacts to congestion, transit, access, safety, non-motorized facilities and the environment*

2) *High level scoping level costs for comparison purposes*

✓ *Top priority projects based on Least Cost Solutions*

NEEDS

C	Congestion
T	Transit
A	Access
S	Safety
NM	Non-Motorized
E	Environmental