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## EXECUTIVE SUMMARY

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## 1. Executive Summary

The SR 305 corridor provides a critical multimodal transportation link between SR 3 in Poulsbo and the Bainbridge Island ferry terminal. Growing congestion and increased travel demand along the SR 305 corridor and between Kitsap County and Seattle necessitates an approach that provides enhanced transit services. Transit ridership in the corridor continues to grow, while at the same time traffic congestion intensifies, particularly at several key intersections. Transit capacity will need to continue to expand to serve the growing demand.

The SR 305 Corridor Alternatives Analysis Technical Study builds upon Kitsap Transit's work done as part of the *SR 305 Corridor Vision – Transportation Choices for Tomorrow – Connecting Communities* (completed in February 2008), which was initiated as an update to the SR 305 Corridor Analysis and Major Investment Study (MIS) completed in 1997. This technical study further refines the set of alternatives to address travel needs in the corridor. This technical study provides additional data collection and analysis to evaluate transit options between the Bainbridge Island ferry terminal and SR 3 in Poulsbo.

### 1.1. Corridor Description

The SR 305 corridor extends 13.5 miles between SR 3 in Poulsbo and the Bainbridge Island ferry terminal in Winslow at its southern terminus. The corridor contains several distinct segments with a variety of urban, suburban, and rural land uses. The general character of the corridor changes between segments from the primarily urban context surrounding the Bainbridge Island ferry terminal to the suburban context at the junction of SR 305 and SR 3. Right-of-way is available, but potential transportation improvements in the corridor are greatly constrained



by topography, the two-lane Agate Pass Bridge, and the proximity of environmental assets such as stream crossings with steep ravines and forested natural areas. Figure 1-1 illustrates the corridor's span and labels the key segments used when evaluating alternatives.

SR 305 is one of the most congested travel corridors in Kitsap County, serving commuters daily to and from the ferry terminal, which carries passengers to and from downtown Seattle. The SR 305 route carries extensive commuter-based traffic and transit riders as well as a growing level of local traffic and local transit riders. The corridor serves the growing communities of Poulsbo, Suquamish and the Port Madison Indian Reservation, and Bainbridge Island. Some of the major congestion choke points are located where SR 305 intersects with SR 3 and Suquamish Way, as well as the physically constrained Agate Pass bridge segment and the Bainbridge Island Ferry terminal queue. On top of these critical junctions, major congestion issues include:

- Pulsed traffic flows to and from ferry terminal resulting from the ferry arrival and departure schedule;
- Long queues at arterial intersections / traffic signals; and
- Transit delay as a result of traffic conditions and a lack of priority treatments.

The combined effects of the corridor bottlenecks and constraints, stated above, and growth in travel demand will increase transit travel time from the ferry terminal to SR 3 from 38 to 59.5 minutes in the PM peak period by the year 2030.

**Figure 1-1 SR 305 Corridor Study Area**



## 1.2. Problem Statement

The SR 305 corridor is unique in that it covers a range of urban and rural land uses, does not have nearby parallel corridors, and carries a high volume of auto and transit passenger traffic. It connects Bainbridge Island and the busy Washington State Ferries terminal located at the southern terminus of the corridor at Winslow/Bainbridge Island to Poulsbo, the fastest growing urban area in Kitsap County to the north. The corridor is constrained by a two-lane bridge crossing of Agate Pass roughly half way between SR 3 and the Bainbridge Island Ferry Terminal. The proximity of this bridge to a busy intersection at Suquamish Way can cause significant traffic congestion. A number of other major intersections along the corridor also have significant traffic delays, with mainline queues of up to 2.5 minutes and minor leg queues several times longer. Demand for travel in the corridor is expected to grow while expansion of highway capacity is constrained by physical barriers, sensitive natural areas and strong community desires to limit roadway expansion (particularly on Bainbridge Island).

There are several regional destinations, employment centers and land uses along the corridor that will continue to generate a growing level of transit ridership in addition to the ferry commuter population, including:

- Employees and customers accessing Winslow and the commercial and office uses in the vicinity of High School Road on Bainbridge Island;
- Employees and customers accessing the growing light industry and manufacturing uses in the vicinity of Day Road on Bainbridge Island;
- Employees and customers accessing the Clearwater Resort and Casino in Suquamish;
- Students and employees accessing the Northwest College of Art and West Sound Academy south of Poulsbo and north of Suquamish;
- Employees and customers accessing businesses and office uses along SR 305 (grocery stores, financial and medical offices, banks, restaurants, and extensive other retail) and at College Marketplace (Walmart and other retail establishments, restaurants, banks, a new beverage distribution center, and a new medical office building) in Poulsbo; and
- Students and employees accessing the Olympic College branch campus, which is located adjacent to College Marketplace in Poulsbo and is expected to grow in enrollment.

In addition to these specific destinations, there are a variety of other factors that will place an ongoing demand on transit service in the SR 305 corridor. Potential development of additional senior housing and assisted living facilities in Poulsbo, as well as multi-family residential in the vicinity of SR 305 and Bond Road and mixed use redevelopment along Viking Avenue will place additional demand on transit service in the corridor in the coming years.

Businesses continue to be developed along the Suquamish segment of the corridor, requiring the need for additional access and transit service. Multimodal solutions will need to preserve access to these new establishments. As growth and development continue on Bainbridge Island, including new businesses and residences in the mixed use/commercial core of Winslow and new employment/light industry in the Day Road business park area, there will be additional commute and shopping trips made via the SR 305 corridor. Enhanced transit service can help ease the burden of the additional travel demand.

Residents from throughout Kitsap County and beyond (including Jefferson and Clallam counties) use the SR 305 corridor as a key regional conduit to the Bainbridge Island ferry for access to Seattle, and the populations of these counties are projected to grow. Many non-driving citizens including seniors, transit patrons with disabilities, and people who do not own cars are heavily reliant on transit service in the SR 305 corridor. Many of these customers use transit every day to get to their jobs and to access goods and services including health care. The transit-reliant population is particularly strong and growing in the Poulsbo and Suquamish communities.

Regional population and employment growth, the ongoing commuter travel demand for access to and from the ferry, and the specific demand for transit service related to land uses in and near the 305 corridor will contribute to the need for increased transit capacity in the coming years.

*The SR 305 Corridor project addresses the problem of how to accommodate increased travel demand in the corridor given the growing demand for transit service and the limited capability to expand highway lane capacity.*

### **1.3. Purpose and Need for the Project**

The purpose of the proposed SR 305 Corridor project is to meet the growing travel demand through expanded transit capacity and service and multimodal improvements in the SR 305 Corridor (between the Bainbridge Island Ferry Terminal and SR 3). The speed and reliability of transit will be improved, and less hindered by congestion. Improvements that increase transit speed and reliability will also improve traffic flow for other travelers including high occupancy vehicles using the corridor. Non-motorized connections to and from transit and along the corridor will be strengthened and local plans for bicycle and pedestrian facilities will be integrated into the corridor improvements. The overall intent will be to increase multimodal travel capacity while at the same time avoiding development of additional general purpose travel lanes in this constrained corridor.

The project's purpose is necessitated by a series of corridor conditions and projected changes in travel demand and population growth. These include:

- Historic and projected increases in traffic congestion in the SR 305 Corridor due to increases in regional and local population and employment including specific employment centers and land uses along the corridor;
- Increased transit operating costs due to lengthy transit travel times and deteriorating public transportation reliability in the SR 305 Corridor as a result of growing traffic congestion;
- The region's growing reliance on public transportation to meet travel needs in the SR 305 Corridor (as described above), including those traveling to/from Seattle via the ferry as well as those traveling to and from employment centers, businesses, and other regional destinations, and those who do not drive for a variety of reasons;
- The need to maintain interregional mobility across the Puget Sound via the State Marine Highway System which uses the Bainbridge Island – Seattle to transport people and goods/freight. In particular, proposed redevelopment plans in the Bainbridge Island Ferry Terminal area and planning goals adopted by the City of Bainbridge Island will make park-and-ride access to the ferry more difficult and expensive.

- Local and regional land use and development plans, goals, and objectives that identify nodes served by the SR 305 Corridor as a focus for residential and employment (commercial, educational, office and retail) development to accommodate forecasted regional population growth in a transit supportive manner;
- The need for increased pedestrian and bicycle connectivity, safety, and mobility throughout the corridor, which could be further implemented through the development of high-quality transit stations, park and ride facilities, and intersection improvements near these facilities. There is a need to encourage more walking and bicycling access to transit in alignment with local, regional, state and federal plans and policies; and
- Limitation of options for transportation improvements caused by the identification and protection of important resources in the natural and built environment in the SR 305 Corridor, including but not limited to steep slopes and ravines, streams, wetlands, rare plants, forested areas, animals and their habitat, and scenic values.

#### **1.4. Study Guidance and Public Participation**

This SR 305 Corridor Alternatives Analysis Technical Study and the prior *SR 305 Corridor Vision* study that directed the development of alternatives were informed by an integrated stakeholder and public engagement program. Input and comments were gathered at various meetings with citizens of the communities throughout the corridor, as well as representatives from the Suquamish Tribe, agency officials and staff at the local, regional, state, and federal levels, elected leaders, and other stakeholders. Input from the public and stakeholders helped to shape the study and confirm local interests and priorities. Kitsap Transit has been working closely with representatives from the Washington State Department of Transportation and the Federal Transit Administration throughout the study process and representatives from Washington State Ferries, Puget Sound Regional Council and Kitsap Regional Coordinating Council have been briefed periodically as various stages of analysis have been completed.

Development of multimodal solutions for the SR 305 corridor that address the full range of travelers' needs has been a common interest throughout the planning process. Key stakeholders, agency representatives, and members of the public have asked that transportation solutions for the corridor holistically address multimodal needs including transit, bicyclists, pedestrians, and general purpose traffic (motorists and freight). With any planning and project efforts moving forward in the future in the SR 305 Corridor, context sensitive solutions that support all modes are desired. A truly integrated multimodal transportation system is the ultimate goal for the corridor.

Participants in the public and stakeholder involvement process also have continually stated a strong interest in exploring expanded transit service as a primary means for increasing travel capacity over the long term, given the limitations on physical space to expand highway lanes and the potential environmental concerns associated with full-scale widening, particularly a concern on Bainbridge Island (noise, natural resource impacts to streams, wetlands, and vegetation, and affects on visual quality).

The importance of cost-conscious decision-making to maximize public investment and continuing to maintain good multimodal access to employment centers, businesses, and other key destinations along the corridor have also been mentioned repeatedly by public participants and stakeholders in the process.

Refer to Section 2.1 for additional discussion related to study guidance and participation. Also, Appendix B provides details on the public and stakeholder involvement program that supported the study efforts and includes a compendium of comments gathered during this phase of study as well as the earlier visioning phase.

### **1.5. Mode and Alignment Alternatives Considered**

A complete set of alternatives was developed and analyzed during the *SR 305 Corridor Vision* study process presenting mode and alignment options. The initial range of enhanced transit modes considered would improve service over what is currently provided by conventional local bus operation by implementing characteristics such as:

- Higher capacity vehicles
- Limited stops
- Enhanced stop/station amenities
- Fast boarding and alighting capability
- Off-board fare payment options
- Travel time improvements via exclusive right of way and/or transit signal priority
- Enhanced rider information services

The following mode options that exhibit these characteristics were considered:

- Light Rail
- Monorail
- Automated Fixed Guideway (special attention was provided to LevX technology during the Vision Study)<sup>1</sup>
- MagLev
- Commuter/Heavy Rail
- Diesel Multiple Unit
- Bus Rapid Transit (BRT)
  - Operating in an exclusive busway
  - Operating in mixed traffic

The constrained nature of the SR 305 corridor limits the number of the parallel travel routes that could alleviate congestion and/or provide priority routes for transit. There are no significant parallel roadways or continuous rights-of-way between approximately Hostmark Street in Poulsbo and Madison Avenue N in Bainbridge Island. Similarly, SR 305 currently provides the only roadway crossing of the Agate Passage waterway.

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<sup>1</sup> LevX is a conceptual technology being developed by a Washington company. The technology would use a non-electrified magnetic levitation system to reduce friction and power needs of transit vehicles. The technology was reviewed due to local interest. It was determined that the time required for the technology to emerge as a viable and proven passenger transportation technology was extensive enough that it would not qualify as a viable technology within the 20-year planning horizon.

The *SR 305 Corridor Vision* study process identified a series of design options in conjunction with a limited set of alignment alternatives along five segments. These design options provide for flexibility in enhanced transit operations. The corridor segments are labeled A through D and include:

- **Segment A1 – Bainbridge Island Ferry Terminal to High School Road.** This segment includes route alternatives focused around the southern terminus of the corridor in order to bypass potential transit delay where traffic hits the ferry terminal. These route alternatives include Olympic Drive/Way, Madison Avenue via Winslow Way, Cave Avenue NE, and Ferncliff Avenue NE. A variety of design options are proposed along Olympic Drive/Way including various versions of mixed traffic and dedicated transit operations.
- **Segment A2 – High School Road to Suquamish Way.** Due to corridor constraints, this segment would be located entirely along SR 305 with the same design options as Segment A1. No additional route alternatives exist along this segment.
- **Segment B – Suquamish Way to Hostmark Street.** Due to corridor constraints, this segment would utilize general purpose travel lanes along SR 305 with no additional route alternatives.
- **Segment C – Hostmark Street to Bond Road.** SR 305 is the sole alternative available along this segment. Transit would utilize existing high occupancy vehicle (HOV) lanes that would potentially be further managed with additional peak hour lane use restrictions in the future.
- **Segment D – Bond Road to SR 3.** The northern most corridor segment would operate with transit mixed with other traffic in the existing general purpose lanes on SR 305. Due to corridor constraints, no other route alternatives are viable.

Figure 1-2 displays the location of the alignment alternatives as well as the Segment A1 alignment alternatives located near the Bainbridge Island ferry terminal.

**Figure 1-2 SR 305 Alignment Alternatives**



## 1.6. Screening and Evaluation Process

In order to identify the best transportation investment for the SR 305 corridor, all mode and alignment alternatives underwent an entrenched screening and evaluation process. For the purposes of this technical study, three evaluation tiers were identified to narrow the number of mode and alignment alternatives developed in the *SR 305 Corridor Vision* study.

### *Tier I Screening Criteria*

The Tier I Screening Criteria were developed in order to determine whether or not proposed mode and alignment alternatives would adequately address the study area's Purpose and Need Statement (see Section 2 of this Report). Figure 1-3 shows each of the questions posed to determine each alternative's adequacy in meeting the project's purpose and need statement. All mode and alignment alternatives passed the four screening criteria and continued into the second phases of alternative evaluation – Tier II.

**Figure 1-3 Tier I Screening Criteria and Results**

<b>Tier I Screening Criteria</b>	<b>Alternatives removed from further study</b>
Would operate primarily within the north/south SR 305 Corridor	None
Would be a transit investment that would support multimodal access to transit, including pedestrian and bicycle connections and safety	None
Would improve transit travel speed and reliability	None
Would serve developed and/or developable land to provide access to employment centers, businesses and other key destinations	None

### *Tier II Screening Criteria*

The Tier II Screening Criteria were identified in order to determine whether or not the proposed mode and alignment alternatives advancing from the Tier I Screening would adequately meet the study area's Goals and Objectives recognized in the SR 305 Corridor Vision Study. Figure 1-4 lists the project's goals and objectives as well as the Tier II screening criteria used to meet these benchmarks. After running each mode and alignment alternative against these criteria, the evaluation determined only the **BRT alternatives** met all of the study area modal objectives. After evaluating the alignment options, Segment A1, A2, B, C, and D were all advanced to Tier III for further evaluation, screening, and/or validation. The modes removed from further study include:

- **Light Rail** – not appropriate for level of expected ridership within the 20-year planning timeframe, not easily scalable to meet ferry demand, and could require undesired corridor widening impacts.
- **Monorail** – high visual impact; low community support, not appropriate with suburban/rural nature of corridor, and very low cost effectiveness given high capital costs.
- **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 timeframe.

- **MagLev** – low community support, poor reliability in previous applications, and very low cost effectiveness given high capital costs, and could require undesired corridor widening impacts.
- **Commuter Rail/Heavy Rail** – poor integration with Ferry Terminal and negative safety and traffic impacts.

The alignment alternatives that were removed from further study include:

- **Segment A1 Alternative 2 (Madison)** – 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.
- **Segment A1 Alternative 3 (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.
- **Segment A1 Alternative 4 (Ferncliff Avenue NE)** – dismissed due to a lack of community support and the need to travel off the primary corridor for a long distance.
- **Segment A (A1 and A2) Alternative 1** – Design Options 2 and 3 (NB and SB Transitways) were dismissed due to a lack of community support for the required level of construction in the corridor ROW and associated visual impacts.

**Figure 1-4 Tier II Screening Criteria and Results**

Goal/Objective	Screening Criteria
Ability to fit within existing right-of-way (ROW) and allow for increased person movement capacity in the corridor without adding general purpose auto travel lanes	Would not add additional general purpose travel lanes
Compatibility with ferry system demand and loading requirements	Could be safely and efficiently integrated within Ferry Terminal operations on available footprint
Ability to deliver service compatible with urban and rural components of study area	Would be appropriate for both medium density urban areas and low density rural areas
Capability to minimize visual and natural resource impacts throughout the corridor	Would limit construction outside of available public right-of-way
Improvement of local multimodal mobility within and between communities in the corridor, including pedestrian and bicycle and multimodal connections to transit	Would provide additional options for local multimodal travel and facilitate pedestrian and bicycle access and multimodal connections to transit within North Kitsap County
Community interest and support	Would be supported by stakeholders and the general public
Ability to minimize safety concerns for all modes of travel	Would improve safety for all modes of travel
Potential to be scalable to demand	Would allow for cost effective implementation during early phases of operation
Capability to build upon reliable/tested technology	Would employ widely-used technologies
Potential to influence mode shift/reduce auto travel in corridor	Would provide for transit travel speed and reliability improvements relative to auto travel times

Goal/Objective	Screening Criteria
Potential to influence nodal land use (mixed uses and density supportive of high-capacity transit investment) and economic development	The alternative has proven track record in supporting high density / mixed use development
Ability to provide travel speed and reliability competitive with automobile	Would improve travel speed and reliability in comparison to 2030 forecasted travel times without alternative
Ability to provide high ride quality and comfort	Would offer amenities not found on local bus service
Potential to minimize intersection/roadway operational impacts	Would minimize operational impacts based on analysis of 2030 forecasted intersection LOS and turning movement analysis
Potential to limit the impacts of traffic and parking	Would limit impacts to traffic and parking based on analysis of 2030 forecasted intersection LOS
Opportunity to maximize public investment/affordability	Level of potential cost would be in keeping with the scale of projected population and ridership growth

**1.7. Definition of Alternatives**

Stemming from the Tier I and II screening and evaluation process, the SR 305 Corridor project objectively defines and evaluates five alternatives for addressing travel demand and improving transit speed and reliability in the SR 305 corridor between the Bainbridge Island Ferry Terminal and SR 3 in Poulsbo. The alternatives being considered include a “no build” option and four Bus Rapid Transit (BRT) service delivery options that share a common alignment and station locations. Each alternative being considered is summarized below and is accompanied by conceptual lane configurations at key intersection (Figures 1-5 through 1-9). Figure 1-10 illustrates the proposed BRT operating plan and location of BRT stations if one of the four BRT alternatives eventually becomes adopted as the locally preferred alternative.

- **Alternative 1: No Build** – The No Build Alternative evaluates the baseline scenario where existing transit service would be expanded over time as possible with currently planned programs and funding sources, along with planned roadway improvements and transit investments. Analysis of this alternative determines whether the status quo can meet the mobility needs of the corridor.
- **Alternative 2: BRT with Exclusive Reversible Center Lane** – The Reversible Center Lane Alternative proposes physical improvements (build alternative) that would facilitate peak period transit movement by switching the directionality of a dedicated transit lane on the Bainbridge Island section of the corridor. This alternative would provides the maximum capacity in the direction of the greatest demand (the peak direction) while limiting roadway widening to just one lane on Bainbridge Island.
- **Alternative 3: BRT with Select Intersection Improvements** – In the Select Intersection Improvements Alternative, BRT would operate within mixed traffic without providing a dedicated transit running way. Select intersections with significant congestion would be redesigned to allow for queue jump lanes in the form of shared transit and right-turn lanes in conjunction with signal pre-emption at the identified intersections.
- **Alternative 4: BRT with Dedicated Northbound Transit (HOV) Lane** – The Northbound Transit Lane Alternative would provide a northbound transit lane to improve PM peak hour transit flows, which are expected to create the worst congestion at key

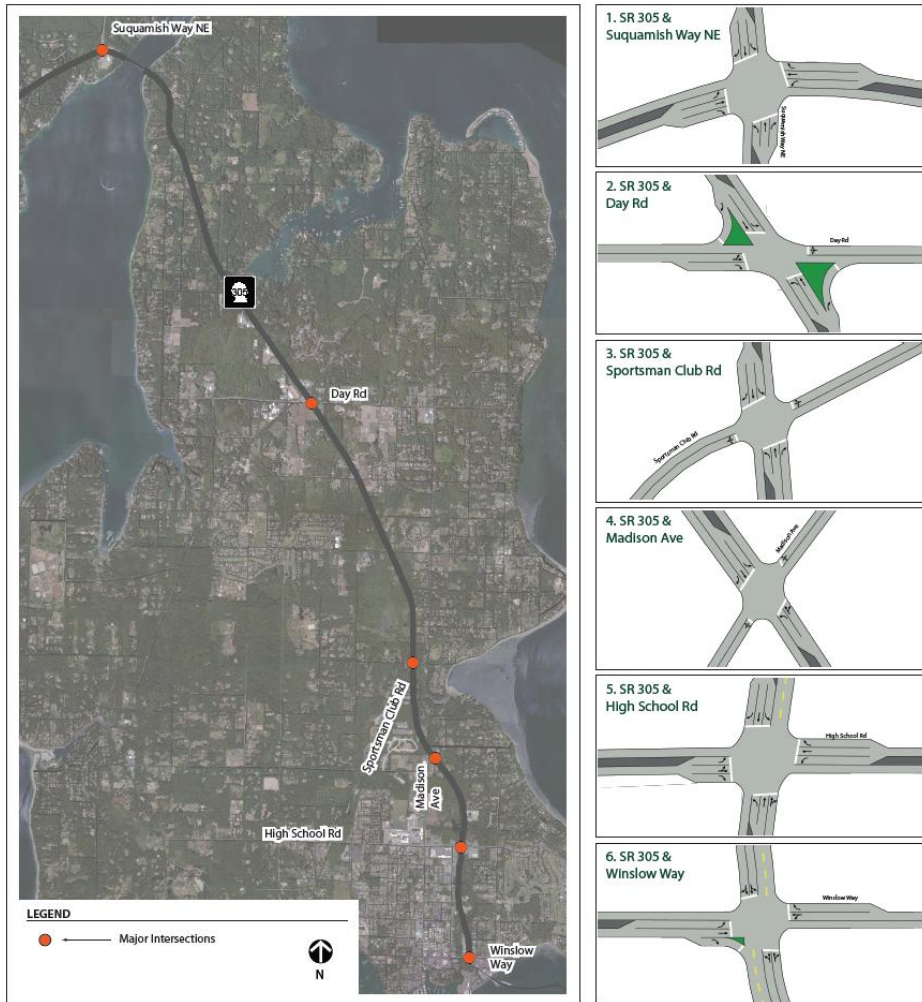
intersections. Automobile use of the facility would be conditionally restricted to right turn movements only. Southbound BRT vehicles would be aided with several spot intersection improvements including queue jump lanes and signal pre-emption.

- **Alternative 5: BRT with Agate Pass Bridge Access Improvements** – The Agate Pass Improvements Alternative proposes physical improvements (build alternative) where BRT would operate within mixed traffic with the exception of two historically congested segments near the Agate Pass Bridge. The segments immediately preceding and following the Agate Passage Bridge would be enhanced with a transit only lane (south of Agate Pass) and a queue jump lane (northeast corner of SR 305 / Suquamish Way) in order to bypass congestion. Ultimately, this alternative could be combined with any or multiple of the alternatives above, but it is proposed separately for the purposes of this technical analysis. It is beneficial to analyze the potential effects of improvements in the vicinity of the Agate Pass Bridge independently of the other alternatives.

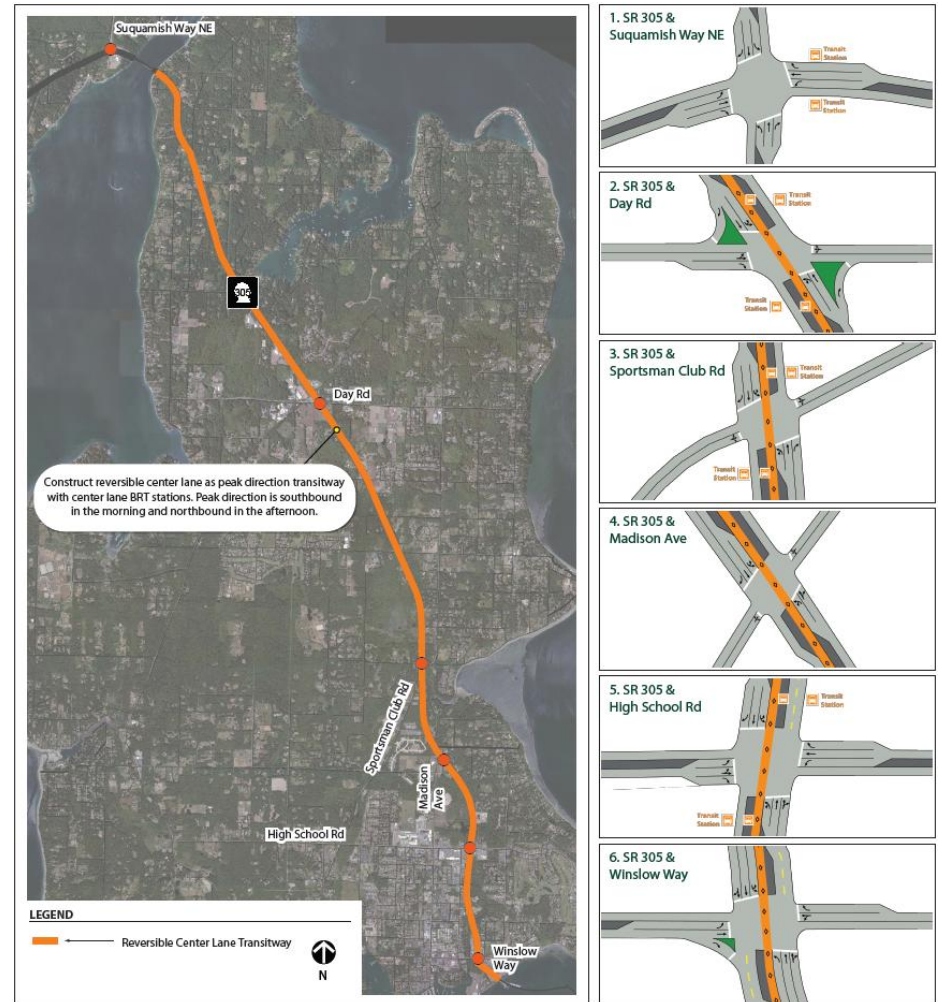
For alternatives that call for improvements to intersections, bus stops, or park and ride facilities, pedestrian, bicycle and local transit access would be enhanced concurrently. Park and ride facilities would include improvements for pedestrians and bicycles (including bicycle storage facilities). Selected intersections also would be improved with crosswalk markings, pedestrian actuated signals, bicycle lane striping, and other treatments to better facilitate pedestrian and bicycle access across SR 305 and adjoining roadways and strengthening multi-modal connections to transit,

Under all alternatives, it is assumed that planned improvements to the corridor would be implemented. This includes development of the Sound to Olympics Greenway Trail, calling for a shared-use path system in the corridor as referenced in the Puget Sound Regional Council's Vision 2040 and the Kitsap Regional Coordinating Council's *Looking for Linkage* report, as well as local non-motorized plans and trails plans, which also call for other types of pedestrian and bicycle improvements.

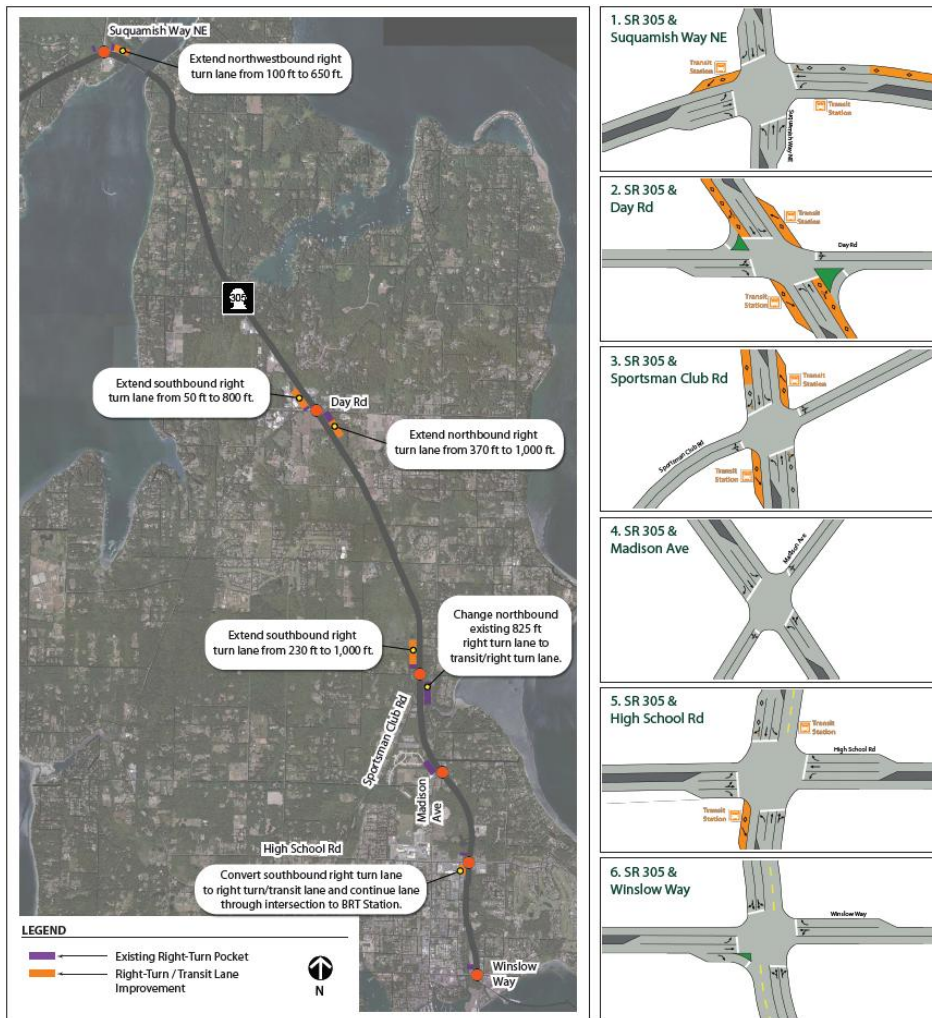
**Figure 1-5 No Build (Alt. 1)**



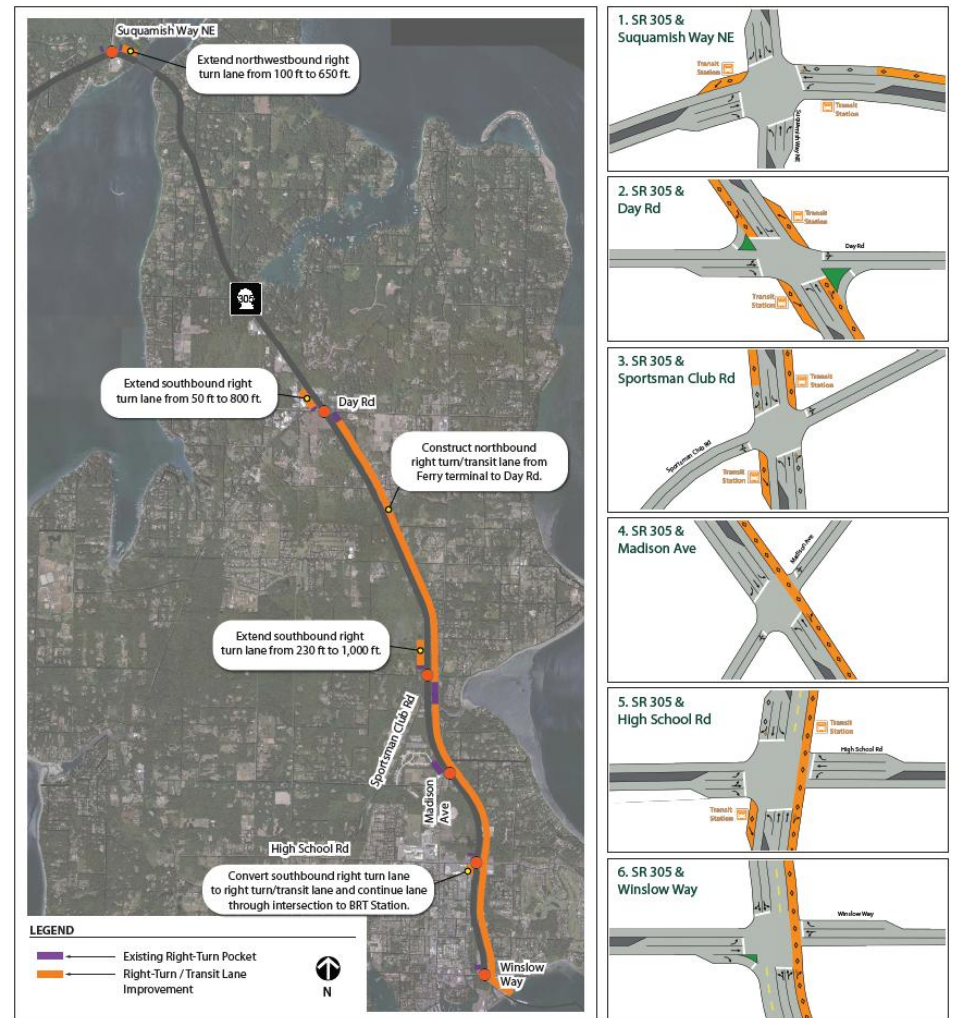
**Figure 1-6 BRT with Exclusive Reversible Center Lane (Alt. 2)**



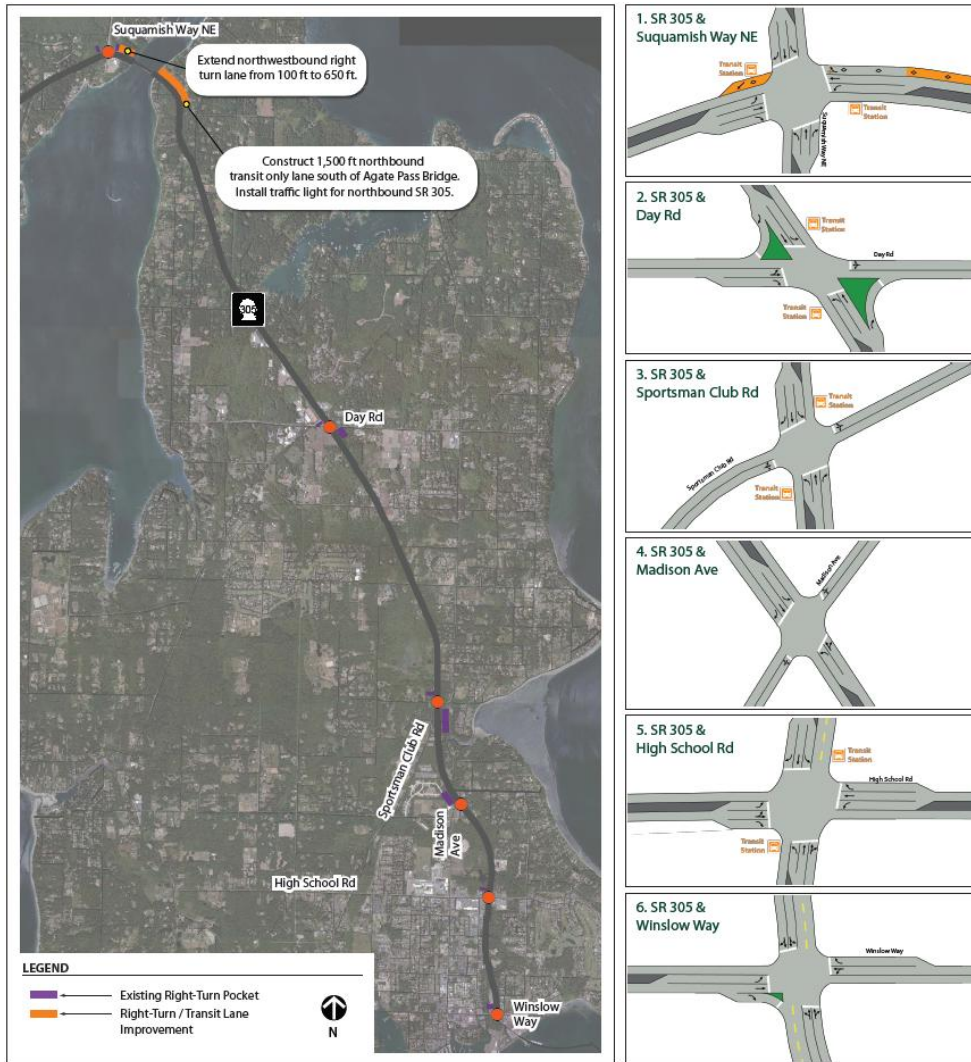
**Figure 1-7 BRT with Select Intersection Improvements (Alt. 3)**



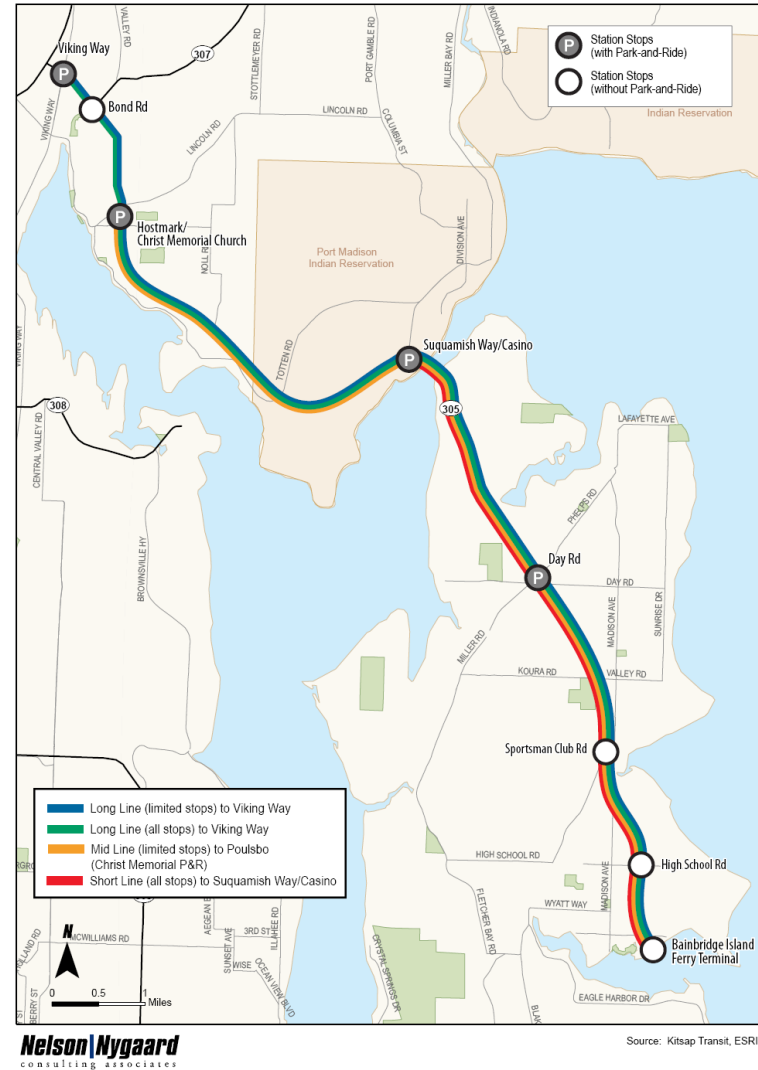
**Figure 1-8 BRT with Dedicated Northbound Transit Lane (Alt. 4)**



**Figure 1-9 BRT with Agate Pass Bridge Access Improvements (Alt. 5)**



**Figure 1-10 BRT Operating Concept**



**1.8. Tier III Evaluation Criteria and Alternatives Evaluation**

The Tier III Evaluation analyzes the five alternatives against the same Goals and Objectives identified under the Tier II Screening, but provides a more refined level of evaluation employing more analytical tools and methods. If an alternative adequately satisfies the study area’s Goals and Objectives, it may move forward to subsequent NEPA compliant environmental review processes. Figure 1-11 identifies the key criteria areas that help meet the SR 305 Corridor Goals and Objectives and provides summary ratings<sup>2</sup> based on the qualitative and quantitative analyses conducted during the Technical Study alternatives evaluation process (see Section 7 and Appendices A, B, C, and E for a detailed list of analysis results).

**Figure 1-11 Tier III Evaluation Criteria and Results**

Criteria/Objectives	Alt. 1 No Build	Alt. 2 Center Lane	Alt. 3 Select Inter- section	Alt. 4 NB Transit Lane	Alt. 5 Agate Pass
<b>Mobility Criteria</b>					
Transit travel times	-	++	+	++	0
Auto travel times	0	-	0	0	0
Multimodal traffic circulation	0	---	0	0	0
Intersection level of service	0	-	0	0	0
<b>Reliability Criteria</b>					
Dedicated lanes	0	+++	+	++	+
TSP at signalized intersections	0	0	0	0	+
<b>Safety Criteria</b>					
Safety impacts on all modes	0	--	0	+	0
<b>Cost and Cost Effectiveness Criteria</b>					
Operating Cost	++	+	+	+	+
Capital Cost	0	--	+	-	+
Cost Effectiveness Index <sup>1</sup>	0				
<b>Additional Qualitative Objectives</b>					
Be able to deliver service compatible with urban and rural components of study area	+	++	++	++	++
Minimize visual impacts to rural and urban portions of the corridor	++	+	++	+	++
Be desired by the community	+	0	++	+++	++

<sup>2</sup> Many of the ratings represent the average aggregates of several analysis results.

**SR 305 Corridor Enhanced Transit Project**

*FINAL REPORT: Alternatives Analysis Technical Study Report*

KITSAP TRANSIT

Criteria/Objectives	Alt. 1 No Build	Alt. 2 Center Lane	Alt. 3 Select Inter- section	Alt. 4 NB Transit Lane	Alt. 5 Agate Pass
Be scalable to demand	++	++	++	++	++
Be able to influence nodal land use (mixed uses and density supportive of high-capacity transit investment) and economic development	O	+	+	+	+
Build upon reliable/tested technology	++	++	++	++	++
Provide high ride quality and comfort	+	+	+	+	+

Key: +++ is highest rating, --- is lowest rating, and O is neutral.

<sup>1</sup> This is an aggregated qualitative score based on 30 minute and hourly service found in Section 7.4.

*Project Costs and Benefits*

As part of the alternatives evaluation, the project team calculated estimated increases in net capital and operating costs for each of the four BRT alternatives. Except for the operating cost figures, the BRT costs are in addition to transit and roadway capital expenditures planned for the SR 305 corridor. Figure 1-12 exhibits these cost estimations, including two separate operating cost figures for half-hourly and hourly service frequency.

**Figure 1-12 Cost Comparison**

Direction	Alt. 1 No Build	Alt. 2 Center Lane	Alt. 3 Select Intersection	Alt. 4 Northbound Transit Lane	Alt. 5 Agate Pass
<b>Annual Operating Costs</b>					
Operating Cost	\$1,674,000	\$4,387,000	\$4,692,000	\$4,387,000	\$4,692,000
<b>Implementation Capital Costs</b>					
Capital Cost	\$36,800,000	\$69,471,000	\$25,286,000	\$44,193,000	\$24,216,000

To put each alternative's cost into perspective, they are compared to their potential benefits. The FTA's cost effectiveness index (CEI) is used when evaluating projects<sup>3</sup> and provides a methodology for this cost/benefit analysis. The CEI is a formula that measures the cost per

<sup>3</sup> Projects that achieve a "medium" or better overall rating will be eligible, but not guaranteed, to receive Section 5309 Capital Investment Grant funds. The overall rating is an aggregation of ratings against various criteria including: cost effectiveness; land use; local financial commitment; and other factors (such as economic development benefits, congestion pricing).

passenger for constructing and operating a transit project with a high to low scoring. This index considers various variables including annualized capital costs, operating costs, and user benefits (essentially the projected number of passengers the project will serve).<sup>4</sup> Each alternative is annualized using a projected 3% inflation rate.<sup>5</sup> To qualify for a Medium-Low or better rating, an alternative must have a CEI of better (lower unit cost) than \$31.50<sup>6</sup>.

Figure 1-13 presents the user benefits achieved for each alternative. User benefits are based on the estimated ridership under each alternative and the travel time saved by each rider. As a point of reference, there are 2,800 existing daily trips being made.

**Figure 1-13 Summary of User Benefits**

Alternative	2030 Daily Transit Trips	Minutes Saved per Trip	Annualized User Benefits
Alternative 3 – Select Intersection Improvements	3,519	3.8	62,150
Alternative 4 – Northbound Transit (HOV) Lane	3,616	7.4	122,925
Alternative 5 – Agate Pass Bridge Access Improvements	3,502	3.2	52,250

Note: Based on an average annual ridership growth rate of 1% and a travel time elasticity of 0.6.

All of the alternatives resulted in a Low CEI Score as presented in Figure 1-14. Therefore, a reduction in capital costs and/or an increase in user benefits is required to improve the CEI scores. Section 7 provides further detail on the CEI results for all of the build alternatives as well as the methodology used for user benefit modeling.

**Figure 1-14 Summary of CEI Calculation**

Alternative	CEI Score
<b>Cost Effectiveness Index given Operating Plan conditions (30 minute base service)</b>	
Alternative 3 – Select Intersection Improvements	\$95.45
Alternative 4 – Northbound Transit (HOV) Lane	\$58.30
Alternative 5 – Agate Pass Bridge Access Improvements	\$129.63

**1.9. Next Steps**

Going forward, Kitsap Transit will continue to work with its regional partners to identify priorities for phased multimodal transportation improvements as well as a preferred alternative for transit service enhancements in the SR 305 corridor. These efforts should add address congestion for transit vehicles, especially in PM peak at Sportsman Club and Day Roads and at the Agate Pass Bridge. Investments in intersection and queue jump enhancements will provide transit speed and

<sup>4</sup> The methodology used to derive user benefits (travel time savings from each alternative’s improvements) is presented in Appendix G of this report. Raw data generated from the analysis is compiled in Appendix H.

<sup>5</sup> The FTA does not provide pre-determined inflation rates. Inflation rates in the FTA Standard Cost Category spreadsheet can be changed as the user “believe[s] to be correct”.

<sup>6</sup> Current FTA thresholds for the Small/New Starts Cost Effectiveness Criteria: High <\$12.49; M-High \$12.50 - \$16.49; Medium \$16.50 - \$24.99; M-Low \$25 - \$31.49; Low > \$31.49

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reliability improvements benefiting both corridor commuters and Kitsap Transit operations (lowered bus operating costs) and could lay a foundation for future enhanced transit solutions.

Based on the results of this study, a hybrid of Tier III Alternative 5 and either Alternative 3 or Alternative 4 (spot northbound intersection improvements or transit lane in conjunction with Agate Pass bridge transit access improvements) should result in the greatest benefits in terms of transit travel time and seems to make sense to address transit service expansion needs within the next ten years.

Additional elements of the BRT alternatives should be explored to build transit ridership in the corridor in the short term. These include the marketing of investments in travel time improvements and/or fleet upgrades, and the addition of a park-and-ride facility on Bainbridge Island near Day Road to capture additional riders from that part of the island. Similarly, Kitsap Transit should continue work to implement the park-and-ride facilities at Viking Way and in the Poulsbo area to migrate toward the park-and-ride strategy identified in this study.

Looking to the future, Kitsap Transit will continue to work with the FTA and regional partners to fully understand the unique markets in the corridor and quantify changing land uses, especially the growing and aging population in Poulsbo, including potential land use changes along the Viking Avenue corridor, as well as evolving conditions in the Suquamish vicinity and on Bainbridge Island, and other factors that will grow transit use in the corridor. Kitsap Transit should continue to monitor emerging trends and technology related to commute patterns, teleworking, rideshare programs, and other transportation demand management efforts in the region.

Continuing to build transit ridership along the SR 305 corridor will be important. Increases in future ridership will help show greater benefits when looking at project cost effectiveness and would sustain the all-day frequent service levels associated with New Starts/Small Starts projects. In the next few years, Kitsap Transit will continue to work with the FTA to assess potential eligibility for Very Small Starts project funding and/or other funding from other sources to support phased multimodal improvements in the corridor. This ongoing coordination should involve working with FTA to recognize the role of vanpools and other high-occupant vehicles in the corridor. Federal funding opportunities such as FTA discretionary funding for bus transit improvements as well as state and local matching funds will be explored as feasible in close coordination with regional partners.

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