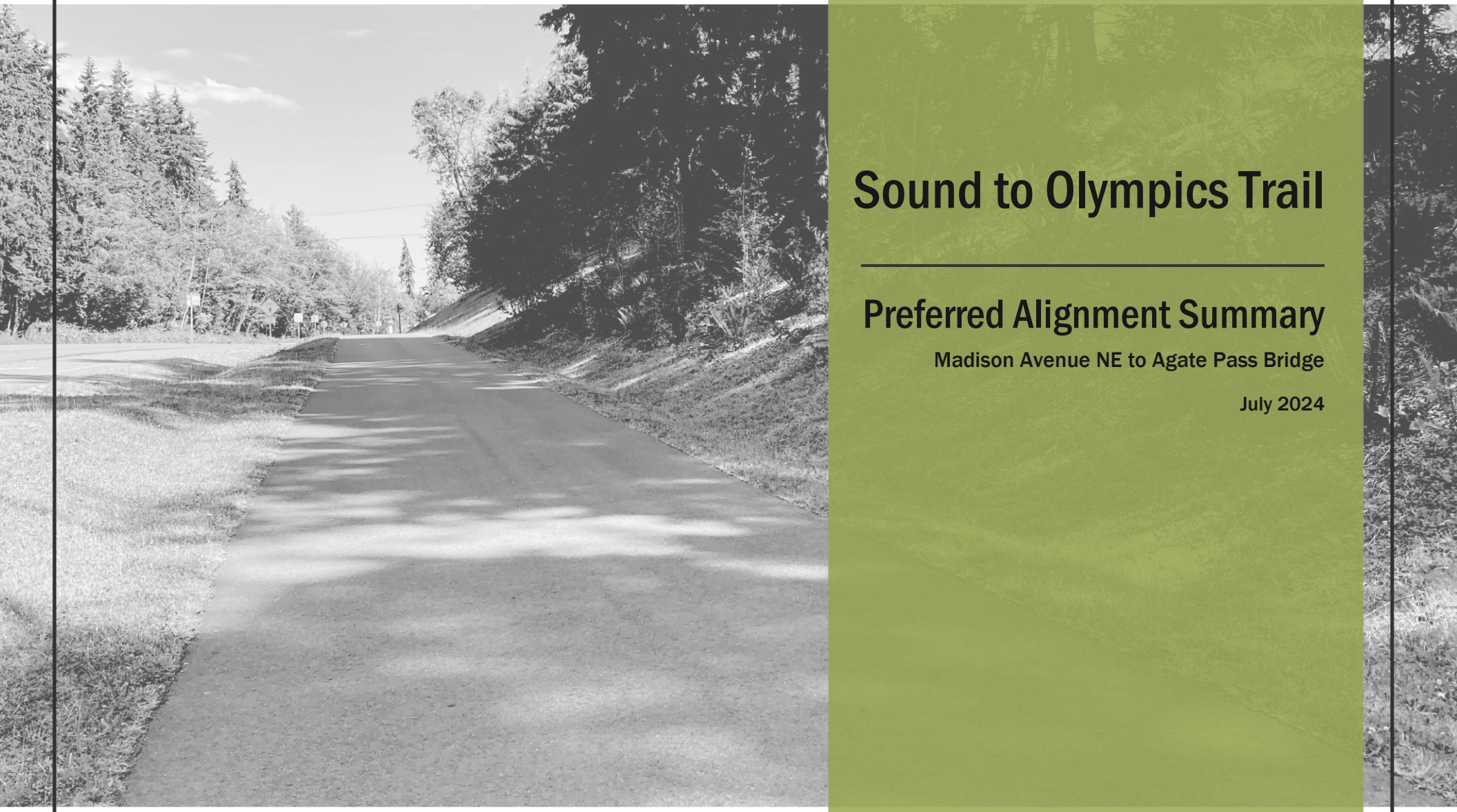

Sound to Olympics Trail

Preferred Alignment Summary

Madison Avenue NE to Agate Pass Bridge

July 2024

Parametrix

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PROJECT OVERVIEW

The Sound to Olympics Trail (STO) is a regional trail system that will connect Kitsap County to surrounding trail networks across Washington state. The trail will be designed as a paved, 10- to 12-foot-wide shared-use path, accommodating two-way active transportation for users of all ages and abilities. The STO will extend northward to Discovery Bay, where it will connect to the Olympic Discovery Trail (ODT). The STO and the ODT together to form the PS2P (Puget Sound to Pacific) initiative, a collaborative effort to establish 200 miles of multiuse trails from the Puget Sound to the Pacific Ocean. The P2P will serve as the western terminus of the Great American Rail Trail, which links various trails and multiuse paths across the United States.

Currently, a 1-mile segment of the STO is completed on Bainbridge Island, connecting the Bainbridge Island Ferry Terminal to Sakai Park, as shown in Figure 1. The Sakai Park segment of the STO, from the existing trail to Madison Avenue N, is under development through a separate study. The preferred alignment described in this report pertains to the planning-level segments of the STO, extending from Madison Avenue N to the Agate Pass Bridge.

The preferred alignment of the STO through Bainbridge Island will be funded through a $1.7 million federal funding package as part of a Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant from the U.S. Department of Transportation. Additional funding as part of this initiative includes the planning and design of 100 miles of new multiuse trails in the PS2P corridor, extending from Bainbridge Island to La Push.

Figure 1. Planning Study Area

Preferred Alignment Summary

This report documents the project process used to refine a preferred alignment and identifies the next steps for development of the STO on Bainbridge Island, including:

- An overview of existing conditions, opportunities, and constraints for each trail segment.
- A summary of design, permitting, and cost considerations for future implementation efforts.
- Next steps for implementation of the STO within the City of Bainbridge Island (City).

The planning-level study area of the STO was divided into seven segments, as shown in Figure 2. Alignments were identified for the planning-level segments based on existing conditions, environmental constraints, and land availability. A previous report compared alternative alignments for each segment, capital costs, and benefits. This approach was selected in anticipation that the proposed trail will be implemented sequentially, moving from south to north, based on available funding and starting from the existing STO Trail. Two alignments were identified and compared for each segment. Criteria for comparison used in the alternatives analysis included feasibility, user experience, and environmental impacts.

Stakeholder Engagement

In 2023, the City held an open-house event at City Hall to introduce, refresh, and collaborate on the STO. As a companion to that outreach event, an online web map was hosted by the City and included a questionnaire to solicit additional input and feedback on the project.

Figure 2. Planning-Level STO Segments

The development and analysis of the planning-level segments for the STO on Bainbridge Island encompasses three main elements: segments, alignments, and sections. These are detailed further in the report and in Figure 3. Segments refer to the seven divisions of the STO between Madison Road N and Agate Pass Bridge, which are consistent with previous STO planning documents. Alignments pertain to the two location options evaluated for each segment: Alignment 1, which runs alongside the State Route (SR) 305 right-of-way (ROW), and Alignment 2, which explores other available routes away from SR 305. Cross sections, or sections, are the portions of the preferred alignment that outline how the trail will be physically constructed, including stretches of the trail and necessary crossings over streams or environmentally sensitive areas.

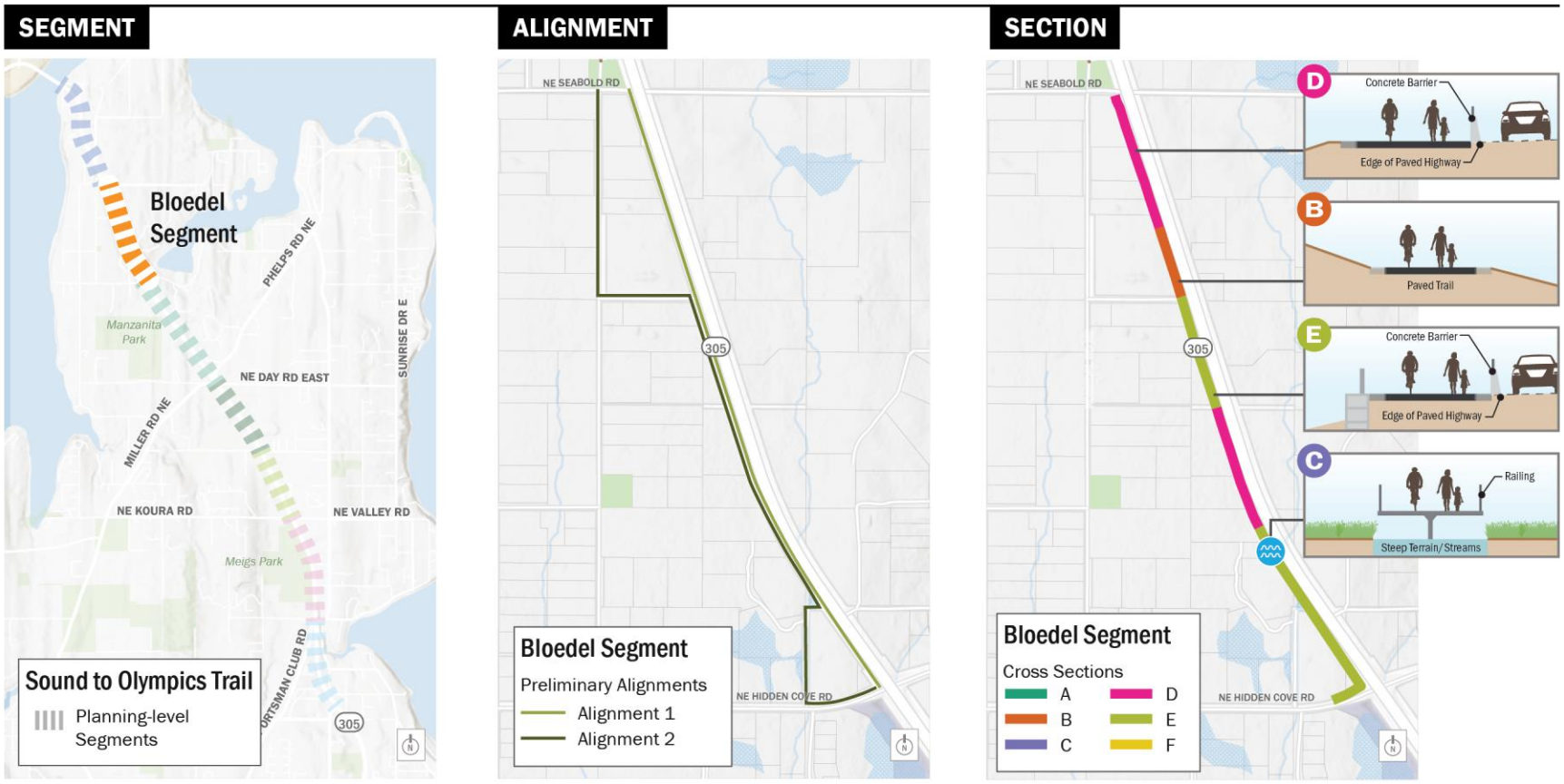


Figure 3. STO Elements for Comparison

EXISTING CONDITIONS

Alignment Alternatives Development

The project team used geospatial data to map, analyze, and document existing conditions along the SR 305 corridor for each of the segments. Opportunities and challenges were identified through site visits to determine potential locations for the trail alignments. Potential alignments were evaluated for their connections to community areas and destinations. All alignments were located entirely within existing Washington State Department of Transportation (WSDOT) or City ROW, or on City-owned properties. The project team also considered potential impacts to environmental features, including trees and critical areas.

Opportunities and Constraints

Transit Connections

Transit on Bainbridge Island is provided by Kitsap Transit. Key routes adjacent to the study area include 390 (Poulsbo/Bainbridge), 333 (Silverdale/Bainbridge), 94 (Agate Point), 93 (Manzanita), and 96 (Sunrise). The Washington State Ferries operate from the Bainbridge Island Ferry Terminal at the southern end of SR 305. Park-and-ride lots on Bainbridge Island include Bethany Lutheran Church, Island Church, and Day Road.

Topography and Right-of-Way

The SR 305 corridor provides one of the widest continuous stretches of available land on the island and provides relatively gentle grades. Aligning the trail within this ROW will provide greater accessibility, more direct access between destinations, and the potential to minimize impacts to steep terrain found elsewhere. Additionally, routing the trail along the SR 305 ROW would minimize the need to acquire private property and easements for trail development.

Existing Bicycle and Pedestrian Facilities

Existing pedestrian and bicycle facilities along SR 305 varies by segment, though a shoulder is present for most of the corridor. There is limited or no shoulder on the eastern side of the road for approximately 1,000 feet south from Agate bridge, which restricts northbound access for bicyclists. In some areas, signs along the highway indicate shared use of the road for bicyclists and vehicles. Short sections of designated bike lanes are intermittently present in the two southernmost segments. Designated pedestrian facilities are largely absent, though formal and informal trails are present parallel to SR 305 in some segments, and pedestrians may use existing shoulders.

Environmental Considerations

Sensitive environmental features present along the corridor include mature second-growth forests, open meadows, wetlands, fish-bearing streams, non-fish-bearing streams, and perennial streams. Potential impacts are further assessed in the Permitting Overview section of this report.

ALTERNATIVES EVALUATION

Alignment Alternatives Development

In a previous report, Sound to Olympics Trail Alternatives Evaluation Memorandum, alternative alignments were developed for each planning-level segment from Madison Avenue N to Agate Pass Bridge, based on existing conditions, field visits, available ROW, and environmental constraints (Figure 4). Due to significant slope challenges on the east side of the roadway, both alternative alignments are situated west of SR 305. Alignment 1 largely parallels SR 305 on the west side, leveraging existing ROW and maximizing route directness. Alignment 2 utilizes existing open space or easements outside of the SR 305 ROW, resulting in a longer but more scenic route with increased separation from the roadway.

Alternatives Evaluation

Evaluation criteria were developed to provide a comprehensive framework for assessing the suitability and feasibility of the different trail alignments for each segment. Evaluation criteria were grouped into three categories: feasibility, user experience, and environmental impacts. An outline of evaluation criteria and ranking methodology is detailed on the following page and Table 1.

Figure 4. Alignment Alternatives Studied in Previous Report

The following nine criteria were used to evaluate the alternatives and select a preferred alternative. Criteria were applied at a planning level and may require additional engineering studies prior to implementation.

1. Feasibility
    - **Capital Costs**: Initial costs and major improvements related to topography or environmental features, such as streams, wetlands, bridges, boardwalks, culverts, or retaining walls.
    - **ROW Acquisition**: Potential for acquiring additional ROW.
    - **Maintenance**: Anticipated ongoing maintenance costs for the trail.
    - **Directness**: The efficiency of the trail route from the starting point to the endpoint.
2. User Experience
    - **Accessibility**: Ease of access for users of all ages and abilities, including those with assisted mobility devices.
    - **Destinations**: Access to local destinations, such as parks, schools, and businesses, and the opportunity to improve access to transit stops.
    - **Aesthetics**: User proximity to scenic views or significant ecosystems, considering the impact of visual and sound elements and the proximity to SR 305 ROW.
3. Environmental Impacts
    - **Trees**: Evaluation of impacts on trees, considering factors like age, health, and quantity.
    - **Critical Areas**: Assessment of impacts on various environmental features, including wetlands, streams, sources of fresh drinking water, wildlife habitats, frequently flooded areas, geologically hazardous areas, and cultural resources.

Table 1. Evaluation Criteria Ranking

CATEGORY	MEASURE	RANKING
Feasibility	Capital Costs	
	Right-of-Way Acquisition	
	Maintenance	
	Directness	
User Experience	Accessibility	
	Destinations	
	Aesthetics	
Environmental Impacts	Tree Impacts	
	Critical Areas	

PREFERRED ALIGNMENT

The preferred alignment (Figure 5) primarily adheres to the existing ROW on the west side of SR 305 (Alignment 1) due to considerations for existing grading, topography, and the opportunity to minimize private property acquisition. Segments where the preferred alignment did not follow the SR 305 ROW included the following three locations:

1. Meigs Park Segment: The preferred alignment follows the existing trail through Meigs Park (Alignment 2).
2. Business-Industrial South Segment: The preferred alignment for the segment was not selected through this planning process. Alignment 1, located within SR 305 ROW, would require five stream crossings. Alignment 2 diverts users from the main highway, avoiding crossings and reducing capital costs. However, the City's easement for access is currently under review. As a result, the plan includes cost estimates for both alignments, allowing the City to make an informed decision in the future.
3. Hidden Cove Segment: The preferred alignment utilizes the existing drive to the maintenance facility (Alignment 1B) before joining SR 305 ROW for the remainder of the Hidden Cove segment (Alignment 2b) to bypass steep terrain and reduces the cost of implementation.
4. Local Connector Segment: Both draft alignments were positioned along the SR 305 ROW. However, this approach posed a safety concern for northbound users who would have to cross the road to travel north across the bridge in traffic. The preferred alignment for this segment diverts the trail under SR 305/Agate Pass Bridge and provides a facility along Reitan Road NE to access the northbound shoulder of SR 305 before reaching the Agate Pass Bridge.

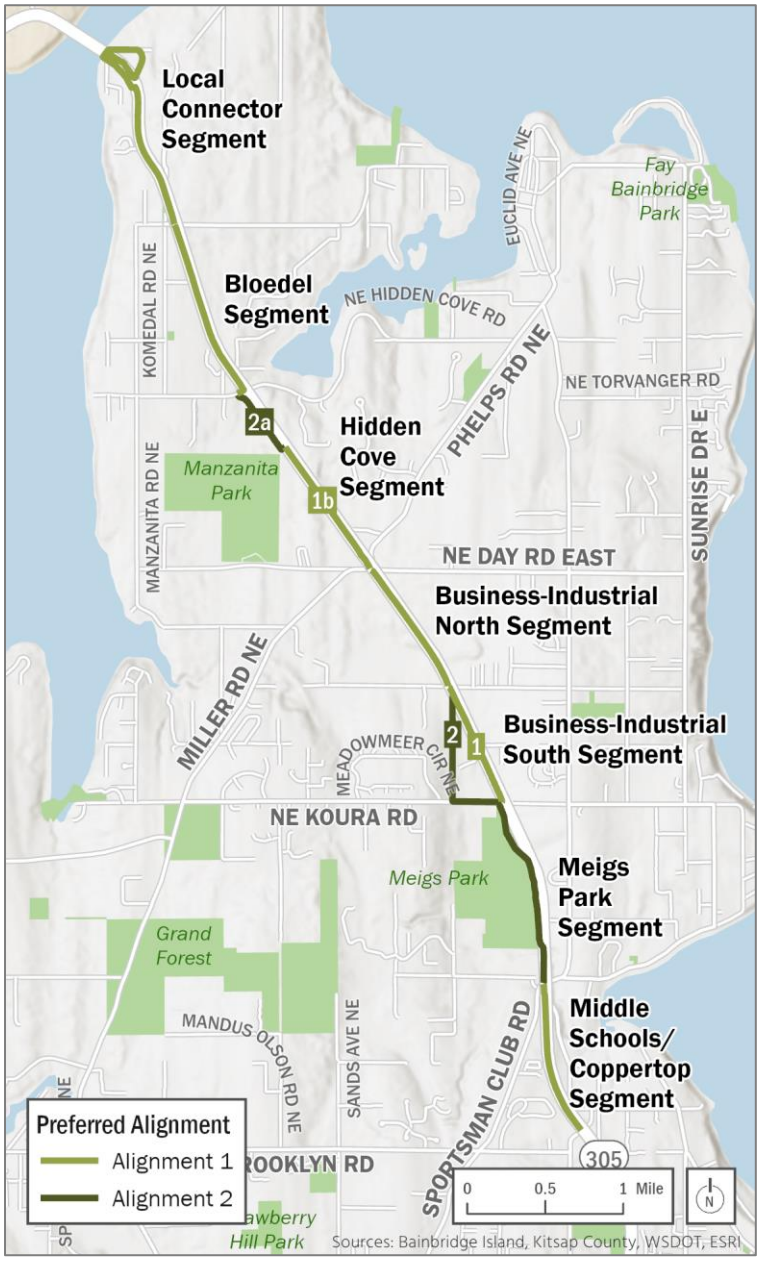


Figure 5. Preferred Alignment

CROSS SECTIONS

Future improvements to SR 305 exceeding $500,000 and starting design on or after July 1, 2022, will need to comply with WSDOT Complete Streets requirements,[1] which mandates that improvements meet a level of traffic stress (LTS) threshold of LTS 2 or better for bicyclists and pedestrians. All facilities proposed were designed to meet this threshold.

WSDOT defines a shared-use path as a minimum 10-foot-wide, paved facility with 2-foot-wide gravel shoulders on each side. Shared-use paths must be accessible by all users, including those with mobility devices and vision disabilities. The recommended width, excluding shoulders, is 12 feet. This study used the 12-foot paved standard design as the basis of design and as generally described in Figures 1515-5 and 1515-6 from the WSDOT Design Manual.[2]

Using WSDOT Design Manual guidance, six refined cross sections (sections) were developed based on proximity to SR 305, existing topography, vegetation, and presence of a wetland or stream. These sections, labeled as Sections A through F, provide a basis for costs, impacts to critical areas, surface water management, and need for property acquisition.

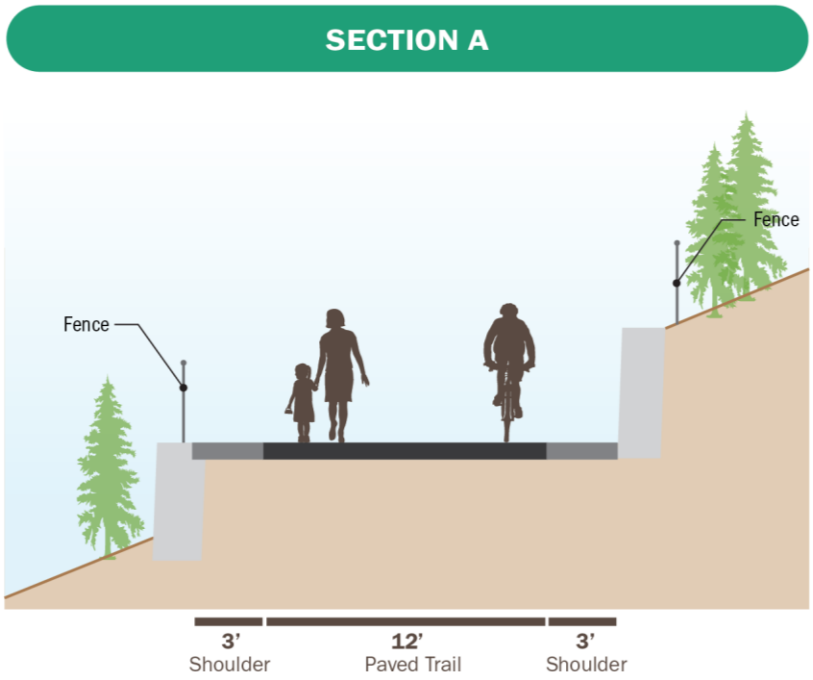
Costs per linear foot for each cross section are based on regional shared-use path projects of similar length and type divided by the length of the path. Unusual cost contributors (e.g., protection of cultural resources, private property restoration) were removed from the estimates prior to calculating the linear foot costs.

[1] Revised Code of Washington (RCW) Section 47.04.035.

[2] WSDOT Design Manual, 2023. Shared-Use Paths, Chapter 1515. https://wsdot.wa.gov/publications/manuals/fulltext/M22-01/1515.pdf

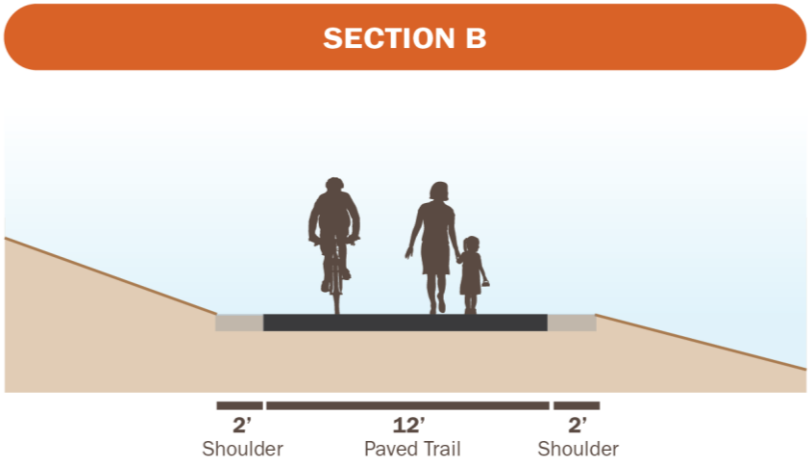
Section A. Separated Path through Forested, Steep Topography

Section A applies to forested areas with challenging terrain where the proposed shared-use path is separated from roadways. The construction cost ranges between $700 and $1,100 per linear foot, accounting for various wall systems, such as soldier pile walls, rock walls, and gravity block walls, because of the hilly landscape.



Section B. Separated Path through Cleared, Flat Terrain

Section B applies to cleared areas with no significant terrain challenges, and the proposed shared-use path is separated from the roadway. The cost is $325 per linear foot and assumes minimal infrastructure and no impacts to no critical areas. Section B has the lowest implementation costs due to the at-grade construction.

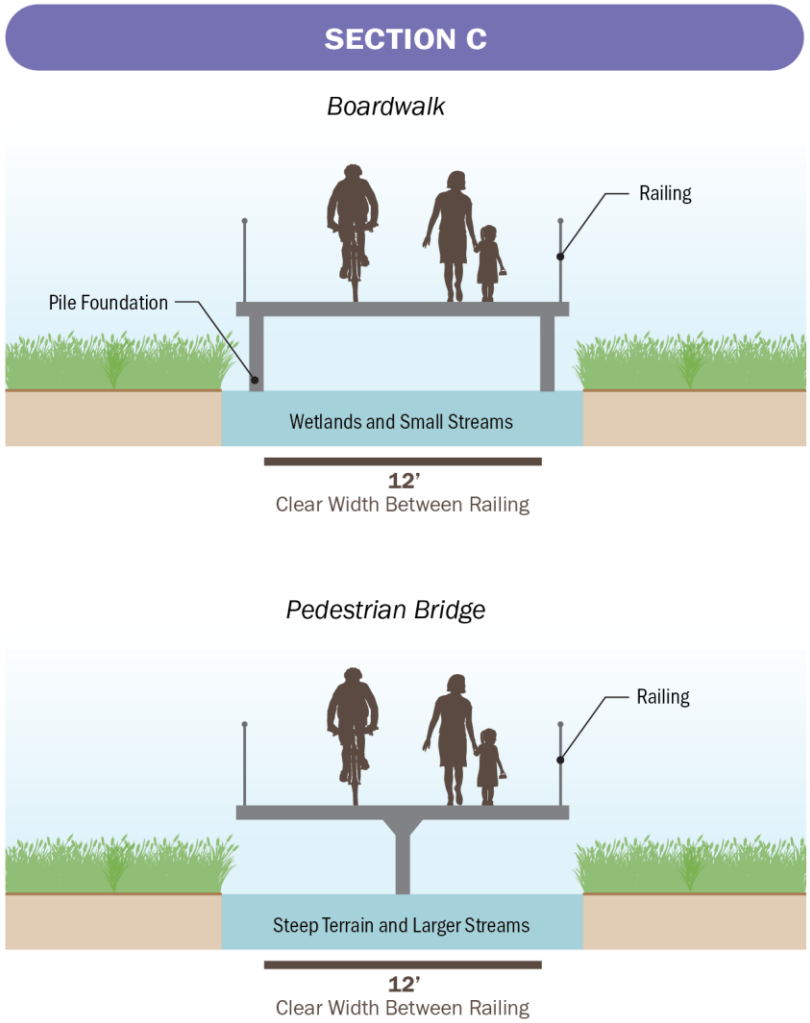


Section C. Grade-Separated Structure

Section C applies to wetlands, streams, or areas with steep topography that require a durable, grade-separated shared-use path. Section C includes two types of structures: an elevated boardwalk or a pedestrian bridge. An elevated boardwalk is selected for areas with wetlands and small streams, while the pedestrian bridge was selected for areas with terrain and larger streams.

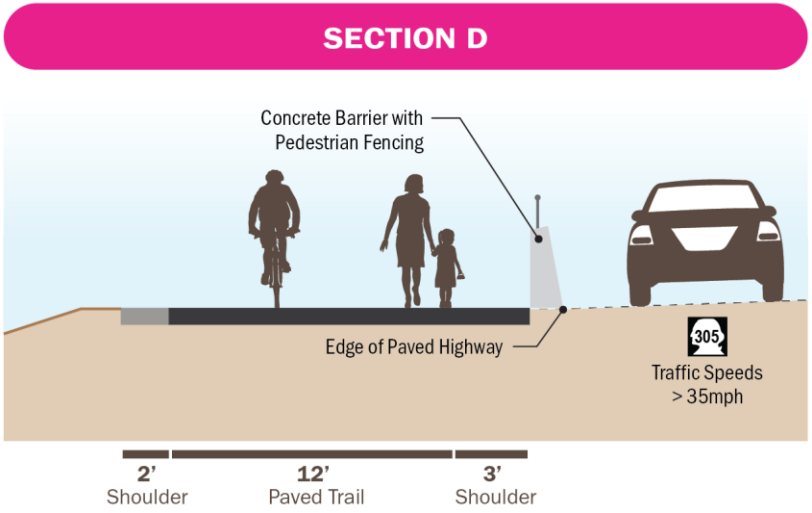
The planning-level cost of the elevated boardwalk is $4,550 per linear foot. This design assumes the use of hollowcore or reinforced fiberglass polymer on piles. The total width of the boardwalk, including railings, is 13 feet (12 feet of clearance between railings). Different materials for the boardwalk may be selected based on desired aesthetics, need to minimize impacts to critical areas, and load requirements for future maintenance.

The pedestrian bridge, at $7,000 per linear foot, is a prefabricated, weathered steel structure. The total width of the bridge is 14 feet (12 feet of clearance between railings).



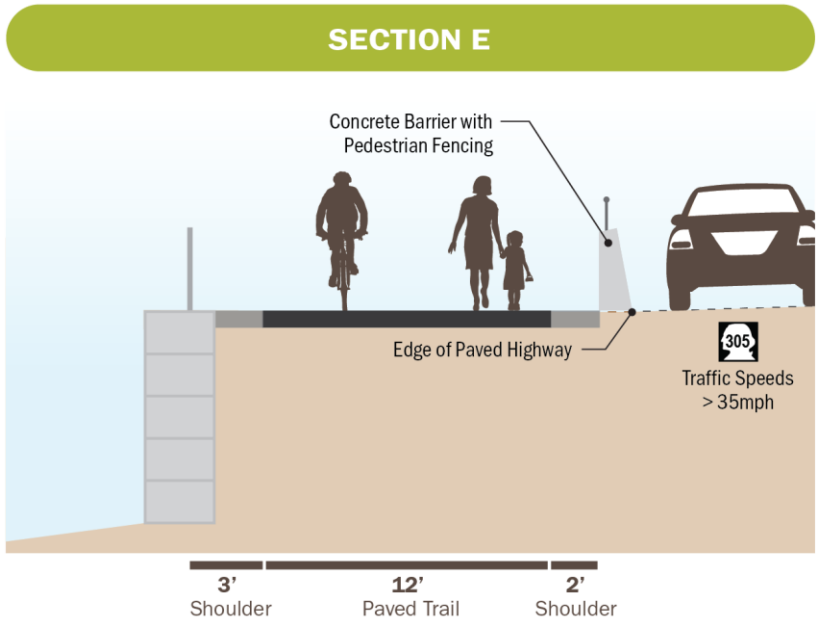
Section D. Path through Forested, Flat Terrain Adjacent to Low-Speed Roadway (greater than or equal to 35 mph)

Section D applies to forested, flat areas where the preferred alignment is adjacent to the highway. Consistent with WSDOT Design Manual standards for shared-use paths adjacent to roadways, the section includes concrete barriers and pedestrian fencing to ensure safety from high-speed traffic. The construction cost is $675 per linear foot, involving at-grade development with tree removal and no major structures. Surface water runoff from the adjacent roadway may be a cost contributor for the trail and will require careful analysis and engineering, consistent with WSDOT and City requirements.



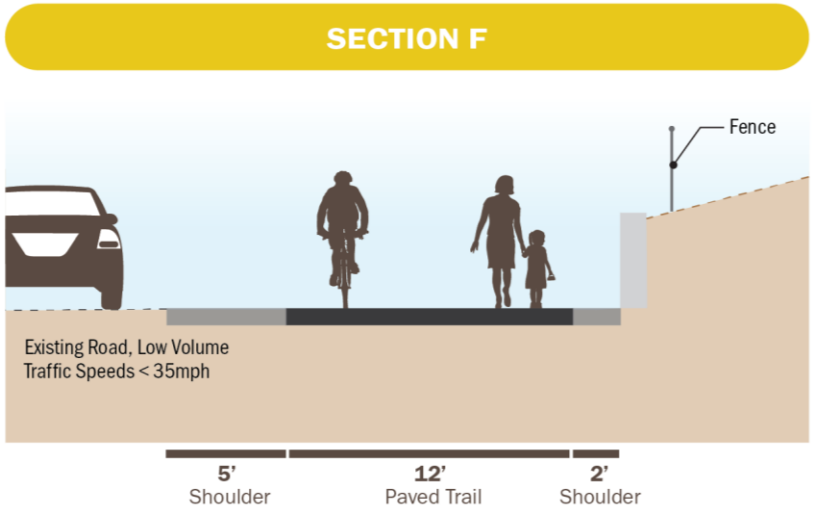
Section E. Path through Forested, Steep Topography Adjacent to High-Speed Roadway (greater than or equal to 35 mph)

Section E applies to areas adjacent to the highway but with steep side slopes and forested areas. Consistent with WSDOT Design Manual standards for shared-use paths adjacent to roadways, the section includes concrete barriers and pedestrian fencing to ensure safety from high-speed traffic. With a cost of $2,550 per linear foot, this cross section requires tree removal and various wall systems, such as soldier pile, structural earth, and gravity block walls. Similar to Section D, surface water runoff from the adjacent roadway may be a cost contributor for the trail and will require careful analysis and engineering, consistent with WSDOT and City requirements.



Section F. Path through Forested Terrain Adjacent to Low-Speed Roadway (less than 35 mph)

Section F applies to forested areas adjacent to low-speed roadways. The cost is $740 per linear foot, encompassing at-grade construction with some tree removal and wall installations but no barriers between the road and the trail. This cross section balances infrastructure needs with the lower speed and reduced risk associated with adjacent traffic.



SEGMENT OVERVIEWS

Figure 6 and Table 2 illustrate the percentage breakdown of these cross sections across all planning-level segments. Sections D and E, which feature the shared-use path adjacent to the roadway, comprise over half of the proposed segments. This is logical given that Alternative 1, which follows the SR 305 ROW, was chosen for the majority of segments during the alignment alternatives evaluation. The following pages provide an overview of each planning-level segment, including proposed cross sections, cost estimate, stream and roadway crossings, and other considerations. Maps of each segment are shown in Figure 7 through Figure 14.

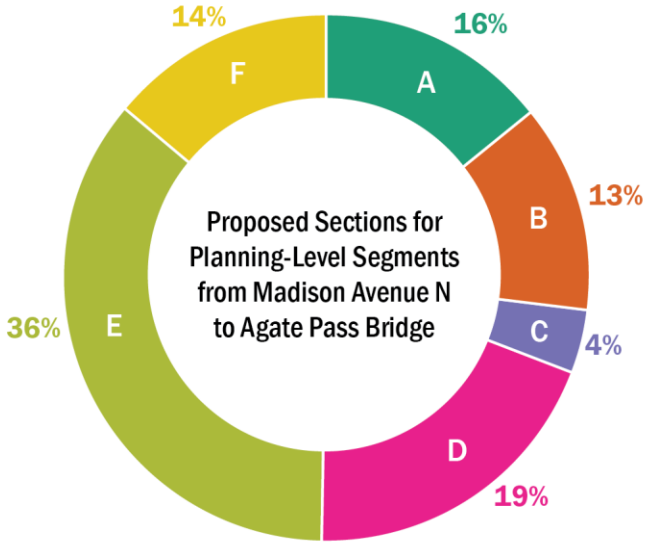


Figure 6. Proposed Sections for Planning-Level Segments

Table 2. Proposed Cross Sections by Segment

PREFERRED ALIGNMENT SEGMENTS	SEPARATED SHARED-USE PATH			SHARED-USE PATH ADJACENT TO ROADWAY		
	SECTION A	SECTION B	SECTION C	SECTION D	SECTION E	SECTION F
Middle School/Coppertop	--	--	3%	21%	76%	--
Meigs Park	--	93%	--	4%	3%	--
Business-Industrial South (1)	--	--	3%	13%	84%	--
Business-Industrial South (2)	61%	--	3%	3%	2%	3--
Business-Industrial North	--	--	1%	25%	74%	--
Hidden Cove	5%	--	--	44%	25%	27%
Bloedel	--	9%	1%	39%	5--	--
Local Connector	17%	12%	8%	21%	42%	--

PLANNING-LEVEL SEGMENT

Middle School/Coppertop

LOCATION

Madison Avenue NE to Sportsman Club Road

TYPICAL CROSS SECTIONS

Section A	--
Section B	--
Section C	• Elevated boardwalk (concrete or fiberglass)
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway due to high speeds of vehicles • Minimal walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway due to high speeds of vehicles • Walls or structures required due to steep side slopes
Section F	--

COST ESTIMATE

Construction Cost*	$10,762,000
ROW Acquisition	$0
Design and Permits	$2,152,000
Mitigation	$126,000
Construction Management	$539,000
Project Total	**$13,580,000– $16,296,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS

Unnamed tributary to Murden Cove (WDFW Site 933644)	• SR 305/WSDOT-owned • Fish barrier (0% passable) • Avoid with separated boardwalk

OTHER SIGNIFICANT CONSIDERATIONS

- None noted

ROADWAY CROSSINGS

Sportsman Club Road NE/Madison Avenue NE	• Ramps, refuge island, signal improvements
Madison Avenue NE	• Ramps, refuge island, signal improvements

TREES AND VEGETATION

- Impacts to young and sporadic trees along the southerly end (1,000 feet)
- Significant impacts to more mature / health tree stands northerly
- Opportunities for native plantings at mitigation sites

PRIVATE PROPERTY IMPACTS

No anticipated acquisition of private property

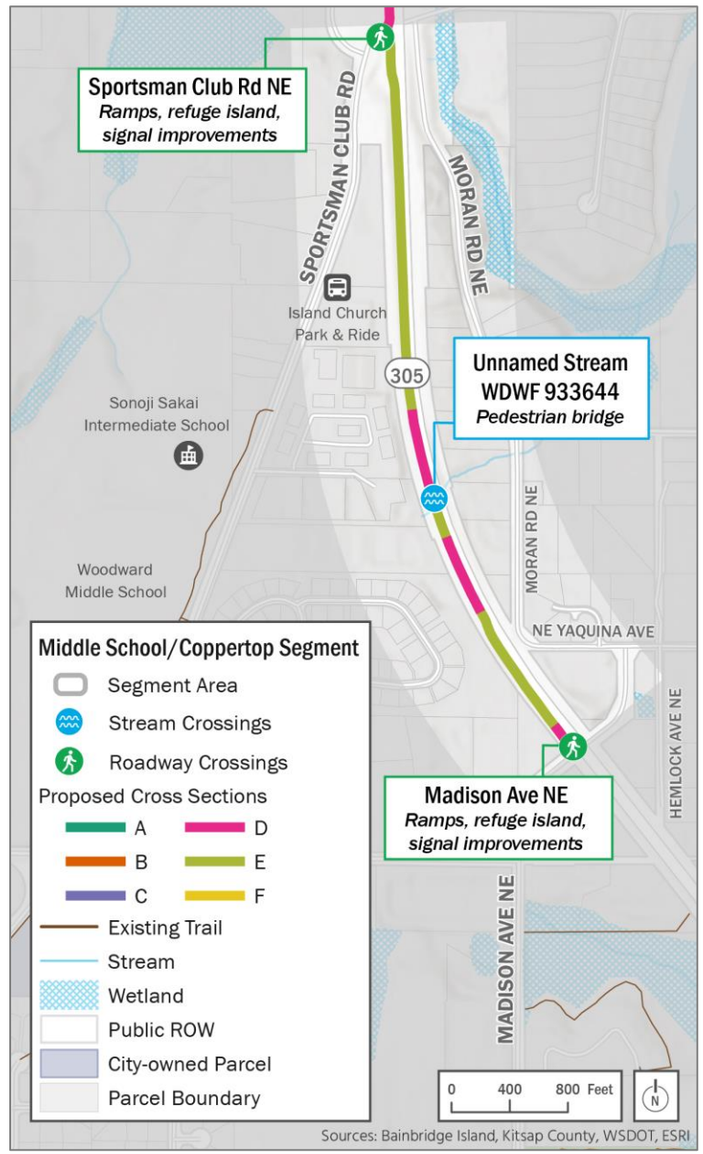


Figure 7. Middle School/Coppertop Segment

PLANNING-LEVEL SEGMENT

Meigs Park

LOCATION

Sportsman Club Road to NE Koura Road uses existing path through Meigs Park

TYPICAL CROSS SECTIONS/TYPOLOGY

Section A	--
Section B	• Separate from SR 305 • No walls or structures required
Section C	--
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	--

COST ESTIMATE

Construction Cost*	$1,772,000
ROW Acquisition	$0
Design and Permits	$443,000
Mitigation	$115,000
Construction Management	$89,000
Project Total	**$2,420,000 - $2,904,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS

Murden Creek (WDFW Site 994325)	• SR 305/WSDOT-owned • Fish barrier (100% passable; constructed in 2024)

OTHER SIGNIFICANT CONSIDERATIONS

- Utilizes existing trail through Meigs Park
- Existing pathway adjacent to SR 305 at the culvert Site 994325 will accommodate the proposed multi-use trail but may require a barrier with future development
- Segment terminates at existing trailhead near NE Koura Road

ROADWAY CROSSINGS

NA

TREES AND VEGETATION

- Minimal or no impacts to moderately healthy, middle-aged or fair quality trees
- Opportunities for native plantings throughout park

PRIVATE PROPERTY IMPACTS

No anticipated acquisition of private property

Figure 8. Meigs Park Segment

PLANNING-LEVEL SEGMENT

Business-Industrial South (Alignment 1)

LOCATION

NE Koura Road to NE Lovgreen Road using SR 305 ROW

TYPICAL CROSS SECTIONS/TYPOLOGY

Section A	--
Section B	--
Section C	• Prefabricated pedestrian bridge
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	--

COST ESTIMATE

Construction Cost*	$10,434,000
ROW Acquisition	$31,000
Design and Permits	$2,609,000
Mitigation	$598,000
Construction Management	$522,000
Project Total	**$14,200,000 - $17,040,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS

Unnamed tributary to Murden Cove (WDFW Site 933645)	• SR 305/WSDOT-owned • Limited fish potential • New trail culvert crossing; avoid replacement of existing
Unnamed tributary to Murden Cove (WDFW Site 933662)	• SR 305/WSDOT-owned • Limited fish potential • New trail culvert crossing; avoid replacement of existing
Unnamed tributary to Murden Cove (WDFW Site 933663)	• SR 305/WSDOT-owned • Fish barrier (0% passable) • Separated pedestrian bridge; avoid replacement of existing
Unnamed tributary to Murden Cove (WDFW Site 933691)	• Just A Meer Lane NE/City-owned • Fish barrier (33% passable) • Replace culvert
Unnamed Tributary to Murden Cove (WDFW Site 933664)	• SR 305/WSDOT-owned • Fish barrier • Separated pedestrian bridge; avoid replacement of existing

OTHER SIGNIFICANT CONSIDERATIONS

- Significant cost impact from multiple stream crossings
- High potential for wetland impacts

ROADWAY CROSSINGS

NE Koura Road	• Mid-block crossing with RRFB
Just A Meer Lane NE	• Enhanced driveway crossing or other treatments similar to mid-block crossing

TREES AND VEGETATION

- Significant impacts to healthy, mature tree stands and least suitable alternative through Business-Industrial South
- Opportunities for native plantings at mitigation sites

PRIVATE PROPERTY IMPACTS

Property acquisition may be required for potential stream relocation

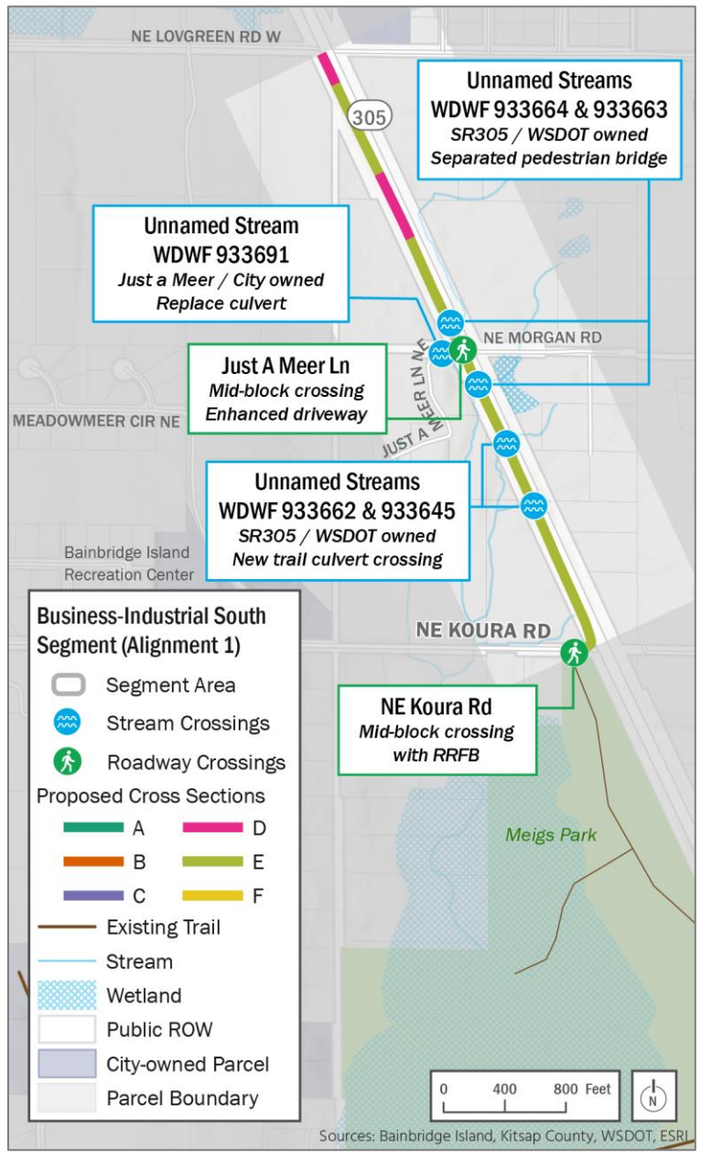


Figure 9. Business Industrial – South (Alignment 1) Segment

PLANNING-LEVEL SEGMENT

Business-Industrial South (Alignment 2)

LOCATION

NE Koura Road to NE Lovgreen Road
using SE Koura Road and County Road 260 Easement

TYPICAL CROSS SECTIONS/TYPOLOGY

Section A	• Separated from SR 305 • Walls or structures required due to terrain
Section B	--
Section C	• Elevated boardwalk (concrete or fiberglass)
Section D	--
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	• Adjacent to low speed, low volume roadway • May require walls or structures

COST ESTIMATE

Construction Cost*	$5,282,000
ROW Acquisition	$155,000
Design and Permits	$1,057,000
Mitigation	$724,000
Construction Management	$265,000
Project Total	**$7,490,000 - $8,988,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS

Unnamed tributary to Murden Creek (WDFW Site 921197)	• NE Koura Road/City-owned • Fish barrier (0% passable) • Replace 1 culvert
Meigs Creek (WDFW Site 881020)	• NE Koura Road/City-owned • Partial barrier (33% passable) • Replace 1 culvert

OTHER SIGNIFICANT CONSIDERATIONS

- County Road 260 easement north of NE Koura Road is currently under review by the City
- Active transportation connection to Bainbridge Island Recreation Center

ROADWAY CROSSINGS

NE Koura Road	• Mid-block crossing with RRFB

TREES AND VEGETATION

- Some impacts to healthy, mature tree stands and more suitable alternative through Business-Industrial South
- Opportunities for establishing native plants at mitigation sites

PRIVATE PROPERTY IMPACTS

Property acquisition may be required for trail construction and use

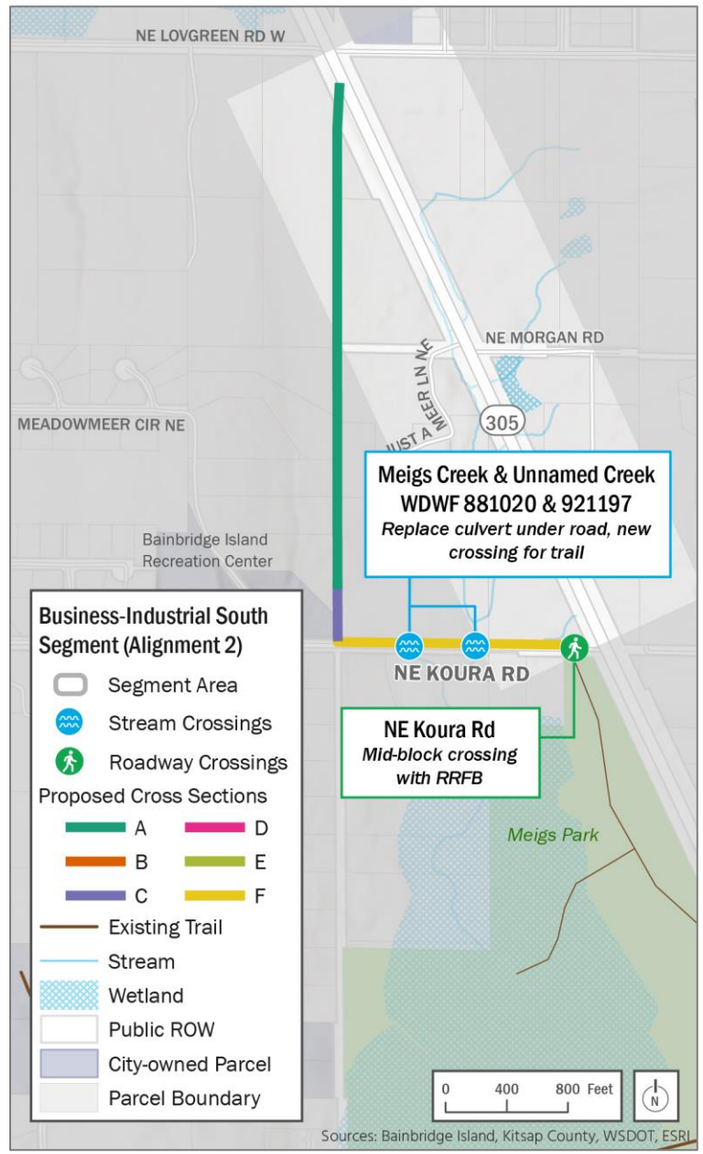


Figure 10. Business Industrial – South (Alignment 2) Segment

PLANNING-LEVEL SEGMENT
Business-Industrial North

LOCATION
NE Lovgreen Road to NE Day Road

TYPICAL CROSS SECTIONS/TYPOLOGY	
Section A	--
Section B	--
Section C	• Elevated boardwalk (concrete or fiberglass)
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	• --

COST ESTIMATE	
Construction Cost*	$9,709,000
ROW Acquisition	$0
Design and Permits	$2,427,000
Mitigation	$430,000
Construction Management	$486,000
Project Total	**$13,060,000 - $15,672,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS	
Manzanita Creek (WDFW Site 994326)	• SR 305/WSDOT-owned • Fish barrier (0% passable) • Avoid with separated pedestrian bridge

OTHER SIGNIFICANT CONSIDERATIONS
• Avoids most environmentally sensitive areas west of SR 305 • Potential for liquefaction around the Manzanita Creek corridor, which can affect structural components and costs for the project • Roundabout with shared-use path facilities under development by WSDOT at NE Day Road

ROADWAY CROSSINGS	
NE Lovgreen Road E	• Pedestrian hybrid beacon (per Bainbridge Sustainable Transportation Plan)

TREES AND VEGETATION
• Significant impacts to healthy and/or mature tree stands along most of segment; however, visual buffer to private properties will remain intact • Opportunities for native plantings, especially in north segment where there is narrow buffer

PRIVATE PROPERTY IMPACTS
No anticipated acquisition of additional ROW

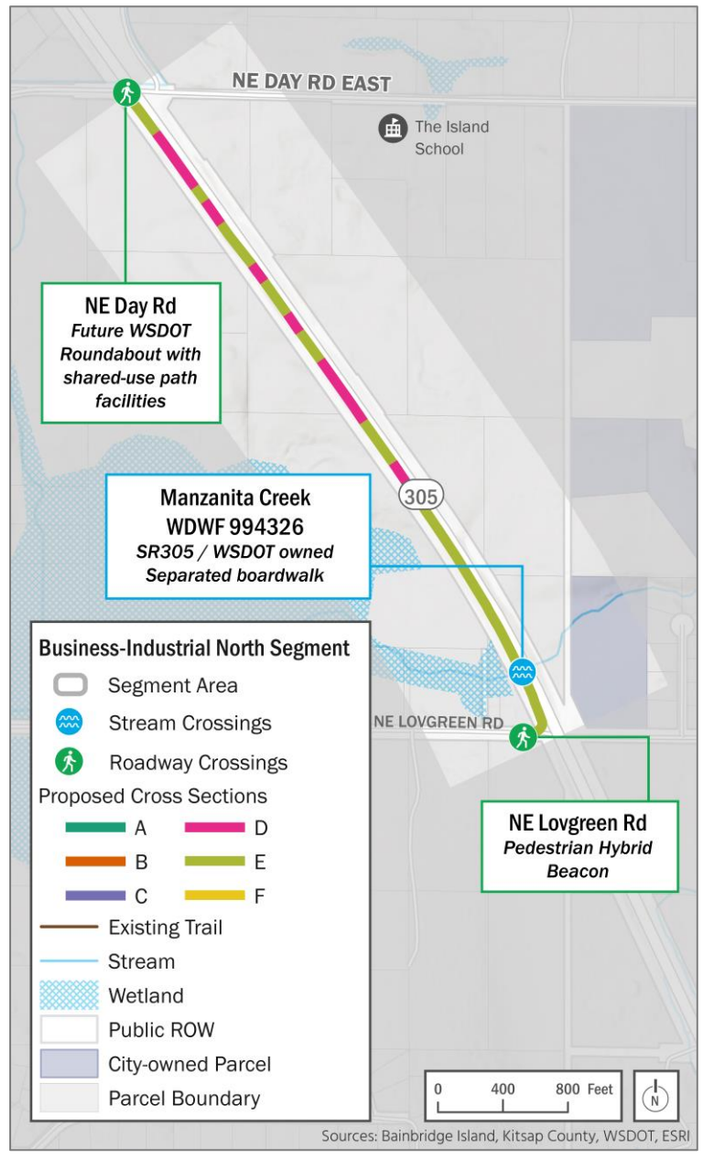


Figure 11. Business Industrial – North Segment

PLANNING-LEVEL SEGMENT
Hidden Cove

LOCATION
NE Day Road to NE Hidden Cove Road

TYPICAL CROSS SECTIONS/TYPOLOGY	
Section A	• Separated from SR 305 • Walls or structures required due to terrain
Section B	--
Section C	--
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	• Adjacent to low speed, low volume roadway • May require walls or structures

COST ESTIMATE	
Construction Cost*	$7,001,000
ROW Acquisition	$0
Design and Permits	$1,750,000
Mitigation	$433,000
Construction Management	$351,000
Project Total	**$9,540,000 - $11,448,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS
NA

OTHER CONSIDERATIONS
• Utilizes the maintenance road for the Bainbridge Island Maintenance Facility south of Hidden Cove, avoiding steep slopes adjacent to the SR 305 ROW

ROADWAY CROSSINGS	
NE Day Road E	• Future WSDOT roundabout

TREES AND VEGETATION
• Significant impacts to lower quantity of moderately healthy or middle-aged or fair quality trees adjacent to the maintenance road • Likely to affect visual buffer between industrial park and private properties • Potential to minimize impact to trees in SR 305 ROW by remaining within power line corridor • Opportunities for native plantings at mitigation sites

PRIVATE PROPERTY IMPACTS
No anticipated acquisition of private property

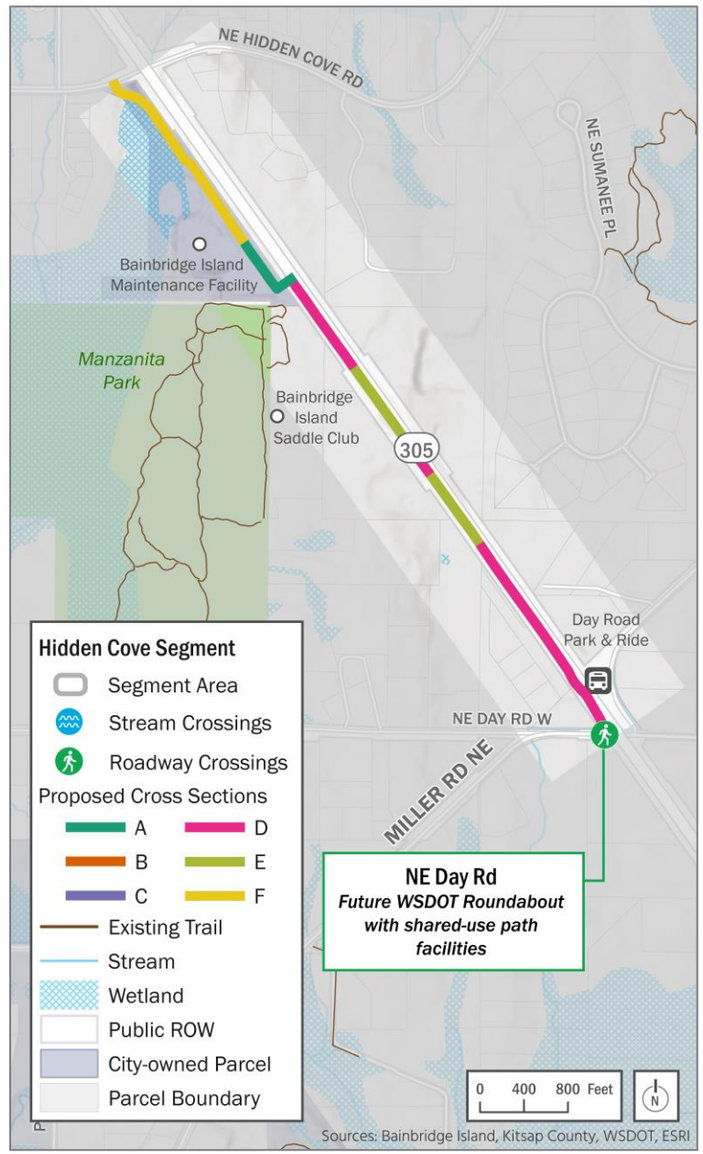


Figure 12. Hidden Cove Segment

PLANNING-LEVEL SEGMENT
Bloedel

LOCATION
NE Hidden Cove Road to NE Seabold Road/NE West Port Madison Road

TYPICAL CROSS SECTIONS/TYPOLOGY	
Section A	--
Section B	• Separate from SR 305 • No walls or structures required
Section C	• Prefabricated pedestrian bridge
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	--

COST ESTIMATE	
Construction Cost*	$9,959,000
ROW Acquisition	$32,000
Design and Permits	$2,490,000
Mitigation	$297,000
Construction Management	$498,000
Project Total	**$13,280,000 - $15,936,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS	
Unnamed tributary to Manzanita Bay (WDFW Site 933686)	• SR 305/WSDOT-owned • Fish barrier (33% passable) • Avoid with separated pedestrian bridge

OTHER CONSIDERATIONS
• Additional maintenance outside of scheduled programs may be necessary due to stream and wetland crossings

ROADWAY CROSSINGS	
NE Hidden Cove Road	• Mid-block crossing with RRFB
NE Seabold Church Road	• Stop-controlled intersection improvements; refuge with crossing enhancements
NE Seabold Road/ NE Port Madison Road	• Future WSDOT roundabout

TREES AND VEGETATION
• Impacts to healthy and/or mature tree stands, but trees stands are lower quality (alder and maple) and gentle terrain will have more limited impacts • Some opportunities for native plantings

PRIVATE PROPERTY IMPACTS
Acquisition of private property may be required for potential stream relocation

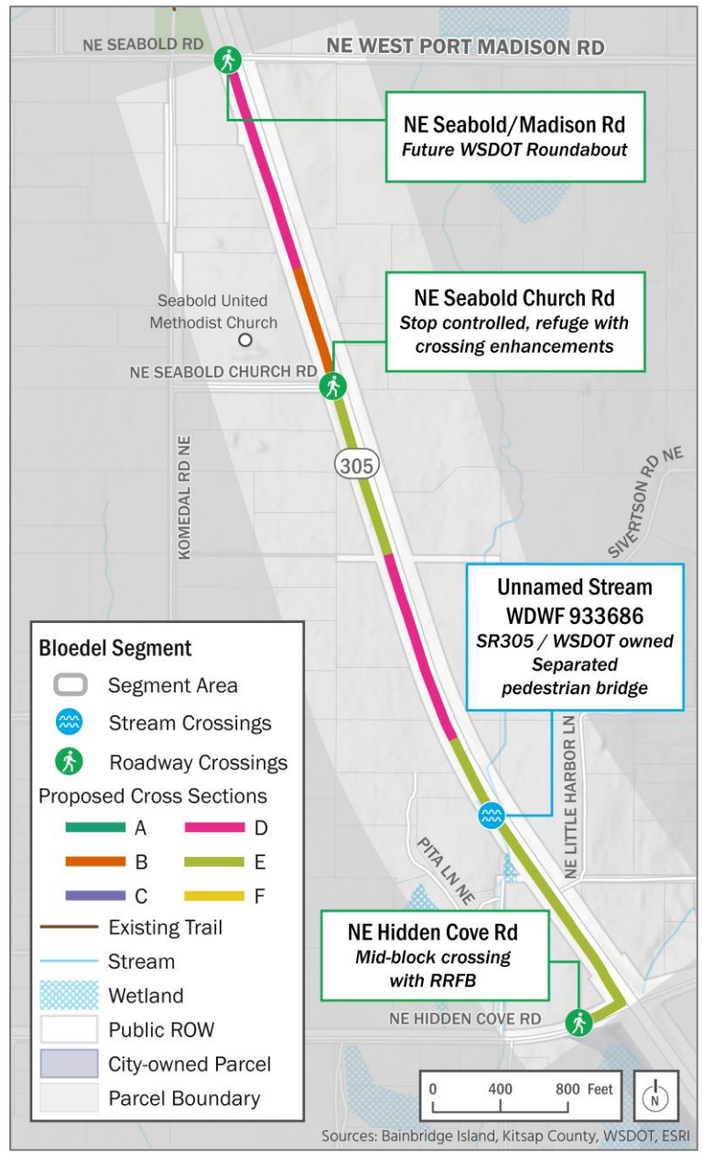


Figure 13. Bloedel Segment

PLANNING-LEVEL SEGMENT

Local Connector

LOCATION

NE Seabold Road/NE West Port Madison Road to Agate Pass Bridge

TYPICAL CROSS SECTIONS/TYPOLOGY

Section A	• Separated from SR 305 • Walls or structures required due to terrain
Section B	• Separate from SR 305 • No walls or structures required
Section C	• Elevated boardwalk (concrete or fiberglass)
Section D	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • No walls or structures required
Section E	• Adjacent to SR 305; requires concrete barrier between trail users and roadway • Walls or structures required due to steep side slopes
Section F	• Adjacent to low speed, low volume roadway; may require walls or structures

COST ESTIMATE

Construction Cost*	$9,886,000
ROW Acquisition	$65,000
Design and Permits	$2,472,000
Mitigation	$359,000
Construction Management	$495,000
Project Total	**$13,280,000 - $15,936,000**

* Cost shown in 2024 dollars and includes contingency.

STREAM CROSSINGS

Unnamed Stream (WDFW Site NA)	• Presence of culvert unknown • Listed as non-fish-bearing by City • Elevated boardwalk to cross

OTHER CONSIDERATIONS

- Significantly steep slopes on both sides of SR 305 near Agate Pass Bridge
- Reitan Road NE loop provides alternative to crossing roadway for northbound users. Cost estimate includes roadway enhancements to Reitan Road NE for an on-street facility shared by trail users and vehicles
- Provides active transportation connection to Agate Passage Preserve
- Separated trail between Reitan Road NE and SR 305 has a width of 8 feet

ROADWAY CROSSINGS

N Adas Will Lane	• Future WSDOT roundabout

TREES AND VEGETATION

- Limited impacts in southern half of segment
- More significant impacts to healthy and/or mature tree stands in northern half
- Potential to minimize impact to trees in SR 305 ROW by remaining within power line corridor
- Opportunities for native plantings

PRIVATE PROPERTY IMPACTS

Acquisition of private property may be required for trail construction and use

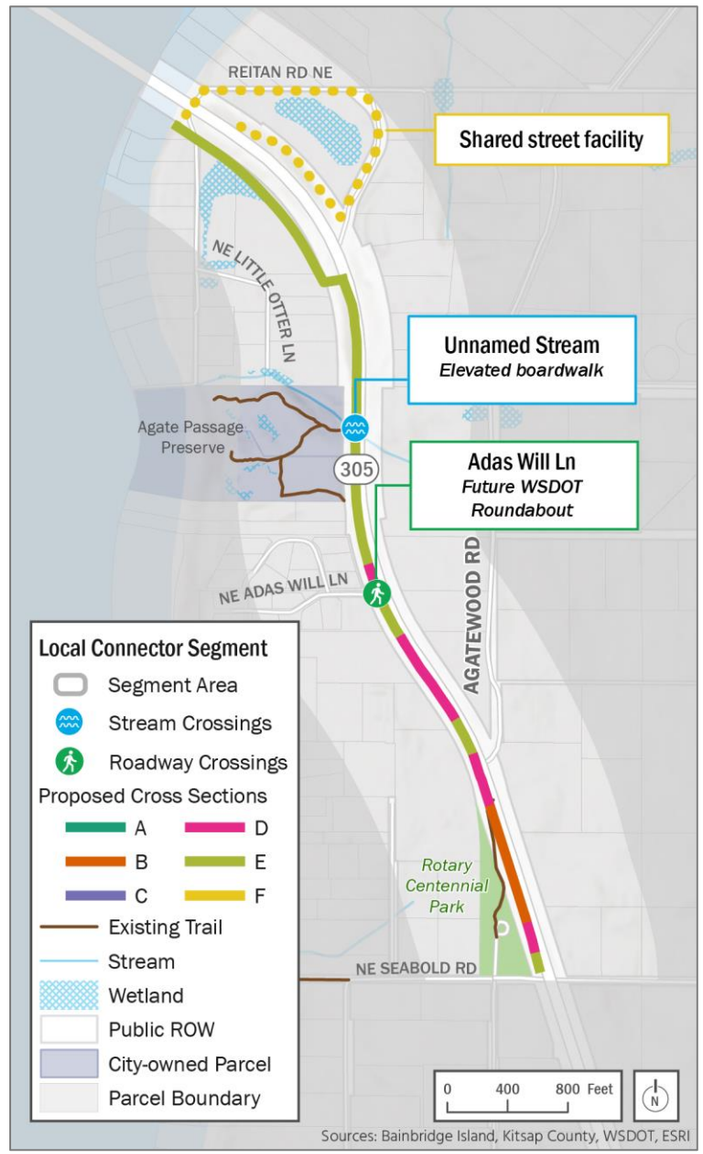


Figure 14. Local Connector Segment

PERMITTING OVERVIEW

Critical Areas

In a previous report, two alignments were qualitatively compared to determine which would have the least impact on critical areas, such as wetlands, streams, their buffers, wildlife habitat, and frequently flooded areas. The analysis focused on evaluating critical areas from publicly available geographic information systems (GIS) data. Each trail alignment would result in impacts to critical areas. The impacts for the preferred alignment are summarized in the sections below.

Wetlands, Streams, and Buffers

Impact estimates to wetland, streams, and their buffers for each trail segment were evaluated using a 12-foot paved standard design for a shared-use path. These results are summarized in Table 3. This standard design represents a more conservative assessment of impacts for a high-level determination of permitting needs; raised boardwalks, a narrowed paved section, and other measures will be implemented during design to minimize impacts. In addition, impact estimates will change upon formal delineations, but provide sufficient information to describe permitting needs.

Geologically Hazardous Areas

Geologically hazardous areas include erosion hazard areas, landslide hazard areas, and seismic hazard areas (including fault and liquefaction hazard areas). There are no known landslides or seismic faults on any of the segments. The following geologically hazardous areas were identified on these segments:

- Seismic hazard (liquefaction): Business Industrial North. Liquefaction potential exists around the Manzanita Creek corridor.
- Erosion and landslide hazard areas (steep slopes): All segments. Every segment traverses slopes between 15% and 40%, and every segment traverses or is adjacent to slopes above 40%.

Development of trails within geologically hazardous areas are generally permitted per Bainbridge Island Municipal Code (BIMC) 16.20.130.E.2, subject to a geological hazards assessment.

Frequently Flood Areas

Frequently flooded areas include all areas of special flood hazard as mapped within the city and other areas that could be threatened by flooding. No known flood areas, including floodplains, occur along any segment of STO.

Aquifer Recharge Areas

Aquifer recharge areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. The entirety of Bainbridge Island is classified as an aquifer recharge area. Construction of public trails is allowed in recharge areas, provided the standards set forth in BIMC 16.20.110.G.5.a through e are met.

Fish and Wildlife Habitat Conservation Areas

These areas include streams with habitat supporting listed endangered, threatened, sensitive and candidate/monitored species; contain habitats and species of local importance; or areas and corridors with biodiversity as defined through the Washington State Department of Fish and Wildlife (WDFW). Estimates for potential stream and stream buffer impacts are described above. A qualified professional will be required to assess and map areas for this project, it is assumed that in addition to streams, such areas may exist within all segments.

Cultural Resources

A cultural resources review was completed by Cultural Resource Consultants in 2023 as a component of this planning study. It sought to evaluate whether archaeological sites, historic built environment resources (i.e., buildings or structures at least 50 years old), or other cultural resources exist within the boundaries of the project. Construction of SR 305 in the 1940s and 1950s occurred along a cleared path through the forest and suggests high ground disturbances. No archaeological sites, register-listed, or historic built environment have been recorded for trail alignments along Alignment 1. Research of neighboring roads suggests a patchwork of development, with the most recent changes including the construction of trails in Meigs Park (1990s). While no archaeological sites, cemeteries, register-listed or inventoried historic built environment have been recorded on Alignment 2, an alignment would pass through historic communities and may have an increased risk of historic-period archaeological sites and scatters in the road vicinities. The State Predictive Model suggests both alignments are in areas of high risk for archaeological materials. Field investigation is recommended for both alignments to minimize risk of encountering previously unrecorded cultural materials.

Where the preferred trail alignment follows SR 305, the likelihood of encountering cultural resources was rated low due to the previous disturbances from highway construction. Where the preferred trail alignment deviates from SR 305, the likelihood of encountering cultural resources was rated as medium due to the historic community setting.

Table 3. Impacts to Environmental and Cultural Resources

	WETLAND BUFFER IMPACT (ACRES)	WETLAND IMPACT (ACRES)	STREAM CROSSINGS	STREAM BUFFER IMPACT (ACRES)	LIKELIHOOD TO ENCOUNTER CULTURAL RESOURCES
Middle School/Coppertop	0	0	1 (Type N)	0.3	Low
Meigs Park	0	0	0	0.2	Medium
Business-Industrial South (Alignment 1)	0	0	2 (Type F) 3 (Type N)	1.2	Low
Business-Industrial South (Alignment 2)	< 0.1	< 0.1	2 (Type F)	0.7	Medium
Business-Industrial North	0.3	0	1 (Type F)	0.4	Low
Hidden Cove	0.5	< 0.1	0	0.1	Low
Bloedel	< 0.1	0	1 (Type F)	0.6	Low
Local Connector	0.5	< 0.1	1 (Type N)	< 0.1	Medium

Permit Summary

The project will impact Waters of the United States and therefore require permits issued under the Clean Water Act. These permits ensure compliance with federal water quality standards and help protect aquatic ecosystems. Additionally, the project will likely receive federal funding and therefore require a National Environmental Policy Act (NEPA) review as well as Endangered Species Act (ESA) and National Historic Preservation Act (NHPA) consultations.

Table 4 summarizes each federal, state, and local permit required for each preferred trail alignment segment.

Table 4. Required Permits by Segment

PERMIT TYPE (see text below for names associated with each acronym in this list)	MIDDLE SCHOOL/ COPPERTOP	MEIGS PARK	BUSINESS-INDUSTRIAL SOUTH (1)	BUSINESS-INDUSTRIAL SOUTH (2)	BUSINESS-INDUSTRIAL NORTH	HIDDEN COVE	BLOEDEL	LOCAL CONNECTOR
NEPA Review	Y	Y	Y	Y	Y	Y	Y	Y
404 Wetland Permit	Y	N	Y	Y	Y	Y	Y	Y
ESA Section 7	Y	N	Y	Y	Y	Y	Y	Y
NHPA Sec 106	Y	N	Y	Y	Y	Y	Y	Y
SEPA Determination	Y	Y	Y	Y	Y	Y	Y	Y
401 Water Quality Certificate	Y	N	Y	Y	Y	Y	Y	Y
Hydraulic Project Approval	Y	N	Y	Y	Y	N	Y	Y
CZMA Consistency	Y	N	Y	Y	Y	Y	Y	Y
Forest Practices Permit	Y	Y	Y	Y	Y	Y	Y	Y
Grading and Fill	Y	Y	Y	Y	Y	Y	Y	Y
Master Land Use Permit (Critical Areas)	Y	Y	Y	Y	Y	Y	Y	Y
Shoreline Permit	N	N	N	N	N	N	N	Y
Tree Removal Vegetation Management Permit	Y	Y	Y	Y	Y	Y	Y	Y
WSDOT ROW Use Permit	Y	N	Y	Y	Y	Y	Y	Y

- **National Environmental Policy Act (NEPA).** Triggered if federal funding or a federal permit is required for constructing the trail. Depending on the significance of environmental impacts, a categorical exclusion, an environmental assessment, or an environmental impact statement may be required.
- **Section 404 of the Clean Water Act.** Regulates dredging or filling of Waters of the United States. Any ground-disturbing work waterward of the ordinary high water mark (OHWM), including shorelines, streams, and wetlands, requires a permit from the U.S. Army Corps of Engineers. Approvals are granted either as a general permit for typical, low-impact activities, or as an individual permit for more complex projects. While Table 3 indicates that wetland impacts are below the threshold for an individual permit, formal delineation of wetlands should be completed prior to determining whether a general or individual permit will apply and how the project can avoid impacts.
- **Endangered Species Act (ESA).** Projects with a federal nexus must comply with the ESA and not harm or harass listed species or destroy critical habitat. Analysis of the proposed project activities must be documented in a No Effect letter or determined in consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service.
- **National Historic Preservation Act (NHPA).** Projects with a federal nexus must identify and assess the effects on historic properties and archaeological sites. This process involves coordination with the Department of Archaeology and Historic Preservation, as well as local tribes.
- **State Environmental Policy Act (SEPA).** Provides a broad review process to identify environmental impacts that may result from a proposed action. The Washington State Department of Ecology (Ecology) determines whether project impacts will be significant and what level of documentation and outreach will be necessary.
- **Section 401 Water Quality Certificate**. Issued by Ecology. This permit is triggered anytime an Army Corps (404) permit is required and ensures that state water quality standards are met (Title 173 Washington Administrative Code [WAC] Chapter 173-225).
- **Hydraulic Project Approval (HPA).** Issued by the WDFW for work that "uses, diverts, obstructs, or changes the natural flow or bed of any waters of the state." Any construction waterward of, under, and over the OHWM and activities outside the OHWM that may directly impact fish life and habitat must have an HPA (20 WAC 220-660).
- **Coastal Zone Management (CZMA)**. Federal permit applicants within Washington's 15 coastal counties (including Kitsap) must demonstrate consistency with the Coastal Zone Management Program administered by Ecology. Ecology reviews projects to ensure consistency with four coastal-related laws: the Shoreline Management Act, the Water Pollution Control Act, the Washington Clean Air Act, and the Ocean Resources Management Act.
- **Forest Practices Permit.** Washington State Department of Natural Resources regulates harvesting timber, land use conversion, or working in or over any typed watercourse on public or private forest lands.
- **Master Land Use Permit.** City of Bainbridge Island reviews a land use application to consider project impacts to critical areas and compliance with other parts of the Bainbridge Island Municipal Code.
- **Grade and Fill Permit.** Checklist is submitted with a Building Permit Application for the City to review any excavation and/or placement of fill material, as well as any new replacement of paving of hard surfaces.
- **Shoreline Management Permit.** Applies to work within the Shoreline Management Zone, which is 200 feet from the OHWM of waters of the state.

- **Tree Removal Permits.** Various permits are required for tree removal within the City of Bainbridge Island, depending on the location, species, and size of the tree. Of these permits, the following are most likely to be encountered for each segment of the STO:

    - **Landmark Tree Removal Permit**. This permit is required for tree removals meeting the size and species criteria outlined in BIMC 16.32 "Protection of Landmark Trees."
    - **Critical Areas Permit**. This permit is required for any tree removals within some types of critical areas. A significant portion of the trail would be located within such areas.
    - **Tree Removal Vegetation Management Permit**. This permit is required for significant tree removal that exceed the thresholds in BIMC 16.18 that are not in critical areas, their buffers, or shoreline jurisdictions. A "Significant tree" is a 10-inch-diameter or greater evergreen, a 12-inch-diameter or greater deciduous tree, or any live trees within a critical area or critical area buffer.

  Designers should consult with the City for guidance to determine permitting needs, whether a detailed survey of trees would be required, and what mitigation may be required. For reference, within critical areas, mitigation for tree removal involves planning two replacement trees for every tree removed, resulting in a ratio of 2:1. For a project of this size, a qualified professional will be required to write the plan.

- **WSDOT ROW Use Permit.** General permit for work within state-owned ROW.

Wetland and Stream Mitigation

Bainbridge Island (BIMC 16.20.030) and WAC 197-11-768 require that applicants demonstrate reasonable effort to avoid and minimize impacts to critical areas, and the mitigation occurs using the following sequence: avoid, minimize, rectify, reduce or eliminate, compensate and monitor.

Table 3 lists potential unavoidable impacts to wetlands and streams at this stage of the design. Designers will avoid and minimize impacts to the greatest extent practicable. However, if impacts are not avoidable, adequate mitigation will be provided to ensure there is no net loss of critical area functions and values. If compensatory mitigation is required, opportunities for on-site mitigation will be investigated first, if on-site conditions are not favorable, then off-site mitigation such as a mitigation bank or in-lieu fee program may be used.

A wetland mitigation bank is a site where wetlands or other aquatic resources are restored, created, or enhanced for the express purpose of providing compensatory mitigation in advance of unavoidable impacts to wetlands or other aquatic resources. Banks provide the option of purchasing credits to offset the unavoidable wetland impacts from a project. The STO is within the service area of the proposed Kitsap Umbrella Mitigation Bank. This bank is anticipated to begin selling credits in a time-frame amenable to the STO. Similarly, with in-lieu fee mitigation, a permittee pays a fee to a third party who then typically uses or combines these fees with other projects to finance a wetland mitigation site in the same watershed as the proposed project(s).

To determine the amount of wetland mitigation needed, ratios for rehabilitation for Category I wetlands (8:1) and Category II (6:1) were used (BIMC 16.20.140.J). This means that for every 1 acre of impact, 8 or 6 acres of wetland would be needed for compensation. Ratios are based on wetland rating. As noted above, wetlands have not been delineated in the field, thus their rating are estimated. Indirect impacts are required for federal permitting but are not considered at this stage. Additionally, wetland and stream buffer impacts will be mitigated at a ratio of 1:1. As costs from the mitigation bank are not available, mitigation costs are estimated based on areas of potential wetland, wetland buffer, and stream buffer needed. Cost includes purchase of land on Bainbridge Island and cost of restoration design and management. Permitting costs are factored separately. Generally, costs are greatest in segments with impacts to wetlands.

SURFACE WATER MANAGEMENT

Overview and Existing Conditions

There are four crests (high points) and four sags (low points) in the vertical alignment of the existing SR 305 roadway within the project limits between NE Madison Road and the Agate Pass Bridge. SR 305 is either crowned or superelevated towards the proposed shared-use path for about 80% of the project length. For the remainder, the highway is superelevated to the east. At those locations, existing runoff will not "run-on" to the path and will therefore not be managed with the design of path conveyance and mitigation facilities. "Run-on" from the highway will need to be managed where the roadway is crowned or superelevated towards the path.

There are no known existing flow control or water quality facilities servicing the WSDOT ROW. Roadway runoff is currently conveyed in roadside ditches or extruded curbs that outfall to low points, catch basins, or water courses, or the runoff sheet flows off the edge of the roadway into existing vegetation. Existing water courses (mapped by GIS only) usually cross underneath the roadway from east to west in culverts, begin at terrain low points along the project limits, or (in a few places) flow parallel to the edge of the existing highway.

Geospatial data used to evaluate existing conditions and determine conceptual surface water management (SWM) requirements, including water courses, wetlands, parcel boundaries, and 2-foot lidar contours. WSDOT record drawings of previous roadway improvements were obtained along with their construction plans and drainage reports for new roundabouts at Seabold Road, Adas Will Road, and NE Day Road. Publicly available street-viewing websites were used to evaluate existing edge conditions.

General Surface Water Management Approach

The City currently follows the Ecology 2019 Stormwater Management Manual for Western Washington (SWMMWW) for stormwater management requirements. However, since most of the trail will be built within WSDOT ROW, the design must also account for runoff management from the state highway. Therefore, portions of the 2019 WSDOT Highway Runoff Manual will need to be considered, especially where the SWMMWW lacks specific details for certain contexts and situations.

Managing runoff from both the highway and the path will be necessary during the construction of the path, which can be achieved through:

- Collecting highway runoff and path runoff in a combined swale or other facility.
- Collecting and conveying runoff in separate but parallel systems where there are compelling reasons to do so.
- Collecting highway runoff that currently sheet flows (no ditch or curb) into vegetation and passing it underneath the path for redispersing.

No specific approach has been determined for this study. The ultimate approach or combination of approaches will depend on decisions made during the design process, including the configuration of the buffer between the roadway and the path, type of flow control facilities provided, WSDOT's preferences for facilities and comingling of responsibilities, involvement of federal funds, maintenance needs, and other concerns. Instead, a cost basis for flow control facilities was developed for each segment, recognizing that the actual facilities will be identified during predesign and final design activities. Water quality treatment is not required for the shared-use path because it will not be subject to regular use by vehicles.

Cost Basis for Flow Control Facilities

Natural discharge points (NDP) are locations where runoff outfalls from the project area. Requirements and exceptions for flow control are typically based on each threshold discharge area (TDA). Natural discharge point locations were determined based on review of the GIS contours and street view websites. For conceptual drainage analysis, each NDP is considered a separate subbasin. Downstream flowpaths from each outfall were traced a minimum distance of 1,320 feet (based on GIS contours) to identify which subbasins are included together in a TDA. Subbasins are considered a single TDA if the downstream flowpaths converge within 1,320 feet of one of the NDPs. Based on this analysis, 15 subbasins and 14 TDAs were identified (see SWM Basins and Flow Control Evaluations spreadsheet in Appendix A).

For this study, each basin was evaluated for possible use of full dispersion to meet flow control requirements. Where dispersion did not appear feasible, the peak rate exemption from flow control was evaluated. WWHM (Western Washington Hydrology Model) software was used to determine the length of 16-foot-wide trail that produced less than 0.15 cubic feet per second increase of the 100-year peak rate compared to both forested condition and landscape condition. The length was found to be 625 feet, assuming a forested existing condition and 750 feet assuming a landscaped existing condition. Of the 15 subbasins, three were identified for potential use of dispersion, and one was identified for possible use of the peak flow exemption. The remainder were evaluated for infiltration and detention, as discussed in the following paragraphs.

National Resource Conservation Service (NRCS) soil type mapping (see Appendix B) was reviewed to assess potential use of infiltration to meet flow control requirements. Soil types through the corridor are predominantly mapped as sandy loam. There is a small area at the north end that is mapped as loamy sand and some larger pockets throughout that are mapped as loam, silt loam, or muck. In general, loamy sands and sandy loams can, in many situations, support low-level infiltration and might be suitable to infiltrate runoff from relatively small contributing areas, such as a 16-foot-wide shared-use path. However, loam, silt loam, and muck are far less likely to support infiltration. Feasibility of infiltration is dependent on many factors in addition to soil types, including depth to restrictive layer; lateral and longitudinal slopes; proximity of proposed structures, such as retaining walls; and groundwater fluctuations. Although NRCS mapping may indicate a potentially feasible soil type, record drawings indicate extensive cuts. Some fills were used to establish the current vertical alignment of SR 305, which could result in completely different subsurface conditions than is shown in the mapping. Due to terrain complexity and lack of detailed subsurface information at this level of study, use of infiltration was not considered. Instead, for all subbasins where dispersion

and flow control exemption may not be feasible, a detention system is assumed to meet flow control requirements.

WWHM software was used to estimate the storage volume needed to provide flow control using the current SWMMWW standards (see Appendix C). **The purpose for approaching flow control in this manner is to provide a basis for surface water construction costs for each trail segment, not to suggest that a detention pipe is the preferred flow control approach.** Assuming a 16-foot-wide impervious shared-use path and a 4-foot-diameter detention tank system, calculations show that the required storage length is 0.7 feet for every 1 foot of trail length, with a total detention tank of 13,750 linear feet.

Surface Water Management Facility Conceptual Construction Costs

SWM costs are based on a lineal foot detention system cost derived from unit prices and quantities to install a 4-foot-diameter detention tank, including excavation and backfill, shoring, pipe, accesses, and outlet control structure. The conceptual estimate and total costs for the project are shown in the "SWM Basins and Flow Control Evaluations" tab in the cost estimate of Appendix A. This offers a planning-level budget for the surface water management components of the project and is incorporated into the overall project estimate on a per-segment basis.

Considerations for Preliminary Design Phase

Subbasins should be delineated and downstream flowpaths confirmed based on careful field inspections to maximize where dispersion and flow control peak rate exemptions can be used to decrease number or size of constructed flow control facilities. Comprehensive soils investigation should be performed—combined with preliminary calculations—to aggressively locate where any level of infiltration is feasible.

Where detention is necessary, the type and size of facility must be resolved, along with ownership and other agreements with WSDOT. There are only a few locations where existing ROW might accommodate open ponds. If subsurface detention facilities cannot be configured to fit (especially in sloping areas), then it is possible that land acquisition might be needed.

IMPLEMENTATION

Planning-Level Cost Estimates

The project will likely be implemented in segments over the course of many years, with a large part of the funding expected to come from grants. Cost estimates were developed for each section and planning-level segment. As illustrated in Figure 15, sections in areas with existing topography challenges and those within the SR 305 ROW had relatively higher costs.

Cost estimates include construction costs, ROW acquisition, design and permitting, mitigation, and construction management. Project costs are based on 2024 estimates, with inflation projected to increase by 3% to 5% annually thereafter. The base cost of each trail segment was determined by comparing costs per linear foot from projects of similar size, complexity, and type for each cross section included within the segment. Costs were then developed for additional elements, such as culvert replacements, roadway crossings, and stormwater management, and added to the base cost for each segment.

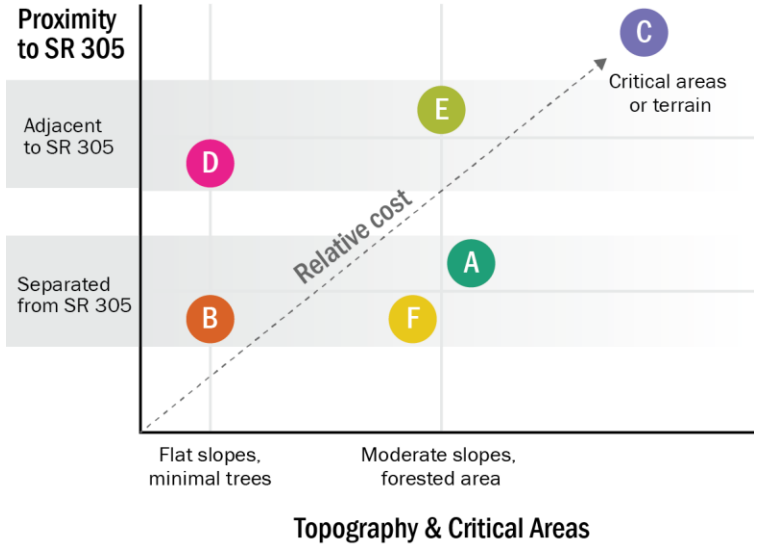


Figure 15. Relative Cost Variables for Cross Sections

Figure 16 compares the total length of each section to the overall cost of implementation for all planning-level segments from Madison Road N to Agate Pass Bridge. Implementation cost for the planning-level segments is broken down by section type and other implementation costs. There isn't a direct correlation between the percentage of section types and their costs, as the cost varies by section. For example, Section B, a separated path through cleared, flat terrain, is relatively inexpensive to build. Although it constitutes 20% of the planning-level segments, it only accounts for 4% of the total cost.

In contrast, Section E, a path through forested, steep topography adjacent to a high-speed roadway, represents nearly half of the overall implementation costs. This higher cost is understandable given that Section E comprises 40% of the total section type for all planning-level segments. The figure highlights that the cost of implementation extends beyond the trail infrastructure, encompassing expenses related to topography, crossing improvements, and environmental compliance. Table 5 and Table 6 detail all planning-level cost estimates.

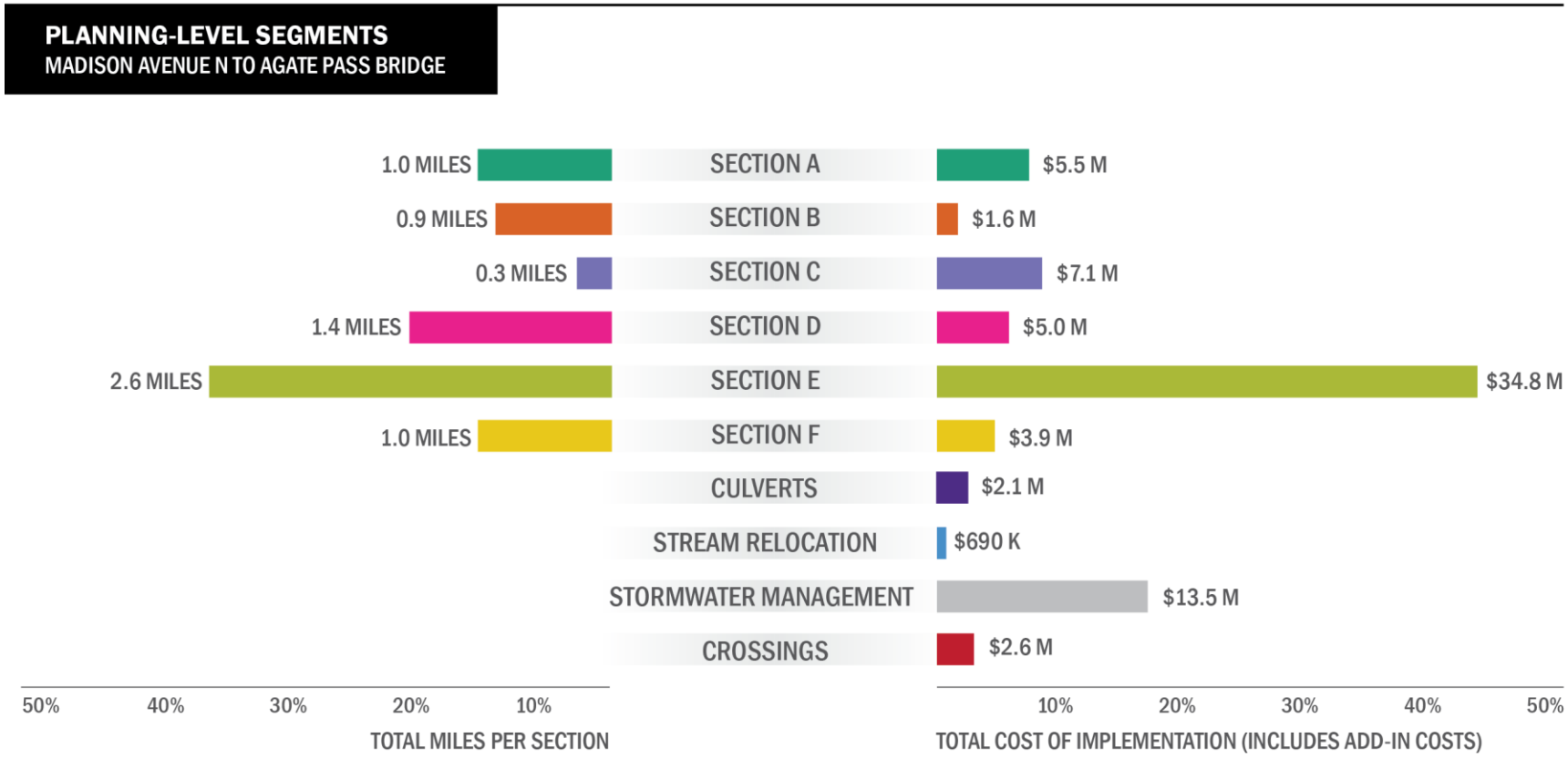


Figure 16. Comparison of Cross Section Mileage Relative to Overall Cost

Table 5. Cost Breakdown by Phase

PREFERRED ALIGNMENT SEGMENTS	MIDDLE SCHOOL/ COPPERTOP	MEIGS PARK	BUSINESS-INDUSTRIAL SOUTH (1)	BUSINESS-INDUSTRIAL SOUTH (2)	BUSINESS-INDUSTRIAL NORTH	HIDDEN COVE	BLODEL	LOCAL CONNECTOR
Construction Cost (+ Contingency)	$10,762,000	$1,772,000	$10,434,000	$5,282,000	$9,709,000	$7,001,000	$9,959,000	$9,886,000
ROW Acquisition	$0	$0	$31,000	$155,000	$0	$0	$32,000	$65,000
Design and Permitting	$2,152,000	$443,000	$2,609,000	$1,057,000	$2,427,000	$1,750,000	$2,490,000	$2,472,000
Mitigation	$126,000	$115,000	$598,000	$724,000	$430,000	$433,000	$297,000	$359,000
Construction Management	$539,000	$89,000	$522,000	$265,000	$486,000	$351,000	$498,000	$495,000
Project Total	**$13,579,000**	**$2,419,000**	**$14,194,000**	**$7,483,000**	**$13,052,000**	**$9,535,000**	**$13,276,000**	**$13,277,000**
Range (Low, Rounded To 10,000)	**$13,580,000**	**$2,420,000**	**$14,200,000**	**$7,490,000**	**$13,060,000**	**$9,540,000**	**$13,280,000**	**$13,280,000**
RANGE (HIGH = LOW X 1.2)	**$16,296,000**	**$2,904,000**	**$17,040,000**	**$8,988,000**	**$15,672,000**	**$11,448,000**	**$15,936,000**	**$15,936,000**

ROW = right-of-way

Table 6. Project Costs by Phase

PROJECT PHASE	PROJECT TOTAL ($M - LOW)	PROJECT TOTAL ($M - HIGH)
Middle School/Coppertop	$13.58	$16.30
Meigs Park	$2.42	$2.90
Business-Industrial South (1)	$14.20	$17.04
Business-Industrial South (2)	$7.49	$8.99
Business-Industrial North	$13.06	$15.67
Hidden Cove	$9.54	$11.45
Bloedel	$13.28	$15.94

Notes
Anticipated Inflation Rate: 3% to 5%
Base Year: 2024

Next Steps

Based on the findings above, the City of Bainbridge Island will proceed with several key actions in the development of the STO. The City will continue coordination with WSDOT to integrate STO facilities into future roundabouts and roadway improvements along SR 305. Additionally, the City will assess STO infrastructure needs as part of future development and capital improvements on the island. These infrastructure projects may offer potential funding and partnership opportunities; examples include electrification of the Washington State Ferry system and enhancements to Kitsap Transit, both of which will make improvements along the STO corridor.

The City will identify opportunities to seek partnerships with agencies such as WSDOT, WDFW, and Kitsap Transit to promote public outreach and leverage support for the project. Predesign activities are also slated for implementation to refine the project's scope and mitigate potential impacts. These activities encompass various assessments, including topographic surveys, wetland and stream delineations, geotechnical investigations, preliminary surface water planning, cultural resource studies, and conceptual trail design. These steps are critical in advancing the STO project while addressing environmental and community considerations.

APPENDICES

Appendix A – SWM Basins and Flow Control Evaluations

Appendix B – NRCS Soil Map

Appendix C – WWHM Calculations