

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Discussion of Multi-modal Access to Light Rail Stations		
DEPARTMENT:	Public Works		
PRESENTED BY:	Nora Daley-Peng, Senior Transportation Planner		
ACTION:	<input type="checkbox"/> Ordinance	<input type="checkbox"/> Resolution	<input type="checkbox"/> Motion
	<input checked="" type="checkbox"/> Discussion	<input type="checkbox"/> Public Hearing	

PROBLEM/ISSUE STATEMENT:

Recently, the City Council adopted Subarea Plans around the two Shoreline Sound Transit Lynnwood Link Extension (LLE) light rail stations that will be operational in 2023. These Subarea Plans incorporate Shoreline's Comprehensive Plan Transit-Oriented Communities (TOCs) principals to encourage mixed-use residential and commercial development to maximize multi-modal access to these future light rail stations. One of the components of the 145th Street Station Subarea Plan is a "Off-Corridor/Green Network" - a network of slow-paced neighborhood streets, a non-motorized bridge to the 145th Street Station in the vicinity of 147th or 148th Streets (147th/148th Street Non-Motorized Bridge), and a bike and pedestrian trail along the future light rail corridor (Trail Along the Rail) - that will provide pedestrian and bicycle connections to local parks, businesses, schools, and transit stations. The 147th/148th Street Non-Motorized Bridge and Trail Along the Rail were also components of the 145th Street Multi-modal Corridor Study Preferred Design Concept.

City staff are currently evaluating ways to strengthen and prioritize multi-modal access within a half mile of the 145th Street and 185th Street light rail stations. As Sound Transit is in the process of finalizing the design of these two stations, it is important to specifically advance the design of the 147th/148th Street Non-Motorized Bridge and Trail Along the Rail to 30% design in 2017. Advancing the design of these projects and obtaining environmental clearances will accomplish the following:

- Provide Sound Transit with the design parameters and costs needed to avoid preclusion of non-motorized facilities to the 145th and 185th Street Light Rail Stations in advance of the Sound Transit LLE project and support Sound Transit's "baseline" design milestone due to be completed in the Summer 2017 which establishes the light rail project's cost
- Foster design partnerships with Sound Transit and Washington State Department of Transportation (WSDOT)
- Prepare conceptual designs in 2017 to be competitive in the 2018 - 2020 federal and state grant funding cycle

RESOURCE/FINANCIAL IMPACT:

The 2017 Capital Improvement Projects (CIP) budget includes:

- \$500,000 for 147th/148th Street Non-motorized Bridge - 30% Design and Environmental Analysis
- \$275,000 for Trail Along the Trail - 30% Design and Environmental Analysis

The 30% design advancement of the 147th/148th Street Non-motorized Bridge and Trail Along the Trail projects in 2017 will help position the City for the 2018 – 2020 grant funding cycle.

RECOMMENDATION

This item is for discussion purposes only; no action is required. Staff is requesting feedback from the City Council on the Non-Motorized Bridge Options to 145th Street Station as well as the Trail Along the Rail. Staff's recommendation is to take forward the two most viable 147th/148th Street Non-Motorized Bridge options (147th Street Option B and 148th Street) for further design study and discussion with WSDOT and Sound Transit before advancing the most viable option to 30% design and environmental review.

Approved By: City Manager **DT** City Attorney **MK**

INTRODUCTION

To maximize multi-modal access to the future 145th and 185th Street light rail stations, City staff has been conducting feasibility studies of design options for the 147th/148th Street Non-Motorized Bridge and the Trail Along the Rail. This report provides a briefing on the preliminary findings of the feasibility studies and recommends next steps to complete before advancing the projects into 30% design and environmental analysis.

BACKGROUND

1. Relevant Policies

The following City policies provide direction on the development of multi-modal access to the future light rail stations and throughout the Station Subareas:

a. Shoreline Comprehensive Plan's Transit-Oriented Communities (TOCs)

- Encourages mixed-use residential and commercial development that maximizes multi-modal access to the future light rail stations

b. Guiding Principles for Light Rail Facility Design

- Principle #1. Multi-modal – stations should be full-service transit hubs and provide great access and inviting and convenient connections for trains, buses, bikes, and pedestrians through options such as:
 - Ensuring that all modes of non-motorized users can easily access the stations from both sides of I-5 and NE 185th and 145th Streets
 - Providing safe non-motorized access to and from the stations and garages, including consideration of a pedestrian/bicycle bridge connecting the 145th Street station to the west side of I-5
 - Providing well-marked way-finding in the station areas, including pedestrian pathways
- Principle #2. Neighborhood Character – stations should connect to the surrounding community to encourage and enhance vibrant place-making by such means as:
 - Providing gathering places, such as plazas, that could be used for a variety of functions within the station footprint.
 - Consider making use of areas under powerlines or trackways where feasible, including a potential trail connecting both stations (ex. City-managed public open spaces and/or trails)

c. 145th Street Station Subarea Plan

- Transportation Policy #11 calls for dedicated and separated pedestrian and bicycle facilities
- Community Design Policy #2 seeks to enhance public spaces, including bicycle and pedestrian amenities and other placemaking elements.
- Adopted Plan includes the concept of a trail as part of the Subarea Plan's Off-Corridor/Green Network

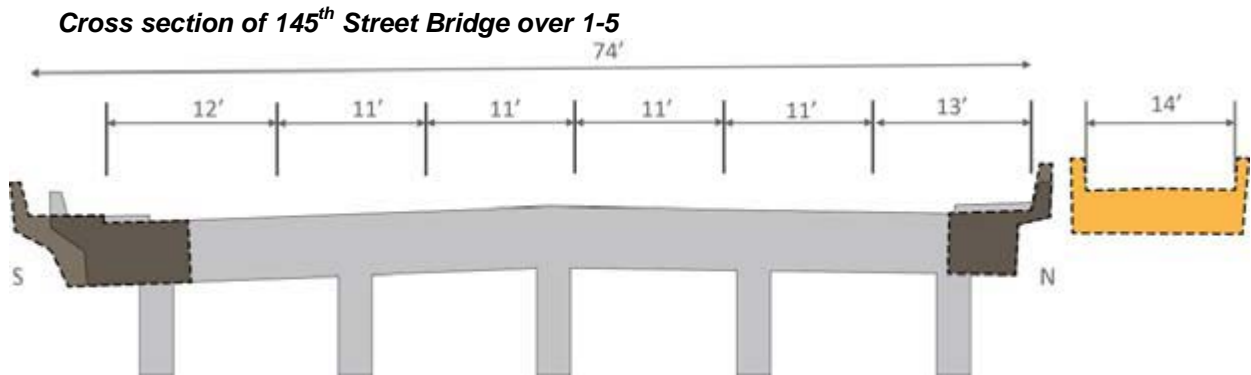
2. Relevant Plans – 145th Street Multimodal Corridor Study

In 2016, the City of Shoreline (City) completed the 145th Street Multimodal Corridor Study and developed a Preferred Design Concept for the corridor from

3rd Avenue NW to Bothell Way NE/Lake City Way (SR 522) through a comprehensive process that included community, stakeholder, and agency involvement and technical analysis.

Within the Study's I-5 interchange area, staff worked with the WSDOT and Sound Transit to develop a Preferred Design Concept that will improve mobility and safety for all transportation modes and improve non-motorized access to the future light rail station. The 145th Street Bridge over I-5 is currently five (5) lanes. The concept proposes to modify the bridge to provide for six (6) lanes. This allows more left-turn storage, which will improve the east-west traffic flow. In addition, the Preferred Design Concept proposes an eastbound 145th Street to northbound I-5 button hook ramp so that vehicles will be able to turn right and loop under the bridge to access I-5 northbound, which will help improve traffic flow at the 145th Street/5th Avenue intersection.

The study proposes a new non-motorized bridge will be located on the north side of 145th Street that will tie into the Off -Corridor Network and will connect to the future light rail station via diagonal multi-use path (see "Plaza Path" label on Attachment A). In addition, 5th Avenue walkways and crosswalks will be upgraded to provide ADA accessibility to the station. This design concept supports non-motorized connectivity to the future 145th Street Light Rail Station. As an added benefit, the Plaza Path concept provides the opportunity to activate the northwest corner of the 145th Street/5th Avenue intersection as gateway entrance to Shoreline and 145th Street light rail station.



3. Traffic Safety Needs

Traffic is projected to increase (see statistics below). Therefore, increased safety and separation (from vehicular traffic) for pedestrians/bicyclists in the form of multi-modal access improvements will be needed.

- a. 185th Street Subarea = more than double the traffic in comparison to current conditions
- b. 145th Street Subarea = more than 25% increase in traffic in comparison to current conditions

4. Subarea Population Projections

The adopted 145th and 185th Station Subarea Plans encourage the concentrated growth (see population projections below) of a diverse mix of residential and

commercial uses around the light rail station. In order to create Transit Oriented Communities that support walking and cycling for recreation and transportation, a low-stress network of pedestrian and bicycle facilities are needed.

145th Street Station Subarea

2014 population	2023 population projection	Change
8,321	11,207-13,365	2,886 – 5,314

185th Street Station Subarea

2014 population	2035 population projection	Change
7,944	10,860 - 13343	2,916 – 5,399

5. Transit Ridership Projections

147th/148th Street Non-Motorized Bridge and The Trail Along the Rail projects have the potential to provide pedestrian and bicyclists with easy access to the stations from both sides of Interstate 5 (I-5) as well as easy access from points north and south of the stations, and in turn, support the LLE Final Environmental Impact Statement’s 2035 pedestrian and bicycle ridership projections below. As shown later in this report, these non-motorized access improvements significantly increase the walkshed to the 148th Light Rail Station.

Sound Transit Pedestrian and Bicycle Ridership Projections

- a. 145th Street Station – 360 pedestrian and 30 bicyclist boarding/alighting anticipated per peak hour
- b. 185th Street Station – 165 pedestrian and 30 bicyclist boarding/alighting anticipated per peak hour

FEASIBILITY STUDIES

1. Trail Along the Rail Feasibility Study

a. Project Description

The development of the Lynnwood Link Light Rail Extension (LLE) presents Shoreline with a unique and rare opportunity to study the feasibility of a 2.6 mile long multi-use trail that would parallel the LLE alignment on the east side of I-5 from N 145th Street to the NE 195th Street (see “Conceptual Trail” label on Attachment B). The trail would enhance pedestrian and cyclist access to the planned 145th Street and 185th Street Light Rail Stations, as well as connect to the existing NE 195th Street pedestrian bridge over I-5. In addition, the trail could connect to local streets, parks, open spaces, and schools within the neighborhoods adjacent to the LLE track alignment.

Similar to the Interurban Trail, the Trail Along the Rail could serve as Shoreline’s segment of a potential regional multi-use trail that could ultimately connect cities along the LLE alignment from Seattle all the way to Everett.

As the first step to testing out this vision, the City of Shoreline has embarked on a feasibility study of a trail along the planned LLE alignment from the 145th Street Station to the 185th Street Station to the existing NE 195th Street pedestrian bridge overcrossing.

b. Process

Starting in early 2017, the City will gain feedback on the development of the trail alignment through multi-agency coordination meetings, stakeholder meetings, and public meetings. During the outreach process of the feasibility study, stakeholders/the public will have the opportunity to learn about the trail's potential to improve pedestrian and bicycle access and mobility to the light rail stations as well as destinations within the trail's vicinity; and provide input on the trail's design.

The feasibility study's end product will be a report that summarizes the key findings and recommendations, documents the outreach process, and includes the preferred trail alignment plan, cross sections, and cost estimate; a summary of potential funding sources and next steps.

c. Project Status Update

Based on the project team's preliminary review of existing conditions and the Sound Transit LLE Preliminary Engineering set, two typical cross sections (see Attachment C) have been developed to test out the potential for a 16' wide (12' trail with 2' shoulders on both sides) multi-use trail with a 6" sub-base to support occasional maintenance vehicles. In some locations, the trail could be located under the LLE Guideway and in other locations; it could be located adjacent to LLE's sound wall. In other situations where a roadway (e.g. 5th Avenue as it approaches the 185th St Station) closely parallels the LLE, the roadway could be retrofitted to incorporate a trail on its west side. In other situations where there are physical challenges, such as steep topography or right-of-way pitch points, that trail may be redirected to the local street network.

d. Cost Estimate

Based on the project team's planning level cost estimate, the 2.6 mile long trail would cost approximately \$9 million to construct. This estimate assumes regional unit costs for an assembly of standard trail components including: clearing, grading, trail sub base, pavement, shoulders, stormwater conveyance, landscaping, structural walls, railings, and lighting conduit. Due to the low level of project development and detail, the cost estimate includes a reasonably large contingency of 25%. This estimate doesn't include costs for stormwater flow control, right of way acquisition, landscape property screening, wetland mitigation, sound wall replacement, utility replacement, design and engineering fees; permitting fees, taxes, and construction administration. This estimate will be refined as the details of a preferred alignment are developed.

e. Next Steps

The next step for advancing the design of a preferred trail alignment is to setup a series of meetings with Sound Transit and WSDOT to pin down design opportunities and constraints and continue to refine the trail's alignment. In addition, Staff will conduct a 2017 outreach process to gain input from stakeholders and community members.

2. 145th Street Station Pedestrian/Bicycle Access Feasibility Analysis

a. Project Description

Advancing the 145th Street Station Subarea Plan's policy goal for a non-motorized bridge to the 145th Street Station, Staff conducted a feasibility analysis of four options for additional pedestrian/bicycle connections over Interstate 5 to the future 145th Street Station based on a planning-level assessment of constructability, cost, watershed impacts, and projected increase of pedestrian/bicycle commuters to 145th Street Station. This analysis assumed a baseline condition of the planned 145th Street non-motorized bridge and Plaza Path as part of the 145th Street/I-5 Interchange improvements. This feasibility study seeks to meet *Guiding Principles for Light Rail Facility Design – Principle #1* for multi-modal access north of 145th Street with a more direct non-motorized route (via a bridge crossing) to the station.

b. Design Constraints

The design of a non-motorized bridge crossing over I-5 to the 145th Street Station has the following constraints:

- Bridge must maintain a 17.5 ft. minimum vertical clearance over I-5 and its' on/off ramps per WSDOT Bridge Design Manual, AASHTO LRFD Bridge Design Specifications
- Within WSDOT's right of way for I-5, WSDOT has established a Compatibility Line that is offset from the edge of pavement that allows for the future expansion of I-5. The construction of structures - such as bridge piers- that would conflict with widening of I-5 is constrained by this line.
- WSDOT discourages the construction of bridge piers within I-5's center median or adjacent shoulders within the Compatibility Line due to traffic control challenges during construction and its impact on the highway's geometry. A center median bridge pier may be feasible provided that there is sufficient space to push I-5's southbound and northbound lanes apart to create space for a center pier and traffic barriers, but that would increase project costs and may require the approval of design deviations for this segment of I-5.
- Bridge must maintain a 10 ft. minimum vertical clearance under the LLE Guideway per AASHTO Guide to Bicycle Facilities

c. Study of Alternatives (see Attachment A for alignment plan & Attachment D for profiles)

- 147th Street Crossing - Option A
 - Crossing alignment starts at the end of N 147th Street, ramps up to a bridge crossing of I-5, turns south when it reaches the east side of I-5, then it turns east as it passes under the LLE Guideway, and continues as multi-use path to 5th Avenue where it crosses the on-ramp and then connects with the 145th Street Light Rail Station

- 147th Street Crossing - Option B
 - Crossing alignment starts at the end of N 147th Street, ramps up to a bridge crossing of I-5, passes under the LLE Guideway, and continues as an aerial bridge until it connects with the 3rd floor of the 145th Street Light Rail Station Parking Garage. From there, pedestrians/bicyclists can get to the station plaza level via the garage's stairs, elevators, or ramp. The details of whether the ramp is internal or external to the garage would need to be developed, if this option moves forward.
- 148th Street Crossing
 - Crossing alignment starts at the end of N 148th Street, ramps up to bridge crossing of I-5, passes under the LLE Guideway, and then makes a 90 degree turn to ramp down to 145th Street Station plaza level.
- 149th Street Crossing
 - The crossing alignment was found to be geometrically infeasible because it doesn't meet the required 10 ft. vertical height clearance to pass under the LLE Guideway.

d. *Walkshed and Increased Pedestrian/Bicycle Analysis*

To analyze the benefit of each crossing options, the project team modeled how each crossing option, as well as the Plaza Path and Trail Along the Rail, effects the half mile walkshed around the 145th Street Station based on the 145th Street Station Subarea Plan Phase 1 Zoning (see Attachment E).

The table below provides an overview of the each crossing options' pedestrian commute time based on length of alignment and *The Manual on Uniform Traffic Control Devices (MUTCD)* suggested normal walking speed of four feet per second:

Option	Length	Pedestrian Commute Time
Plaza Path	1,023 ft.	4.2 minutes
147 th Street – Option A	1,407 ft.	5.8 minutes
147 th Street – Option B	777 ft.	3.2 minutes
148 th Street	590 ft.	2.4 minutes
149 th Street (<i>Note: option found to be infeasible</i>)	970 ft.	4.0 minutes
Trail Along the Rail (<i>Note: trail segment from the 145th Street Station to 155th Street</i>)	1,995 ft.	8.3 minutes

The project team calculated the number of parcels within each crossing option's half mile walkshed (based on the 145th Street Station Subarea Plan Phase 1 Zoning) to assess each option's potential to serve an increase of pedestrian/bicycle commuters to 145th Street Station.

The table below looks at each option's walkshed acreage and access to individual parcels in its walkshed.

Option	Total Walkshed Acreage	Acreage Gain over baseline	Parcels Intersecting with Walkshed	Parcels gained over baseline
Baseline	218.66	N/A	589	N/A
147 th Street – Option A	218.66	0.0	589	0.0
147 th Street – Option B	235.97	17.31	615	26
148 th Street	286.54	67.88	750	161
149 th Street (<i>Note: option found to be infeasible</i>)	262.95	44.29	668	79
Trail Along the Rail (<i>Note: trail segment from the 145th Street Station to 155th Street</i>)	226.68	8.02	610	21

e. *Cost Estimate*

To create planning level cost estimates (see Attachment F), the project team used the following cost methodology:

- unit prices used for the bridge SF unit price are per WSDOT's Bridge Design Manual
- Besides the bridge, there are a number of other project elements that add cost including:
 - Upgrades to 147th or 148th Street connection to 1st Avenue are required to get pedestrians to the bridge. This includes walkway, illumination, and other.
 - Switchback ramp, walls, and grading are pretty significant for each option
 - Construction within the I-5 limited access requires a high level of traffic control measures. This adds significant costs to the estimate
 - Railing along the alignment was assumed, adding considerable costs
 - Costs include project development, agency administration, construction, and construction management.
 - Costs also include escalation
 - Due to the low level of project development and detail, there is a reasonably large contingency of 35% applied

The following table provides an overview of the each crossing options' cost estimate:

Option	Cost Estimate
147 th Street – Option A	\$17,512,000
147 th Street – Option B	\$18,792,000
148 th Street	\$12,707,000
149 th Street (<i>Note: option found to be infeasible</i>)	N/A

ALTERNATIVES ANALYSIS

The following table provides a comparative analysis of the non-motorized crossing options:

Table 1. Comparative Analysis of Non-Motorized Crossing Options

Alignments Considered	Opinion of Cost Summary (2022) ^a	Walkshed Summary	Considerations
147 th Option A	\$17,512,000	No increase	<ul style="list-style-type: none"> • Requires sidewalk construction and illumination on 147th Street • Truss options require closure of I-5 to erect trusses. • Location of east side pier provides for most convenient location to erect truss due to clearance from aerial LRT Guideway • 147th Street will function as kiss-n-ride, increasing vehicle traffic. Traffic impacts were not studied. Further study of vehicular circulation will be required if this option moves forward.
147 th Option B	\$18,792,000	Modest increase	<ul style="list-style-type: none"> • Requires sidewalk construction and illumination on 147th Street • Tallest crossing over I-5 due to crossing the SB off-ramp at the highest point. Results in higher visual impact and larger foundations due to seismic inertial forces of taller structure • Truss options require closure of I-5 to erect trusses. • Constructability of erecting trusses under the Guideway structure - will need to be partially launched from temporary supports, taking more time and longer closure of I-5. • Extensive coordination is required for this option to connect with the planned station parking garage. • 147th Street will function as kiss-n-ride, increasing vehicle traffic. Traffic impacts were not studied. Further study of vehicular circulation will be required if this option moves forward.
148 th Option	\$12,707,000	Greatest increase	<ul style="list-style-type: none"> • Truss options require closure of I-5 to erect trusses. • Constructability of erecting trusses under the LRT aerial Guideway - will need to be partially launched from temporary supports, taking more time and longer closure of I-5. • Methodology of bridge construction is impacted by timing of LRT Guideway construction. There is little space west of the LRT Guideway for construction staging. • Requires pathway construction and illumination from 1st Ave to I-5, requiring permanent property easements. • Access to the two churches and the parking lot at Phillippi Presbyterian Church will function as kiss-n-ride, increasing vehicle traffic. Traffic impacts were not studied. Further study of vehicular circulation will be required if this option moves forward.
149 th Option	Not feasible	N/A	<ul style="list-style-type: none"> • Due to geometric constraints of grades to get over I-5 and the northbound on-ramp, and pass under the LRT aerial Guideway, this option is not geometrically feasible.

DISCUSSION

Based on the comparative analysis of the viable crossing options, 147th Street Option B and 148th Street rise to the top for following reasons:

- 147th Street Option B
 - Provides a modest increase in walkshed
 - While this is the most expensive option, its connection to the 145th Street Station Garage offers a space efficient way to tie into the station's program via the garage's stairs and elevators. The details of whether the design of the pedestrian/bike ramp is internal or external to the garage would need to be developed, if this option moves forward
- 148th Street Option
 - Provides the greatest increase in walkshed
 - While this is the least expensive option, it requires a high level of coordination with Sound Transit in order to sequence the construction of a non-motorized bridge pier under the LLE Guideway
 - Additional design development will be required to ensure that the pedestrian/bike ramp doesn't conflict with pedestrian/cyclist circulation at the station plaza level and to/from the Trail Along the Rail

Staff's recommendation is to take forward the two most viable 147th/148th Street Non-Motorized Bridge options (147th Street Option B and 148th Street) for further design study and discussion with WSDOT and Sound Transit before advancing the most viable option to 30% design and environmental review.

STAKEHOLDER OUTREACH

At the Sound Transit Open House, November 16, 2016 – Pedestrian and Bicycle Connections Poster (see Attachment B) was displayed with 145th and 185th Street Station Subarea Plans at the City of Shoreline's table. Public Works and Planning Staff answered attendees' questions about multi-modal transportation and the Subarea Plans.

COUNCIL GOAL(S) ADDRESSED

The study of the Non-Motorized Bridge Options to 145th Street Station as well as the Trail Along the Rail addresses:

- Council Goal No. 2: Improve Shoreline's utility, transportation, and environmental infrastructure.
- Council Goal No. 3: Prepare for two Shoreline light rail stations.
- Council Goal No. 5: Promote and enhance the City's safe community and neighborhood programs and initiatives.

RESOURCE/FINANCIAL IMPACT

The 2017 Capital Improvement Projects (CIP) budget includes:

- \$500,000 for 147th/148th Street Non-motorized Bridge - 30% Design and Environmental Analysis
- \$275,000 for Trail Along the Trail - 30% Design and Environmental Analysis

The 30% design advancement of the 147th/148th Street Non-motorized Bridge and Trail Along the Trail projects in 2017 will help position the City for the 2018 – 2020 grant funding cycle.

Potential Funding Sources

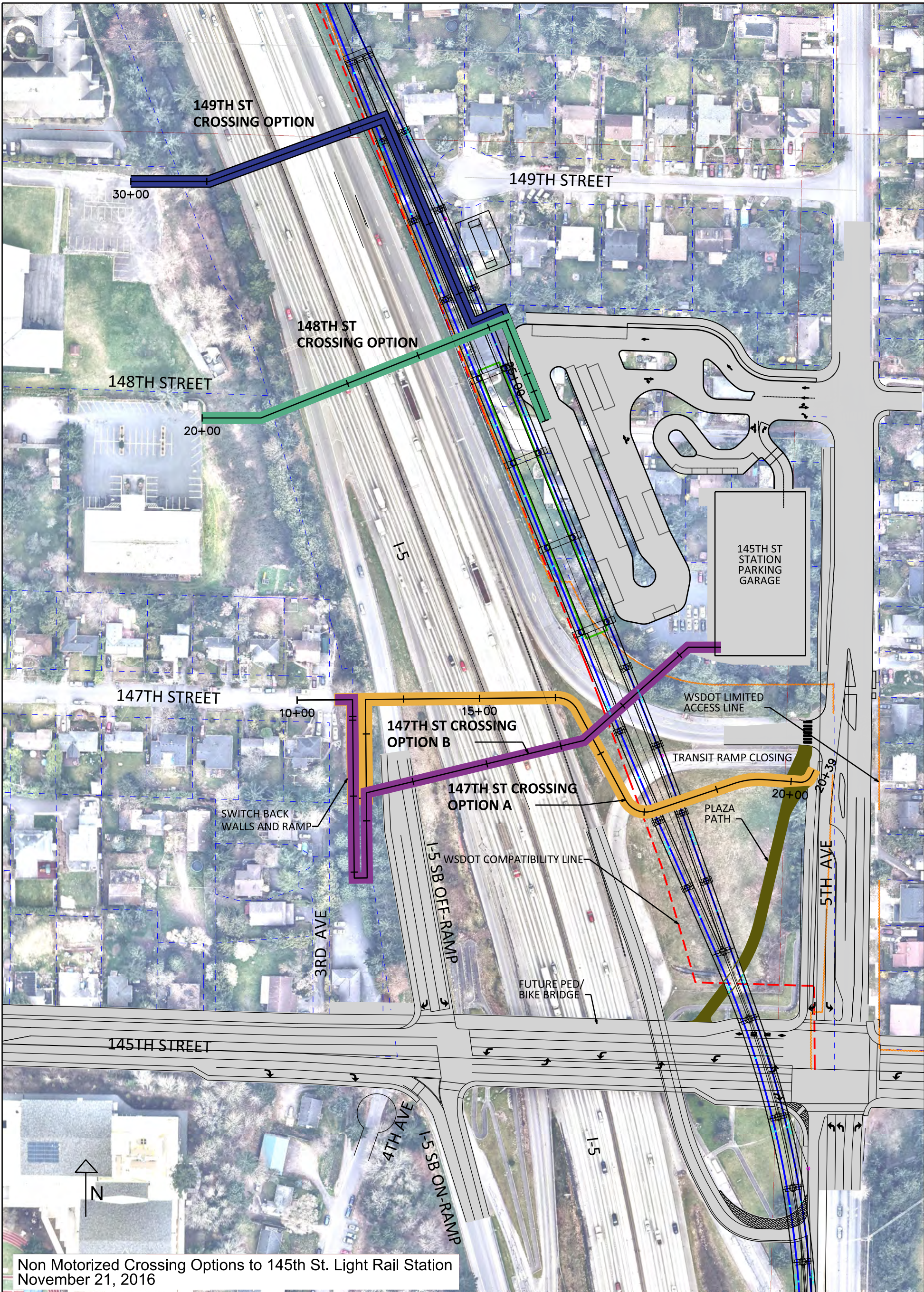
- Nexus between Sound Transit Multi-Modal Access Assessment Improvements within ½ mile of the 145th and 185th Street Stations
- WA State Recreation and Conservation Office (RCO) – 50% match
- WSDOT Pedestrian and Bicycle Program – no match required
- STP/CMAQ – Regional Competition – minimum 13.5% match
- STP/CMAQ – Countywide Competition – minimum 13.5% match
- Federal Transit Administration – FAST – New Starts Grant for trails up to 3 miles from light rail stations

RECOMMENDATION

This item is for discussion purposes only; no action is required. Staff is requesting feedback from the City Council on the Non-Motorized Bridge Options to 145th Street Station as well as the Trail Along the Rail. Staff's recommendation is to take forward the two most viable options (147th Street Option B and 148th Street) for further design study and discussion with WSDOT and Sound Transit before advancing the most viable option to 30% design and environmental review.

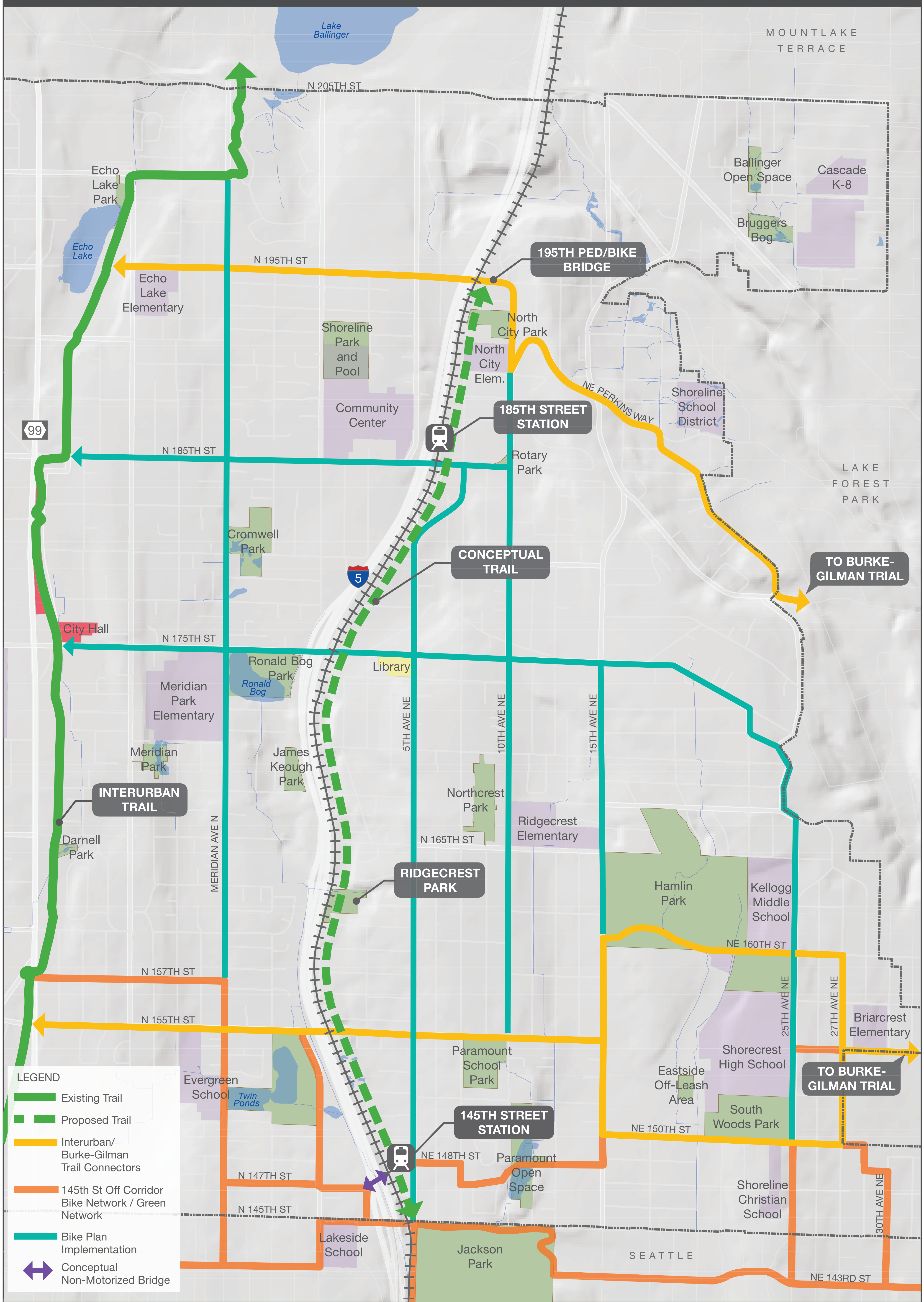
ATTACHMENTS

- Attachment A: Non-Motorized Crossing Options to 145th Street Station - Plan
- Attachment B: Pedestrian/Bike Connections
- Attachment C: Trail Along the Rail Typical Cross-Sections
- Attachment D: Non-Motorized Crossing Options to 145th Street Station - Profiles
- Attachment E: 145th Street Station Walkshed Analysis
- Attachment F: Non-Motorized Crossing Options to 145th Street Station – Cost Estimates



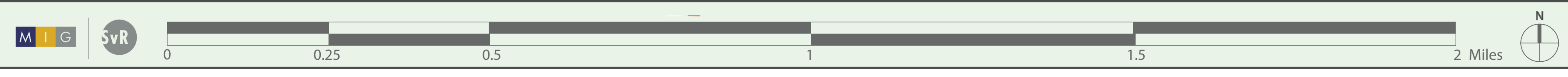
Non Motorized Crossing Options to 145th St. Light Rail Station
November 21, 2016

PEDESTRIAN / BIKE CONNECTIONS

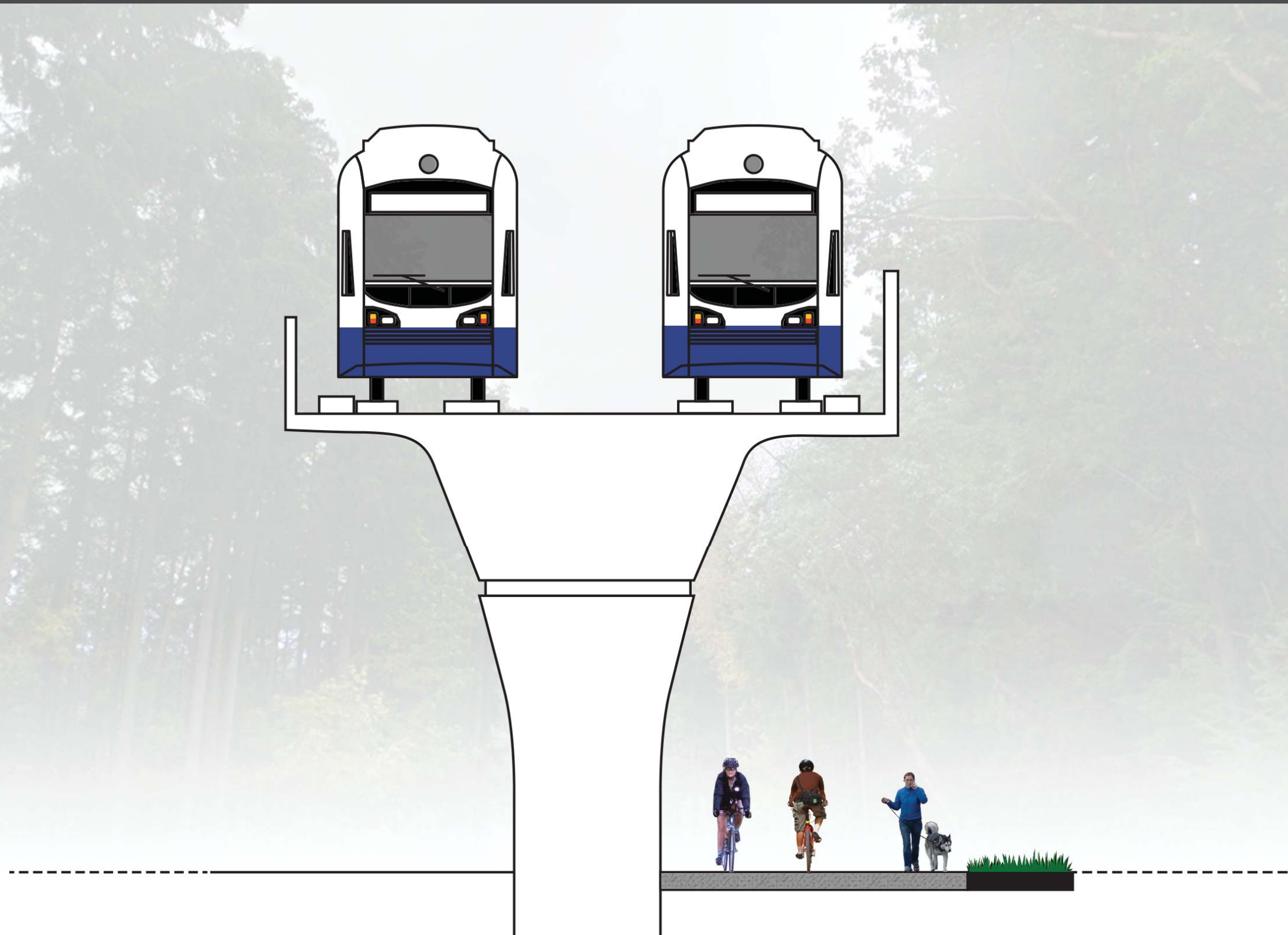


LEGEND

- Existing Trail
- - - Proposed Trail
- Interurban/Burke-Gilman Trail Connectors
- 145th St Off Corridor Bike Network / Green Network
- Bike Plan Implementation
- ↔ Conceptual Non-Motorized Bridge

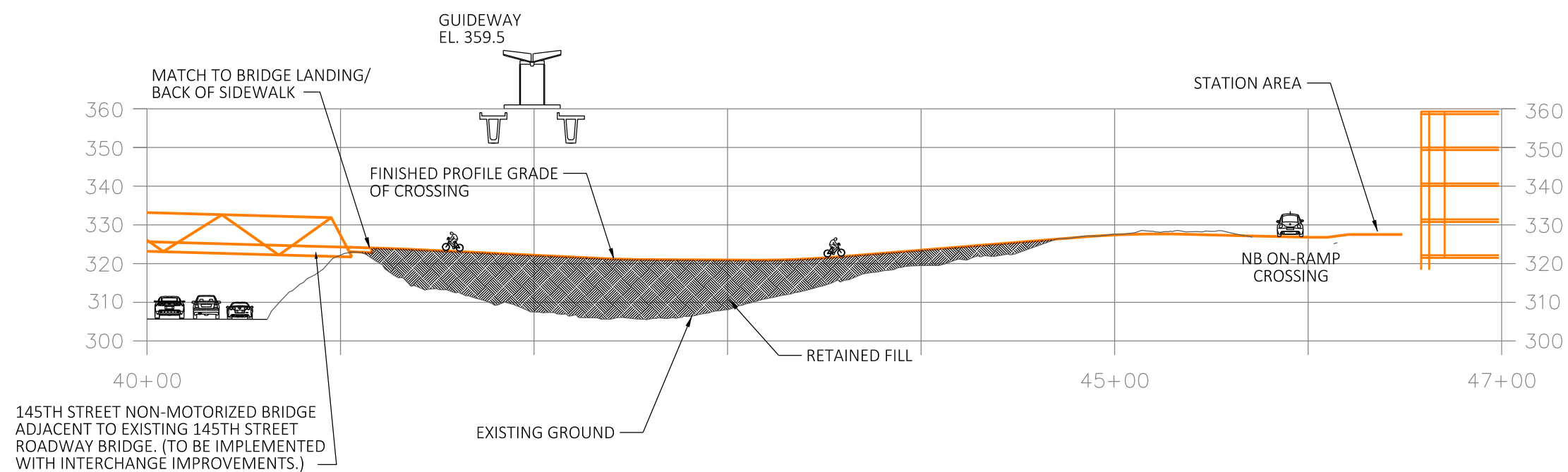


RAIL ABOVE TRAIL



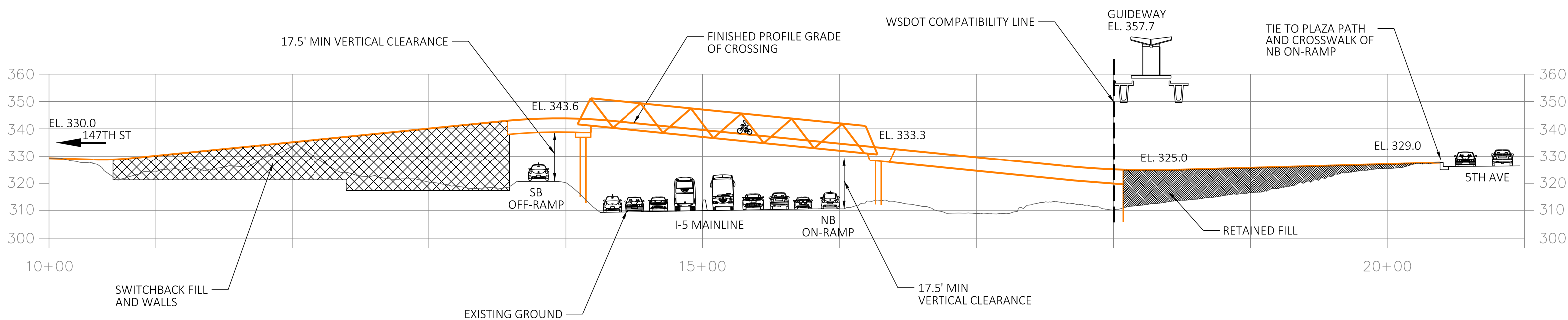
RAIL NEXT TO TRAIL



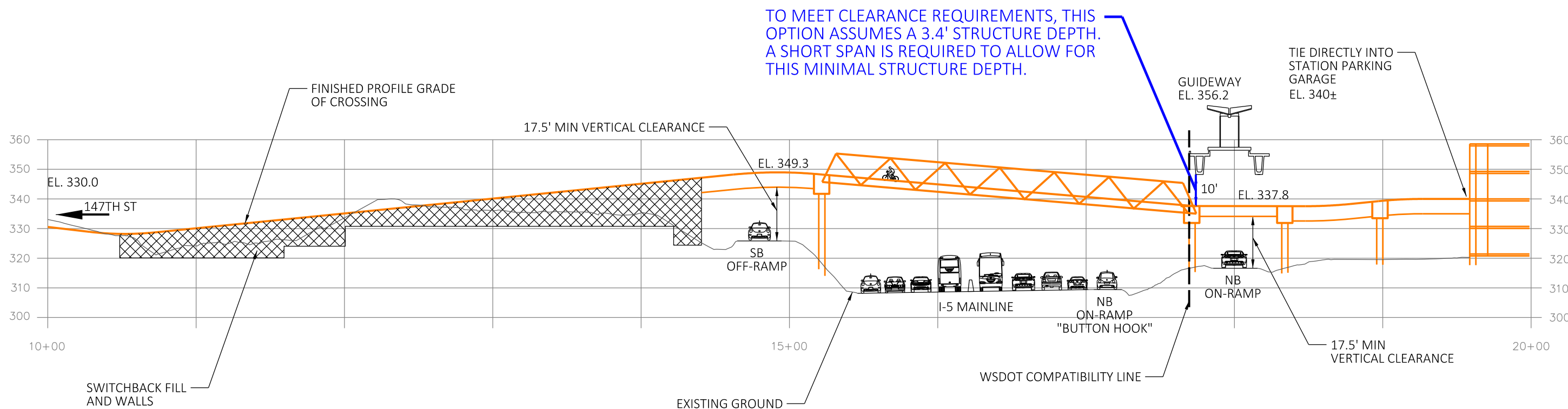


NOTES:

1. STEEL TRUSS STRUCTURE ASSUMED OVER I-5 DUE TO LENGTH OF SPAN.
2. FOR BRIDGE SPANS NOT OVER I-5, 4.5' STRUCTURE DEPTH ASSUMED BASED ON WSDOT BRIDGE DESIGN MANUAL
2. PROFILES AND PLANS ARE CONCEPTUAL LEVEL FOR THE PURPOSE OF GEOMETRIC FEASIBILITY STUDY. SOILS AND UNDERGROUND CONDITIONS HAVE NOT BEEN STUDIED TO DETERMINE STRUCTURE TYPE AND OTHER FACTORS THAT MAY AFFECT THE FEASIBILITY.

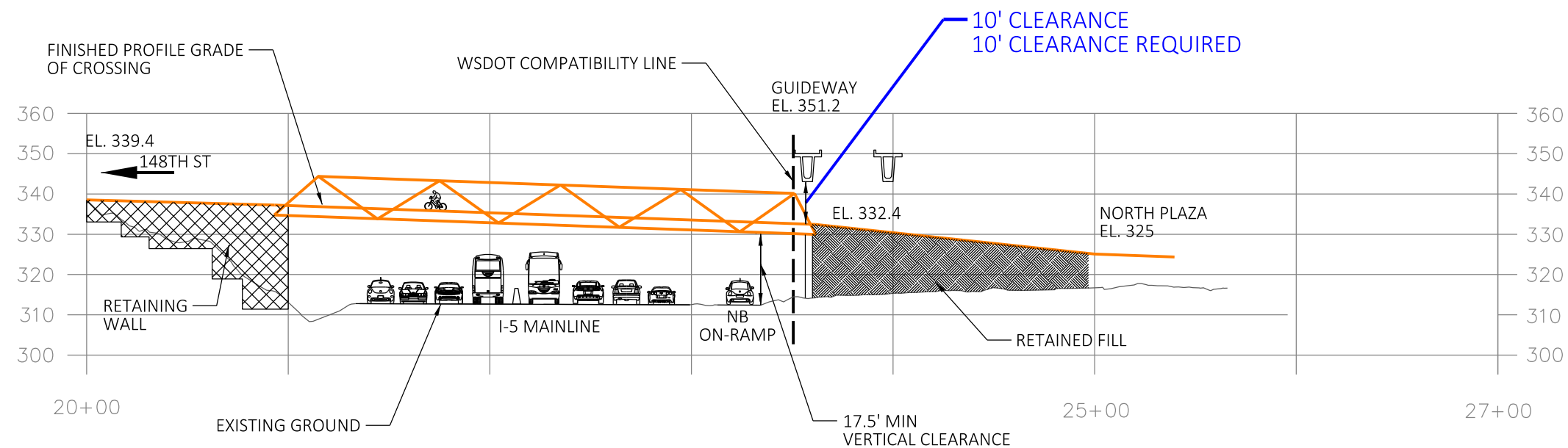


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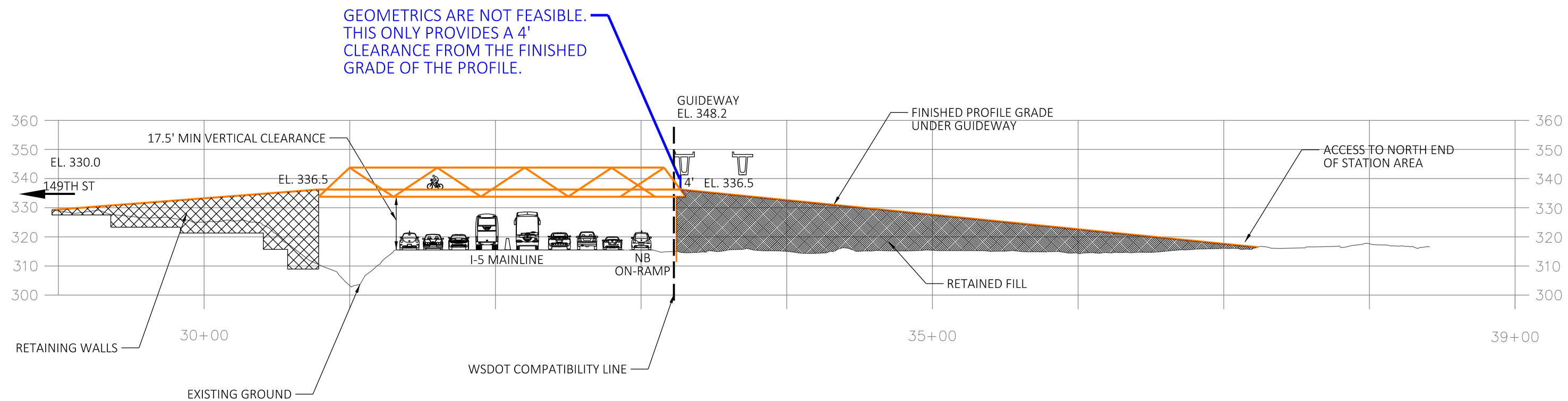
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0.5 Mile Radius



145th St. Station

City of Shoreline

City of Seattle

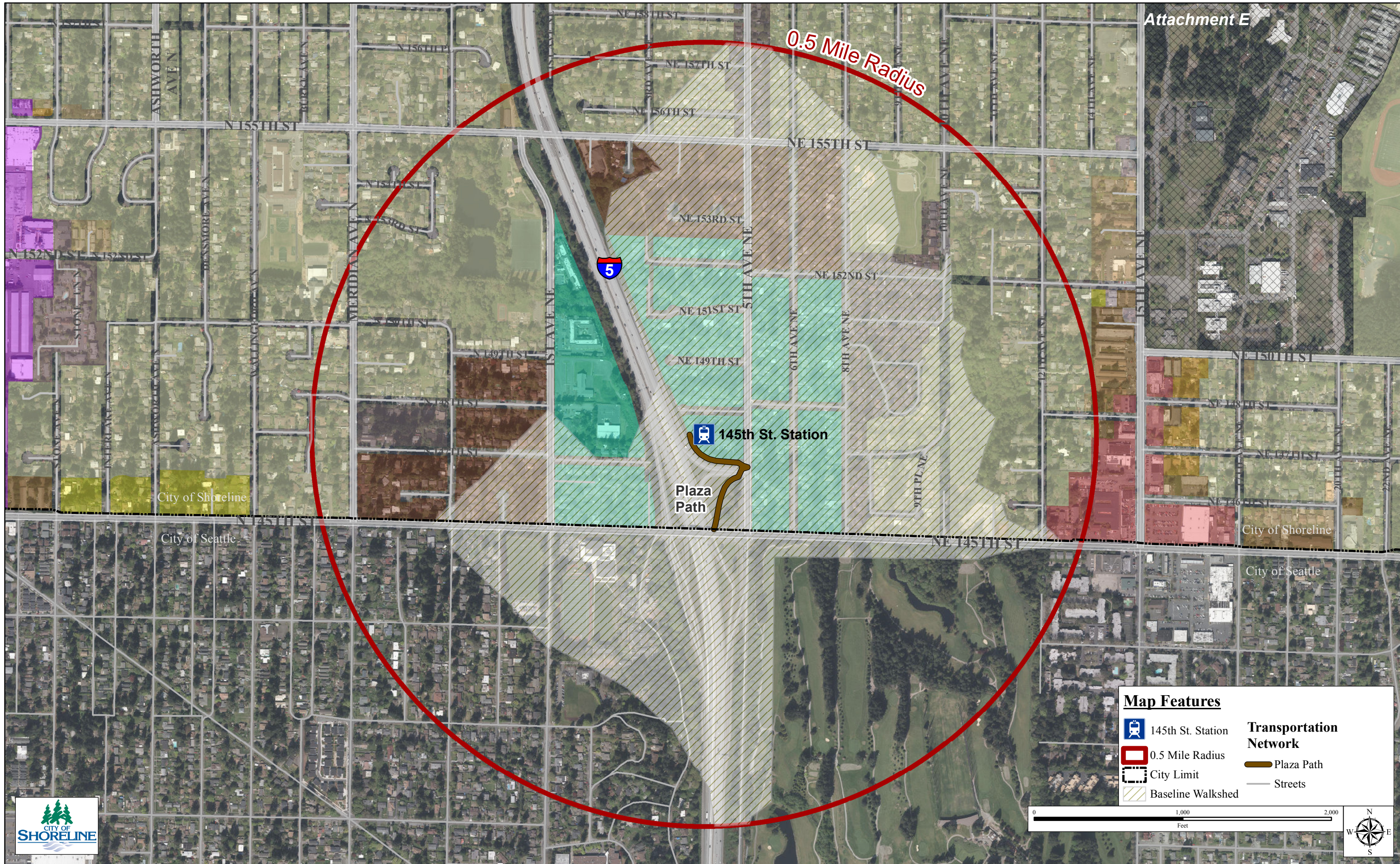
City of Shoreline

City of Seattle

Map Features

- 145th St. Station
- 0.5 Mile Radius
- City Limit
- Baseline Walkshed
- Streets





0.5 Mile Radius



145th St. Station

Plaza Path




City of Shoreline

City of Seattle

City of Shoreline

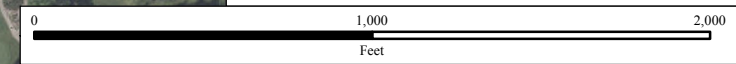
City of Seattle

Map Features

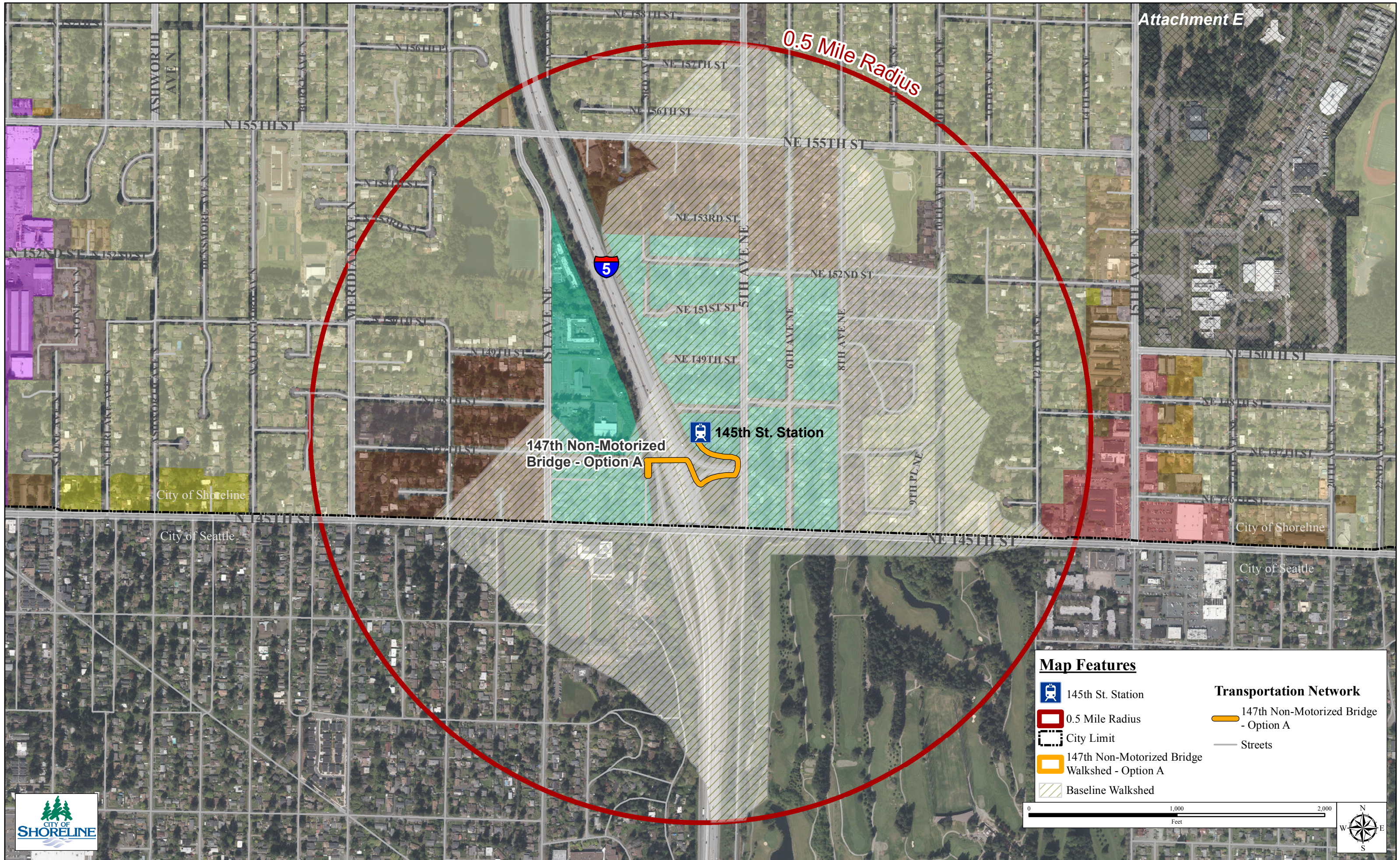
-  145th St. Station
-  0.5 Mile Radius
-  City Limit
-  Baseline Walkshed

Transportation Network

-  Plaza Path
-  Streets



0.5 Mile Radius



147th Non-Motorized Bridge - Option A

145th St. Station






City of Shoreline

City of Seattle



City of Shoreline

City of Seattle


Map Features

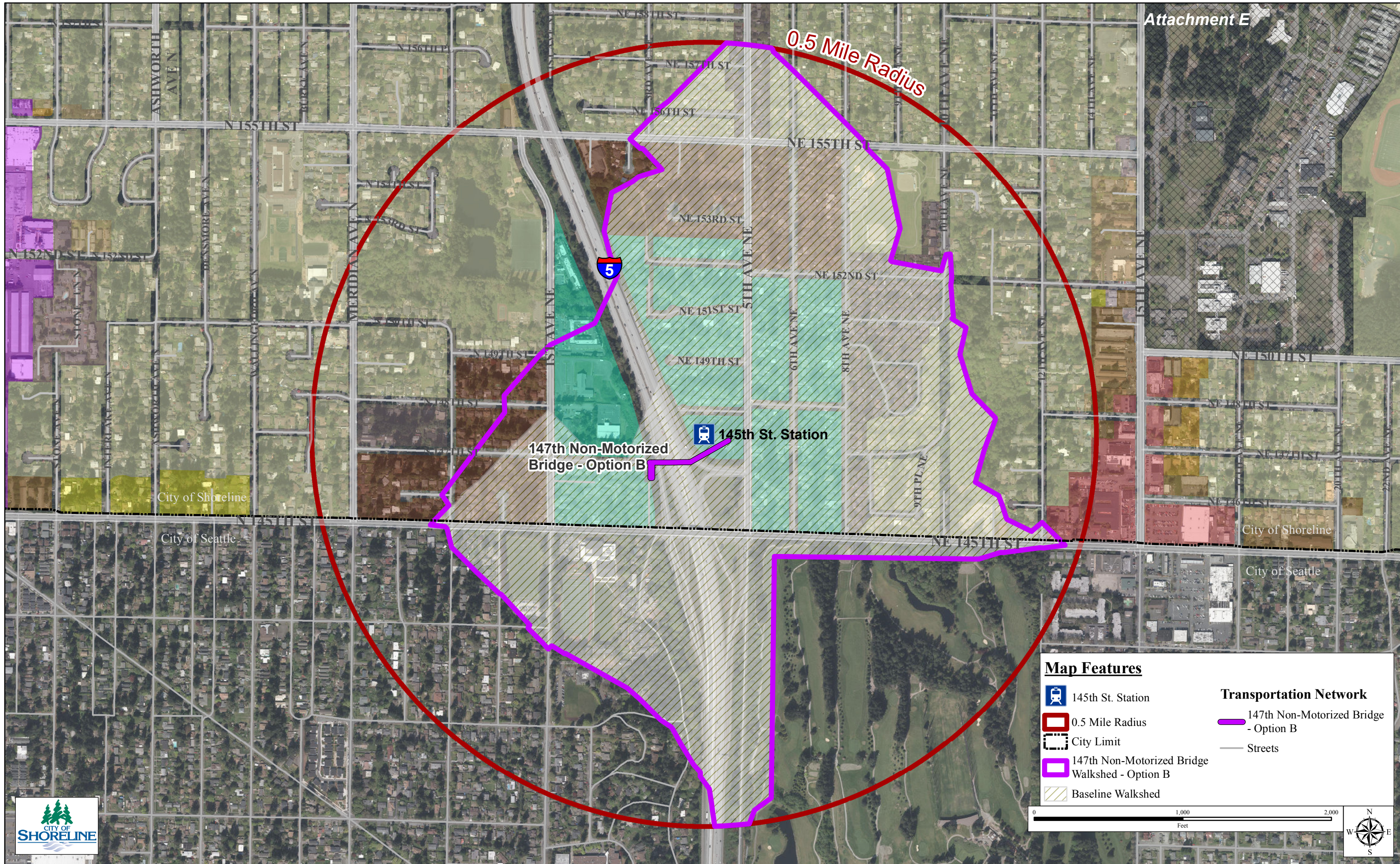
-  145th St. Station
-  0.5 Mile Radius
-  City Limit
-  147th Non-Motorized Bridge Walkshed - Option A
-  Baseline Walkshed

Transportation Network

-  147th Non-Motorized Bridge - Option A
-  Streets

0 1,000 2,000 Feet



Map Features

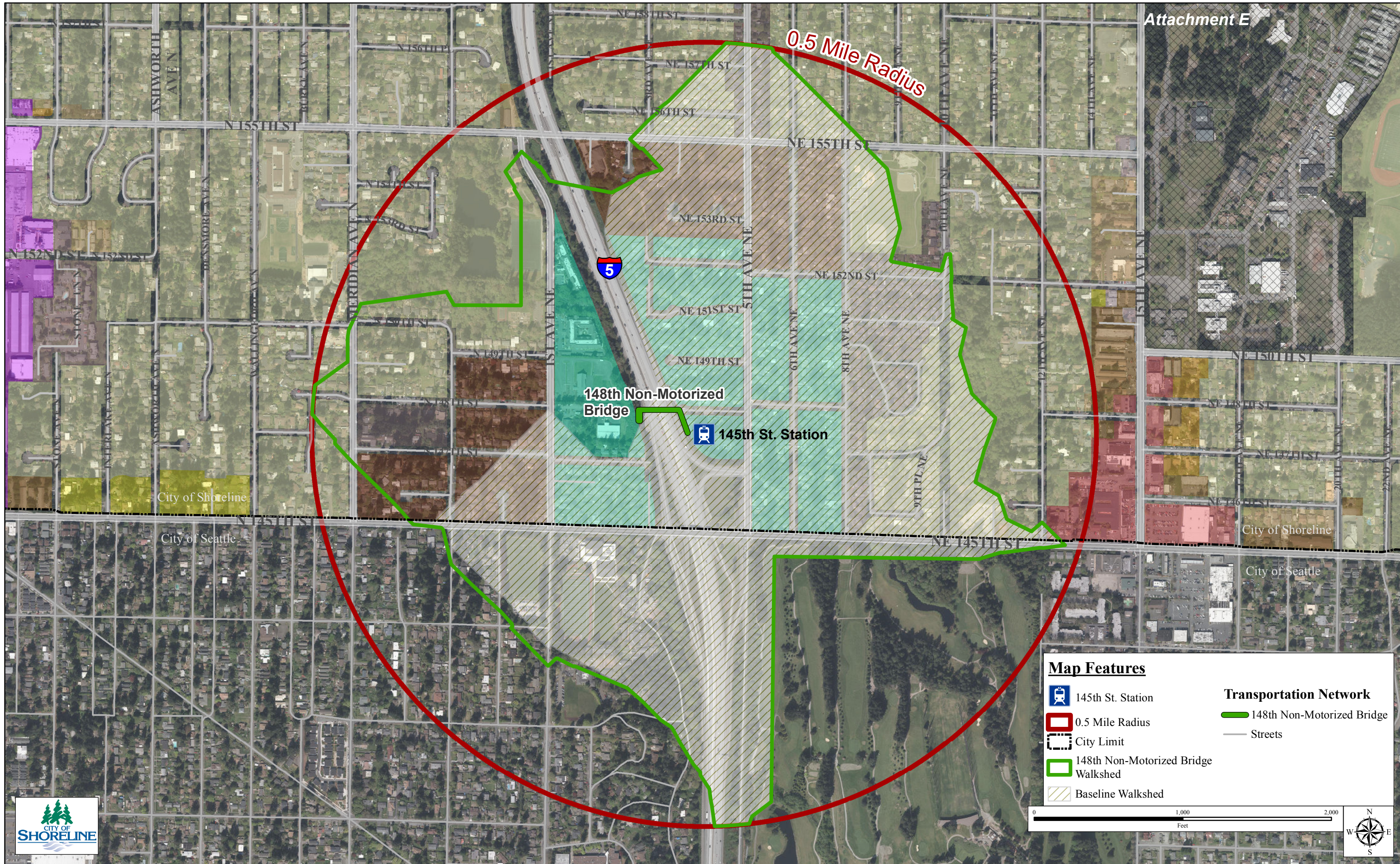
- 145th St. Station
- 0.5 Mile Radius
- City Limit
- 147th Non-Motorized Bridge Walkshed - Option B
- Baseline Walkshed

Transportation Network

- 147th Non-Motorized Bridge - Option B
- Streets

0 1,000 2,000
Feet





Map Features

- 145th St. Station
- 0.5 Mile Radius
- City Limit
- 148th Non-Motorized Bridge Walkshed
- Baseline Walkshed

Transportation Network

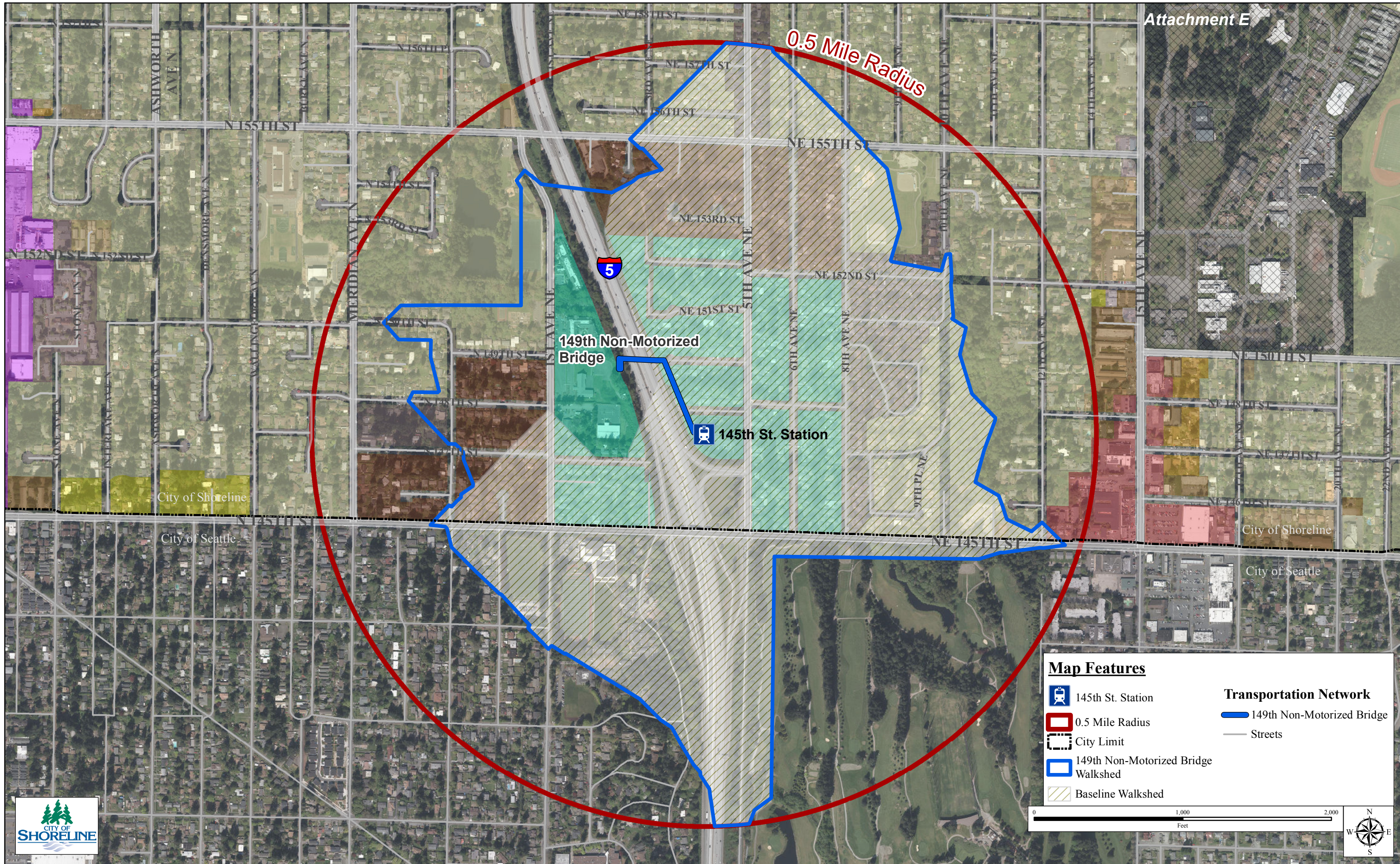
- 148th Non-Motorized Bridge
- Streets

0 1,000 2,000
Feet



148th St. Non-Motorized Walkshed

145th St. Station Subarea Phase 1 Zoning



Map Features

- 145th St. Station
- 0.5 Mile Radius
- City Limit
- 149th Non-Motorized Bridge Walkshed
- Baseline Walkshed

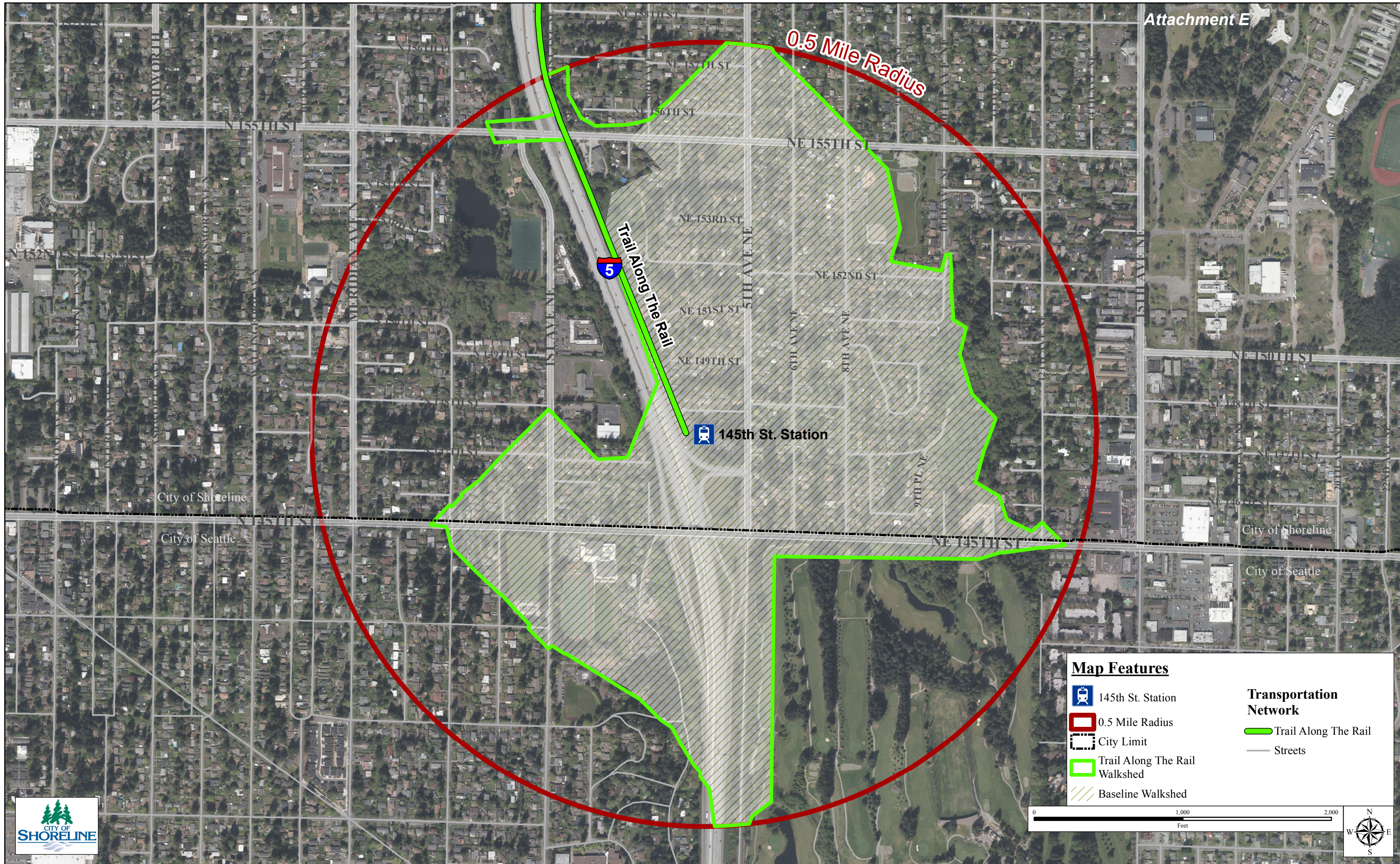
Transportation Network

- 149th Non-Motorized Bridge
- Streets

0 1,000 2,000 Feet

149th St. Non-Motorized Bridge Walkshed

145th St. Station Subarea Phase 1 Zoning



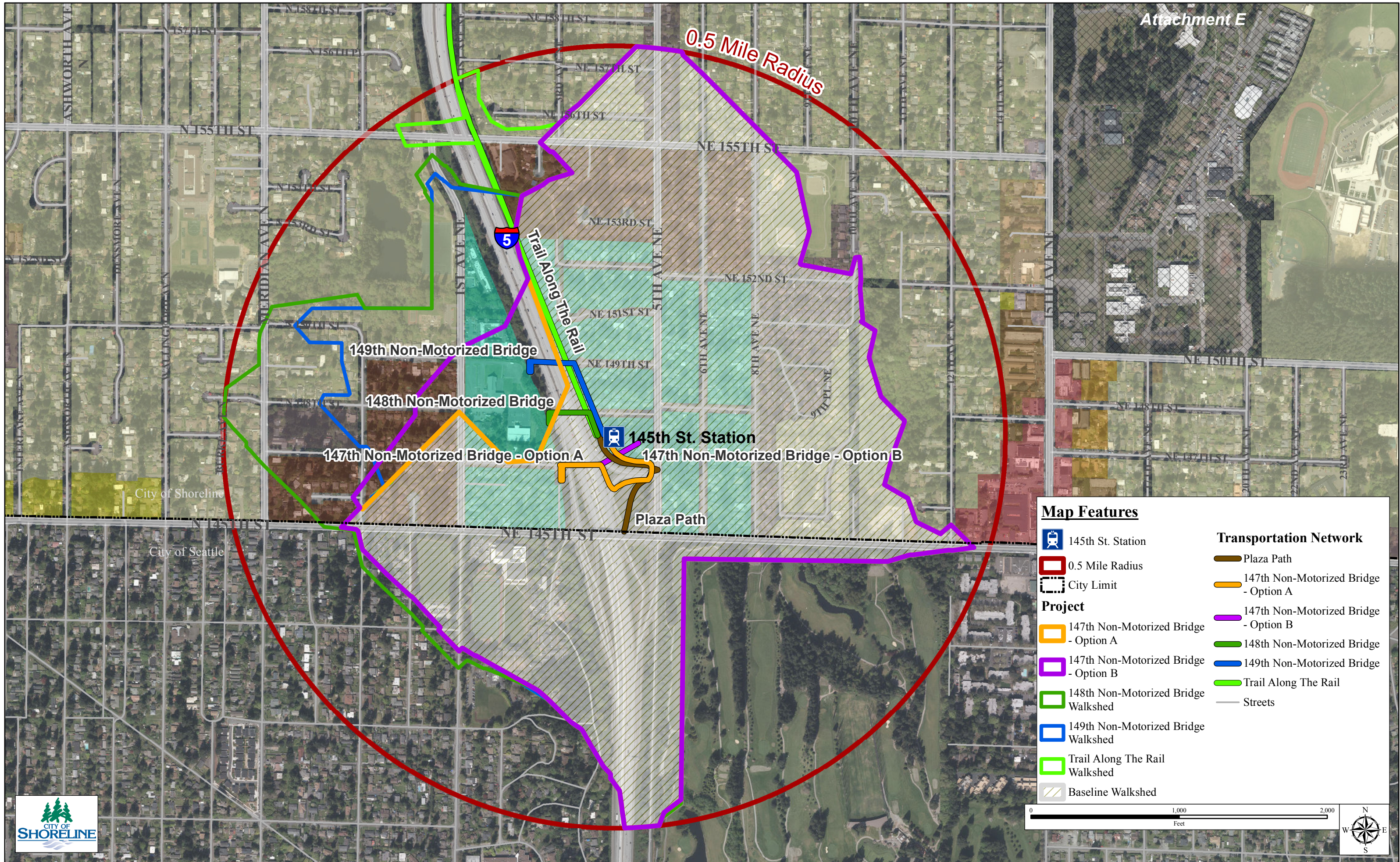
Map Features

- 145th St. Station
- 0.5 Mile Radius
- City Limit
- Trail Along The Rail Walkshed
- Baseline Walkshed

Transportation Network

- Trail Along The Rail
- Streets





Map Features

- 145th St. Station
- 0.5 Mile Radius
- City Limit

Project

- 147th Non-Motorized Bridge - Option A
- 147th Non-Motorized Bridge - Option B
- 148th Non-Motorized Bridge Walkshed
- 149th Non-Motorized Bridge Walkshed
- Trail Along The Rail Walkshed
- Baseline Walkshed

Transportation Network

- Plaza Path
- 147th Non-Motorized Bridge - Option A
- 147th Non-Motorized Bridge - Option B
- 148th Non-Motorized Bridge
- 149th Non-Motorized Bridge
- Trail Along The Rail
- Streets

0 1,000 2,000 Feet



CITY OF SHORELINE Planning Level Opinion of Cost

Project: 145th Street Station Pedestrian/Bike Access
 Project ID: 147th Street Option A
 Concept #: 1

Entered by: GMS
 Reviewed by: JAM
 Updated: 11/14/2016

	Cost	Risk Assessment	Contingency		Total
			%	Amount	
I. Right of Way	\$0	MEDIUM	30%	\$ -	\$0
II. Construction	\$6,737,201	MEDIUM-HIGH	35%	\$ 2,358,020.52	\$9,096,000
III. Project Development	\$2,762,253	MEDIUM-HIGH	35%	\$ 966,788.41	\$3,730,000
IV. Construction Management	\$1,684,300	MEDIUM-HIGH	35%	\$ 589,505.13	\$2,274,000
V. Estimate of Probable Cost (2016) Subtotal					\$15,100,000
VI. Escalation			Project Escalation		\$2,412,000
Year of cost index	2016				
Midpoint of Construction	2022				
Escalation Rate	2.50%				
TOTAL ESTIMATE OF PROBABLE COST					\$17,512,000

See sheet 3 for Assumptions

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include financial costs or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost		Entered by: GMS
Project: 145th Street Station Pedestrian/Bike Access	Project ID: 147th Street Option A	Reviewed by: JAM
Concept No.: 1		Updated: 11/14/2016

	Neighborhood:	Residential	
I. RIGHT OF WAY	Unit	Quantity	Unit Cost Total
1 Land Purchase (excludes full takes)	SF		\$ 30.00 \$0
2 Damage / Cure	%	10%	of line 1 \$0
3 Partial Building Take	SF	-	\$ 150.00 \$0
4 Full Acquisitions (sum up of assessed values)	LS		\$ - \$-
5 Relocation	EA		\$ 10,000.00 \$0
6 Acquisition Admin. Costs (per Parcel)	EA		\$ 3,000.00 \$0
7 Condemnation Contingency (Estimated)		20%	of lines 1 through 6 \$0
8 Right of Way Sub-Total			\$0

	Unit	Quantity	Unit Cost	Total
II. CONSTRUCTION	Unit	Quantity	Unit Cost	Total
9 Demolition/Clearing	SF	30,000	\$ 1.00	\$30,000
10 Gravel Borrow	TON	7,708	\$ 20.00	\$154,167
11 Bridge Demolition & Disposal	SF		\$ 60.00	\$0
12 Pedestrian Bridge - Steel Truss	SF	3,000.00	\$ 550.00	\$1,650,000
13 Pedestrian Bridge - Concrete	SF	3,750.00	\$ 400.00	\$1,500,000
14 Curb Ramps	EA	6	\$ 2,900.00	\$17,400
15 New Pavement - HMA	LANE-MILE		\$ 480,000.00	\$0
16 Pavement Overlay	LANE-MILE		\$ 150,000.00	\$0
17 Asphalt Path	SY	871	\$ 20.00	\$17,422
18 Sidewalks	SY	596	\$ 60.00	\$35,733
19 Curb and Gutter	LF	670	\$ 25.00	\$16,750
20 Walls - Cut (Soil Nail)	LF		\$ 100.00	\$0
21 Walls - Fill (MSE)	SF	6,800	\$ 50.00	\$340,000
22 Drainage / Stormwater	LANE-MILE	0.34	\$ 180,000.00	\$61,364
23 Stormwater Management	LANE-MILE	0.34	\$ 160,000.00	\$54,545
24 Utility Modifications	LS	1	\$ 30,000.00	\$30,000
25 Utility Undergrounding (SCL)	LF		\$ 770.00	\$0
26 Landscaping	SY	556	\$ 70.00	\$38,889
27 Traffic Signal New	EA		\$ 340,000.00	\$0
28 Traffic Signal Modification	EA		\$ 150,000.00	\$0
29 Channelization / Signing	LANE-MILE	0.25	\$ 25,000.00	\$6,345
30 Illumination	MILE	0.34	\$ 500,000.00	\$170,455
31 TESC	LS	3%	of lines 9 through 29	\$123,692
32 Railing	LF	1,800.00	\$ 150.00	\$270,000
33 user custom			\$ -	\$0
34 user custom			\$ -	\$0
35 user custom			\$ -	\$0
36 Construction Traffic Control	%	13%	of lines 9 through 35	\$587,179
37 Miscellaneous / Allowance	%	20%	of lines 9 through 36	\$1,020,788
38 Mobilization	%	10%	of lines 9 through 37	\$612,472.86
39 WA State Sales Tax (Non-city utilities)	%	10%	of line 23 & 24	\$0
40 Construction Sub-Total				\$6,737,201

Assumptions listed on next page

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include escalation, financial costs, or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost		Entered by: GMS
Project: 145th Street Station Pedestrian/Bike Access		Reviewed by: JAM
Project ID: 147th Street Option A		Updated: 11/14/2016
Concept No.: 1		

III. Project Development	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
41 PE and Environmental Documentation	%	5%	of line 40	\$336,860 \$437,918.10
42 Design Engineering	%	20%	of line 40	\$1,347,440
43 Agency Administration	%	12%	of line 40	\$808,464
44 Public Art	%	2%	of line 40	\$134,744
45 Community Engagement	%	2%	of line 40	\$134,744
46			of line 40	\$0
47 Project Development Sub-Total				\$2,762,253

IV. Construction Management	<u>Unit</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
48 Construction Management	%	25%	of line 40	\$1,684,300
49 <i>user custom</i>			of line 40	\$0
50 <i>user custom</i>			of line 40	\$0
51 Monitoring agreement cost	%		of line 40	\$0
52 Construction Management Sub-Total				\$1,684,300

Assumptions:

- * based on conceptual layout 147th Crossing Option A
- * assumes steel truss bridge over I-5, pre-fabricated and delivered to site
- * assumes new sidewalks on 147th Street from 1st Ave NE to the I-5 SB off-ramp
- * does not include costs for detailed architecture, special fabrication, or special art features

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include escalation, financial costs, or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost

Project:	145th Street Station Pedestrian/Bike Access	Entered by:	GMS
Project ID:	147th Street Option A	Reviewed by:	JAM
Concept No.:	1	Updated:	11/14/2016

Risk Considerations

Environmental Permitting

Presence of wetlands
 Impacts to ecological sensitive areas
 Multi-agency approvals needed

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Med	Low	LOW
Low	Low	LOW
High	Med	HIGH

Design and Construction

Unknown soil conditions
 Contaminated soils
 Unknown utilities
 Underground utility project elements
 Significant structures
 Work within water table
 Little project definition, many unknowns
 New technology

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Med	Low	LOW
Low	Med	LOW
High	Med	HIGH
Low	Low	LOW
High	High	HIGH
Low	Low	LOW
High	High	HIGH
None	None	NONE

Right of Way

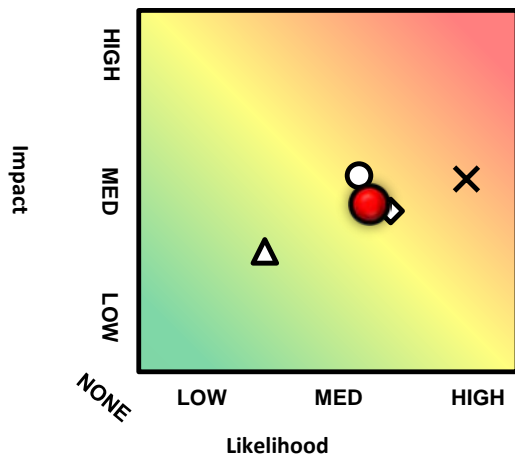
Significant property impacts

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Low	Low	LOW

Other Factors

Project scope affected by other projects
 Controversial project
 Multi-jurisdictional project
 Federal funding
 Time constraint

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
High	Med	HIGH
Med	Low	LOW
High	Med	HIGH
High	Med	HIGH
Med	Low	LOW



Risk Matrix

- ◆ Environmental Permitting
- Design and Construction
- ▲ Right of Way
- ✕ Other Factors
- Aggregate Project Risk

CITY OF SHORELINE Planning Level Opinion of Cost

Project: 145th Street Station Pedestrian/Bike Access
 Project ID: 147th Street Option B
 Concept #:

Entered by: GMS
 Reviewed by: JAM
 Updated: 11/14/2016

	Cost	Risk Assessment	Contingency		Total
			%	Amount	
I. Right of Way	\$0	MEDIUM	30%	\$ -	\$0
II. Construction	\$7,230,051	MEDIUM-HIGH	35%	\$ 2,530,517.77	\$9,761,000
III. Project Development	\$2,964,321	MEDIUM-HIGH	35%	\$ 1,037,512.29	\$4,002,000
IV. Construction Management	\$1,807,513	MEDIUM-HIGH	35%	\$ 632,629.44	\$2,441,000
V. Estimate of Probable Cost (2016)	Subtotal				\$16,204,000
VI. Escalation					\$2,588,000
Year of cost index	2016				
Midpoint of Construction	2022				
Escalation Rate	2.50%				
TOTAL ESTIMATE OF PROBABLE COST					\$18,792,000

See sheet 3 for Assumptions

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include financial costs or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost		Entered by: GMS
Project: 145th Street Station Pedestrian/Bike Access	Project ID: 147th Street Option B	Reviewed by: JAM
Concept No.: 0		Updated: 11/14/2016

I. RIGHT OF WAY	Neighborhood:		Residential	
	Unit	Quantity	Unit Cost	Total
1 Land Purchase (excludes full takes)	SF		\$ 30.00	\$0
2 Damage / Cure	%	10%	of line 1	\$0
3 Partial Building Take	SF	-	\$ 150.00	\$0
4 Full Acquisitions (sum up of assessed values)	LS			\$ -
5 Relocation	EA		\$ 10,000.00	\$0
6 Acquisition Admin. Costs (per Parcel)	EA		\$ 3,000.00	\$0
7 Condemnation Contingency (Estimated)		20%	of lines 1 through 6	\$0
8 Right of Way Sub-Total				\$0

II. CONSTRUCTION	Unit	Quantity	Unit Cost	Total
9 Demolition/Clearing	SF	22,000	\$ 1.00	\$22,000
10 Gravel Borrow	TON	4,988	\$ 20.00	\$99,763
11 Bridge Demolition & Disposal	SF		\$ 60.00	\$0
12 Pedestrian Bridge - Steel Truss	SF	3,300.00	\$ 550.00	\$1,815,000
13 Pedestrian Bridge - Concrete	SF	4,500.00	\$ 400.00	\$1,800,000
14 Curb Ramps	EA	6	\$ 2,900.00	\$17,400
15 New Pavement - HMA	LANE-MILE		\$ 480,000.00	\$0
16 Pavement Overlay	LANE-MILE		\$ 150,000.00	\$0
17 Asphalt Path	SY	622	\$ 20.00	\$12,444
18 Sidewalks	SY	596	\$ 60.00	\$35,733
19 Curb and Gutter	LF	670	\$ 25.00	\$16,750
20 Walls - Cut (Soil Nail)	LF		\$ 100.00	\$0
21 Walls - Fill (MSE)	SF	5,750	\$ 50.00	\$287,500
22 Drainage / Stormwater	LANE-MILE	0.34	\$ 180,000.00	\$61,364
23 Stormwater Management	LANE-MILE	0.34	\$ 160,000.00	\$54,545
24 Utility Modifications	LS	1	\$ 30,000.00	\$30,000
25 Utility Undergrounding (SCL)	LF		\$ 770.00	\$0
26 Landscaping	SY	-	\$ 70.00	\$0
27 Traffic Signal New	EA		\$ 340,000.00	\$0
28 Traffic Signal Modification	EA		\$ 150,000.00	\$0
29 Channelization / Signing	LANE-MILE	0.25	\$ 25,000.00	\$6,345
30 Illumination	MILE	0.34	\$ 500,000.00	\$170,455
31 TESC	LS	3%	of lines 9 through 29	\$132,879
32 Railing	LF	1,900.00	\$ 150.00	\$285,000
33 user custom			\$ -	\$0
34 user custom			\$ -	\$0
35 user custom			\$ -	\$0
36 Construction Traffic Control	%	13%	of lines 9 through 35	\$630,133
37 Miscellaneous / Allowance	%	20%	of lines 9 through 36	\$1,095,462
38 Mobilization	%	10%	of lines 9 through 37	\$657,277.34
39 WA State Sales Tax (Non-city utilities)	%	10%	of line 23 & 24	\$0
40 Construction Sub-Total				\$7,230,051

Assumptions listed on next page

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include escalation, financial costs, or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost

Project: 145th Street Station Pedestrian/Bike Access	Entered by: GMS
Project ID: 147th Street Option B	Reviewed by: JAM
Concept No.: 0	Updated: 11/14/2016

III. Project Development	Unit	Quantity	Unit Cost	Total	
41 PE and Environmental Documentation	%	5%	of line 40	\$361,503	\$469,953.30
42 Design Engineering	%	20%	of line 40	\$1,446,010	
43 Agency Administration	%	12%	of line 40	\$867,606	
44 Public Art	%	2%	of line 40	\$144,601	
45 Community Engagement	%	2%	of line 40	\$144,601	
46			of line 40	\$0	
47 Project Development Sub-Total				\$2,964,321	

IV. Construction Management	Unit	Quantity	Unit Cost	Total	
48 Construction Management	%	25%	of line 40	\$1,807,513	
49 <i>user custom</i>			of line 40	\$0	
50 <i>user custom</i>			of line 40	\$0	
51 Monitoring agreement cost	%		of line 40	\$0	
52 Construction Management Sub-Total				\$1,807,513	

Assumptions:

- * based on conceptual layout 147th Crossing Option B, November 2016
- * assumes steel truss bridge over I-5, pre-fabricated and delivered to site
- * assumes new sidewalks on 147th Street from 1st Ave NE to the I-5 SB off-ramp
- * assumes new illumination on 147th Street from 1st Ave NE to the I-5 SB off-ramp
- * does not include costs for detailed architecture, special fabrication, or special art features
- * assumes direct connection to the light rail station parking garage structure. No additional costs are included for building modification.

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include escalation, financial costs, or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost

Project:	145th Street Station Pedestrian/Bike Access	Entered by:	GMS
Project ID:	147th Street Option B	Reviewed by:	JAM
Concept No.:	0	Updated:	11/14/2016

Risk Considerations

Environmental Permitting

Presence of wetlands
 Impacts to ecological sensitive areas
 Multi-agency approvals needed

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Med	Low	LOW
Low	Low	LOW
High	Med	HIGH

Design and Construction

Unknown soil conditions
 Contaminated soils
 Unknown utilities
 Underground utility project elements
 Significant structures
 Work within water table
 Little project definition, many unknowns
 New technology

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Med	Low	LOW
Low	Med	LOW
High	Med	HIGH
Low	Low	LOW
High	High	HIGH
Low	Low	LOW
High	High	HIGH
None	None	NONE

Right of Way

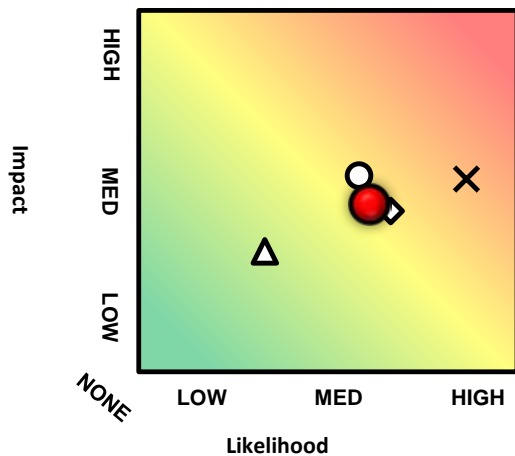
Significant property impacts

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
Low	Low	LOW

Other Factors

Project scope affected by other projects
 Controversial project
 Multi-jurisdictional project
 Federal funding
 Time constraint

<u>Likelihood</u>	<u>Impact</u>	<u>Risk Assessment</u>
High	Med	HIGH
Med	Low	LOW
High	Med	HIGH
High	Med	HIGH
Med	Low	LOW



Risk Matrix

- ◆ Environmental Permitting
- Design and Construction
- ▲ Right of Way
- ✕ Other Factors
- Aggregate Project Risk

CITY OF SHORELINE Planning Level Opinion of Cost

Project: 145th Street Station Pedestrian/Bike Access
 Project ID: 148th Street
 Concept #: 1

Entered by: GMS
 Reviewed by: JAM
 Updated: 11/14/2016

	Cost	Risk Assessment	Contingency		Total
			%	Amount	
I. Right of Way	\$133,920	MEDIUM-HIGH	35%	\$ 46,872.00	\$181,000
II. Construction	\$4,807,849	MEDIUM-HIGH	35%	\$ 1,682,747.10	\$6,491,000
III. Project Development	\$1,971,218	MEDIUM-HIGH	35%	\$ 689,926.31	\$2,662,000
IV. Construction Management	\$1,201,962	MEDIUM-HIGH	35%	\$ 420,686.78	\$1,623,000
V. Estimate of Probable Cost (2016)				Subtotal	\$10,957,000
VI. Escalation					\$1,750,000
Year of cost index	2016	Project Escalation			
Midpoint of Construction	2022				
Escalation Rate	2.50%				
TOTAL ESTIMATE OF PROBABLE COST					\$12,707,000

See sheet 3 for Assumptions

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include financial costs or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost		Entered by: GMS
Project: 145th Street Station Pedestrian/Bike Access		Reviewed by: JAM
Project ID: 148th Street		Updated: 11/14/2016
Concept No.: 1		

	Neighborhood:	Residential	
I. RIGHT OF WAY	Unit	Quantity	Unit Cost
1 Land Purchase (excludes full takes)	SF	6,400	\$ 15.00
2 Damage / Cure	%	10%	of line 1
3 Partial Building Take	SF	-	\$ 150.00
4 Full Acquisitions (sum up of assessed values)	LS		\$ -
5 Relocation	EA		\$ 10,000.00
6 Acquisition Admin. Costs (per Parcel)	EA	2.00	\$ 3,000.00
7 Condemnation Contingency (Estimated)		20%	of lines 1 through 6
8 Right of Way Sub-Total			\$133,920

	Unit	Quantity	Unit Cost	Total
9 Demolition/Clearing	SF	39,000	\$ 1.00	\$39,000
10 Gravel Borrow	TON	7,623	\$ 20.00	\$152,454
11 Bridge Demolition & Disposal	SF		\$ 60.00	\$0
12 Pedestrian Bridge - Steel Truss	SF	3,750.00	\$ 550.00	\$2,062,500
13 Pedestrian Bridge - Concrete	SF	-	\$ 400.00	\$0
14 Curb Ramps	EA	6	\$ 2,900.00	\$17,400
15 New Pavement - HMA	LANE-MILE		\$ 480,000.00	\$0
16 Pavement Overlay	LANE-MILE		\$ 150,000.00	\$0
17 Asphalt Path	SY	1,011	\$ 20.00	\$20,222
18 Sidewalks	SY	-	\$ 60.00	\$0
19 Curb and Gutter	LF	-	\$ 25.00	\$0
20 Walls - Cut (Soil Nail)	LF		\$ 100.00	\$0
21 Walls - Fill (MSE)	SF	9,450	\$ 50.00	\$472,500
22 Drainage / Stormwater	LANE-MILE	0.17	\$ 180,000.00	\$30,600
23 Stormwater Management	LANE-MILE	0.17	\$ 160,000.00	\$27,200
24 Utility Modifications	LS	1	\$ 30,000.00	\$30,000
25 Utility Undergrounding (SCL)	LF		\$ 770.00	\$0
26 Landscaping	SY	667	\$ 70.00	\$46,667
27 Traffic Signal New	EA		\$ 340,000.00	\$0
28 Traffic Signal Modification	EA		\$ 150,000.00	\$0
29 Channelization / Signing	LANE-MILE	-	\$ 25,000.00	\$0
30 Illumination	MILE	0.17	\$ 500,000.00	\$85,227
31 TESC	LS	3%	of lines 9 through 29	\$89,513
32 Railing	LF	1,000.00	\$ 150.00	\$150,000
33 user custom			\$ -	\$0
34 user custom			\$ -	\$0
35 user custom			\$ -	\$0
36 Construction Traffic Control	%	13%	of lines 9 through 35	\$419,027
37 Miscellaneous / Allowance	%	20%	of lines 9 through 36	\$728,462
38 Mobilization	%	10%	of lines 9 through 37	\$437,077.17
39 WA State Sales Tax (Non-city utilities)	%	10%	of line 23 & 24	\$0
40 Construction Sub-Total				\$4,807,849

Assumptions listed on next page

The above cost opinion is in 2016 dollars for Comparative Level Evaluation of concepts. The cost does not include escalation, financial costs, or operations and maintenance costs. In addition, there are no costs for the mitigation or remediation associated with the potential discovery of hazardous materials. The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of the estimate. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

CITY OF SHORELINE Planning Level Opinion of Cost

Project: **145th Street Station Pedestrian/Bike Access**
 Project ID: 148th Street
 Concept No.: 1

Entered by: **GMS**
 Reviewed by: **JAM**
 Updated: **11/14/2016**

III. Project Development	Unit	Quantity	Unit Cost	Total
41 PE and Environmental Documentation	%	5%	of line 40	\$240,392 \$312,510.18
42 Design Engineering	%	20%	of line 40	\$961,570
43 Agency Administration	%	12%	of line 40	\$576,942
44 Public Art	%	2%	of line 40	\$96,157
45 Community Engagement	%	2%	of line 40	\$96,157
46			of line 40	\$0
47 Project Development Sub-Total				\$1,971,218

IV. Construction Management	Unit	Quantity	Unit Cost	Total
48 Construction Management	%	25%	of line 40	\$1,201,962
49 <i>user custom</i>			of line 40	\$0
50 <i>user custom</i>			of line 40	\$0
51 Monitoring agreement cost	%		of line 40	\$0
52 Construction Management Sub-Total				\$1,201,962

Assumptions:

- * based on conceptual layout 148th Crossing Option, November 2016
- * assumes steel truss bridge over I-5, pre-fabricated and delivered to site
- * assumes new pathway from 1st Ave NE to the I-5 SB off-ramp
- * assumes new illumination from 1st Ave NE to the I-5 SB off-ramp
- * does not include costs for detailed architecture, special fabrication, or special art features
- * assumes direct connection to the light rail station parking garage structure. No additional costs are included for building modification.

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Risk Considerations

Environmental Permitting

Presence of wetlands
 Impacts to ecological sensitive areas
 Multi-agency approvals needed

Likelihood	Impact	Risk Assessment
Med	Low	LOW
Low	Low	LOW
High	Med	HIGH

Design and Construction

Unknown soil conditions
 Contaminated soils
 Unknown utilities
 Underground utility project elements
 Significant structures
 Work within water table
 Little project definition, many unknowns
 New technology

Likelihood	Impact	Risk Assessment
Med	Low	LOW
Low	Med	LOW
High	Med	HIGH
Low	Low	LOW
High	High	HIGH
Low	Low	LOW
High	High	HIGH
None	None	NONE

Right of Way

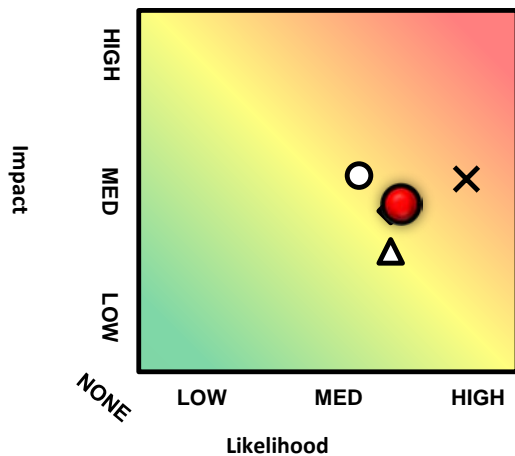
Significant property impacts

Likelihood	Impact	Risk Assessment
Med	Low	MEDIUM

Other Factors

Project scope affected by other projects
 Controversial project
 Multi-jurisdictional project
 Federal funding
 Time constraint

Likelihood	Impact	Risk Assessment
High	Med	HIGH
Med	Low	LOW
High	Med	HIGH
High	Med	HIGH
Med	Low	LOW



Risk Matrix

- ◆ Environmental Permitting
- Design and Construction
- ▲ Right of Way
- ✕ Other Factors
- Aggregate Project Risk