Council Meeting Date: June 1, 2020	Agenda Item: 9(a)
•	•

#### CITY COUNCIL AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

**AGENDA TITLE:** Discussion of the Project Status and Progress for the N 148<sup>th</sup> Street

Non-Motorized Bridge Project

**DEPARTMENT:** Public Works

**PRESENTED BY:** Department of Public Works

Lea Bonebrake, Capital Projects Manager

ACTION: Ordinance Resolution Motion

X Discussion Public Hearing

#### PROBLEM/ISSUE STATEMENT:

The 2019-2024 Capital Improvement Plan (CIP), adopted by Ordinance No. 841, includes the 148<sup>th</sup> Street Non-Motorized Bridge project. The project goal is to provide a non-motorized bridge to directly connect neighborhoods west of Interstate-5 with the future 145<sup>th</sup> Street/Shoreline South light rail station, which will in turn connect users to centers of employment, commerce and educational opportunities.

On February 27, 2017, Council approved the selection of the 148<sup>th</sup> Street Non-Motorized Bridge alignment as the preferred alignment, and authorized staff to initiate the design and pursue funding. The design of the bridge has been broken down into three project components: 1) West Trail Connection, 2) the Bridge Structure and 3) East Bridge Landing. A Type, Size and Location (TS&L) Report has been drafted to summarize the analysis and comparison of the concepts against City defined objectives for the project, including a recommendation to proceed to final design.

Tonight, staff is sharing the results of the TS&L report (Attachment A) and the project's stakeholder engagement process and events to date. Staff is also seeking Council direction on a preferred option that will then be advanced to 30% design and project delivery approach.

#### **RESOURCE/FINANCIAL IMPACT:**

This project is currently funded in the 2019-2024 CIP for schematic design. Since the time of CIP adoption, the City has secured additional grants that will fully fund design, Right-of -Way acquisition, and have partial funding for construction. A summary of current funding is shown below:

## **Summary of Project Costs:**

DESIGN				
	DESIGN COST	\$ 2,894,491		
	CITY STAFF & OTHER RESOURCES	\$ 350,000		
	CONTINGENCY (10%)	\$ 300,000		
	SUBTOTAL		\$	3,544,491
RIGHT-OF-WAY				
	ROW COST	\$ 1,282,000		
	CONTINGENCY (10%)	\$ 130,000		
	SUBTOTAL		\$	1,412,000
CONSTRUCTION				
	CONSTRUCTION COST	\$ 11,181,005		
	CONTINGENCY (40%)	\$ 4,472,402		
	ADDED LAYDOWN COST	\$ 584,929		
	SUBTOTAL		\$ :	16,238,336
CONSTRUCTION	MANAGEMENT			
	CM COST	\$ 3,913,352		
	CITY STAFF & OTHER RESOURCES	\$ 300,000		
	CONTINGENCY (10%)	\$ 400,000		
	SUBTOTAL		\$	4,613,352

TOTAL \$25,808,179

### **Summary of Project Revenue:**

**FUNDING GAP (EXPENDITURE- REVENUE)** 

DESIGN			
	GENERAL FUND	\$ 350,000	
	ROADS CAPITAL FUND	\$ 150,000	
	STP NON-MOTORIZED	\$ 2,055,000	
	ST SYSTEM ACCESS	\$ 1,105,271	
	SUBTOTAL		\$ 3,660,271
RIGHT-OF	-WAY		
	COUNTY LEVY	\$ 1,412,000	
	SUBTOTAL		\$ 1,412,000
CONSTRU	CTION		
	COUNTY LEVY	\$ 2,388,000	
	ST SYSTEM ACCESS	\$ 2,594,729	
	SUBTOTAL		\$ 4,982,729
TOTAL			
REVENUE			\$ 10,055,000

9a-2

\$ 15,753,179

To date, the City has not secured funds required to fully fund the construction phase of the Project and may not be able to secure all construction funds prior to the opening of the Lynnwood Link Extension light rail project in 2024. Options and risks associated with the funding gap and project delivery options to address the funding gap and associated risks are discussed later in this staff report.

#### **RECOMMENDATION**

Staff is seeking Council direction or confirmation on the recommended design elements and approach for project funding and delivery. Specifically, staff is looking for confirmation on the following staff recommendations:

- Preferred Design Recommendations:
  - West Trail Connection Option 3: Full Build-Out (North)
  - o Bridge Structure Option 2: Tied Arch
  - East Bridge Landing Option 3: Direct Ramp
- Bridge Cover (Canopy) Recommendation:
  - Delay including a canopy in the design until later in the design process.
- Project Funding and Delivery Strategy Recommendation:
  - Continue with Alternative 2.2C proceed with design to 30% with the intent of progressing to full design, property acquisition and construction of the east bridge landing.

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

#### **BACKGROUND**

Interstate-5 (I-5) forms a barrier from the neighborhoods to the west of the interstate to the Sound Transit Shoreline South/145<sup>th</sup> Station to the east. The 148<sup>th</sup> Street Non-Motorized Bridge project will design a pedestrian/bike bridge spanning I-5 and connecting to the north-end light rail station plaza. Improvements will include integration with the station plaza area (east side of I-5) including ramps and stairs. West side landing improvements will include ramps and stairs, safe pedestrian and bicycle connections to 1st Avenue NE, and evaluation of the need for a drop-off/pick-up area.

A feasibility analysis of non-motorized crossing options to the Shoreline South/145<sup>th</sup> Station was conducted in 2016/2017 to determine the feasibility of a non-motorized bridge to connect the west side of I-5 to the Sound Transit station and east-side area. Based on the results of the feasibility study, Council adopted the 148<sup>th</sup> Street crossing as the preferred location. The cost estimate in the feasibility study was \$13,331,000. At the February 27, 2017 Council meeting, staff presented the 145<sup>th</sup> Street Station Access Non-Motorized Crossing Options Feasibility Analysis. The staff report for this discussion can be found at the following link: February 27, 2017 Staff Report.

The 2019-2024 Capital Improvement Plan (CIP) included \$499,999 in funding to proceed with conceptual design of the 148<sup>th</sup> Non-Motorized Bridge project and continued coordination with Sound Transit. On June 24, 2019, the City Council authorized the City Manager to enter into a contract with KPFF, Inc. for the preliminary design services for the N 148<sup>th</sup> Street Non-Motorized Bridge project. The current contract with KPFF is to 30% design and environmental review. The staff report for the Council authorization to enter into this contract can be found at the following link: June 24, 2019 Staff Report.

Since adoption of the CIP, this project has received a federal grant, via the USDOT Federal Highway Administration (FHWA) Surface Transportation Program (STP) to be applied to the design phase of the project. Funding has also been secured from regional sources in the form of Central Puget Sound Regional Transit Authority (Sound Transit) System Access Funds (SA), and from King County. The project is funded through final design, right-of-way (ROW) and partially into construction.

#### DISCUSSION

The design team has been tasked with exploring multiple options for how to construct the bridge crossing at N 148<sup>th</sup> Street while also providing a sensible connection to 1<sup>st</sup> Avenue NE on the west side of I-5, and to the new Shoreline South/145<sup>th</sup> Station on the east side. The findings and design information has been provided in the draft Type, Size and Location Report (TS&L), included as Attachment A. The following discussion will highlight major findings in the report.

### Significant Project Elements

The draft TS&L Report identifies and evaluates three significant project elements: 1) West Trail Connection, 2) Bridge Structure, and 3) East Bridge Landing. Figure 1 below depicts the approximate project element boundaries:

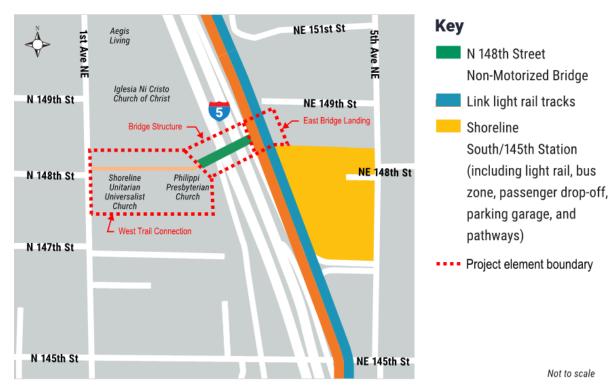


Figure 1: Significant Project Elements

Because each significant element has its own complexities and challenges, each are evaluated separately. The findings and design options for each are summarized below.

#### West Trail Connection

This is defined as the portion of the project that will complete the connection from the west bridge landing point to 1<sup>st</sup> Avenue NE. The alternatives identified in *Section 11: West Side Trail Alignments* of the attached draft TS&L Report are summarized as follows:

#### <u>Option 1 – Minimal Build-Out</u>

This alternative takes the approach of designing for the minimal impact, installing an 8-foot wide sidewalk for pedestrians and utilizing the existing drive lane for shared bicycle access. See Figures 11-2 and 11-3 in the attached draft TS&L Report for plan view and typical section.

#### Option 2 - Full Build-Out (South Alignment)

This alternative takes the approach of designing for the full shared-use pathway, providing a single 16-foot wide separated path that will serve both pedestrians and bicycles with a trail alignment that minimizes impact to the existing property line to the north. See Figures 11-4 and 11-5 in the attached draft TS&L Report for plan view and typical section.

#### Option 3 – Full Build-Out (North Alignment)

This alternative takes the approach of designing for the full shared-use pathway, providing a single 16-foot wide separated path that will serve both pedestrians and

bicycles with a trail alignment that is further north. See Figures 11-6 and 11-7 in the attached draft TS&L Report for plan view and typical section.

#### **Bridge Structure**

This is defined as the bridge structure that spans over I-5. All alternatives include a 16-foot wide bridge deck with pedestrian railing and 10-foot tall throw barriers. Variations that include canopies over the bridge spans are available and are depicted in *Section 12: Main Span Bridge Concepts* of the attached draft TS&L Report. All options are comparable in terms of safety and constructability, with the greatest variations appearing the form of aesthetics, cost and maintenance.

The alternatives identified in *Section 12: Main Span Bridge Concepts* of the attached draft TS&L Report are summarized as follows:

#### Option 1 – Combined Arch

This bridge alternative features paired major vertical arches spanning the freeway, suspending the deck with vertical hangers made of cable or steel sections. A secondary, smaller arch would cover a short span to grade on the west end.

#### Option 2 - Tied Arch

This bridge alternative features paired slanted pipe arches for the entire span, suspending the deck with diagonal cable hangers.

#### Option 3 – Truss

This bridge alternative is more traditionally type of robust structure, featuring a gently arched top chord and connecting truss members.

#### I-5 Median Center Pier Support

The design team also evaluated whether a center pier support placed in the I-5 median would present a cost saving opportunity for the project. The 2017 feasibility study recommended against the installation of a center pier in the I-5 median, and the findings in the attached draft TS&L report support that conclusion. Due to the clearance requirements of I-5 and the Sound Transit guideway, only low-profile bridge deck structures are feasible. For possible low-profile bridge structure options, the construction of a center pier will not appreciably change the structure type, therefore a center pier will not reduce project costs. Additional cost considerations associated with a pier in the median include existing stormwater infrastructure that will be impacted, likely requiring relocation; and significant traffic control/mitigation that will be necessary during construction. To avoid these cost impacts and meet the low-profile needs of the project, all proposed options are designed to be single span that can be picked up and placed quickly to minimize the impact to I-5.

#### East Bridge Landing

This is the connection from the east bridge landing point to the Trail Along the Rail and the Shoreline South/145<sup>th</sup> Station, characterized by a 16-foot wide pathway that generally ramps downgrade toward the station elevation.

The alternatives identified in *Section 13: East Side Landing Alternatives* of the attached draft TS&L Report are summarized as follows:

#### Option 1 - A-Frame Ramp

This alternative will feature a bridge landing situated equidistant between the two sets of light rail structure columns, and a direct connection to the Shoreline South/145<sup>th</sup> Station. This is the lowest cost alternative; however, it also provides the lowest amount of clearance and would require the steepest ramp grade of all east landing alternatives. The route is more circuitous than Option 3 and does not provide a direct ramp connection to the Trail Along the Rail.

#### Option 2 – Switchback Ramp

This alternative will feature a bridge landing further south with a switchback to reduce grade, and a direct connection to the Shoreline South/145<sup>th</sup> Station. This option provides the most overhead clearance, but also has the most circuitous route and is the highest cost alternative. Additionally, this option would require approval from WSDOT with part of the ramp structure constructed within the 84-foot and 94-foot Forward Compatibility Lines.

#### Option 3 – Direct Ramp

This alternative will feature a bridge landing that offers a direct connection to the Trail Along the Rail with at T-like intersection. This is the only alternative that provides a direct connection to the Trail Along the Rail and provides the shortest route to the Shoreline South/145<sup>th</sup> Station. Additionally, this option provides the gentler ramp grade, comparable to Option 2 and has more clearance than Option 1.

All options will require coordination with Sound Transit including modifications to their approved grading plans for the Trail Along the Rail and connection to the station.

#### **Project Costs**

The projected total project costs range between \$25-\$32 Million with escalation, assuming construction is completed in 2024. Detailed preliminary cost estimates are included in Appendix 4 of the TS&L Report. Escalated costs are summarized by element in Tables 1A and 1B below. Note that these costs do not include bridge options with canopies and costs for temporary staging/laydown areas during construction, which will be similar for all alternatives and are estimated at \$100,000 - \$300,000.

Table 1A – Project Element Summary

	WEST TRAIL CONNECTION	BRIDGE STRUCTURE	EAST BRIDGE LANDING
OPTION 1	Minimum Build-Out	Combination Arch	A-Frame Ramp
OPTION 2	Full Build-Out (South)	Tied Arch	Switchback Ramp
OPTION 3	Full Build-Out (North)	Truss	Direct Ramp

Table 1B – Escalated Project Element Cost Summary

	WEST TRAIL CONNECTION	BRIDGE STRUCTURE	EAST BRIDGE LANDING
OPTION 1	\$3.5 M	\$15.7 M	\$4.2 M
OPTION 2	\$6.3 M	\$14.4 M	\$5.3 M
OPTION 3	\$4.1 M	\$17.5 M	\$4.4 M

Note that there is a slight discrepancy between these costs and the costs shown in the draft TS&L Report. This is the result of a change in assumptions regarding escalation year and added cost for construction laydown.

#### Preferred Option Analysis

Staff's analysis and recommendations for each alternative are as follows:

#### West Trail Connection - Option 3: Full Build-Out (North)

Public feedback for these alternatives has been the most mixed for each of the significant elements. During the online open house for the project, only *Options 1 – Minimum Build-Out* and *Option 2 – Full Build-Out (South Alignment)* were presented for comment. Public input indicated a slight favorability for Option 2. Major concerns indicated were safety of mixing bicycles and vehicles in the shared drive lane, and potential liability concerns for the Unitarian and Philippi Churches, which are adjacent to the project area. There were also concerns expressed about impacted parking for both of the churches, and multiple comments regarding the preservation of significant trees.

To mitigate some of these concerns, *Option 3 – Full Build-Out (North Alignment)* has been presented and considered. Like Option 2, this alternative utilizes a multi-use trail, eliminating the mixing of bicycles and vehicles in the shared drive lane. However, unlike Option 2, this alternative shifts the trail alignment north to minimize impact to both the significant trees and the existing church parking. Without the need to mitigate parking, the projected cost is significantly reduced (\$6.3M to \$4.1M).

The challenges with Option 3 include an increased right-of-way requirement from the Church of Christ, who has been the least receptive to this project to this point. Additionally, due the existing utility easement associated with the cell tower on the SE corner of the Church of Christ parcel, this may require relocation of the existing utilities and/or acquiring the existing easement or risk additional costs in the future should the existing utilities need to be repaired or replaced.

Staff has determined that Option 3 presents a safe alternative at a reasonable cost and address most of the public concerns. Therefore, staff is recommending *Option 3 – Full Build-Out (North Alignment)* as the preferred option, as depicted in Figures 2 and 3 below.

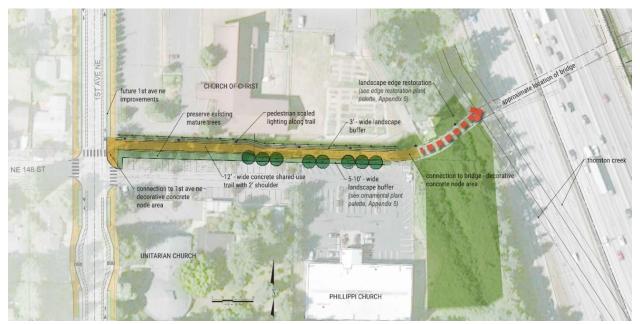


Figure 2: Option 3 – Full Build-Out (North) Plan View

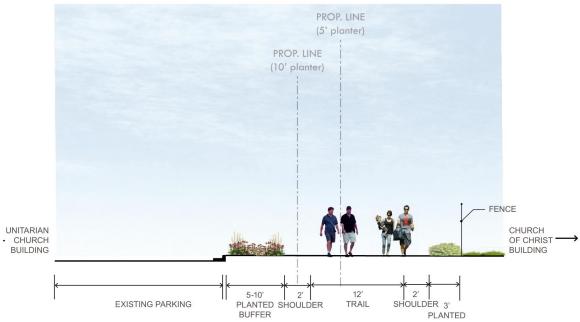


Figure 3: Option 3 – Full Build-Out (North) Typical Section

#### Bridge Structure - Option 2: Tied Arch

All bridge structure options are comparable in terms of safety and constructability, with the greatest variations appearing the form of aesthetics, cost and maintenance. All alternatives include the possibility of an overhead canopy, for an additional cost.

Public feedback indicated a clear preference for *Option 2 – Tied Arch* as the most visually attractive. Option 2 also has the lowest cost of all bridge structure alternatives, and with the fewest number of structural members thereby requiring the lowest maintenance costs.

Staff is recommending *Option 2 – Tied Arch* as the preferred option, as depicted in Figure 4 and Figure 5 below.



Figure 4: Option 2 – Tied Arch (View from I-5 Looking North)



Figure 5: Option 2 – Tied Arch (View from Bridge Looking East)

#### East Bridge Landing - Option 3: Direct Ramp

Public feedback for the east bridge landing alternatives indicated a clear preference for *Option 3 – Direct Ramp*. Major concerns include a desire for non-circuitous connections to both the Trail Along the Rail and the Shoreline South/145<sup>th</sup> Station, overhead clearance and trail safety at pedestrian and bicycle mixing zones.

9a-10 Page 10

Staff has determined that Option 3 presents a safe alternative at a reasonable cost and addresses most of the public's concerns. Therefore, staff is recommending *Option 3 – Direct Ramp* as the preferred option, as depicted in Figure 6 below.



Figure 6: Option 3 - Direct Ramp Plan View

#### **Preferred Option Summary**

The staff recommended preferred options are summarized in Table 2A & Table 2B below.

**Table 2A - Preferred Options** 

WEST TRAIL CONNECTION	ST TRAIL CONNECTION BRIDGE STRUCTURE	
Option 3	Option 2	Option 3
Full Build-Out (North)	Tied Arch	Direct Ramp

Table 2B – Preferred Option Cost Summary

	CC	WEST TRAIL CONNECTION OPTION 3		BRIDGE STRUCTURE OPTION 2		EAST BRIDGE LANDING OPTION 3		TOTAL
ENGINEERING								
DESIGN COST	\$	336,898	\$	1,800,014	\$	539,208		
SUBTOTAL W/								
ESCALATED (4% TO 2022)	\$	364,389	\$	1,946,895	\$	<i>583,207</i>	\$	2,894,491
RIGHT OF WAY								
RIGHT OF WAY COST	\$	1,140,975						
SUBTOTAL W/								
ESCALATED (6% TO 2022)	\$	1,282,000					\$	1,282,000
CONSTRUCTION								
CONSTRUCTION COST	\$	1,203,208	\$	6,428,620	\$	1,925,743		
CONTINGENCY (40%)	\$	481,283	\$	2,571,448	\$	770,297		
LAYDOWN /STAGING AREA	\$	100,000	\$	300,000	\$	100,000		
SUBTOTAL	\$	1,784,491	\$	9,300,068	\$	2,796,040		
SUBTOTAL W/								
ESCALATED (4% TO 2024)	\$	2,087,601	\$.	10,879,764	\$	3,270,971	\$ :	16,238,336
CONSTRUCTION MGMT		_				_		_
CONST MGMT COST	\$	421,123	\$	2,250,017	\$	674,010		
SUBTOTAL W/								
ESCALATION (4% TO 2024)	\$	492,654	\$	2,632,202	\$	788,496	\$	3,913,352
TOTAL	\$	4,226,644	\$.	15,458,861	\$	4,642,674	\$ 2	24,328,179

Note that there is a slight discrepancy between these costs and the costs shown in the draft TS&L Report. This is the result of a change in assumptions regarding escalation year and added cost for construction laydown.

Installation of a cover over the bridge is optional and is estimated at \$440,000. None of the options include coverings for the west or east landing areas. Staff also recommends a delay in including a canopy in the design until later in the design process.

#### **Funding Strategy and Project Delivery Options**

As noted previously, the design and right-of-way phases of the project are fully funded, and the construction phase is partially funded. The funding gap based on the recommendation is approximately \$16 million. While staff will continue to seek grant funding, there is a high probability that full funding will not be available in time to fully construct the bridge prior to light rail going into service in 2024. Staff has identified alternatives to proceed with the project while continuing to navigate funding challenges:

<u>Alternative 1 – Proceed with Full Design with the Goal of Fully Funding by 2022</u>
As mentioned above, securing full funding by 2022 is unlikely at this point based on the traditional grant cycles. Additionally, with the financial impacts from COVID-19, it seems unlikely that the State will reach agreement on a Transportation Package that

could provide the funding for this project. This alternative is considered High Risk as the probability of success is low. Should the City proceed to full design and right-of-way and then be unable to secure funding for construction, within the required timelines of 10-years for each phase, the City would need to return \$2,055,000 of federal funds. While there is less definitive guidance, it could be anticipated that other funding partners would want grant funds to be returned if the project is not built.

#### <u>Alternative 2 – Progress the Design to 30% Design and Then Re-assess the Options for</u> Proceeding

This alternative would include the following sub-options:

- 1. If full funding is secured, the project would continue to pursue full design, property acquisition and construction.
- 2. If full funding is not secured, one of the following would occur:
  - A. Pause the project at 30% design and continue to seek full funding. Anticipate property acquisition and construction to occur after light rail opens in 2025. Costs for right-of-way and construction are likely to increase.
  - B. Proceed to full design including property acquisition, then pause to seek full funding for construction. Anticipate that construction would occur after light rail opens in 2025. Costs for construction are likely to increase.
  - C. Proceed to full design including property acquisition and construct the east bridge landing. This landing is the most critical element to complete prior to light rail going into operation. Based on these estimates, current funding would cover this construction. Construction of the remaining project elements would occur after light rail opens in 2025. Costs for construction of the delayed elements are likely to increase the current estimates.
  - D. If full funding is not secured, stop the project at 30% design and return the required grant funds which would be approximately \$900,000.

With options 2A, 2B and 2C, during which time the project is delayed, costs for right-of-way and/or construction are likely to increase. A delay of four years is currently estimated to add between \$1 million to \$3 million to the total project cost.

#### <u>Alternative 3 – Stop the Design Now at 10% and Return the Approximately \$300,000</u> Currently Expended from the Current Grant Funds

In this scenario, the bridge would not be built. This results in the lowest exposure to needing to return grant funds but also results in the bridge not being constructed.

#### **Funding and Project Delivery Summary**

Staff are recommending *Alternative 2.2C* – full design with property acquisition and construction of the east bridge landing. Provided the uncertainty of future funding, this alternative allows for partial construction with available sources, while allowing time for future funding pursuits. This alternative also removes some of the safety and financial risk of construction adjacent to active light rail by constructing critical bridge components in the immediate vicinity prior to it becoming active. Finally, this alternative

is also likely to have the smallest increase in cost of the first three sub-alternatives under Alternative 2.

#### STAKEHOLDER OUTREACH

Early in design development, the design team conducted several meetings with the adjacent churches and community groups to collect preliminary feedback and identify community concerns. Feedback from those meetings has been used to inform the design development for the options detailed in the TS&L Report. Common feedback included concerns with safety and impacted parking.

A virtual project online open house was held between April 10 through May 1, 2020 to present the significant project elements and collect feedback from the broader public. Translated materials were available in Spanish and Korean, with other languages available upon request. No additional requests were made.

To accompany the online open house, a webinar was conducted on April 23, 2020. The webinar included a live presentation with a real-time question and answer session immediately following. Collected feedback is summarized in Attachment B to this staff report. Data collected from this public outreach effort generally supports the staff recommendations for all three project elements.

Staff has held several meetings with all three churches to discuss the project and their issues or concerns with the project. Staff has also solicited input from Sound Transit to identify issues or concerns regarding the east side landing.

#### COUNCIL GOAL(S) ADDRESSED

This project supports 2018-2020 City Council Goal 3: "Continue preparation for regional mass transit in Shoreline."

#### RESOURCE/FINANCIAL IMPACT

This project is currently funded in the 2019-2024 CIP for schematic design. Since the time of CIP adoption, the City has secured additional grants that will fully fund design, Right of Way Acquisition, and have partial funding for construction. A summary of current funding is shown below:

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TOTAL \$25,808,179

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	SUBTOTAL			\$	1,412,000
CONSTRUC	TION				
	COUNTY LEVY	\$	2,388,000		
	ST SYSTEM ACCESS	\$	2,594,729		
	SUBTOTAL			\$	4,982,729
TOTAL					
REVENUE				\$ :	10,055,000
FUNDING GAP (EXPENDITURE- REVENUE)					15,753,179

To date, the City has not secured funds required to fully fund the construction phase of the Project and may not be able to secure all construction funds prior to the opening of the Lynnwood Link project in 2024. Options and risks associated with the funding gap are discussed above in under Funding Strategy and Project Delivery Options on page 12.

#### **RECOMMENDATION**

Staff is seeking Council direction or confirmation on the recommended design elements and approach for project funding and delivery. Specifically, staff is looking for confirmation on the following staff recommendations:

- Preferred Design Recommendations:
  - West Trail Connection Option 3: Full Build-Out (North)
  - o Bridge Structure Option 2: Tied Arch
  - East Bridge Landing Option 3: Direct Ramp
- Bridge Cover (Canopy) Recommendation:
  - Delay including a canopy in the design until later in the design process.
- Project Funding and Delivery Strategy Recommendation:
  - Continue with Alternative 2.2C proceed with design to 30% with the intent of progressing to full design, property acquisition and construction of the east bridge landing.

#### **ATTACHMENTS**

Attachment A: Draft N 148<sup>th</sup> Non-Motorized Bridge Type, Size and Location Report

Attachment B: Online Open House Topline Summary



# N 148th Non-Motorized Bridge

Bridge/Trail Type, Size, and Location Report

May 21, 2020 | Draft Report



## Bridge/Trail Type, Size, and Location Report

May 21, 2020

#### Prepared for:

City of Shoreline 17500 Midvale Avenue North Shoreline, WA 98133

#### Prepared by:

KPFF Consulting Engineers 1601 Fifth Avenue, Suite 1600 Seattle, WA 98101

#### Subconsultants:

KPG Interdisciplinary Design
Landau Associates
Lin & Associates, Inc.
LMN Architects
Ott-Sakai & Associates, LLC
RES Group NW, LLC
Stepherson & Associates Communications

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## **Table of Contents**

1.	Executive Summary	1
	Background	1
	Study Objective	1
	West Side Trail Alignment Recommendations	2
	Bridge Main Span REcommendations	2
	East Side Landing Recommendations	2
2.	Introduction and Background	3
	Introduction	3
	Project Scope of Work	5
	Project Location and Existing Conditions	6
	Project Boundaries	6
	City Street Connections	8
	Private Property	10
	Utilities	12
	Thornton Creek	14
3.	Design Criteria	15
	Design Codes and References	15
	Horizontal Clearance Requirements	18
	Interstate 5 – WSDOT	18
	Aerial Guideway and Shoreline South / 145th Station – Sound Transit	19
	Trail – City of Shoreline	19
	Vertical Clearance Requirements	19
	Interstate 5 – WSDOT	19
	Aerial Guideway and Shoreline South / 145th Station – Sound Transit	19
	Trail – City of Shoreline	19
	Trail and Bridge Geometry	19
	Trail/Bridge/Shoulder Widths	19
	Horizontal Trail Alignment	20
	Vertical Trail Alignment	20
	Trail and Bridge Features	20
	Bridge Structural Design Criteria	20
	Loads	20
	Allowable Deflections and Vibrations	21
	Access Criteria	21
	Americans with Disabilities Act (ADA) Requirements	21
	Maintenance and Inspection Access	22
	Emergency Access	22
	Stormwater Detention and Water Quality	22
	Utility Design Criteria	23

	Lighting Design Criteria	23
	Landscape Design Criteria	23
	Sound Transit Right-of-Way	24
	WSDOT Right-of-Way	24
	Private Property	24
4.	Design Constraints	24
	Vertical Clearances	24
	Horizontal Clearances	25
	East Side of I-5	25
	Bridge Pier in I-5 Median	25
	West Side of I-5	26
	Sound Transit Park and Ride	27
	Cell Phone Tower	27
5.	Geotechnical Analysis and Recommendations	27
	Geologic Hazards	27
	Bridge Foundation Recommendations	28
6.	Public Outreach	28
	Project Briefings	30
	Church of Christ	30
	Unitarian Universalist Church	30
	Philippi Presbyterian Church	30
	Ridgecrest Neighborhood Association	31
	Parkwood Neighborhood Association	31
	WSDOT	31
	Sound Transit	32
7,	Environmental Documentation and Permitting	32
	Wetlands, Waterways, Wildlife Habitats, and Plants	32
	Cultural Resources	33
	Environmental Permits and Documentation	33
8.	Project Aesthetics	34
	Bridge Architecture	34
	Urban Design	35
	Wayfinding	35
9.	Evaluation Criteria	35
	User Safety and Security	36
	Connectivity and Travel Times	36
	Ease of Stakeholder Approval	36
	Right-of-Way	36
	Operations and Maintenance	36
	Aesthetics	36
	Project Costs	36
10	Bridge and Trail Alternatives Overview	37

11.	. West Side Trail Alignments	38
	Initial Alignment Alternatives Screening	38
	Northern Alignment	39
	Southern Alignment	40
	Central Alignment	40
	West Side Trail Alignment Options	40
	Option 1 – Minimal Build-Out	41
	Option 1 – Minimal Build-Out Evaluation	42
	Option 2 – Full Build-Out South	43
	Option 2 – Full Build-Out South Evaluation	45
	Option 3 – Full Build-Out North	46
	Option 3 – Full Build-Out North Evaluation	47
12.	Main Span Bridge Concepts	49
	Structure Dimensions	49
	Tied Arch	50
	Tied Arch Evaluation	52
	Combined Arch	52
	Combined Arch Evaluation	55
	Truss	55
	Truss Evaluation	58
	Construction Considerations	58
	West Side Construction Staging Areas	
	East Side Staging Areas	61
	Working Over I-5	62
13.	East Side Landing Alternatives	64
	Option A: A-FRAME RAMP	
	Option A – East Landing Evaluation:	
	Option B: SWITCHBACK RAMP	
	Option B – East Landing Evaluation:	
	Option C: DIRECT RAMP	
	Option C – East Landing Evaluation:	70
	East Landing Future Visions	71
14.	Cost Summary	73
	West Side Trail Alignments Estimated Costs	74
	Bridge Main Span Estimated Costs	74
	East Side Landings Estimated Costs	75
	Summary of Estimated Costs	75
15.	Project Open House	76
16.	Alternatives Evaluation and Recommendations	78
	West Side Trail Alignment Evaluation Criteria Matrix	78
	Bridge Main Span Evaluation Criteria Matrix	79

East Side Landings Evaluation Criteria Matrix	79
West Side Trail Alignment Recommendations	80
Bridge Main Span Recommendations	80
East Side Landing Recommendations	80
17. References	81
List of Figures	
Figure 2-1: Project Vicinity Map	
Figure 2-2: 2017 Feasibility Study Alignment Options	
Figure 2-3: Project Boundaries	
Figure 2-4: Existing Condition of 1st Avenue NE, Looking North	
Figure 2-5: Existing Condition of N 148th Street, Looking West	
Figure 2-6: Existing Condition of N 149th Street, Looking West	
Figure 2-7: Existing Condition of N 147th Street, Looking West	9
Figure 2-8: Existing Condition of Northeast 149th Street Looking West	
Figure 2-9: Church of Christ	
Figure 2-10: Unitarian Universalist Church	
Figure 2-11: Philippi Presbyterian Church	11
Figure 2-12: Existing Utility Pole near Northwest Corner of Unitarian Parcel	12
Figure 2-13: Utility Easements on Church of Christ Parcel	13
Figure 2-14: Cell Phone Tower at Southeast Corner of the Church of Christ Parcel	14
Figure 2-15: Location of Thornton Creek within Project Area	15
Figure 4-1: Main Span Bridge Vertical Clearance Window	25
Figure 4-2: WSDOT Forward Compatibility Lines	26
Figure 10-1: Trail and Bridge Segment Overview	37
Figure 11-1: Initial Alignment Screening Options	39
Figure 11-2: Option 1 – Minimal Build-Out Plan View	41
Figure 11-3: Option 1 – Minimal Build-Out Typical Section	41
Figure 11-4: Option 2 – Full Build-Out South Plan View	44
Figure 11-5: Option 2 – Full Build-Out South Typical Section	44
Figure 11-6: Option 3 – Full Build-Out North Plan View	46
Figure 11-7: Option 3 – Full Build-Out North Typical Section	47
Figure 12-1: Typical Bridge Span Layout	49
Figure 12-2: Bridge Typical Section	49
Figure 12-3: Tied Arch with Canopy – View from Bridge Looking East	50
Figure 12-4: Tied Arch with Canopy – View from I-5 Looking North	50
Figure 12-5: Tied Arch without Canopy – View from Bridge Looking East	
Figure 12-6: Tied Arch without Canopy – View from I-5 Looking North	
Figure 12-7: Combined Arch with Canopy – View from Bridge Looking East	
Figure 12-8: Combined Arch with Canopy – View from I-5 Looking North	
- Complete Control Con	

Figure 12-9: Combined Arch without Canopy – View from Bridge Looking East	54
Figure 12-10: Combined Arch without Canopy – View from I-5 Looking North	54
Figure 12-11: Truss with Canopy – View from Bridge Looking East	56
Figure 12-12: Truss with Canopy – View from I-5 Looking North	56
Figure 12-13: Truss without Canopy – View from Bridge Looking East	57
Figure 12-14: Truss without Canopy – View from I-5 Looking North	57
Figure 12-15: Potential Bridge Construction Staging Area on Church of Christ Parcel	59
Figure 12-16: Potential Bridge Construction Staging Area Adjacent to the Philippi Church Parcel	60
Figure 12-17: Potential Bridge East Side Construction Staging Area	62
Figure 12-18: Potential I-5 Detour Routes During Full Closure	63
Figure 13-1: Typical Trail Section for East Side Landing	64
Figure 13-2: Option A – East Side Landing Plan View	65
Figure 13-3: Option A – East Side Landing Profile	65
Figure 13-4: Option B – East Side Landing Plan View	67
Figure 13-5: Option B – East Side Landing Profile	68
Figure 13-6: Option C – East Side Landing Plan View	69
Figure 13-7: Option C – East Side Landing Profile	70
Figure 13-8: 3 <sup>rd</sup> Avenue Woonerf Concept Plan View	71
Figure 13-9: Option A – Future Vision with 3 <sup>rd</sup> Avenue NE Woonerf	72
Figure 13-10: Option B – Future Vision with 3 <sup>rd</sup> Avenue NE Woonerf	72
Figure 13-11: Option C – Future Vision with 3rd Ave NE Woonerf	73
Figure 16-1: ECM for the West Side Trail Alignment Alternatives	79
Figure 16-2: ECM for the Bridge Main Span Options	79
Figure 16-3: ECM for the East Side Landings Alternatives	80
List of Tables	
Table 3-1: Pedestrian and Bicycle Facilities Codes and References	16
Table 3-2: Bridge and Structures Codes and References	16
Table 3-3: Stormwater Codes and References	17
Table 3-4: Roadway Codes and References	17
Table 3-5: Lighting Codes and References	17
Table 3-6: Landscape Codes and References	18
Table 6-1: List of Project Stakeholders	29
Table 14-1: West Side Trail Alignment Alternatives Estimated Costs	74
Table 14-2: Bridge Main Span Alternatives Estimated Costs	74
Table 14-3: East Side Landing Alternatives Estimated Costs	75
Table 14-4: Summary of Estimated Costs	76
Table 15-1: Responses to West Trail Connection Preference	77
Table 15-2: Responses to Bridge Option Preference	78
Table 15-3: Responses to East Bridge Landing Option Preference	78

## **Appendices**

Appendix 1: West Side Trail Connection

Appendix 2: Main Span Bridge

Appendix 3: East Side Bridge Landing

Appendix 4: Project Cost

Appendix 5: Project Background Information and Meeting Notes

Appendix 6: Online Open House Report and Content

## 1. Executive Summary

#### BACKGROUND

In anticipation of the planned Sound Transit (ST) Lynnwood Link Light Rail Extension Project (LLE), the City of Shoreline (City) adopted a subarea plan in 2016 around the Shoreline South/145th Street Station. This plan encourages growth in the area surrounding the station by allowing denser development than what was previously permitted. With this increase in density comes a commensurate increase in both motorized and non-motorized traffic along with the potential for conflict between the two groups. As a means of mitigating these conflicts, the need for a separate, pedestrian/bicycle bridge and trail facility was identified in order to improve safety. This facility will provide an east-west connection across Interstate 5 (I-5) in order to better link the overall subarea as well as provide a direction connection for the neighborhoods west of I-5 to the light rail station.

In 2017, the City completed a feasibility study which examined multiple bridge and trail alignment alternatives with the goal of identifying a preferred alignment. These alternatives were all centered around the Shoreline South/145th Street station and were located as far south as NE 145th Street and as far north as NE 149th Street. The preferred alternative selected during this study was a bridge and trail alignment that aligned approximately with NE 148th Street. This alignment alternative was chosen to be carried forward into preliminary design. The first step in the preliminary design process was to develop this bridge and trail Type, Size and Location (TS&L) study.

#### STUDY OBJECTIVE

The purpose of this TS&L study is to identify design alternatives for the bridge and trail connections for the preferred alignment alternative established in the 2017 feasibility study. The TS&L analysis included tasks like civil and structural engineering, surveying, geotechnical explorations, urban design, landscaping, definition of permitting requirements, public involvement and establishment of project aesthetics.

The TS&L process developed multiple trail alignments, bridge types and landing alternatives. The development of these alternatives was largely driven by site constraints including vertical clearances to I-5 and to the light rail station structure, horizontal clearances for bridge foundation locations, existing utility locations, ROW requirements and other site features.

These alternatives were evaluated and compared with one another based on criteria established by the City and the design team which include: user safety and security, connectivity and travel times, ease of stakeholder approval, right-of-way (ROW), operations and maintenance, aesthetics and project costs. Input from key stakeholders received during project briefings also helped inform the selection of these criteria.

Broader public outreach activities that have been completed include project website updates, and the development of outreach materials (e.g. FAQs, fact sheets, folios). A public open house is planned and input received from the public will be incorporated into the final version of this report.

The bridge and trail alternatives are divided into three, distinct sections: West Side Trail Alignments, Bridge Main Span, and the East Side Landings. Multiple options were developed and evaluated for each of these sections. These options can be combined interchangeably to form a complete project.

#### WEST SIDE TRAIL ALIGNMENT RECOMMENDATIONS

Three west side trail alignment alternatives are presented in this report. Each alternative provides the necessary connection from 1<sup>st</sup> Avenue NE to the main bridge span. Each of these alternatives have benefits and trade-offs especially with regard to ease of stakeholder approval, right-of-way, user safety and security and project costs.

Based on the results of this TS&L evaluation and input from the general public through the online open house, Option 3 – Full Build-out North is the recommended preferred alternative for the west side trail alignment. This option best meets the established project criteria and received the most favorable feedback from the public.

#### **BRIDGE MAIN SPAN RECOMMENDATIONS**

Three main span bridge alternatives are presented in this report. These bridges meet the project design requirements, but differ primarily in their costs, aesthetic value and maintenance requirements.

Based on the results of this TS&L evaluation and input from the general public through the online open house, the tied-arch bridge is the recommended preferred alternative for the main span structure. While all bridges met the design criteria and were comparable in their cost, the tied-arch span received the most favorable feedback from the public.

#### EAST SIDE LANDING RECOMMENDATIONS

Three east side landing alternatives are presented in this report. These landings provide a connection from the bridge to the Shoreline South/145<sup>th</sup> Street Station, the trail-along-the-rail and the surrounding neighborhood. These alternatives vary primarily in their connectivity, vertical clearance to the overhead light rail structure and costs.

Based on the results of this TS&L evaluation and input from the general public through the online open house, Option 3 – Direct Ramp is the recommended preferred alternative for the east side landing. This option best meets the established project criteria and received the most favorable feedback from the public.

## 2. Introduction and Background

#### INTRODUCTION

In anticipation of the planned Sound Transit (ST) Lynnwood Link Light Rail Extension Project (LLE), the City of Shoreline (City) adopted a subarea plan in 2016 around the Shoreline South/145th Street light rail station. This plan encourages growth in the area surrounding the station by allowing denser development than what was previously permitted. With this increase in density comes a commensurate increase in both motorized and non-motorized traffic along with the potential for conflict between the two groups. As a means of mitigating these conflicts, the need for a separate, pedestrian and bicycle only facility was identified in order to improve safety. This facility will provide an east-west connection across Interstate 5 (I-5) in order to better link the overall subarea as well as provide a direction connection for the neighborhoods west of I-5 to the light rail station. In addition, this facility is intended to become an integral piece of the larger regional trail network which includes the Interurban and Burke Gilman Trails. Figure 2-1 shows project location in the context of the broader area.

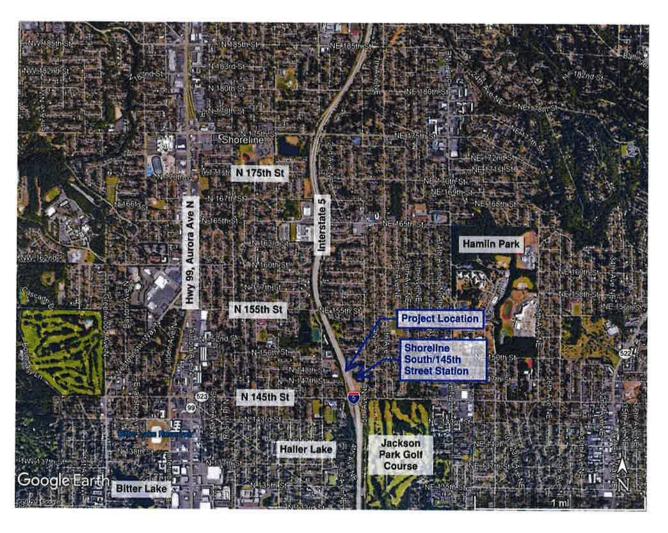


Figure 2-1: Project Vicinity Map

In support of this facility, the City completed a feasibility study in 2017 which examined multiple bridge and trail alignment alternatives with the goal of identifying a preferred alignment. As shown in Figure 2-2, these alternatives were all centered around the Shoreline South/145th Street Station and were located as far south as NE 145th Street and as far north as NE 149th Street. The preferred alternative selected during this study was a bridge and trail alignment that approximately aligned with NE 148th Street. This alignment alternative was chosen to be carried forward into preliminary design. The first step in the preliminary design process was to develop this bridge and trail Type, Size and Location (TS&L) study.

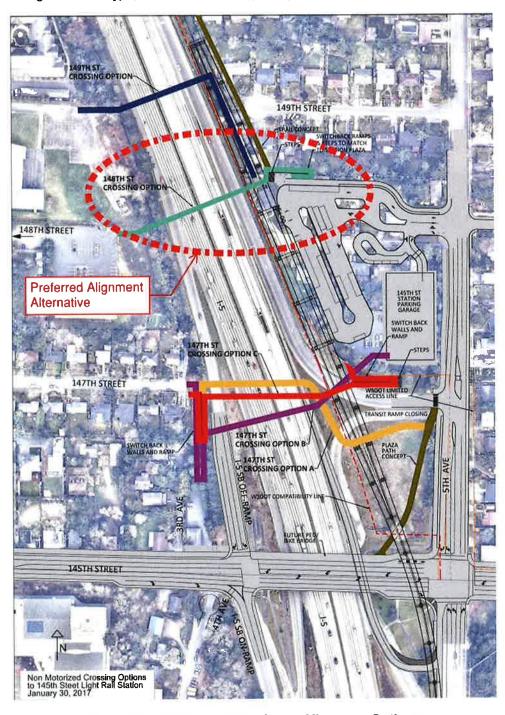


Figure 2-2: 2017 Feasibility Study Alignment Options

#### PROJECT SCOPE OF WORK

This report provides the results of the TS&L study for the trail/bridge alignment beginning at 1st Avenue NE in the vicinity of N 148th Street, crossing over I-5 and terminating near the north end of the Shoreline South/145th Street station. The TS&L phase includes the study of trail locations and alignments, bridge types and sizes, project aesthetics, and defines permitting requirements related to the project.

The following tasks were accomplished for the TS&L study:

#### General tasks

- Obtain and review existing project related information and historic documents
- o Perform site visits to evaluate existing site conditions

#### Environmental permitting tasks:

- Estimate locations of wetlands, wildlife habitat and cultural/historic resources in the project area
- Identify the permits and environmental documentation that is anticipated for the project
- o Create a schedule for obtaining the identified permits and completing environmental documents

#### Geotechnical tasks:

- o Identify and evaluate the general geologic conditions in the project area
- o Provide preliminary recommendations regarding potential bridge foundations and embankment construction
- Provide geotechnical design criteria for the bridge, including seismic design requirements and liquefaction hazard analysis (if applicable)

#### Urban design tasks:

- Develop urban design alternatives for the bridge trail approaches and landings
- Develop landscaping alternatives
- o Evaluate pedestrian safety for bridge trail approaches and landings
- Civil engineering and survey design tasks:
  - Prepare project basemap incorporating field topographical survey data, boundary survey including easements and underground utility locations.
  - Develop trail alignment plan and profiles alternatives including street connections
  - o Develop concept utility relocation plans, as necessary
  - Determine drainage design concepts
  - o Identify clearances to I-5, ST's aerial guideway structures, property lines and other site features
- Bridge engineering and architectural tasks:
  - Determine bridge span and foundation locations

- Perform concept level structural analysis
- Determine bridge component types and sizes
- Public outreach tasks:
  - Perform initial outreach to stakeholders
  - o Gather input from stakeholders and incorporate into alternatives evaluation, as necessary

#### PROJECT LOCATION AND EXISTING CONDITIONS

The project was divided into two distinct segments which are divided by I-5. These segments are referred to as the western trail connection and the eastern landing. The main span bridge crossing provides a connection over I-5 which joins these two segments.

#### **Project Boundaries**

For the western trail connection, the project boundaries are as follows:

- Northern Boundary N 149th Street
- Southern Boundary N 147th Street
- Eastern Boundary Interstate 5
- Western Boundary 1st Avenue NE

For the eastern bridge landing, the project boundaries are as follows:

- Northern Boundary NE 149th Street
- Southern Boundary Shoreline South/145th Street Station Plaza
- Eastern Boundary Private Residences north of Shoreline South/145th Street Station Plaza
- Western Boundary Interstate 5

These boundaries are shown in red in Figure 2-3.



Figure 2-3: Project Boundaries

#### **City Street Connections**

Key access points to the western trail connection are 1st Ave NE, N 148th Street, N 149th Street and N 147th Street. Figure 2-4 through Figure 2-7 show the existing conditions of these street connections at the time of this report.

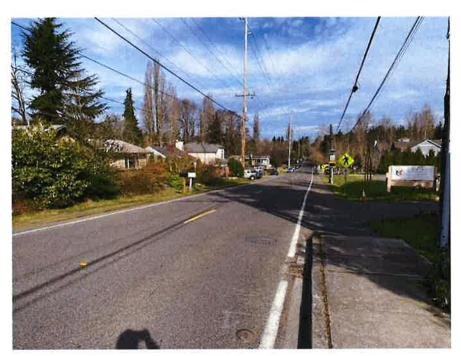


Figure 2-4: Existing Condition of 1st Avenue NE, Looking North



Figure 2-5: Existing Condition of N 148th Street, Looking West



Figure 2-6: Existing Condition of N 149th Street, Looking West

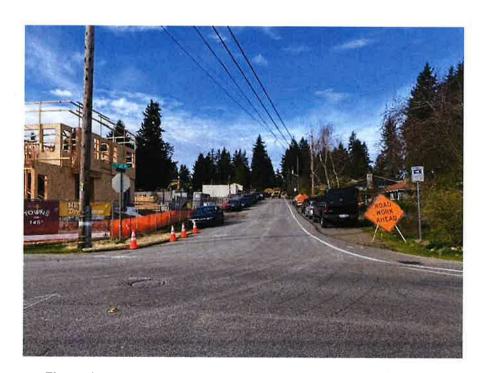


Figure 2-7: Existing Condition of N 147th Street, Looking West

Key access points to the eastern bridge landing to be considered are NE 149th Street, the Shoreline South/145th Street Station and the Trail Along the Rail (TAR). Both the station and TAR were under construction during the time of the report and are not shown. Figure 2-8 shows the existing condition of NE 149th Street.



Figure 2-8: Existing Condition of Northeast 149th Street Looking West

#### **Private Property**

Private properties to be considered throughout the TS&L process include:

• Parcel 288170-0340: Church of Christ – Local Congregation of Shoreline, 14800 1st Ave NE



Figure 2-9: Church of Christ

This parcel currently houses the Church of Christ – Local Congregation of Shoreline which consists of a single building and surface parking lots. There is a privately owned cell phone tower at the southeast corner of the parcel (see utilities section for further discussion). There are existing underground utility and access easements that allow for the operation and maintenance of this facility.

Parcel 288170-0342: Shoreline Unitarian Church, 14724 1st Ave NE



Figure 2-10: Unitarian Universalist Church

This parcel currently houses the Shoreline Unitarian Universalist Church which consists of the main church building and several outbuildings. There are several easements on this property including an access and utility easement to the Philippi Presbyterian Church immediately to the east.

Parcel 288170-0343: Philippi Presbyterian Church, 14734 1st Ave NE

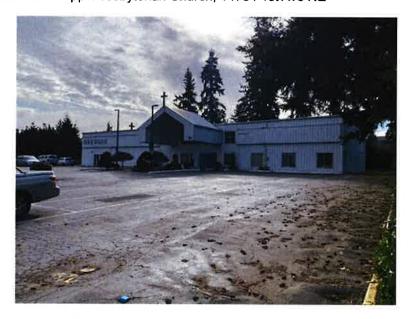


Figure 2-11: Philippi Presbyterian Church

This parcel currently houses the Philippi Presbyterian Church of Seattle which consists of a single building and surface parking lots. As mentioned previously, the parcel has an access and utility easement on Parcel 288170-0342 immediately to the west.

At the eastern landing, many of the private parcels that might have been impacted by this project have been acquired by Sound Transit for the construction of the Shoreline South/145th Street station. These properties will be turned over to the City upon completion of construction.

#### **Utilities**

There are numerous, known utilities in the project area that could be impacted by this project. Below is a description of only the major utilities which represent a significant challenge and/or cost should they be impacted or need to be relocated.

## Western Trail Connection Utilities:

As shown in Figure 2-4, there are high voltage transmission lines along the western edge of 1st Ave which are owned by Seattle City Light. As shown in Figure 2-12, there is a utility pole located near the northwest corner of the Unitarian parcel, but within City ROW, that carries multiple fiber optic lines and power. It appears that this pole serves to feed the cell phone tower located in the southeast corner of the Church of Christ parcel.

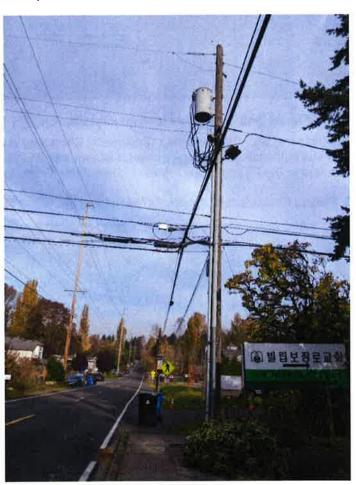


Figure 2-12: Existing Utility Pole near Northwest Corner of Unitarian Parcel

As shown in Figure 2-14, there is a cell phone tower located in the southeast corner of the Church of Christ parcel. This cell phone tower is owned and operated by SBA Communications which leases their facilities to T-

Mobile and Sprint. At the time of this report, right-of-entry had not been granted by the Church of Christ property owners to gather survey on this parcel. However, based on information contained within the title report for this property, there is a utility easement that runs along the southern boundary of the parcel which connects to the tower location. It is assumed that the power and fiber optic lines that are visible on the aforementioned utility pole are buried within this easement. Figure 2-13 shows the location of the utility easement based on legal description contained within the title report.



Figure 2-13: Utility Easements on Church of Christ Parcel



Figure 2-14: Cell Phone Tower at Southeast Corner of the Church of Christ Parcel

The only significant drainage facility is a 36-inch diameter corrugated metal pipe located at northern edge of the Unitarian parcel that acts as detention and/or flow control for both the Unitarian parcel.

#### **WSDOT ROW:**

WSDOT has multiple utilities located within their ROW. These include:

- Intelligent Transportation Systems (ITS): There are several buried ITS conduits located within shoulder of southbound I-5.
- Storm Drainage: There is a storm drain located within the median of I-5. A similar facility is also located in the shoulder of northbound I-5.
- Electrical: There is buried power located within the shoulder of both northbound and southbound I-5.

#### Eastern Bridge Landing:

The only significant utilities located within the eastern bridge landing are storm drainage facilities associated with the Shoreline South/145th Street Station. At the time of this report, these facilities have yet to be constructed. All other existing utilities have already been relocated in anticipation of station construction.

#### **Thornton Creek**

Within the project area, there is a section of Thornton Creek within WSDOT ROW that runs in a north-south direction and essentially parallels southbound I-5. As shown in Figure 2-15, the creek enters two, 6-foot diameter pipe culverts before it passes below the freeway. The culvert locations are based on as-built plans which were also confirmed during the field survey. This section of Thornton Creek has been identified on WSDOT's Fish Passage Uncorrected Barriers Injunction list. At the time of this report, WSDOT had no work

planned or budgeted for fish passage improvements to this section of Thornton Creek in the 2019-2021 state biennium. Design and construction of the pedestrian bridge will need to consider and not preclude future fish passage improvements to this section of Thornton Creek.

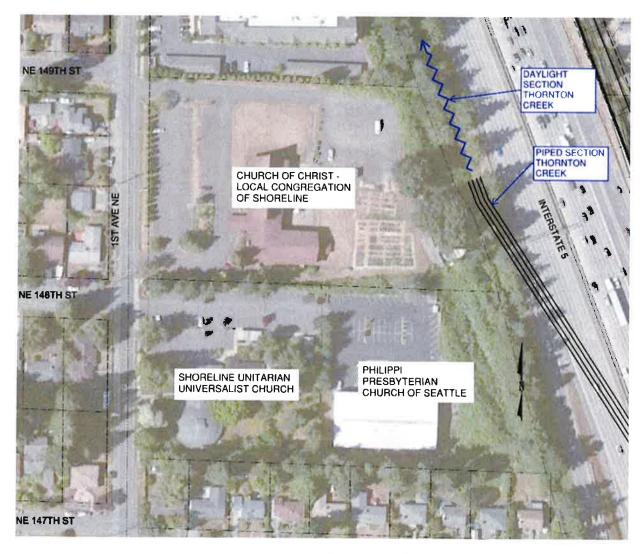


Figure 2-15: Location of Thornton Creek within Project Area

# 3. Design Criteria

## **DESIGN CODES AND REFERENCES**

Table 3-1 through Table 3-6 provide lists of design codes and references to be used for all design and construction. The list is not comprehensive; other applicable codes and references may be required as the design develops.

When conflicts are identified between the City of Shoreline Engineering Development Manual and other references, they will be addressed on a case-by-case basis.

#### Table 3-1: Pedestrian and Bicycle Facilities Codes and References

#### Pedestrian and Bicycle Facilities Codes and References

- Governing Codes
  - o City of Shoreline 2020 Engineering Development Manual
- Referenced Codes
  - o AASHTO A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018
- AASHTO Guide for the Development of Bicycle Facilities, 4th Edition, 2012
- NACTO Urban Bikeway Design Guide
- 2010 American with Disabilities Act Standards for Accessible Design
- Public Rights of Way Accessibility Guidelines (PROWAG)
- WSDOT Design Manual M22-01, September 2019
- WSDOT Local Agency Guidelines Manual M36-63, June 2018

### Table 3-2: Bridge and Structures Codes and References

#### Bridge and Structures Codes and References

- Governing Codes
  - AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges, 2nd Edition, December 2009, with Interim Revisions. (AASHTO Pedestrian).
  - o AASHTO Guide Specifications for LRFD Seismic Bridge Design, 2nd Edition, 2011, with Interim Revisions
  - AASHTO LRFD Bridge Design Specifications, Eighth Edition, 2017, with Interim Revisions
- Referenced Codes
  - AASHTO LRFD Bridge Construction Specifications, 3rd Edition, 2010, with Interim Revisions
  - AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition, 2015. (AASHTO Signs)
  - o WSDOT Bridge Design Manual (LRFD) M23-50.18, June 2018. (WSDOT BDM)
  - o Bridge Welding Code: AASHTO/ AWS D1.5M/D1.5: 2016 An American National Standard, 7th Edition with Interims through 2019.
  - o IBC International Building Code, International Code Council, 2018.
  - ASCE/SEI 7 Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7 Standards Committee, 2016.
  - o ACI 318 Building Code Requirements for Structural Concrete, ACI Committee 318, 2014
  - AISC 360 Specification for Structural Steel Buildings, American Institute of Steel Construction, 15th Edition, 2016.
  - Structural Welding Code Steel: AASHTO/AWS D.1M/D1.1M, 2015.

## Table 3-3: Stormwater Codes and References

#### Stormwater Codes and References

- Governing Codes
  - City of Shoreline 2020 Engineering Development Manual
  - 2014 Department of Ecology Stormwater Management Manual for Western Washington
- Referenced Codes
  - o 2012 Stormwater Manual for Western Washington, as Amended in December 2014
  - 2012 Low Impact Technical Guidance Manual for Puget Sound
  - o King County Surface Water Design Manual

#### Table 3-4: Roadway Codes and References

## Roadway Codes and References

- Governing Codes
  - o City of Shoreline 2020 Engineering Development Manual
  - o City of Shoreline Municipal Code (SMC)
  - o City of Shoreline Transportation Master Plan (TMP)
  - o City of Shoreline Comprehensive Plan
- Referenced Codes
  - o AASHTO A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018
  - o NACTO Urban Street Design Guide
  - o WSDOT Design Manual M22-01, September 2019
  - o WSDOT Local Agency Guidelines Manual M36-63, June 2018
  - o Institute of Transportation Engineers, Urban Street Geometric Design Handbook
  - o FHWA Small Town and Rural Multimodal Networks (STAR) Guide
  - o Manual on Uniform Traffic Control Devices (MUTCD)

#### Table 3-5: Lighting Codes and References

#### Lighting Codes and References

- Governing Codes
  - o City of Shoreline 2020 Engineering Development Manual
- Referenced Codes
  - Sound Transit Design Criteria Manual:
    - Chapter 21, Lighting
  - IES RP-8-18 Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting
  - WSDOT Design Manual, Chapter 1040 Illumination
  - o CPTED Guidelines

Table 3-6: Landscape Codes and References

## Landscape Codes and References

- Governing Codes
  - Landscaping within City of Shoreline right-of-way:
    - City of Shoreline 2019 Engineering Development Manual: Chapter 15.2, Landscaping
  - o Landscaping on private property:
    - Shoreline Municipal Code, 20.50:
      - General standards: SMC 20.50.520
      - Mature tree retention and replacement: SMC 20.50.350-20.50.370
      - Landscaping along interior lot lines: SMC 20.50.490
      - Internal landscaping for parking area (if required due to reconfiguring existing
  - Landscaping within WSDOT right-of-way:
    - 2017 Roadside Manual: Chapter 800, Vegetation and Chapter 820, Irrigation
  - o Landscaping within Sound Transit right-of-way:
    - Sound Transit Design Criteria Manual: Chapter 9.4, Station and Facility Requirements and Chapter 10.4, Landscaping Requirements

#### HORIZONTAL CLEARANCE REQUIREMENTS

#### Interstate 5 - WSDOT

The minimum horizontal clearances described below are shown graphically in Appendix 5, Design Criteria and Constraints.

- During construction:
  - Without barrier protection, the minimum work zone clear zone distance is 30 feet from the traveled way per WSDOT Design Manual Exhibit 1010-2.
  - The construction opening with protection shall be the sum of the traffic lane widths and shoulders plus two 2-foot widths for temporary traffic barriers and two 2-foot shy distances per WSDOT BDM 2.3.9.
- For the final, constructed condition:
  - o The horizontal clearance between the edge of the traveled way and unprotected components of the permanent structure shall be a minimum of 29 feet per WSDOT Design Manual Exhibit 1600-2.
  - When protected by a minimum 42-inch high, crash tested, rigid TL-5 barrier, the face of the bridge pier can be a minimum of 3.25 feet from the top edge of the traffic face of the barrier per WSDOT BDM 3.16.7.
  - The horizontal clearance between the permanent structure and adjacent sign bridge structures shall be a minimum of 15 feet.

## Aerial Guideway and Shoreline South / 145th Station - Sound Transit

Similar to the Sound Transit Design Criteria Manual's (DCM) approach to Landscaping (DCM 10.3), the intent of the clearance to aerial guideway structures is to not adversely affect the sight distance of train operators and the public.

- During construction and for the final condition.
  - o Defined as shown in Appendix 5, Design Criteria and Constraints.

## Trail - City of Shoreline

 Minimum horizontal clearance from edge of trail pavement to an obstruction (such as bridge piers or guardrail) is 2 feet per WSDOT Design Manual 1515.02(2)(f).

#### **VERTICAL CLEARANCE REQUIREMENTS**

The minimum vertical clearances described below are shown graphically in Appendix 5, Design Criteria and Constraints.

#### Interstate 5 - WSDOT

- During construction:
  - Minimum vertical falsework clearance for bridges over highways is 16.5 feet per WSDOT Design Manual 720.03(5)(a)1 and WSDOT BDM 2.3.9.
- For the final condition:
  - o Minimum vertical clearance for the permanent pedestrian bridge over a roadway is 17.5 feet per WSDOT Design Manual 720.03(5)(b)(3) from top of roadway to bottom of structure. Design assumes a minimum vertical clearance of 18 feet to provide an additional 6 inches of construction tolerance.

## Aerial Guideway and Shoreline South / 145th Station - Sound Transit

No structures are anticipated to pass above the aerial guideway or Shoreline South / 145th Station.

#### Trail - City of Shoreline

The minimum vertical clearance above trails is 10-feet per WSDOT Design Manual 1515.04. This is consistent with the 10-foot standard vertical clearance for any projection over a bicycle path surface per Shoreline 2019 Engineering Development Manual, Table 15.1. Eight feet of vertical clearance is required over sidewalk surfaces. The required minimum tree branch clearance above any trail surface is 7-feet.

## TRAIL AND BRIDGE GEOMETRY

#### Trail/Bridge/Shoulder Widths

The 2019 Shoreline Engineering Development Manual requires a minimum width of a multi-use path to be 12 feet. All paths must include 2-foot graded shoulders. If pedestrian traffic is heavy, a wider graded shoulder is recommended.

The full width of the trail, including the shoulders, should be carried across the bridge in order to provide the setback for railings required by the AASHTO Guide for the Development of Bicycle Facilities. Therefore, the trail on the bridge is 16 feet wide.

The maximum cross slope is 2% per City of Shoreline 2019 Engineering Development Manual.

#### **Horizontal Trail Alignment**

The minimum radii for horizontal curves on a paved, shared-use path is 27 feet per the AASHTO Guide for the Development of Bicycle Facilities, Table 5-2. This value based on the lean angle of the cyclist. The lean angle value is based on a 0% cross-slope to adhere to Americans with Disabilities Act (ADA) standards.

Per the AASHTO Guide for the Development of Bicycle Facilities 5.2.4 design speed of bicycles is dependent on the grade of the path, turning radius constraints, and the provided stopping sight distance. Due to geometric constraints, low design speeds will be considered ranging from 12 mph to 20 mph. When considering descending conditions, a higher design speed will be considered. For sustained steeper grades (6% or greater) the highest design speed is 30 mph.

#### **Vertical Trail Alignment**

In addition to the vertical clearance requirements described above, vertical trail alignment is primarily governed by ADA access requirements which are described in the Access Criteria section.

#### **Trail and Bridge Features**

- Bridge railing
  - Height to top of railing, 42 inches per AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges, 2nd Edition.
  - o Continuous barrier that prevents the passage of a 4 inch diameter sphere from the finished grade to the top of railing per IBC 1015.4.
- Bridge screening (Throw Barrier) for bridges over highways is not required per WSDOT Design Manual 720.03(13). However, based on input received from WSDOT, a 10-foot tall vertical throw barrier over I-5 is assumed.
- Bridge deck joints meet ADA requirements and provide safe passage for bicycles.

#### BRIDGE STRUCTURAL DESIGN CRITERIA

#### Loads

Dead Loads

Concrete, Normal-weight Reinforced
 Steel
 490 lb/ft³
 AASHTO LRFD Table 3.5.1-1

o Utilities self-weight of conduit/drains/etc.

Live Loads

o Pedestrian 90 lb/ft² AASHTO Pedestrian 3.1

Maintenance Vehicle
 H10 without impact AASHTO Pedestrian 3.2

- Wind Loads
  - Acting Horizontally, whichever governs between AASHTO Pedestrian 3.4 / AASHTO Signs 3.8 and AASHTO LRFD 3.8

- o Acting Vertically, per AASHTO LRFD 3.8.2
- Seismic Loads, Design Parameters

0	Site Class		D	
0	De	Design Spectral Ordinates		
	•	Peak Ground Acceleration Coefficient, AS	0.441g	
	•	Short-Period (0.2 sec) Response Coefficient, SDS	1.02g	

Long-Period (1.0 sec) Response Coefficient, SD1 0.545g

Seismic Zone (per AASHTO LRFD Table 3.10.6-1)

- Vehicular Collision Loads. The bridge piers are expected to be outside of clear zones for I-5 or protected by barriers and will not be designed for collision loads.
- Temperature Loads per WSDOT BDM 3.16.6

o Concrete Bridges 0° to 100°F

Steel Bridges 0° to 120°F

#### **Allowable Deflections and Vibrations**

- Deflections
  - Maximum deflection due to unfactored pedestrian load is 1/220 of the length for cantilever spans and 1/360 of the length for all other spans per AASHTO Pedestrian.
  - Maximum horizontal deflection due to unfactored wind loading is 1/360 of the length.
- Vibrations
  - The fundamental frequency in a vertical mode of the pedestrian bridge without live load shall be greater than 3.0 hertz. The fundamental frequency in the horizontal direction shall be greater than 1.3 hertz.
  - Pedestrian induced vibration and acceleration limits prescribed in the 2016 SETRA Technical Guide to Footbridges

## **ACCESS CRITERIA**

### Americans with Disabilities Act (ADA) Requirements

The City of Shoreline 2019 Engineering Development Manual requires that all designs meet the current American with Disabilities Act (ADA) requirements and standards in the Public Rights of Way Accessibility Guidelines (PROWAG). These guidelines specify a maximum running slope of 5% for all sidewalks and paths. At this stage of design a maximum slope of 4.25% is used to account for construction tolerance. Where steeper slopes are required, a maximum ramp slope of 8.33% for approximately 30 feet is allowed with a 5-foot wide landing with a slope of 2%. A minimum slope is required of 0.5% to prevent the accumulation of water. At this stage of design, a running slope of 7.5% and a cross slope of 1.0% to 1.5% is used for ramp design to allow for construction tolerance.

#### **Maintenance and Inspection Access**

Based on past experience with similar structures and recommendations from the AASHTO Pedestrian Bridge Code, the bridge will be designed for an H10 truck (without dynamic impact). This load is comparable to most maintenance vehicles that are expected to access the bridge.

The preferred structure type will have a significant impact on the equipment necessary to meet inspection and reporting requirements. As the design progresses additional equipment loads may be considered.

#### **Emergency Access**

No provisions for emergency response vehicles (e.g. ambulances or fire trucks) will be included in the design of the trail or bridge structure. The ramp configuration at the eastern landing will likely prevent emergency vehicle access across the bridge.

#### STORMWATER DETENTION AND WATER QUALITY

The City of Shoreline 2020 Engineering Development Manual, Division 3 adopted the 2014 Department of Ecology (DOE) Stormwater Management Manual for Western Washington (Stormwater Manual). The City of Shoreline includes amendments to the DOE Stormwater Manual in the City of Shoreline 2020 Engineering Development Manual. Where the Stormwater Manual states a provision is "optional", it is listed as a requirement in the City of Shoreline.

The following stormwater requirements are listed in the Stormwater Manual and will be triggered by different project characteristics, as listed below. Refer to the 2014 Stormwater Management Manual Flow Charts for Determining Requirements for New Development. For the purposes of this report, the project is assuming roadway criteria.

#### Requirement 1 – Preparation of Stormwater Site Plans

Applies to new and replaced hard surfaces and the land disturbed resulting in 2000 square feet or more
of new plus replaced hard surface or land disturbing activity total 7000 square feet.

#### Requirement 2 – Construction Stormwater Pollution Prevention (SWPP)

Applies to all new and redevelopment projects.

#### Requirement 3 – Source Control of Pollution

Applies to new and replaced hard surfaces and the land disturbed resulting in 2000 square feet or more
of new plus replaced hard surface or land disturbing activity total 7000 square feet.

#### Requirement 4 – Preservation of Natural Drainage Systems and Outfalls

Applies to new and replaced hard surfaces and the land disturbed resulting in 2000 square feet or more
of new plus replaced hard surface or land disturbing activity total 7000 square feet.

#### Requirement 5 - On-site Stormwater Management

- Applies to new and replaced hard surfaces and the land disturbed resulting in 2000 square feet or more
  of new plus replaced hard surface or land disturbing activity total 7000 square feet.
- Meet the LID Performance Standards through the use of BMPs.

#### Requirement 6 - Runoff Treatment

Applies to road projects with 5000 square feet or more of new hard surfaces and the hard surfaces add
 50% or more to the existing hard surfaces within the project limits.

#### Requirement 7 – Flow Control

 Applies to road projects with 5000 square feet or more of new hard surfaces and the hard surfaces add 50% or more to the existing hard surfaces within the project limits.

#### Requirement 8 - Wetlands Protection

Applies to road projects with 5000 square feet or more of new hard surfaces and the hard surfaces add 50% or more to the existing hard surfaces within the project limits.

#### Requirement 9 - Operation and Maintenance

 Applies to road projects with 5000 square feet or more of new hard surfaces and the hard surfaces add 50% or more to the existing hard surfaces within the project limits.

## **UTILITY DESIGN CRITERIA**

Utility requirements per City of Shoreline 2020 Engineering Development Manual and Shoreline Municipal Code (SMC). Minimum clearances to existing utilities will be determined during design.

#### LIGHTING DESIGN CRITERIA

The City of Shoreline 2020 Engineering Development Manual Division, Section Streetlight Master Plan addresses illumination by ratings within the City limits. Applicable design standards shall be selected based on the standards outlined in Table 3-5. In addition, lighting levels will take into account CPTED guidelines

The design will utilize LED, energy efficient lighting, address light trespass over the I-5 corridor, and adopt appropriate pole and luminaire types to compliment the adjacent neighborhood and Sound Transit light rail station aesthetics. Electrical design requirements shall follow the latest release of National Electrical Code (NEC).

#### LANDSCAPE DESIGN CRITERIA

The urban and landscape design will reflect the project context within an existing neighborhood that is evolving into a more urban, transit-oriented district and complement the Sound Transit light rail station aesthetic. The design will emphasize pedestrian-friendly elements including pedestrian-scale lighting and decorative accent lighting; thoughtful yet durable site furnishings such as benches, litter/recycle receptacles and bicycle racks; decorative pavement treatments that help delineate and guide pedestrian/bicycle movements and mixing zones; identity markers that reinforce a sense of place and create landmarks; and pedestrian/bicycle directional wayfinding signs at decision making locations.

In order to meet the City of Shoreline's 1% for the Arts requirements, elements of public art will be incorporated into the project design. The art element could include stand-alone pieces or could be incorporated into the bridge design or the urban design amenities mentioned above. This integration will help to make the bridge an iconic landmark feature within the City of Shoreline. The landscape will emphasize low-maintenance, northwest-adapted plants appropriate for use along public rights-of way and trails. Irrigation will

be provided to reduce maintenance needs and establish a healthy plant community. Low Impact Development (LID) facilities will be incorporated into the landscaping to accommodate drainage from the trail. The landscape design will be governed by the relevant jurisdictional standards outlined in Table 3-6 based on its location within City of Shoreline, WSDOT or Sound Transit right-of-way or private property.

In addition, there are numerous existing mature trees which may be impacted, or which may need to be removed, in order to construct the bridge and associated landing and trail areas. Tree removals will be mitigated per the requirements of the Shoreline Municipal Code, as outlined in Table 3-6.

## **Sound Transit Right-of-Way**

The landscape design at the east bridge landing will be coordinated with the design of the Sound Transit light rail station and will meet the standards of the Sound Transit Design Criteria Manual.

#### **WSDOT Right-of-Way**

Landscaping within the WSDOT right-of-way will be designed to meet WSDOT standards for the Interstate-5 corridor and in coordination with the WSDOT Northwest Region. Trees removed within the WSDOT right-of-way will be replaced/mitigated according to WSDOT's tree-replacement requirements.

## **Private Property**

Property restoration to adjacent properties will match/replace landscape areas that are disturbed and in addition will be designed to provide a balance of privacy/screening and visibility between the private property and the trail. Any trees which are required to be removed from private property will be mitigated per Shoreline Municipal Code requirements.

# 4. Design Constraints

Below are a number of critical design constraints that have been considered during development of the various bridge and trail alternatives.

#### **VERTICAL CLEARANCES**

Vertical clearance requirements are the primary constraint that drives the location of the main span bridge crossing of I-5. Section 720.03(5)(b)(3) of the WSDOT Design Manual requires a minimum vertical clearance of 17.5-feet for a pedestrian bridge over a roadway. A vertical clearance of 18-feet is used for design in order to account for construction tolerances. This vertical clearance requirement is seen as non-negotiable.

In addition to passing over the freeway, the bridge must pass below the overhead structure that carries the light rail tracks. The City of Shoreline Engineering Design Manual adopts WSDOT Design Manual criteria which requires a minimum of 10-feet of vertical clearance from the pedestrian pathway to any overhead obstruction. This vertical clearance requirement is consistent with recommendations contained within the AASHTO Guide to Bicycle Facilities which states that a 10-foot minimum vertical clearance is most desirable and that a minimum vertical clearance of 8-feet may be used in constrained areas. If necessary, the City could grant a deviation to their design standard to permit less than 10-feet of vertical clearance. It is recommended that the absolute minimum vertical clearance of 8-feet be used.

These two vertical clearance constraints create a narrow window in which the bridge profile successfully clears I-5 below and the light rail structure above. Figure 4-1 schematically shows this

limited window in which the bridge would fit while meeting minimum vertical clearances stated above.

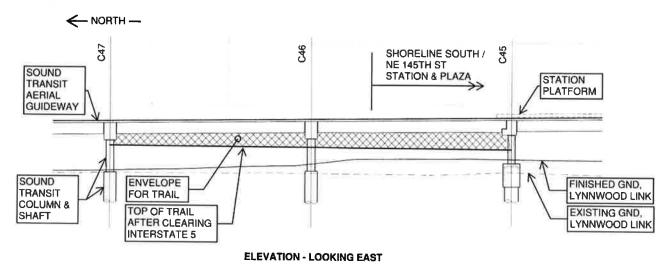


Figure 4-1: Main Span Bridge Vertical Clearance Window

#### HORIZONTAL CLEARANCES

Horizontal clearances to I-5 and how they are considered during development of the design alternatives are discussed below.

## East Side of I-5

During the design development of the Lynnwood Link Extension project, ST and WSDOT established two forward compatibility lines (FCL) along the eastern edge of northbound I-5 in the vicinity of the Shoreline South/145th Street Station. These compatibility lines are based upon a future build-out of I-5 which adds a travel lane in each direction along with ramp improvements. The first FCL is referred to as the 94-foot line and represents the eastern most limit of a 10-foot wide amenity zone where elements like signage, utilities and drainage features may be placed. The second FCL line is referred to as the 84-foot line and represents the easternmost edge of the paved shoulder. Generally speaking, obstructions (e.g. bridge piers) may be placed outboard of the 94-foot FCL without restriction. With WSDOT approval, obstructions may be placed in between the 84-foot and 94-foot FCL's, however, these obstructions should be able to accommodate the aforementioned amenity zone improvements. No obstructions are permitted within the 84-foot FCL. These horizontal clearance requirements were used in the design development of this project and are shown in Figure 4-2.

#### Bridge Pier in I-5 Median

I-5 in the project area is tightly constrained by the existing layout of the freeway including the existing bridge at NE 145th Street. These constraints would make construction of an intermediate bridge pier in the median very challenging and cost prohibitive. Specific challenges include:

 Construction Access: The existing median measured from northbound edge-of-shoulder to southbound edge-of-shoulder is approximately 12-feet wide. It is estimated that the work zone required to construct an intermediate bridge pier would be approximately 25-feet wide, not including construction access pullouts. Temporary re-channelization of I-5 to accommodate the work zone would significantly increase construction costs.

- Existing Drainage Features: There is an existing storm drain in the median which was constructed in the 1980's that would likely need to be relocated to accommodate the construction of the bridge pier. This facility would need to be upgraded/mitigated to meet modern design standards. This storm drain also outfalls to Thornton Creek. Mitigation to the storm drain facility and/or associated impacts to Thornton Creek are unknown at this time, but could be cost prohibitive and/or difficult to permit.
- Traffic Impacts: Construction of an intermediate bridge pier would require two or more significant traffic shifts in order to accommodate the work zone. Traffic shifts like these are disruptive to traffic and represent an increased safety risk to both the travelling public and the Contractor.

Based on these reasons, it is assumed that an intermediate bridge pier located within the I-5 median is not feasible and was not considered in the TS&L design development. A similar conclusion was reached in the 2017 bridge alignment feasibility study.

#### West Side of I-5

In order to establish feasible bridge pier locations at the western trail connection, a FCL for southbound I-5 was determined. Utilizing a similar approach to what was taken at the eastern bridge landing, a future lane configuration was established which consists of five through lanes and a two-lane tapered off-ramp to NE 145th Street which is shown in Figure 4-2.

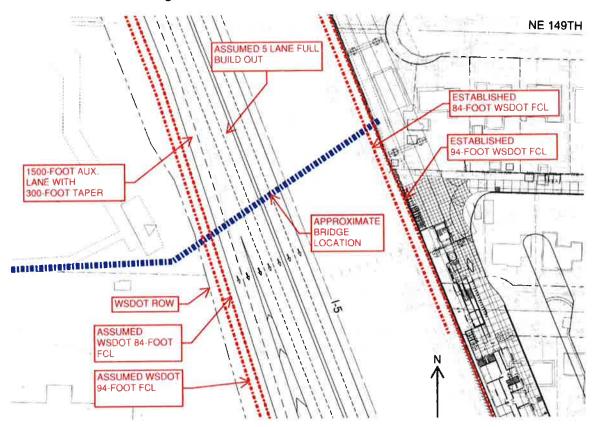


Figure 4-2: WSDOT Forward Compatibility Lines

This figure demonstrates that the 84-foot and 94-foot FCL's are approximately within 20 feet and 10 feet of the edge of the WSDOT ROW line, respectively. Placing a bridge pier within these areas provides only a marginal reduction in bridge span length. For the purposes of the TS&L design development, it was assumed that any bridge pier on this side of I-5 will be located outside of WSDOT ROW.

### SOUND TRANSIT PARK AND RIDE

Sound Transit is currently leasing parking spaces from the Philippi and Unitarian parcels as a temporary park and ride facility. This temporary facility replaces the loss of the North Jackson Park and Ride which was demolished for the construction of the Shoreline South/145th Street station. The temporary park and ride facility will need to remain in operation until the new parking garage at the light rail station opens in 2024 when light rail service begins. These parking spaces will need to be maintained or relocated during construction of this project.

#### **CELL PHONE TOWER**

As mentioned previously, there is a privately owned cell phone tower located in the southeast corner of the Church of Christ parcel. The cell phone tower is approximately 50-feet tall and is served by several underground utilities. Based on recent experience, relocation of a cell phone tower of this type and size is cost prohibitive. For the purposes of the TS&L design development, it was assumed that the cell phone tower will remain in its existing location.

# 5. Geotechnical Analysis and Recommendations

A significant amount of geotechnical information is available for the area in the vicinity of the proposed east bridge abutment; however, limited data exists for the area in the vicinity of the proposed west bridge abutment. Relevant available data includes general information on the geologic setting of the entire project area, as well as extensive site specific subsurface information that was collected by others for the Lynnwood Link Extension project. Due to the lack of information in the vicinity of the proposed west bridge abutment, a preliminary subsurface exploration program was conducted near the anticipated location of the western bridge foundation. The exploration program consisted of advancing one exploratory boring to a depth of about 100-feet below the ground surface (bgs). Depending on where the proposed bridge foundations are located, additional explorations may be needed at the actual foundation locations.

Subsurface conditions across the site appear to be somewhat consistent, with the upper 13 to 35 feet of soil consisting of very loose to medium dense sand and very soft to soft silt (Fill). At the locations explored for this project and by others, the fill soils are typically underlain by dense to very dense sand and gravel (Advance Outwash) that extends to the maximum depths explored.

#### **GEOLOGIC HAZARDS**

Based on a review of the City of Seattle's Seattle Hazard Explorer and King County's iMAP web applications, the project site does not appear to be located in a landslide hazard area. However, based on a review of the available geotechnical information for the project area and the results of the preliminary exploration program, it is possible that some portions of the existing fill materials at the project site that are located below the water table could be subject to soil liquefaction and lateral spreading during a design-level earthquake. Soil liquefaction and lateral spreading could subject the bridge foundations to down-drag and lateral loads, respectively. Downdrag loads could lead to bridge foundation damage if not accounted for in the design, as well as increased foundation settlement. If it is determined that lateral spreading could occur at the project site, the foundations for the bridge will need to be situated outside of the zone of lateral spreading or the foundations will need to be designed to withstand the lateral forces by the moving soil. Potential methods to mitigate liquefaction at the site include improving the soils or to design the bridge to tolerate the consequences of liquefaction (i.e., design the structure to tolerate downdrag loads and foundation settlement).

## **BRIDGE FOUNDATION RECOMMENDATIONS**

The upper 13 to 35 feet of soils at the project site are soft/loose and have marginal foundation support characteristics. Furthermore, portions of the upper soils may be subject to soil liquefaction and lateral spreading during a design-level earthquake. As a result, shallow foundations are not considered to be an appropriate foundation type for the proposed bridge. Another reason that shallow foundations are not considered appropriate for the proposed bridge is because shallow foundations are not effective where soil liquefaction can occur at or below the footing level, unless the liquefiable soil is removed, improved using ground improvement techniques, or is well below the footing level. Therefore, it is anticipated that the proposed non-motorized bridge will need to be supported by deep foundations.

Driven pile foundations and drilled shaft foundations are two deep foundation types that can be used when shallow foundations are not appropriate. For this project, shaft foundations with a diameter of 8-feet or greater appear to be most advantageous because a very dense bearing stratum can be penetrated in order to obtain the anticipated required bearing, uplift, and lateral resistance. In addition, shafts can be cost effective if a single shaft per column can be used as opposed to a pile group with a pile cap, especially if temporary shoring is required to construct the pile cap. Finally, unlike driven piles, shafts have the advantage of a reduced potential to cause damage to existing adjacent facilities from pile driving vibrations.

Under certain situations, augercast piles can be a cost-effective deep foundation. However, because augercast piles have a limited ability to resist lateral loads, they are typically not used to support structures that are subjected to significant lateral loads. Furthermore, it is the WSDOT's policy not to use augercast piles to provide foundation support for bridges.

Based on the subsurface information that was available at the time this report was prepared, drilled shaft foundations located on the east and west sides of I-5 would obtain negligible capacity from approximately the upper 20 and 30 feet of soil, respectively. For preliminary planning purposes, a single non-redundant 8.2 feet (2.5 meter) diameter drilled shaft installed below the upper 20 to 30-feet of soil that will provide negligible capacity could be anticipated to have a nominal tip resistance on the order of about 2,800 kips and a nominal side resistance of approximately 80 kips per foot of embedment below the upper 20 to 30-feet of soft/loose soil. At the service limit state with an assumed 1 inch of allowable foundation settlement, the factored tip resistance and side resistance for a single non-redundant 8.2-foot diameter drilled shaft could be preliminarily assumed to be on the order of about 1,000 kips and 75 kips per foot of embedment below the upper 20 to 30-feet of soft/loose soil, respectively. These preliminary drilled shaft foundation capacities will be refined as the design of the project progresses.

## 6. Public Outreach

Stakeholder outreach and public involvement have been integral parts of the TS&L design development process. Considerable effort was made in presenting options and gathering feedback from key stakeholders throughout the study process. The first step in this development was identifying the project stakeholders who are anticipated to be directly impacted by the project as well as other advocacy groups and community organizations who might have input. Working with the City, the design team developed a list of these stakeholders which is shown in Table 6-1.

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Table 6-1: List of Project Stakeholders

Stakeholder Type	Prospective Groups	
Elected officials	City of Shoreline Mayor, City Council	
City of Shoreline leadership	City Manager	
Adjacent churches	Philippi Presbyterian Church of Seattle (Korean), Shoreline Unitarian Universalist Church, Church of Christ (Filipino)	
Other faith communities	St. Barnabas Anglican Church, Shoreline Full Gospel Fellowship, True Light Church in Seattle (Korean), City Calvary Chapel, True Jesus Church (Chinese), North Seattle Church of the Nazarene, Seattle Arabic Baptist Church	
Neighborhood associations	Parkwood Neighborhood Association	
	Ridgecrest Neighborhood Association	
	Briarcrest Neighborhood Association	
	Council of Neighborhoods	
School communities	Parkwood Elementary School, The Evergreen School, Lakeside School, Lakeside Middle School, Ingraham High School	
Preschool/daycare	The Teaching Home Family Childcare & Preschool, Winding Willow School, Butterfly Home Daycare and Preschool, Petite Academy	
Parks users	Twin Ponds Park, Paramount Park, Paramount Open Space, Jackson Park Golf Course, Licorice Fern Natural Area	
Commuters/park-and-ride users		
Future Sound Transit light rail users		
Private developers/real estate	Horizon View Homes, Evergreen Point Group, Kidder Mathews, JLL, Intracorp, Yu Wang	
Bicycle, pedestrian and mobility advocacy groups	Feet First, Cascade Bicycle Club, Disability Rights Washington, Northwest Universal Design Council, North King County Mobility Coalition, HopeLink, Transportation Choices Mobility Coalition, Futurewise	
Senior living communities	Aegis Living Shoreline, Park Ridge Care Center	
Other	Malmo Apartments (Parkwood)	
WSDOT		
Sound Transit		
King County Metro		
Puget Sound Regional Council		

The following tools have been utilized throughout the design process in order to communicate project progress and gather direct feedback from project stakeholders:

- Project briefings with key stakeholders
- Development of outreach materials including FAQ, project folios and fact sheets
- Maintaining and updating the project website

In addition to these outreach methods, a minimum of two project open houses will be held to gather feedback from the general public. The first open house will presented the bridge and trail alignment alternatives discussed later in this report. See Section 16 of this report for a more detailed discussion of this open house effort and feedback that was gathered. The second open house will present the preferred bridge and trail alignment alternative as well as demonstrate how feedback gathered during the first open house was incorporated into the design.

#### PROJECT BRIEFINGS

Project briefings have served an important role in gathering feedback from stakeholders who will be directly affected by this project. The following sections provide a summary of comments and concerns that were heard from these groups during these briefings. As the project continues to develop, the City and project team will have follow-up briefings in order to create partnerships and communicate any project impacts to these key stakeholders. Meeting notes from these briefings have been included in Appendix 5.

#### **Church of Christ**

The primary project concerns expressed by representatives of the Church of Christ were:

- Safety: Church leaders want to ensure a safe environment for their parishioners. This is especially
  important in light of past security incidents that have occurred at their other church locations in the
  Seattle area.
- ROW: Church leaders want to ensure that there is a clear delineation between public ROW and their property and that the trail alignment does not encourage trespassing.
- Congestion: Church leaders were concerned with the potential for illegal parking and/or congestion due to bridge/trail users being dropped off along 1st Ave NE in order to access the light rail station.

Follow-up briefings with Church of Christ leadership are planned.

#### **Unitarian Universalist Church**

The primary project concerns expressed by representatives from the Unitarian Universalist Church were:

- Parking: Church leaders expressed that parking for their parishioners is already a challenge and that loss of parking due to the project would need to be replaced.
- Trespassing: Church leaders preferred trail alignments that are formalized and that provide a direct connection to the bridge crossing. Overly circuitous alignments would likely encourage trespassing across their property which increases their liability.

Follow-up briefings have been scheduled with the Universalist Unitarian Church leadership but had not yet occurred at the time of this report.

#### Philippi Presbyterian Church

The primary project concerns expressed by representatives from the Philippi Presbyterian Church were:

- Parking: Church leaders expressed that parking for their parishioners is already a challenge and that loss of parking due to the project would need to be replaced.
- Trespassing: Church leaders preferred trail alignments that are formalized and that provide a direct connection to the bridge crossing. Overly circuitous alignments would likely encourage trespassing across their property which increases their liability.

• Future Development: Church leaders are interested in potentially redevelopment of their property and want to ensure that this project would not preclude this possibility.

Follow-up briefings have been scheduled with the Philippi Presbyterian Church leadership but had not yet occurred at the time of this report.

## **Ridgecrest Neighborhood Association**

The Ridgecrest neighborhood is located east of I-5 and is bounded by the freeway, NE 175th, 15th Ave NE and NE 145th street. The primary project concerns expressed by representatives from the Ridgecrest Neighborhood Association to the design team and the City during the first project briefing were:

- Tree Impacts: Neighborhood association members expressed the desire to minimize mature tree removal as much as possible.
- Safety: Neighborhood association members want to have a safe-feeling trail and bridge facility.
   Nighttime lighting for the trail and bridge is important. Also, less circuitous trail connections are preferred in order to promote user safety.
- Public Restroom Facilities: Neighborhood association members would like to see a public restroom facility incorporated into the east landing at the light rail station.
- Improve Neighborhood Connections: Neighborhood association members would like to see better
  pedestrian and bicycle connections in the surrounding neighborhoods including sidewalks and bike
  lanes.
- Freeway Noise at East Landing: Neighborhood association members are concerned that freeway noise
  will detract from any public spaces at the east bridge landing. The noise wall in this area provides only a
  limited amount of noise mitigation.

Follow-up briefings with the Ridgecrest Neighborhood Association are planned.

## **Parkwood Neighborhood Association**

The Parkwood neighborhood is located west of I-5 and is bounded by the freeway, N 160th, Highway 99 and N 145th street. The primary project concerns expressed by representatives from the Parkwood Neighborhood Association to the design team and the City during the first project briefing were:

Parking: Neighborhood association members expressed concerns about increased parking congestion
in the surrounding neighborhood due to people parking to use the bridge to get to the light rail station.

Follow-up briefings with the Parkwood Neighborhood Association are planned.

#### **WSDOT**

The primary project concerns expressed by WSDOT representatives to the design team and the City during the first project briefing were:

- Any structural elements placed within 84-foot and 94-foot forward compatibility lines at the east bridge landing will need to be able to accommodate future drainage features (e.g. ditches or storm drain) and other improvements like ITS or other similar utilities.
- It is likely that the existing sign bridge on southbound I-5 at the NE 145th Street exit will be impacted by the project. This sign bridge is a vintage, truss-style sign bridge and its replacement should be a monotube style sign bridge.
- Any impacts to Thornton Creek in the project area should be avoided.

• Any architectural bridge lighting, other than what is required for pedestrian safety, should be avoided as this may serve as a distraction for drivers.

Follow-up briefings have yet to be scheduled with the WSDOT but are planned.

#### **Sound Transit**

The primary project concerns expressed by ST representatives to the design team and the City during the first project briefing were:

- Minimizing Station Design Impacts: The design of the pedestrian bridge and landings should strive to minimize impacts to the existing design of the Shoreline South/145th Street Station.
- Maintain Construction Clearance Envelopes: Adequate clearance to light rail station structures should be maintained during construction. These distances will need to be established during subsequent design phases.

Follow-up briefings have yet to be scheduled with the ST but are planned.

## 7. Environmental Documentation and Permitting

Preliminary data was gathered to identify wetlands, waterways, wildlife habitats, and cultural resources issues and the probable associated permitting requirements. The project evaluated at this time was limited to the western trail alignment area as the eastern landing is currently an active construction site. The study area extends 300 feet from the project area for evaluation of wetland/waterway critical areas.

## WETLANDS, WATERWAYS, WILDLIFE HABITATS, AND PLANTS

Public documents reviewed included City Critical Areas Mapping, National Wetlands Inventory (NWI) mapping, Federal Emergency Management Agency (FEMA) floodplain data, Washington Department of Fish and Wildlife (WDFW) priority habitats and species (PHS) data, and Washington Natural Heritage Program Geographic Information System (GIS) data sets regarding habitats and plants.

The City of Shoreline Critical Areas mapping identifies (also refer to the Natural Resources Map in Appendix 5, Environmental Permitting):

A piped segment of Thornton Creek is in the project area adjacent/under I-5, and a segment of open channel of Thornton Creek is in the study area parallel to I-5. Thornton Creek in the study area is identified as a Type F (fish habitat) stream, and is mapped by WDFW PHS on the Web as having "occurrence/migration" of resident coastal cutthroat trout (WDFW 2020a). This segment of Thornton Creek does not currently contain anadromous fish due to downstream fish blockages, including a culvert at I-5 (WDFW 2020b). However, the potential exists that these downstream man-made blockages could be repaired to provide fish passage. In accordance with the City of Shoreline's (City) critical areas regulations, piped stream segments are provided a standard buffer of 10 feet and Type F streams with the potential to be passable by anadromous fish presence are prescribed a standard buffer of 115 feet.

A portion of wetland associated with Thornton Creek intersects the northern limits of the study area. This wetland is mapped by the City overlapping a palustrine, unconsolidated bottom, permanently flooded, diked/impounded (PUBHh) wetland habitat mapped by the NWI, although NWI data do not identify any wetlands extending into the study area. The wetland is separated from the project area by existing

development (i.e., 1st Avenue NE and Aegis Assisted Living Facility). Any associated buffer that potentially intersects the project area is functionally isolated by these developments (as a result, preliminary wetland categorization and buffer width is not provided with this evaluation).

Based on site reconnaissance completed by Landau Associates, Inc. (LAI) on January 23, 2020 (also refer to Natural Resources Map in Appendix 5, Environmental Permitting):

Two potential wetland areas, Wetland A and Wetland B, were observed in the study area in the I-5 right-of-way. Wetland A is provided a preliminary rating as a Category III wetland with an associated habitat score of 4, requiring a 60 foot standard buffer width in accordance with the City critical areas regulations. Wetland B is provided a preliminary rating as a Category IV wetland, requiring a 40 foot standard buffer width in accordance with the City critical areas regulations. These wetlands occur on the highway side of the right-of-way fence and were not accessible at the time of the site reconnaissance. Since these wetlands occur in Washington State Department of Transportation (WSDOT) right-of-way, additional information from WSDOT may be available regarding wetland determinations of these areas, otherwise additional evaluation may be required to confirm preliminary determinations/categorizations.

Ditches were observed along 1st Avenue NE that may require evaluation for jurisdiction under Section 404 of the Clean Water Act (CWA). In general, only those segments of ditches in the vicinity of the 1st Avenue NE and N 149th Street intersection were observed to likely satisfy wetland conditions and/or evidence relatively permanent flow and connection to other jurisdictional waters to potentially satisfy jurisdictional requirements of the CWA.

FEMA floodplain mapping does not identify any 100-year floodplain in the study area (FEMA 1995).

The WDFW PHS on the Web indicates that the project is located in a Township with documented little brown bat (<u>Myotis lucifugus</u>) breeding area (WDFW 2020a), however, site specific PHS data requested from WDFW do not identify this breeding area in the project vicinity (WDFW 2020c).

The Washington Natural Heritage Program does not indicate any records of rare plants or unique habitats in the study area (NHP 2019).

#### **CULTURAL RESOURCES**

WSDOT Local Programs has completed consultation regarding the Area of Potential Effects (APE) with the Washington Department of Archaeology and Historic Preservation (DAHP), and it has been confirmed that historical/archaeological evaluation will be required for compliance with Section 106 of the National Historic Preservation Act (NHPA). The APE encompasses the extent of the alignment options referenced above. Currently no buildings in the APE are listed on the National Register of Historic Places or Washington Heritage Register (DAHP 2020).

#### **ENVIRONMENTAL PERMITS AND DOCUMENTATION**

Documentation evaluating effects of the proposed project on environmental and cultural resources referenced above will be required. Environmental documentation required as part of the selected alignment includes:

Wetland/Waterway Critical Areas Report, involving a formal wetland and ordinary high water mark delineation and discussion of mitigation sequencing, including compensatory mitigation, if needed.

Cultural Resources Investigation Report, involving a field effort and impact evaluation.

Endangered Species Act/Essential Fish Habitat effect determinations, documented in a letter of No Effect, or a Biological Assessment. Evaluation of potential project impacts is likely to focus on water quality/quantity effects related to stormwater runoff associated with new impervious surfaces.

WSDOT National Environmental Policy Act (NEPA) Categorical Exclusion Form and State Environmental Policy Act (SEPA) checklist, requiring design details of the proposed project.

The environmental documentation supports applications for the following environmental permits, which will likely be necessary for the proposed project:

NEPA determination from WSDOT Local Programs, and if necessary, the Federal Highway Administration.

SEPA determination from the City.

US Army Corps of Engineers (USACE) Section 404 permit for unavoidable impacts to potentially jurisdictional ditches/associated wetlands in the vicinity of the 1st Avenue NE and N 149th Street intersection, which is limited to Options 2A, 2B, 3, and 4B.

City wetland/waterway critical areas compliance to address any project activities within regulated wetlands, waterways, and associated buffers. Critical areas compliance will be required for all alignment options associated with the aerial crossing of the piped segment of Thornton Creek, and depending on the location of the proposed bridge landing relative to the buffer associated with Wetland A (refer to Figure 1). No compensatory mitigation is anticipated to be required for the aerial crossing of Thornton Creek, and any unavoidable wetland buffer impacts are expected to be mitigated onsite, and may be combined with project landscaping design.

Typically, the USACE Section 404 permit for wetland impacts takes the most time to acquire. The permit timeline will be reduced if impacts to wetlands can be avoided. If wetlands are impacted, LAI assumes that the project would be permitted under the USACE Nationwide Permit (NWP) No. 14, Linear Transportation Projects, and would not require individual review by Ecology for CWA Section 401 Water Quality Certification. Description of NWP 14 references "trails" as an example of a linear transportation project. While "bridge" is not explicitly referenced in this NWP, the proposed bridge is a component of a trail connecting existing transportation facilities (i.e. 1st Ave and Shoreline South/145th Street Station). A conservative estimate to obtain a NWP is 6 months from submittal of the application. USACE review timeline should be reduced by the cultural resources and endangered species consultations that will be completed by WSDOT that are also required for CWA permitting. All other environmental permits can normally be obtained within 3 months of application.

## 8. Project Aesthetics

#### **BRIDGE ARCHITECTURE**

The architectural design concepts developed for the bridge must all address several basic criteria: pedestrian and cyclist safety; durability and ease of long-term maintenance; economy and image.

It is important to consider the context of the bridge when assessing different concepts. The freeway forms the most dominant contextual element in that most people seeing the bridge from afar will be moving at 60 milesper-hour. This means that the design should be relatively simple and comprehensible in a brief time. Excessive ornamentation or complexity are not only wasted on highway bridges but can also be distracting to drivers. Simple forms are most appropriate.

The other major contextual element is the adjacent Shoreline South light rail station. At over 400-feet long and nearly the height of the pedestrian bridge, the station is visually complex, with a mix of materials and colors visible from the freeway. Architecturally speaking, a clean and simple bridge design best complements this complexity.

#### **URBAN DESIGN**

The character of the neighborhood surrounding the future Shoreline South/145th Street Station is rapidly evolving from single-family residential to a dense, transit-oriented context on both sides of I-5. In addition, the architecture of the light rail station itself will bring a new, more urban aesthetic to the neighborhood. The bridge will be the key element stitching these new neighborhoods on the west and east sides of I-5 together, and the bridge approaches/landings should be considered as vibrant public spaces that draw people to the bridge and foster connectivity across I-5.

The project aesthetic will reflect this context through the use of pedestrian-friendly elements including site lighting and accent lighting that make the spaces feel safe and inviting at all times of day and night; site amenities such as benches, litter/recycling receptacles, bike racks, and wayfinding signage; generous mixing zones and gathering spaces; and decorative pavements to help define these spaces, lend a sense of place, and guide pedestrian/bicycle interactions. Landscaping will be used to soften the hardscape elements and help to blend them into the site while providing low-maintenance, multi-season interest. A preliminary plant palette has been developed for the project and has been included in Appendix 5.

#### Wayfinding

Because the project spans between neighborhoods, providing continuity of urban design and place-making along the entire route will provide an additional strong visual connection for trail users and aid in wayfinding. In analyzing potential ways to connect to the bridge on the west side, it becomes apparent that the bridge's setback from 1st Ave NE will make good wayfinding a critical element of the project's success. While all of the west-side alternatives provide a connection from 1st Ave NE to the bridge, the bridge may not be visible from the roadway and/or the nearby private parcels. This may make trail users unsure of whether they are on the route to and from the light rail station. Establishing a clear system of wayfinding will help users feel comfortable they are on the correct route. The pathways leading to the bridge should be clearly marked and identified by understandable and welcoming wayfinding from both 1st Ave NE (and beyond as the City connects the bridge into their larger pedestrian and bicycle network) and from the light rail station.

## 9. Evaluation Criteria

During the design development process, the design team worked closely with City staff to develop a set of criteria to evaluate the various bridge and trail alternatives. These criteria are primarily qualitative in nature and will be used to help distinguish the various options and facilitate the selection of the preferred alternative. These evaluation criteria include:

#### **USER SAFETY AND SECURITY**

While all designs considered comply with safety and security code requirements, some options perform better based on their inherent characteristics and how well they meet the principles described in Crime Prevention Through Environmental Design (CPTED). These principles include natural access control to clearly guide trail users through the site, natural surveillance which allows users to see and be seen while passing through the site, territorial reinforcement that clearly defines the space as public, and physical maintenance of the facility. Each alternative will be assessed for how well they meet these criteria.

## **CONNECTIVITY AND TRAVEL TIMES**

Each alternative will be assessed for how well they provide connectivity and influence travel times through the facility. Even minor increases in travel length can significantly reduce the functionality of a pedestrian/bicycle facility. Alternatives that provide direct and intuitive connections help improve the overall user experience.

#### EASE OF STAKEHOLDER APPROVAL

Each alternative will be assessed for its relative ease of project stakeholder approval. Key stakeholders include: City leadership, ST, WSDOT, adjacent property owners (e.g. churches), permitting agencies, community groups and the general public.

#### **RIGHT-OF-WAY**

Each alternative will be assessed for its impact on both ROW costs and ease of acquisition. This includes all necessary temporary or permanent easements and fee takes. Particular attention will be given to how ROW acquisition may affect overall project schedule.

#### **OPERATIONS AND MAINTENANCE**

Each alternative will be assessed for the potential future maintenance and operations costs. For the purposes of this evaluation, this will be a qualitative assessment based on past, similar project experience.

#### **AESTHETICS**

Because pedestrians and bicyclists interact with bridge and trail facilities at a much more intimate level, project aesthetics go a long way in defining the user experience. Each alternative will be assessed for its aesthetic value.

#### PROJECT COSTS

Project costs are often the single largest driving factor for any public works project. Preliminary project costs, including construction and soft costs, have been developed for each alternative. The following cost assumptions have been made for all alternatives considered:

- Contingency = 40% of construction cost including mobilization
- Engineering Design = 25% of construction cost including contingency
- Construction Management & Administration = 25% of construction cost including contingency
- ROW costs include temporary construction easements (TCE) and administration

Each design alternative will be qualitatively evaluated and rated against one another using the following system: Very Favorable, Favorable, Neutral, Unfavorable and Very Unfavorable.

# 10. Bridge and Trail Alternatives Overview

A collaborative approach was taken in the development of aesthetic themes and selection of the various components of the project. The City and the design team worked closely together to establish and enhance the City's vision for the bridge and trail connections. At key decision points in the project development, workshops were conducted to discuss trail and bridge alternatives. The workshops included key design team members and City staff from a wide range of departments. These workshops provided a forum for the design team to present information regarding trail alignments, structural forms, project constraints, etc. The City then determined whether these bridge and trail concepts fit within the City's vision for the project and provided direction for next step. Meeting notes from these workshops are included in Appendix 5.

During development of the design alternatives it became evident that the project could be naturally divided into three distinct sections: west side trail alignments, the bridge main span, and the east side landings. The limits of these sections are shown schematically in Figure 10-1 below. Each alternative from each section can be combined interchangeably with the others to form a complete project.



Figure 10-1: Trail and Bridge Segment Overview

# 11. West Side Trail Alignments

The following section describes the trail alignment alternatives for the west side trail. The section of trail connects users from 1st Ave NE to where the bridge takes off across I-5.

#### INITIAL ALIGNMENT ALTERNATIVES SCREENING

As mentioned in Section 4, the feasible location for the main-span bridge crossing is heavily constrained by clearance requirements resulting in a limited area in which the structure can be located. Using this as the starting point for the west side trail, three general alignments were considered and screened for their feasibility.

These alignments are described below and are also shown schematically in Figure 11-1.

- Northern alignment: The trail alignment begins at the bridge landing and proceeds north along the
  eastern edge of the Church of Christ parcel. Once it reaches the northern property line of this parcel, it
  heads west and makes a connection with 1st Ave NE near the intersection of N 149th Street.
- Southern Alignment: The trail alignment begins at the bridge landing and proceeds south along the
  eastern edge of the Philippi parcel where it makes a connection with N 147th Street. The trail then
  proceeds west along N 147th Street until it reaches 1st Ave NE.
- Central Alignment: The trail alignment begins at the bridge landing and proceeds due west between the Church of Christ, Unitarian and Philippi parcels where it makes a connection with 1st Ave NE near the intersection of N 148th Street.



Figure 11-1: Initial Alignment Screening Options

An initial screening evaluation of these alignments was made with the intent identifying any fatal-flaws such that they can be eliminated from a more detailed evaluation. This screening evaluation is described below.

#### Northern Alignment

The primary challenges and concerns with this trail alignment are as follows:

- User Safety and Security: One of the primary pieces of feedback from the Church of Christ was that they
  would like to see a fence installed between their property and the trail. Additionally, a fence and/or railing
  would likely be required between the trail and WSDOT ROW. Combined with the existing fence that
  separates the Church of Christ parcel and the Aegis Living Facility, the entirety of the trail would be
  enclosed on all sides by fencing and/or railing. This would result in a confined experience for trail users
  and represents a safety concern as it limits egress opportunities.
- Connectivity and Travel Times: The traveled distance between where the bridge lands and where the
  trail connects with 1st Ave NE is approximately 700 feet long. This is approximately 550 feet longer than
  the central trail alignment. This extra distance increases user travel times and provides a less direct
  connection when compared to the central alignment.
- Ease of Stakeholder Approval: Because the trail makes a less direct connection to the bridge, it is likely
  that users coming from points south and east of N148th will trespass across the Unitarian and Philippi
  parcels in order to shorten their travel time. This concern was expressed by Church of Christ, Unitarian
  and Philippi representatives during project briefings.

Ease of Stakeholder Approval: As shown in Figure 2-15, Thornton Creek enters two, 6-foot diameter
culverts just north of the cell phone tower adjacent to the shoulder of southbound I-5. The width of the
stream buffer for this above ground portion increases to 75-feet. Any trail improvements in this buffer
would need to be mitigated accordingly. Additionally, any changes to the hydrology of the creek as a
result of the project would need to be mitigated which would be costly and difficult to permit.

Because of these challenges and concerns, the Northern Alignment was eliminated from further consideration and evaluation.

## Southern Alignment

The primary challenges and concerns with this trail alignment are as follows:

- Project Costs: Immediately east of the existing church building on the Philippi parcel, the grade slopes steeply toward the freeway. In order to tie-in to the bridge, the trail would need to be elevated on-grade or on structure along this slope. The further east the trail is located, the higher the trail would need to be elevated when compared to the existing grade which increases project costs. Alternatively, the trail could be placed immediately adjacent to the existing building where the grades are more favorable, however, this would divide the parcel thereby rendering the eastern remnant unusable. This remnant parcel would need to be purchased by the City which would increase project costs without providing significant benefit.
- Connectivity and Travel Times: The traveled distance between where the bridge lands and where the
  trail connects with 1st Ave NE is approximately 1000 feet long. This is approximately 750 feet longer
  than the central trail alignment and 300 feet longer than the northern alignment. This extra distance
  increases user travel times and provides a less direct connection when compared to the central
  alignment.
- Ease of Stakeholder Approval: Because the trail makes a less direct connection to the bridge, it is likely
  that users coming from points south and east of N148th will trespass across the Unitarian and Philippi
  parcels in order to shorten their travel time. This concern was expressed by Church of Christ, Unitarian
  and Philippi representatives during project briefings.

Because of these challenges and concerns, the Southern Alignment was eliminated from further consideration and evaluation.

#### **Central Alignment**

The primary challenges and concerns with this trail alignment are as follows:

- Ease of Stakeholder Approval: The trail could impact parking on both the Unitarian and Philippi parcels.
   Based on feedback received from both these property owners, parking is already at a premium and any lost parking spaces as a result of this project would need to be replaced in-kind.
- Project Costs: The existing utility easement along the southern edge of the Church of Christ parcel likely
  contains buried power and fiber optic infrastructure that feeds the cell phone tower at the southeast
  corner of the parcel. These utilities may need to be relocated to allow for construction of the trail.

While these challenges will need to be carefully considered during design, they are not considered insurmountable. The Central Alignment was selected for further evaluation and all west side trail options follow this general layout.

#### WEST SIDE TRAIL ALIGNMENT OPTIONS

Three west side trail alignment options were evaluated as part of the TS&L process and are described below.

## Option 1 - Minimal Build-Out

Figure 11-2 and Figure 11-3 show the plan-view layout and typical section for this option.

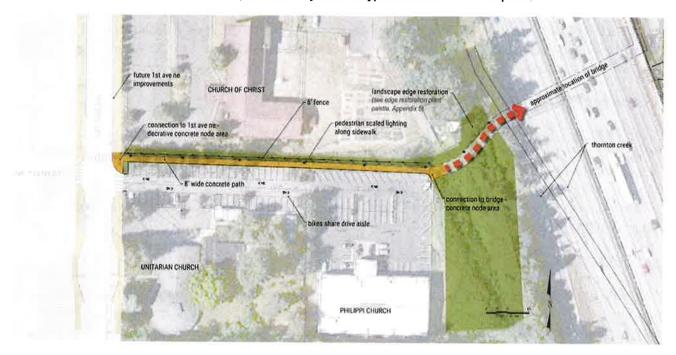


Figure 11-2: Option 1 - Minimal Build-Out Plan View

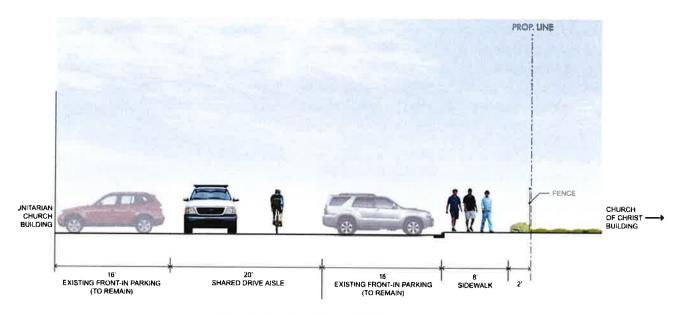


Figure 11-3: Option 1 - Minimal Build-Out Typical Section

In this option, pedestrians and bicyclists make the connection from 1st Ave NE to the bridge via two, separate facilities. Pedestrians would utilize an 8-foot wide concrete pathway that is immediately south of the property line between the Church of Christ and the Unitarian and Philippi parcels. Bicycle users make the connection to the bridge via the existing parking lot drive-aisle. Both user groups would be rejoined at the bridge landing at the northeast corner of the Philippi parcel.

This option is identified as the minimal build-out as it would provide a functional connection from 1st Ave NE to the bridge while minimizing impacts to the surrounding properties. It is recommended that the City acquire property rights (i.e. easement or fee purchase) for a future, full trail build-out. With these rights, the City could build the trail at a later date or obligate any future developers to construct a more formal connection at that time. This arrangement could provide flexibility for this developer to integrate the trail into their designs while simultaneously reducing construction costs for the City.

## Option 1 - Minimal Build-Out Evaluation

## User Safety and Security: Very Unfavorable

With this alternative, bicycle users share the parking lot drive aisle on both the Philippi and Unitarian parcels. This increases the risk of conflict between vehicles and bicyclists. Bicyclists may instead choose to use the 8-foot wide sidewalk as a means of avoiding the parking lot which increases the risk of conflict between pedestrians and bicyclists. The two potential sources of conflict increases the liability of the City and for the church parcel owners.

#### Connectivity and Travel Times: Unfavorable

With this alternative, bicycle and pedestrian users are separated into two facilities. This may increase confusion which detracts from the sense of connectivity to the main span of the bridge. Additionally, bicycle users may elect to use the sidewalk in lieu of using the shared drive aisle. Because the sidewalk is narrower than a combined multi-use trail, bicyclists would be forced to slow down to navigate amongst the pedestrian users. Pedestrians may also slowdown in order to avoid cyclists. This would likely decrease travel times for both user groups.

## Ease of Stakeholder Approval: Very Unfavorable

As mentioned previously, having the bicyclists share the parking lot drive aisle increases the risk of conflict between vehicles and the bicycle users. This concern was expressed by representatives of both the Philippi and Unitarian church properties during project briefings. The representatives were concerned about the safety and liability of their parishioners and may not be willing to accept this risk. One advantage of this option is that permanent parking impacts are eliminated. This benefit is considerably outweighed by the risks mentioned above.

Additionally, an access easement for the use of the drive aisle will be required which further encumbers the Philippi parcel. See the ROW evaluation below for further discussion.

#### **ROW Considerations: Very Unfavorable**

With this alternative, two separate easements are required. The first easement is for the future, full build-out of the trail and would be approximately centered on the proposed pedestrian sidewalk. This easement would allow for parking within the existing spaces on both the Unitarian and Philippi parcels that were preserved. Parking for both the Unitarian and Philippi parcels would be allowed within the trail easement. The second easement would be an access easement through the parking lot drive aisles on both the Philippi and Unitarian parcels. This access easement could affect the valuation of both parcels as the properties would have limited use with this type of easement. Additionally, the purchase of these two easements is the highest ROW costs for all alternatives. See the cost evaluation below for further details.

Below is a summary of the estimated ROW needs for this alternative for each affected parcel:

Church of Christ Parcel: 2,742 square feet of trail easement

- Unitarian Church Parcel: 6,223 square feet of trail easement, 7,379 square feet of access easement
- Philippi Parcel: 6,595 square feet of trail easement, 4,731 square feet of access easement

The ROW needs above do not include temporary construction easements. These have been estimated and included in the project costs which are provided below and in Appendix 4.

## Operations and Maintenance: Favorable

With this alternative, a smaller facility is constructed as part of this project. This reduces operations and maintenance costs when compared to the other alternatives.

#### Aesthetics: Unfavorable

By its very nature, this alternative is not a fully-realized trail connection to the pedestrian bridge and may be seen as an interim build-out. This may detract from the user experience when compared to the other alternatives.

#### **Project Costs: Favorable**

The estimated project costs for this alternative are:

- Construction Costs = \$582,000
- Contingency = \$233,000
- Design, Construction Management (CM) = \$367,000
- ROW Costs = \$1.88M
- Total Costs (incl. contingency, design, CM) = \$3.06M

This is the lowest cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

#### Option 2 - Full Build-Out South

Figure 11-4 and Figure 11-5 show the plan-view layout and typical section for this option.

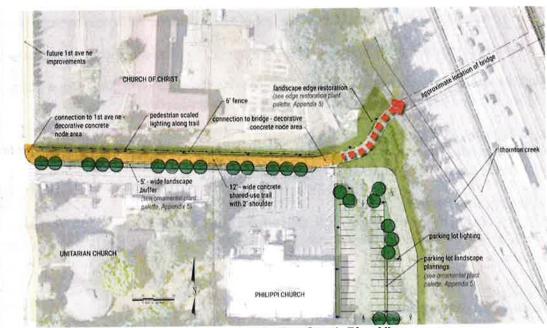


Figure 11-4: Option 2 - Full Build-Out South Plan View

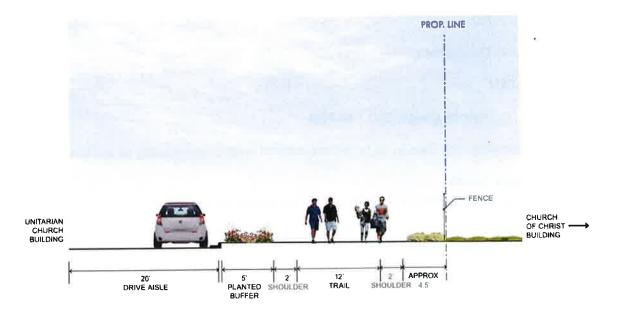


Figure 11-5: Option 2 – Full Build-Out South Typical Section

In this option, pedestrian users and bicyclists make the connection from 1st Ave NE to the bridge via a shared-use path. The northern edge of the path is essentially aligned with the property line between the Unitarian, Philippi and Church of Christ parcels. The increased width of the trail and associated planted buffer eliminates approximately 32 parking spaces on the Unitarian parcel and 12 parking spaces on the Philippi parcel. In order to mitigate for this lost parking, a parking lot would need to be constructed on the eastern portion of the Philippi parcel.

## Option 2 - Full Build-Out South Evaluation

## User Safety and Security: Favorable

With this alternative, bicyclists no longer share the drive aisle of the parking lot with vehicles but instead use the multi-use path. The multi-use path is wide enough to accommodate both bicyclists and pedestrians.

#### **Connectivity and Travel Times:** Favorable

With this alternative, the connection to the bridge is more formalized and creates a stronger, more obvious visual link when compared to Option 1. This enhances connectivity to the bridge and improves travel times.

#### Ease of Stakeholder Approval: Very Unfavorable

With this alternative, a significant number of parking spaces on both the Unitarian and Philippi parcels will be lost. While the loss of these parking spaces is mitigated by construction of an additional parking lot to the east of the Philippi church building, an easement between the Philippi and Unitarian property owners would need to be negotiated which would grant the Unitarian property access and parking rights to the Philippi parcel. This agreement may be difficult to reach. See ROW evaluation below for further discussion.

## **ROW Considerations: Very Unfavorable**

It is recommended that the trail be purchased in fee rather than acquire an easement as the cost of the easement would be close to or at fee value.

As mentioned above, the Unitarian and Philippi property owners would need to negotiate an agreement between one another for the access and parking rights on the Philippi parcel. This is a 3<sup>rd</sup> party agreement which the City should not participate in and in which the City has no recourse should the two parties fail to reach an agreement.

Additionally, the parking and access easement that would need to be granted to the Unitarian Church by the Philippi would significantly encumber that parcel from future development. Initial feedback received from the Philippi Church representatives indicated that they were interested in developing their parcel to take advantage of the recent zoning changes. See the cost evaluation below for further details.

Below is a summary of the estimated ROW needs for this alternative for each affected parcel:

- Church of Christ Parcel: 1,919 square feet of fee acquisition
- Unitarian Church Parcel: 6,154 square feet of fee acquisition
- Philippi Parcel: 6,301 square feet of fee acquisition

The ROW needs above do not include temporary construction easements. These have been estimated and included in the project costs which are provided below and in Appendix 4.

#### Operations and Maintenance: Unfavorable

With this alternative, a larger facility is constructed as part of this project. This increases operations and maintenance costs when compared to Option 1.

#### Aesthetics: Favorable

This alternative constructs a fully-realized trail connection to the bridge. This has more aesthetic appeal and can be visually linked to the bridge design which adds to the user experience especially when compared to Option 1.

## **Project Costs:** Very Unfavorable

The estimated project costs for this alternative are:

- Construction Costs = \$2.13M
- Contingency = \$852,000
- Design, CM = \$1.34M
- ROW Costs = \$1.31M
- Total Costs = \$5.63M

This is the highest cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

## Option 3 – Full Build-Out North

Figure 11-6 and Figure 11-7 show the plan-view layout and typical section for this option.



Figure 11-6: Option 3 - Full Build-Out North Plan View

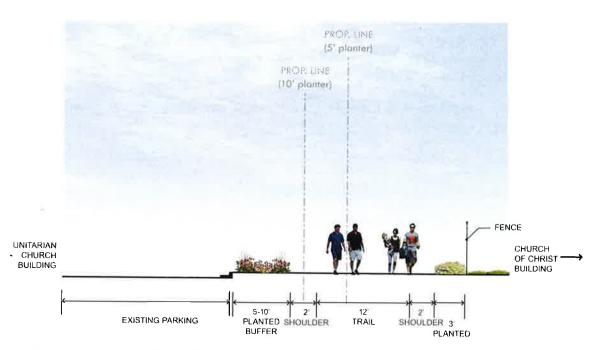


Figure 11-7: Option 3 – Full Build-Out North Typical Section

In this option, pedestrian users and bicyclists make the connection from 1st Ave NE to the bridge via a shared-use path. This path has been shifted further to the north onto the Church of Christ parcel in order to eliminate parking impacts on the Unitarian and Philippi parcels. Pushing the trail further to the north also provides an opportunity to preserve some of the existing mature evergreen trees that are along the existing property line.

This option would likely require relocation of the underground utilities and the associated easement further north such that it is located outside of the limits of the trail.

#### Option 3 – Full Build-Out North Evaluation

#### User Safety and Security: Favorable

With this alternative, bicyclists no longer share the drive aisle of the parking lot with vehicles but instead use the multi-use path. The multi-use path is wide enough to accommodate both bicyclists and pedestrians.

# Connectivity and Travel Times: Favorable

With this alternative, the connection to the bridge is more formalized and creates a stronger, more obvious visual link when compared to Option 1. This enhances connectivity to the bridge and improves travel times.

# Ease of Stakeholder Approval: Neutral

With this alternative, parking lot impacts are avoided by shifting the trail further to the north. This will likely be seen as favorable by the Philippi and Unitarian parcel owners but may be seen as unfavorable by the Church of Christ parcel owners.

Additionally, by locating the trail further to the north, the existing underground utility easement and the utilities contained within would need to be relocated. This relocation may not be seen as favorable to either the Church of Christ parcel owners and/or the cell phone tower owner.

These competing interests result in a neutral rating.

#### **ROW Considerations: Neutral**

It is recommended that the trail be purchased in fee rather than acquire and easement as the cost of the easement would be close to or at fee value. A utility easement on the Church of Christ parcel would need to be purchased in order to relocate the utilities that serve the cell phone tower.

From a ROW cost perspective, this is the least-cost alternative. However, negotiating property rights from the Church of Christ parcel may be challenging.

Below is a summary of the estimated ROW needs for this alternative for each affected parcel:

- Church of Christ Parcel: 8,113 square feet of fee acquisition
- Unitarian Church Parcel: 2,127 square feet of fee acquisition
- Philippi Parcel: 2,830 square feet of fee acquisition

The ROW needs above do not include temporary construction easements. These have been estimated and included in the project costs which are provided below and in Appendix 4.

# Operations and Maintenance: Unfavorable

With this alternative, a larger facility is constructed as part of this project. This increases operations and maintenance costs when compared to Option 1.

#### **Aesthetics:** Favorable

This alternative constructs a fully-realized trail connection to the bridge. This has more aesthetic appeal and can be visually linked to the bridge design which adds to the user experience especially when compared to Option 1.

#### **Project Costs: Neutral**

The estimated project costs for this alternative are:

- Construction Costs = \$1.20M
- Contingency = \$481,000
- Design, CM = \$758,000
- ROW Costs = \$1.14M
- Total Costs = \$3.58M

This is the second highest cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

# 12. Main Span Bridge Concepts

#### STRUCTURE DIMENSIONS

Due to the vertical clearance constraints described in Section 4, the bridge structure depth measured from the top of the bridge deck to the soffit of the structure is assumed to be 2-feet. Additionally, the horizontal constraints also described in Section 4 require a clear span length that varies between 250 and 270-feet depending on the east side landing selected (see Section 13). These two constraints are the primary drivers in the selection of the superstructure types considered in this evaluation and discussed below. Figure 12-1 below shows a potential main span bridge layout including foundation locations that meets the aforementioned horizontal and vertical constraints.

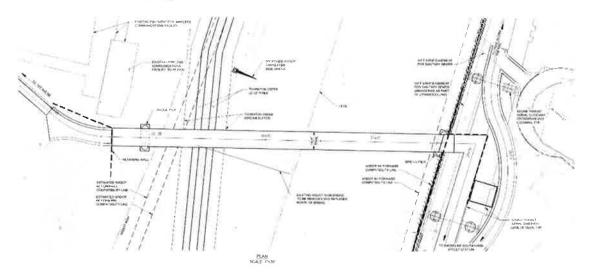
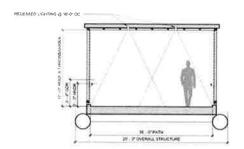


Figure 12-1: Typical Bridge Span Layout

The same typical section was assumed for each bridge alternative considered. The superstructure will carry a 16-foot wide path. When over WSDOT ROW, a 10-foot tall throw barrier will be included which will have an integrated, 42-inch tall pedestrian railing. When outside the limits of WSDOT ROW, only the 42-inch tall pedestrian railing will be included. Considerations for pathway lighting and a roof or canopy for each bridge type are described below. The roof or canopy, in conjunction with the throw barrier, would help improve user comfort by shielding the people from rain, wind gusts and water spray from the freeway below. The roof or canopy is not included on any of the approach spans or ramps. Figure 12-2 below shows typical sections of the main span which are applicable to all the structure types considered. More detailed bridge layouts and sections are included in Appendix 2.



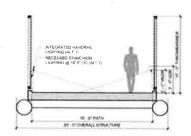




Figure 12-2: Bridge Typical Section

#### **TIED ARCH**

The Tied Arch concept offers the cleanest visual appearance of the designs, utilizing paired arches for the entire span, suspending the deck with cable hangers. The simplicity of the form creates an iconic profile against the sky when seen from I-5, and the slender cables contribute to the overall lightness of the bridge. If the City opts for weather protection over the bridge deck, a potential tensile-fabric canopy is shown that is in keeping with the visual lightness of the overall structure. Pedestrian lighting and the required throw barrier would be integrated with this canopy. Figure 12-3 through Figure 12-6 show rendered views of the tied arch bridge concept both with and without a canopy.



Figure 12-3: Tied Arch with Canopy – View from Bridge Looking East



Figure 12-4: Tied Arch with Canopy - View from I-5 Looking North



Figure 12-5: Tied Arch without Canopy – View from Bridge Looking East



Figure 12-6: Tied Arch without Canopy – View from I-5 Looking North

#### **Tied Arch Evaluation**

### User Safety and Security: Neutral

User safety and security is the same across all bridge types.

#### **Connectivity and Travel Times: Neutral**

Connectivity and travel time are the same across all bridge types.

#### Ease of Stakeholder Approval: Neutral

Ease of stakeholder approval is the same across all bridge types.

#### **ROW Considerations: Neutral**

Per Chapter 11 of the WSDOT ROW Manual, the City would need to acquire but would not need to pay for an airspace lease across WSDOT ROW if the bridge is part of a Comprehensive Trail Plan adopted by the City.

ROW requirements are the same across all bridge types.

## Operations and Maintenance: Favorable

In general, the tied arch bridge has fewer structural members when compared to the truss and the combined arch. A commitment to periodic and ongoing steel painting regimen carries cost implications, but this structure type offers the fewer members of the presented structure alternatives to maintain and repaint in the future.

## Aesthetics: Favorable

Based on feedback from City staff and stakeholders, this bridge is generally seen as having the highest aesthetic value.

#### **Project Costs:** Neutral

The estimated project costs for this alternative are:

- Construction Costs = \$6.43M
- Contingency = \$2.57M
- Design, CM = \$4.05M
- ROW Costs = \$0
- Total Costs = \$13.05M

As all of the structure alternatives spring from the same generic family of structure configuration and type, the cost differential between the structure alternatives as presented is very minor in relation to overall total project cost. However, this is the least cost alternative for structure cost. See Section 14 for a more detailed breakdown including all soft costs.

## **COMBINED ARCH**

The Combined Arch concept contains elements of the tied arch, with a major arch over the freeway and but with a secondary, smaller arch for the short span to grade on the west. Like the tied arch, this type would present a graceful form when seen from the freeway, with the smaller arch providing additional visual interest. The vertical hangers could be cable or steel sections, and the arches would be oriented vertically, not angled together as in the tied arch. The canopy for this type could also be a simple plane suspended between the

arches, with lighting and throw barrier integrated similar to the truss bridge. Figure 12-7 through Figure 12-10 show rendered views of the combined arch bridge concept both with and without a canopy.



Figure 12-7: Combined Arch with Canopy – View from Bridge Looking East



Figure 12-8: Combined Arch with Canopy – View from I-5 Looking North



Figure 12-9: Combined Arch without Canopy – View from Bridge Looking East



Figure 12-10: Combined Arch without Canopy – View from I-5 Looking North

#### **Combined Arch Evaluation**

#### User Safety and Security: Neutral

User safety and security is the same across all bridge types.

#### Connectivity and Travel Times: Neutral

Connectivity and travel time are the same across all bridge types.

#### Ease of Stakeholder Approval: Neutral

Ease of stakeholder approval is the same across all bridge types.

#### **ROW Considerations: Neutral**

Per Chapter 11 of the WSDOT ROW Manual, the City would need to acquire but would not need to pay for an airspace lease across WSDOT ROW if the bridge is part of a Comprehensive Trail Plan adopted by the City.

ROW requirements are the same across all bridge types.

#### Operations and Maintenance: Unfavorable

In general, the combined arch has slightly more steel structural components when compared to the tied arch with the increased mass of the combined arch structure width slightly overbalancing with the reduced mass of the combined arch structure vertical profile. But the slight difference in exposed steel mass does not substantially change the cost implications of the commitment to periodic and ongoing steel painting regimen requirements for exposed steel structure.

#### **Aesthetics:** Neutral

Based on feedback from City staff and stakeholders, this bridge was generally seen as having the second highest aesthetic value.

#### Project Costs: Neutral

The estimated project costs for this alternative are:

- Construction Costs = \$6.91M
- Contingency = \$2.76M
- Design, CM = \$4.35M
- ROW Costs = \$0
- Total Costs = \$14.03M

As all of the structure alternatives spring from the same generic family of structure configuration and type, the cost differential between the structure alternatives as presented is very minor in relation to overall total project cost. However, this is the second least structure cost alternative, being slightly higher than for the tied arch alternative, but fairly close in context of overall project cost. See Section 14 for a more detailed breakdown including all soft costs.

#### **TRUSS**

The Truss configuration is the most straightforward and traditional of the structure types under consideration. Harking back to highway and railroad bridges of the past, it creates a robust image on the skyline. The gently

arched top chords of the trusses soften the utilitarian aspect that truss bridges can have and form a strong counterpoint to the adjacent light rail station. If desired, the canopy on this bridge could be a simple planar structure with recessed or pendant downlights. The throw barrier would be attached to the inside faces of the trusses. Figure 12-11 through Figure 12-14 show rendered views of the truss bridge concept.



Figure 12-11: Truss with Canopy - View from Bridge Looking East



Figure 12-12: Truss with Canopy – View from I-5 Looking North



Figure 12-13: Truss without Canopy – View from Bridge Looking East



Figure 12-14: Truss without Canopy - View from I-5 Looking North

#### **Truss Evaluation**

# User Safety and Security: Neutral

User safety and security is the same across all bridge types.

# Connectivity and Travel Times: Neutral

Connectivity and travel time is the same across all bridge types.

# Ease of Stakeholder Approval: Neutral

Ease of stakeholder approval is the same across all bridge types.

# **ROW Considerations:** Neutral

Per Chapter 11 of the WSDOT ROW Manual, the City would need to acquire but would not need to pay for an airspace lease across WSDOT ROW if the bridge is part of a Comprehensive Trail Plan adopted by the City.

ROW requirements are the same across all bridge types.

# Operations and Maintenance: Unfavorable

In general, the truss has the highest number of structural steel components when compared to the tied arch and combined arch bridge types. This increase of exposed steel mass for the truss bridge type is enough to carry a more noticeable cost implication with the commitment to periodic and ongoing steel painting regimen requirements for exposed steel structure.

#### Aesthetics: Unfavorable

Based on feedback from City staff and stakeholders, this bridge was generally seen as having the lowest aesthetic value.

# **Project Costs:** Unfavorable

The estimated project costs for this alternative are:

- Construction Costs = \$7.72M
- Contingency = \$3.09M
- Design, CM = \$4.86M
- ROW Costs = \$0
- Total Costs = \$15.68M

As all of the structure alternatives spring from the same generic family of structure configuration and type, the cost differential between the structure alternatives as presented is minor in relation to overall project cost. However, this is the highest cost alternative, both for initial construction cost and for ongoing periodic life cycle maintenance costs. See Section 14 for a more detailed breakdown including all soft costs.

# **CONSTRUCTION CONSIDERATIONS**

Construction staging will be a significant challenge and will likely drive many of the design decisions and will have substantial impacts on the project costs. Below is a summary of the primary construction constraints and some methods that could be employed to help solve these issues.

#### **West Side Construction Staging Areas**

In order to construct the foundations and assemble the main span, a temporary staging area of considerable size will need to be constructed. There are two potential areas on the west side of I-5 for a staging area that is large enough to accommodate these construction activities.

As shown in Figure 12-15, the easternmost portion of the Church of Christ parcel is currently an open, grassy field and an asphalt parking lot. This area could accommodate the staging required to construct the western bridge pier and assemble the main span. Access to the staging area would be off of 1st Ave NE.

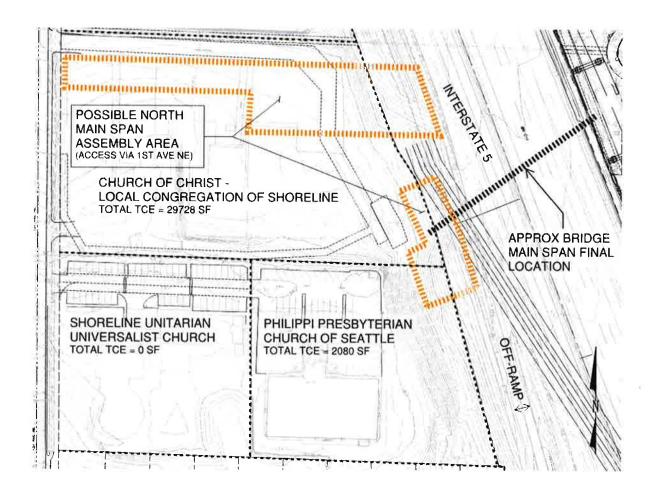


Figure 12-15: Potential Bridge Construction Staging Area on Church of Christ Parcel

Challenges associated with using this location include:

- Grade Difference: The elevation of the Church of Christ parcel is approximately 15-20 feet higher than I-5 in this area. This grade difference would make transportation of the assembled main span to the piers on which it rests difficult. Temporary trestles and or ramps down to the freeway would need to be constructed which would require significant clearing of trees and brush on the existing slope.
- Thornton Creek: Thornton Creek would be immediately adjacent to the staging area. Impacts to the
  creek would need to be minimized and working around the creek could be a significant challenge as
  temporary work platforms/trestles would need to be constructed to avoid impacting the creek.

- Property Owner Impacts: Assembly of the main span and construction of the bridge foundations will
  require the use of large equipment which may cause disruptions to the owners of the Church of Christ
  parcel. While efforts would be made to lessen these impacts, the owner may not grant the necessary
  temporary easements on their property.
- Cell Phone Tower: The cell phone tower in the southeast corner of the parcel is a sizable obstruction that would need to be worked around and protected. Finding suitable crane positions that don't interfere with the tower could be difficult.

The second construction staging area that could be used to is shown in Figure 12-16. This area is just east of the church building on the Philippi parcel and extends down to the off-ramp to NE 145th Street. The topography in this area slopes down to the freeway and the hillside is heavily vegetated with brush and trees. Access to this staging area would be from the I-5 off-ramp.

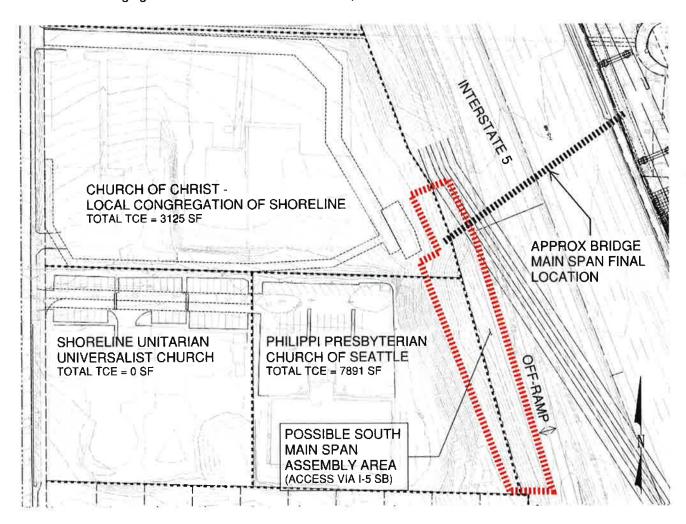


Figure 12-16: Potential Bridge Construction Staging Area Adjacent to the Philippi Church Parcel

Challenges associated with using this location include:

- Steep Slopes: In order to create a suitable work area, the staging area would need to be leveled.
   Because of the slope, this would likely require the use of temporary walls and/or slopes. These elements would need to be removed following construction and the area would need to be restored.
- Property Owner Impacts: Assembly of the main span and construction of the bridge foundations will
  require the use of large equipment which may cause disruptions to the owners of the Philippi parcel and
  other nearby homes. While efforts would be made to lessen these impacts, the Philippi parcel owners
  may not grant the necessary temporary easements on their property.

Of the two west side staging areas identified, the one adjacent to the Philippi parcel and the NE 145th Street off-ramp appears to be most promising based on the information available. Access from this area to bridge location is advantageous as the bridge could be transported to the piers without having to navigate slopes or the cell phone tower. Additionally, Thornton Creek in this area is located further east and is contained within two culverts.

## **East Side Staging Areas**

As shown in Figure 12-17, the eastern bridge pier is located between the shoulder of the northbound on-ramp and the noise wall immediately adjacent to the Shoreline South/145th Street Station. The staging area required for the construction of this pier would need to be located west of the noise wall and would need to be a minimum of 25-feet in width. The on-ramp would likely need to be temporarily relocated further west in order to accommodate this staging area. It is likely that the majority of the construction of the eastern pier would be night work.

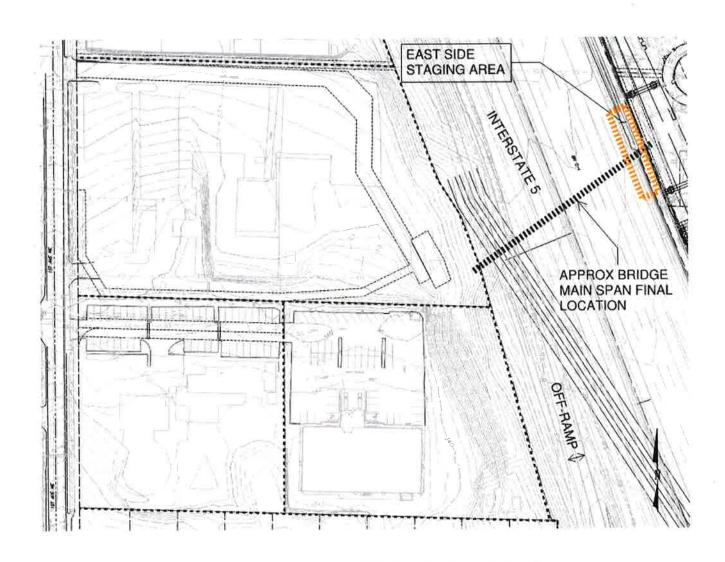


Figure 12-17: Potential Bridge East Side Construction Staging Area

# **Working Over I-5**

The erection of the main span will have to occur during an extended closure window of 12-15 hours of both directions of I-5 including both on and off ramps at NE 145th Street. The closure would likely occur during a weekend night. Potential detour routes for northbound and southbound I-5 are shown in Figure 12-18.

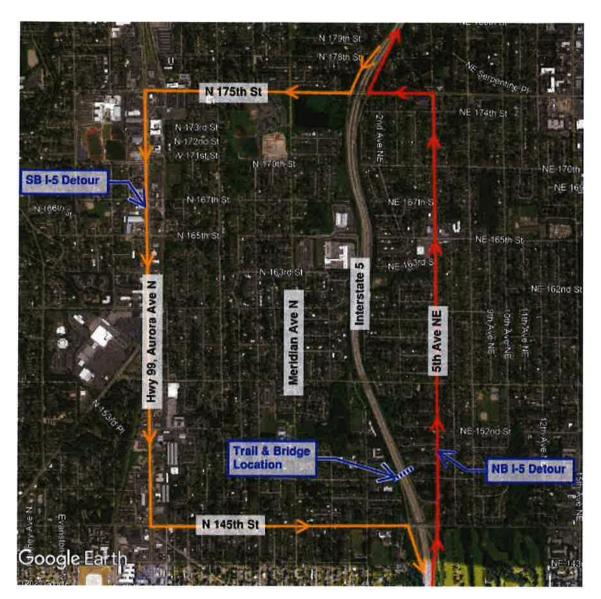


Figure 12-18: Potential I-5 Detour Routes During Full Closure

During the closure, the assembled main span could be transported from the staging area to the bridge piers using self-propelled modular transporters (SPMTs) and lifted into place using hydraulic cranes. SPMTs utilize a set of connected, hydraulically driven wheeled axles which can carry significant loads by utilizing multiple axles to help spread the weight of the structure over a wide area. This transportation technique was recently utilized on a similar pedestrian bridge project for the City of Everett where a 250-foot long truss was transported across several lines of railroad tracks. In order to transport the structure into place, the median barrier that separates northbound and southbound I-5 would need to be temporarily removed and then restored prior to reopening the freeway. A schematic construction sequence for the main span is shown

Evening lane closures of I-5 would also be required during certain main span construction like bridge deck concrete pours and other high risk operations.

# 13. East Side Landing Alternatives

The primary constraint that drove the design development of the east side landings was maintaining a balance between providing ADA compliant ramp slopes and maximizing the vertical clearance to the aerial guideway structure above. The three options described below all present trade-offs between these competing project requirements.

Additionally, these landing designs need to integrate the Trail-Along-the-Rail (TAR) project which is currently being constructed by Sound Transit as part of the Lynnwood Link Project. The TAR is a multi-use trail that runs parallel to the light rail tracks and will connect the Shoreline South/145th Street Station to NE 155<sup>th</sup> Street. Future phases of the TAR will extend this trail to points north and south.

The typical trail section shown below would be used for all east side landing alternatives.

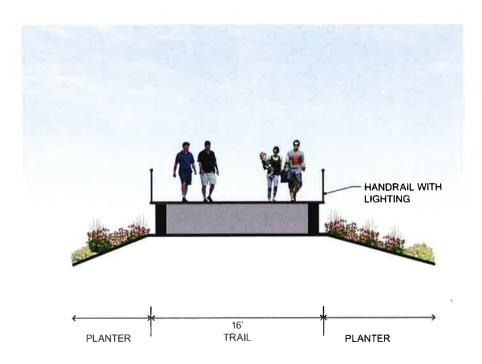


Figure 13-1: Typical Trail Section for East Side Landing

#### **OPTION A: A-FRAME RAMP**

In this option, the main span of the pedestrian bridge is located essentially equidistant between the two sets of columns and crossbeams that support the light rail structure above. Trail users would pass below the light rail structure with a minimum vertical clearance of 8.0 feet. Users then arrive at a landing where they reach their first decision point. Users headed to the light rail station would proceed down a ramp and arrive at the station plaza. Walking users who wish to make a connection to the cul-de-sac at N 149th Street or the TAR would have the option to take a set of stairs. ADA users who wish to make a connection to the TAR or N 149th Street would take the ramp down to the station plaza and then proceed north.

In order to minimize potential impacts to the light rail columns and crossbeams lightweight fill and column silos may be required.

Figure 13-2 and Figure 13-3 below show a plan view and profile of this landing option.



Figure 13-2: Option A - East Side Landing Plan View

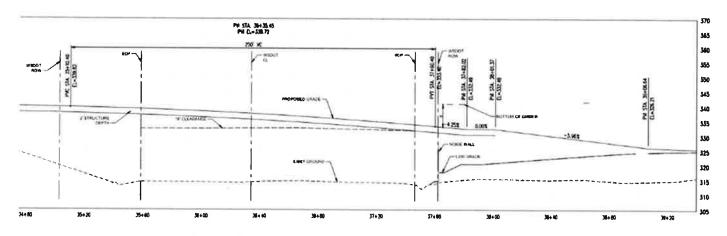


Figure 13-3: Option A – East Side Landing Profile

# Option A – East Landing Evaluation:

# **User Safety and Security: Neutral**

This alternative provides a direct connection to the Shoreline South/145<sup>th</sup> Street Station but a less direct connection between the bridge and the TAR. Less circuitous pathways are often perceived by the user as being more secure. These two offsetting attributes result in a neutral rating.

#### Connectivity and Travel Times: Neutral

This alternative provides a direct connection to the Shoreline South/145<sup>th</sup> Street Station but a less direct connection between the bridge and the TAR. These two offsetting attributes result in a neutral rating.

#### Ease of Stakeholder Approval: Unfavorable

This alternative provides the least vertical clearance between the trail surface to the overhead light rail structure, which is less desirable from a user experience perspective. This will require a deviation from the City's adopted standards. This may also be seen as unfavorable to ST with regard to the safety and security of their aerial guideway structure.

#### **ROW Considerations: Neutral**

As mentioned previously, the City will own the underlying property in the landing area with a transit way easement to ST. ROW requirements are the same across all landing types

#### Operations and Maintenance: Neutral

This alternative has the second most lineal feet of pathway when compared to the other alternatives. Maintenance and operation costs are assumed to be a function of pathway length.

#### **Aesthetics: Neutral**

All east landing alternatives have similar aesthetic value.

#### Project Costs: Favorable

The estimated project costs for this alternative are:

- Construction Costs = \$1.81M
- Contingency = \$726,000
- Design, CM = \$1.14M
- ROW Costs = \$0
- Total Costs = \$3.68M

This is the least cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

#### **OPTION B: SWITCHBACK RAMP**

In this option, the main span of the pedestrian bridge lands further to the south. In order to increase the vertical clearance, the trail turns 90 degrees and slopes down to the north prior to turning to the east where it crosses under the light rail track structure. The minimum vertical clearance from the path to the overhead structure is 9.3 feet. Similar to Option A, users headed to the light rail station would proceed down a ramp and arrive at the station plaza. Walking users who wish to make a connection to the cul-de-sac at N 149th Street or the TAR could take a set of stairs which are located midway down the ramp. ADA users who wish to make a connection to the TAR or N 149th Street would take the ramp down to the station plaza and then proceed north.

Similar to Option 1, lightweight fill and column silos may be required in order to minimize impacts to the light rail structures.

Figure 13-4 and Figure 13-5 below show a plan view and profile of this landing option.



Figure 13-4: Option B – East Side Landing Plan View

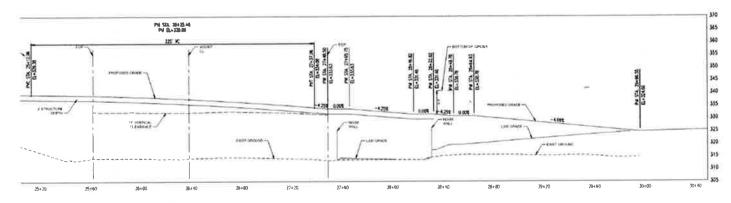


Figure 13-5: Option B - East Side Landing Profile

## Option B – East Landing Evaluation:

## User Safety and Security: Unfavorable

This alternative provides the least direct connection to the Shoreline South/145<sup>th</sup> Street Station of all alternatives considered. Similar to Option A, the connection between the TAR and the bridge is less direct. Less circuitous pathways are often perceived by the user as being more secure.

# Connectivity and Travel Times: Unfavorable

This alternative provides the most circuitous connection between the bridge, TAR and the Shoreline South/145<sup>th</sup> Street station. This reduces connectivity and increases travel times for all users.

#### Ease of Stakeholder Approval: Unfavorable

This alternative provides the greatest vertical clearance between the trail surface to the overhead light rail structure. This will still require a deviation from the City's adopted standards but is the closest of all alternatives considered to achieving the code requirement. Higher vertical clearance may also be seen as favorable to ST.

However, this alternative has significantly more structure within the 84-foot and 94-foot WSDOT FCL. This may be seen by WSDOT as an obstacle to future amenity improvements. WSDOT is a key stakeholder and project success depends on their approval.

#### **ROW Considerations: Neutral**

As mentioned previously, the City will own the underlying property in the landing area with a transit way easement to ST. ROW requirements are the same across all landing types

#### Operations and Maintenance: Unfavorable

This alternative has the most lineal feet of pathway when compared to the other alternatives. Maintenance and operation costs are assumed to be a function of pathway length. Additionally, this alternative has the highest structure length which also increases future maintenance and operation costs.

## **<u>Aesthetics:</u>** Neutral

All east landing alternatives have similar aesthetic value.

#### Project Costs: Unfavorable

The estimated project costs for this alternative are:

Construction Costs = \$2.31M

- Contingency = \$923,000
- Design, CM = \$1.45M
- ROW Costs = \$0
- Total Costs = \$4.69M

This is the highest cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

# **OPTION C: DIRECT RAMP**

In this option, the main span of the pedestrian bridge lands further to the south and crosses under the light rail structure with a minimum vertical clearance from the trail to the overhead structure of 8.8 feet. This option varies from Options A & B in that the TAR slopes up to make a direct connection to the trail coming off of the pedestrian bridge. Pedestrian bridge users can choose to head north along the TAR and make a connection to N 149th Street via a spur trail or head south to the station.

Similar to other options, lightweight fill and column silos may be required in order to minimize impacts to the light rail structures.

Figure 13-6 and Figure 13-7 below show a plan view and profile of this landing option.



Figure 13-6: Option C - East Side Landing Plan View

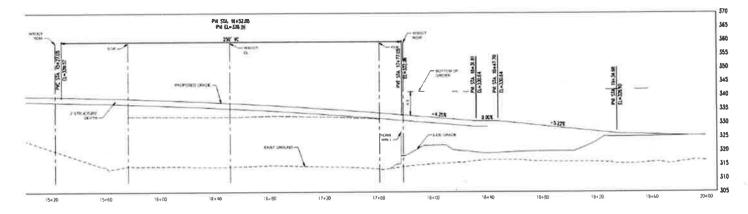


Figure 13-7: Option C – East Side Landing Profile

# Option C - East Landing Evaluation:

#### User Safety and Security: Favorable

This alternative provides the most direct connection between the bridge, TAR and the Shoreline South/145<sup>th</sup> Street Station of all alternatives considered. More direct connections are often perceived by users as being safer.

#### Connectivity and Travel Times: Favorable

This alternative provides the most direct connection between the bridge, TAR and the Shoreline South/145<sup>th</sup> Street Station. This increases connectivity and decreases travel times for all users.

#### Ease of Stakeholder Approval: Neutral

This alternative provides the second highest vertical clearance between the trail surface to the overhead light rail structure. This will require a deviation from the City's adopted standards. The vertical clearance may be seen as less desirable to ST.

#### **ROW Considerations:** Neutral

As mentioned previously, the City will own the underlying property in the landing area with a transit way easement to ST. ROW requirements are the same across all landing types

#### Operations and Maintenance: Favorable

This alternative has the smallest lineal feet of pathway when compared to the other alternatives. Maintenance and operation costs are assumed to be a function of pathway length.

### **Aesthetics:** Neutral

All east landing alternatives have similar aesthetic value.

#### Project Costs: Neutral

The estimated project costs for this alternative are:

- Construction Costs = \$1.93M
- Contingency = \$770,000
- Design, CM = \$1.21M

- ROW Costs = \$0
- Total Costs = \$3.91M

This is the second highest cost alternative. See Section 14 for a more detailed breakdown including all soft costs.

## EAST LANDING FUTURE VISIONS

In early 2018, the City completed a pre-design study for the 3rd Avenue NE Woonerf Project. As shown in Figure 13-8. This design incorporates a "shared" or "living" street which will connect NE 149th Street to NE 151st Street and interface directly with the east bridge landing.

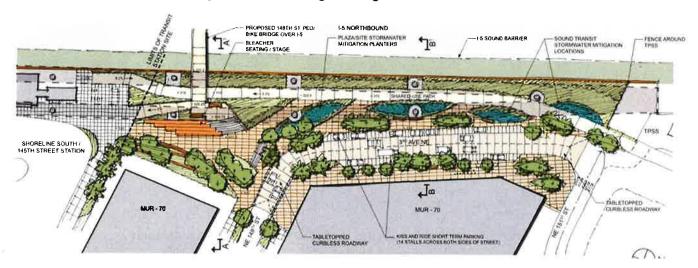


Figure 13-8: 3<sup>rd</sup> Avenue Woonerf Concept Plan View

While the 3rd Avenue NE Woonerf Project has not advanced beyond the conceptual design phase, the pedestrian bridge and eastern landing design must not preclude the development of this future vision for this area.

Figure 13-9 through Figure 13-11 shows how the east landing options could be modified to include a plaza space and public gathering area similar to what is shown in the woonerf concept. While these elements will not likely become a part of this project, estimated construction costs for these upgrades have been included in Appendix 4 for planning purposes.

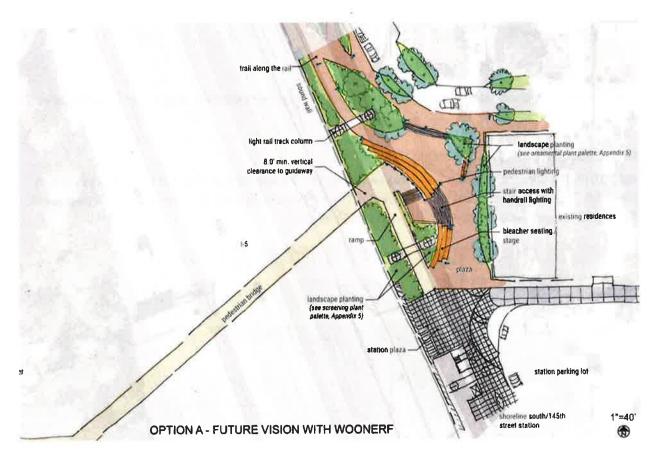


Figure 13-9: Option A – Future Vision with 3<sup>rd</sup> Avenue NE Woonerf

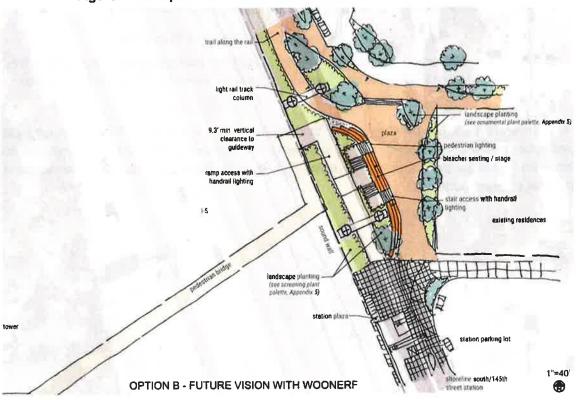


Figure 13-10: Option B – Future Vision with 3<sup>rd</sup> Avenue NE Woonerf

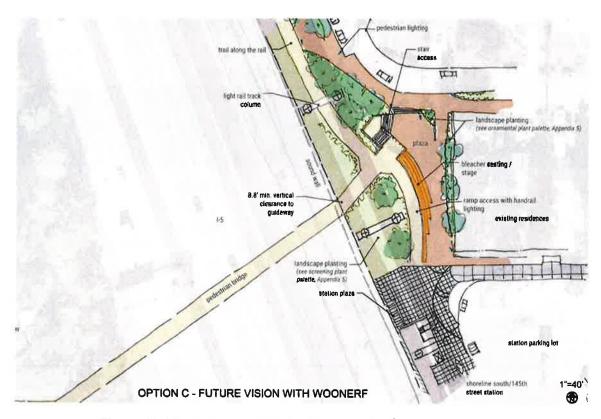


Figure 13-11: Option C – Future Vision with 3rd Ave NE Woonerf

# 14. Cost Summary

This section provides a summary of the estimated project costs for all west trail alignments, bridge and east side landing alternatives. As mentioned previously, these alternatives can be combined interchangeably to form a complete project. Appendix 4 provides a detailed cost and quantity breakdown for all alternatives considered including all assumptions.

## WEST SIDE TRAIL ALIGNMENTS ESTIMATED COSTS

Table 14-1 below provides a summary of the estimated project costs for the West Side Trail alignment alternatives.

Table 14-1: West Side Trail Alignment Alternatives Estimated Costs

	West Trail Alignments			
	Option 1 - Minimal Build-Out	Option 2 - Full Build-Out South	Option 3 - Full Build-Out North	
Construction Costs (incl. Mobilization)	\$582,481	\$2,131,023	\$1,203,208	
Contingency (40% of Const. Cost)	\$232,992	\$852,409	\$481,283	
Engineering Design (20% of Const. Cost + Contingency)	\$163,095	\$596,687	\$336,898	
Construction Management & Administration (25% of Const. Cost + Contingency)	\$203,868	\$745,858	\$421,123	
ROW Costs (Including TCE & Administration)	\$1,878,285	\$1,307,235	\$1,140,975	
Total Cost	\$3,060,730	\$5,633,220	\$3,583,490	

## **BRIDGE MAIN SPAN ESTIMATED COSTS**

Table 14-2 below provides a summary of the estimated project costs for the Bridge Main Span alternatives.

Table 14-2: Bridge Main Span Alternatives Estimated Costs

	Bridge Main Span			
	Tied Arch (without Canopy)	Combined Arch (without Canopy)	Truss (without Canopy)	
Construction Costs (incl. Mobilization)	\$6,428,620	\$6,910,420	\$7,721,835	
Contingency (40% of Const. Cost)	\$2,571,448	\$2,764,168	\$3,088,734	
Engineering Design (20% of Const. Cost + Contingency)	\$1,800,014	\$1,934,918	\$2,162,114	
Construction Management & Administration (25% of Const. Cost + Contingency)	\$2,250,017	\$2,418,647	\$2,702,642	
ROW Costs (Including TCE & Administration)	÷	•	) <del>(</del> )	
Total Cost	\$13,050,100	\$14,028,160	\$15,675,330	

# EAST SIDE LANDINGS ESTIMATED COSTS

Table 14-3 below provides a summary of the estimated project costs for the East Side Landing alternatives.

**Table 14-3: East Side Landing Alternatives Estimated Costs** 

	East Side Landing				
	Option A	Option B	Option C		
Construction Costs	\$1,814,549	\$2,308,136	\$1,925,743		
Contingency (40% of Const. Cost)	\$725,820	\$923,254	\$770,297		
Engineering Design (20% of Const. Cost + Contingency)	\$508,074	\$646,278	\$539,208		
Construction Management & Administration (25% of Const. Cost + Contingency)	\$635,092	\$807,847	\$674,010		
ROW Costs (Including TCE & Administration)	: <b>:</b> :		2		
Total Cost	\$3,683,540	\$4,259,559	\$3,909,260		

#### SUMMARY OF ESTIMATED COSTS

Table 14-4, below, provides a summary of the estimated project costs. For this table, the components of the total project cost were adjusted to account for the year in which each cost is expected to occur. The assumptions for this calculation are documented below.

- Construction, Contingency, Construction Management & Administration in 2024, escalated 4% each year from 2020
- Engineering Design in 2023, escalated 4% each year from 2020
- ROW Costs in 2022, escalated 6% each year from 2020

The table provides the estimated project cost for each of the 27 possible combinations of West Side Trail Alignments, Bridge Main Spans, and East Side Landings. For example, the estimated costs for West Side Option 1, Tied Arch Main Span, and East Side Option A is \$22,958,530.

Table 14-4: Summary of Estimated Costs

	1 . St. 2 to 1 1 to 5	East Side Landing					
West Side Trail Alignment	Bridge Main Span	Option A		Option B		Option C	
Option 1 - Minimum Build-Ou	Tied Arch	\$	22,958,530	\$	24,124,490	\$	23,221,190
	Combination Arch	\$	24,096,650	\$	25,262,610	\$	24,359,310
\$ 3,486,390	Truss	\$	26,013,380	\$	27,179,340	\$	26,276,040
Option 2 - Full Build-Out Sout	Tied Arch	\$	25,974,890	\$	27,140,850	\$	26,237,550
\$ 6,502,750	Combination Arch	\$	27,113,010	\$	28,278,970	\$	27,375,670
	Truss	\$	29,029,740	\$	30,195,700	\$	29,292,400
Option 3 - Full Build-Out Nort	Tied Arch	\$	23,596,380	\$	24,762,340	\$	23,859,040
\$ 4,124,240	Combination Arch	\$	24,734,500	\$	25,900,460	\$	24,997,160
	Truss	\$	26,651,230	\$	27,817,190	\$	26,913,890

# 15. Project Open House

As part of the larger public outreach effort, the City of Shoreline hosted an online open house between April 10 and May 1, 2020, to share information and gather input on the design of the bridge and how it connects to the neighborhoods on the east and west sides of I-5. A companion in-person open house had been planned, however, due to mandated social distancing associated with the COVID-19 pandemic, this event had to be cancelled. As a substitute for the in-person open house, the City hosted a one hour webinar which included a 20 minute presentation followed by a live question and answer (Q&A) session. A recording of the webinar and the Q&A responses were subsequently made available on the project website. The online open house served as the main avenue by which feedback from the general public was gathered.

When visiting the online open house participants could:

Learn more about the project need, benefits, and schedule.

- Review the options being considered for each design element and provide feedback on those options.
- Share how they plan to use the bridge and what criteria is most important to them.
- Share demographic information to help determine the effectiveness of the City's outreach.
- Sign up for email updates about this project and others in the N 145th Street corridor

The City used multiple methods to reach audiences and promote the online open house. A postcard advertising the online open house and the webinar was sent to 4,195 addresses in the project area. Information about the online open house was also posted on the project webpage and on social media, and the project team sent emails to project partners, neighborhood organizations, and immediate project stakeholders.

Between April 10 and May 1, 529 individuals visited the online open house. There were 165 survey respondents, who provided:

- 125 responses to bridge structure questions
- 87 responses to the east bridge landing questions
- 113 responses to the west trail connection questions
- 98 responses to evaluation criteria questions
- 110 responses to bridge use and demographic questions
- 33 open-ended comments in response to the question "Is there anything else you would like to share about the N 148th St Non-Motorized Bridge Project?"

The following tables summarize the quantitative data from the survey regarding preference for the west trail connection, the main span bridge and the east landing alternatives. All questions were optional. Not all respondents answered every question. The online open house content and a more comprehensive summary of the responses is included in Appendix 6 of this report.

Table 15-1: Responses to West Trail Connection Preference

QUESTION: WHICH WEST TRAIL CONNECTION DO YOU PREFER?				
Answers	Percentage	Tally		
Option 2: Full Build-Out	57%	57		
Option 3: Minimal Build-Out	43%	43		
Total	100%	100		

Table 15-2: Responses to Bridge Option Preference

QUESTION: WHICH BRIDGE OPTION DO YOU PREFER?				
Answers	Percentage	Tally		
Option 2: Tied Arch Bridge	57%	63		
Option 3: Truss Bridge	26%	28		
Option 1: Combined Arch Bridge	17%	19		
Total	100%	110		

Table 15-3: Responses to East Bridge Landing Option Preference

QUESTION: WHICH EAST BRIDGE LANDING DO YOU PREFER?				
Answers	Percentage	Tally		
Option 3: Direct Ramp	94%	77		
Option 2: Switchback Ramp	5%	4		
Option 1: A-Frame Ramp	1%	1		
Total	100%	82		

# 16. Alternatives Evaluation and Recommendations

Each trail, bridge, and landing alternative was qualitatively evaluated and compared to one another in the previous sections of this report. These comparisons are consolidated and visually represented in three evaluation criteria matrices (ECM). The purpose of each ECM is to help facilitate the decision making process with the goal of selecting the preferred alternative.

# WEST SIDE TRAIL ALIGNMENT EVALUATION CRITERIA MATRIX

Figure 16-1 below shows the ECM for the West Side Trail Alignments studied.

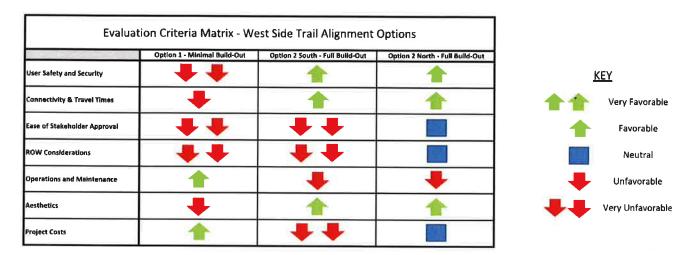


Figure 16-1: ECM for the West Side Trail Alignment Alternatives

#### **BRIDGE MAIN SPAN EVALUATION CRITERIA MATRIX**

Figure 16-2 below shows the ECM for the Bridge Main Span options studied.

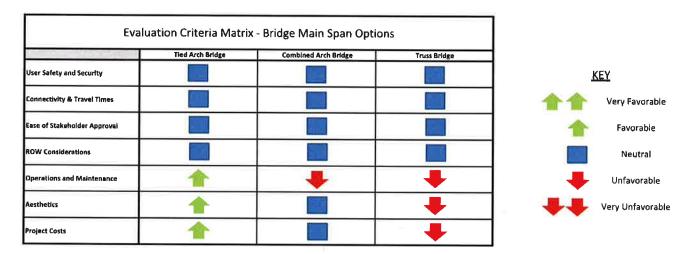


Figure 16-2: ECM for the Bridge Main Span Options

# **EAST SIDE LANDINGS EVALUATION CRITERIA MATRIX**

Figure 16-3 below shows the ECM for the East Side Landings alternatives studied.

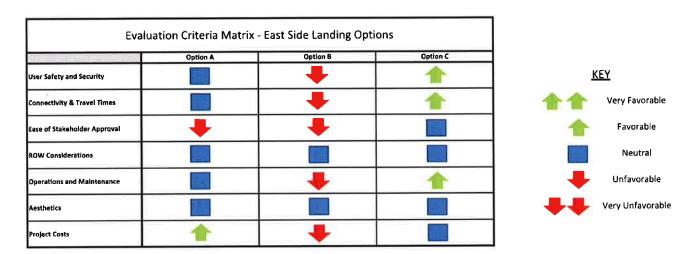


Figure 16-3: ECM for the East Side Landings Alternatives

#### WEST SIDE TRAIL ALIGNMENT RECOMMENDATIONS

Three west side trail alignment alternatives are presented in this report. Each alternative provides the necessary connection from 1<sup>st</sup> Avenue NE to the main bridge span. Each of these alternatives have benefits and trade-offs especially with regard to ease of stakeholder approval, right-of-way, user safety and security and project costs.

Based on the results of this TS&L evaluation and input from the general public through the online open house, Option 3 – Full Build-out North is the recommended preferred alternative for the west side trail alignment. This option best meets the established project criteria and received the most favorable feedback from the public.

#### BRIDGE MAIN SPAN RECOMMENDATIONS

Three main span bridge alternatives are presented in this report. These bridges meet the project design requirements, but differ primarily in their costs, aesthetic value and maintenance requirements.

Based on the results of this TS&L evaluation and input from the general public through the online open house, the tied-arch bridge is the recommended preferred alternative for the main span structure. While all bridges met the design criteria and were comparable in their cost, the tied-arch span received the most favorable feedback from the public.

#### EAST SIDE LANDING RECOMMENDATIONS

Three east side landing alternatives are presented in this report. These landings provide a connection from the bridge to the Shoreline South/145<sup>th</sup> Street Station, the trail-along-the-rail and the surrounding neighborhood. These alternatives vary primarily in their connectivity, vertical clearance to the overhead light rail structure and costs.

Based on the results of this TS&L evaluation and input from the general public through the online open house, Option 3 – Direct Ramp is the recommended preferred alternative for the east side landing. This option best meets the established project criteria and received the most favorable feedback from the public.

# 17. References

DAHP. 2020. Washington Information System for Architectural and Archaeological Records Data (WISAARD). https://wisaard.dahp.wa.gov/Map. Accessed February 6.

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https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html. Washington Department of Fish & Wildlife. Accessed February 6.

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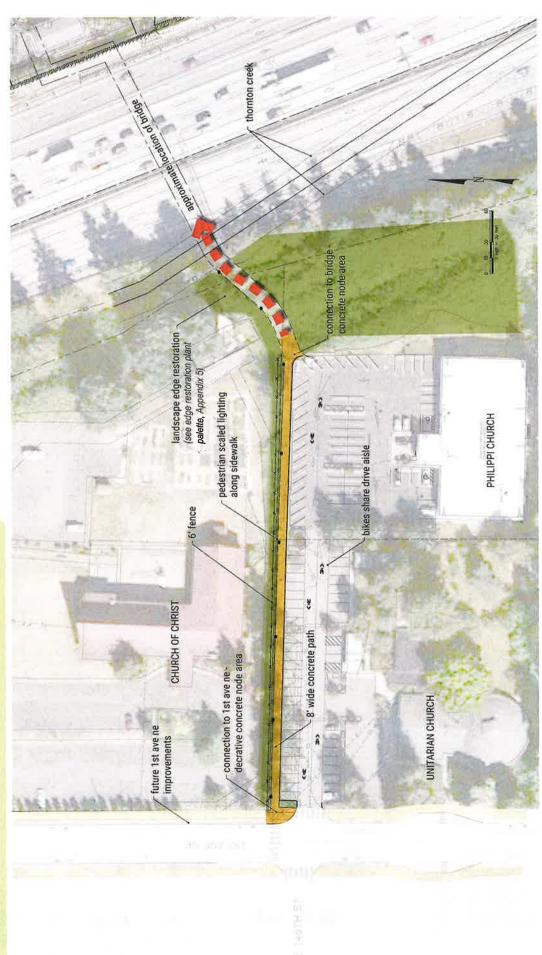
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West Side Trail Connection

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### West Side Trail Connection

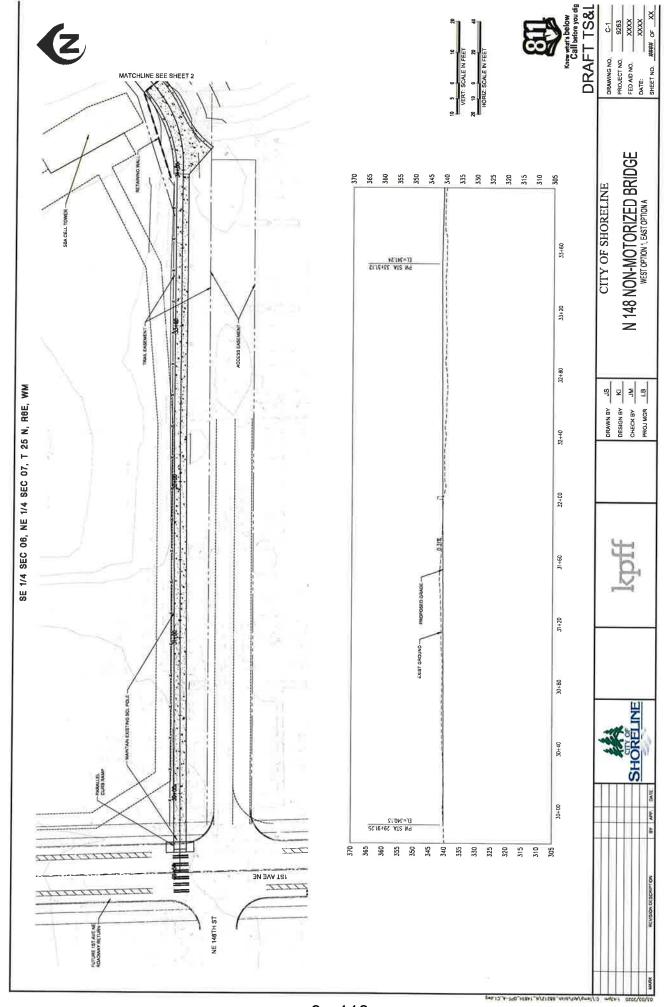
Option 1 - Minimal Build-Out



### **OPTION 1 - MINIMAL BUILD-OUT**

SHORELINE - N 148TH NON-MOTORIZED BRIDGE FEBRUARY 2020





### West Side Trail Connection

Option 2 - Full Build-Out South

## WEST TRAIL CONNECTION TO 1ST AVENUE NE



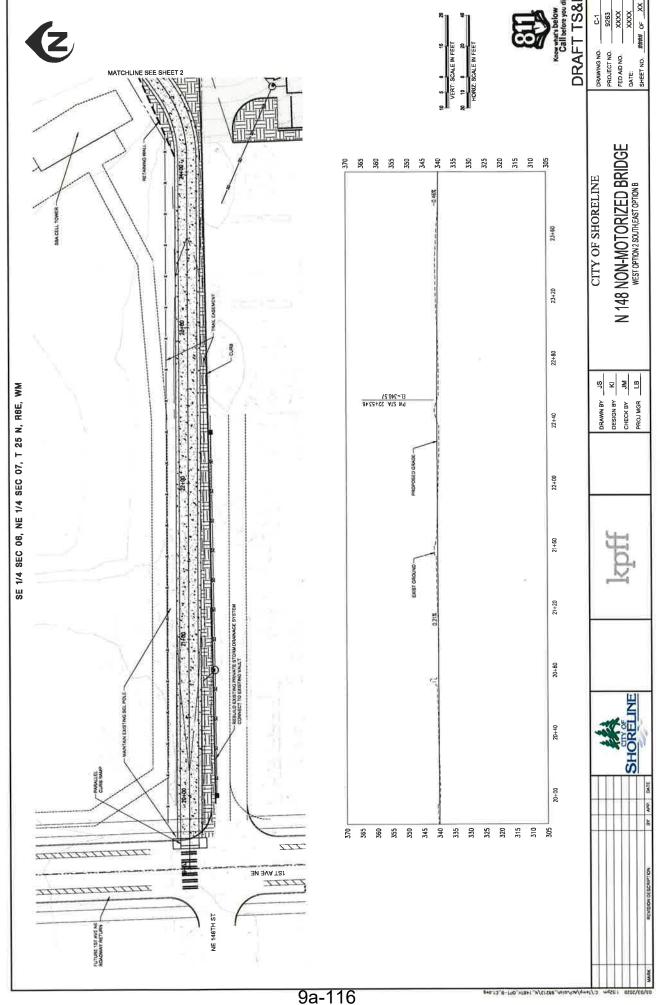
### **OPTION 2 SOUTH - FULL BUILD-OUT**

SHORELINE - N 148TH NON-MOTORIZED BRIDGE

FEBRUARY 2020









SE 1/4 SEC 06, NE 1/4 SEC 07, T 25 N, R6E, WM







DRAWING NO.
PROJECT NO.
FED AID NO.
DATE:
SHEET NO. ####

N 148 NON-MOTORIZED BRIDGE WEST OPTION 8

DESIGN BY KI
CHECK BY JM
PROJ MGR LB

9a-117

MATCHLINE SEE SHEET 2

### West Side Trail Connection

Option 3 - Full Build-Out North



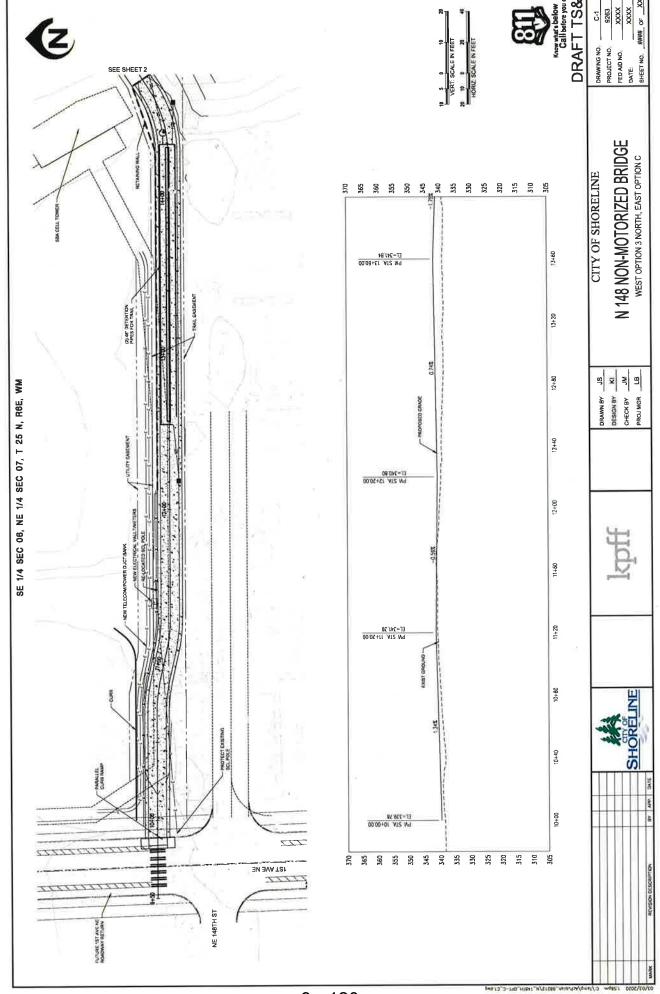
FEBRUARY 2020

### connection to bridge - decorative SHORELINE - N 148TH NON-MOTORIZED BRIDGE concrete node area landscape edge restoration (see edge restoration plant palette, Appendix 5) 3' - wide landscape buffer **OPTION 2 NORTH - FULL BUILD-OUT** PHILIPPI CHURCH pedestrian scaled lighting along trail 12' - wide concrete shared-use trail with 2' shoulder CHURCH OF CHRIST preserve existing mature trees connection to 1st ave ne-UNITARIAN CHURCH future 1st ave ne node area improvements

NE 148 ST

9a-119

SHORELINE



### West Side Trail Connection

West Side Trail Sections







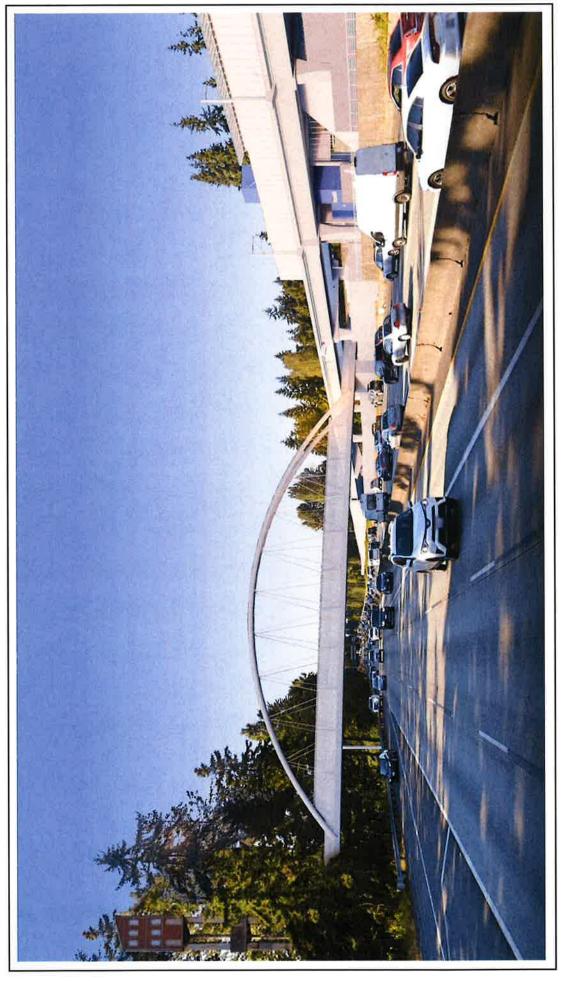
Main Span Bridge

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### Appendix 2 Main Span Bridge

**Tied Arch Concept** 

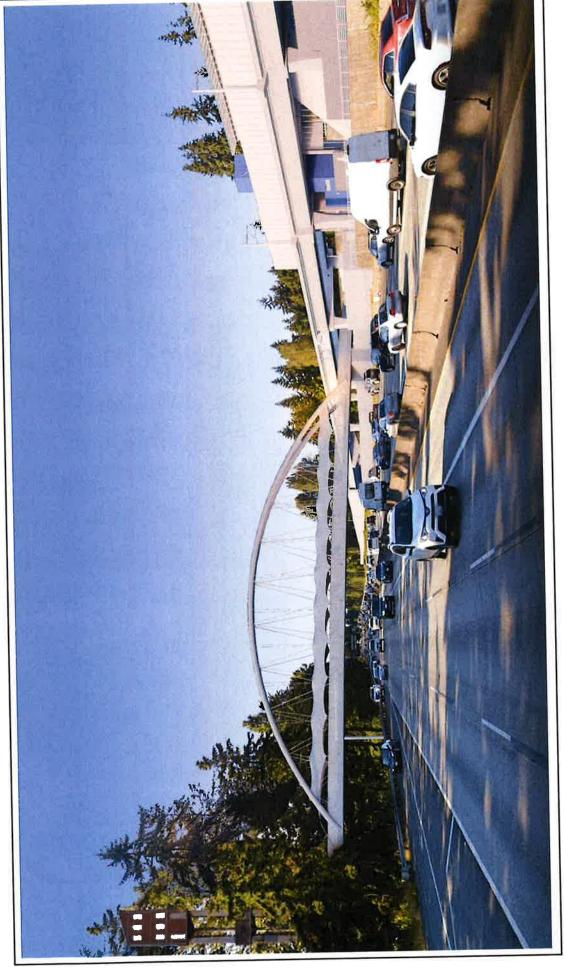
## N 148th Non-Motorized Bridge, Main Span Tied Arch, without Canopy View from Interstate 5, Looking North



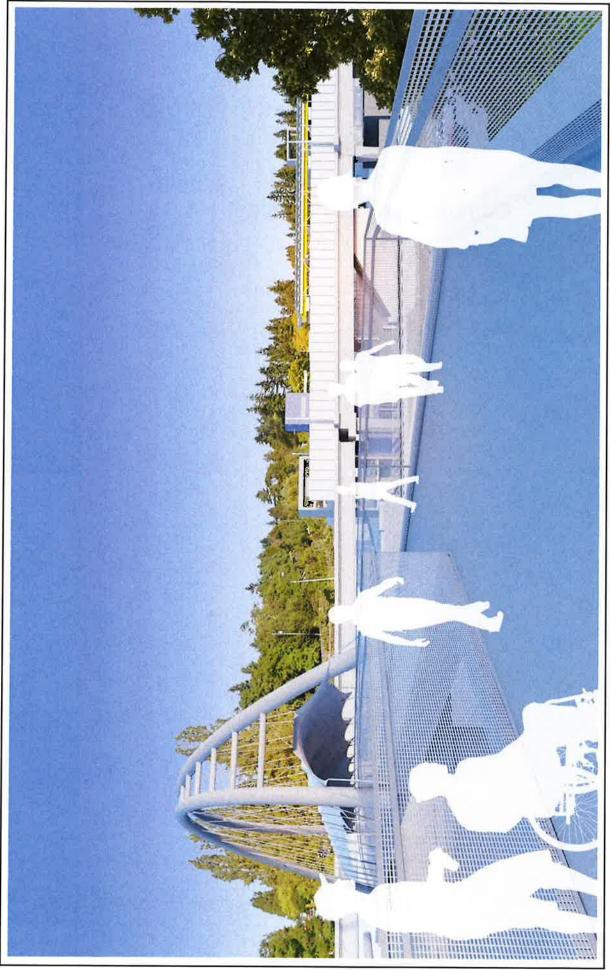
# N 148th Non-Motorized Bridge, Main Span Tied Arch, without Canopy View from Trail, Looking East



# N 148th Non-Motorized Bridge, Main Span Tied Arch, with Canopy View from Interstate 5, Looking North



# N 148th Non-Motorized Bridge, Main Span Tied Arch, with Canopy View from Trail, Looking East

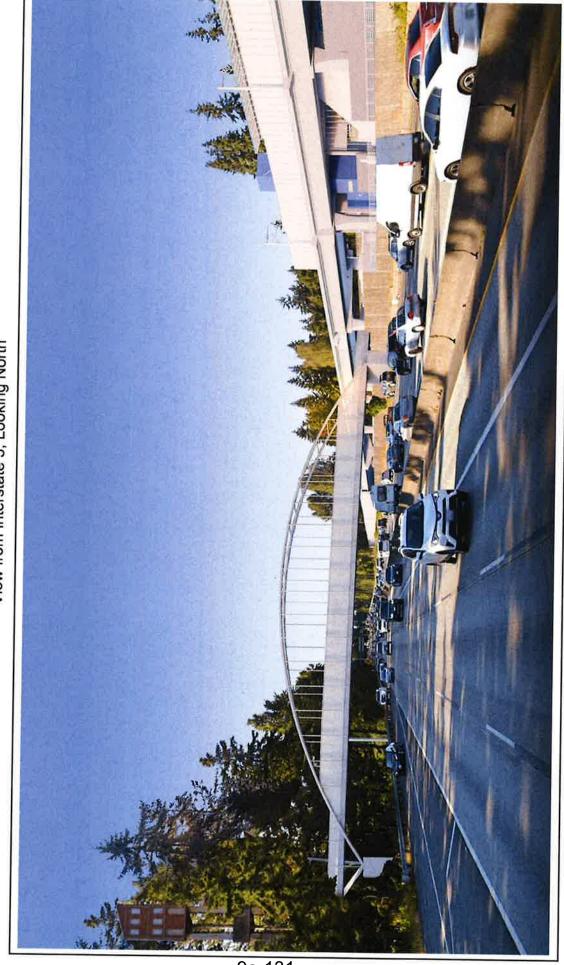


9a-129

### Main Span Bridge

**Combination Arch Concept** 

### N 148th Non-Motorized Bridge, Main Span Combination Arch, without Canopy View from Interstate 5, Looking North

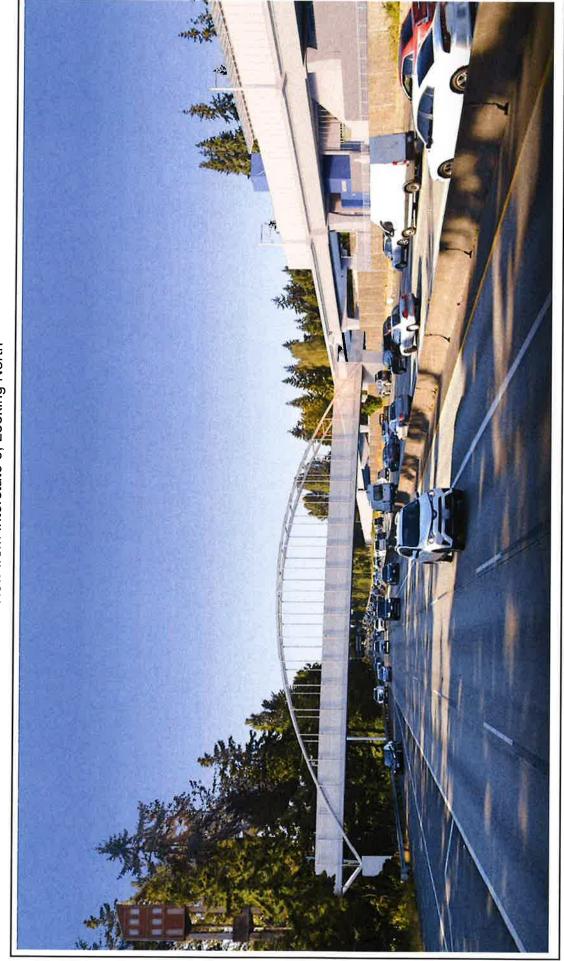


9a-131

## N 148th Non-Motorized Bridge, Main Span Combination Arch, without Canopy View from Trail, Looking East



### N 148th Non-Motorized Bridge, Main Span Combination Arch, with Canopy View from Interstate 5, Looking North

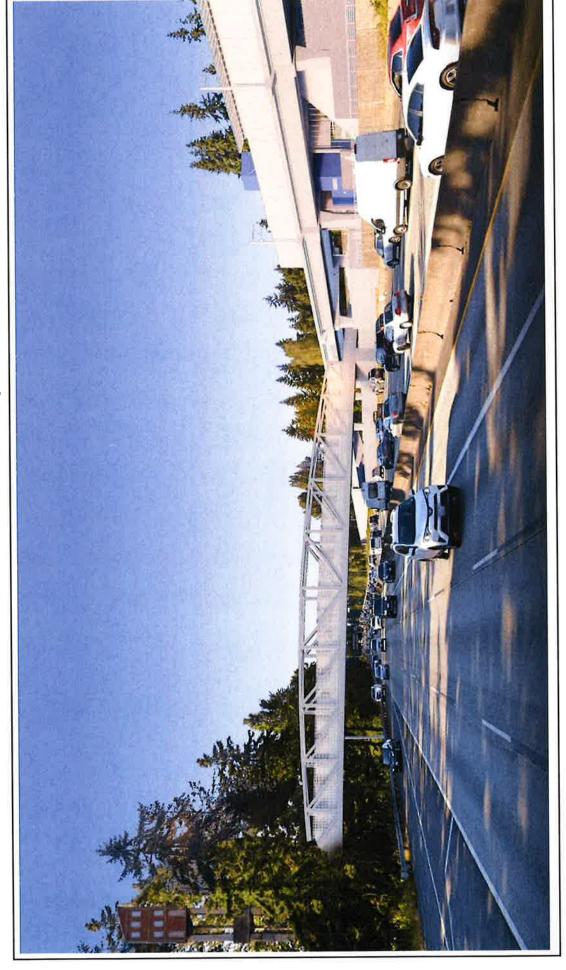


# N 148th Non-Motorized Bridge, Main Span Combination Arch, with Canopy View from Trail, Looking East

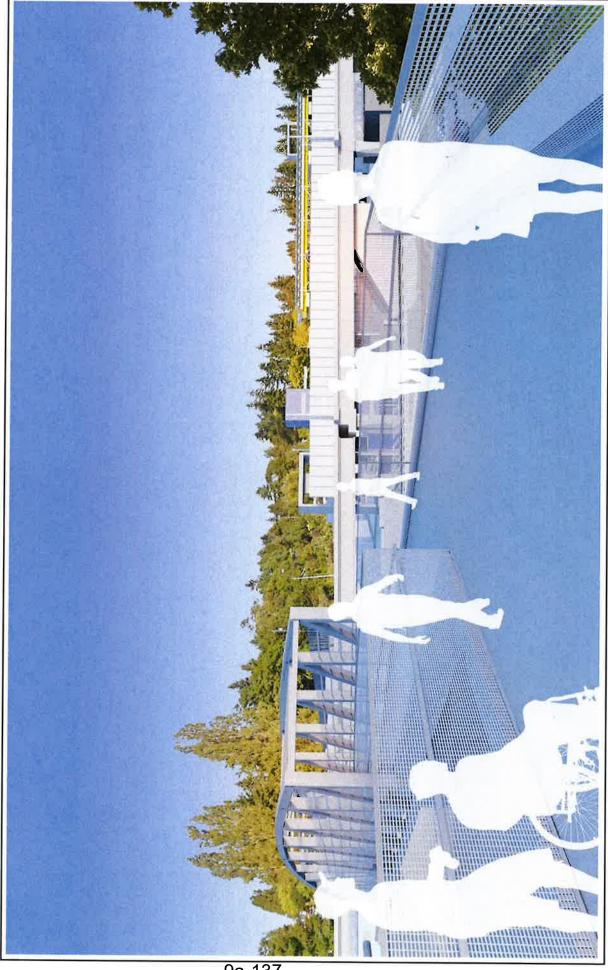
### Appendix 2 Main Span Bridge

**Truss Concept** 

# N 148th Non-Motorized Bridge, Main Span Truss, without Canopy View from Interstate 5, Looking North

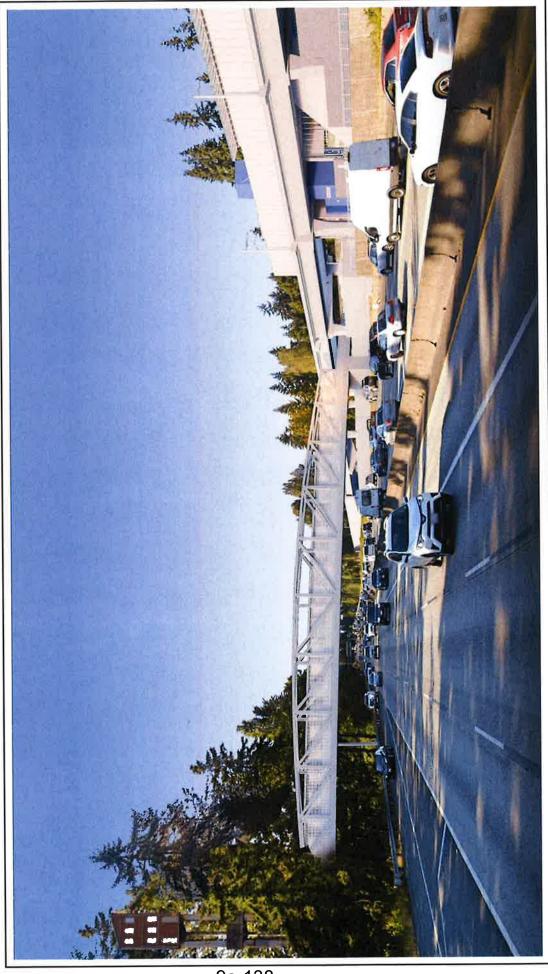


## N 148th Non-Motorized Bridge, Main Span Truss, without Canopy View from Trail, Looking East

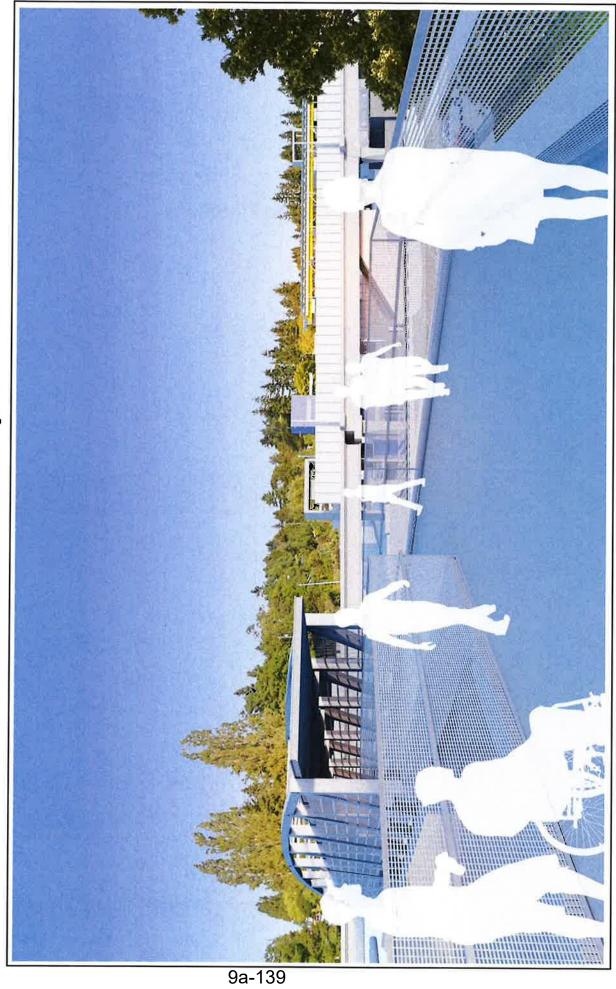


9a-137

## N 148th Non-Motorized Bridge, Main Span Truss, with Canopy View from Interstate 5, Looking North

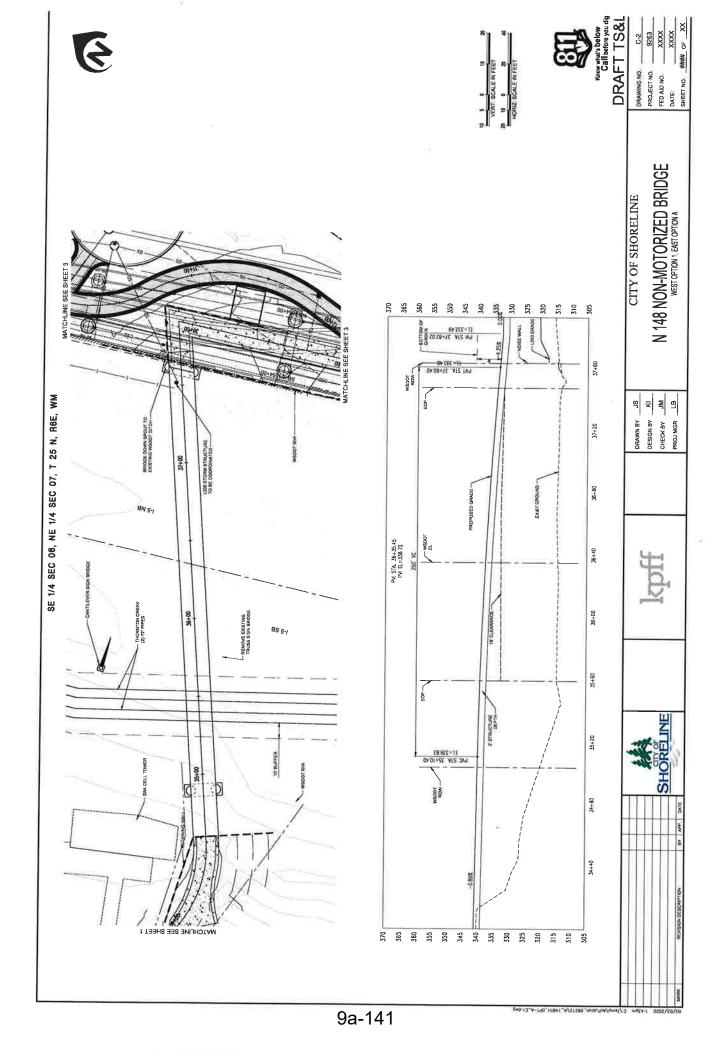


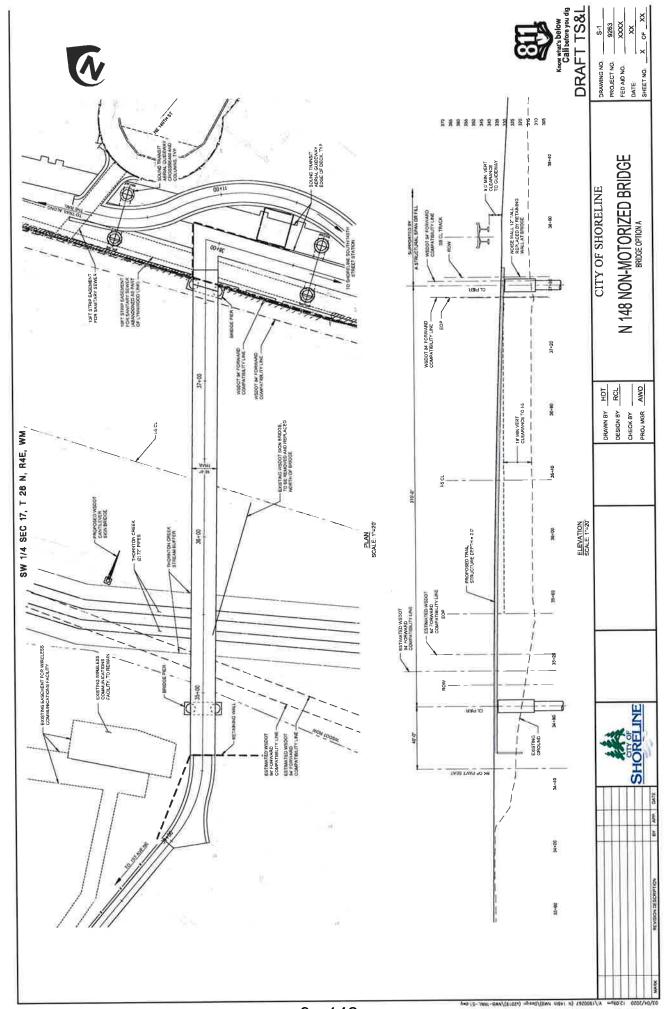
## N 148th Non-Motorized Bridge, Main Span Truss, with Canopy View from Trail, Looking East

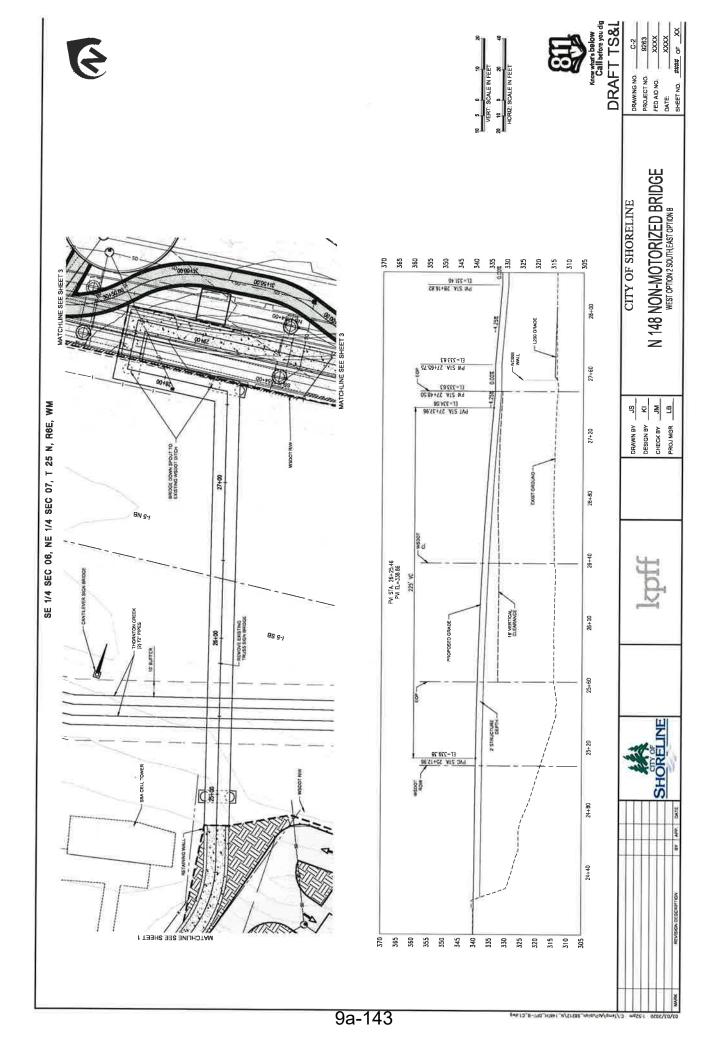


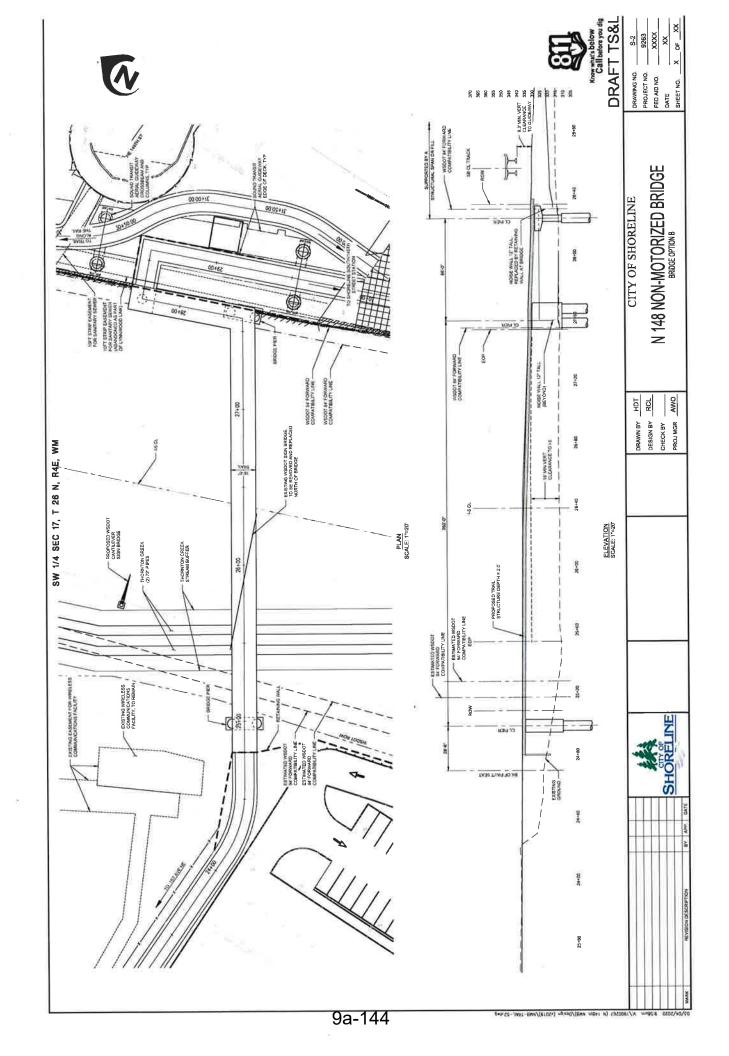
### Main Span Bridge

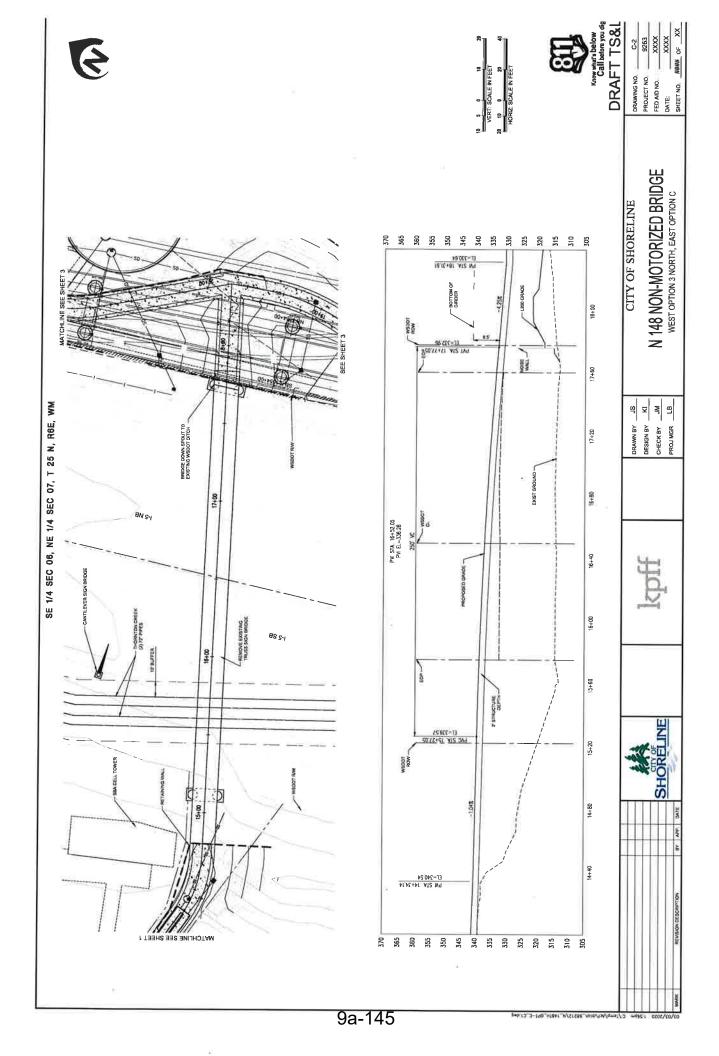
**Preliminary Engineering Plans** 

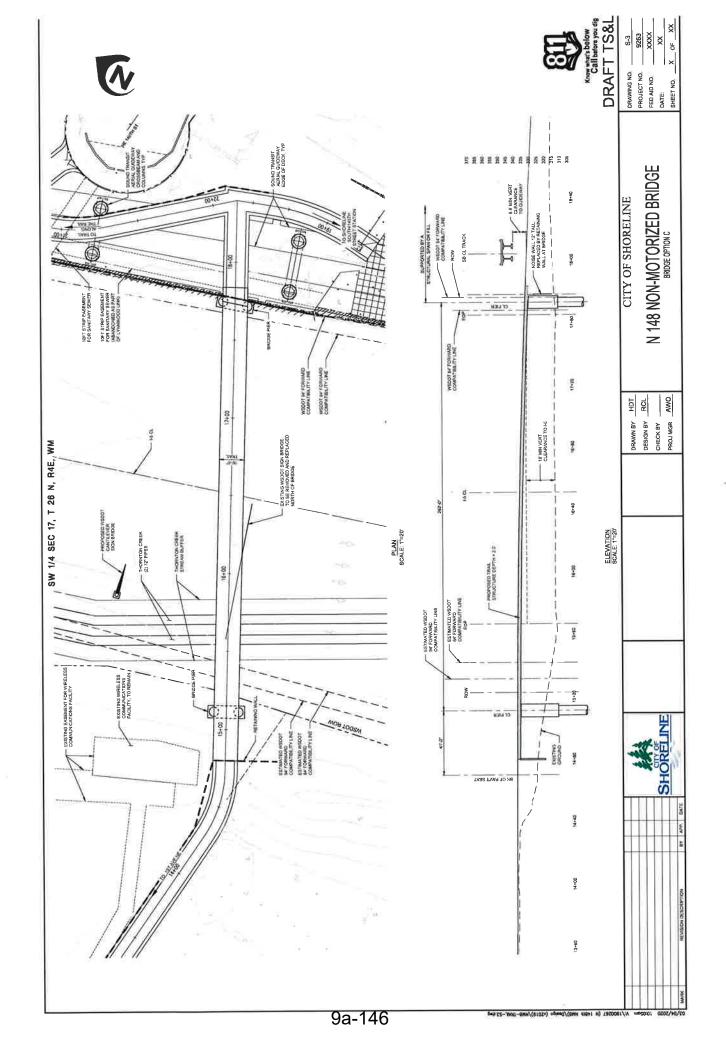


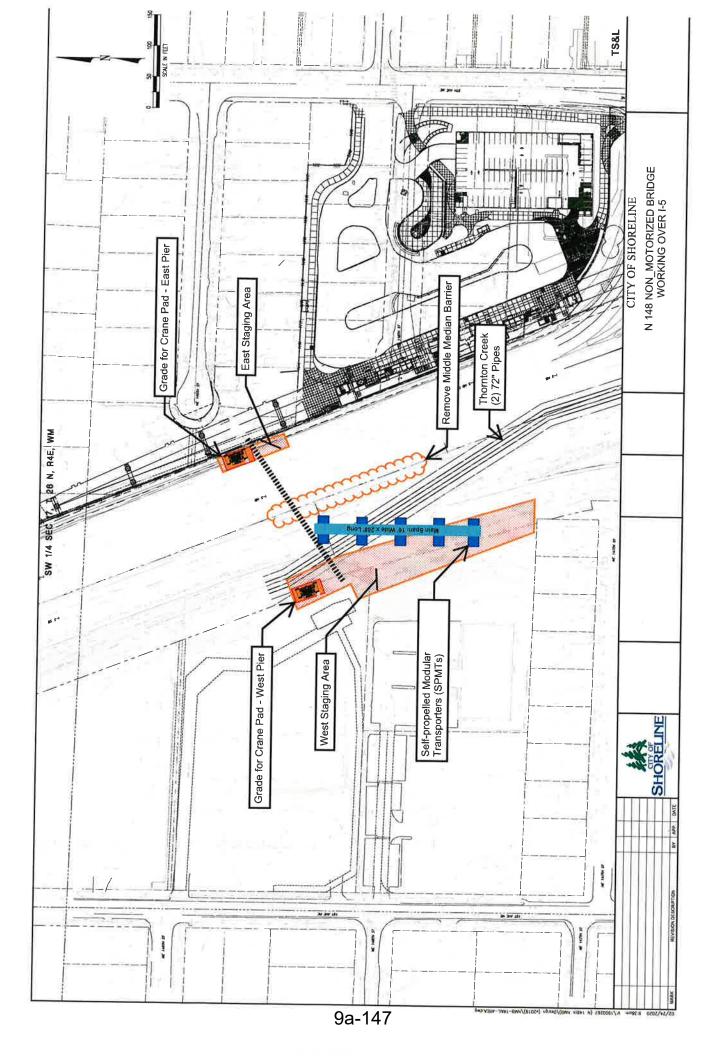












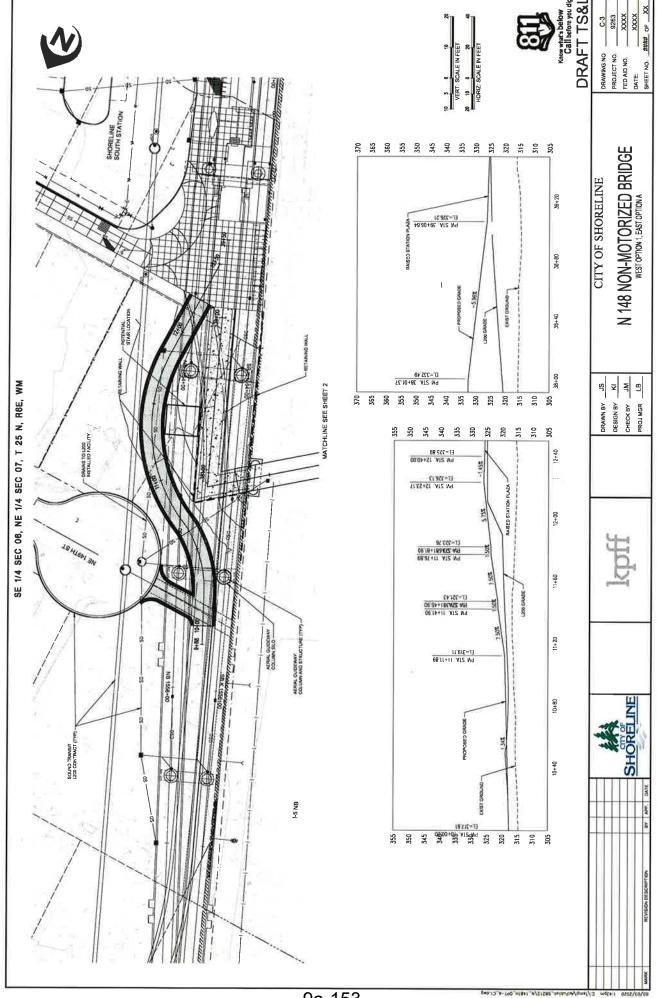
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East Side Bridge Landing

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## **East Side Bridge Landing**

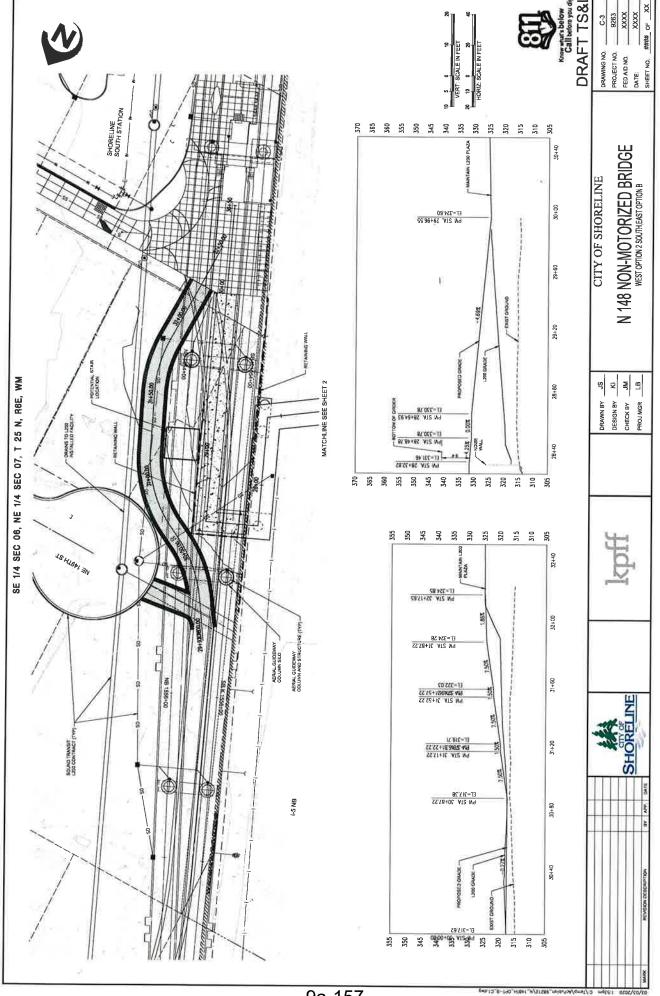
Option A



# East Side Bridge Landing

Option B



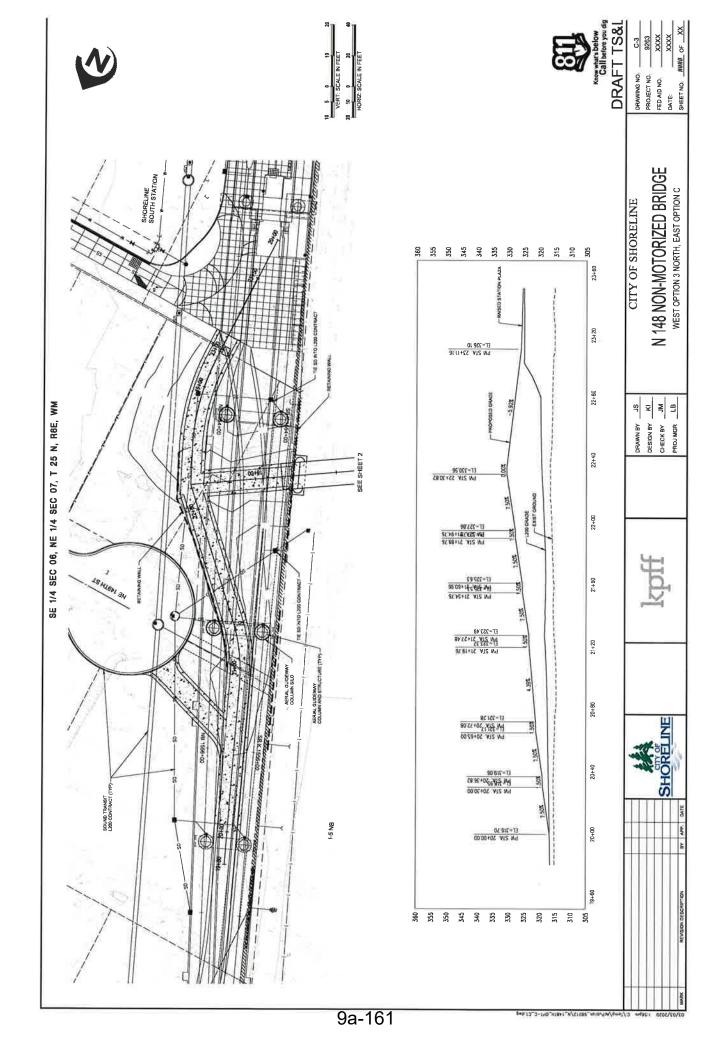




# East Side Bridge Landing

Option C







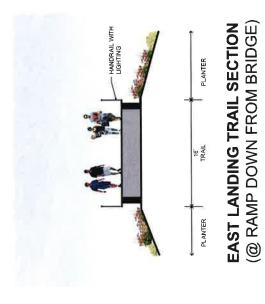
# East Side Bridge Landing

**Bridge Landing Trail Section** 



# FEBRUARY 2020

SHORELINE - N 148TH NON-MOTORIZED BRIDGE



**Project Cost** 

# **Project Cost**

**Project Cost Summary** 

TS&L COST SUMMARY MATRIX PREPARED BY: LEB DATE: 3/23/2020

YR %

Construct
10% Mobilizat
40% Continge
Construct
2024 4% Escalatec

2024 4% Escalated 2023 4% Escalated

Row Cost Row Escalated Page 198

TOTAL ROUNDED TOTAL

SUMMARY TABLE

	Dufden hants Con-		East Side Landing	
West side Trail Alignment	bridge Main Span	Option A	Option B	Option C
Option 1 - Minimum Build-Out	Tied Arch	\$ 22,958,530	\$ 24,124,490	\$ 23,221,190
4	Combination Arch	\$ 24,096,650	\$ 25,262,610	\$ 24,359,310
\$ 3,486,390	Truss	\$ 26,013,380	\$ 27,179,340	\$ 26,276,040
Option 2 - Full Build-Out South	Tied Arch	\$ 25,974,890	\$ 27,140,850	\$ 26,237,550
4	Combination Arch	\$ 27,113,010	\$ 28,278,970	\$ 27,375,670
nc/'20c'o ¢	Truss	\$ 29,029,740	\$ 30,195,700	\$ 29,292,400
Option 3 - Full Build-Out North	Tied Arch	\$ 23,596,380	\$ 24,762,340	\$ 23,859,040
4	Combination Arch	\$ 24,734,500	\$ 25,900,460	\$ 24,997,160
047'47T'4	Truse	\$ 26.651.230	1 5 27 817 190	5 26 913 890

*COSTS BELOW TAKEN FROM THE DRAFT TS&L REPORT	Most Cide Tesil Alienment
BELOW .	
*COSTS B	
13	_

		Š	West Side Trail Alignment	nt			Bridge Main Span				East Side Landing	nding	
	Min. Build-out		Full Build-Out South   Full Build-Or	Full Build-Out North							2 0		
	Option 1		Option 2	Option 3	Tled Arch		Combo Arch	Truss		Option A	Option B	8	Option C
struction	\$ 529	529,528 \$	\$ 1,937,294	\$ 1,093,825	\$ 5,84	5,844,200	\$ 6,282,200	S	\$ 038,610,7	1,649,590	\$	2,098,305	1,750,675
ilization	\$ 52	52,953 \$	\$ 193,729	\$ 109,383	\$ 58	584,420 5	\$ 628,220 \$		\$ 586,107	164,959	s	209,831 \$	175,068
ingency	\$ 232	232,992	\$ 852,409	\$ 481,283	\$ 2,57	2,571,448	\$ 2,764,168 \$		3,088,734 \$	725,820	s	923,254 \$	770,297
struction Subtotal	\$ 815	815,473	\$ 2,983,433	\$ 1,684,491	00'6 \$	\$ 890,000,6	\$ 9,674,588 \$		\$ 695,018,01	2,540,369	s	3,231,390 \$	2,696,040
lated	\$ 953	986'856	\$ 3,490,194	\$ 1,970,616	\$ 10,52	\$ 10,528,807	\$ 11,317,900 \$		12,646,837 \$	2,971,872	\$	3,780,269 \$	3,153,985
										000		000	000
neering Design	\$ 163	163,095	\$ 596,687	336,898	5	1,800,014	5 1,934,918	\$	2,162,114 5	508,074	S	646,278 \$	239,208
lated	\$ 183	183,459	\$ 671,191	\$ 378,965	\$ 2,02	2,024,770	\$ 2,176,519	s	2,432,084 \$	571,514	\$	726,975 \$	965'909
	\$ 203	203,868	\$ 745,858	\$ 421,123	\$ 2,25	2,250,017	\$ 2,418,647	\$	2,702,642 \$	635,092	s	807,847 \$	674,010
lated	\$ 238	238,497	\$ 872,549	\$ 492,654	\$ 2,63	2,632,202	\$ 2,829,475	\$	3,161,709 \$	742,968	\$	\$ 290,246	788,496
/ Cost	\$ 1,878	1,878,285	\$ 1,307,235	\$ 1,140,975									
lated	\$ 2,110,441	0,441	\$ 1,468,809	\$ 1,282,000	\$	g 5.	. \$	\$	. \$	275	\$	\$	45
									==1.				
14	\$ 3,486	3,486,386	\$ 6,502,743	\$ 4,124,234	\$	15,185,779	\$ 16,323,894	\$	18,240,630 \$	4,286,354	\$	5,452,311   \$	4,549,017
TOT CLOSE	2000	2 000 200 0	OUT COLD	4 121 210	ļ	45 405 300	000 000 00	·	40 000 000 00	A30 300 A	*	A LACE STATE	0000000

## **Project Cost**

West Side Trail Connection Cost

ltem	Description	Unit	Ur	nit Price	QTY	To	otal Price	Notes
No.								
_	Preparation	ACDE	Te	60,000	0.22	\$	12,918	
1	CLEARING AND GRUBBING	ACRE LF	\$	5	22	5	110	
2	REMOVE CURB	LF	3	2	22	13	110	
	Grading							
3	ROADWAY EXCAVATION INCL. HAUL	CY	\$	35	30	\$	1,050	
4	GRAVEL BORROW INCL. HAUL	CY	\$	40	990	\$	39,600	
	Structure		+	-				
5	MSE WALL	SF	\$	45	1075	5	48,375.00	
6	BRIDGE SUPERSTRUCTURE	LS	\$	46,700	1	\$	46,700	
7	BRIDGE RAILING	LF	\$	500	80	\$	40,000	
		4						
_	Drainage		<b> </b> \$		0	5		
8		- 32	13	15)	U	-		
	Surfacing					1.		
9	CRUSHED SURFACING TOP COURSE	TON	\$	60	60	\$	3,600	
10	CURB RAMP	EA	\$	6,000	1	\$	6,000	
11	CEMENT CONCRETE SIDEWALK	SY	\$	125	520	\$	65,000	
-	Erosion Control and Planting							
12	LANDSCAPE EDGE RESTORATION - TRAIL	SY	\$	45	850	\$	38,250	
13	IRRIGATION SYSTEM COMPLETE	LŞ	S	35,000	1	\$	35,000	
	Other		1					
14	LIGHTING - TRAIL, PEDESTRIAN LUMINAIRE AND POLE	EA	\$	2,200	В	\$	17,600	
	LIGHTING - TRAIL, CONDUIT, WIRING & ASSOCIATE ELECTRICAL	LS	\$	38,000	1	\$	38,000	
15	COMPONENTS							
16	RAILING, AT GRADE	LF	\$	250	300	\$	75,000	
17	PAVEMENT TREATMENT	SY	\$	30	500	\$	15,000	
18	DECORATIVE NODE PAVEMENT	SY	\$	300	50	\$	15,000	
19	BENCH	EA	\$	3,500	1	\$	3,500	
20	LITTER RECEPTACLE	EA	\$	2,500	1	\$	2,500	
21	WAYFINDING SIGN AND POLE	EA	\$	3,500	1	\$	3,500	
22	FENCING - TRAIL	ĻF	\$	55	415	\$	22,825	
_	TOTAL, Construction Cost, West Approach, Option 1 Minimal Build	Out				\$	529,528	
_	Construction Cost (including Mobilization)			10%		\$	582,481	
	Contingency			40%		\$	232,992	
	Construction Cost (including Mobilization, Contingency)					\$	815,473	_
	Series also Design			20%		\$	163.095	(% of Constr Cost incl Mob and Contingency)
	Engineering Design			25%		Ś		(% of Constr Cost incl Mob and Contingency)
	Construction Management & Administration ROW Cost (including TCE, ROW Administration)			23%				(see details below)
						12		
	TOTAL ESTIMATED COST (2020)					\$	3,060,730	

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Costs assume no cost for TCE on WSDOT property.

Costs assume no ROW condemnation will be necessary.

ROW Cost Summary

Description	Unit	Unit Price	QTY	Total Price	Notes
ROW ACQUISITION		-		\$ 1,701,780	Option 1
TEMP CONST EASEMENT (TCE), MAIN SPAN ASSEMBLY	- 3		- 14	\$ 127,505	11,016 SF on private property
RIGHT OF WAY ADMINISTRATION			-	\$ 49,000	based on # of parcels
TOTAL, ROW Cost, West Approach, Option 1 Minimal Build Out				\$ 1,878,285	

Item No.	Description	Unit	Τι	Jnit Price	QTY	Π.	Total Price	Notes
VO.	Preparation		4					
1	CLEARING AND GRUBBING - TRAIL	ACRE	Ş	60,000	0.33	15	19,800	
2	CLEARING AND GRUBBING - PARKING MITIGATION	ACRE	S	60,000	0.46	\$	27,414	
3	REMOVE CURB	LF	5	5	643	\$	3,215	
4	REMOVE HMA CONCRETE	SY	Ş	12	610	\$	7,320	
_	le di c							
5	Grading ROADWAY EXCAVATION INCL. HAUL	CV	Τ¢	25	425	1 4	4 725	
6	ROADWAY EXCAVATION INCL. HAUL, PARKING MITIGATION	CY	\$	35 35	135	\$	4,725 2,800	
7	GRAVEL BORROW INCL. HAUL	CY	\$	40	495	\$	19,800	
8	GRAVEL BORROW INCL. HAUL, PARKING MITIGATION	CY	\$	40	9915	\$	396,600	
						1		
	Structure							
9	MSE WALL - TRAIL	SF	\$	45	1075	\$	48,375	
10	MSE WALL - PARKING MITIGATION	SF	\$	45	5540	\$	249,300	
11	BRIDGE SUPERSTRUCTURE BRIDGE RAILING	ا ا	\$	46,700	11	\$	46,700	
12	BRIDGE KAILING	LF	\$	500	80	\$	40,000	
	Drainage		1			_		
14	DETENTION - PARKING MITIGATION	CY	\$	15	14000	\$	210,000	
15	CATCH BASIN, TYPE 1	EA	Ś	2,000	3	\$	6,000	
16	CATCH BASIN, TYPE 2	EA	\$	3,500	2	\$	7,000	
17	MODULAR WETLAND - PARKING MITIGATION	EA	Ŝ	17,500	1	\$	17,500	
18	STORM DRAINAGE PIPE, 12" - TRAIL	LF	\$	70	234	\$	16,380	
19	STORM DRAINAGE PIPE, 12" - PARKING MITIGATION	LF	\$	70	247	\$	17,290	
-	Furfacion			1				
20	Surfacing CRUSHED SURFACING TOP COURSE - TRAIL	TON	Τ¢	col	100	10	£ 000	
21	CRUSHED SURFACING TOP COURSE - PARKING MITIGATION	TON	\$	60 60	100 480	\$	6,000	
22	HMA PAVING - PARKING MITIGATION	TON	5	150	530	5	28,800 79,500	
23	CURB RAMP	EA	5	6,000	1	\$	6,000	
24	CEMENT CONCRETE SIDEWALK	SY	S	125	900	\$	112,500	
25	CEMENT CONCRETE CURB	LF	15	75	1614	5	121,050	
	Erosion Control and Planting		1			_		
26 27	LANDSCAPING - TRAIL LANDSCAPING - PARKING MITIGATION	SY	5	120	250	\$	30,000	
.,	LANDSCAPING - PARKING MITIGATION  LANDSCAPE EDGE RESTORATION - TRAIL, PARKING MITIGATION &	SY	\$	120	430	Ś	51,600	
28	BRIDGE	SY	\$	45	900	\$	40,500	
29	IRRIGATION SYSTEM COMPLETE	LS	s	53,000	1	\$	53,000	
			1			1		
	Other							
30	LIGHTING - TRAIL, PEDESTRIAN LUMINAIRE AND POLE	EA	S	2,200	10	\$	22,000	
31	LIGHTING - TRAIL, LIT BOLLARDS	EA	S	3,500	4	\$	14,000	
32	LIGHTING - PARKING MITIGATION, LUMINAIRE AND POLE	EA	S	2,800	4	\$	11,200	
33	LIGHTING - PARKING MITITGATION, DOUBLE LUMINAIRE & POLE	EA	\$	3,300	4	\$	13,200	
	LIGHTING - PARKING MITTIGATION, DOUBLE LUMINAIRE & POLE LIGHTING - TRAIL & PARKING MITIGATION, CONDUIT, WIRING &		+			+		
34	ASSOCIATED ELECTRICAL COMPONENTS	LS	\$	57,000	1	\$	57,000	
						_		
35	RAILING, AT GRADE	LF	1\$	250	300	\$	75,000	
36	PAVEMENT TREATMENT - TRAIL	SY	\$	30	580	\$	17,400	
	DECORATIVE NODE PAVEMENT	SY	\$	300	75	\$	22,500	
38	BENCH	EA	\$	3,500	1	\$	3,500	
39	LITTER RECEPTACLE	EA	\$	2,500	1 -	\$	2,500	
	WAYFINDING SIGN AND POLE	EA	\$	3,500	2	S	7,000	
10			\$	55	415	\$	22,825	
10	FENCING - TRAIL	LF	$\overline{}$					
10	FENCING - TRAIL					1	1 937 704	
40 41	FENCING - TRAIL  TOTAL, Construction Cost, West Approach, Option 2 Full Build Out, S		L	1094			1,937,294	
40 41	FENCING - TRAIL			10% 40%		\$	2,131,023	
10	FENCING - TRAIL  TOTAL, Construction Cost, West Approach, Option 2 Full Build Out, S Construction Cost (including Mobilization)			10% 40%		\$ \$		
40 41	FENCING - TRAIL  TOTAL, Construction Cost, West Approach, Option 2 Full Build Out, S Construction Cost (including Mobilization) Contingency Construction Cost (including Mobilization, Contingency)			40%		\$ \$ \$	2,131,023 852,409 2,983,433	1% of Constr Cost incl Mah and Continues
40 41	FENCING - TRAIL  TOTAL, Construction Cost, West Approach, Option 2 Full Build Out, S Construction Cost (including Mobilization) Contingency Construction Cost (including Mobilization, Contingency) Engineering Design			40% 20%		\$ \$ \$	2,131,023 852,409 2,983,433 596,687	(% of Constr Cost incl Mob and Contingency
10 11	FENCING - TRAIL  TOTAL, Construction Cost, West Approach, Option 2 Full Build Out, S Construction Cost (including Mobilization) Contingency Construction Cost (including Mobilization, Contingency)			40%		\$ \$ \$ \$	2,131,023 852,409 2,983,433 596,687 745,858	(% of Constr Cost incl Mob and Contingency (% of Constr Cost incl Mob and Contingency (See details below)

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting Costs assume no cost for TCE on WSDOT property.

Costs assume no ROW condemnation will be necessary.

Description	Unit	Unit Price	QTY	Total Price	Notes
ROW ACQUISITION	*:	* .		\$ 1,130,730	
TEMP CONST EASEMENT (TCE), MAIN SPAN ASSEMBLY	•	*		\$ 127,505	11,016 SF on private property
RIGHT OF WAY ADMINISTRATION			730	\$ 49,000	based on # of parcels

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tem	Description	Unit	1 .	Init Price	QTY	1 ,	Total Price	Notes
lo,	Description	Unit		nit Price	QIY		lotal Price	Notes
	Preparation		100			T.		
1	CLEARING AND GRUBBING	ACRE	\$	60,000	0.33	\$	19,880	
2	REMOVE CURB	LF	\$	5	22	\$	110	
3	REMOVE HMA CONCRETE	SY	\$	12	330	\$	3,960	
	Grading	- m	14	25	10	T é	350	
4	ROADWAY EXCAVATION INCL, HAUL	CY	\$	35	10	\$	350	
5	GRAVEL BORROW INCL. HAUL	CY	\$	40	800	\$	32,000	
	Structure					1		
6	CIP WALL	SF	\$	80	1865	\$	149,200	
-	BRIDGE SUPERSTRUCTURE	LS	S	46,700	1	\$	46,700	
8	BRIDGE RAILING	LF	\$	500	80	\$	40,000	
	Drainage		_			-		
9	DETENTION	CY	\$	15	4000	\$	60,000	
10	CATCH BASIN, TYPE 1	EA	\$	2,000	2	\$	4,000	
11	STORM DRAINAGE PIPE, 12"	LF	\$	70	75	\$	5,250	
	Surfacing							
LZ_	CRUSHED SURFACING TOP COURSE	TON	\$	60	90	\$	5,400	
L3	CURB RAMP	EA	\$	6,000	1	\$	6,000	
14	CEMENT CONCRETE SIDEWALK	SY	\$	125	880	\$	110,000	
15	CEMENT CONCRETE CURB	LF	\$	75	152	\$	11,400	
-	Erosion Control and Planting							
16	LANDSCAPING - TRAIL	SY	\$	120	525	\$	63,000	
17	LANDSCAPE EDGE RESTORATION - TRAIL & BRIDGE	SY	\$	45	600	\$	27,000	
18	IRRIGATION SYSTEM COMPLETE	LS	\$	35,000	1	\$	35,000	
	Other							
19	LIGHTING - TRAIL, PEDESTRIAN LUMINAIRE AND POLE	EA	\$	2,200	10	\$	22,000	
20	LIGHTING - TRAIL, LIT BOLLARDS	EA	\$	3,500	4	\$	14,000	
21	LIGHTING - TRAIL, CONDUIT, WIRING & ASSOCIATED ELECTRICAL COMPONENTS	L\$	\$	38,000	1	\$	38,000	
			1					
22	RAILING, AT GRADE	LF	\$	250	300	\$	75,000	
23	PAVEMENT TREATMENT	SY	\$	30	575	\$	17,250	
24	DECORATIVE NODE PAVEMENT	SY	\$	300	75	\$	22,500	
25	BENCH	EA	S	3,500	11	\$	3,500	
26	LITTER RECEPTACLE	EA	\$	2,500	1	\$	2,500	
27	WAYFINDING SIGN AND POLE	EA	\$	3,500	2	\$	7,000	
28	FENCING - TRAIL	LF	\$	55	415	\$	22,825	
29	UTILITY RELOCATION	LS	\$	250,000	1	\$	250,000	
_	TOTAL, Construction Cost, West Approach, Option 3 Full Build Out,	North				\$	1,093,825	
	Construction Cost (including Mobilization)			10%		5	1,203,208	
	Contingency			40%		\$	481,283	
	Construction Cost (including Mobilization, Contingency)					\$	1,684,491	
	Engineering Design			20%		\$	336.898	(% of Constr Cost incl Mob and Contingency)
	Construction Management & Administration			25%		Ś		(% of Constr Cost incl Mob and Contingency
				23/0		~	,	to a series and the series Period
	ROW Cost (including TCE, ROW Administration)					\$	1,140,975	(see details below)

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Costs assume no cost for TCE on WSDOT property.

Costs assume no ROW condemnation will be necessary.

**ROW Cost Summary** 

Description	Unit	Unit Price	QTY	Total Price	Notes
ROW ACQUISITION	2			\$ 964,470	
TEMP CONST EASEMENT (TCE), MAIN SPAN ASSEMBLY				\$ 127,505	11,016 SF on private property
RIGHT OF WAY ADMINISTRATION		**		\$ 49,000	based on # of parcels
TOTAL, ROW Cost, West Approach, Option 3 Full Build Out, North				\$ 1,140,975	·

# **Project Cost**

Main Span Bridge Cost

tem No.	Description	Unit	U	nit Price	QTY	1	otal Price	Notes
	Structure							
1	BRIDGE SUBSTRUCTURE - MAIN SPAN	LS	\$	770,000	1	\$	770,000	
2	BRIDGE SUPERSTRUCTURE - MAIN SPAN	LS	\$ :	2,365,000	1	\$	2,365,000	
3	BRIDGE RAILING & THROW BARRIER	LF	\$	800	540	\$	432,000	
	Traffic							
4	MAINTENANCE OF TRAFFIC, MAIN SPAN	LS	\$	300,000	1	\$	300,000	
	Other					T		
5	SIGN BRIDGE	LS	\$	300,000	1	\$	300,000	remove existing and replace with new
6	LIGHTING - BRIDGE, SAFETY LIGHTING, NO CANOPY	LS	\$	204,700	1	5	204,700	
7	LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	LŞ	\$	356,500	1	5	356,500	
8	RESTORATION COST, MAIN SPAN ASSEMBLY	SF	\$	45	24800	\$	1,116,000	24,800 SF total area
	TOTAL, Construction Cost, Bridge Main Span, Tied Arch		100			\$	5,844,200	
	Construction Cost (including Mobilization)			10%		\$	6,428,620	
	Contingency			40%		\$	2,571,448	
	Construction Cost (including Mobilization, Contingency)					\$	9,000,068	
	Engineering Design			20%		\$	1,800,014	(% of Constr Cost incl Mob and Contingency
	Construction Management & Administration			25%		\$	2,250,017	(% of Constr Cost incl Mob and Contingency
	ROW Cost (including TCE, ROW Administration)					\$		

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Cost Difference with Canopy

Description	Unit	Unit Price	QTY	Т	otal Price
BRIDGE CANOPY	LS	\$ 519,000	1	\$	519,000
LIGHTING BRIDGE, SAFETY LIGHTING, NO CANOPY	LS	\$ (204,700)	1	5	(204,700)
LIGHTING BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	L5	\$ (356,500)	1	5	(356,500)
LIGHTING - BRIDGE, SAFETY LIGHTING, W/ CANOPY	LS	\$ 127,650	1	\$	127,650
LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, W/ CANOPY	LS	\$ 356,500	1	\$	356,500
TOTAL, Canopy and Associated Lighting				\$	441,950

Total does not include costs for mobilization, construction management, engineering design, or contingency.

tem No.	Description	Unit	Ti	Jnit Price	QTY	T-	Total Price	Notes
	Structure		+			+		
1	BRIDGE SUBSTRUCTURE - MAIN SPAN	LS	\$	770,000	1	Ś	770,000	
2	BRIDGE SUPERSTRUCTURE - MAIN SPAN	LS	_	2,803,000	1	S	2,803,000	
3	BRIDGE RAILING & THROW BARRIER	LF	\$	800	540	\$	432,000	
	Traffic		+			+		
4	MAINTENANCE OF TRAFFIC, MAIN SPAN	LS	\$	300,000	1	\$	300,000	
	Other							
5	SIGN BRIDGE	LS	\$	300,000	1	15	300,000	remove existing and replace with new
6	LIGHTING - BRIDGE, SAFETY LIGHTING, NO CANOPY	LŞ	\$	204,700	1	S	204,700	
7	LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	LS	\$	356,500	1	\$	356,500	
8	RESTORATION COST, MAIN SPAN ASSEMBLY	SF	\$	45	24800	\$	1,116,000	24,800 SF total area
	TOTAL, Construction Cost, Bridge Main Span, Combination Arch	VI.				5	6,282,200	
	Construction Cost (including Mobilization)			10%		\$	6,910,420	
	Contingency			40%		Ś	2,764,168	
	Construction Cost (including Mobilization, Contingency)					\$	9,674,588	
	Engineering Design			20%		\$	1,934,918	(% of Constr Cost incl Mob and Contingency
	Construction Management & Administration			25%		Ś		(% of Constr Cost incl Mob and Contingency
	ROW Cost (including TCE, ROW Administration)					\$	-	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Cost Difference with Canopy

Description	Unit	Unit Price	QTY	Total Price
BRIDGE CANOPY	LS	\$ 216,000	1	\$ 216,000
LIGHTING BRIDGE, SAFETY LIGHTING, NO CANOPY	LS	\$ (204,700)	1	\$ (204,700
LIGHTING BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	LS	\$ (356,500)	1	\$ (356,500
LIGHTING - BRIDGE, SAFETY LIGHTING, W/ CANOPY	LS	\$ 127,650	1	\$ 127,650
LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, W/ CANOPY	LS	\$ 356,500	1	\$ 356,500
TOTAL, Canopy and Associated Lighting	•			\$ 138,950

Total does not include costs for mobilization, construction management, engineering design, or contingency.

tem No.	Description	Unit	Un	nit Price	QTY	1	Total Price	Notes
	Structure							
1	BRIDGE SUBSTRUCTURE - MAIN SPAN	LS	\$	770,000	1	\$	770,000	
2	BRIDGE SUPERSTRUCTURE - MAIN SPAN	LS	\$ 3,	,459,000	1	\$	3,459,000	
3	BRIDGE RAILING & THROW BARRIER	LF	\$	800	540	\$	432,000	
	Traffic					T		
4	MAINTENANCE OF TRAFFIC, MAIN SPAN	LS	\$	300,000	1	\$	300,000	
	Other		=14			7.		
5	SIGN BRIDGE	LS	\$	300,000	1	\$	300,000	remove existing and replace with new
6	LIGHTING - BRIDGE, SAFETY LIGHTING, NO CANOPY	LŞ	\$	227,700	1	\$	227,700	
7	LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	LŞ	\$	415,150	1	\$	415,150	
8	RESTORATION COST, MAIN SPAN ASSEMBLY	SF	\$	45	24800	\$	1,116,000	24,800 SF total area
-	TOTAL, Construction Cost, Bridge Main Span, Truss					\$	7,019,850	L
	Construction Cost (including Mobilization)			10%		\$	7,721,835	
	Contingency			40%		\$	3,088,734	
	Construction Cost (including Mobilization, Contingency)					\$	10,810,569	
	Engineering Design			20%		\$	2,162,114	(% of Constr Cost incl Mob and Contingency)
	Construction Management & Administration			25%		\$	2,702,642	(% of Constr Cost incl Mob and Contingency)
	ROW Cost (including TCE, ROW Administration)					\$	-	

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Cost Difference with Canopy

Description	Unit	Unit Price	QTY	I	otal Price
BRIDGE CANOPY	LS	\$ 216,000	1	\$	216,000
LIGHTING BRIDGE; SAFETY LIGHTING, NO CANOPY	LS	\$ (227,700)	1	\$	(227,700)
LIGHTING BRIDGE, ARCHITECTURAL LIGHTING, NO CANOPY	LS	\$ (415,150)	1	\$	(415,150)
LIGHTING - BRIDGE, SAFETY LIGHTING, W/ CANOPY	LS	\$ 127,650	1	\$	127,650
LIGHTING - BRIDGE, ARCHITECTURAL LIGHTING, W/CANOPY	LS	\$ 356,500	1	\$	356,500
TOTAL, Canopy and Associated Lighting				\$	57,300

Total does not include costs for mobilization, construction management, engineering design, or contingency.

# **Project Cost**

East Side Bridge Landing Cost

East Approach, Option A				Optio	in A			0						
Item No.	Description	Unit	U	nit Price	QTY	Т	otal Price	Unit	U	nit Price	QTY	Тс	otal Price	Notes
	Grading					5								
1	ROADWAY EXCAVATION INCL, HAUL	CY	5	35	40	\$	1,400							
2	LIGHTWEIGHT FILL	CY	\$	100	5165	\$	516,500		1			1		
	Structure		+-			+			-			+		
3	WALL - TRAIL	SF	S	45	616	5	27,720					1		
4	WALL - I-S SOUND WALL	SF	S	120	2291	\$	274,920					1	-	
5	COLUMN SILO	EA	\$	75,000	3	5	225,000					1		
	Drainage		+			+			+			+		
6	DRAINAGE FEATURES	- 4	\$	18	O	\$	- 4	LS	\$	125,000	1	\$	125,000	
_	Surfacing		+-			+			+			+-		
7	CRUSHED SURFACING TOP COURSE	TON	s	60	100	\$	6,000					1		
8	RAMP PAVEMENT TREATMENT	SY	5	30	275	S	8,250							
9	WOONERF PLAZA PAVEMENT	SY	5		0	5		SY	5	250	475	5	118,750	
10	DECORATIVE CEMENT CONCRETE PLAZA PAVEMENT	SY	5		D	5		SY	5	150	720	Ś	108,000	
11	HMA PAVING	TON	\$	200	80	S	16,000		1	2.0	, 44	Ť		
12	CEMENT CONCRETE SIDEWALK	SY	5	125	260	5	32,500							
	Freedom Combanian of Planting					+			+			+		
_	Erosion Control and Planting  LANDSCAPE SCREENING (SHRUB AND GROUNDCOVER)	_	+-			+			+			+		
13	BRIDGE/LANDING STRUCTURE	SY	\$	70	630	\$	44,100							
14	LANDSCAPE RESTORATION (SEEDING)	SY	\$	6	600	\$	3,600							
15	LANDSCAPE PLANTINGS (TREE, SHRUB AND GROUNDCOVER) - PLAZA	SY	\$	9	0	\$		SY	\$	120	400	\$	48,000	
16	IRRIGATION SYSTEM COMPLETE	LS	5	45,000	1	\$	45,000	LS	\$	15,000	1	\$	15,000	
_	Other	-	+-			+								
17	LIGHTING, COLUMN LIGHTS	EA	5	5,050	5	\$	25,250	EA	5	5,050	13	\$	65,650	
18	LIGHTING, LINEAR LUMINAIRE STRIP AT SEAT WALL	LF	\$		0	5		LF	\$	115	300	5	34,500	
19	LIGHTING, TREE ACCENT UPLIGHTS	EA	\$	1,300	7	\$	9,100	EA	\$	1,300	7	\$	9,100	
20	LIGHTING, BRIDGE, EAST (HANDRAIL)	LF	\$	250	440	5	110,000	LF	\$	250	20	\$	5,000	
	LIGHTING, CONDUIT, WIRING & ASSOCIATED ELECTRICAL	LS	\$	72,000	1	\$	72,000	LS	\$	34,000	1	\$	34,000	
21	COMPONENTS LIGHTING, LIT BOLLARDS	EA	\$	3,500	3	5	10,500							
23	RAIUNG	LF	5	250	640	\$	160,000					+		
			5	2,500	2	5	5,000	EA	5	2,500	1	Ś	2,500	
24	LITTER RECEPTACLE	EA			185			CY		2,500	16		4,000	
25	STAIRS	CY	S	250		\$	46,250		S			5		
26	WAYFINDING SIGN AND POLE	EA	\$	3,500	2	\$	7,000	EA	\$	3,500	1 200	S	3,500	
27	BLEACHER SEAT WALL	LF	\$	2.50-	0	5	2.555	LF	S	750	300	\$	225,000	
28	BENCH	EA	\$	3,500	1	\$	3,500		+					
	TOTAL, Construction Cost, East Approach, Option A	Option A				S	1,649,590	Option A ->	Future	Vision with	Woonerf	\$	798,000	
_	Construction Cost (including Mobilization)			10%		\$	1,814,549							
	Contingency			40%		Š	725,820							
	Construction Cost (including Mobilization, Contingency)			.574			2,540,369							
	Engineering Design			20%		Ś	508 074	(% of Constr	Cost in	cl Moh and (	Contingency)			
	Construction Management & Administration			25%		\$		(% of Constr						
	CONSTRUCTION MANAGEMENT OF WALIETING OF STREET			23/0			250,032	pre-un consti	-03t III					
	ROW Cost (including TCE, ROW Administration)					\$	ĭ							

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Costs assume no cost for TCE on WSDOT property.

East Approach, Option B				Opti	on B					1				
item No.	Description	Unit	ı	Jnit Price	QTY	ŀ	otal Price	Unit		Unit Price	QTY	Т	otal Price	Notes
	Grading													
1	ROADWAY EXCAVATION INCL. HAUL	CY	5	35	5	\$	175							
2	LIGHTWEIGHT FILL	CY	5	100	4180	\$	418,000							
	Structure		+			+			-			+		
3	WALL - TRAIL	SF	S	45	712	S	32,040		$\neg$			-		
4	WALL - I-5 SOUND WALL	SF	S	120	2417	5	290,040		$\neg$			+		
5	BRIDGE SUBSTRUCTURE	LS	\$	167,600	1	15	167,600		$\neg$			+-		
6	BRIDGE SUPERSTRUCTURE	LS	\$	81,700	1	\$	81,700					1		
7	BRIDGE RAILING	LF	5	500	150	5	75,000							
8	COLUMN SILO	EA	5	75,000	4	5	300,000							
	Drainage	-	+			+	_					+		
9	DRAINAGE FEATURES		\$	*	0	5		LS	S	100,000	1	\$	100,000	
	Surfacing		+			+								
10	CRUSHED SURFACING TOP COURSE	TON	5	60	130	5	7,800							
11	RAMP PAVEMENT TREATMENT	SY	5	30	540	5	16,200							
12	WOONERF PLAZA PAVEMENT	SY	S	-	0	5		SY	5	250	560	s	140,000	
13	DECORATIVE CEMENT CONCRETE PLAZA PAVEMENT	SY	5	-	0	5		SY	5	150	840	5	126,000	
14	HMA PAVING	TON	5	200	90	\$	18,000		Ť			1		
15	CEMENT CONCRETE SIDEWALK	SY	\$	125	330	5	41,250					1		
	Erosion Control and Planting	_	+			1			-	_		+		
	LANDSCAPE SCREENING (SHRUB AND GROUNDCOVER) -	SY	1,	70	700	1.			$\neg$			+		
16	BRIDGE/LANDING STRUCTURE	51	\$	70	700	\$	49,000	l	- 1			1	- 1	
17	LANDSCAPE RESTORATION (SEEDING)	SY	S	6	775	\$	4,650							
18	LANDSCAPE PLANTINGS (TREE, SHRUB AND GROUNDCOVER) = PLAZA	SY	\$	- 1	0	\$	ू	SY	\$	120	650	\$	78,000	
19	IRRIGATION SYSTEM COMPLETE	LS	\$	53,000	1	s	53,000	LS	\$	20,000	1	5	20,000	
	Other		_			A1-2-								
20	LIGHTING, COLUMN LIGHTS	EA	Te	F 050 T	-	TX	25 260			1		-		
21	LIGHTING, LINEAR LUMINAIRE STRIP AT SEAT WALL	LF.	\$	5,050	5	\$	25,250	EA	5	5,050	13	5	65,650	
22	LIGHTING, TREE ACCENT UPLIGHTS	EA	\$	1,300	7	5	9,100	LF EA	\$	115	340	5	39,100	
23	LIGHTING, BRIDGE, EAST (HANDRAIL)	LF	\$	250	710	5	177,500	LF	\$	1,300	7	\$	9,100	
24	LIGHTING, CONDUIT, WIRING & ASSOCIATED ELECTRICAL	LS		107,000	1	\$	107,000	LS	\$	250	70	5	17,500	
25	COMPONENTS LIGHTING, LIT BOLLARDS	EA	5	3,500	3	Š	10,500	LS	,	33,000	1	\$	33,000	
			13	3,300		13	10,500		_1_			1		
	RAILING	LF	S	250	710	S	177,500	LF	\$	250	70	15	17,500	
27	LITTER RECEPTACLE	EA	\$	2,500	2	5	5,000	EA	5	2,500	1	5	2,500	
	STAIRS	CY	\$	250	86	\$	21,500	CY	\$	250	23	\$	5,750	
	WAYFINDING SIGN AND POLE	EA	\$	3,500	2	S	7,000	EA	\$	3,500	1	5	3,500	
	BLEACHER SEAT WALL	LF	\$		0	\$		LF	5	750	340	\$	255,000	
31	BENCH	EA	5	3,500	1	\$	3,500							
	TOTAL, Construction Cost, East Approach, Option B	Option B				5	2,098,305	Option B -:	Future	Vision with	Woonerf	5	912,600	
	Construction Cost (including Mobilization)			10%			2,308,136					-		
	Contingency			40%		\$	923,254							
	Construction Cost (including Mobilization, Contingency)					5	3,231,390							
	Engineering Design			20%		S	646,278	(% of Consti	Cost inc	l Mob and 0	ontingency)			
	Construction Management & Administration ROW Cost (Including TCE, ROW Administration)			25%		5		(% of Consti						
						\$	i							
	TOTAL ESTIMATED COST (2020)					4	4,685,520							

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting.

Costs assume no cost for TCE on WSDOT property,

ast Ap	proach, Option C			Option	n C			Op						
Item No.	Description	Unit	Ur	nit Price	QTY	To	otal Price	Unit	Un	it Price	QTY	Tota	l Price	Notes
	Grading							i	1					
1	ROADWAY EXCAVATION INCL. HAUL	CY	5	35	15	\$	525							
2	LIGHTWEIGHT FILL	CY	\$	100	6425	\$	642,500							
_			-			$\vdash$			$\vdash$	_		$\vdash$	_	
	Structure		-	45	1640	s	73,800		+	_		1	-	
3	WALL - TRAIL	SF	5						+	_		+	-	
4	COLUMN SILO	EA	5	75,000	3	\$	225,000		-	-		_	_	
	Drainage													
5	CATCH BASIN, TYPE 1	EA	\$	2,000	2	\$	4,000							
6	STORM DRAINAGE PIPE, 12"	LF	5	70	125	\$	B,750							
7	DRAINAGE FEATURES		5	*:	0	5		LS	\$	125,000	1	S	125,000	
	Surfacing			-		+								
8	CRUSHED SURFACING TOP COURSE	TON	5	60	90	5	5,400							
9	RAMP PAVEMENT TREATMENT	SY	\$	30	730	5	21,900		1			1		
10	WOONERF PLAZA PAVEMENT	SY	5	- 1	0	\$	-	SY	\$	250	430	5	107,500	
11	DECORATIVE CEMENT CONCRETE PLAZA PAVEMENT	SY	5		0	s	*	5Y	\$	150	650	\$	97,500	
12	CEMENT CONCRETE SIDEWALK	SY	5	125	840	\$	105,000							
_	Erosion Control and Planting		+	-		+								
_	LANDSCAPE SCREENING (SHRUB AND GROUNDCOVER) -		+											
	BRIDGE/LANDING STRUCTURE	SY	s	70	1300	\$	91,000							
13	The state of the s	SY	\$	6	1150	S	6,900		+			_	-	
14	LANDSCAPE RESTORATION (SEEDING) LANDSCAPE PLANTINGS (TREE, SHRUB AND GROUNDCOVER) -	31	_		1130	1	4,500		_					
15	PLAZA	SY	\$	-	0	\$	9	SY	\$	120	650	\$	78,000	
16	IRRIGATION SYSTEM COMPLETE	LS	5	80,000	1	\$	80,000	LS	\$	20,000	1	S	20,000	
_	Other	-	+			+								
17	LIGHTING, COLUMN LIGHTS	EA	\$	5,050	-2	5	10,100	EA	5	5,050	7	5	35,350	
18	LIGHTING, LINEAR LUMINAIRE STRIP AT SEAT WALL	LF	5		0	5		LF	S	115	370	5	42,550	
19	LIGHTING, TREE ACCENT UPLIGHTS	EA	15	1,300	11	S	14,300	EA	5	1,300	7	\$	9,100	
20	LIGHTING, BRIDGE, EAST (HANDRAIL)	LF	S	250	720	5	180,000	LF	\$	250	120	\$	30,000	
	LIGHTING, CONDUIT, WIRING & ASSOCIATED ELECTRICAL	LS	\$	79,000	1	\$	79,000	L5	\$	34,000	1	\$	34,000	
21	COMPONENTS LIGHTING, LIT BOLLARDS	EA	S	3,500	2	5	7,000		+					
- 22	Editing at Botomos					-								
23	RAILING	LF	\$	250	720	5	180,000	LF	\$	250	120	\$	30,000	
24	LITTER RECEPTACLE	EA	\$	2,500	2	5	5,000	EA	\$	2,500	1	\$	2,500	
25	STAIRS	CY	5	250	0	\$		CY	\$	250	225	\$	56,250	
26	WAYFINDING SIGN AND POLE	EA	\$	3,500	2	5	7,000	EA	\$	3,500	1	\$	3,500	
27	BLEACHER SEAT WALL	LF	S	\F	0	\$		LF	\$	750	371	\$	278,250	
28	BENCH	EA	\$	3,500	1	\$	3,500		+			+-	-+	
_	TOTAL, Construction Cost, East Approach, Option C	Option C	_			\$	1,750,675	Option C -> I	Future 1	Vision with	Woonerf	5	949,500	
	Construction Cost (including Mobilization)	-		10%		\$	1,925,743							
	Contingency			40%		5	770,297	I						
	Construction Cost (including Mobilization, Contingency)					\$	2,696,040							
	E. J. Cu Bullion			20%		\$	539 308	(% of Constr	Cost inc	-I Mob and	Contingency			
	Engineering Design			25%		\$		(% of Constr						
	Construction Management & Administration  ROW Cost (including TCE, ROW Administration)			23%		\$	674,010	Laur consu	COSC IIII		ee.icii.gciicy)			
	,							1						
	TOTAL ESTIMATED COST (2020)					•	3,909,260	1						

Total is in 2020 dollars

Costs do not include sales tax or cost associated with permitting,

Costs assume no cost for TCE on WSDOT property,

# **Project Cost**

Basis of Right-of-Way Cost



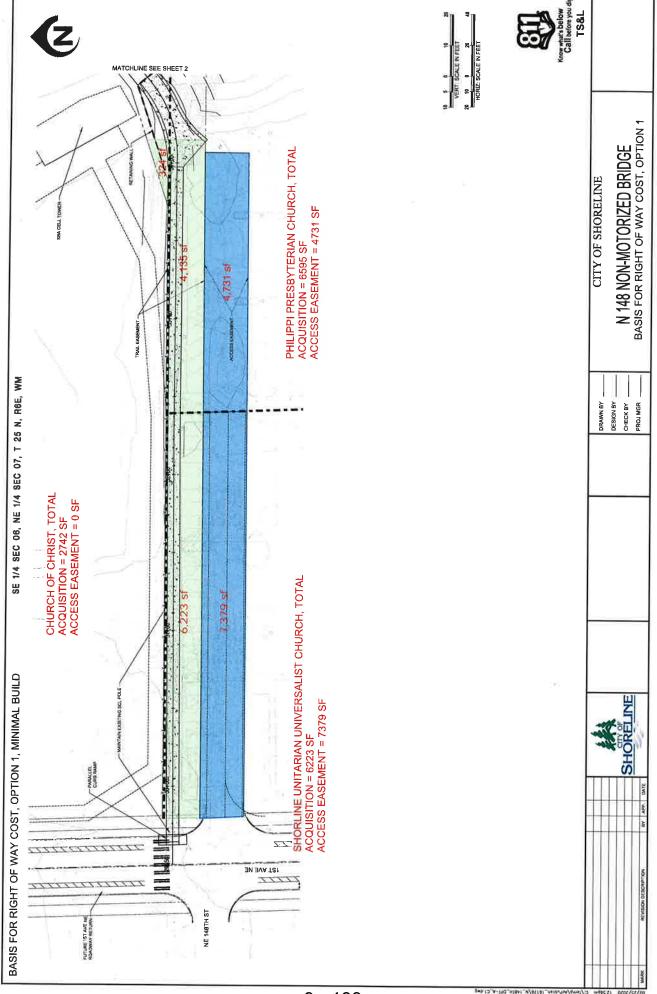
Cost Estimate Project: City of Shoreline - N 148th Street Non-Motorized Bridge Project

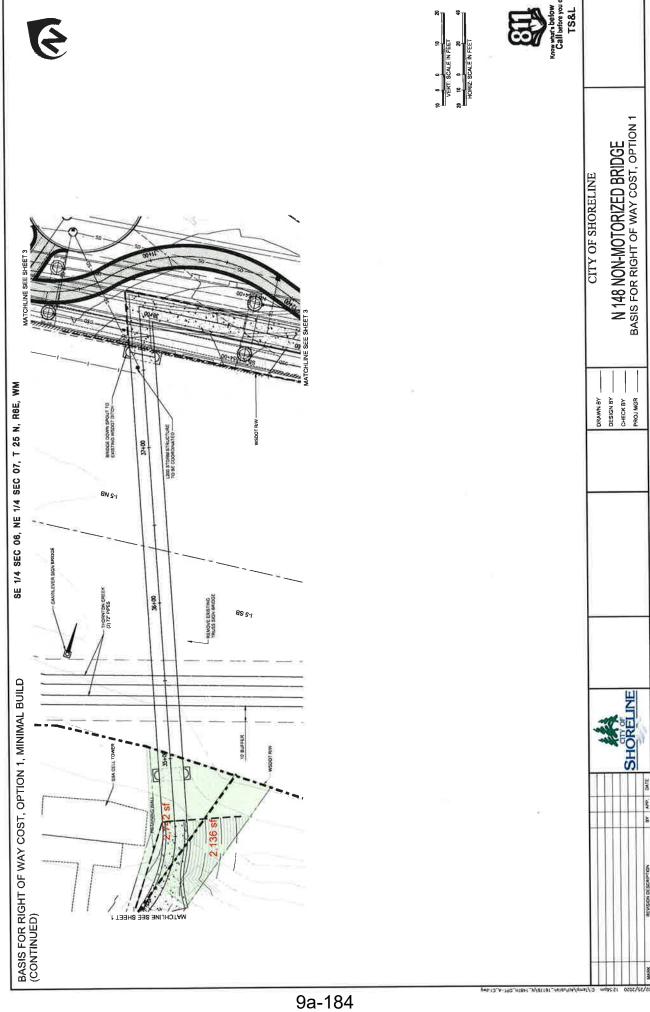
February 28, 2020

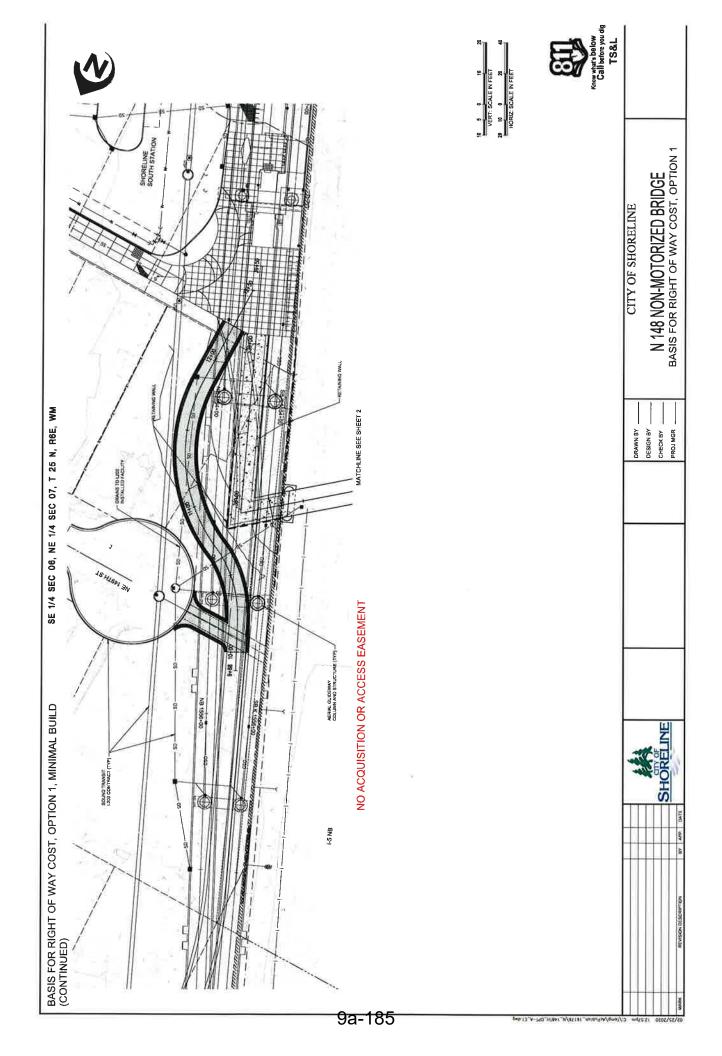
West Approach, Acquisition and Easement Cost

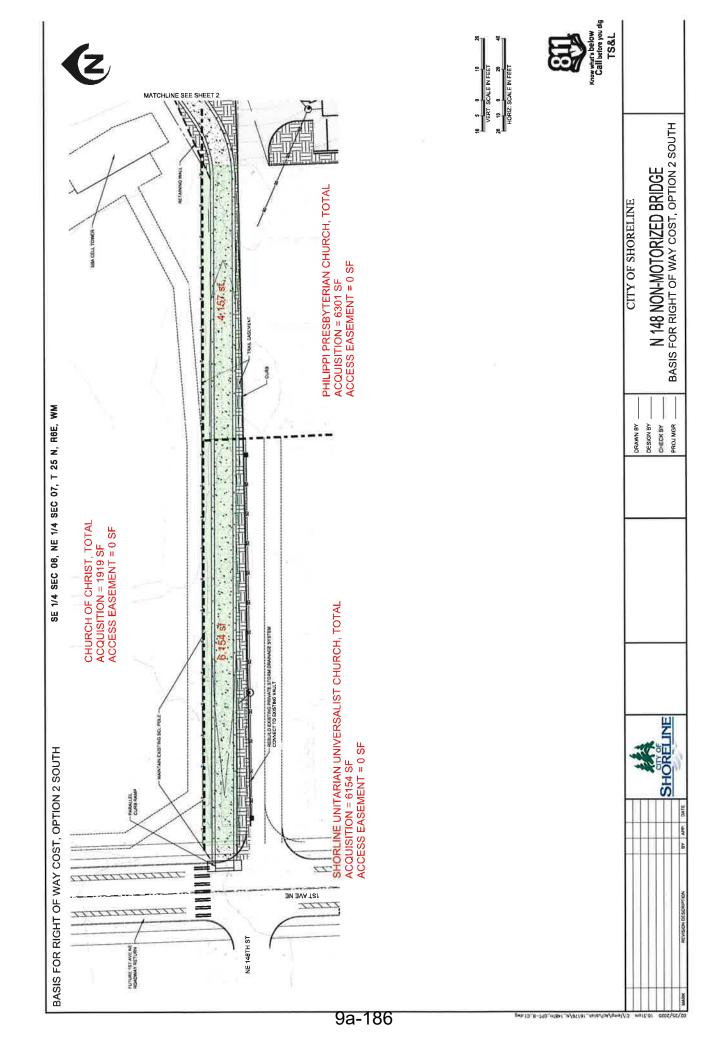
Tax Parcel #		-															
Tax Parcel 288170-0340-				Parcel Lot Parcel Lot	Parcel Lot	FEE	,	Access		Estim	Estimated Est, FEE		Eve TCE	Est. Access	Est Access Est Existing		
288170-0340-	# OWNER	PARCEL ADDRESS	Zoning	Size	Size	Acquisition	<u>.</u>	Easement	EXISTING	Land	and Value Acquisition		), ICE	Eas	Imprvmnts	To	Total
288170-0340				(acres)	(SF)	Area (SF)	(SF)	(SF)	Improvements	(\$/SF)	F) V;		value	Value	Value		
1000	288170-0340-04   Church of Christ	14800 1st Ave NE	MUR70	3.15	137,714	2,742		0	Trees	\$	20.00	191,940 \$				s	191,940
-Z821/0-034Z-	88170-0342-02 Shoreline Unitarian Universalist Church	14724 1st Ave NE	MUR70	1.59	69,103	6,223		7,379	7,379 Lanscaping/parking	s	80.00	497,840 \$	+	295,160	s	S	793,000
Opt 1 288170-0343	288170-0343-01   The Philippi Presbyterian Church of Seattle	14734 1st Ave NE	MUR70	1.83	79,704	565'9		4,731	4,731 Lanscaping/parking	s	80.00	527,600 \$		189,240	- 5	\$	716,840
															Option 1 Total	\$	1,701,780
288170-0340	288170-0340-04   Church of Christ	14800 1st Ave NE	MUR70	3.15	137,214	1,919		0	0 Trees	\$	70.00 \$ 134,330 \$	134,330 \$			40	S	134,330
Ont 7 288170-0342-02	02 Shoreline Unitarian Universalist Church	14724 1st Ave NE	MUR70	1.59	69,103	6,154		O	Lanscaping/parking	s	80.00	492,320 \$				\$	492,320
122	288170-0343-01 The Philippi Presbyterian Church of Seattle	14734 1st Ave NE	MUR70	1.83	79,704	6,301		0	0 Lanscaping/parking \$		80.00 \$ 504,080 \$	\$ 080,080	,			S	504,080
-														Option	Option 2 South Total		1,130,730
288170-0340	288170-0340-04 Church of Christ	14800 1st Ave NE	MUR70	3.15	137,214	8,113		0	Oltandscping/Trees	S	\$ 016,732 \$ 00.07	\$ 016'499			. \$	s	567,910
Ont 3 288170-0342-	288170-0342-02 Shoreline Unitarian Universalist Church	14724 1st Ave NE	MUR70	1.59	69,103	2,127		o	Lanscaping/parking	ş	80.00	170,160 \$	. q			s	170,160
-	288170-0343-01 The Philippi Presbyterian Church of Seattle	14734 1st Ave NE	MUR70	1.83	79,704	2,830		0	O Lanscaping/parking	57	80.00 \$ 226,400	226,400 \$				s	226,400
														Option	Option 3 North Total	s	964,470

_		PARCEL INFORMATION	RMATION					ESTIMATE	ESTIMATED ACQUISITION AREAS	AREAS				ESTIMATED VALUE (\$)	VALUE (\$)		
	Tax Parcel #	OWNER	Parcel Lo PARCEL ADDRESS Zoning Size (acres)	Zoning	Parcel Lot Parcel Lot Size Size (acres) (SF)	Parcel Lot Size (SF)	FEE Acquisition Area (SF)	TCE (SF)	Access Easement (SF)	Existing Improvements	Estimated Land Value 7 (\$/SF)	Estimated Est. FEE Land Value Acquisition (\$/SF) Value		Est. TCE Value	st, Access Eas. Value	Est. Access Est. Existing Eas. Imprvmnts Value Value	g Total
ſ	288170-0340-04   Church of Christ	Church of Christ	14800 1st Ave NE	MURZO	3.15	137,214	0	29,728		0 Trees	0/ \$	20.00	\$	312,144 \$			\$ 312,144
North	88170-0342-02	288170-0342-02   Shoreline Unitarian Universalist Church	14724 1st Ave NE	MUR70	1.59	69,103	0		0	Lanscaping/parking	8 80	80.00		•	*2		\$
vidmes	388170-0343-01	Assembly 288170-0343-01 The Philippi Presbyterian Church of Seattle	14734 1st Ave NE	MUR70	1.83	79,704	0	2,080		0 Lanscapine/parking 5		80.00	\$	24,960   \$	of it		\$ 24,960
															North A	North Assembly Total	1 \$ 337,104
Γ	288170-0340-04   Church of Christ	Church of Christ	14800 1st Ave NE	MUR70	3.15	137,214	0	3,125		0 Trees	5 70	20.00	. 83	\$ 32,812.50 \$		· S	\$ 32,813
South	388170-0342-02	288170-0342-02 Shoreline Unitarian Universalist Church	14724 1st Ave NE	MUR70	1.59	69,103	0		0	Lanscaping/parking	\$ 80	80.00	S	*	1.0	•	s
vidmes	288170-0343-01	Assembly (288170-0343-01 The Philippi Presbyterian Church of Seattle	14734 1st Ave NE	MUR70	1.83	79,704	0	7,891	0	Lanscaping/parking	\$ 80	80.00	5 5	\$ 94,692.00 \$			\$ 94,692
	Contract of the latest and the lates														South	South Accembly Total	202 CC1 2 102



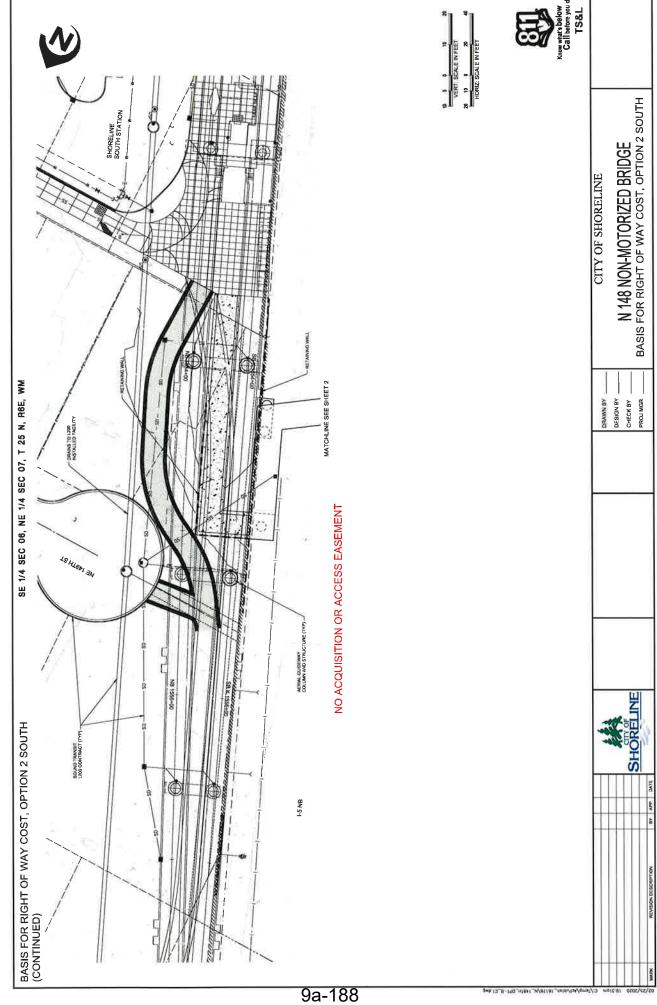






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HORIZ: SCALE IN FEET N 148 NON-MOTORIZED BRIDGE BASIS FOR RIGHT OF WAY COST, OPTION 2 SOUTH CITY OF SHORELINE SE 1/4 SEC 06, NE 1/4 SEC 07, T 25 N, R6E, WM DRAWN BY
DESIGN BY
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PROJ MGR BRIDGE DOWN SPOUT TO EXISTING WSDOT DITCH BASIS FOR RIGHT OF WAY COST, OPTION 2 SOUTH (CONTINUED)

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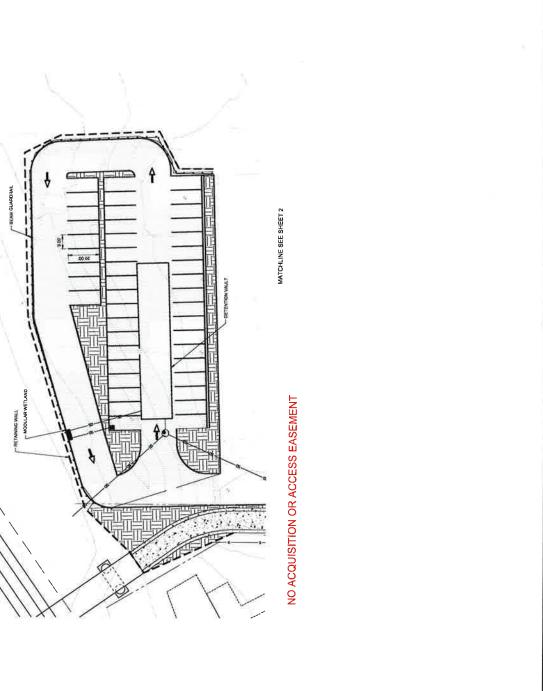
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BASIS FOR RIGHT OF WAY COST, OPTION 2 SOUTH (CONTINUED)





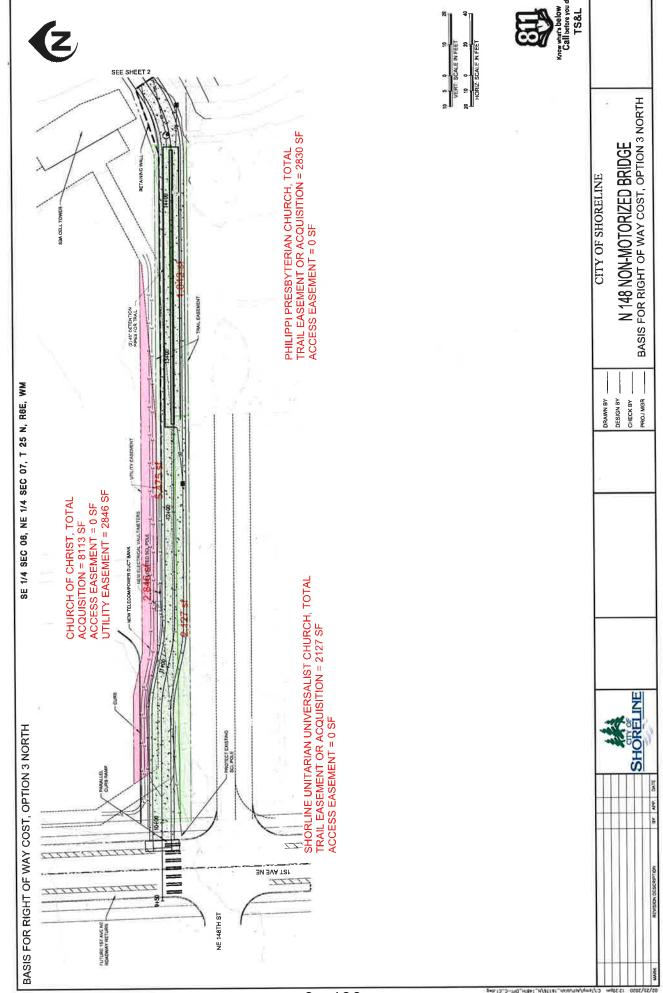
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PROJ MGR

N 148 NON-MOTORIZED BRIDGE BASIS FOR RIGHT OF WAY COST, OPTION 2 SOUTH

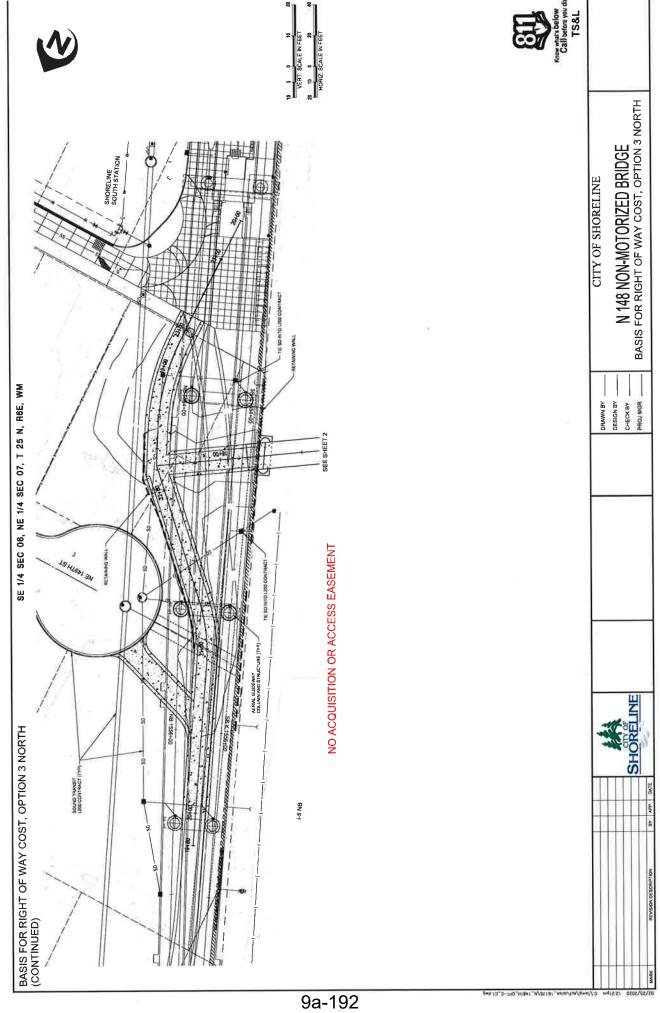
CITY OF SHORELINE

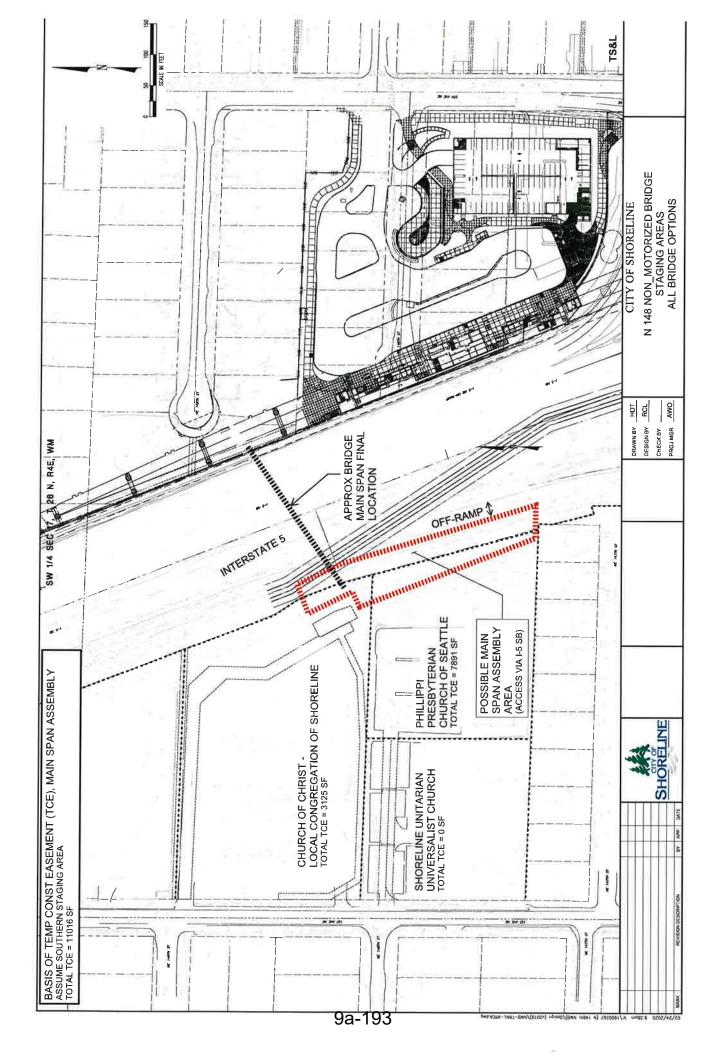






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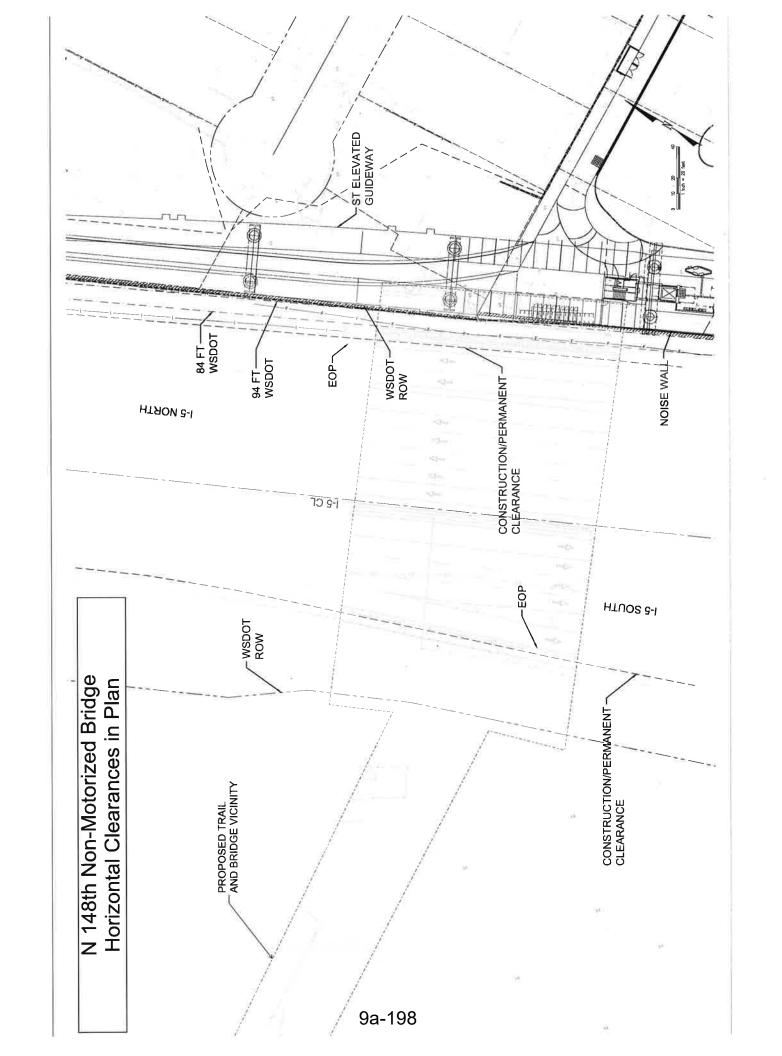
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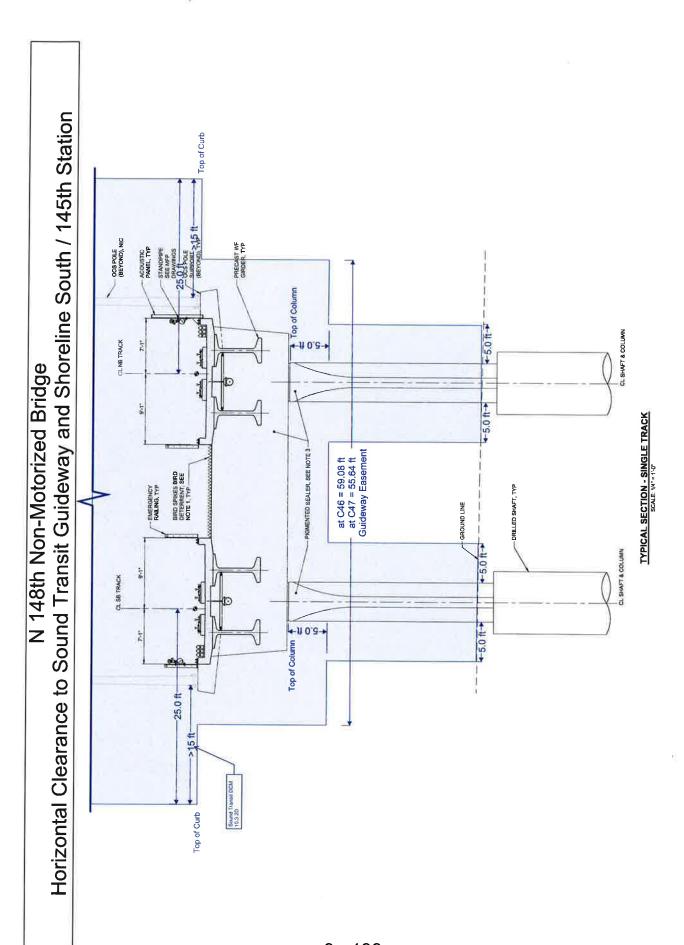
**Project Background Information and Meeting Notes** 

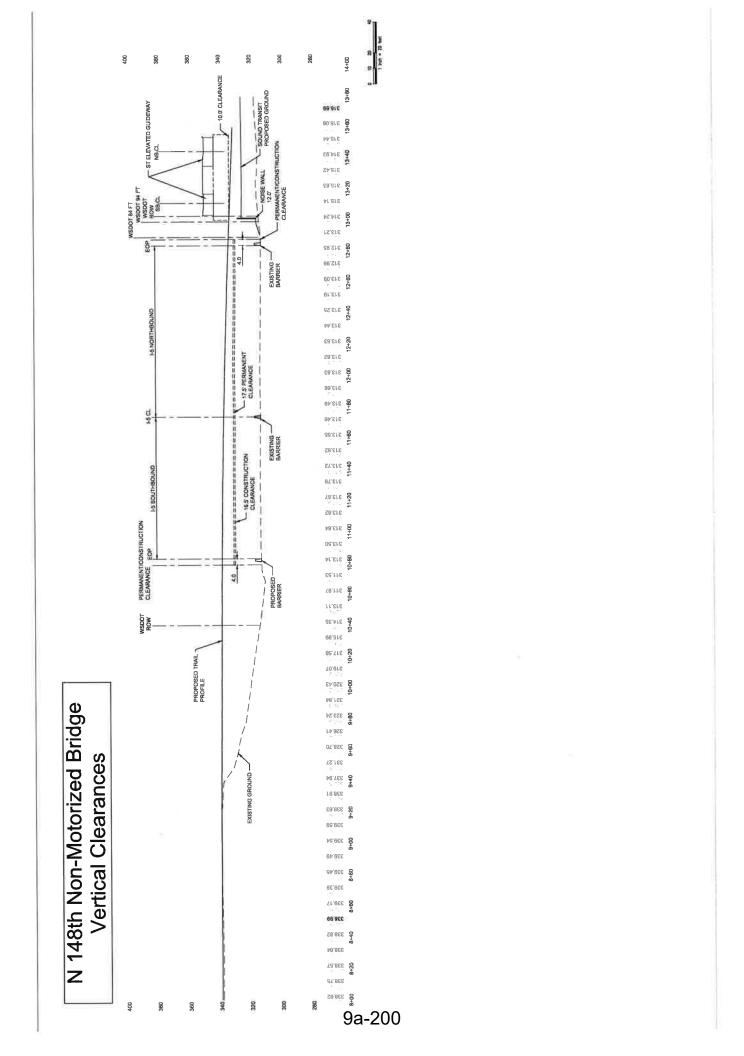
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# Project Background Information and Meeting Notes

Design Criteria and Constraints







# Project Background Information and Meeting Notes

**Design Charrette Notes** 



#### **MEETING NOTES**

Attendees:	Agency/Company:	Date:	11/19/19
Lea Bonebrake	City of Shoreline	KPFF Job	1800398
Nytasha Walters	City of Shoreline	No.:	
Tricia Juhnke	City of Shoreline	Shoreline	9263
Nora Daley-Peng	City of Shoreline	Job No:	
Nathan Daum	City of Shoreline	Task No.:	9.0
Randy Witt	City of Shoreline	Project:	N148th NMB
Aaron Olson	KPFF	Subject:	Project Workshop
Rachel Liberty	KPFF	-	#3
Keith Ireland	KPFF	Mtg. Place	Shoreline City Hall
Liz Gibson	KPG	_	
Coreen Schmidt	KPG		
Howard Fitzpatrick	LMN		

The purpose of the meeting was to share and gather input on the design alternatives for the N 148<sup>th</sup> Non-Motorized Bridge project. In general, the project was divided into three segments with multiple design options for each. Below is a summary of items discussed:

#### 1st Avenue Kiss & Ride Alternatives:

- Preliminary transportation analysis results expect 2-4 kiss & ride users per hour during peak times.
- Option 1: Pullout drop-offs each side of street, trail connection between churches
  - Southbound pullout may encourage people to jay-walk across to the trail.
     Consider having pullouts only in the northbound direction to avoid potential conflicts
  - Trail location provides most direct connection to bridge
- Option 2: Utilize Unitarian lot spaces for drop-off spots, trail connection between churches
  - Could be used as an interim condition until redevelopment in the area improves
     1st ave to the EDM standard
  - Would require an agreement from Unitarian Church to use those spaces. They currently have an agreement with ST to provide temporary park and ride in this lot during Lynnwood Link construction
  - Trail location provides most direct connection to bridge
- Option 3A: Drop-off with turnaround, trail connection between churches
  - Largest footprint of all options. Would likely require additional ROW from Iglesia Church.
  - Clear signage and/or gate required to prevent entry into Iglesia Church parking lot
  - Trail location provides most direction connection to bridge
- Option 3B: Drop-off with turnaround, trail connection along north side of Iglesia Church

- Largest footprint of all options. Would likely require additional ROW from Iglesia Church.
- Trail connection is least direct of all options. Indirect route may encourage cutthrough traffic on Unitarian, Phillipi and/or Iglesia church properties.
- Option 4: Redevelopment of Phillipi Church Property, trail connection between churches
  - Initial input from Phillipi Church is that they may be interested in redeveloping their property to take advantage of recent upzone
  - Kiss & Ride facility/turnaround would be pushed all the way to the bridge landing.
  - o Trail location would provide most direct connection to bridge
  - Extension of 148<sup>th</sup> street grid to bring this closer to bridge landing. This could be extension of public ROW or a private road built by developer.
- Design team should consider a "no-build/minimal build" option for kiss & ride facility.
   Providing kiss & ride facility could be considered cross-purpose to the non-motorized bridge
- Design team will consider trail connection that connects south to 147<sup>th</sup> behind Phillipi church.
- The following options will be advanced further for evaluation:
  - Option 1: K&R pullouts with full street build out from N 147<sup>th</sup> to N 149<sup>th</sup>. 16ft trail with northern edge along property line between churches.
  - Option 2: Minimal build option. Add sidewalk from bridge landing to 1<sup>st</sup> Ave, bikes use drive aisle of church lots. K&R facility uses existing parking stalls from Unitarian Church. Minimal improvements to 1<sup>st</sup> Ave
  - Option 3: Trail connection to 149<sup>th</sup> with either the K&R pullouts or the K&R turnaround.
  - o Option 4: Extension of 148<sup>th</sup> through church properties including trail. Requires redevelopment of both Unitarian and Phillipi properties.
  - Option 5: Bring trail south along eastern edge of Phillipi property and connect to 147<sup>th</sup>. Minimal sidewalk improvement to 147<sup>th</sup> with bikes using sharrow on 147<sup>th</sup>.

#### **Trail & Roadway Sections:**

- Roadway Sections:
  - The team presented several roadway sections options that varied from the EDM prescribed section.
  - While this project may not include any significant improvements to 1<sup>st</sup> Ave, it should not preclude the eventual build-out. Project limits still being discussed within the City.
  - Cycle track section presents issues with driveways, although there are not many driveways present on 1<sup>st</sup> ave. Cycle track is also not compatible with Kiss & Ride pullouts.
- Trail Sections:
  - Utilities that feed the cell phone tower are likely along property line between churches. Title reports indicate that Iglesia church has granted easement to cell

- tower owner for operation and maintenance of tower. Utility easements likely present for electrical and communications that feed that tower. Easement mapping is underway.
- Split trail shown to preserve trees @ the west end of the property line between Unitarian Church and Iglesia Church. MUR70 development has no requirement to preserve trees.
- Split trail may also limit parking space impact on Unitarian church property.
- Split trail would need to rejoin as it approaches the bridge as there is a grade difference between the Phillipi Church property and Iglesia church property
- Combined trail within Unitarian & Phillipi properties would eliminate entire row of parking along north edge of lots
- Interim condition could include sidewalk along trees with bicyclists using the drive aisle.

#### **East Landing Options:**

- Option 1: This landing brings the ramp north away from the station but provides approximately 9ft of vertical clearance to the guideway soffit for trial users. AASHTO requires 10ft minimum clearance. This would require the City to issue a variance.
- Option 2: Landing is further south to improve vertical clearance for trail users. Landing would be immediately adjacent to the north end of the station.
- Option 3: Landing is further south to improve vertical clearance for trail users and ramp passes through the columns. Landing would be immediately adjacent to the north end of the station.
- Option 4A: Landing is further north, with ramp occurring in the future shoulder of I-5 (between 84ft and 94ft WSDOT compatibility lines). Ramp down occurs between columns of guideway
- Option 4B: Landing is further north, with ramp occurring in the future shoulder of I-5 (between 84ft and 94ft WSDOT compatibility lines). Ramp down occurs east of guideway with Trail along the Rail passing underneath the ramp.
- Option 2 & 3 are eliminated from further evaluation due to their proximity to the station.
   This would require significant rework of ST's facility.
- Option 4B is eliminated due to complexity and CPTED issues with passing Trail along Rail beneath the ramp.
- The City would like to see further integration of Woonerf plans to see how these options can be integrated into that design.
- Design team to investigate whether raising grades in the Woonerf can help reduce ramp lengths.
- Design team to investigate impact of having significant portions of structure in WSDOT ROW (e.g. clearance to future roadway, location of sound wall, etc).

#### **Bridge Options:**

- The design team shared four bridge types: Cable stayed, compression arch, network tied arch and a truss.
- Cable stay tower immediately adjacent to the cell tower could be an issue with regard to causing interference. Design team is reaching out to cell tower owner to understand their constraints.
- Selection of bridge type will be highly dependent on cost and constructability
- Design team to investigate relocation of WSDOT sign bridge further north.
- Design team to investigate scale of throw barriers on bridge

#### Public Input & Evaluation Criteria:

- The City and design team will begin assembling a list of criteria for evaluating these options. These will be shared at the next design charrette.
- The City and design team will need to evaluate which components project will be opened up for public input. Where do we inquire and where do we inform?





#### **MEETING NOTES**

12/18/19 Agency/Company: Date: Attendees: Lea Bonebrake City of Shoreline KPFF Job 1800398 City of Shoreline Nytasha Walters No.: City of Shoreline 9263 Shoreline Tricia Juhnke City of Shoreline Job No: Nora Daley-Peng City of Shoreline 9.0 Task No.: Nathan Daum N148th NMB Aaron Olson **KPFF** Project: **Project Workshop** Rachel Liberty **KPFF** Subject: **KPFF** Keith Ireland **KPG** Mtg. Place Shoreline City Hall Liz Gibson **KPG** Coreen Schmidt

The purpose of the meeting was to share and gather input on the design alternatives for the N 148<sup>th</sup> Non-Motorized Bridge project. In general, the project was divided into three segments with multiple design options for each. Below is a summary of items discussed:

#### **General Project Updates:**

- Initial outreach to Unitarian Church has been made. They are generally receptive/supportive of the project and are interested in increasing visibility of church to trail/bridge users. Parking is their main concern. They would like to see any parking loss mitigated 1:1.
- Initial outreach to Iglesia Church has also been made. Their primary concern is safety/security of their property and keeping people off of their property. They would like to have fencing along trail at their property boundary.
- Sound Transit is currently leasing temporary park-and-ride spaces in the Phillippi and Unitarian parking lots. These spaces need to be maintained until new parking garage is in service at Shoreline South/145<sup>th</sup> station.
- WSDOT kickoff meeting has occurred. Their primary concern is potential impacts to piped section of Thornton Creek in project vicinity. Their suggestion is to avoid impacts to this at all costs. Show stream buffers on plans/graphics. Buffers/setbacks to be confirmed upon receipt of Thornton Creek as-builts.
- The ROW basemap has been updated to show easements on all three church properties. As expected, there is a maintenance and utility easement for cell phone tower at SE corner of Phillippi property. Impacts to this easement should be avoided as relocation of this facility will be costly.

#### West East Side Kiss & Ride and Trail Alternatives:

- Add lighting criteria for all options
- Need to establish limits of project improvement along 1<sup>st</sup> Avenue for TS&L evaluation

#### Page 2

- There are mitigation funds available for sidewalk improvements along 1<sup>st</sup> Ave.
   Preference is to use those funds for sidewalks between 155<sup>th</sup> to Twin Ponds as this area will not redevelop.
- Keep bike connections to 148<sup>th</sup> generic at this point (i.e. do not show bike lane arrows).
   City to determine bike connections at a later date.

#### Option 1: Minimal Build-Out:

- Avoid calling this interim condition but instead call minimum viable option or similar
- Minimal parking impacts for this option although parking impacted by construction would need to be mitigated (1:1)
- Unitarian church not particularly thrilled with this option although they would be interested in income from long-term kiss & ride lease from City

#### Option 2: Full Trail Build Out with and without Traffic Circle:

- Traffic circle is not desirable from City perspective as it encroaches on bike lane and adds further complication to the intersection. Traffic circle will be dropped from consideration.
- Show an alternative bike alignment at Kiss & Ride pullouts that has cars crossover bike lanes as a means of reducing ROW width/acquisition.
- Unitarian sign is currently constructed in City ROW.
- Investigate methods for mitigating parking loss due to trail build out.
  - Where can additional spots be gained?
  - Does this option require redevelopment of the Phillippi and Iglesia Church property?

#### Option 3: NE 148th Street Extension

- Roadway could be a public or private roadway. City could purchase ROW now ore require permanent easement from developer.
- o Roadway creates obvious connection to bridge
- o Could this option work without redevelopment?
  - Team to investigate methods for mitigating parking loss?
  - Where would access to churches occur? Off of new 148<sup>th</sup> extension? Or move driveway south off of 1<sup>st</sup>?

#### Option 4: Connection to 147th

- Turnaround needs to be a cul-de-sac per City code. Team to update figure and determine additional impacts – acquisition/demolition of 4 properties?
- o Potential option to have trail connect mid-block of 147<sup>th</sup> and run north between Unitarian and Phillippi properties.
  - Limits Unitarian parking impacts

Page 3

- Requires additional property acquisition/demolition
- Cul-de-sac/kiss & ride still would be required at end of street.
- Do not advance for now. Keep as potential option for future consideration

#### West Side Landings:

- Clearance diagram provided to show constraints of landing location with regard to vertical clearance for ped/bike users.
- Add Sound Transit station plaza to all graphics
- Tweak woonerf grades and refine landings to get better picture of slopes
- Advance all options (A, B & C) to TS&L phase

#### Option A:

- Where possible, reduce landscaping areas to open up plaza further. This will provide more flexibility for space for future pop-up events.
- · Add bleachers north of stairs too

#### Option B:

- Greatest vertical clearance under guideway
- · More gentle slopes of all options
- Greatest impact to WSDOT facility (more structure in forward compatibility area).
- Longest bridge structure.

#### Option C:

 More limited plaza space but becomes a quieter connection as trail-along-rail meets up with ped bridge landing.



#### **MEETING NOTES**

Attendees: Agency/Company: Date: 01/16/20 City of Shoreline Lea Bonebrake KPFF Job 1800398 Nytasha Walters City of Shoreline No.: Tricia Juhnke City of Shoreline 9263 Shoreline Nora Daley-Peng City of Shoreline Job No: Aaron Olson **KPFF** Task No.: 9.0 Rachel Liberty **KPFF** Project: N148th NMB Keith Ireland **KPFF** Subject: Project Workshop Liz Gibson **KPG** Coreen Schmidt **KPG** Mtg. Place Shoreline City Hall Howard Fitzpatrick LMN

The purpose of the meeting was to share and gather input on the design alternatives for the N 148<sup>th</sup> Non-Motorized Bridge project. In general, the project was divided into three segments with multiple design options for each. Below is a summary of items discussed:

#### **General Project Updates:**

- Community briefings with the Phillippi Church and the Parkwood Neighborhood Association (PNA) have been held in recent weeks. Both briefings were met with generally positive reaction to the project. The Phillippi Church is still interested in redevelopment and their largest concern is loss of parking. The PNA is primarily concerned with increased parking congestion in the neighborhood.
- Geotechnical fieldwork was completed last week. Survey was supposed to have been completed during that same timeframe but was delayed due to weather.

#### West Side Kiss & Ride and Trail Alternatives:

- The group reviewed recent revisions/refinements to the alternatives and selected those that should be advanced to the TS&L phase.
- All improvements to 1<sup>st</sup> avenue should be treated as examples to of how this project may tie into future improvements. These improvements should not be included in the TS&L.
- Below is a summary of the discussion about the alternatives

#### Option 1: Minimal Build-Out:

 No significant refinements made since last meeting. Option to be advanced to TS&L

Option 2: Full Trail Build Out with and without Traffic Circle:

- Newest refinement includes addition of parking lot expansion @ east side of Phillippi parcel to offset parking lost to full trail build-out
- Split this alternative into two, sub-options.
  - Option 2A will stay within the Unitarian and Phillippi properties and will require parking mitigation by adding retained fill to support @ the east end of the Phillippi parcel.
  - Option 2B will push the trail further north onto the Iglesia parcel in order to avoid parking impacts on the Unitarian & Phillippi church parcels. This will require relocation of underground utilities and renegotiation of existing private utility easement.
- Both sub-options will be advanced to TS&L
- Southbound kiss ride to be shifted to be parallel to northbound kiss and ride.
   This will be installed as part of developers frontage improvements.

#### Option 3: NE 148th Street Extension

 The street extension is outside the scope and scale of the project. It should be discussed in the TS&L as "option considered but not advanced". This option will not be advanced to the TS&L phase.

#### Option 4: Connection to 147th

- Newest refinement includes addition of cul-de-sac @ the end of 147th.
- This option has significant challenges including building trail adjacent to Thornton Creek, additional fill required to support trail prism and significant ROW acquisition.
- This option will not be advanced to the TS&L but will be addressed in the "option considered but not advanced" section of the report.

#### **Bridge Alternatives:**

- Updated alternatives including pros & cons for four bridge alternatives. Below is a summary of the discussion about the bridge alternatives.
- Bridge canopy/roof options were also developed for all bridge alternatives

#### Option 1: Cable Stayed Bridge:

- The tower for the cable stay bridge competes visually with the cell phone tower as they are in very close proximity.
- Cable-stay construction will likely require significant amount of work to occur over live traffic on I-5 below. This adds an undue amount of risk to the Contractor and traveling public.
- o Cable stay is likely the most costly option
- o Cable stay will not be advanced to the TS&L

#### Option 2: Compression Arch:

- Bridge canopy/roof to be added as an alternate option for this bridge. Additional framing members will be required to support a roof/canopy.
- Compression arch bridge to be advanced to TS&L

#### Option 3: Tied Arch:

- Bridge canopy/roof to be added as an alternate option for this bridge. Additional framing members will be required to support a roof/canopy.
- Tied arch bridge to be advanced to TS&L

#### Option 4: Truss:

- Bridge canopy/roof to be added as an alternate option for this bridge. This
  element can be integrated into the bridge design with little additional structure.
- Truss arch bridge to be advanced to TS&L
- Bridge awning/roof will be included as an option for all bridge alternatives considered
- Maintenance/inspection requirements for all alternatives should be discussed in the TS&L evaluation.
- Throw barrier should be added to all bridge modeling
- City to follow-up on art requirements for the project. Potential to incorporate art into throw barrier.

#### East Side Landings:

- Refined landing figures were presented. All will be advanced for evaluation in the TS&L report.
- Grades refined a bit more and more accurate picture of slopes and clearances were presented.
- An interim build out condition for the east side landing needs to be considered for all
  options. Cost estimate should separate out elements of the project that are not
  necessary to provide a functional project (i.e. minimum viable design). Add-ons like
  plaza, stair connections, landscaping, etc. can be added later as needed. City provided
  example of past project where a "menu" of options was created.
- 30% design will likely be to an interim condition as trail-along-the-rail and woonerf have not been designed or funded.

#### Option A:

- This alternative has the smallest vertical clearance from the pathway to the guideway structure @ 8'-0". This is the recommended minimum vertical clearance provided in the AASHTO Ped/Bike facilities guidelines
- This alternative requires raising station plaza grades by ~1ft.

#### Option B:

- Greatest vertical clearance under guideway @ ~9.3ft
- Most gentle slopes of all options
- This alternative requires raising station plaza grades by ~1.5ft.

#### Option C:

- Vertical clearance to guideway is ~8.8ft
- Separates plaza from trail users by separating the two.
- Requires raising station plaza by ~1ft.

#### Open House Coordination:

- A rough draft of the open house outline was shared which includes the following presentation categories:
  - o Background Info/Setup
  - o Design Constraints/Criteria
  - o Alternatives
  - Feedback Opportunities/Next Steps
- It was agreed that a brief presentation should lead the open house to provide people a
  general overview of the open house layout
  - The facility will need to be able to accommodate a presentation including a screen, seating, etc
- The schedule was reviewed and will be updated to include lead time for translation services. Clear, direct language is required for all materials in order to assure ease of direct translation.
- Graphics will be required for the open house boards and the online open house. Design team will work to support this effort.
- A physical model of the project site will be constructed (approx. 4ft x 4ft). Will include
  the light rail station and bridge options that can be switched out. Generic landings will
  be shown @ the east and west side
- During open house development, it needs to be understood to the public where we are asking for input and where we are informing. Balancing qualitative vs. quantitative input is a challenge.
- Allow the public to engage but not "vote" by rating importance of evaluation criteria.
- Ask for quantifiable feedback where possible. Open-ended questions can be difficult to answer/address.

Meeting Notes
March 5, 2020
Page 5

#### **Evaluation Criteria:**

- The team made some minor edits to the criteria list already developed.
- Criteria should be selected that can differentiate between the options. Some criteria are met by all options and so no comparison can be made.

# DRAFT

# Project Background Information and Meeting Notes

Public Outreach and Inter-agency Coordination Notes



#### **Briefing Notes**

#### North 148th Street Non-Motorized Bridge Design

Contract #9263

Consultant: KPFF, Inc.

Iglesia Ni Cristo

December 4, 2019, 3:00 p.m.

#### 1. Briefing Purpose

a. Purpose: Update Iglesia Ni Cristo leadership about the project, likely Right-of-Entry (ROE) activities, and secure feedback from church leadership about early design concepts.

#### 2. Attendees

Lea Bonebrake

City of Shoreline

Aaron Olson

**KPFF** 

Colleen Toomey

Stepherson & Associates

Luvimin Evangelio

Iglesia Ni Cristo Shoreline Iglesia Ni Cristo (District)

Barrington Thompson Rex ???

Iglesia Ni Cristo (District)

# 3. Project Team Presentation: Lea and Aaron provided a brief overview of the project scope and design

- a. The bridge will need to provide 18 feet in clearance across I-5 and will run under the new Sound Transit light rail tracks at the South Shoreline/N 145th Station
- b. The project team shared five early design concepts reiterated that all options must be considered during this early design phase.
- c. The new bridge will include a walking trail and lighting. Sound Transit security will also staff the station.
- d. Design will also likely include sidewalk improvements on 1st Avenue NE.
- e. The church could also receive compensation for renting field space to contractor for staging.
- f. Right-of-Entry Needs ROE needs across all three church properties include surveying, permitting and geotechnical activities. Geotechnical activities can be conducted on the other church properties. Surveying and permitting activities will be minimally invasive to Iglesia and will not require large tools.



#### **Briefing Notes**

#### 4. Iglesia Ni Cristo Community Comment Summary

#### a. ROE

- i. The Shoreline congregation is part of the larger national church. Church leadership includes a local district, a Western U.S. division and national office. The church has its own team of architects and engineering.
- ii. All agreements for the ROE and other activities will go through Western U.S. office.

#### b. .Church schedule and language needs

- i. The Shoreline congregation has a 10 am service on Sundays and many activities throughout the week.
- ii. Public outreach materials in English will work well for congregation.

#### c. Project benefits

i. A new pedestrian and bike bridge could bring new community members to the church and make it easier for current members to travel to church.

#### d. Project concerns

- i. Safety: Iglesia Ni Cristo wants to ensure a safe environment. In October 2018, a man threw a Molotov cocktail into the Rainier Valley location during a worship service. Fortunately, there were no injuries.
- ii. ROW: Leaders want to ensure there is clear delineation between public right-of-way and private property and alignment does not encourage pedestrians, bicyclists or vehicles to cut through church property.
- iii. Congestion: With drop-offs in potential kiss-and-ride or roundabouts, church leaders want to ensure that there is no significant congestion or illegal parking for the congregation to contend with. Project team noted parking facilities will be at the station.

#### e. Review of Early Concepts

- i. Option 1 and 2 were the most attractive to the church leaders. The trail pathway between the three churches appeared to offer the best security and would discourage people from cutting through private property to access the bridge. The kiss-and-ride spaces outside of the Iglesia property were most attractive. (This could also include Option 5)
- ii. Options with the northern trail pathway were less attractive for security reason.



# 5. Next Steps/Action Items

Task	Responsible	DUE	
Send revised ROE agreement excluding	Lea	DONE (12/6)	
geotechnically			
activities to Brother			
Luvimin. Include PDF			
of early concepts and			
project folio.			



# North 148th Street Non-Motorized Bridge Design

Contract #9263 Consultant: KPFF, Inc. Shoreline Unitarian Universalist Church December 12, 2019, 4:30 p.m.

1. Briefing Purpose

a. Purpose: Update Shoreline Unitarian Universalist Church leadership about the project, likely Right-of-Entry (ROE) activities, and secure feedback from church leadership about early design concepts.

#### 2. Attendees

Lea Bonebrake

City of Shoreline

Nathan Daum

City of Shoreline

Aaron Olson

**KPFF** 

Colleen Toomey

Stepherson & Associates

Catherine Crain Ryan Dunne Shoreline Unitarian Universalist Church Board, President Shoreline Unitarian Universalist Church Board, VP Finance

# 3. Project Team Presentation: Lea and Aaron provided a brief overview and answered questions about the project scope and design

- a. The bridge will need to provide 18 feet in clearance across I-5 and will run under the new Sound Transit light rail tracks at the South Shoreline/N 145th Station.
- b. The project team shared five early design concepts that are focused on the approach/how the path gets users from the bridge landing to 1st Ave NE or NE 147th St.
- c. Other components of the project include the bridge and how the bridge connects to the light rail station on the east side of I-5.
- d. Design will also likely include sidewalk improvements on 1st Avenue NE.
- e. The church could receive compensation for any easements or land purchases.
- f. The new bridge will include a walking trail and lighting. Sound Transit security will also staff the station.
- g. Survey work will be done once the City receives ROE agreements from all three church properties. This work will likely occur in the next month or so.
- h. The Type, Size and Location Report will evaluate four alternatives for the approach, two alternatives for the bridge design and two alternatives for the landing/connection to the light rail station.
- i. Lea explained that the selected option will be recommended by the project team and approved by the City Council.



j. The goal is to complete final design by the end of 2022, before Sound Transit begins light rail testing on the east side of I-5. Light rail will go through 1 year of testing (2023) with plans to start service in 2024.

# 4. Shoreline Unitarian Universalist Community Comment Summary

- a. Church Activities and Parking
  - The congregation is busiest on Sundays and during large events like weddings and funerals, however they do also have active weekday programming.
  - ii. Church currently leases the northernmost row of parking in their lot to the Evergreen School and Sound Transit during the week.

## b. Property impacts

i. In some concepts, the Church may need to sell or lease property. They would like to negotiate fair compensation for this loss of property.

### c. Review of Early Concepts

- i. Of the existing options, option 1 and 2 were the most attractive to the church board members. A pathway between the three churches would give users exposure to the Church's message. Option 1 and 2 would also discourage people from cutting through their property to access the bridge.
- ii. Options 3A and 3B were less attractive because:
  - 1. Might lead to unauthorized parking in their lot.
  - 2. People might cut through church parking lot to get to the bridge creating an added liability. They'd prefer to have the pathway near/adjacent to the church to make use more formalized.
- iii. Option 5 Lea explained that the project team is also looking at the option of placing the approach to the east of the Phillipi Church to connect to NE
   147th St.
  - 1. Church board members acknowledged that this option would have less of an impact on their parking.
  - 2. Catherine and Ryan asked the project team to look at the option of placing a pathway that runs east from 1st Ave NE, south of their property, turns north between the Unitarian and Phillipi churches and then east again between the Iglesia and Unitarian Church properties.

#### d. Outreach

- i. Catherine and Ryan said they would be interested in participating in a briefing with all three churches.
- ii. They also said they can help share information about the open house and online open house with their congregation.
- iii. Aaron offered to give a similar briefing to a larger group at the Church. Ryan and Catherine said they would like to do that.



# 5. Next Steps/Action Items

Task	Responsible	DUE
Send schedule, data/reports (traffic and use projections, walkshed information, etc) and an electronic version of the concepts to Ryan.	Lea/Kristin	DONE
Set up project briefing/presentation with a larger group of people from the Church.	Kristin	January



# North 148th Street Non-Motorized Bridge Design

Contract #9263

Consultant: KPFF, Inc.

Phillippi Presbyterian Church Briefing

January 3, 2020, 3:00 p.m.

1. Briefing Purpose

Purpose: Update Phillippi Presbyterian Church leadership about the project, provide guidance on development opportunities and secure feedback from church leadership about early design concepts.

#### 2. Attendees

Lea Bonebrake

City of Shoreline

Nathan Daum

City of Shoreline

Caleb Miller

City of Shoreline

Aaron Olson

**KPFF** 

Kristin Anderson

Stepherson & Associates

Han Kim

Phillippi Presbyterian Church Briefing

Cheryl Lee

Phillippi Presbyterian Church Briefing

# 3. Project Team Presentation: Lea and Aaron provided a brief overview and answered questions about the project scope, design and schedule.

- a. The project team shared four early design concepts that are focused on the approach/how the path gets users from the bridge landing to 1st Ave NE or NE 147th St. Aaron described that these are high-level concepts with the intent of gathering input from key stakeholders early in the process in an effort to create a win-win for all those involved. The options presented included:
  - i. Option 1 Minimal Build-Out
  - ii. Option 2 Full Trail Build-Out
  - iii. Option 3 NE 147th Trail Connection
  - iv. Option 4 Phillippi Site Redevelopment
- b. Other components of the project include the bridge and how the bridge connects to the light rail station on the east side of I-5.
- c. The new bridge will include a walking trail and lighting. Sound Transit security will also staff the station.
- d. A draft of the Type, Size and Location Report be presented to the City by the end of February. At that time, the project team will also start a broad public outreach effort concurrent to focused outreach with key stakeholders. The preferred alternative will be selected approximately two months after Open House #1 (planned for early April).



- e. The goal is to complete final design by the end of 2022, before Sound Transit begins light rail testing on the east side of I-5. Light rail will go through one year of testing (2023) with plans to start service in 2024.
- f. Based on the feasibility study, the total estimated project cost is \$17 million.

# 4. Phillippi Presbyterian Church Community Comment Summary

- a. Church Activities, Development Plans, and Parking
  - i. Church would like to maintain as much parking as possible on its property.
  - ii. Church is hoping to use the sloped area on the east side of its property, potentially for a multi-story parking garage.
  - iii. Cheryl asked if parking will be added as part of the project. Lea responded that parking will not be added as part of this project. The City is intentionally not adding parking but focusing on users who walk and bike. Aaron added Sound Transit will be added a 500-car parking garage on the east side of I-5 near the light rail station.

## b. Review of Early Concepts

- i. Option 1
  - 1. Cheryl does not think there is enough room for an 8-foot wide path as shown in the drawing (in the strip between the Iglesia property and the parking lots to the south). Aaron shared that the options are schematic and based on aerial surveys. Once survey work is done, the options will be further developed.

#### ii. Option 2

1. Han asked who will maintain the planted buffers shown in this option. Lea said that it's most likely that the City will maintain the plantings, as the City would need to acquire an easement to use that property. Lea will confirm.

## iii. Option 3

- 1. Has asked if the path shown will be a raised trail. Aaron responded that it's likely that the trail will be at a raised elevation. This would likely be done with a retaining wall and fill behind it as that is a least-costly option.
- 2. Han asked what type of development is possible on the sloped area. Caleb responded that steep slopes are considered critical areas. A final decision about what's allowed on the slope will require review of a specific proposal by a professional. Aaron added that Thornton Creek comes through the sloped area in an underground pipe. That pipe/culvert has been identified by WSDOT as a location for a future fish passage project. There are many unknows about what WSDOT might do and will allow in this area.



3. Cheryl feels this option is too indirect and would require too much walking to get to the bridge from 1st Ave NE. She doesn't think people will use this route.

### iv. Option 4

- 1. This option is contingent on Phillippi site redevelopment.
- 2. Cheryl said that while this option may not be exactly what the Church wants, she is glad the City is thinking forward and considering growth options.

#### c. General

- i. The majority of the congregation speaks Korean. Having outreach materials in Korean would be very helpful for communications with the congregation.
- ii. Cheryl stated repeatedly that the City needs a subarea plan for this area. Without a plan, it's difficult to visualize and plan for what could go in at the site.
- iii. Cheryl prefers options that separates pedestrians and bicyclists.
- iv. The Church would like more information on development agreement criteria.
- v. Cheryl is concerned about that more foot traffic in the area may lead to additional crime around the Church in the evenings and the less active times of day

#### 5. Next Steps/Action Items

Task	Responsible	DUE
Send Han a PDF	Lea	DONE
version of the trail		
options to share with		
the congregation		
Send Han and Cheryl	Lea	DONE
information about		
Gethsemane and other		
Church		
redevelopments		
Connect with Han and	Nate	1/10
Cheryl with details of a		
development		
agreement		
Confirm who will	Lea	1/17
maintain planted buffer		
shown in Option 2		



Provide briefing to the	Lea	TBD
Church congregation		
Connect with Han and	Lea	March
Cheryl as options are		
further developed and		
prior to broader public		
outreach.		
Share survey	Aaron/Lea	When available (when is that?)
information with		
Cheryl and Han		



# North 148th Street Non-Motorized Bridge Design

Contract #9263

Consultant: KPFF, Inc.

Parkwood Neighborhood Association Briefing

January 8, 2020, 7:00 p.m.

### 1. Briefing Purpose

Update the Parkwood Neighborhood Association about the project background, schedule and next steps, and gather feedback on early design concepts.

#### 2. Presenters

Lea Bonebrake

City of Shoreline

Tricia Juhnke

City of Shoreline

Aaron Olson

**KPFF** 

Kristin Anderson

Stepherson & Associates

# 3. Project Team Presentation: Lea and Aaron provided a brief overview and answered questions about the project scope, design and schedule.

- a. The project team started the presentation by providing background information on the 2017 feasibility study which lead to the identification of the selected bridge alignment at N 148th St.
- b. The project team shared early design concepts for the three parts of the project: the west trail connection 1st Ave NE, the bridge, and the east bridge landing. The team shared that these are high-level concepts with the intent of gathering input from key stakeholders early in the process to create a win-win for all those involved.
- c. The options presented for the west trail connection to 1st Ave NE included:
  - i. Option 1 Minimal Build-Out
  - ii. Option 2 Full Trail Build-Out
  - iii. Option 4 NE 148th St Extension
  - iv. Note: A fourth option, with the trail traveling south adjacent to I-5 and connecting to NE 147th was discussed, but not presented with an exhibit.
- d. The options presented for the bridge included:
  - i. Cable stayed bridge
  - ii. Compression arch bridge
  - iii. Truss bridge
  - iv. Tied arch bridge
- e. The options included for the east bridge landing included:
  - i. Option A
  - ii. Option B
  - iii. Option C
- f. The new bridge will include a walking trail and lighting. Sound Transit security will also staff the station.



- g. A draft Type, Size and Location Memo will be presented to the City by the end of February. At that time, the project team will also start a broad public outreach effort concurrent to focused outreach with key stakeholders. The preferred alternative will be selected approximately two months after Open House #1 (planned for early April).
- h. The goal is to complete final design by the end of 2022, before Sound Transit begins light rail testing on the east side of I-5. Light rail will go through one year of testing (2023) with plans to start service in 2024.

# 4. Parkwood Neighborhood Association Community Comment Summary

- a. The group had questions about how the project is being funded and how I-976 impacts the funding of this and other City projects.
  - i. Project funding: Lea shared that based on the feasibility study, the total estimated project cost is \$17 million. This total includes additional contingency and escalation funds. Approximately \$10 million has been secured, including more than 5 million in combined federal funding and Sound Transit funding.
  - ii. I-976 impacts: Tricia said that funding obtained through license tabs are directed to the City's street and sidewalk maintenance and preservation programs. Passage of I-976 represents an annual loss of \$1.7 million towards that fund. Passage of I-976 does not directly impact funding for this project.
- b. The group asked what the critical need for the project was and from where likely users would be coming.
  - i. Aaron shared that the purpose of the bridge is to connect people from the west side of I-5 to the transit center on the east side of I-5.
  - ii. Tricia added that the rezoning in the area will continue to increase the number of people living in the neighborhood. By placing the bridge near N 148th St creates a larger walkshed (the area/distance people are willing to walk). Someone closer to N 150th is more likely to use an I-5 crossing at N 148th than at N 145th.
- c. The group expressed concerns about how rezoning and this project will impact parking in the neighborhood.
  - i. Parking impacts: People using the bridge and transit center might try to use the public parking lots and street parking in the neighborhood. Added density will further strain parking availability in the neighborhood.
  - ii. Parking mitigation: The group asked if there is a plan to mitigate parking impacts resulting from this project?



- 1. Lea responded that as part of this project, the City is conducting a parking study to assess how the new bridge will impact parking in the neighborhood.
- 2. Tricia responded that the City is also conducting a broader parking study and plan to address how parking might be managed in the future.
- iii. Use of Church lots for parking: The group asked if the Phillippi and Unitarian Church parking lots will continue to be used as commuter parking.
  - 1. Tricia answered that when Sound Transit removed the park and ride on the east side of I-5, they replaced that lost parking by leasing parking in the Phillippi Church parking lot. Once the parking garage is open as part of the new light rail station, the Phillippi lot won't be used for commuter parking.
- d. The group had questions about if and how the City would acquire property for the bridge and trail connection to 1st Ave NE.
  - i. Lea said that that the extent of property impacts is yet to be determined, and that discussions are currently being had with the immediately impacted property owners.
- e. Comments and questions about the west trail connection to 1st Ave NE options
  - i. The group did not express a unified preference for any one of the following options.
    - 1. Option 1 Minimal Build-Out
    - 2. Option 2 Full Trail Build-Out
    - 3. Option 3 NE 147th Trail Connection
    - 4. Option 4 NE 148th St Extension
- f. Comments and questions about the bridge options
  - i. Some members of the group shared an initial preference for the tied-arch bridge.
  - ii. The group asked if the bridge would have a cover.
    - 1. Aaron said that it might, but that level of detail has not been decided.
- g. Comments and questions about the east bridge landing
  - 1. The group did not share a preference for any of the east bridge landings.



# 5. Next Steps/Action Items

Task	Responsible	DUE
Specific request		
Share KC Metro Long-range planning information	Lea	1/17
Share Northgate Pedestrian and Bicycle Bridge information	Lea	1/17
Share webpage/handout describing how the different	Lea	Once
City projects fit together/connect		complete
Suggested information to share based on questions from	om group	
Information on I-976 impacts –	Lea	1/17
Team could share the Currents Winter 2019 article on		
this issue.		
http://www.shorelinewa.gov/home/showdocument?id=41307		



# North 148th Street Non-Motorized Bridge Design

Contract #9263

Consultant: KPFF, Inc.

Ridgecrest Neighborhood Association Briefing

January 21, 2020

### 1. Briefing Purpose

Update the Ridgecrest Neighborhood Association about the project background, schedule and next steps, and gather feedback on early design concepts.

#### 2. Presenters

**Bob** Earl

City of Shoreline

Nytasha Walters

City of Shoreline

Aaron Olson

**KPFF** 

Colleen Toomey

Stepherson & Associates

# 3. Project Team Presentation: Bob and Aaron provided a brief overview and answered questions about the project scope, design and schedule.

- a. The project team started the presentation by providing background information on the 2017 feasibility study which lead to the identification of the selected bridge alignment at N 148th St.
- b. The project team shared early design concepts for the three parts of the project: the west trail connection 1st Ave NE, the bridge, and the east bridge landing. The team shared that these are high-level concepts with the intent of gathering input from key stakeholders early in the process to create a win-win for all those involved.
- c. The options presented for the west trail connection to 1st Ave NE included:
  - i. Option 1 Minimal Build-Out
  - ii. Option 2 Full Trail Build-Out
- d. The options presented for the bridge included:
  - i. Compression arch bridge
  - ii. Truss bridge
  - iii. Tied arch bridge
- e. The options included for the east bridge landing included:
  - i. Option A
  - ii. Option B
  - iii. Option C
- f. The new bridge will include a walking trail and lighting. Sound Transit security will also staff the station.
- g. A draft Type, Size and Location Memo will be presented to the City by the end of February. At that time, the project team will also start a broad public outreach effort concurrent to focused outreach with key stakeholders. The preferred alternative will be selected approximately two months after Open House #1 (planned for early



April).

h. The goal is to complete final design by the end of 2022, before Sound Transit begins light rail testing on the east side of I-5. Light rail will go through one year of testing (2023) with plans to start service in 2024.

# 4. Ridgecrest Neighborhood Association Community Comment Summary

- a. Parking: Attendees asked about parking options on the west side.
  - i. Bob noted that the city is studying parking options and does not want to overbuild on the west side of the bridge.

## b. West Approach:

- i. Option 1: Attendees emphasized the importance in minimizing tree removal. Attendees also asked how Thornton Creek will be impacted by this project. The city does not need to daylight creek currently.
- ii. Option 2: Attendees provided mixed feedback about this option. Some were concerned it was too wide and other wanted to make sure there would be specific bike lanes along the route. A suggestion was made to update renderings.
  - 1. Colleen reiterated that stakeholders at churches also providing feedback and it is important to them to have a distinct and safe right-of-way that does not encourage people to cut through or wander around church properties.
- c. **East Bridge Landing:** Attendees asked several questions and provided strong feedback about prospective plaza space and other amenities around the Sound Transit station.
  - i. Several attendees expressed that the location adjacent to both light rail tracks and a freeway would be too loud to hold any meaningful public programming and that it was not an attractive space for people to sit and have coffee or lunch. Attendees also said a lack of bathrooms was problematic.
    - 1. Aaron and Nytasha noted that current conditions around the area are likely to change with more retail development, restaurants and foot traffic.
    - 2. Nytasha confirmed that there are no bathrooms currently planned for the facilities and noted that bathrooms were very expensive to maintain in these types of public facilities.
    - 3. Bob and Nytasha also confirmed that city does not need to acquire additional property on the east side to accommodate any of the prospective design options. City will take over plaza after Sound Transit construction is complete.
  - ii. Safety: Attendees had several comments related to design elements under the



Sound Transit track. Several attendees though the clearance was too low and too close to the tracks. One attendee was concerned that design options had too many corners and dark spaces that would create a safety risk, particularly at night.

- 1. Bob and Aaron reiterated that the project has spatial constraints with both I-5 and the Sound Transit tracks. Bridge and pathways also need to meet ADA accessibility standards. Aaron reiterated that Sound Transit will have security staff on site.
- 2. Attendees voiced support for Option C and said a more condensed plaza was an okay tradeoff for a more direct route between the bridge and station.

# d. Bridge Options: Attendees asked several questions about the four bridge type options.

- i. Attendee asked if the bridge will light up like one of the bridges across Aurora Avenue.
  - 1. Aaron confirmed that we will not be able to do that under WSDOT regulations. Other art options are under consideration.
- ii. Attendees asked which bridge was best designed for seismic activity.
  - 1. Aaron confirmed that all bridge options will meet that same seismic standards.
  - 2. Aaron also confirmed that WSDOT will review options.
  - 3. Bridge will be fabricated off-site to mitigate closure and disruption to I-5.
  - 4. Attendees responded most positively to the Tied Arch Bridge. One person commented that the Truss Bridge looked too much like a railroad.

# e. Neighborhood travel and access:

- i. Attendees asked how these pathways related to other open space projects.
  - 1. Nytasha said the city is working toward greater connection through greenways, that include routes near I-5 and the Burke Gilman Trail. The city will be doing an update of its master transportation plan soon.
- ii. One attendee strongly articulated his concern that neighborhood connectivity is very poor on the east side of the bridge and that there are not enough sidewalks or curbs to get people safely to the light rail. He also felt that the city has done a poor job informing and working with residents.
  - 1. Nytasha emphasized that there are several other improvement projects related to this area. She said the city could come back to provide overview of projects. She also emphasized that the project team will make sure to put the N 148th Non-Motorized Bridge in context to the greater planning efforts as we go forward.



# 5. Next Steps/Action Items

Task	Responsible	DUE
Specific request		
Suggested information	to share based on question	ons from group
Send information about other improvement project related to 5th Avenue NE area/walkshed to board contacts.	Nytasha and Lea	2/7



# **MEETING NOTES**

Attendees: Lea Bonebrake Bob Earl

Nytasha Walters Juniper Nammi Melanie Vance

Hung Huynh Christina Stround

David Narvaez Mehrdad Moini

Renae Larsen Peter Alm

**Betsy Chase** 

Dan Hoyt Dan Logan

Celeste Gilman Lindsey Handel (?)

Aaron Olson Rachel Liberty -Keith Ireland

Agency/Company: City of Shoreline City of Shoreline

City of Shoreline City of Shoreline

**WSDOT Local Programs** WSDOT NWR Design

WSDOT

WSDOT Local Programs WSDOT Local Programs

WSDOT Local Programs

WSDOT

WSDOT Real Estate

WSDOT Planning Manager **WSDOT Real Estate** 

**WSDOT RTC** 

FHWA KPFF **KPFF KPFF** 

Date: **KPFF Job** 

12/9/19 1800398

No.:

Shoreline

Job No:

Task No.:

Mtg. Place

Project:

N148th NMB

Project

9263

2.0

**Project Kickoff** Subject:

Meeting WSDOT

Shoreline City Hall

The purpose of the meeting was to re-introduce WSDOT to the scope and purpose of the N 148th street Non-Motorized Bridge Project which included discussion of constraints and requirements of a crossing WSDOT's facility.

# Forward Compatibility/WSDOT ROW:

## East Bridge Landing:

- The group discussed the 94' and 84' forward compatibility line (FCL) along the east side of I-5 which was used during the Lynnwood Link design project. These guidelines can be used during design development for this project.
- A bridge pier at the east landing will likely need to be placed in the amenity zone (i.e. between the 94' and 84' lines). The bridge pier would need to be able to accommodate future drainage features (e.g. ditches) and other improvements (e.g. ITS, etc).
- Bridge pier locations will be shown in the TS&L and 30% deliverable for WSDOT review and comment.
- The City and Sound Transit currently have an understanding that the City will take possession of parcels @ the 145th street station site at the end of construction and that ST will have a transit easement on City property. Once this agreement has been formalized, WSDOT will need this documentation.

 ST and WSDOT currently have an airspace lease agreement at the 145<sup>th</sup> street station. This agreement will need to be modified for the portion of the pedestrian bridge that impacts this area.

#### West Bridge Landing:

- No FCL along the west side of I-5 was established in this vicinity for the Lynnwood Link project.
- The Lynnwood Link project did establish similar FCL where Sound Transit's guideway transitioned to the west side of the freeway. These guidelines can be applied in pedestrian bridge project area.
- The design team will reach out to Jeff S. of WSDOT's management of mobility team to gather information regarding I-5 planning work and future needs in this area.
- Corridor ITS is present in the SB I-5 shoulder

## Airspace/Trail Lease:

- The City will be seeking a trail lease for the aerial crossing of I-5. The bridge will need to be identified in the City's trail/transportation masterplan to qualify.
- Trail lease will take approximately 1 year from submittal of exhibits to executed lease.
- It's possible that NEPA may run concurrently with this process.

## SB I-5 Sign Bridge:

- The existing sign bridge at the NE 145<sup>th</sup> St exit off of I-5 will be impacted by the proposed pedestrian location.
- The Northgate Way advisory sign is not required by the MUTCD. It's likely that this sign could be relocated to the 145<sup>th</sup> st vehicular bridge (if required). A new sign would need to be provided.
- The exit sign may be relocated further north onto a cantilever sign bridge to accommodate the pedestrian bridge. Horizontal clearance requirements will be dictated by sign bridge maintenance requirements. WSDOT to provide these clearance requirements.

#### **Thornton Creek:**

- A piped section of Thornton Creek parallels SB I-5 in the vicinity of the pedestrian bridge project
- This section of Thornton Creek may be on the fish passage injunction list. It is unknown at this time if WSDOT has any immediate or future plans for a fish passage project. The design team will coordinate with WSDOT to determine if this is the case
- It is advised that this pedestrian bridge project avoid impacts to Thornton Creek including drainage discharge
- It is advised that the Muckleshoots be invited to the NEPA kickoff meeting (still to be scheduled)
- The design team will request as-builts for section of Thornton Creek for inclusion in the project basemap.

Critical areas – 165ft buffer around Thornton Creek

### **Architectural/Structural Requirements:**

- It is unknown at this time whether corridor specific WSDOT architectural standards will be adhered to. The design team will follow-up with WSDOT to confirm
- Although the WSDOT Design Manual does not necessarily require throw barriers for all
  crossings, they will likely be required given the context of the site. BNSF guidelines are
  often used as a starting point for throw barriers.
- Lighting on the bridge will be required for user safety but should not serve as a distraction to drivers on I-5. Uplighting or other accent lighting should be avoided.
- WSDOT has no known restrictions on structure type (i.e. cable stay, truss, arch, etc).
   Future maintenance of the structure will need to be considered in structure type selection
- Design team to confirm with Roman Peralta (WSDOT) on routine inspection requirements for pedestrian bridges that cross WSDOT facilities
- A bridge maintenance agreement between the City and WSDOT will be required
- Construction permit from WSDOT will be required. WSDOT inspectors will need to be present during construction

#### **Deliverable Review and Communications:**

- The City/design team will submit draft TS&L report and 30% to WSDOT for review and comment.
- The basis of design for the project has been recently completed. The City will distribute to WSDOT for review and comment.
- Hung H. and Lee Fanning will serve as primary point of contact between City and WSDOT for coordination items
- A JZ account between WSDOT and the City has already been setup. The City and WSDOT will coordinate to ensure enough funds are obligated to this account for deliverable reviews.

	A	ction Items		
No.	Description	Person(s) Responsible	Due Date	Complete?
1	Contact Jeff S of WSDOT management of mobility team to determine future I-5 plans at 145 <sup>th</sup> interchange	Hung H.	12/31	
2	Define/determine horizontal clearance required for maintenance of proposed 145 <sup>th</sup> off-ramp sign bridge	Hung H.	12/31	

Meeting Notes March 5, 2020 Page 4

ago				
3	Provide as-built plans for pipe section of Thornton Creek in the vicinity of proposed bridge	Hung H.	1/8	
4 >	Determine whether pipe section of Thornton Creek is on WSDOT fish barrier injunction list and whether there are any plans for replacing this section of the culvert.	Hung H	1/8	
5	Determine bridge inspection requirements with Roman Peralta (WSDOT)	KPFF/Hung H.	1/8	
6	Review and comment on Basis of Design Document	Hung H./WSDOT	1/15	
7	Determine if JZ account needs to be supplemented to account for WSDOT coordination effort	Lea B/Hung H.	1/8	



# Sound Transit Kickoff Meeting Agenda

# North 148th Street Non-Motorized Bridge Design

Contract #9263

Consultant: KPFF, Inc.

December 19, 2019, 3:00 p.m.

#### Attendees:

Lea Bonebrake

City of Shoreline

Bob Earl

City of Shoreline

Taylor Carroll

**Sound Transit** 

Aaron Olson

**KPFF** 

# **Introductions & Project Roles**

## **Meeting Objectives**

- 1) Re-introduce project to Sound Transit (ST) including purpose and need
- 2) Discuss constraints of building adjacent to ST facilities
- 3) Establish lines of communication and review

# **Project Background**

- The 145<sup>th</sup> Multi-modal corridor study and 145<sup>th</sup> Subarea Plan recommendations
- Review feasibility analysis and recommended alignment alternatives

## **Preliminary Design Review**

• Share current design development

#### Structural & Architectural Requirements

- Corridor architecture requirements
- Permissible bridge types
- Inspection & maintenance requirements
- Geotechnical foundation influence zones

#### **Construction Requirements**

- Construction envelopes
- Staging areas
- Construction schedule



# Sound Transit Kickoff Meeting Agenda

# **Sound Transit Coordination**

- ST departmental review
- Main point of contact

## **Deliverables Review**

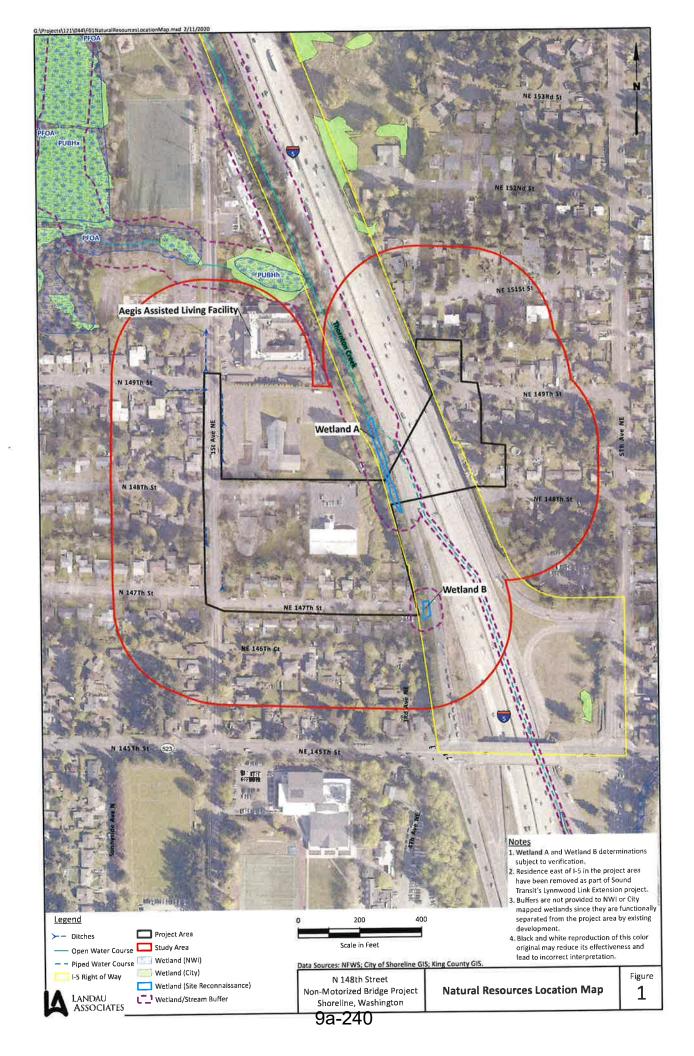
- Basis of Design
- Bridge/Trail TS&L
- 30% Design & beyond

# **Open Discussion**

# Appendix 5

# Project Background Information and Meeting Notes

**Environmental Permitting** 



# Appendix 5

# Project Background Information and Meeting Notes

**Landscaping Plant Palette** 

# 1. Plant Palette

# LANDSCAPE SPECIES RECOMMENDATIONS

Table 1-1: TREES

Туре	Latin Name	Common Name
1. Large Tree	Quercus frainetto 'Schmidt'	Forest Green Italian Oak
2. Large Tree	Nyssa sylvatica 'David Odom'	Afterburner Tupelo
3. Medium Tree	Acer campestre 'Evelyn'	Queen Elizabeth Hedge Maple
4. Medium Tree	Halesia monticola	Mountain Silverbell
5. Accent Tree	Amelancier grandiflora 'Princess Diana'	Princess Diana Serviceberry
6. Accent Tree	Acer circinatum	Vine Maple
7. Evergreen Tree	Metasequoia glyptostroboides	Dawn Redwood
8. Evergreen Tree	Picea omorika	Serbian Spruce
9. Evergreen Tree	Thuja plicata 'Excelsa'	Excelsa Cedar

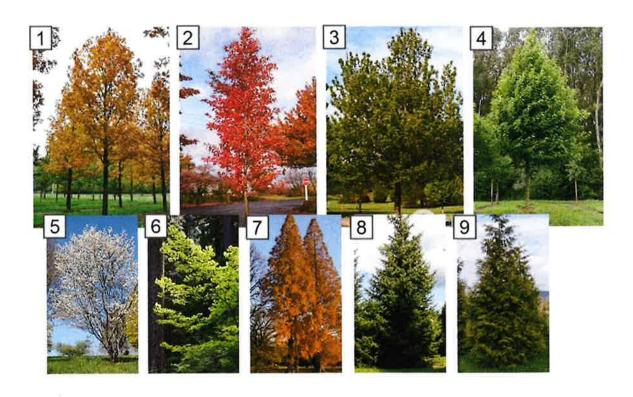


Table 1-2: SCREENING

Type	Latin Name	Common Name
1. Accent Tree	Acer circinatum	Vine Maple
2. Evergreen Tree	Picea omorika	Serbian Spruce
3. Evergreen Tree	Thuja plicata 'Excelsa'	Excelsa Cedar
4. Shrub	Ribes sanguineum	Flowering Currant
5. Shrub	Myrica californica	Pacific Wax Myrtle
6. Shrub	Vaccinium ovatum 'Thunderbird'	Thunderbird Evergreen Huckleberry
7. Shrub	Mahonia x media 'Winter Sun'	Winter Sun Mahonia
8. Shrub	Spiraea betulifolia 'Tor'	Tor Birchleaf Spirea
9. Shrub	Gaultheria shallon	Salal
10. Shrub	Mahonia nervosa	Cascade Oregon Grape
11. Fern	Polystichum munitum	Sword Fern



**Table 1-3: EDGE RESTORATION** 

Туре	Latin Name	Common Name
1. Shrub	Symphoricarpos albus	Snowberry
2. Shrub	Mahonia aquifolium	Kelseyi Red Twig Dogwood
3. Shrub	Gaultheria shallon	Salal
4. Shrub	Mahonia nervosa	Cascade Oregon Grape
5. Fern	Polystichum munitum	Sword Fern
6. Grass	Deschampsia cespitosa	Tufted Hair Grass
7. Groundcover	Arctostaphylow uva-ursi	Kinnikinnick
8. Groundcover	Fragaria chiloensis	Beach Strawberry



**Table 1-4: ORNAMENTAL PLANTING** 

Type	Latin Name	Common Name
1. Shrub	Lonicera pileata	Privet Honeysuckle
2. Shrub	Rhododendron 'Percy Wiseman	Percy Wiseman Rhododendron
3. Shrub	Deutzia gracilis 'Nikko'	Dwarf Slender Deutzia
4. Shrub	Prunus laurocerasus 'Mt. Vernon'	Mount Vernon Laurel
5. Shrub	Escallonia 'Newport Dwarf'	Newport Dwarf Escallonia
6. Shrub	Berberis thunbergii 'Concorde'	Concord Barberry
7. Shrub	Mahonia repens	Creeping Oregon Grape
8. Grass	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass
9. Grass	Sesleria autumnalis	Autumn Moor Grass
10. Perennial	Achillea millefolium 'Walther Funcke'	Walther Funke Yarrow
11. Perennial	Geum 'Flames of Passion'	Flames of Passion Avens
12. Groundcover	Rubus pentalobus	Creeping Bramble
13. Groundcover	Epimedium x perralchicum 'Frohnleiten'	Hybrid Epimedium
14. Vine	Parthenocissus triscupidata	Boston Ivy



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# Appendix 6

Online Open House Report and Content

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# N 148th STREET NON-MOTORIZED BRIDGE PROJECT

ONLINE OPEN HOUSE FINAL REPORT

APRIL 10-MAY 1, 2020

#### **SUMMARY**

As part of the N 148th Street Non-Motorized Bridge Project, the City of Shoreline hosted an online open house between April 10 and May 1, 2020, to share information and gather input on the design of the bridge and how it connects to the neighborhoods on the east and west sides of I-5.

When visiting the online open house, participants could:

- Learn more about the project need, benefits, and schedule.
- Review the options being considered for each design element and provide feedback on those options.
- Share how they plan to use the bridge and what criteria is most important to them.
- Share demographic information to help determine the effectiveness of the City's outreach.
- Sign up for email updates about this project and others in the N 145th Street corridor.

#### **Promotions**

The City used multiple methods to reach audiences and promote the online open house. A postcard advertising the online open house and the webinar was sent to 4,195 addresses in the project area. Information about the online open house was also posted on the project webpage and on social media, and the project team sent emails to project partners, neighborhood organizations, and project stakeholders. The online open house was available in English, Korean, and Spanish.

#### **METHODOLOGY**

The following report captures qualitative and quantitative data for survey questions. The online open house included 14 questions related to the project design elements and 14 questions related to criteria, travel, and respondent demographics. All questions were optional. Not all respondents answered every question. Many questions allowed respondents to select more than one answer. Questions with more than one answer do not use percentage to calculate any total value or representation.

#### **Use and Activity**

Between April 10 and May 1, 529 individuals visited the online open house. There were 165 survey respondents. Each question received a different number of responses, including:

- 125 responses to bridge structure questions
- 87 responses to the east bridge landing questions
- 113 responses to the west trail connection questions
- 98 responses to evaluation criteria questions
- 110 responses to bridge use and demographic questions
- 33 open-ended comments in response to the question "Is there anything else you would like to share about the N 148th St Non-Motorized Bridge Project?"

All survey entries were in English. The online open house received very few views in Spanish and Korean.

#### **KEY FINDINGS**

#### **Demographics and Priorities**

About 31% of online open house visitors completed survey questions. Seventy-nine percent (79%) of respondents who provided a ZIP code listed 98133 or 98155. About 44% of respondents who provided a ZIP code lived on the west side of I-5 and about 56% lived on the east side of I-5. About half of respondents are already planning to use the bridge to connect to light rail and nearby walking/bike trails and most plan to walk or bicycle. One-third were not yet sure if they plan to use the bridge.

Survey respondents who provided demographic information overwhelmingly identified as White or Caucasian and English-speaking. Most respondents were 35 or older, with the largest represented age group being those 65 years or older (22%). Eighty-nine percent (89%) of survey respondents were homeowners.

When considering criteria to evaluate design options, survey respondents identified the following as their top priorities:

- Improve pedestrian travel (e.g., sidewalks, crosswalks) (55%)
- Maintain safe environment for community (44%)
- Shorten travel time to light rail station/transit center (34%)

#### **Bridge Span**

The Tied Arch option was the most popular design; 57% of respondents selected it as their top choice. Respondents liked the overall look design of the Tied Arch, as well as the size. Respondents noted that minimizing cost, ensuring aesthetic appeal, and maximizing safety were all important factors to consider when selecting a bridge option. Regardless of where they live or what mode of travel they plan to use, participants preferred the Tied Arch option.

#### **East Bridge Landing**

More than 90% of survey respondents preferred the Direct Ramp option, regardless of where they live or what mode of travel they use. Respondents liked the overall layout, the connection to the Trail Along the Rail, and the connection to the light rail station. Accessibility and safety were key considerations. Many respondents noted that the more angular shapes of the other two options would present challenges for those on bicycles and those using assisted modes of travel.

Respondents noted that the corner angles in both the A-Frame and Switchback options would create blind spots and risk of collisions.

#### West Trail Connection

Fifty-seven percent (57%) of respondents preferred the Full Build-Out option. Respondents liked the overall design and the shared path for pedestrian and bicyclists. Safety was an important consideration for respondents. With the Minimal Build-Out option, respondents worried that the shared use of the drive aisle by vehicles and bicycles would create an increased risk for collisions, as well as liability for the neighboring churches.

Although respondents preferred the Full Build-Out option, many also listed loss of parking and loss of mature trees as concerns for any work being done on this portion of the project.

The Full Build-Out option was the most popular among respondents, regardless of where they live. Those who selected walking as a mode of travel had a slight preference for the Minimal Build-Out option; this option would include a designated path for pedestrians.

#### **OTHER KEY THEMES**

Maintain mature trees: Throughout each section of the survey, respondents emphasized the importance of maintaining mature trees in the project area wherever possible.

Manage project costs: Many respondents noted that managing project costs was an important factor, and some recommended the project team should select the least expensive design for each section of the project.

**Delineated areas of travel:** Participants also noted that it will be important throughout each project section to have clear signage and painted lanes to distinguish pedestrian pathways from bicycle/wheeled pathways.

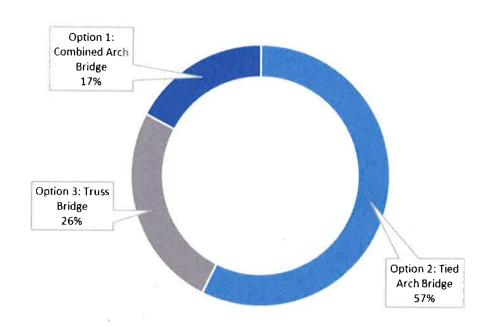
Other street improvements: Throughout each section of the survey, participants noted the need for street improvements around the project area, such as 1st Avenue NE and N 145th Street. Many noted that there was a need to improve pedestrian travel and safety on N 145th Street, regardless of how the bridge connects to N 148th Street.

#### **NEXT STEPS**

Public input is one of several key factors the project team is considering as they identify a preferred option for the project design. The project team will recommend a preferred option to Shoreline City Council in June 2020 for approval. Once approved, the project team will continue to refine the overall design and move toward 30% design in fall 2020. More opportunities for public input will be provided during summer and fall 2020.

### **BRIDGE**

### WHICH BRIDGE OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 2: Tied Arch Bridge	57%	63
Option 3: Truss Bridge	26%	28
Option 1: Combined Arch Bridge	17%	19
Total	100%	110

### **OPTION 1: COMBINED ARCH BRIDGE**

What do you like about this option? Select all that apply.

Answers	Tally
Overall look and design	57
Size	25
Other	6

What do you dislike about this option? Select all that apply.

Answers	Tally
Overall look and design	23
Size	12
Other	6

Respondents: 38

**OPTION 2: TIED ARCH BRIDGE** 

What do you like about this option? Select all that apply.

Answers	Tally
Overall look and design	82
Size	31
Other	11

Respondents: 86

What do you dislike about this option? Select all that apply.

Answers	Tally
Size	18
Overall look and design	12
Other	5

Respondents: 29

**OPTION 3: TRUSS BRIDGE** 

What do you like about this option? Select all that apply.

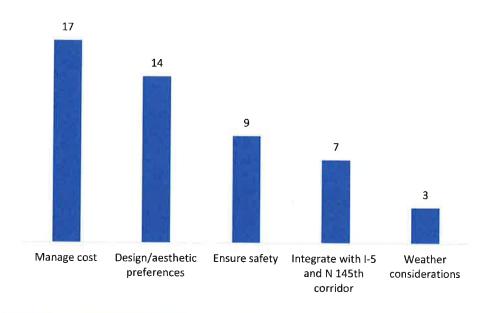
Answers	Tally
Overall look and design	25
Size	20
Other	9

### What do you dislike about this option? Select all that apply.

Answers	Tally
Overall look and design	68
Size	17
Other	14

Respondents: 75

# Is there anything you think we should consider while evaluating these bridge options? (Write-in response)

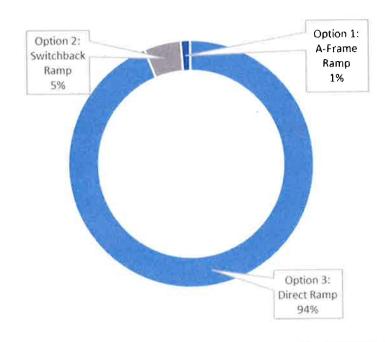


Recurring Themes	Tally
Manage cost	17
Design/aesthetic considerations	14
Maintain safety	9
Integrate with I-5 and N 145th corridor	7
Weather considerations	3

Other comments included ensuring bridge was easy to access, limiting bike and pedestrian interactions and ensuring the protection of mature trees.

### **EAST BRIDGE LANDING**

### WHICH OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 3: Direct Ramp	94%	77
Option 2: Switchback Ramp	5%	4
Option 1: A-Frame Ramp	1%	1
Total	100%	82

### **OPTION 1: A-FRAME RAMP**

### What do you like about this option? Select all that apply.

Answers	Tally
Stair access to station	22
Connection to light rail station	19
Pedestrian and bicycle pathways	17
Ramp layout	12
Connection to Trail Along the Rail	12
Other	3
Height clearance from Sound Transit tracks	2

### What do you dislike about this option? Select all that apply.

Answers	Tally
Height clearance from Sound Transit tracks	36
Ramp layout	29
Connection to Trail Along the Rail	16
Other	15
Stair access to station	12
Pedestrian and bicycle pathways	5
Connection to light rail station	4

Respondents: 57

### **OPTION 2: SWITCHBACK RAMP**

### What do you like about this option? Select all that apply.

Answers	Tally
Height clearance from Sound Transit tracks	25
Connection to light rail station	14
Ramp layout	12
Pedestrian and bicycle pathways	11
Stair access to station	11
Connection to Trail Along the Rail	7
Other	5

Respondents: 40

### What do you dislike about this option? Select all that apply.

Answers	Tally
Ramp layout	34
Connection to Trail Along the Rail	21
Stair access to station	18
Connection to light rail station	7
Pedestrian and bicycle pathways	7
Height clearance from Sound Transit tracks	6
Other	6

**OPTION 3: DIRECT RAMP** 

### What do you like about this option? Select all that apply.

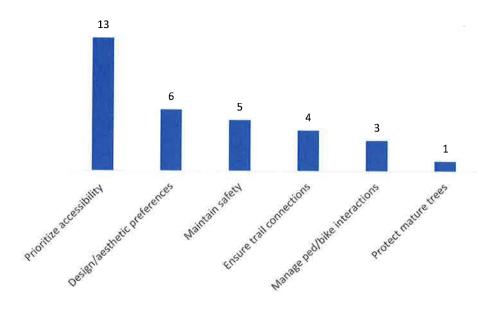
Answers	Tally
Ramp layout	53
Connection to Trail Along the Rail	50
Connection to light rail station	48
Height clearance from Sound Transit tracks	34
Pedestrian and bicycle pathways	33
No stair access to station	29
Other	8

Respondents: 66

### What do you dislike about this option? Select all that apply.

Answers	Tally
No stair access to station	15
Height clearance from Sound Transit tracks	6
Ramp layout	4
Pedestrian and bicycle pathways	3
Other	3
Connection to Trail Along the Rail	2
Connection to light rail station	1

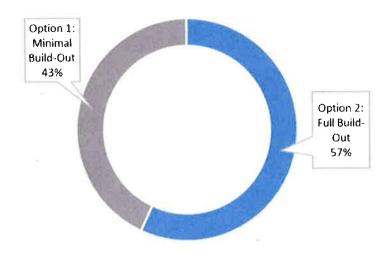
Is there anything you think we should consider while evaluating these options for the East Bridge Landing? (Write-in response)



Recurring Themes	Tally
Prioritize accessibility	13
Design/aesthetic preferences	6
Maintain safety	5
Ensure trail connections	4
Manage ped/bike interactions	3
Protect mature trees	1

### **WEST TRAIL CONNECTION**

### WHICH OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 2: Full Build-Out	57%	57
Option 1: Minimal Build-Out	43%	43
Total	100%	100

### **OPTION 1: MINIMAL BUILD-OUT**

What do you like about this option? Select all that apply.

Answers	Tally
Separation between bicyclists and pedestrians	47
Parking options	33
Trail design	26
Other	11

### What do you dislike about this option? Select all that apply.

Answers	Tally
Separation between bicyclists and pedestrians	31
Trail design	28
Other	26
Parking options	11

Respondents: 65

### **OPTION 2: FULL BUILD-OUT**

### What do you like about this option? Select all that apply.

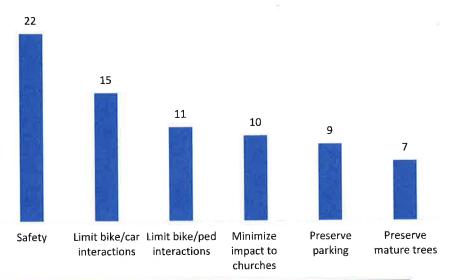
Answers	Tally
Trail design	51
Shared bicycle and pedestrian path	49
Other	9
Parking options	5

Respondents: 63

### What do you dislike about this option? Select all that apply.

Answers	Tally
Shared bicycle and pedestrian path	39
Parking options	34
Other	13
Trail design	12

Is there anything you think we should consider while evaluating these options for the West Trail Connection? (Write-in response)

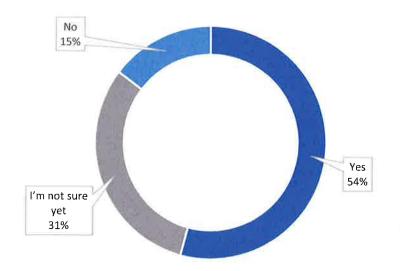


Recurring Themes	Tally
Safety	22
Limit bike/car interactions	15
Limit bike/ped interactions	11
Minimize impact to churches	10
Preserve parking	9
Preserve mature trees	7

Other comments included requests for more detailed plans, recommendations for landscaping, and the need to manage traffic flow into the area.

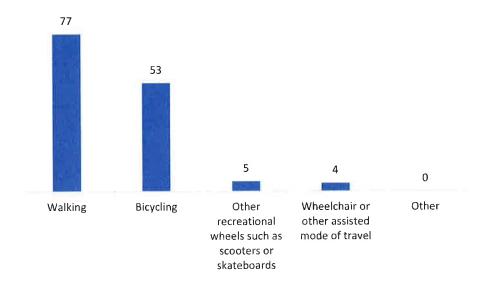
### **DEMOGRAPHIC INFORMATION**

### Do you plan to use the new N 148th Street Non-Motorized Bridge?



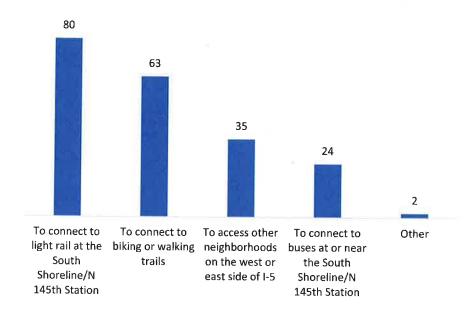
Answers	Percentage	Tally
Yes	54%	59
I'm not sure yet	31%	34
No	15%	16
Total	100%	109

### If you do plan to use the bridge, what modes of travel do you plan to use? Select all that apply.



Answers	Tally
Walking	77
Bicycling	53
Other recreational wheels such as scooters or skateboards	5
Wheelchair or other assisted mode of travel	4
Other	0

## If you do plan to use the bridge, what will be the purpose of your travel? Select all that apply.



Answers	Tally
To connect to light rail at the South Shoreline/N 145th Station	80
To connect to biking or walking trails	63
To access other neighborhoods on the west or east side of I-5	35
To connect to buses at or near the South Shoreline/N 145th Station	24
Other	2

Please select the top three criteria that are most important to you for this project.



IMPROVE
PEDESTRIAN TRAVEL



MAINTAIN SAFE ENVIRONMENT



**SHORTEN TRAVEL TIME** 

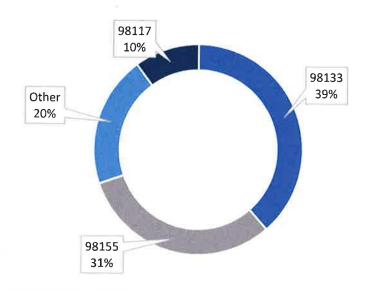
55%

44%

34%

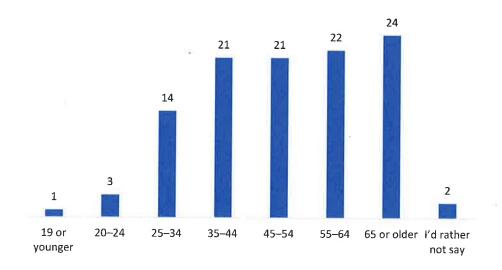
Answers	Percentage	Tally
Improve pedestrian travel (e.g., sidewalks, crosswalks)	55%	59
Maintain safe environment for community	44%	47
Shorten travel time to light rail station/transit center	34%	36
Improve bicycle travel	33%	35
Protect mature trees	27%	29
Visual design and overall look	21%	23
Manage project costs	17%	18
Minimize impacts to neighboring properties	15%	16
Maintain existing parking options	13%	14
Limit city acquisition of private property	9%	10

### What is your ZIP code?



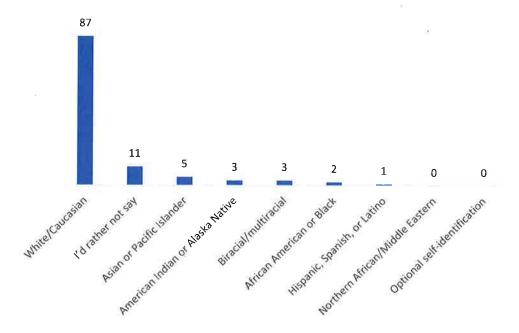
Answers	Percentage	Tally
98133	39%	42
98155	31%	34
Other	20%	22
98117	10%	11
Total	100%	109

### What is your age?



Answers	Percentage	Tally
19 or younger	1%	1
20–24	3%	3
25–34	13%	14
35–44	19%	21
45–54	19%	21
55-64	20%	22
65 or older	22%	24
I'd rather not say	2%	2
Total	100%	108

### What is your race/ethnicity? Select all that apply.

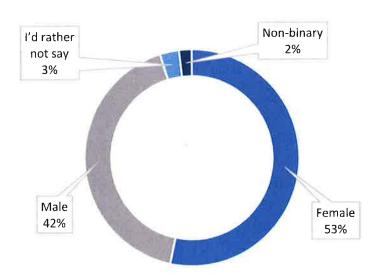


Answers	Tally
White/Caucasian	87
I'd rather not say	11
Asian or Pacific Islander	5
American Indian or Alaska Native	3
Biracial/multiracial	3
African American or Black	2
Hispanic, Spanish, or Latino	1
Northern African/Middle Eastern	0
Optional self-identification	0

### What is the primary language spoken in your home?

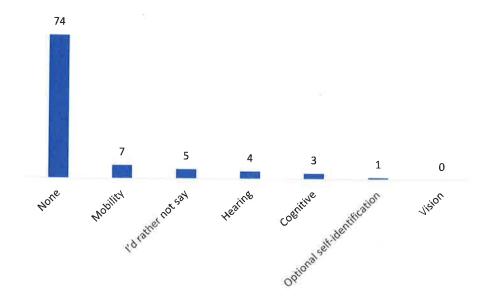
Answers	Percentage	Tally
English	100%	107
Amharic/Tigrinya	0%	0
Korean	0%	0
Mandarin/Cantonese	0%	0
Spanish	0%	0
Tagalog	0%	0
Vietnamese	0%	0
Other	0%	0
Total	100%	107

### What gender do you identify as?



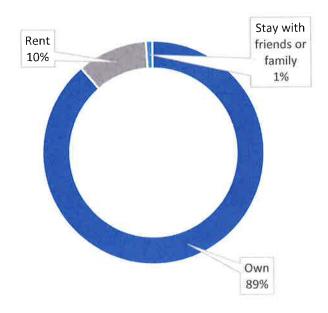
Answers	Percentage	Tally
Female	53%	56
Male	42%	44
I'd rather not say	3%	3
Non-binary	2%	2
Optional self-identification	0%	0
Total	100%	105

### Do you have a disability? Select all that apply.



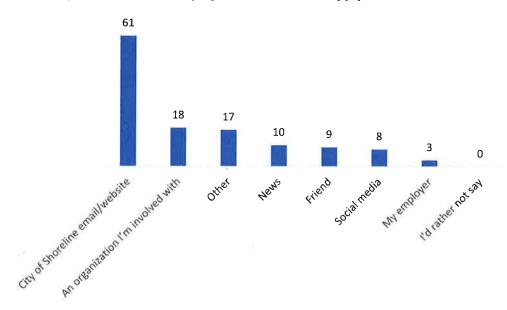
Answers	Tally
None	74
Mobility	7
I'd rather not say	5
Hearing	4
Cognitive	3
Optional self-identification	1
Vision	0

### What is your current housing situation?



Answers	Percentage	Tally
Own	89%	95
Rent	10%	11
Stay with friends or family	1%	1
Without housing	0%	0
Other	0%	0
I'd rather not say	0%	0
Total	100%	107

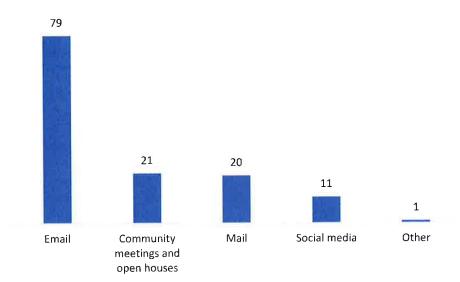
### How did you learn about this project? Select all that apply.



Answers	Tally
City of Shoreline email/website	61
An organization I'm involved with	18
Other	17
News	10
Friend	9
Social media	8
My employer	3

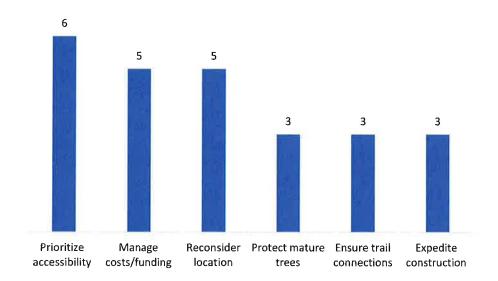
<sup>\*\*</sup>Reporting Note: This question unintentionally omitted "mailer" as an option. Several people who responded with "other" said they received a mailer from the City of Shoreline.

### What is the best way to stay in touch with you about this project? Select all that apply.



Answers	Tally
Email	79
Community meetings and open houses	21
Mail	20
Social media	11
Other	1

# Is there anything else you would like to share about the N 148th Non-Motorized Bridge Project? (Write-in response)



Recurring Themes	Tally
Prioritize accessibility	6
Manage costs/funding	5
Reconsider location	5
Protect mature trees	3
Ensure trail connections	3
Expedite construction	3

Other comments included prioritizing safety, minimizing impacts to churches, and comments on other City of Shoreline projects.

#### **WEB ACTIVITY REPORT**

URL: 148bridge.infocommunity.org

#### Users | 529

Total number of individual IP addresses that visited the online open house at least once.

### Sessions | 692

The number of individual visits to online open house from all users.

### Total Pageviews | 2,454

The total number of times all pages within the online open house were viewed, inclusive of English, Spanish, and Korean pages.

#### Unique Pageviews | 2,138

This number aggregates multiple visits to a page within a single browsing session. Example: If a user viewed the Bridge page five times within one browsing session, the total number of unique views of that page would be one. If a user viewed the online open house on a Thursday and then came back to view again on a Friday, those visits are counted as multiple browsing sessions.

#### Pages Visited Per Session | 3.55

The average number of pages a user visited during a session.

#### Session Duration | 5 minutes, 20 seconds

The average time a user spent viewing the online open house during a session.

Device Use | Desktop (75%), Mobile (22%), Tablet (3%)

Top Traffic Sources | Direct Entry of URL (61%), City of Shoreline website (21%), Facebook (8%)

# Appendix 6

# Online Open House Content

A ped/bike bridge connecting people to neighborhoods and regional transit

HOME

PROJECT

SCHEDULE

BRIDGE

WEST TRAIL

EAST BRIDGE

GIVE MORE

WHAT'S

**ONLINE OPEN HOUSE** 

# Welcome to the online open house for the N 148th Street Non-Motorized Bridge!

Shoreline is growing and changing. With the coming arrival of Sound Transit light rail, the new Shoreline South/145th Station for light rail and bus transit, and new development, residents need new ways to connect to these growing services and facilities and to an expanding pedestrian and bike network.

To meet these needs, the City of Shoreline will build a new pedestrian and bike bridge crossing over Interstate 5 (I-5) at N 148th Street. The N 148th Street Non-Motorized Bridge will improve safety for everyone and reduce travel times for people walking and biking between the east and west sides of I-5 in Shoreline.

The purpose of this online open house is to provide a chance for you to:

- Learn more about this project.
- Share what's important to you and give feedback on the key parts of this project.

#### How to use this online open house

- To advance through this open house, scroll down to read each page, then click the "Next Page" button at the bottom of the page, or select the tab you want at the top.
- Within this online open house, you will be asked questions and can provide feedback. The online
  open house and questionnaire will take only a few minutes to complete.

Thank you for your participation!

#### JOIN US FOR A WEBINAR

This live online presentation will take place on:

Thursday, April 23, 2020 12:00-1:00 p.m.

Click here to register.

#### **Stay Connected**

Sign up for updates and engagement opportunities about this project and others in the N 145th Street Corridor.

irst	Name	

Last Name

Email -

\*Email is Require

SUBMIT

> GO TO HEXT PAGE

### TRANSLATION SERVICES:

If you would like to communicate with the City of Shoreline or review a document in another language, please send your request along with your contact information to clk@shorelinews.gov or call 206-801-2700.

Si quisiera comunicarse con la cludad de Shoreline o revisar un documento en otro Idioma, envíe su solicitud junto con su información de contacto a cik@shorelinewa.gov o llame al 206-801-2700.

如果您想與 City of Shoreline 進行交流或檢視以另一種語言提供的文件,請將 您的請求連同您的聯絡資訊發送到 cik@shorelinewa.gov 或請致電 206-801-2700。

쇼이리인 시에 연락하고 싶거나 다른 언어로 된 문서를 검토하려면 연락처 정보와 함께 요청서를 clk@shorellnewa.gov 로 제출하거나 206-801-2700번으로 전화해 주십시오. Nếu quý vị muốn liên hệ với Thành phố Shoreline hoặc đọc tài liệu bằng ngôn ngữ khác, vul lòng gửi yêu cầu cùng với thông tin liên hệ tới đja chỉ clk@shorelinewa.gov bhãc no! 206-801-2700

Kung gusto mong makipag-usap sa Lungsod ng Shoreline o suriin ang Isang dokumento sa Ibang wika, pakipadala ang Iyong kahilingan kasama ng Iyong impormasyon sa pakikipag-ugnayan sa cik@shorelinewa.gov o tumawag sa 205-801-2700.

የሾርላይን ከተማ *ጋ*ር ለመንናኝት ከፈለ**ጉ ወይም አንድን ሰንድ በ**ሌላ ቁንቁ ለመከለስ ከፈለ<mark>ጉ</mark> ጥያቄዎን ከመንኛ መረጃዎ *ጋ*ር በማድረግ በ clk@shorelinewa.gov ላይ ኢጫይል ያድርጉ ወይም በ 206-801-2700 ላይ ስልክ ይደውሉ።

ምስ ከተማ ሾርላይን ክትዝራረቡ ወይ ድማ ሰንዳትኩም ብክልእ ቋንቋ ከተንምፃሙ ምስ እትደልዩ፡ ጠለባትኩም ምስናይ ናይ መርከቢ ሓበሬታዥም ናብ cik@shorelinewa.gov ስደዱ ወይ ድማ ብዥጽሪ 206-801-2700 ደዉሉ።

CONTACT US: SHARE THIS WEBSITE:

Lea Bonebrake, P.E., City of Shoreline, Project Manager Ibonebrake@shorelinewa.gov | 206-801-2475

For additional project information, visit shorelinewa.gov/148thbridge



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A ped/blke bridge connecting people to neighborhoods and regional transit

HOME

PROJECT OVERVIEW SCHEDULE

WEST TRAIL

EAST BRIDGE

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WHAT'S NEXT?

**ONLINE OPEN HOUSE** 

BRIDGE

### **Project Overview**

#### **Need and Benefits**

The N 148th Street Non-Motorized Bridge will address several community needs, both current and future, and provide many benefits, including:

TRANSPORTATION OPTIONS FOR A CHANGING NEIGHBORHOOD. In 2016, the City developed the 145th Street Station Subarea Plan to address future land use and transportation needs near the new light rail and transit station. As the area changes, the bridge will help serve residents, business owners, retail customers, and commuters. The bridge is part of the City of Shoreline's greater planning efforts for the N 145th Street corridor and new Sound Transit light rail station. You can learn more about other related projects in the area by visiting the Destination 2024 website.

LINK LIGHT RAIL ACCESS. By 2024, the Shoreline South/145th Station will open, bringing light rail and increased bus rapid transit service to Shoreline. Of Shoreline residents who work, more than 80% travel outside of the city to reach their places of employment, with almost two-thirds commuting to Seattle. Traffic in the station area is projected to increase by more than 25%.

IMPROVED SAFETY AND REDUCED TRAVEL TIMES. Paths that are separated from the road and designate space for pedestrians and bicyclists increase safety and help reduce the risk of collisions with motor vehicles.

Shoreline is currently divided by a nine-lane interstate (I-5). A new bridge will make it easier to travel through Shoreline and decrease travel times by at least ten minutes for those walking and biking in the area. The new bridge will also improve bike routes to the interurban Trail, the future Trail along the Rail, the existing Burke-Gilman Trail, and potential future regional bicycle networks.

#### Location

The new bridge will go across Interstate 5 (I-5) at N 148th Street. The project consists of three main parts: the bridge span over I-5, West Trail Connection, and East Bridge Landing.





### **Projected Cost**

Design	\$2.8-3.8 million	
Right-of-Way	\$1,5-2,1 million	
Construction	\$18,1-24.9 million	
TOTAL PROJECT COST	\$23-30.2 million	

The City has secured \$10 million in federal, regional, and county funding. With a total project cost currently estimated at \$23-30.2 million (costs will be further refined during the design process), the City continues to actively seek funding to complete construction.

> GO TO HEXT PAGE

< GO TO PREVIOUS PAGE

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A ped/bike bridge connecting people to neighborhoods and regional transit

SCHEDULE

BRIDGE

EAST BRIDGE LANDING

### ONLINE OPEN HOUSE

### **Schedule**

The design phase of the project started in 2019 and will continue through 2021. Community members will have an opportunity to provide input through both inperson and online open houses during design and environmental review throughout 2020. Construction is scheduled to begin in 2022 and to be complete in 2023 before the new light trail station opens.

Feasibility Study 2017 Completed	D	esign/Environmental Reviev 2019–2021	N		
	Alternative Evaluation	Preferred Alternative Selection	30% Design Completion	Right-of-Way	Construction 2022-2023
	September 2019-	Summer 2020	Summer/Fall 2020		
	June 2020	Property owner briefings	Property owner briefings		
	DECEMBER-MARCH Property owner briefings	Community briefings and presentations	Possible community briefings and	2021-2022	
	Community briefings and presentations	Online and in-person open house	presentations  Possible online and in-person open house		
	APRIL				
	Online open house, survey, and presentation				

### Research and Planning

In 2016 and 2017, the City of Shoreline did a study to evaluate and recommend options for linking the communities on the west side of I-5 to the future Sound Transit Shoreline South/145th Station. City of Shoreline staff, Shoreline City Council, and consulting engineers evaluated five options. Public comment was provided at Shoreline City Council meetings.

The City estimated the location at N 148th Street would cost the least to construct, likely draw the most users, and of the routes possible, provide the shortest and most direct access to the Shoreline South/145th Station. The City also reviewed WSDOT and Sound Transit regulations in order to address safety needs around and across I-5. Shoreline City Council approved this location in February 2017.





A ped/bike bridge connecting people to neighborhoods and regional transit

ONLINE OPEN HOUSE

HOME PROJECT SCHEDULE BRIDGE WESTTRAIL EAST-BRIDGE GIVE MORE WHAT'S CONNECTION LANDING FREDRACK MEXT?

### **Bridge**

The bridge will carry pedestrians and bicyclists across I-5 between the Parkwood neighborhood on the west side and the new Shoreline South/N 145th Station on the east. The bridge will be wide enough for pedestrians and bicyclists and built to comply with Americans with Disabilities Act (ADA) standards. All potentials and decignates are come to compare an adversarial and include pedestrian/bicycle railings, bridge options will be designed to the same safety standards and include pedestrian/bicycle railings, lighting, and screening (throw barrier) to protect drivers on the interstale below from falling objects.

Option 1: Combined Arch Bridge



- DESIGN: The combined erch bridge would have a major arch over I-5 and smaller arch on the short connection to the trail on the west side of the bridge.
- SIZE: The arches would have sleel support pieces overhead and vertical support pieces that
- SAFETY: The throw barrier would be attached to the inside of the vertical support pieces to prevent things from falling onto the interstate below.

Option 2: Tied Arch Bridge



- DESIGN: The fled erch bridge would have two side-by-eide arches titled toward each other with
- SIZE: The higher arch and slender cables would create more space and light than the other
- SAFETY: The throw barrier could be attached on either side of the cables to prevent things from falling onto the Interstate below

Option 3: Truss Bridge



- DESIGN: A truss bridge has connected pieces that form a triangle or "truss."
- SIZE: Compared to the other bridge types, the truss bridge would be slightly shorter at its highest point, have more structural pieces overhead, and the outside supports would be wider.
- SAFETY: The throw burner would be attached to the inside of the trusses to prevent things from falling onto the interstate hald

Are you on a shared or public computer? If you see someone else's survey responses, circles the reset button to start your own survey.

### Share your thoughts on bridge design options:

#### Option 1: Combined Arch Bridge

What do you fike about this option? SELECT ALL THAT APPLY

- Overall look and design
- Other warre we

What do you dislike about this option? SELECT

- Overall look and design
- Other MRITE HE

What do you like about this option? SELECT ALL

- Overall look and design
- Other waite in:

What do you dialike about this option? SELECT ALL THAT APPLY.

- Overall look and design
- Other waters

What do you like about this option? SELECT ALL.

- Overall took and design

What do you dislike about this option? SELECT

- Overall look and design Other watere

Which bridge option do you prefer?

- Option 1: Combined Arch Bridge
- Option 2: Tled Arch Bridge

is there anything you think we should consider while evaluating these bridge options?

Please make sure to click on the submit button before you leave the page.

> GO TO MEET PAGE

C 60 10 PRIVIOUS PAGE

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SHARE THIS WERSITE:











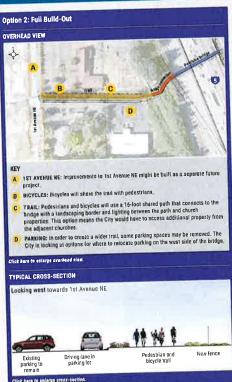
A ped/bike bridge connecting people to neighborhoods and regional transit

HOME PROJECT SCHEDULE BRIDGE WESTTRAIL EAST BRIDGE GIVE MORE WHAT'S CONNECTION LANDING PEEDBACK MERT? ONLINE OPEN HOUSE

### **West Trail Connection**

The western ramp and approach to the bridge will be on the west side of i-5 in the Parkwood mediate terms and equivalent to the simple who can be used to be a former of the construction of the project team is working with immediate neighborhoods, checking these places of worship, to likeling these places of the control of the project team is working to likeling these places of the control of the bridge will faint disruption. With all opposes, the City aims to preserve existing mature trees in the project see, whetever nossible.

Option 1: Minimal Build-Out A 1ST AVENUE ME: Improvements to 1st Avenue NE might be built as a separate future B BICYCLES: Bicycles will share the parking lot with vehicles and then connect to the C TRAIL: Trail will be an 8-foot-wide pedestrian sidewalk between 1st Avenue NE and the bridge and will include lighting. D PARKING: Parking in church lots will not change TYPICAL CROSS-SECTION Looking west towards 1st Avenue NE Existing parking Shared vehicle/bicycle Existing parking to Pedestilian New to remain lare in parking lot remain brail fence



Are you on a name of computer? If the else's survey responses, click on the resel button to start your own survey.



## Share your thoughts on the West Trail Connection design:

#### Option 1: Minimal Build-Out

What do you like about this uption? SELECT ALL THAT APPLY.

- Trall design
- Separation between bicyclists and
- Parking options

What do you dislike about this option? SELECT

- Trail design
- pedestrians
- Parking options
- Other WRITE IN

#### Option 2: Full Bulld-Oct

What do you like about this option? SELECT ALL THAT APPLY.

- Shared bloycle and padestrian path
- Other WANTE DE

What do you dislike about this option? SELECT

- Shared bloycle and pedestrian path
- Parking options Other waters

Which West Trail Connection option do you prafer?

- Option 2: Full Build-Out

is there anything you think we should consider while evaluating these options for the West Trail Connection?

Please make sure to click on the submit button before you leave the page.

> 05 TO HELL PARE

CONTACT US:

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SHARE TIDS WEDSITE:



















### N 148th Street Non-Motorized Bridge A pad/bike bridge connecting people to neighborhoods and regional transit

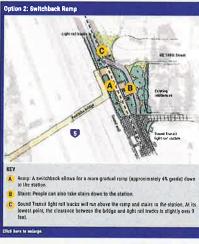
HOME PROJECT SCHEDULE GRIDGE WEST TRAIL EAST BRIDGE GIVE MORE WHAT'S OVERVIEW SCHEDULE BRIDGE COMMETION LAMBING FEEDRACE WEST? ONLINE OPEN HOUSE

### East Bridge Landing

The East Bridge Linding, on the east side of LG, will take travelers to the future South Shoreline/N 145th Storon where they can hop on Sound Transit off trail or buses or connect with the future Final Atory the Battle by foot or bicycle. The Sound Transit station will include blcycle parking. All design opports will include:

- . A bridge and ramp that will cross under the Sound Transit light rail tracks.
- . Compliance with Americans with Disabilities Act (ADA) standards
- · A permanent noise wall below the bridge sojacent to the freeway
- . Connections to the Trail Along the Rail
- All outdoor pathways, ramps, and stairs around the station will have lighting.
- Sound Transit light rail parking garage will provide space for 500 vehicles.

# Option 1: A-Frame Ramp Cipinium Cipin 0 Ramp. This ramp option has an angular shape and sleeper slope than the other options (average grade of 6.5% down to the station). B Staus: People can also take stales down to the station. C Sound Transit light rail tracks will run above the ramp and stairs to the station. At its lowest point, the clearance between the bridge and light rail tracks is approximately 8





### Share your thoughts on the East Bridge Landing design:

### What do you like about this option? SELECTALA

- Ramp layout
  Height clearance from Sound Transit tracks
  Connection to light rail station
- Connection to Trail A very the Red Pedestrian and bloycle pathways Stair acress to station

What do you dislike about this option? store?

- Connection to light red station Connection to Trad Along the Rail
- Pedestries and bicycle pathweys Stair access to station
- Other warre M.

#### Option 2: Switchback Ramp

What do you like about this option? STRECT AL!

- Connection to light rall station
- Connection to Trail Along the Rail
- Other Mericial

What do you dislike about this option? server

- Height clearance from Sound Transit tracks
- Connection to fight mil station Connection to Trail Along the Reil Pedestrian and bicycle pathways
- Stair access to station

- Commetion to light rail station
- Connection to Trail Along the Rail Padestnan and bicycle pathways
- No stay access to states

What do you distine about this option? seeso

- Height clearance from Sound Transil tracks
- Connection to Hight mill station Connection to Trail Along the Rap
- Pedestrian and bioyols pathways

Which East Bridge Landing option do you prefer?

- Option 2 Switchback Ramp Option 3 Direct Ramp

is there anything you think we should consider while evaluating these options for the East Bridge Leading?

#### SUBMIT

Please make sure to click on the aubmit button before you leave the page.

> 68.79 9057 9442

C 65 TO PROVIDE PAGE

SHARE THIS MERSICE: Lea Bonebrake, P.E., City of Shoreline, Project Manager Ibonebraka@shorelinema.gov 1, 206, 801, 2475 f 💟 🔤 🛨 For additional project information, visit shorelinewa gov/148thbridge FOLLOW US: T 📓 🛭 🖸

A ped/blke bridge connecting people to neighborhoods and regional transit

NOME: PROJECT SCHEDULE BRIDGE WEST TRAIL EAST BRIDGE GIVE MORE WHAT'S ONLINE OPEN HOUSE

### **Give More Feedback**

Public input will be essential to the design of the bridge and how the ramos or approaches will look, function, and integrate into the communities on both sides of I-5, Community members will have several opportunities to give feedback throughout the design process. We want to be sure that the bridge design and planning effort addresses your priorities, while also meeling the technical needs of the project

Are you on a shared or public computer? If you see someone else's survey responses, click on the reset button to start your own survey.

RESET

#### Your Feedback

Do you plan to use the new N 148th Street Non-Motorized Bridge?

- Yes

If you do plan to use the bridge, what modes of travel do you plan to use? SELECT ALL THAT APPLY.

- Walking
- Bicycling
- Other recreational wheels such as scoolers or skateboards
- Wheelchair or other assisted mode of travel
- Other weite in-

If you do plan to use the bridge, what will be the purpose of your travel? SELECT ALL THAT APPLY.

- To connect to light rail at the South Shoreline/N 145th Station
- To connect to buses at or near the South Shoreline/N 145th
- To access other neighborhoods on the west or east side of I-5
- To connect to biking or walking traits
- Other WRITE HE

Please select the top three criteria that ere most important to you for this project. YOUR FEEDBACK WILL HELP OUR PROJECT TEAM AS WE EVALUATE EACH DESIGN OPTION

- Maintain safe environment for community
- Maintain existing parking options
- Minimize impacts to neighboring properties
- Manage project costs
- Minimize construction impacts
- Protect mature trees
- Improve pedesirian travel (e.g., sidewalks, crosswalks)
- Shorten travel time to light rall station/transit center
- Visual design and overall look
- Limit city acquisition of private property

Please tell us a little bit more about yourself so that we can understand how inclusive our community

### What Is your ZIP code?

- 98133
- 98155
- 98160 98177
- Other ware in
- What is your age? 19 or younger
- 20-24 25-34
- 55-64 65 or older

Female

Male

Non-binary

I'd rather not say

Optional self-identification warre no

How did you learn about this project? SELECT ALL THAT APPLY.

City of Shoreline email/website

I'd rather not say

### What gender do you identify as?

- What is the primary language spoken in your home?
- Amharic/Tigrays English
- Korean Mandarin/Cantoness
- Spanish Tagslog
- Other water in
- Rem

What is your current bousing situation?

- Stay with friends or family
- Without housing
- I'd rather not say
- Other warte in:
- Social media Friend
  - My employer
    - An organization I'm involved with

I'd rather not say

- I'd rather not say Do you have a disability? SELECT ALL THAT APPLY.
  - Cognitive
- Hearing
- Mobility
- None
- Optional self-identification warrance I'd rather not say

What is your mee/ethnicity? SELECT ALL THAT APPLY.

American Indian or Alaska Native

African American or Black

Asian or Pacific Islander

Hispanic, Spanish, or Latino

Northern African/Middle Eastern

Optional self-identification waite in

Birecial/multiracial

White/Caucasian

- What is the best way to stay in touch with you about this project? SELECT ALL THAT APPLY.
- Email Social media
- Community meetings and open Mall
- Other WRITE IN:

is there anything else you would like to share about the N 148th Mon-Motorized Bridge Project?

SUBMIT

Please make sure to click on the submit button before you leave the page.

- 60 TO HEET PAGE

Les Bonebrake, P.E., City of Shoreline, Project Manager Ibonebroke@shorelinewa.gov | 206 B01-2475

For additional project information, visit shorelinewa.gov/148thbridge



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SHARE THIS WEDSITE:



FOLLOW US:









A ped/bike bridge connecting people to neighborhoods and regional transit

HOME

SCHEDULE

ONLINE OPEN HOUSE

### What's Next?

### How to Stay Involved

OPEN HOUSE AND GIVING FEEDBACK. Along with technical research and evaluations, your feedback will help the City design the bridge for the community. We will report back what we heard from the public through community meetings and online open houses throughout 2020.

THANK YOU FOR VISITING THE ONLINE

**LEARN MORE ABOUT THIS PROJECT** on the N 148th Street Non-Motorized Bridge website.

#### Destination 2024

BRIDGE

The N 148th Non-Motorized Bridge is one of eight Destination 2024 projects led by the City of Shoreline.

In preparation for two new Sound Transit light rail stations in Shoreline, we have been planning for changes that will come with these new facilities. The City Council has increased zoning densities around the two future stations (Shoreline South/145th and Shoreline North/185th) so that new housing and development can be focused around transit. To support future development, the City is also planning for transportation improvements to help get people to light rail and around the station areas.

Learn more about the other projects below or visit the Destination 2024 website and check out our new interactive map.

- 145th Corridor Project (I-5 to Aurora)
- = 145th/I-5 Interchange Project
- 1st Avenue NE Sidewalks (145th to 155th Streets)
- 5th Avenue Rechannelization
- Off-Corridor Bike Network
- SR 522/523 BRT Project (Bothell/Lake City Way and 145th Street Bus Rapid Transit)
- Trail Along the Rail

C GO TO PREVIOUS PAGE

CONTACT US: SHARE THIS WEBSITE: Lea Bonebrake, P.E., City of Shoreline, Project Manager Ibonebrake@shorelinewa.gov | 206-801-2475 For additional project information, visit shorelinewa.gov/148thbridge FOLLOW US: © S&A COMMUNICATIONS, ALL RIGHTS RESERVED 2020



# N 148번가 차 없는 다리

사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

프로젝트 개요

다리

서쪽 트레일 연결부

다리 동쪽 진출입부

추가 의견 제공

향후 계획?

온라인 오픈 하우스

### N 148번가 차 없는 다리(N 148th Street Non-Motorized Bridge)의 온라인 오픈 하우스에 오신 것 을 화영합니다!

쇼어라인이 변화 및 성장을 거듭하고 있습니다. 사운드 트랜짓(Sound Transit) 경전철의 개통, 경전철 및 버스 환승을 위한 새로운 쇼어라인 사우스/145번가 역(Shoreline South/145th Station)의 건설 및 기타 발전과 함 께 주민들은 이런 증가하는 서비스 및 시설과 확장되는 보행자 및 자전거 네트워크로 연결되는 새로운 방법이 필요해졌습니다.

이런 요구 사항을 충족시키기 위해 쇼어라인 시는 N 148번가에 주간 고속도로 5(i-5) 위를 지나는 새로운 보행 자 및 자전거용 육교를 건설할 계획입니다. N 148번가 차 없는 다리는 모든 사람들의 안전을 향상시키고, 쇼어 라인에서 1-5의 동쪽과 서쪽을 걷거나 자전거를 타고 이동하는 사람들의 이동 시간을 단축시킬 것입니다.

이 온라인 오픈 하우스의 목적은 시민들에게 다음과 같은 기회를 제공하는 것입니다.

- 이 프로젝트에 대해 자세히 알아봅니다.
- 시민 여러분에게 중요한 정보률 공유하고, 이 프로젝트의 주요 부분에 대한 의견을 제공합니다.

### 이 온라인 오픈 하우스를 이용하는 방법

- 이 오픈 하우스를 이용하려면 아래로 스크鑑하여 각 페이지를 읽은 후 페이지 하단에 있는 "다음 페이 지" 버튼을 클릭하거나 상단에서 원하는 탭을 선택하십시오.
- 이 온라인 오픈 하우스 내에서 질문을 받고 의견을 제공할 수 있습니다. 이 온라인 오픈 하우스 및 설문 지騰 완료하는 데는 몇 분 밖에 걸리지 않습니다.

#### 참여해 주셔서 감사합니다!

### 웨비나에 참석하세요

이 라이브 온라인 프리젠테이션 실 행시간:

> 2020년 4월 23일 목요일 12:00-1:00(오후)

등록하려면 여기를 클릭하십시오.

### 계속 관심을 가져 주세요.

N 145번가에서 진행되는 이 프로젝트와 기타 프 로젝트에 대한 업데이트 및 참여 기회를 원하시면 신청하십시오.

[3]

이용

이메일 -

• 이때일이 필요합니다

MA

> 다음 메이지로 이동

### 이 웹사이트 공유: 연락하기: 쇼머라인 시와 통신을 교환하거나 다른 언어로 된 문서를 보시려면 귀하의 연락처 정보와 **y ×** + 함께 clk@shorelinewa.gov로 요청하거나 206-801-2700번으로 전화해 주십시오. Lea Bonebrake, P.E., 쇼어라인 프로젝트 매니저 저희활 팔로양하세요: lbonebrake@shorelinewa.gov | 206-801-2475 0 For additional project information, visit shorelinewa.gov/148thbridge © S&A COMMUNICATIONS, ALL RIGHTS RESERVED 2020

## N 148번가 차 없는 다리

사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

프로젝트 개요

일정 다리

서쪽 트레일 연결부 다리 등쪽 진출입부

추가 의견 제공

향후 계획?

온라인 오픈 하우스

### 프로젝트 개요

#### 필요성과 혜택

N 148번가 차 없는 다리는 현재와 미래에 지역사회의 여러 가지 요구 사항율 해결하고, 다음을 포함한 많은 혜 택물 제공할 것입니다.

#### 변화하는 민근 지역을 위한 교통 옵션.

2016년에 시는 새로운 경전철 및 환승역 인근의 향후 토지 이용 및 교통 요구 사항을 해결하기 위해 145번가 전철역 구역 계획을 수립했습니다. 이 지역이 변화함에 따라 이 다리는 주민, 사업자, 소매 고객 및 통근 직장 인들이 이용하게 될 것입니다. 이 다리는 N 145번가 지역과 새로운 사운드 트랜짓 경전철역을 위한 쇼어라인 시의 보다 큰 계획의 일부입니다. 이 지역의 다른 관련 프로젝트에 대한 자세한 내용은

Destination 2024 웹 사이트를 방문하십시오.

#### 링크 경전철 이용법에서 확인할 수 있습니다

2024년이 되면 쇼어라인 사우스/145번가 역이 개통하여 쇼어라인에 경전철이 들어오고 쇼어라인으로의 빠 론 버스 환승 서비스가 제공될 것입니다. 직장에 다니는 쇼어라인 시민 중 80% 이상이 직장에 가기 위해 도시 밖으로 나가며, 거의 2/3가 시애뿔로 통근합니다. 역 인근의 교통량이 25% 이상 증가할 것으로 예상됩니다.

#### 안전 항상 및 이동 시간 단축.

도로와 분리된 통행로 및 보행자와 자전거 이용자를 위한 지정 공간은 안전을 높이고 자동차와의 충돌 위험을 줄이는 데 도움이 됩니다.

쇼어라인은 현재 9차선 주간 고속도로(I-5)로 나뉘어 있습니다. 새로운 다리가 놓이면 쇼어라인을 보다 쉽게 통과할 수 있을 것이며, 이 지역에서 걷거나 자전거를 이용하는 사람들의 이동 시간이 최소 10분 이상 단축될 것입니다. 이 새로운 다리는 또한 인터어번 트레일(Interurban Trail), 미래의 트레일 얼롱 더 레일(Trail along the Rail), 기존의 버크-길먼 트레일(Burke-Gilman Trail) 및 잠재적인 미래의 지역 자전거 네트워크로 이어지 는 자전거 노선도 개선할 것입니다.

#### 위치

새로운 다리는 N 148번가에서 주간 고속도로 5(I-5)를 가로지르게 됩니다. 이 프로젝트는 I-5의 위醫 지나는 교량 경간, 서쪽 트레일 연결부(West Trail Connection) 및 다리 동쪽 진출입부(East Bridge Landing) 등 3개 주요 부분으로 구성됩니다.



### 예상 비용

설계	\$2,8~3,8 million	
허가 취독 및 부지 확보	\$1.5-2.1 million	
건설	\$18,1-24,9 million	
총 프로젝트 비용	\$23-30,2 million	

시는 연방, 지역 및 카운티 자금으로 1천만 달러뿔 확보했습니다. 총 프로젝트 비용은 현재 2,300~ 3,020만 달러로 추산되었으며(설계 과정에서 비용 이 추가로 조정될 것임), 시는 공사를 완료하기 위해 계속해서 적극적으로 자금을 확보하고 있습니다.

> 다용 웨이지로 이동

《 이전 태이지로 이용

연락하기:

쇼이라인 시와 통신을 교환하거나 다른 언어로 된 문서를 보시려면 귀하의 연락처 정보와 함께 clk@shorelinewa.gov로 요청하거나 206-801-2700번으로 전화해 주십시오.

Lea Bonebrake, P.E., 쇼어라인 프로젝트 매니저 Ibonebrake@shorelinewa.gov | 206-801-2475

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For additional project information, visit shorelinewa.gov/148thbridge

저희를 팔로임하세요:

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이 웹사미트 공유:



**y** = +



# N 148번가 차 없는 다리

사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

홀 프로젝트 개요

일정 다리

서쪽 트레일 연결부

다리 등쪽 진출입부

추가 의견 제공

향후 계획?

온라인 오픈 하우스

## 일정

이 프로젝트의 설계 단계는 2019년에 시작되어 2021년까지 계속될 것입니다. 주민들은 2020년에 실시될 설계 및 환경 영향 평가 중에 오프라인 및 온라인 오픈 하우스 를 통해 의견을 제공할 수 있는 기회를 갖게 될 것입니다. 공사는 2022년에 시작되어 2023년에 새로운 경전철역이 개통되기 전에 완료될 예정입니다.

4		설계/환경 영향 평가 2019-2021년			
	방안 평가	선호되는 방안 선택	30% 설계 완료		
	2019년 9월 - 2020년 6월	2020년 여름	2020년 여름/가을		
타당성 조사	<b>12월 - 3월</b> 부지 소유주 브리핑	부지 소유주 브리핑	부지 소유주 브리핑	허가 취득 및	건설
2017년		지역사회 브리핑 및 프레젠 테이션	지역사회 브리핑 및 프레젠 테이션(미정) 온라인 및 오프라인 오픈 하 우스(미정)	부지 확보 2021-2022년	2022-2023
완료됨	지역사회 브리핑 및 프레젠				
	테이션	온라인 및 오프라인 오픈 하			
	4월	우스			
	온라인 오픈 하우스, 설문 조 사 및 프레젠테이션				traini.

### 연구 및 계획 수립

2016년과 2017년에 쇼어라인 시는 I-5 서쪽 지역을 미래의 사운드 트랜짓 쇼어라인 사우스/145번가 역과 연결하기 위한 옵션들을 평가하고 제안하는 연구를 수행했습니다. 쇼어라인 시 직원, 쇼어라인 시의회 및 컨설팅 엔지니어들이 5가지 옵션을 평가했습니다. 쇼어라인 시의회에서 주민 의견 청취가 실시되었습니다.

시는 N 148번가 역의 위치가 건설 비용이 가장 적게 들며, 가장 많은 이용자가 이용할 수 있고, 가능한 경로들 중에서 쇼어라인 사우스/145번가 역까지 가장 짧고 직접적 인 접근로를 제공할 것으로 예상했습니다. 시는 또한 I-5 주변에서의 안전 요구 사항을 해결하기 위해 WSDOT 및 사운드 트랜짓 규정도 검토했습니다. 쇼어라인 시의회 은 2017년 2월에 이 위치를 승인했습니다.





사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

B EERE 72 28 72 月曜日日日日日日日 日日 日本 日本日日日 | 日子 日本 11 日日 日本 11 日日 日本 11 日本 1 온라인 오픈 하우스

#### 다리

이 다리는 서쪽의 타크우드(Parkwood) 지역과 동쪽의 새로운 쇼머리인 사우스/N 145번가 역 사이어 있는 j-5 를 기로질러서 모행자와 자전거 이용자를 이동시킨 것입니다. 다라는 보행자와 자전거 이용자들을 수용할 수 있도록 용문히 보볼 것이다. 40세계의 라마리는 것되다니 그리고 도착하다 시간의 '이동시점을 구성을 당 있도록 용문히 보볼 것이다. 40세계로 참여한법 표준을 존수하여 건설을 것입니다. 모든 교생 문원을 당 한 안전 표준에 따라 설계되며, 보병자/자전거래일, 조맹 및 아래의 교속도로를 이용하는 온진자들을 낙하될 로부터 보호하기 위한 방벽 난간(투기 방지백)이 설치될 것입니다.

공유 또는 공공 컴퓨터를 사용하고 제 신나/까 디존 사람의 설문조사 용당을 보고 있다면 재심정 버튼을 클릭하여 자신의 설문조사를 사작하십시오

#### 옵션 1: 복합 아치교

#### DOWNER OF BURNAY

발제: 북합 아치교는 15 위에 놓이는 주 아치와 다리 서쪽의 흐레일과 연결되는 짧은 연결로에 놓이는 보 다 작은 아치로 이루어집니다.

아치에는 상공에 감춰 지지부가 있고, 케이볼 또는 강철로 된 수직 지지부가 있습니다.

물건이 아래의 주간 고속도로에 떨어지는 것을 받지하기 위해 방벽 난간이 수직 지지부의 내부에

## 다리 설계 옵션에 대한 귀하의 의 견을 공유해 주십시오.

## 옵션 1: 독합 아파교:

이 용선에서 만족스러운 점은 무엇입니까? 해당 되는 모든 것을 고르십시오

- 진체적인 의형과 설계

이 옵션에서 불만스러운 필운 무엇입니까? #ir 되는 모든 것을 고르십시오.

- 전체적인 의하과 설계
- 기타 4점 개압

#### 옵션 본 필함 아치교

이 옵션에서 만족스러운 경은 무엇입니까? 비난 되는 모든 것을 고르십시오.

- 전체적인 외험과 설계
- 기타 부장기준

이 옵션에서 불편스러운 점은 무엇입니까? esr 되는 모든 것을 고려하셔요

- 크기 전체적인 의형과 설계
- 기타 적합기안

#### 옵션 2: 결합 아치교



#### MORNING WITH BRINGING.

- 결합 아치교에서는 2개의 아치교가 서로를 향해 기울이진 형태로 나란히 설치되고 지지 케이블어 연결됩니다
- 보다 높은 아치와 가느다람 케이և은 다른 교향 옵션들보다 더 많은 공간과 조명을 제공할 것입니
- 롭건이 아래의 주간 고속도로에 떨어지는 것을 방지하기 위해 케이블 양쪽에 방벽 난간이 설치器

#### **各世 対照利公司**

이 옵션에서 만족스러운 점은 무엇입니까? 4명 되는 오픈 것을 고르십시오

- 전체적인 의형과 설계

이 옵션에서 불만스러운 점은 무엇입니까? *속당* 되는 모든 것을 고르십시오

- 37
- 진세적인 의형과 설계 기타 4명 개압

귀하는 어떤 다리 옵션을 선호하십니까?

- 옵션 2: 결합 아치교

이 다리 옵션등을 평가할 때 시가 고려해야 할 사 웨이 있습니까?

#### HI

#### 옵션 3: 트러스교



#### 복대하려면 여기를 클릭하십시오

- 트러스교는 삼각형의 "트러스"를 형성하는 염질 부분들로 이루어집니다.
- 당당. 물건이 아래의 주간 교속도로에 떨어지는 것을 방지하기 위해 뜨러스 내부에 방벽 난간이 설치립 니다.

#### S DEMONSTRA

로 이라면 지역 동산점 교환하기나 다른 언어로 된 본서를 보시려면 귀하의 연락처 정보약 함께 라kgahorel newa gov로 유청하기나 206 801 27/00번으로 전화해 주십시오

Lea Bonebrake, P.E., 쇼이리면 프로젝트 GILI지 Ibonebrake@shorelinewa.gov | 206 801-2475

For additional project information, visit shorelinews gov/148thbridge





河川市 安定证明利益







사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

온라인 오픈 하우스

S ERMENTS OF THE NEEDS CHESTION OF SENE BOND

#### 서쪽 트레일 연결부

서쪽 경사로와 따라 접근로는 15 서쪽의 따고우드 지역에 위치할 것입니다. 프로익트 팀은 3개의 종교 사설을 포함한 인접 지역과 협력하여 그룹의 우선적 요구 시험을 파막하고, 다리의 실계와 공사로 인한 불인을 최소화 할 것입니다. 모든 용선에서 시는 가능하면 프로젝트 지역에 있는 성장한 나무들을 보존하는 것을 목표로 합 니다.

공유 또는 공공 컴퓨터를 사용하고 제 십니까 다른 사람의 설문조사 응답을 보고 있다면 재실정 바쁜을 클릭하여 자신의 설문조사를 시작하십시오

## 서쪽 트레일 연결부 설계에 대한 의견을 공유해 주십시오.

#### 용선 1: 최조 건설

이 옵션에서 만족스러운 점은 무엇입니까? #당 되는 모든 것은 고르십시오

- 르래일 설계 지전거 이용자와 보험자의 분리
- 주치 옵션

이 옵션에서 불만스러운 점은 무엇입니까? 세상

- 트레일 설계
- 자전거 이용지와 보색지의 분리
- 기타 시설기와

#### B世 2: 哲변 경설

이 용신에서 만족스러운 중은 무엇입니까? #당 유는 또는 문문 프로비아의

- 공유 지전기 및 보행자 도로
- 기티 적전 기압

이 옵션에서 할만스러운 팀은 무엇합니까? ## 되는 모든 것을 고급선시오

- 트레일 설계 공유 지전거 및 보행자 도로
- 주차 옵션

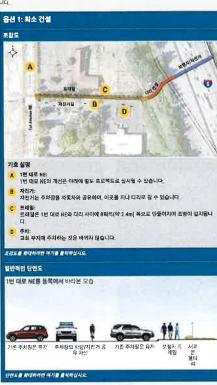
귀하는 어떤 서쪽 트레잎 연결부 옵션을 선호하 십니까?

- 옵션 1: 최소 건설
- 옵션 2: 전면 건설
- 서쪽 트레말 연결부에 대한 이런 옵션들을 평가할 때 시가 고려해야 할 사람이 있습니까?

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#### ) DEMERSIS

-





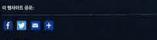
15078101:

옵션 2: 전면 건설 포감도

쇼이라인 시대 용신용 교존하거나 다른 언어로 당 문서를 보시하면 귀하의 연락의 담보박 함께 대응하다(Seine Grove 요청하기나 206-401-270)만으로 전환해 주신시다.

Lea Sonobrake, P.E., a OVERN FLENSE SPLENS Bonebruke@shorelinews.gov ( 200-801-2475

For additional project information, visit shorelinews, gov/148thlasidge



利利斯 田里田科姓名:









사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

THE RESIDENCE STREET, STREET, NO. BR. SEVENS. W. 온라인 오픈 하무스

#### 다리 동쪽 진출입부:

i 5 동쪽에 위치한 다리 동쪽 진출입부는 이래의 사우스 쇼아라면/N 145번기 역으로 사랑들을 연결하며, 이곳 에서 사운드 트랩짓 강전철 또는 버스에 오르기나 도보 또는 지전거를 이용하여 미래의 트랙의 일종 더 레일 로 갈 수 있습니다. 사운드 트랜짓 역에는 자전거 주최점이 만들어질 것입니다. 모든 실계 옵션에는 다음이 포

- 사운도 트렌켓 검천철 트랙 아래를 지나는 다리와 검사로
- 미국 장애인법(ADA) 표준 준수
- 고속도로에 인접한 다리 아래의 양구적 방울벽,
- 트레일 열롱 더 레일 연결로
- 역 주변의 모든 아외 동행로, 경사로 및 계단에는 조명이 설치합니다.
- 사운드 트렌짓 경전형 주차장은 차량 500대의 주차 공간용 부장합니다.

# 옵션 1: A-프레임 램프 Tintime Factor 0 경사로 이 경사로는 각이 진 형태이며, 다른 옵션돌보다 경사가 더 기피봅니다(역까지의 평 균 경사도 6.5%) 계단: 사람들은 계단을 내려가서 역하지 갈 수도 있습니다. C 사운드 트렌짓 경전형 트랙은 검사로와 제단 위를 지나서 역으로 연결됩니다. 가장 낮은 지 정에서 디리와 경전형 트랙 사이의 간격은 막 8파트(약 2.4m)입니다.

# 옵션 2: 스위치백 램프 DEFENDED IN Ø Sound Sewart DD Will

- A 경시로: 스위치백은 역까지 내려가는 보다 점진적인 경사로(경시도 약 4%)를 제공합니다.
- B 계만: 사람들은 계단을 내려가서 역까지 감 수도 있습니다.
- 사운드 트렌짓 경전철 트럭은 경사로와 계단 위를 지나서 역으로 연결됩니다. 기장 낮은 지 정에서 다리와 경전철 트랙 사이의 간격은 9퍼트(약 2.7m)를 약간 넘습니다.

व्यक्तित्व जगह क्ष्मासम्ब



공유 또는 공공 컴퓨터를 사용하고 자 십니까 다른 사람의 실군조나 용다를 보고 있다면 재실정 바쁜을 클릭하여 자신의 성문조사를 시작하십시오.

## 다리 등쪽 진출입부의 설계에 대 한 의견을 공유해 주십시오.

#### B世 1: A-브레田 福思

- 이 옵션에서 만족스러운 점은 무엇입니까? 4년 티뉴모든 것은 고르쉬셔요
- 경시를 배치 사운도 트랜짓 롯력과의 간격(높이)
- 검전철역 연결로 트레일 얼음 더 전일 여기로
- 보행자 및 지전거 불법로 개단용 통해 약에 접근
- 기타 회장기일
- 이 옵션에서 뿐만스러운 정은 무엇입니까? 석류 *모든 모든 집을 고르살시오*
- 검사로 배치
- 시요드 트렌짓 트랙과의 간격(높이)
- 트레임 얼콩 더 레임 연결로 보행자 및 자전거 통행로
- 기타 식물기업

#### 日本 からまれる 発圧

이 유선에서 단촉스러운 젊은 무엇입니까? 402 되는 모든 것은 교무상사의

- 사운드 트랜짓 트랙과의 간격(높이)

- 경전철역 연결로 크레밀 얼롱 더 작일 연결료 보행자 및 지전기 통행로
- 계단을 통해 역에 접근

이 옵션에서 발면스러운 정문 무엇입니다? ## 되는 오픈 것을 가르십시오

- 경사로 비치
- 경전철역 연결료
- 트레잌 일본 더 적일 연결로
- 보행지 및 지천기 동맹로 계단원 통해 역에 접근
- 기타 무료거요

#### **住代 計 口の単生 福田**

이 옵션에서 함축스러운 같은 무엇입니까? ### 되는 보통 문문 교육보니요

- 사운드 토란짓 트럭과의 간격(놈이)
- 경전철의 연결률 트레일 일종 더 레밀 연결료
- 보행지 및 지전기 통행로
- 역으로 가는 계단 없음.
- 이 옵션에서 불만스러운 젊은 무엇입니까? ## 되는 모든 것만 고르십시오
- 경사로 배치 사운드 트랜짓 트랙과의 간격(높이)
- 경천철역 면결로
- 트레밀 얼롱 더 취임 연결로 보행지 및 자전게 종종로
- 역으로 가는 계단 없음

#### 귀하는 어느 다리 등쪽 진출입부 옵션을 신호하 십니까?

- 옵션 1: A 프레임 캠프
- 옵션 2: 스위치백 럼프

다리 용쪽 전출입부에 대한 이건 옵션들을 영가할 때 시가 고려해야 할 사람이 있습니까?

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HERRIST: 可無利可以發音 쇼어라인 시와 묶신을 교환하거니 다른 언어로 된 면서를 보시라면 귀하의 연락처 정보와 함께 clic/shorelinewa gov로 요청하거나 205 801 2700번으로 신화해 주십시오 f 🗑 🗷 🛨 Lea Bonebrake, P.E., 쇼어라인 프로젝트 어디자 ibosebrake@shorelbrewa.gov | 205-801-2475 시회를 권교인하세요: f 💹 📵 👨 For additional project information, visit shorelinewa gov/148thbridge

사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

온라인 오픈 하우스

프로젝트 개요 일정 다리 서쪽 트레일 연결부 다리 동쪽 진출일부 추가 의견 제공 함후 계획?

#### 추가 의견 제공

다리 설계와 함께 경사로나 접근로의 외형 및 기능과 i-5 양쪽 지역으로의 분합 방식 에 대한 주민 익견은 필수적 입니다. 주민들은 설계 과정 중에 의견을 낼 수 있는 여러 번의 기회율 갖게 될 것입니 다\_ 저희는 다리 설계 및 계 획 수립에서 주민 여러분의 우선적 요구 사항용 해결하 면서 프로젝트의 기술적 요 구 시항도 충족시킴 수 있기 출바랍니다

공유 또는 공공 컴퓨터를 사용하고 계십니까? 다른 사람의 설문조사 응답을 보고 있다면 제설정 버튼 을 음력하여 자신의 설문조사를 시작하십시오.

-

#### 주민 의견

귀하는 새로운 N 148번가 차 없는 다리를 이용하시겠습니까? Oğ 아니요

아직 확실하지 않음

귀하가 이 다리를 이용하신다면 어떤 방법으로 이용하시겠습니까?

스쿠터 또는 스케이트 보드와 같은 기타 레저용 이동 수단

원체어 또는 기타 보조 이동 수단

기타 직접 기압

귀하가 이 다리를 이용하신다면 어떤 목적으로 이용하시겠습니까? 쇼이라인 사우스/N 145번가 역에서 경전철 이용

쇼머라인 사우스/N 145번가 역 또는 근처의 버스로 이동 I-5 서쪽 또는 동쪽의 다른 지역으로 이동

자전거 도로 또는 산책로 연결

기타 직접 기암

이 프로젝트에서 귀하에게 가장 중요한 3 개 기준을 선택해 주 십시오. 귀하의 의견은 시기 각 설계안용 평가할 때 프로젝트 명에 도움이 될 것입니다.

지역시회를 위한 안전한 환경 유지

기존 주차 옵션 유지

인근 지역에 대한 영향 최소회

프로젝트 비용 관리

건설 영향 최소화 성숙한 나무 보호

보행자 이동 개선(예: 보도, 횡단보도)

자전기 이용 개선

경전철역/환승 센터까지의 이동 시간 단축

시간전 성계 및 전체적 외양

시의 사유 재산 취득 제한

#### 시의 주민 의견 청취가 얼마나 포괄적이었는지 판단할 수 있도록 귀하에 대해 조금 더 자세히 알려주십시오.

귀하의 우편번호는 무엇입니까?

98133 98155 98160

98177 기타 직접 기압 귀하의 나이가 어떻게 되십니까?

19세 이하 20-24 25-34

35-44 45-54 55-64

66세 이상 밝히고 싶지 않음 귀하의 인종/민족은 무엇입니까? #되지는 SE SE TURNE

아프리카게 이국인 또는 혹인

이에리킨 인디언 또는 알래스카 원주면 아시안 또는 태평양 제도

이인종/다연종

하스째나, 스테인게 또는 라틴게 복아프리카/종동

선택적 자기 인식 사람기를 밝히고 싶지 않음

귀하의 가장에서 사용되는 기본 언어는 무 귀하의 성별은 무엇입니까? 엇입니까? 여자

Maisio/elasirio 904

한국어 중국어/광원이 스페인이

타갈로그어 배트님이 기타 세월 개필 남자 논바이너리 선택적 자기 인식 적장 기암

밝히고 싶지 않음

Do you have a disability? 핵성되는 모든 것 용 고르성시오

PIXI 청각 이름 능력 없용

시간 선택적 자기 인식 직접 기압

밝히고 싶지 않음

귀하의 현재 주거 상황은 어떻습니까?

임대 소유

밝히고 싶지 않음

친구나 가족과 함께 거주 주거 없음 기타 직접기안

귀하는 이 프로젝트에 대해 어떻게 알게 되었습니까? 해당되는 모든 것을 고르십시오

쇼이라인 시 이메일/웹 사이트 뉴스 소설 미디어 친구

기타 직접 기압 밝히고 싶지 않음

직장으로 소속 단체로 이 프로젝트에 대해 귀하와 연락할 수 있 는 가장 좋은 방법은 무엇입니까? *해당되는* 오른 것을 고르십시오

이메일 소설 미디어

지역사회 모임 및 오픈 하우스 우편 기타 직접 기압

N 148번가 차 없는 다리 프로젝트에 대해 귀하가 공유하고 싶은 다른 사람이 있습니까?

H9

> 다음 테이지프 이불

쇼이라인 시와 평신을 교환하거나 다른 언어로 된 문서를 보시려면 귀하의 인략처 정보와 함께 clk@shorelinewa gov로 요청하기나 206-801-2700번으로 전화해 주십시오.

Lea Bonebrake, P.E., 쇼이라인 프로젝트 매니저 Ibonebrake@shorelinewa.gov | 206-801-2475

For additional project information, visit shorelinewa gov/148thbridge

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이 웹사이트 공유:



저희를 만로양하세요:













사람들을 주변 지역 및 지역 대중교통과 연결하는 보행자/자전거 전용 다리

프로젝트 개요

일정

다리

서쪽 트레일 연결부

다리 동쪽 진출임부

추가 의견 제공

향후 계획?

온라인 오픈 하우스

## 향후 계획?

#### 참여 방법

온라인 오픈 하우스를 방문하여 의견을 주셔서 감사합니다.

기술적 연구 및 평가와 함께 주민 여러분의 의 견은 시가 이 지역을 위한 다리를 설계하는 데 도움이 될 것입니다. 시는 2020년까지 지역사 회 모임과 온라인 오픈 하우스를 통해 주민 의 견을 듣고 그 내용을 다시 보고할 것입니다.

#### 이 프로젝트에 대해

자세히 알아보려면

N 148번가 차 없는 다리 웹 사이트를 방문하십 시오.

#### **Destination 2024**

N 148번가 차 없는 다리는 쇼어라인 시가 진행하는 8개의 Destination 2024 프로젝트 중 하나입니다.

쇼어라인에 2개의 새로운 사운드 트랜짓 경전철역을 준비하면서 저희는 이런 새로운 시설들과 함께 이루어질 변화를 위한 계획을 세웠습니다. 시의회는 미래의 2개 역(쇼어라인 사우스/145번가 및 쇼어라인 노스/185가) 주변의 구역 밀도를 증가시켜 새로운 주택 건설과 개발이 대중 교통에 초점이 맞춰질 수 있도록 했습니다. 향 후 개발을 지원하기 위해 시는 또한 사람들이 경전철과 역 주변을 이용할 수 있도록 교통 개선 계획도 수립하 고 있습니다.

아래에서 다른 프로젝트들에 대해 자세히 알아보거나

#### Destination 2024 웹 사이트

물 방문하여 새로운 대화식 지도를 확인하십시오.

- 145th Corridor Project (I-5 to Aurora)
- 145번가/I-5 인터체인지 프로젝트
- 1st Avenue NE Sidewalks (145th to 155th Streets)
- 5번 대로 재도류화
- 도로 옆 자전거 네트워크
- SR 522/523 BRT 프로젝트(Bothell/Lake City Way 및 145th Street Bus Rapid Transit)
- 트레임 얼롱 더 레일

< 이전 배이지로 이동

#### 연락하기:

쇼어라인 시와 통신을 교환하거나 다른 언어로 된 문서뿝 보시려면 귀하의 연락처 정보와 함께 clk@shorelinewa.gov로 요청하거나 206-801-2700번으로 전화해 주십시오.

Lea Bonebrake, P.E., 쇼어라인 프로젝트 매니저 lbonebrake@shorellnewa.gov | 206-801-2475

For additional project information, visit shorelinewa.gov/148thbridge

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이 웹사이트 공유:



저희를 팔로양하세요:











Un puente para peatones y ciclistas que conecta a las personas con vecindarios y transporte público regional

DESCRIPCIÓN GENERAL DEL PROYECTO

CALENDARIO

CONEXIÓN DEL SENDERO DESTE

RELLANO ESTE DEL PUENTE

SU OPINIÓN ES

¿CUÁL ES EL SIGUIENTE PASO?

JORNADA ABIERTA EN LÍNEA

## ¡Bienvenido a la jornada abierta en línea del puente para vehículos no motorizados en N 148th Street!

Shoreline está en crecimiento y evolución. Con la próxima llegada del tren ligero de Sound Transit, la nueva estación Shoreline South/145th del tren ligero y los autobuses públicos, y los nuevos desarrollos, los residentes necesitan nuevas maneras de conectarse con estos servicios e instalaciones en crecimiento y a una red de vías para peatones y ciclistas en expansión.

Para satisfacer estas necesidades, la ciudad de Shoreline construirá un nuevo puente para peatones y ciclistas que cruzará la carretera interestatal 5 (I-5) en N 148th Street. El puente para vehículos no motorizados en N 148th Street mejorará la seguridad de todos y disminuirá los tiempos de recorrido de los peatones y ciclistas que transitan entre los lados este y oeste de la I-5 en Shoreline.

El propósito de esta jornada abierta en línea es proporcionarle una oportunidad para:

- · Obtener más información sobre este proyecto
- Expresar lo que es importante para usted y dar su opinión sobre los aspectos clave de este proyecto.

#### Cómo usar esta jornada abierta en línea

- Para avanzar en esta jornada abierta, desplácese hacia abajo para leer cada página, y luego haga clic en el botón "Siguiente" en la parte inferior de la página o seleccione la pestaña deseada en la parte superior.
- En esta jornada abierta en línea, se le harán preguntas y podrá dar su opinión. Le llevará solo unos cuantos minutos para concluir tanto la jornada abierta como el cuestionario en línea.

¡Agradecemos su participación!

#### ACOMPÁÑENOS EN NUESTRO **SEMINARIO WEB**

Esta presentación en vivo y en línea se llevará a cabo el:

Jueves, 23 de abril de 2020 12:00-1:00 p.m.

Haga clic aquí para registrarse.

#### Permanezca conectado

Suscribase para recibir actualizaciones sobre este y otros proyectos en el Corredor de N 145th Street, así como para enterarse de oportunidades para participar.

N	0	m	b	T	2	

**Apellido** 

Correo electrónico •

"El correo electrónico es obligatorio

ENVIAR

SIGUIENTE

#### CONTACTO:

Si desea comunicarse con la ciudad de Shoreline o consultar un documento en otro idioma, envíe su solicitud junto con su información de contacto a clk@shorelinewa.gov o llame al 206-801-2700.

Lea Bonebrake, Ingeniera profesional, cludad de Shoreline, gerente de proyectos lbonebrake@shorelinewa.gov | 206-801-2475

For additional project information, visit shorelinewa.gov/148thbridge

COMPARTIR ESTE SITIO:









SIGANOS:









Un puente para peatones y ciclistas que conecta a las personas con vecindarios y transporte público regional

INICIO DESCRIPCIÓN GENERAL CALENDARIO PUENTE CONEXIÓN DEL RELLANG ESTE SU OPINIÓN ES ¿CUÁL ES EL DEL PROYECTO DEL PROYECTO CALENDARIO PUENTE SENDERO GESTE DEL PUENTE MUY IMPORTANTE SIGUIENTE PASO?

JORNADA ABIERTA EN LÍNEA

## Descripción general del proyecto

#### Necesidad y beneficios

El puente para vehículos no motorizados en N 148th Street abordará varias necesidades comunitarias actuales y futuras, y ofrecerá varios beneficios, por ejemplo:

OPCIONES DE TRANSPORTE PARA UN VECINDARIO EN EVOLUCIÓN. En 2016, la ciudad desarrolló el Plan de la subzona para la estación de 145th Street a fin de atender el uso futuro del suelo y las necesidades de transporte cerca de la nueva estación de tren ligero y autobuses públicos. Conforme la zona vaya cambiando, el puente dará acceso a los residentes, comerciantes, clientes minoristas y personas que cotidianamente viajan entre su casa y el trabajo. El puente es parte de otros esfuerzos de planeación de la ciudad de Shoreline para el corredor vial y la nueva estación de tren ligero de Sound Transit de N 1451h Street. Puede obtener más información sobre otros proyectos relacionados en la zona visitando el sitto web de Destination 2024.

ACCESO A LA ESTACIÓN DE TREN LIGERO. Para 2024, se inaugurará la estación Shoreline South/145th, la cual prestará el servicio de tren ligero y de más autobuses de tránsito rápido a Shoreline. Más del 80 % de los residentes de Shoreline que trabajan salen de la ciudad para llegar a su empleo y casi dos terceras partes de ellos se trasladan a Seattle. Se prevé que el tránsito en la zona donde se ubica la estación aumentará en más del 25 %.

MEJOR SEGURIDAD Y MENORES TIEMPOS DE RECORRIDO. Los caminos que están separados de la calle y el espacio destinado para los peatones y cíclistas aumentan la seguridad y ayudan a disminuir el riesgo de choques con vehículos motorizados.

Actualmente, Shoreline está dividida por una carretera interestatal de nueve carriles (I-5). Un nuevo puente facilitará el traslado en Shoreline y reducirá los tiempos de recorrido de peatones y ciclistas que transiten por la zona, por al menos diez minutos. El nuevo puente también mejorará las rutas de las ciclovías al sendero interurbano, al futuro proyecto Trail Along the Rail, al sendero Burke-Gilman actual y a posibles redes de ciclovías regionales futuras.

El nuevo puente cruzará la interestatal 5 (I-5) en N 148th Street. El proyecto constará de tres partes principales: la arcada del puente sobre la I-5, la conexión del sendero oeste y el rellano este del puente,





#### Proyección de costos

Diseño	\$2.8-3.8 million	
Servidumbre	\$1.5-2 <sub>.</sub> 1 million	
Construcción	\$18,1-24,9 million	
COSTO TOTAL DEL PROYECTO	\$23-30.2 million	

La ciudad obtuvo \$10 millones en fondos federales, regionales y del condado. Con un costo total estimado actualmente en \$23-30.2 millones (los costos se puntualizarán durante el proceso de diseño), la ciudad sigue buscando financiamiento para concluir la obra.

> SIGUIENTE C ARTERIOR

SI desea comunicarse con la cludad de Shoreline o consultar un documento en otro ldioma, envíe su solicitud junto con su información de contacto a clk@shorelinewa.gov o llame al 206-801-2700.

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COMPARTIR ESTE SITIO:

















Un puente para peatones y ciclistas que conecta a las personas con vecindarios y transporte público regional

INICIO

DESCRIPCIÓN GENERAL DEL PROYECTO CALENDAR

CONEXIÓN DEL SENDERO DESTE RELLAND ESTE DEL PUENTE SU OPINIÓN ES MUY IMPORTANTE ¿CUÁL ES EL SIGUIENTE PASO?

JORNADA ABIERTA EN LÍNEA

## Calendario

La fase de diseño del proyecto inició en 2019 y continuará hasta 2021. Los integrantes de la comunidad tendrán oportunidad de dar su opinión a través de jornadas abiertas presenciales y en línea durante la revisión del diseño y del aspecto ambiental durante 2020. La obra está programada para iniciar en 2022 y concluir en 2023 antes de que se inaugure la nueva estación del tren ligero.

	Re	Revisión ambiental y del diseño 2019–2021			
Estudio de factibilidad 2017 Concluido	Evaluación de alternativas Septiembre de 2019-junio de 2020	Selección de alternativas preferidas	30 % de avance en el diseño Verano/otoño de 2020	Servidumbre 2021–2022	Construcción 2022-2023
	DICIEMBRE-MARZO Sesiones informativas para dueños de	Verano 2020 Sesiones informativas para dueños de propiedades			
	propiedades  Sesiones informativas y presentaciones comunitarias	Sesiones informativas y presentaciones comunitarias			FOR
	ABRIL  Jornada abierta en línea, encuesta y presentación	Jornada abierta en línea y presencial			

## Investigación y planeación

En 2016 y 2017, la ciudad de Shoreline llevó a cabo un estudio para evaluar y recomendar opciones para conectar a las comunidades del lado oeste de la 1-5 con la futura estación Shoreline South/145th de Sound Transit. Los funcionarios de la ciudad de Shoreline, el concejo municipal e ingenieros consultores analizaron cinco opciones. La ciudadanía hizo comentarios en las asambleas del concejo municipal de la ciudad de Shoreline.

La ciudad estimó que la obra en N 148th Street sería la más económica, beneficiaría a la mayor cantidad de usuarios y, de las rutas posibles, es la que proporcionaría el acceso más directo a la estación Shoreline South/145th. Asimismo, revisó los reglamentos del Departamento de Transporte del Estado de Washington (Washington State Department of Transportation o WSDOT) y de Sound Transit a fin de abordar las necesidades de seguridad en el cruce de la I-5 y las zonas aledañas. El concejo municipal de la ciudad de Shoreline aprobó esta obra en febrero de 2017.





Un puente para paatones y ciclistas que conecta a las personas con vecindarios y transporte público regional

INICIO DESCRIPCIÓN DENERAL CALENDARIO PUENTE CONEXIÓN DEL AFLLAND ESTE SU OPINIÓN ES ¿CUÁL ES EL DEL PUENTE MUY IMPORTANTE SIQUIENTE PASO? JORNADA ABIERTA EN LÍNEA

#### **Puente**

El puente ayurfara a los peatones y ciclistas a cruzar la 1-5 entre el vecerdario Parkwood del lado oeste y la nueva estación Shoreline South/N 1451h del tado este. El puente ser lo suficientemente ancho para que transiten peatones y ciclistas, y cumplirá con las normas de la Ley de estadounidanses con discapacidades (ADA, por sus siglas en inglés). Todas las oponnes de puentes se diseñarán conforme a las mismas normas de seguridad e incluírán barracales para los pecatones y celistas, lluminación y blindaje (barrers de seguridad) para proteger a los conductores que transiten por la carretera interestatal de abajo de objetos que podrían caerse

¿Está usando una computedara compartida o pública? Si puede ver las respuestas que algulen más dio a la encuesta, haga clic en el botón de reiniciar para comenzar su propia encuesta.

HUNDER

#### Comparta su opinión sobre las opciones de diseño del puente:

#### Opción 1: Puente con arces combinados

¿Qué la agrada de esta opción? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDASL

- Aspecto y diseño generales
- ¿Qué le desagrada de esta opcido? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM.
- Tamaño
- Aspecto y diseño generales

#### Opción 2: Puente con acosa stados

¿Qué le agrada de esta opción? «««» moses LAS RESPUESTAS QUE CORRESPONDAN.

- Tamaño
- Aspecto y diseño generales

¿Qué la desagrada de ente opción? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM.

- Tameño
- Aspecto y disello generales
- Otro especimione

#### Opcide 3: Puente de armadura

¿Qué la agrada de esta opción? MARQUE TUDAS LAS RESPUESTAS QUE CORRESPONDAN.

- Aspecto y diseño generales

¿Qué la desagrada de esta opción? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM.

- Tamaño
- Aspecto y diseño generales Otro Especifique:

#### ¿Cuti opción de puente prefiere?

- Opción 1: Puente con ercos combinados
- Opción 2: Puente con arcos atados Opción 3: Puente de armadura

LHay algo que cree que deberlamos tomar en cuenta al evaluer estas opciones de puentas?

#### ENVIAN

#### Opción 1: Puente con arcos combinados



- = DISERO: El puente con arcos combinados tendría un gran arco sobre la 1-5 y un arco más pequeño en la conexión con el sendero del lado oeste del puente
- TAMAÑO: Los arcos contarian con plezas de soporte de acero en la parte de arriba y plezas de soporte vertical que podrían ser de cable o acero.
- SEGURIDAD: La barrera de seguridad se uniría al Interior de las piezas verticales de soporte para evitar que calgan objetos a la carretera interestatal de abajo

#### Opción 2: Puente con arcos atados



- DISEÑO: El puente con amos anados rendría dos arcos, uno al tado del otro, y uno inclinado sobre el otro, con cables de soporte conectados
- TAMAÑO: El erco más pronunciado y los cables delgados crearían más especio y permitirían que pasara más luz que las otras opciones de puentes
- SEGURIDAD: La berrera de seguridad podría sujetarse a ambos lados de los cables para evitar

#### Opción 3: Puente de armadura



#### Hege ciic aqui para agrandar la imagen

- DISERO: Este tipo de puente tiene plezas conectadas que forman un triángulo o "armadura".
- TAMAÑO: Comparado con otros tipos de puente, el puente de armadura sería ligeramente más corto en su punto más alto, tendría más piezas estructurales en la parte de arriba y los soportes del exterior serían más anchos.
- BEGURIDAD: La barrera de seguridad estaria sujeta al Interior de las armaduras para evitar que calgan objetos a la carretera interestatal de abajo.

Si desea comunicarse con la ciudad de Shoreline o consultar un documento en ntra (dioma, envie su solicitud funto con su información de contacto a Cik@shoreline As gov o lleme al 266 601 2700.

Lea Bonabiake, ingeniera profesional, ciuded de Shoreline, gerente de proyectos Ibonebiake@shorelinewa.gov | 206-801/2475

For additional project information, visit shorelinews-gov/148thbridge

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Un puente para pealones y ciclistes que conecta a las persones con secindarios y transporte péblico regional 🚟

INICIO DESCRIPCIÓN GENERAL CALENDARIO PUENTE CONEXIÓN DEL BELLANO ESTE SO OPINIÓN ES LOGAL ER EL SENDERO GESTE DEL PUENTE MUY IMPORTANTE SIGUIENTE PASO?

JORNADA ABIERTA EN LÍNEA

#### Conexión del sendero oeste

Lo rampa ceste y el acceso al puente estarán del lado ceste de la F5 en el vecindario Parkwood. El cultaining usess y a social a pleanie zonania dia occidenta de equipo del proyecto està trabajando con los secindanos aledaños, incluidos tres fugares de culto, para identificar sus prioridades y asegurai que se limiten las interrupciones durante el diseño y la construcción del puente. Con todas las opciones, la ciudad pretende conservar los diboles maduros que haya en la zona del proyecto, siempre que sea posible

Opción 1: Construcción mínima VISTA DESDE ARRIBA ø · Bata para bicicietas - B LEYENDA 157 AVENUE NE: Las mejoras a Tst Avenue NE podrían llevarse a cabo como un proyecto independiente en el futuro. BICICLETAS: Las bicicletas compartirán el estacionamiento con los vehículos y luego SENDERO: El sendero será una acera peatonal de 2 4 metros entre 1st Avenue NE y el puente, y contará con liuminación. ESTACIONAMIENTO: El estacionamiento en las iglesias no cambiará. SECCIÓN REPRESENTATIVA TÍPICA Con vista al peste hacia 1st Avenue NE Exacionamiento Card comparido della velicularia en el settembre del sett Hage ciic aqui para agrander la sección representativa.



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#### Comparta su opinión sobre el diseño de la conexión del sendero oeste:

¿Qué le agrada de esta opción? MAPQUE TGOAS LAS RESPUESTAS QUE CORRESPONDAN

- Diseño del sendero
- Separación entre cicilistas y peatones
- Opciones de estacionamiento Otro ESPECIFICUE

- Diseño del sendero
- Separación entre ciolistas y pentones
- Opciones de estacionamiento

#### Opcide 2: Construcción completa

- Diseño del sendero
- Camino compartido para ciclistas y peatones
- Opciones de estacionamiento

¿Qué le desagrada de este opción? MARQUE DUDAS LAS RESPUESTAS QUE CORRESPONDAN.

- Diseño del sencero
- Carrino compartido para ciclistas y pealones
- Opciones de estacionatriento
- Otro ESPECIFICHE

- Opción 1: Construcción místma
- Opción 2: Construcción completa

Chay algo que crea que deberlamos tomar en cuenta al evaluar estas opciones para la CHAY algo que crea que deberlamos tomar en

DIVIAL

CONTACTO:

El neses comunicarse con la sociad de premine e consultar un doc idioma, envie su solicitus junto con su Información de contacto a cligatore inewa goy o llame al 206 601-2700.

Les Bonoboske, Ingeniera profesional, ciudad de Shoreline, generte de proyectos Bonebrake@sharelinews.gor | 306.801.0415

For additional project information visit shorelinewa gov/148thbridge

SIGANOS:



COMPANYIN ESTE SITIO:

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Un puente para peatones y cicilstes que conecta e las personas con secindarios y transporte público regional

INICIO CASCRIFCIÓN GINEBAL CALENDARIO PARMEL CONERIÓN DEL RELLENO ESTE UN OFFRIDA E LCUÁL ES EL DEL PARTO DEL PEDIFICIO DEL PARTO DEL PEDIFICIO DEL PEDIFICIO DEL PEDIFICIONES LOCALISMES PARTO.

JORNADA ABIERTA EN LÍNEA

#### Rellano este del puente

El rellano este del puente, del lado este de la i 5, lleverá a los transeúntes a la lutura estación South Shoreline/N 145th, don'de podrán noblase al tren ligen o injensa a las misecules à a utual cataloni south Shoreline/N 145th, don'de podrán noblase al tren ligen o los authouses de Sound Transia carder al futuro proyecto Trail Along the Rail a pie o en bicicleta. La estación de Sound Transia i necluida estocionamiento para biocietas, Todas Les opciones de dizeño incluirán;

- Un puente y una rampa que cruzarán las vías del tren ligero de Sound Transit por abajo.
- . Cumplimiento con las normas de la Ley de estadounidenses con discapacidades (ADA)
- Un muro permanente a prueba de ruido por debajo del puente, contiguo a la carretera.
- . Conexiones con el proyecto Trati Along the Rail.
- Todos los senderos, lampas y escaleras exteriores que estén en la zona de fa estación tendrán
- El estac onamiento del tren tigero de Sound Transit tendrá espacio para 500 vehículos



- Rampa: Esta opción de rempa tiene una forma angular y una pendiente más pronunciada que las otras opcionas (pendiente promedio del 6.5 % hacia la estación).
- B Escaleras: La gente también puede bajar por las escaleras para flegar a la estación.
- C Las vies del tren ligero de Sound Transil pasarén por arriba de la rampa y las escalaras hasta la estación. En su ponto más tajo, el especio entre el postele y las vias del tren ligero es de autoximadamente 2.4 metros.

# Opción 2: Rampa en zigzag DEFECT Ø LEYENDA

- Rampo: Una rampo en zigcag en una sampa más gradual (con una pendiente de aposamadamente el 4 %) hacia la estación.
- B Escaleras: La gente también puede bajar por las escaleras para llegar a la estación
- Las vías del tren ligero de Sound Transil pasarán por atriba de la rampa y las escaleras hacia la estación. En su punto más bajo, el espacio entre el puente y las vías del tren ligero es de un poco más de 2.7 metros

Hage offe agel pore agreedur la imagen.

# J.Fermerica

#### LEVENDA

- RENDA

  \*\*Rampa Ecia rampa ofrece conxidence directas lanto a la estación como al proyecto configuo Trail Along the Rail. La rampa tanàbido esté menos empinada (prediente del 4) que la opción. El diseño no requiere escaleras para llegar a la estación.

  Las vias del tren ligero de Sound Transit pasarán por arriba de la rampa hacia la estación. En su punto más bajo, el espacio entre el puente y las vias del tren ligero es de aproximadamente centre el p. 27 metros

Hoga cils agel para ograndar la imagen



Comparta su opinión sobre el diseño del rellano este del puente:

#### Opcide 1: Rampa on "A"

¿Qué la agrada de esta opción? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM

- Distrio de la rampa.
- Artura Stare deside has elea de flound Pranas
- Consción a la astación del tren ligero Consciones el proyecto Trail Along the Raul
- Senderos para pratones y ciclistas Accesas a la valación por las escatores

¿Qué le desagrade de este opción? MARQUE TODAS LAS AFSPUESTAS QUE CORPESTONDAN

- Directo de la rampa Altura libre desde les vias de Sound Transit
- Consider at a estación del tren ligero Conscientes al proyecto Trail Along the Itali Bendence para personas y colletta Acceso a la estación por las escalenas

#### Opcide 2: Rampu en zigsag

¿Qué le agrada de esta opción? MARQUE TODAS LAS AFSPUESTAS QUE COMPESADACAM

- Oneston a la estación del tren ligero Conesión a la estación del tren ligero Conesiones el proyecto Trail Along the Rah

- Senderos para peatones y ciclistas

- ¿Qué le desagrada de esta opción? LIARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM.
- Diseño de la tampa Altura libre desde las vies de Sound Transit Consecto a la sotacido del tien ligare Consectores al proyecto Teol Asseg the fiell
- Senderos para peatones y ciclistas Accesse a la estación por las estraleras

- ¿Qué le agrada de esta opción? MARQUE 100AS
- Olseño de la rampa
- Conextones al proyecto Trail Along the Rall
- Senderos para periones y ciclistas Com no hava accesso a la estación por las escaleras

¿Qué la desagrada da esta opulán? Marque 100AS LAS RESPUESTAS QUE CORRESPONDAN.

- Diseño de la rampa Alhura libre desde las vias de Sound Transif Consción a la estación del tren ligero Consciones el propesto Trail Along the Rail
- Senderos para peatones y ciclistes Que no haya acceso a la estación por las

- Opción 1: Rampa en "A" Opción 2: Rampa en zigzag
- Opción 3: Rampa directa

Total S

) manage

Il deven comunicarse con la ciudad de Olombia a consultar un documento en ene Riberta, envir sa soficitad perto con su información de comunica a ciligadore inexa, que o llame al 206 801 2700

Lea Bonebrake, ingeniera profesional, ciudad de Shoreline, gerente de proyer los Ibonebrake@shorelinewe gov | 200-801/2475 For additional project information, visit shorelinews gov/148thbridge

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Un puente para postones y ciclistas que conecta a las personas con vecindarlos y transporte público ragional

INICIO DESCRIPCIÓN GENERAL CALENDARIO PUENTE CONESIÓN DEL RELLAND ESTE SU OPINIÓN ES ¿CUÁL ES EL DEL PROFECTO CALENDARIO PUENTE ESENDERO DESTE DEL PUENTE MUY IMPORTANTE SIGUIENTE PASO?

JORNADA ABIERTA EN LÍNEA

#### Su opinión es muy importante

fundamental para el diseño del puente y cómo lucirán, funcionarán e Integrarán las rampas y los comunidades en ambos lados de la 1-5. Los miembros de la comunidad tendrán varias opprtunidades pare der su opinión a lo largo del proceso de diseño... Queremos asegurarnos de que la labor de diseño y planeación del puente allenda sus prigridades y, a la vez, satisfaga las necesidades técnicas del proyecto.

¿Está usando uma computadora compartida o pública? Si prede rer los respuestas que algulen más dio a la encuesta, haga cilic en el botán de reliniciar para comenzar su propin encresta.

¿Piensa usar el nuevo puenta para vehículos no motorizados en N 148th Street?

SI

Aún no sé

Si piensa usar el puento, ¿qué medios de transporte plasee usar?marque rodas Las respuestas que correspondan.

Caminar

Otros dispositivos recreativos con ruedas, como monopatines o patinetas

Silla de ruedas u otro medio de transporte con asistencia Otro ESPECIFIQUE:

SI piensa usar el prente, ¿cuel uerá el motivo de sua recomidos? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAN.

Acceder al Iren ligero en la estación South Shoreline/N 145th Acceder a los autobuses que están en o cerca de la estación South Shoreline/N 145th

Acceder a otros vecindarios del lado ceste o este de la I-S

Acceder a los senderos para ciclistas o peatones

Otro ESPECIFIQUE:

Sefeccione fos fres criterios principales que son los más Importantes para ustad respecto a este proyecto. SU ORNIGIA NADORÁ AL EUPRO DE PROYECTO A MEDIDA QUE EVALUAMOS CADA OPCIÓN DE DISEÑO.

Mantener un entorno seguro para la comunidad

Mantener las opciones actuales de estacionamiento Minimizer el Impacto e las propiedades aledañas

Minimizar el Impacto de la obra Proteger los árboles maduros

Mejorar los recorridos de los peatones (por ejemplo, las aceras y los cruces peatoneles)

Mejorar los recordidos en biololeta

Disminuir el tiempo de recorrido bacia la estación del tren ligero y la zona de autobuses

Diseño visual y aspecto general

Limitar la adquisición de la ciudad de propiedades

Comparta con nosotros un poco més de información sobre usted para que podamos entender qué tan incluyente ha sido nuestro contacto con la comunidad.

¿Cuál es so código postal?

98133

98155 98160

98177

Otro ESPECIFIQUE

¿Qué edad tiene? 19 años o menos 20-24

35-44

45-54

65 o más Preflero no decirlo ¿Cudi es su raza u origen ámico? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAN.

Afrosmericano o negro

Alaska

Asiático u originario de las Islas del Pacifico

Multimacial o birractal

Hispano, español o latino Morteafricano o del Medio Oriente

Blanco o caucásico Autoldentificación opcional

Do you have a disability? MARQUE TIBAS LAS RESPUESTAS QUE COMPESPONDAN

Preffero no decirlo

Cognitiva

Auditiva De movilidad

¿Cuál es el idioma principal que habla en su hogar?

Amárico o tigriña

Inglés

Mandarín o cantonés Español Tagalo

Vietnamile

Otro ESPECIFIQUE:

Otto expeciations:

Prefiero no decido

¿Con qué género se identifica? Muler Hombre

Autoidentificación opcional

Prefiero no decirlo

Ninguna

Autoidentificación opcional especifique: Preflero no decirlo

¿Cuál es su eltusción de vivienda ectual? Vivlenda propia

Me quedo con amigos o parientes

¿Cómo so enteró do esto proyecto? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAN. Correo electrónico o sitio web de la

Boletin de noticias Redes sociales

Amigo(a) Mi empleador Une organización de la que formo Dire expectation

¿Cuál es le mejor manera de mantenemos en contacto con ustad con relación a este proyecto? MARQUE TODAS LAS RESPUESTAS QUE CORRESPONDAM. Correo electrónico

Redes sociales

Asembleas comunitarias y jornadas ablertas

Correo postal Otro especifique

¿Hay algo más que quisiera comentar acerca del proyecto del puente para vehículos no motorizados en N 148th?

DIVIAL

CANTENION

CONTACTO

Si desse comunicarse con la ciudad de Shinetine o consultar un documento en atto lotoma, envie su solicitud junto con su información de contacto a cix@shorellnewa.gov o liame al 206.801:2700.

Lea Bonebrake, Ingentera profesional, ciudad de Shoreline, gerente de proyectos Ibonebrake@shorelinewa.gov | 206 801-2475 For additional project information, visit shorelinewa gov/148thbridge

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INICIO

DESCRIPCIÓN GENERAL DEL PROYECTO

CALENDARIO

PUENTE

CONEXIÓN DEL SENDERO DESTE

RELLANO ESTE

SU OPINIÓN ES MUY IMPORTANTE

JORNADA ABIERTA EN LÍNEA

## ¿Cuál es el siguiente paso?

#### Cómo mantenerse involucrado

GRACIAS POR VISITAR LA JORNADA ABIERTA EN LÍNEA Y DARNOS SU OPINIÓN. Junto con las investigaciones y evaluaciones técnicas, su opinión ayudará a la ciudad a diseñar el puente para la comunidad. Le comunicaremos lo que dijo el público en asambleas comunitarias y jornadas abiertas en línea durante 2020.

CONOZCA MÁS SOBRE ESTE PROYECTO en el sitlo web del puente para vehículos no motorizados en N 148th Street.

#### **Destination 2024**

El puente para vehículos no motorizados en N 148th Street es uno de los ocho proyectos de Destination 2024 dirigidos por la ciudad de Shoreline.

Con el fin de prepararnos para dos estaciones nuevas del tren ligero de Sound Transit en Shoreline, hemos planeado los cambios que se harán con la llegada de estas nuevas instalaciones. El concejo municipal ha incrementado las densidades de zonificación alrededor de las dos estaciones futuras de Shoreline South/145th y Shoreline North/185th para que las viviendas y los desarrollos se concentren en la zona de transporte. Para apoyar el desarrollo posterior, la ciudad también piensa hacer mejoras al transporte a fin de ayudar a la gente a llegar a la zona del tren ligero y alrededor de la estación.

Conozca más sobre los proyectos a continuación o visite el sitio web de Destination 2024 y consulte nuestro nuevo mapa interactivo.

- Proyecto del corredor de 145th (I-5 a Aurora) (en inglés)
- Proyecto para la intersección de 145th/l-5 (en inglés)
- Aceras de 1st Avenue NE (d ela calle 145th a la calle 155th) (en inglés)
- Recanalización de 5th Avenue (en inglés)
- Red de ciclovías fuera del corredor vial (en inglés)
- Proyecto de autobuses de tránsito rápido (BRT) en las rutas estatales (SR) 522/523 (autobuses de tránsito rápido en Bothell/Lake City Way y 145th Street) (en inglés)
- Sendero a lo largo de las vías (en inglés)

< ANTERIOR

#### CONTACTO:

Si desea comunicarse con la ciudad de Shoreline o consultar un documento en otro Idloma, envíe su solicitud junto con su información de contacto a clk@shorelinewa.gov o llame al 206-801-2700.

Lea Bonebrake, ingeniera profesional, ciudad de Shoreline, gerente de proyectos lbonebrake@shorelinewa.gov | 206-801-2475

For additional project information, visit shorelinewa.gov/148thbridge

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**COMPARTIR ESTE SITIO:** 

SCHARDS.





# N 148th STREET NON-MOTORIZED BRIDGE PROJECT

ONLINE OPEN HOUSE TOPLINE SUMMARY

APRIL 10-MAY 1, 2020

#### **SUMMARY**

As part of the N 148th Street Non-Motorized Bridge Project, the City of Shoreline hosted an online open house between April 10 and May 1, 2020, to share information and gather input on the design of the bridge and how it connects to the neighborhoods on the east and west sides of I-5.

When visiting the online open house participants could:

- Learn more about the project need, benefits, and schedule.
- Review the options being considered for each design element and provide feedback on those options.
- Share how they plan to use the bridge and what criteria is most important to them.
- Share demographic information to help determine the effectiveness of the City's outreach.
- Sign up for email updates about this project and others in the N 145th Street corridor.

The City used multiple methods to reach audiences and promote the online open house. A postcard advertising the online open house and the webinar was sent to 4,195 addresses in the project area. Information about the online open house was also posted on the project webpage and on social media, and the project team sent emails to project partners, neighborhood organizations, and immediate project stakeholders.

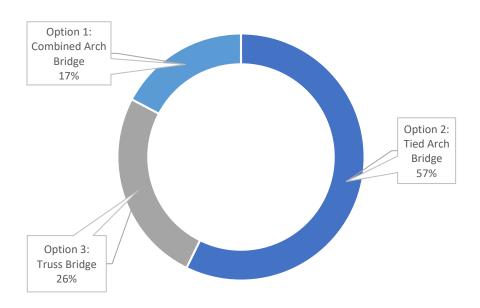
Between April 10 and May 1, 529 individuals visited the online open house. There were 165 survey respondents, who provided:

- 125 responses to bridge structure questions
- 87 responses to the east bridge landing questions
- 113 responses to the west trail connection questions
- 98 responses to evaluation criteria questions
- 110 responses to bridge use and demographic questions
- 33 open-ended comments in response to the question "Is there anything else you would like to share about the N 148th St Non-Motorized Bridge Project?"

The following summary captures quantitative data from the survey. All questions were optional. Not all respondents answered every question. Qualitative data will be included in the full report on the survey and online open house.

#### **BRIDGE**

#### WHICH BRIDGE OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 2: Tied Arch Bridge	57%	63
Option 3: Truss Bridge	26%	28
Option 1: Combined Arch Bridge	17%	19
Total	100%	110

#### **OPTION 1: COMBINED ARCH BRIDGE**

What do you like about this option? Select all that apply.

Answers	Tally
Overall look and design	57
Size	25
Other	6

#### What do you dislike about this option? Select all that apply.

Answers	Tally
Overall look and design	23
Size	12
Other	6

Respondents: 38

#### **OPTION 2: TIED ARCH BRIDGE**

What do you like about this option? Select all that apply.

Answers	Tally
Overall look and design	82
Size	31
Other	11

Respondents: 86

What do you dislike about this option? Select all that apply.

Answers	Tally
Size	18
Overall look and design	12
Other	5

Respondents: 29

#### **OPTION 3: TRUSS BRIDGE**

What do you like about this option? Select all that apply.

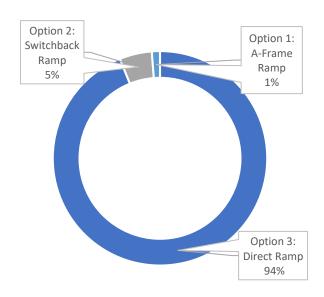
Answers	Tally
Overall look and design	25
Size	20
Other	9

## What do you dislike about this option? Select all that apply.

Answers	Tally
Overall look and design	68
Size	17
Other	14

#### **EAST BRIDGE LANDING**

#### WHICH OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 3: Direct Ramp	94%	77
Option 2: Switchback Ramp	5%	4
Option 1: A-Frame Ramp	1%	1
Total	100%	82

#### **OPTION 1: A-FRAME RAMP**

What do you like about this option? Select all that apply.

Answers	Tally
Stair access to station	22
Connection to light rail station	19
Pedestrian and bicycle pathways	17
Ramp layout	12
Connection to Trail Along the Rail	12
Other	3
Height clearance from Sound Transit tracks	2

#### What do you dislike about this option? Select all that apply.

Answers	Tally
Height clearance from Sound Transit tracks	36
Ramp layout	29
Connection to Trail Along the Rail	16
Other	15
Stair access to station	12
Pedestrian and bicycle pathways	5
Connection to light rail station	4

Respondents: 57

#### **OPTION 2: SWITCHBACK RAMP**

#### What do you like about this option? Select all that apply.

Answers	Tally
Height clearance from Sound Transit tracks	25
Connection to light rail station	14
Ramp layout	12
Pedestrian and bicycle pathways	11
Stair access to station	11
Connection to Trail Along the Rail	7
Other	5

Respondents: 41

#### What do you dislike about this option? Select all that apply.

Answers	Tally
Ramp layout	34
Connection to Trail Along the Rail	21
Stair access to station	18
Connection to light rail station	7
Pedestrian and bicycle pathways	7
Height clearance from Sound Transit tracks	6
Other	6

#### **OPTION 3: DIRECT RAMP**

#### What do you like about this option? Select all that apply.

Answers	Tally
Ramp layout	53
Connection to Trail Along the Rail	50
Connection to light rail station	48
Height clearance from Sound Transit tracks	34
Pedestrian and bicycle pathways	33
No stair access to station	29
Other	8

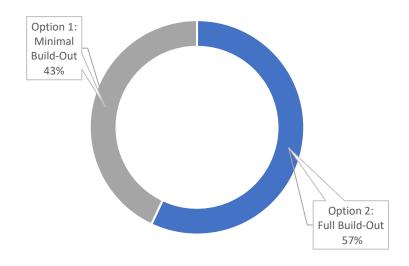
Respondents: 67

#### What do you dislike about this option? Select all that apply.

Answers	Tally
No stair access to station	15
Height clearance from Sound Transit tracks	6
Ramp layout	4
Pedestrian and bicycle pathways	3
Other	3
Connection to Trail Along the Rail	2
Connection to light rail station	1

#### **WEST TRAIL CONNECTION**

#### WHICH OPTION DO YOU PREFER?



Answers	Percentage	Tally
Option 2: Full Build-Out	57%	57
Option 1: Minimal Build-Out	43%	43
Total	100%	100

#### **OPTION 1: MINIMAL BUILD-OUT**

What do you like about this option? Select all that apply.

Answers	Tally
Separation between bicyclists and pedestrians	47
Parking options	33
Trail design	26
Other	11

#### What do you dislike about this option? Select all that apply.

Answers	Tally
Separation between bicyclists and pedestrians	31
Trail design	28
Other	26
Parking options	11

Respondents: 65

#### **OPTION: FULL BUILD-OUT**

#### What do you like about this option? Select all that apply.

Answers	Tally
Trail design	51
Shared bicycle and pedestrian path	49
Other	9
Parking options	5

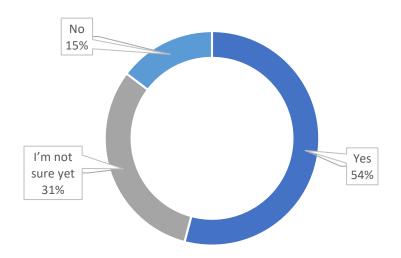
Respondents: 63

#### What do you dislike about this option? Select all that apply.

Answers	Tally
Shared bicycle and pedestrian path	39
Parking options	34
Other	13
Trail design	12

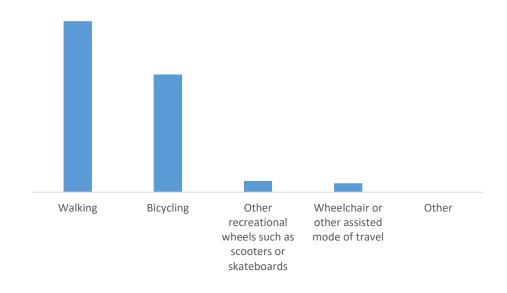
#### **DEMOGRAPHIC INFORMATION**

#### Do you plan to use the new N 148th Street Non-Motorized Bridge?



Answers	Percentage	Tally
Yes	54%	59
I'm not sure yet	31%	34
No	15%	16
Total	100%	109

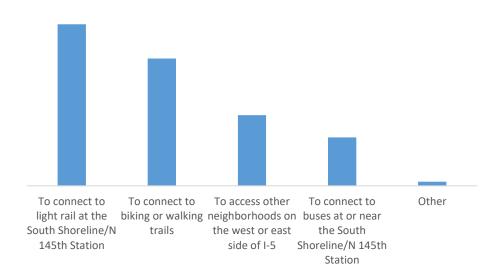
If you do plan to use the bridge, what modes of travel do you plan to use? Select all that apply.



Answers	Tally
Walking	77
Bicycling	53
Other recreational wheels such as scooters or	5
skateboards	
Wheelchair or other assisted mode of travel	4
Other	0

Respondents: 92

#### If you do plan to use the bridge, what will be the purpose of your travel? Select all that apply.



Answers	Tally
To connect to light rail at the South	80
Shoreline/N 145th Station	
To connect to biking or walking trails	63
To access other neighborhoods on the west or	35
east side of I-5	
To connect to buses at or near the South	24
Shoreline/N 145th Station	
Other	2

Please select the top three criteria that are most important to you for this project.







MAINTAIN SAFE ENVIRONMENT

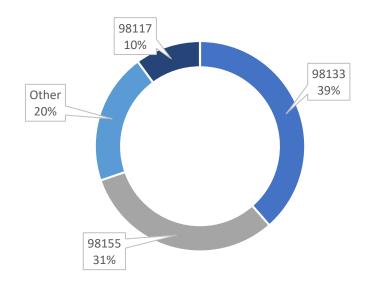


**SHORTEN TRAVEL TIME** 

55% 44% 34%

Answers	Percentage	Tally
Improve pedestrian travel (e.g., sidewalks,	55%	59
crosswalks)		
Maintain safe environment for community	44%	47
Shorten travel time to light rail station/transit	34%	36
center		
Improve bicycle travel	33%	35
Protect mature trees	27%	29
Visual design and overall look	21%	23
Manage project costs	17%	18
Minimize impacts to neighboring properties	15%	16
Maintain existing parking options	13%	14
Limit city acquisition of private property	9%	10
Total	n/a	107

## What is your ZIP code?

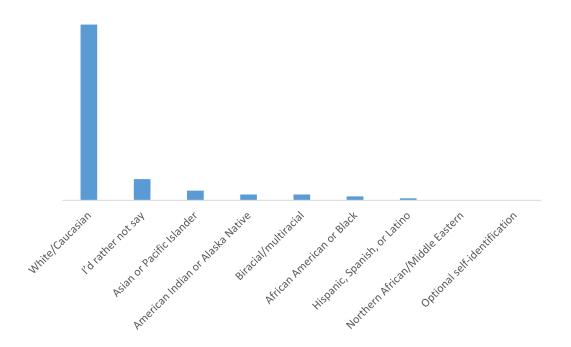


Answers	Percentage	Tally
98133	39%	42
98155	31%	34
Other	20%	22
98117	10%	11
98160	0%	0
Total	100%	109

## What is your age?

Answers	Percentage	Tally
65 or older	22%	24
55–64	20%	22
35–44	19%	21
45–54	19%	21
25–34	13%	14
20–24	3%	3
I'd rather not say	2%	2
19 or younger	1%	1
Total	100%	108

#### What is your race/ethnicity? Select all that apply.

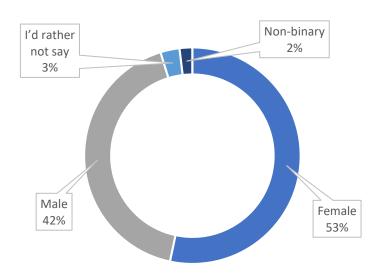


Answers	Tally
White/Caucasian	87
I'd rather not say	11
Asian or Pacific Islander	5
American Indian or Alaska Native	3
Biracial/multiracial	3
African American or Black	2
Hispanic, Spanish, or Latino	1
Northern African/Middle Eastern	0
Optional self-identification	0

## What is the primary language spoken in your home?

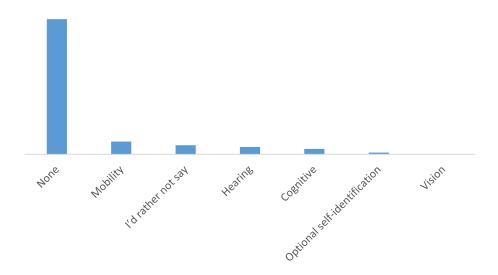
Answers	Percentage	Tally
English	100%	107
Amharic/Tigrinya	0%	0
Korean	0%	0
Mandarin/Cantonese	0%	0
Spanish	0%	0
Tagalog	0%	0
Vietnamese	0%	0
Other	0%	0
Total	100%	107

## What gender do you identify as?



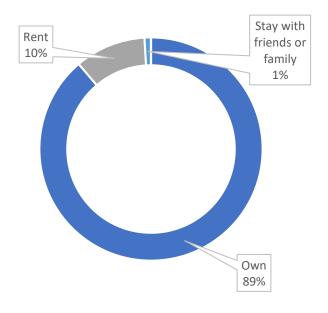
Answers	Percentage	Tally
Female	53%	56
Male	42%	44
I'd rather not say	3%	3
Non-binary	2%	2
Optional self-identification	0%	0
Total	100%	105

## Do you have a disability? Select all that apply.



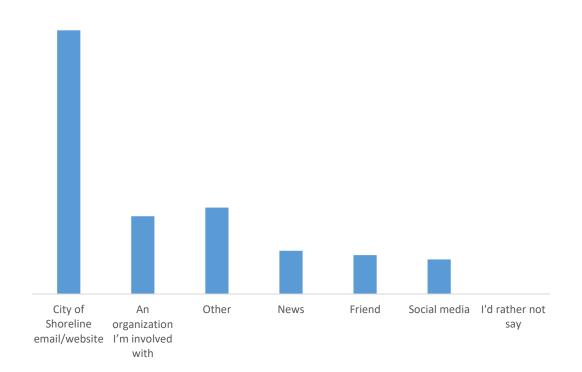
Answers	Tally
None	74
Mobility	7
I'd rather not say	5
Hearing	4
Cognitive	3
Optional self-identification	1
Vision	0

## What is your current housing situation?



Answers	Percentage	Tally
Own	89%	95
Rent	10%	11
Stay with friends or family	1%	1
Without housing	0%	0
Other	0%	0
I'd rather not say	0%	0
Total	100%	107

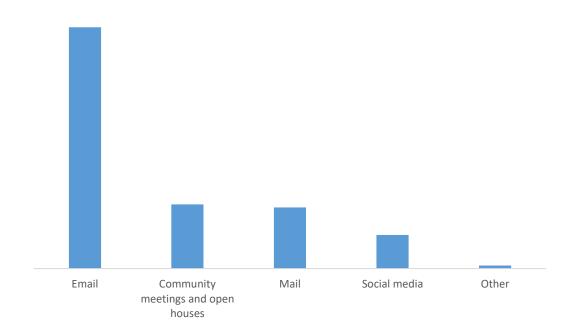
#### How did you learn about this project? Select all that apply.



Answers	Tally
City of Shoreline email/website	61
An organization I'm involved with	18
Other**	20
News	10
Friend	9
Social media	8
I'd rather not say	0

<sup>\*\*</sup>Reporting Note: This question unintentionally omitted "mailer" as an option. Several people who responded with "other" said they received a mailer from the City of Shoreline.

## What is the best way to stay in touch with you about this project? Select all that apply.



Answers	Tally
Email	79
Community meetings and open houses	21
Mail	20
Social media	11
Other	1