

West Seattle Link Extension

***Seattle Design
Commission Briefing***

*Package 2:
SODO Guideway,
Pigeon Point,
Duwamish Crossing
July 18, 2024*



Today's Agenda

- 1. Project Background
Context & Engagement
Corridor Opportunities
Long-Span Guideway Structures***
- 2. Pigeon Point***
- 3. Duwamish Crossing***



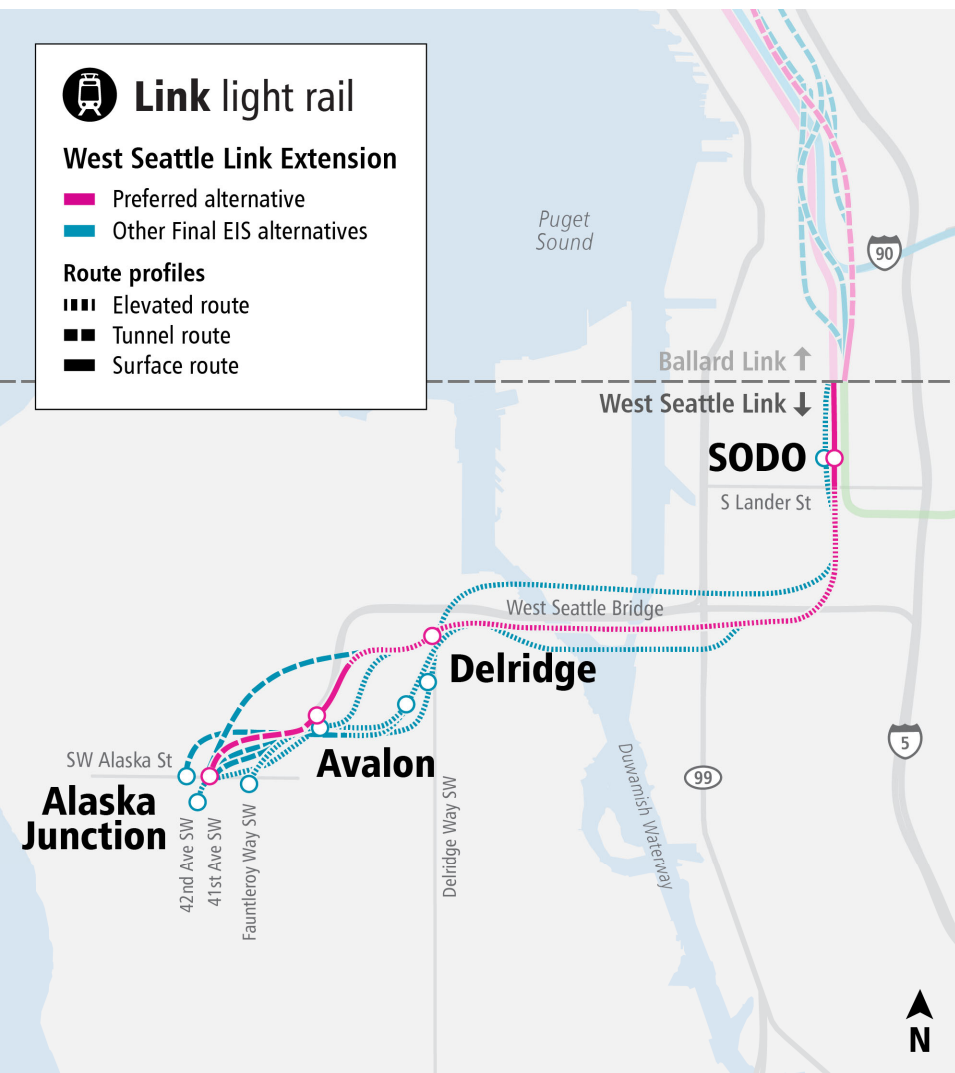
Link light rail

West Seattle Link Extension

- Preferred alternative
- Other Final EIS alternatives

Route profiles

- Elevated route
- Tunnel route
- Surface route



West Seattle Link Extension (WSLE)

- ✓ Included in Sound Transit 3 (ST3) plan passed by voters in 2016.
- ✓ Provide fast, reliable light rail connections in the SODO, Delridge and West Seattle neighborhoods.
- ✓ 4.1 miles of light rail service with 4 stations.

WSLE Project timeline





PLANNING

2017–2019

Alternatives development

- ✓ Feb–March 2018: Early scoping
- ✓ Feb–April 2019: Scoping
- ✓ May–Oct 2019: Board identified preferred alternatives and other DEIS alternatives



2019–2024

Environmental review

Early 2022: Publish Draft EIS

Public comment period

Board confirms or modifies preferred alternatives

2024: Publish Final EIS

Board selects project to be built

Federal Record of Decision

PUBLIC INVOLVEMENT



DESIGN

2024–2027



Final route and station design

Station naming

Identify artists for station art

Property acquisition/relocation

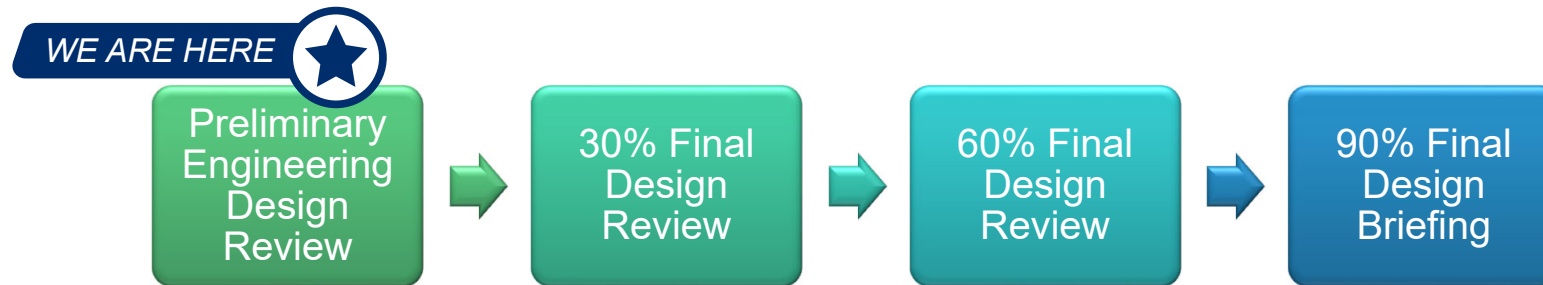
Early construction activities

Construction contract procurement

Permitting

PUBLIC INVOLVEMENT

Final Design Milestones



- *Future design reviews in Final Design*
- *Each review informs the next phase*
- *Design Element Matrix identifies key elements for each phase*

Context and Engagement

Original Stewards and Displacement



Historic House on Shilshole

Hwehlchtid's house at Shilshole with canoe anchored offshore, circa 1905

Image Source :UW Libraries - "City of the Changers: Indigenous People and the Transformation of Seattle's Watersheds," by Coll Thrush, Pacific Historical Review, (2006) Vol. 75, No. 1

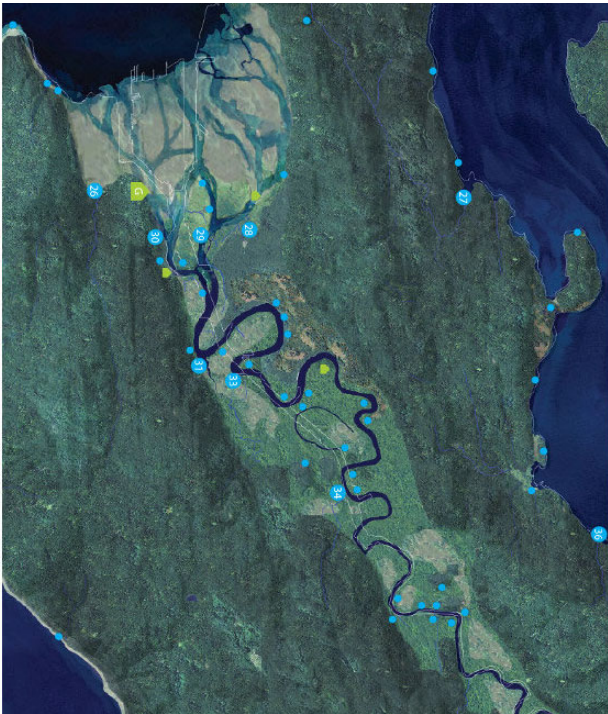


Displacement by Settlers

Ballast Island – camp for displaced native peoples circa 1890-1944

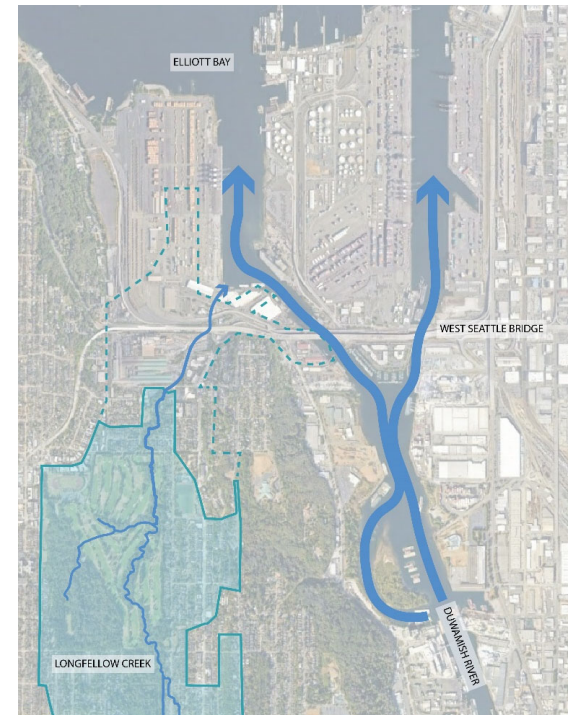
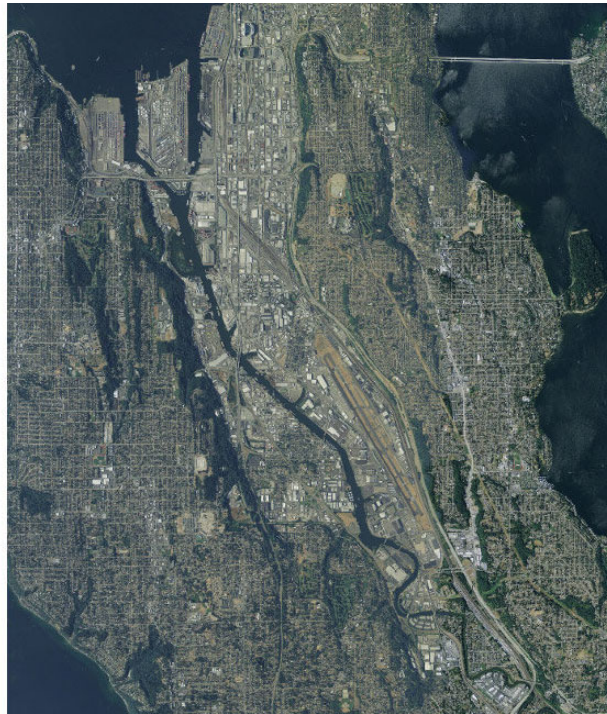
Image Source: MOHAI, David T. Denny Jr. Family Papers

Waterway History



Duwamish Waterway

Image source: The Waterlines Project – Burke Museum



Longfellow Creek Watershed

Duwamish Waterway & Tribal Practices



Annual Tribal Fishing

Since time immemorial Tribes have fished on the local waterways as their main source of nourishment and substance

Image Source: MOHAI, David T. Denny Jr. Family Papers



Tribal Transportation

Canoeing on the Duwamish River is just one of many ways Coastal Salish people are active in and present in the Pigeon Point area

Image source: UW Department of Environmental & Occupational Health Sciences

Tribal Engagement

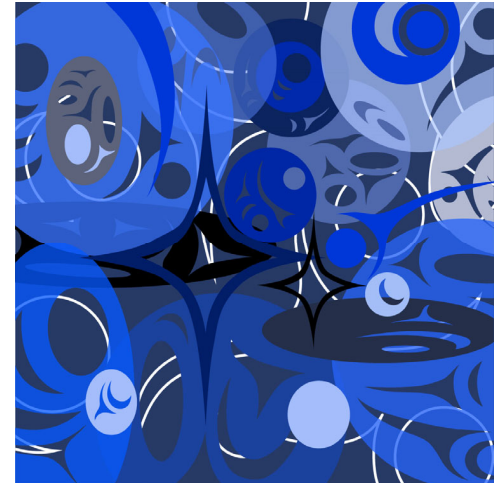
***Federal Consultation on Cultural Resources
and Fisheries***

***Engagement with Federally and non-Federally
recognized Tribes to understand concerns and
desires for Project***

Tribal Engagement

Themes from Tribal Engagement:

- ***Education of public on Indigenous history***
- ***Preserve culture***
- ***Restore natural environment***
- ***Increase access to natural resources***
- ***Protect cultural resources***



Anthony Duenas, Puyallup Tribe of Indians, Sounder Tacoma Dome Station, 2024.

swelax - Power

Tribal Engagement

Project elements we have discussed with potential Tribal input:

- ***Station features***
- ***Art***
- ***Interpretive signage***
- ***Landscape design and restoration***
- ***Integrate Lushootseed into system***



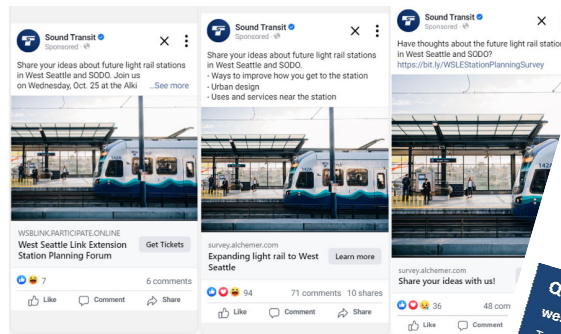
Qwalsius-Shaun Peterson, Puyallup Tribe of Indians, with his artwork for the Sounder Puyallup Station garage, the first artwork expressing the Tribe's heritage in the City named after the Tribe.

Community Engagement

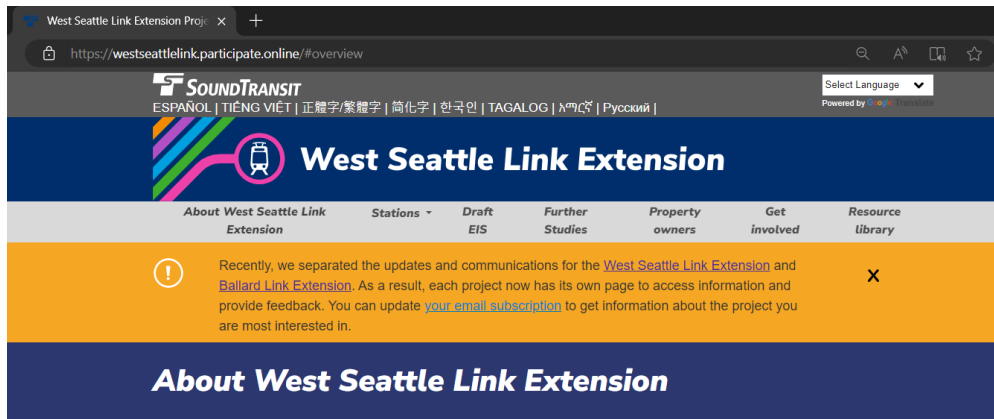
Public outreach efforts began in Feb 2018, with varied and broad-reaching methods

- ***Briefings***
- ***Open houses and neighborhood forums***
- ***Public hearings***
- ***Fact sheets and brochures***
- ***Community events***
- ***Project webpage***
- ***News media***
- ***Potentially Affected Property notification***
- ***Database***
- ***Targeted Outreach***

16



Adaptive, Creative, Accessible



The West Seattle Link Extension will provide fast, reliable light rail connections to dense residential and job centers in the SODO, Delridge, and West Seattle neighborhoods. The West Seattle Link Extension is part of the regional transit system expansion approved by voters in November 2016.

West Seattle Link Extension

- Adds 4.1 miles of light rail service from SODO to West Seattle's Alaska Junction neighborhood.
- Includes four new stations from SODO to Alaska Junction.
- Start of service scheduled for 2032.

West Seattle Link Extension project timeline

2016 Voter Approval ✓

2017-2024 Planning +

2024-2027 Design +

2027-2032 Construction +

West Seattle Link Extension Station Planning

Thank you to everyone that was able to attend our station planning events.

[Oct. 25, 2023 meeting materials](#)

[Station and Access Planning Engagement Summary](#)

[March 5, 2024 meeting materials](#)

Stay engaged!

Get upcoming project news and public involvement opportunities.

[Subscribe now](#)



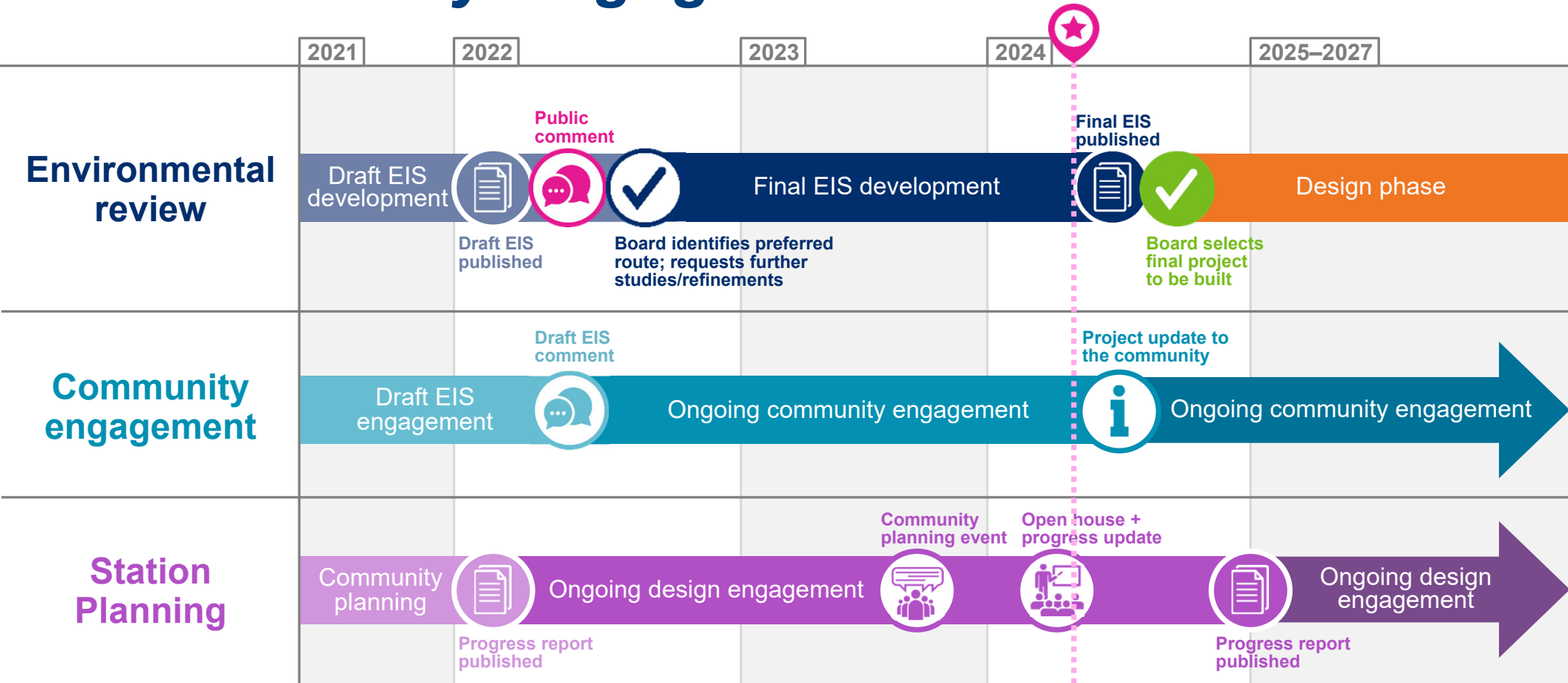
Capacity Building, Expanding Our Reach

Community liaisons focused on *Delridge corridor in the RET communities*, provided strategic guidance/support with:

- Door-to-door business outreach
- Engaging at community events, fairs, festivals and other tabling opportunities
- Ethnic media and community presentations
- Enhancing in-language accessibility, commenting and feedback
- Recruiting in-language focus groups participants



Community Engagement Schedule



WSLE Station Planning Engagement



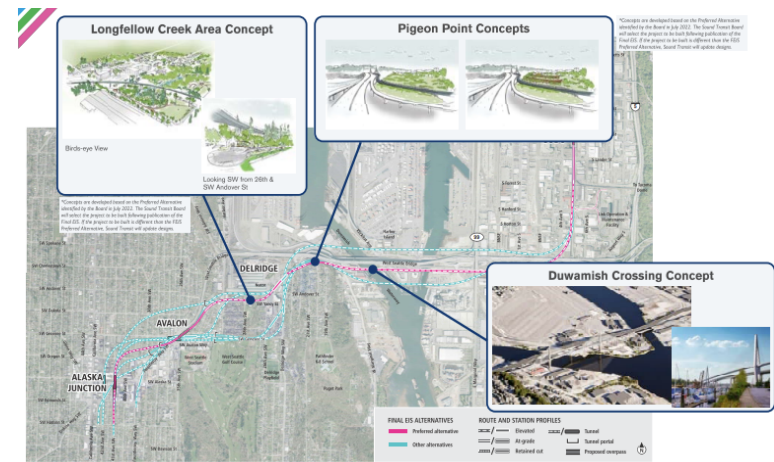
Two WSLE Open Houses in West Seattle; two SODO drop-in

Oct. 25, 2023 West Seattle Station Planning Forum

- ✓ Nearly 200 people attended.
- ✓ 1,232 completed English and in-language online survey.
- ✓ Gathered feedback on access, urban design, and transit-oriented development (TOD) topics.

Mar. 5, 2024 West Seattle Station Planning Open House

- ✓ Nearly 230 people attended.
- ✓ Shared station design progress and a summary of community priorities based on feedback we heard in Fall engagement.
- ✓ Opportunity for additional inputs.



Material from Mar. 5 WSLE Open House

WSLE Station Planning Engagement (Fall '23-Spring '24)



1,232

Completed English and
in-language online survey



2

In-person
Open Houses

engaging more than

425

attendees



2

In-person WSLE SODO drop-in



2

In-language focus groups

Vietnamese; Somali and other East African
languages



8

email updates

engaging more than

12,417

subscribers



Materials translated into multiple languages
to support equitable engagement



10

Community briefings



6

Fairs, festivals and other
tabling events



Ads

featured on 11 unique and local
digital publications



360K

Impressions

on social media posts

2,000+ link click



900+ posters

delivered along
the corridor

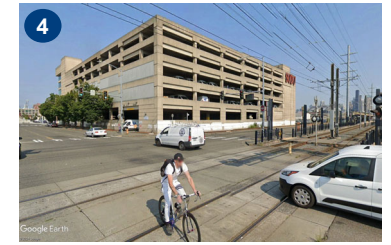


6

Community
liaisons

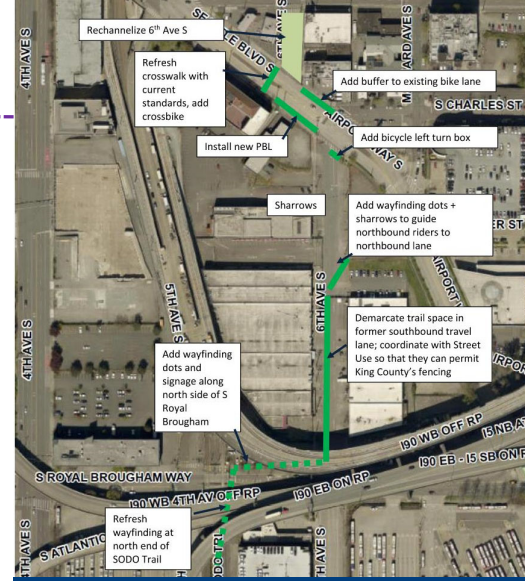
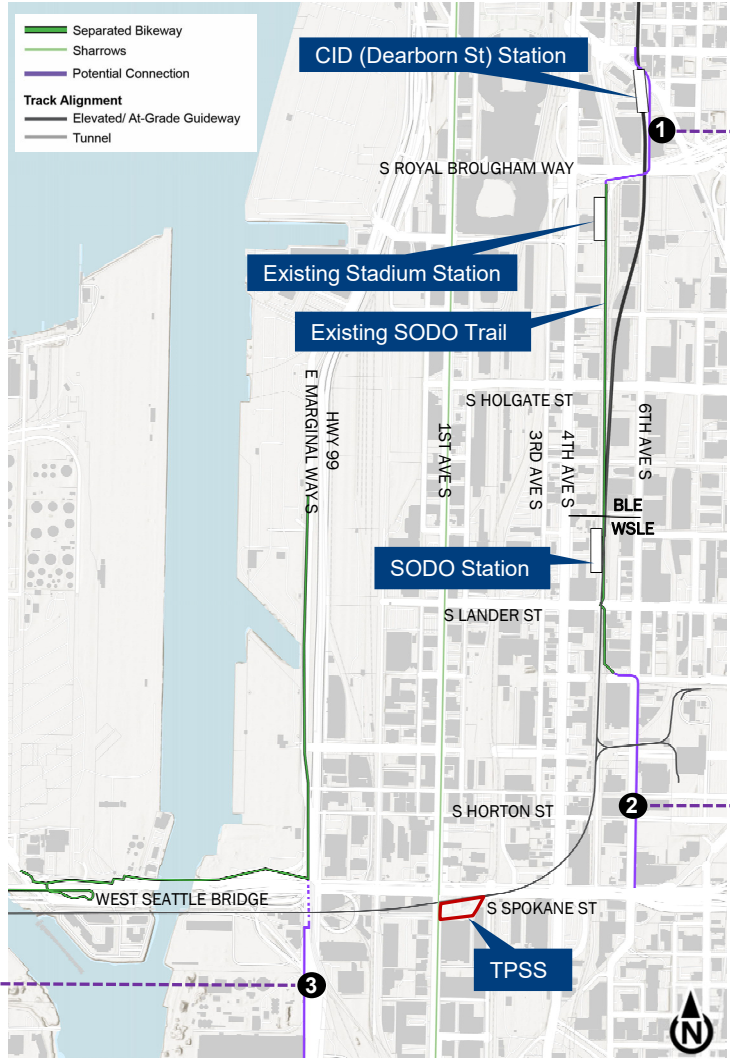
engaging Delridge corridor's
RET communities and local
businesses

Corridor Opportunities

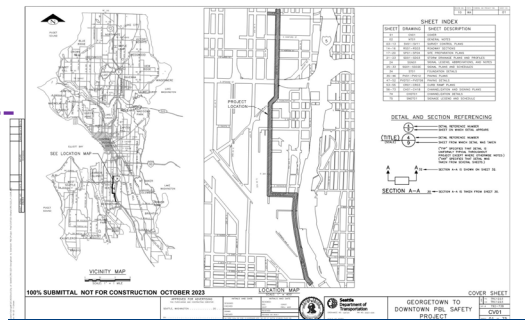




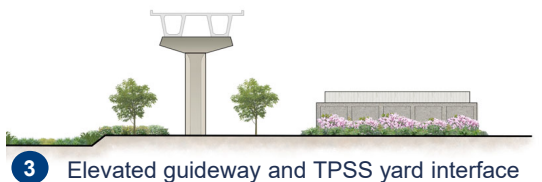
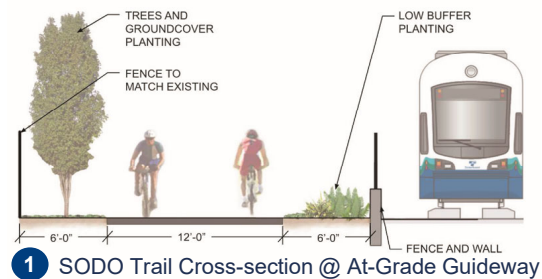
E Marginal Way Corridor Improvement project – City of Seattle



Georgetown to Downtown – City of Seattle



Georgetown to Downtown – City of Seattle



SODO Station & Trail



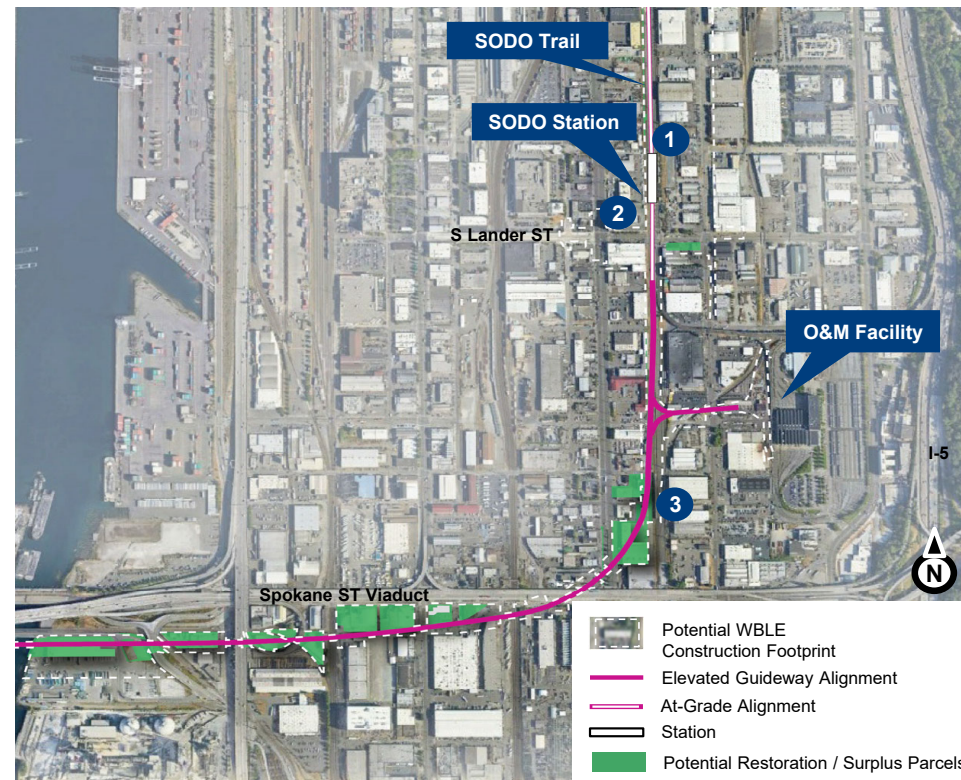
"Stitch" Art Sculpture in Evanston, IL

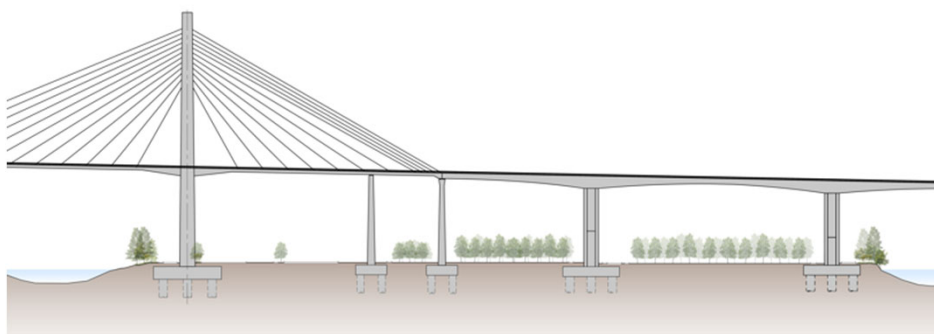
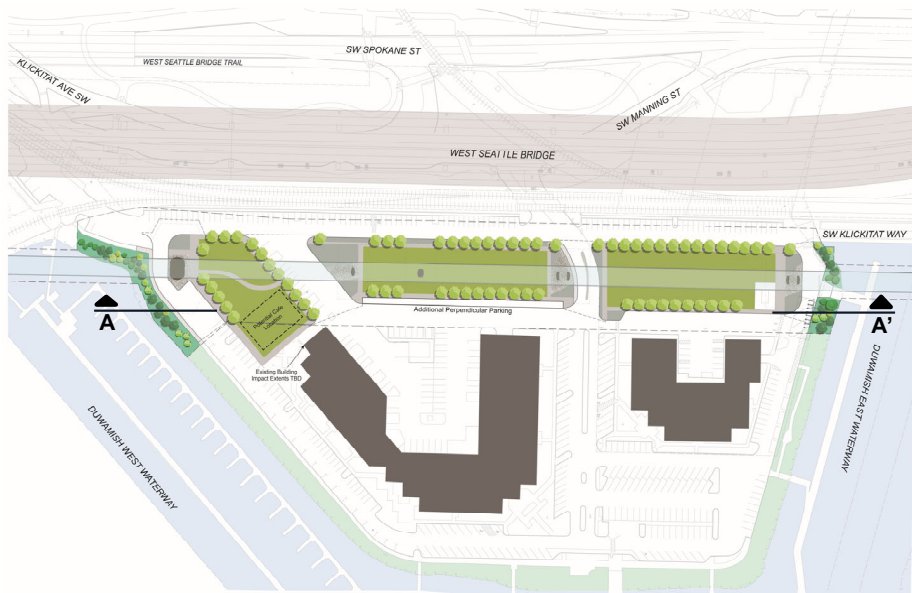


GSI at Northgate Station / Seattle, WA

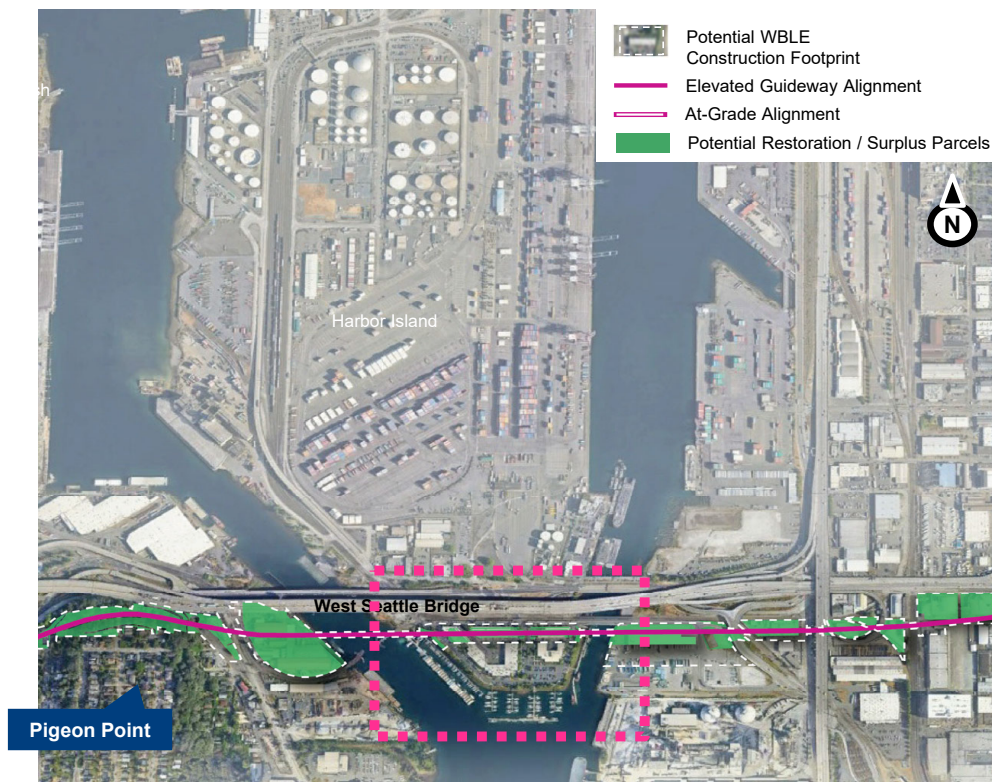


Story Wall in Eskilstuna, Sweden





Section/Elevation A-A'



Pigeon Point



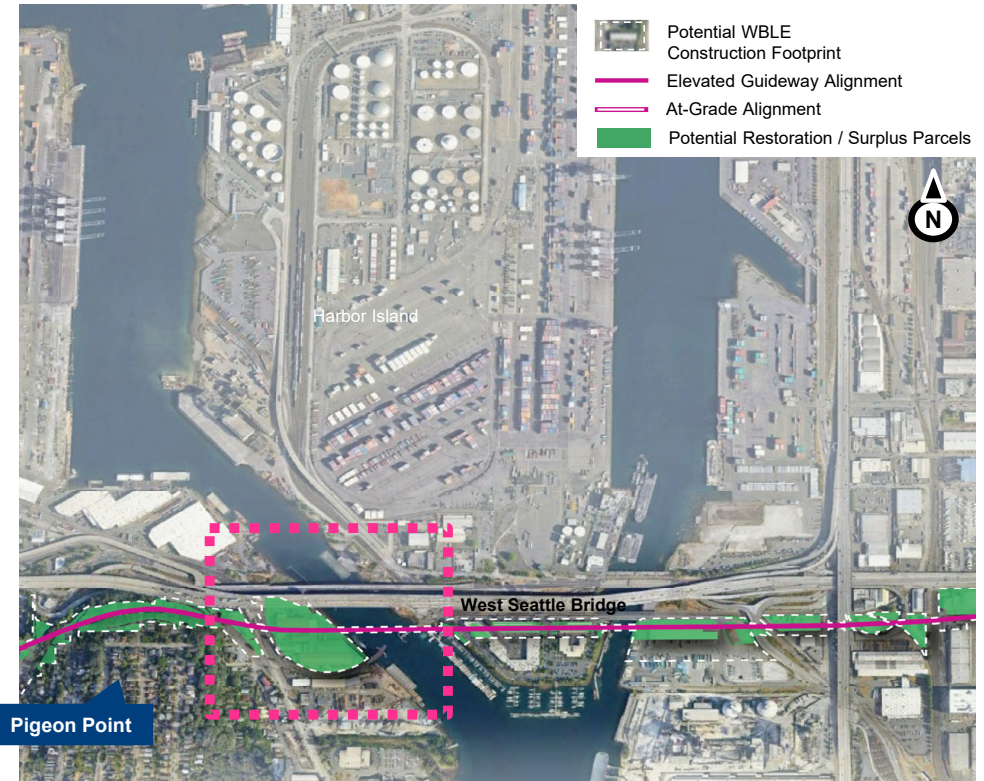
Wilburton Station, Bellevue, WA



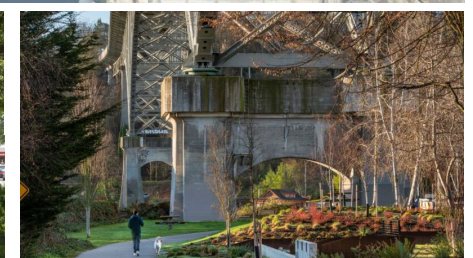
Aurora Bridge Bioswales, Seattle, WA



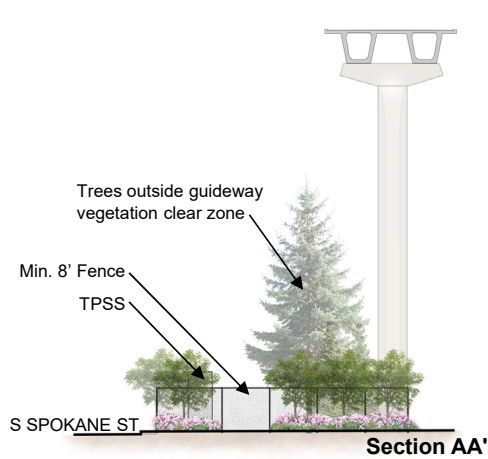
Section A-A'



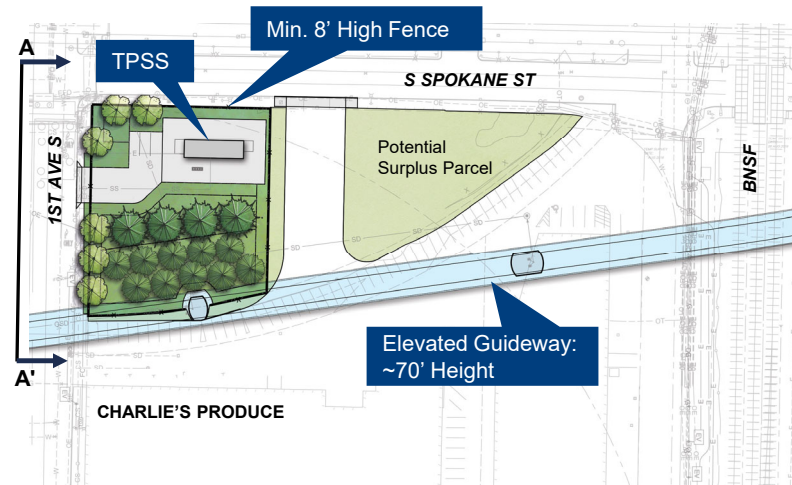
Skytrain, Richmond, BC



Aurora Bridge Bioswales, Seattle, WA



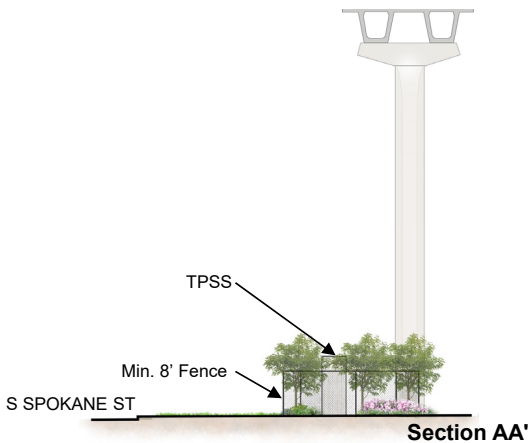
PE Concept: TPSS @ 1st Ave S & S Spokane St Intersection



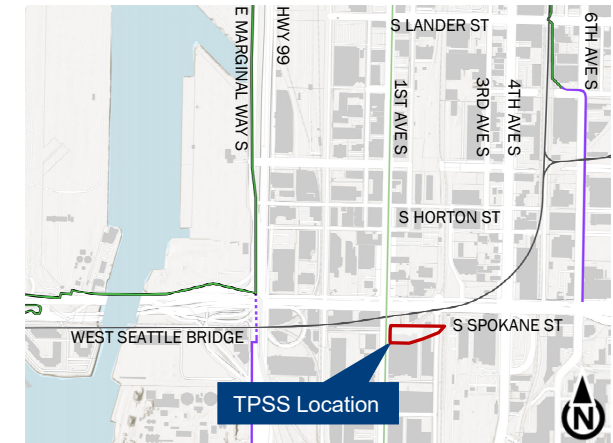
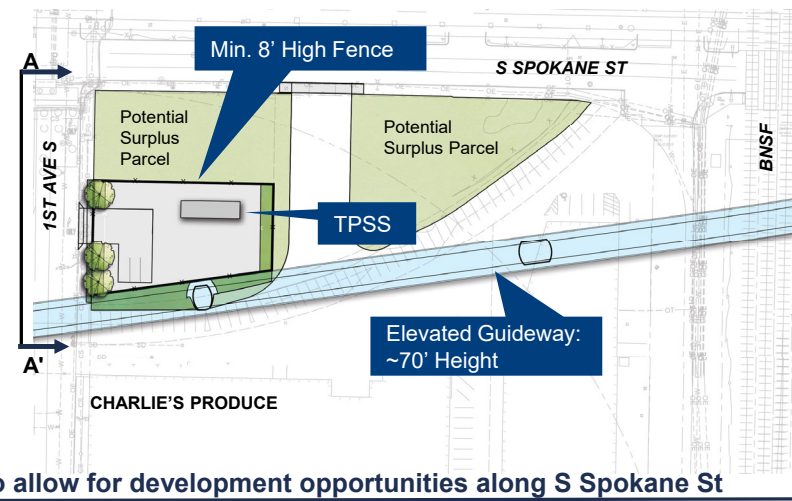
Note: TPSS Enclosures are designed to reflect surrounding neighborhood



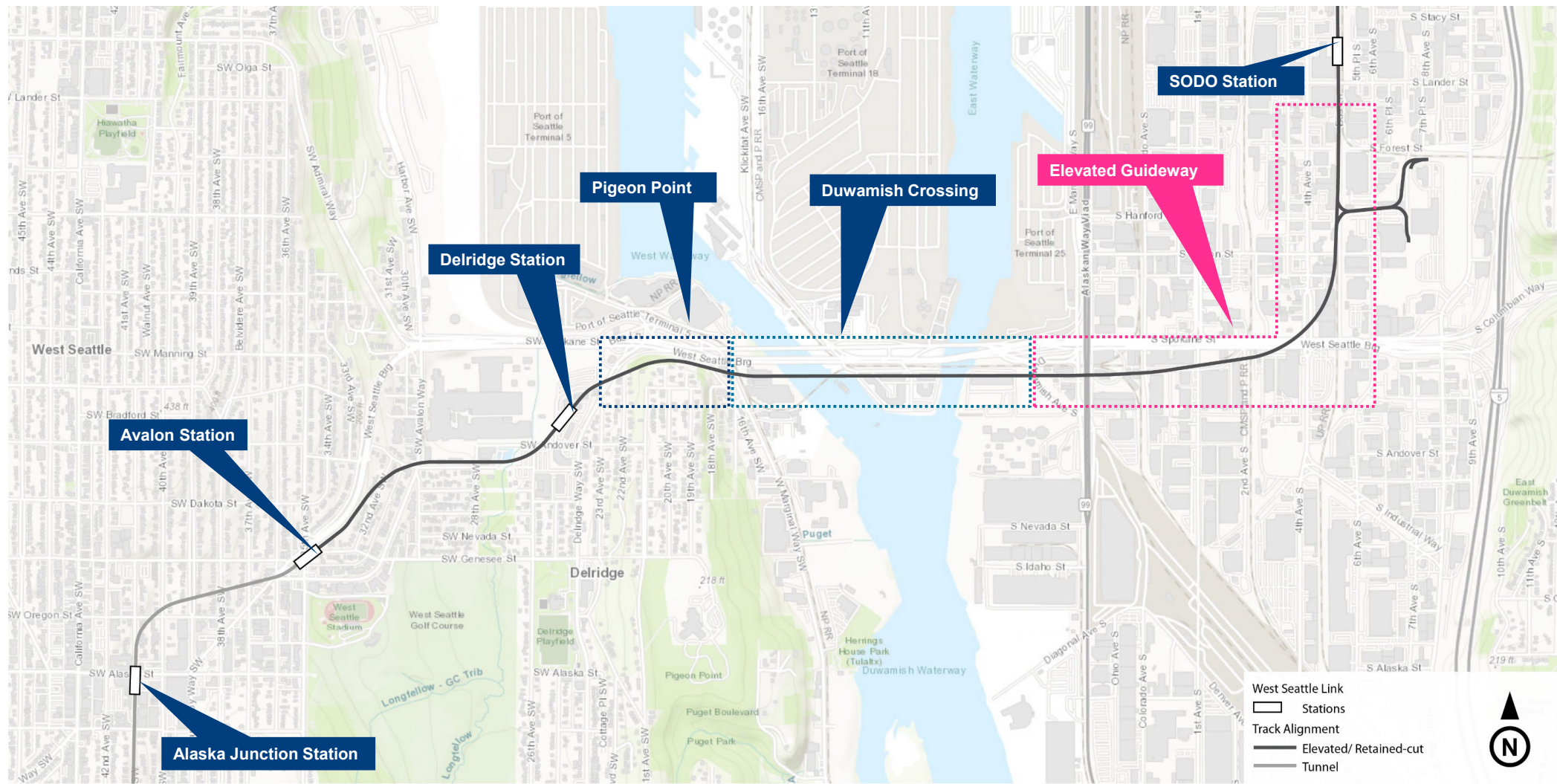
TPSS Enclosure Example (Eastlink)



Alternative: TPSS close to Guideway to allow for development opportunities along S Spokane St



Long-Span Guideway Structures



Long-Span Guideway

- ***Superstructures are segmental box girders with balanced cantilever construction***
- ***Segmental box girders are selected for functionality, structural efficiency, redundancy, previous ST practices, and minimum on-ground impact***
- ***Majority of piers are double-leaf columns with a fill section between the two leaves near the bottom for tall piers***
- ***Double-leaf columns are evolutions from previous ST projects***
- ***Piers are envisioned to be compatible with the cable-stayed piers***

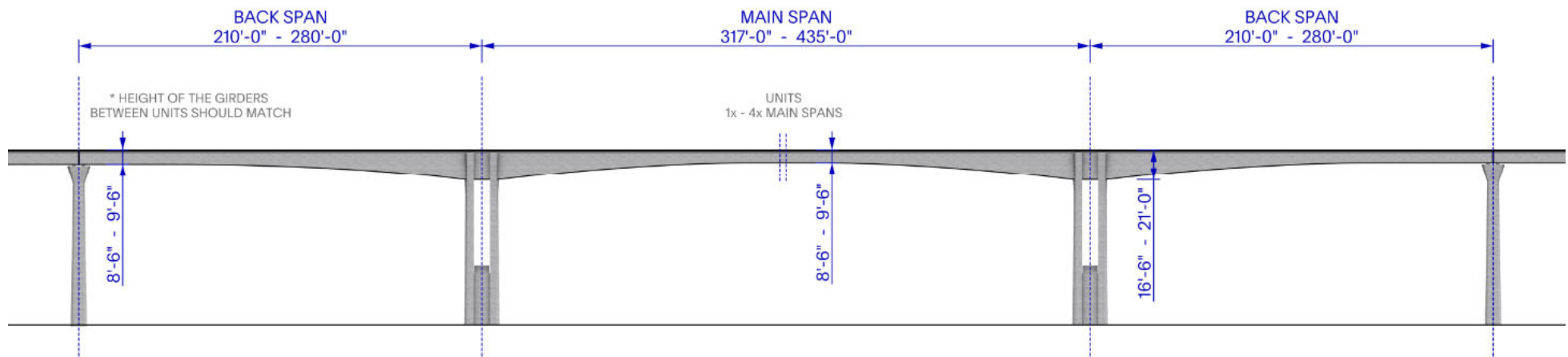
Central Link Examples



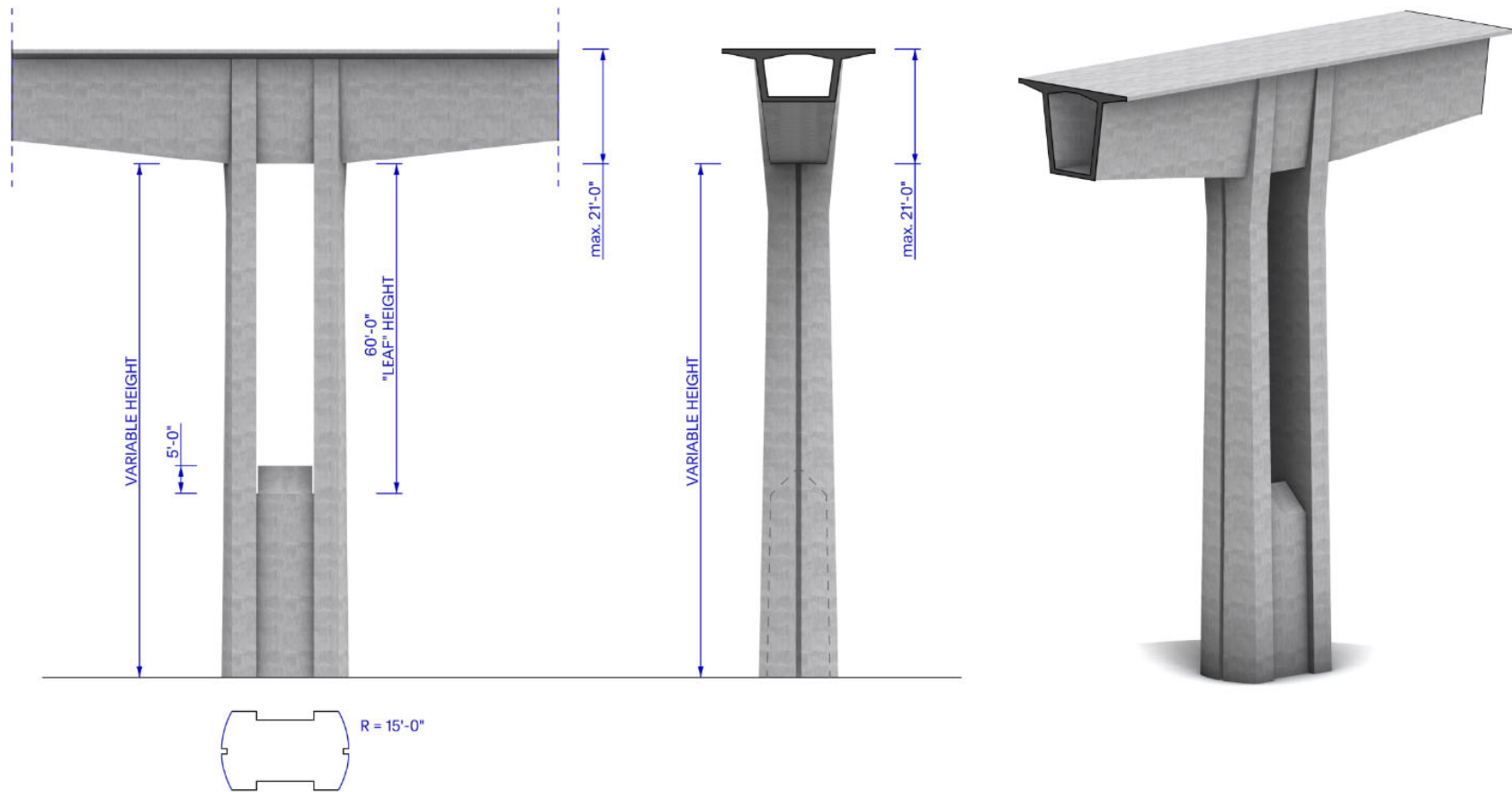
East Link Examples



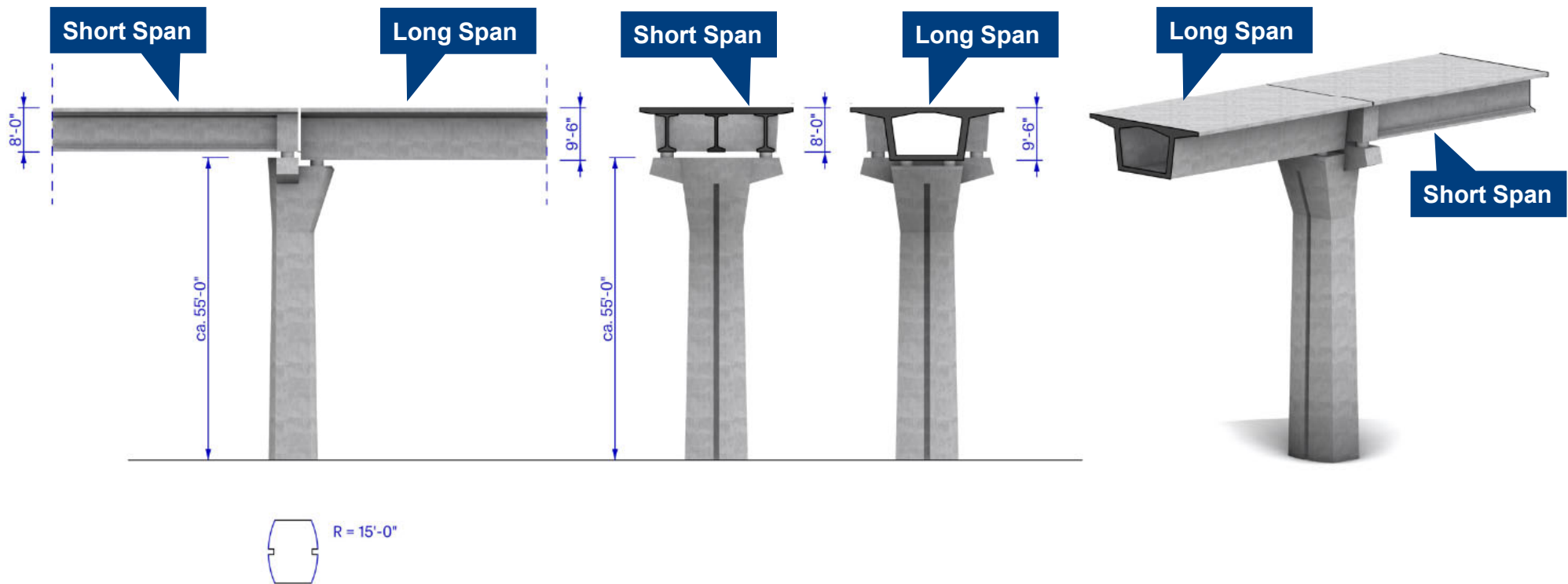
Proportion and Scale: Principle



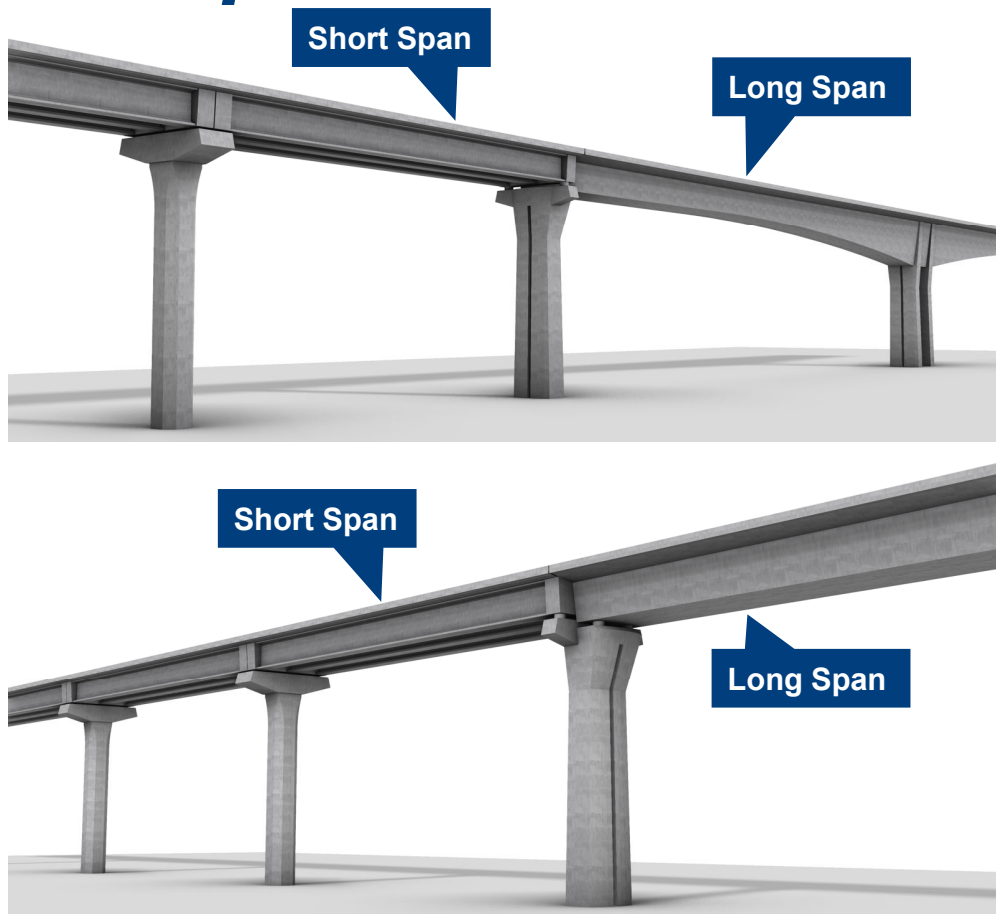
Proportion and Scale: Integral Piers



Proportion & Scale: Transition to Short Span

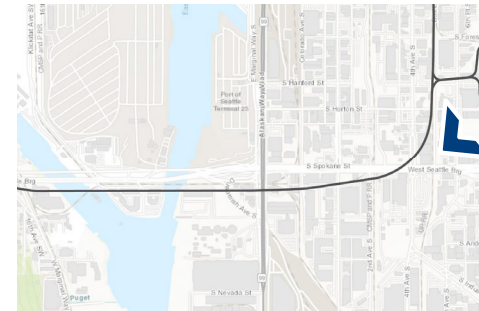


Proportion & Scale: Transition to Short Span



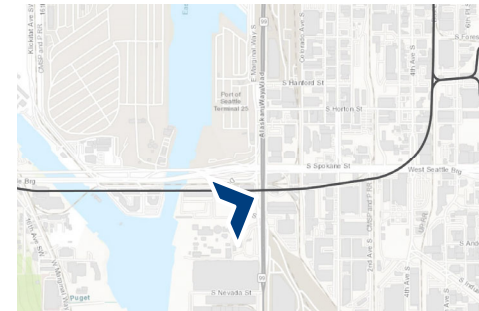
- Typical short spans are prestressed I-girders
- Columns are octagonal with a cap
- I-girders and octagonal columns have been widely used in other Sound Transit projects, including East Link, Lynnwood Link, and Redmond Link Extensions

View of Structure from Busway



Key Plan

View of Structure from E. Marginal Way S.



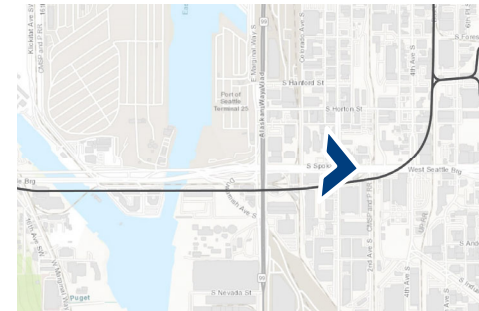
Key Plan

View from West Seattle Bridge



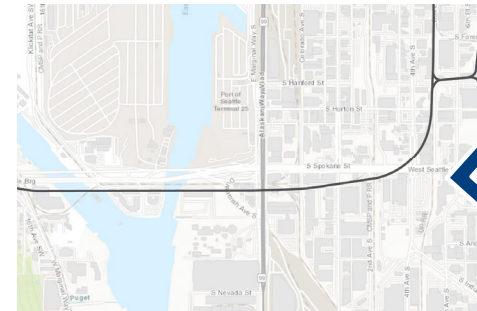
Key Plan

View from West Seattle Bridge



Key Plan

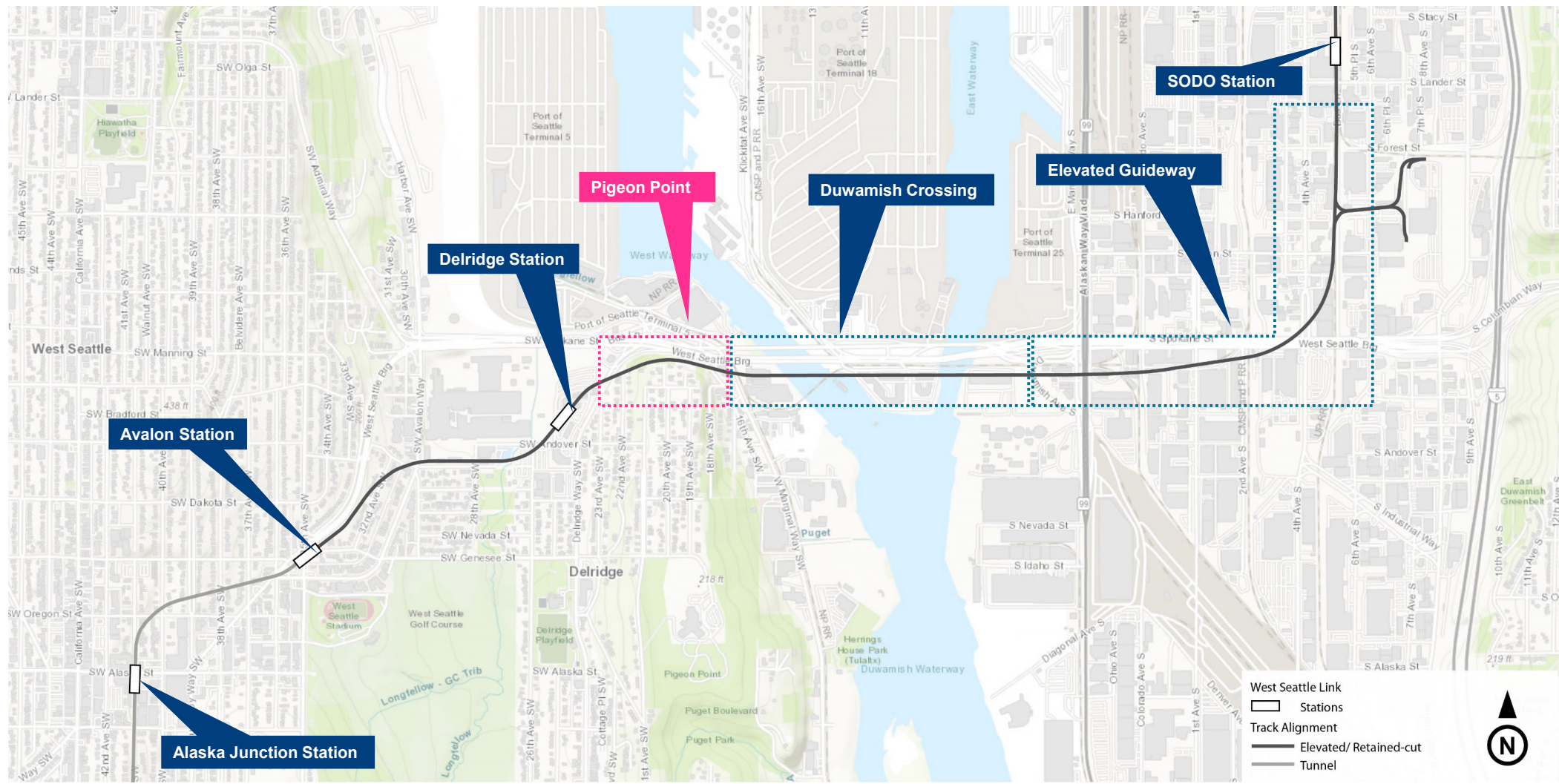
View from Columbian Way Ramp



Key Plan

Q&A / Discussion

Pigeon Point



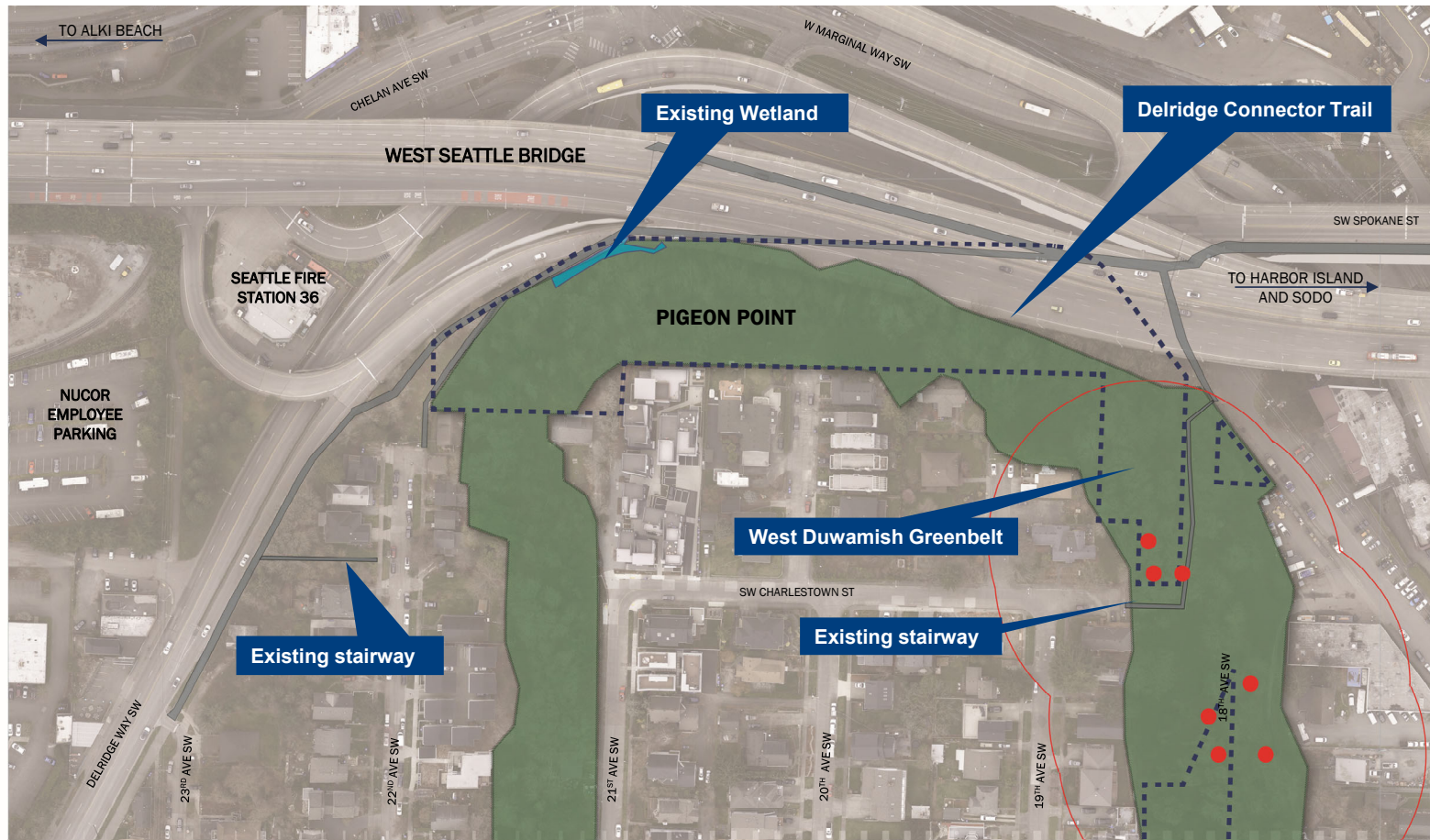
Engagement – Pigeon Point

- ***Briefings with the Pigeon Point Neighborhood Association, Duwamish Alive Coalition and Delridge Neighborhood Development Association***
- ***Briefings with West Seattle Bike Connections***
- ***Meetings with Tribes, Washington Department of Fish & Wildlife (WDFW) and U.S. Fish & Wildlife Service (USFWS)***
- ***Meetings with community organizations, including Birds Connects Seattle, Heron Habitat Helpers, Urban Raptor Center***
- ***One-on-one Meetings with property owners and tenants***

Neighborhood Pride



Habitat

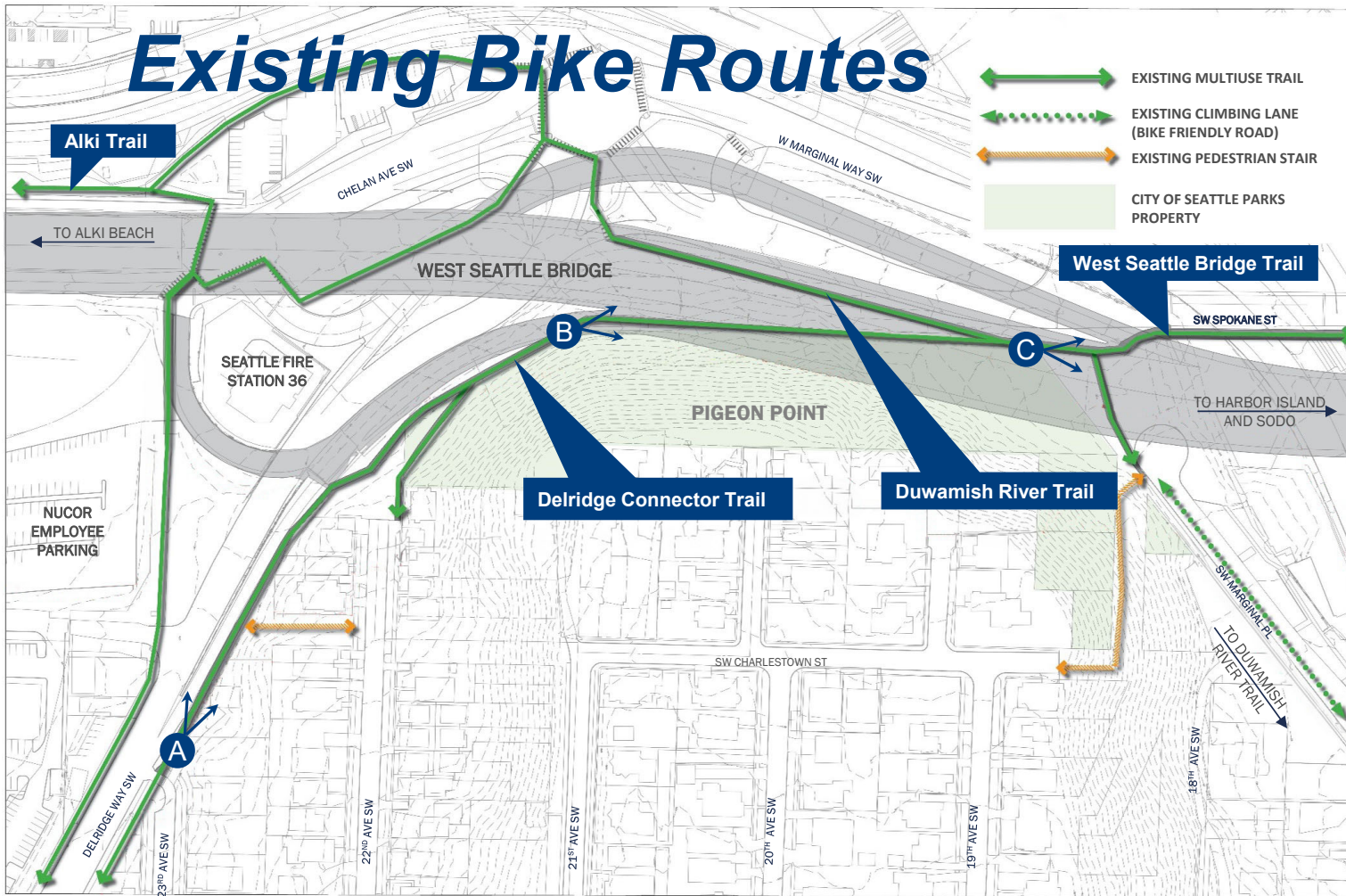


Heron Habitat



- *Sound Transit has been monitoring the heron rookeries since 2020 and we will continue to monitor as we advance design.*
- *Based on the current design and locations of heron nests, we don't anticipate impacting trees where heron nests are located.*





A



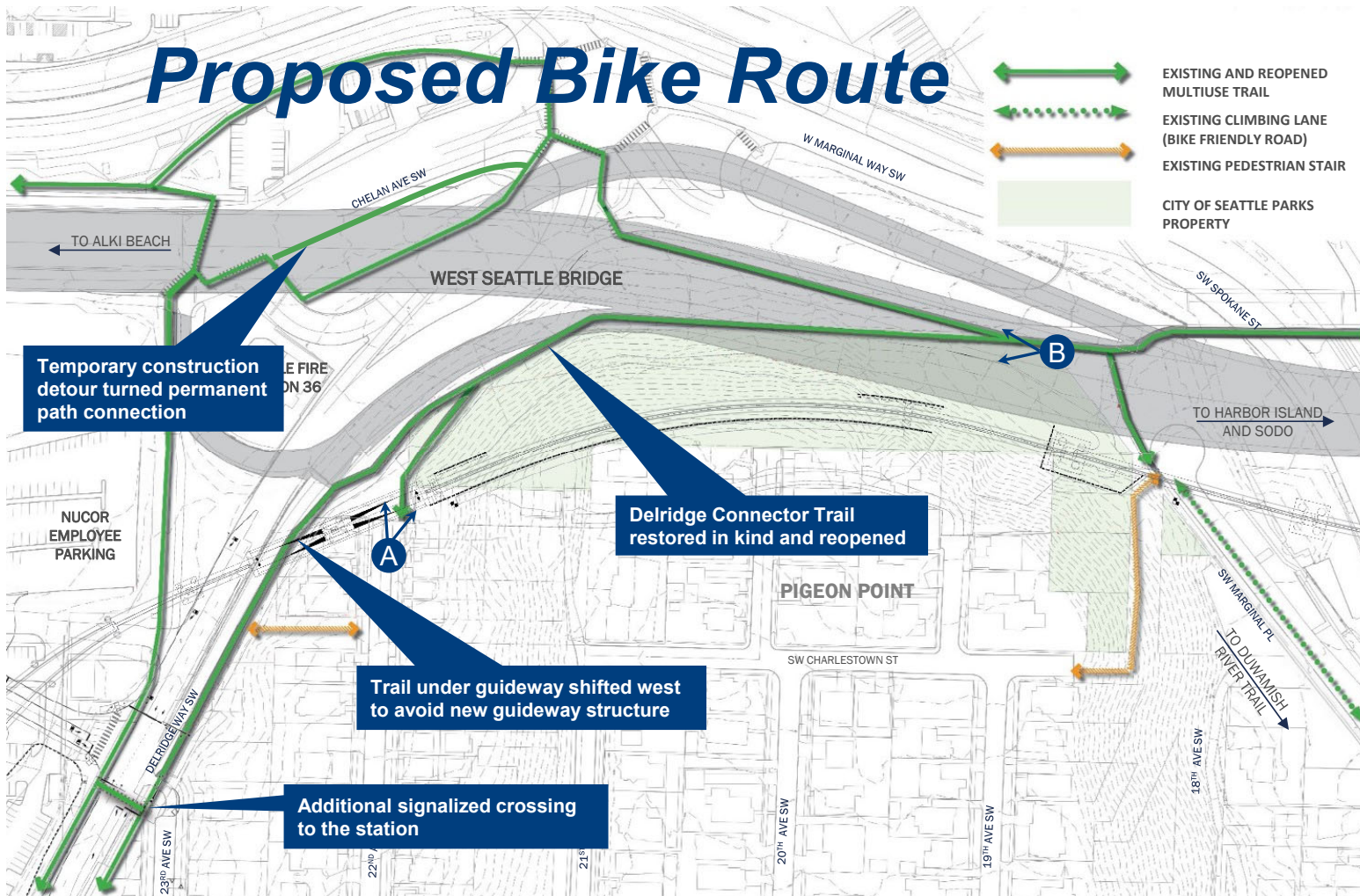
B



C



Proposed Bike Route



A

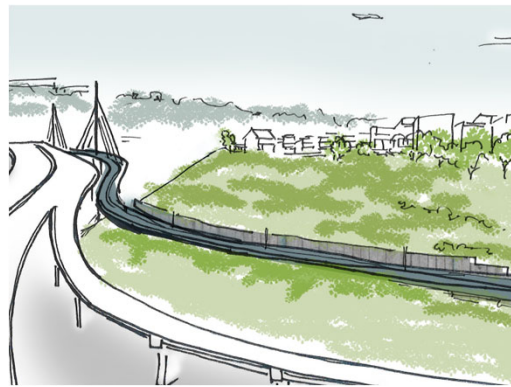


B



Restoration Concept Development

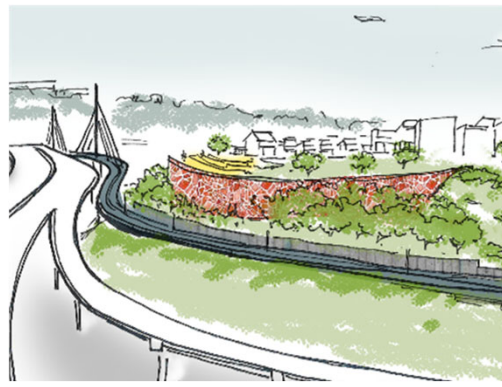
Concept Development



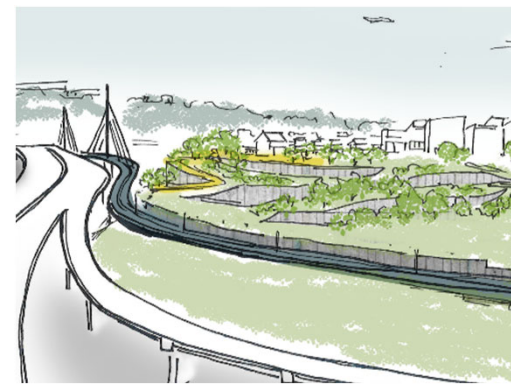
Baseline



Terraces

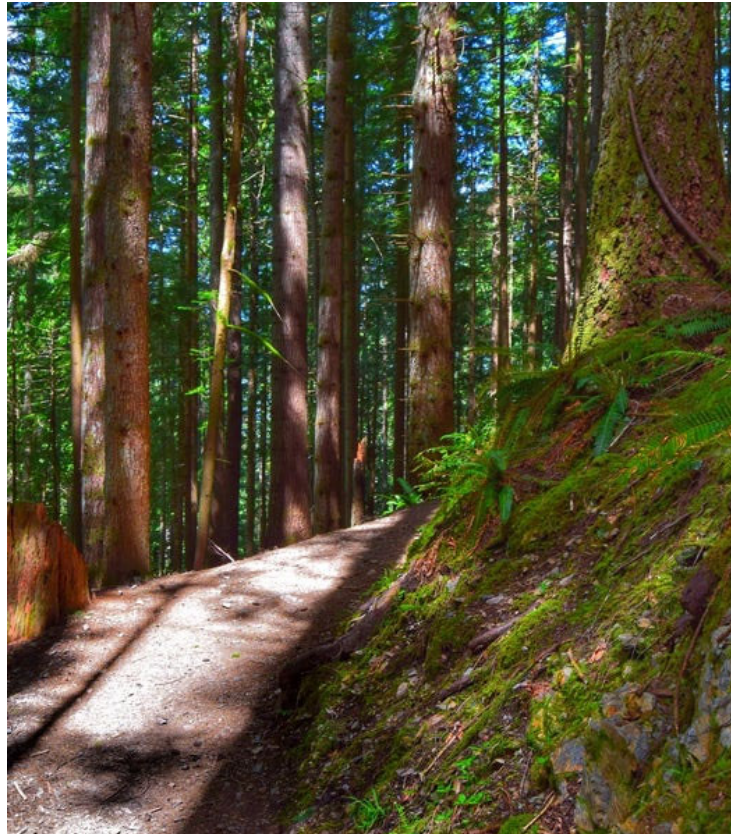
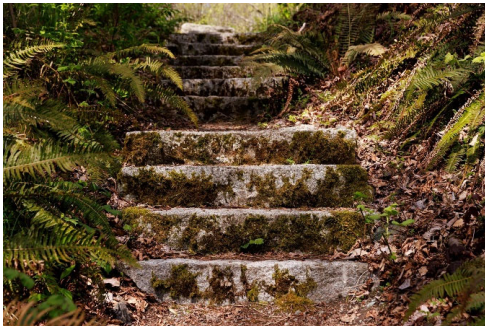
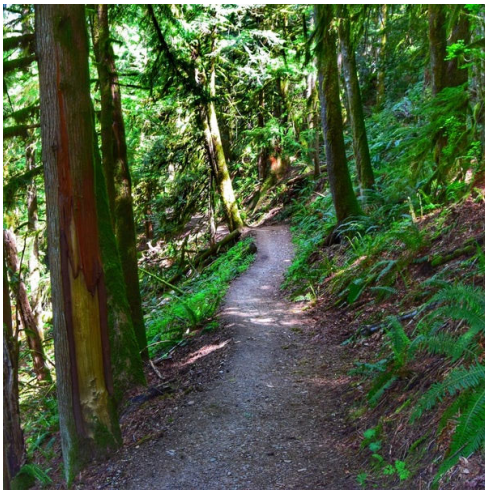


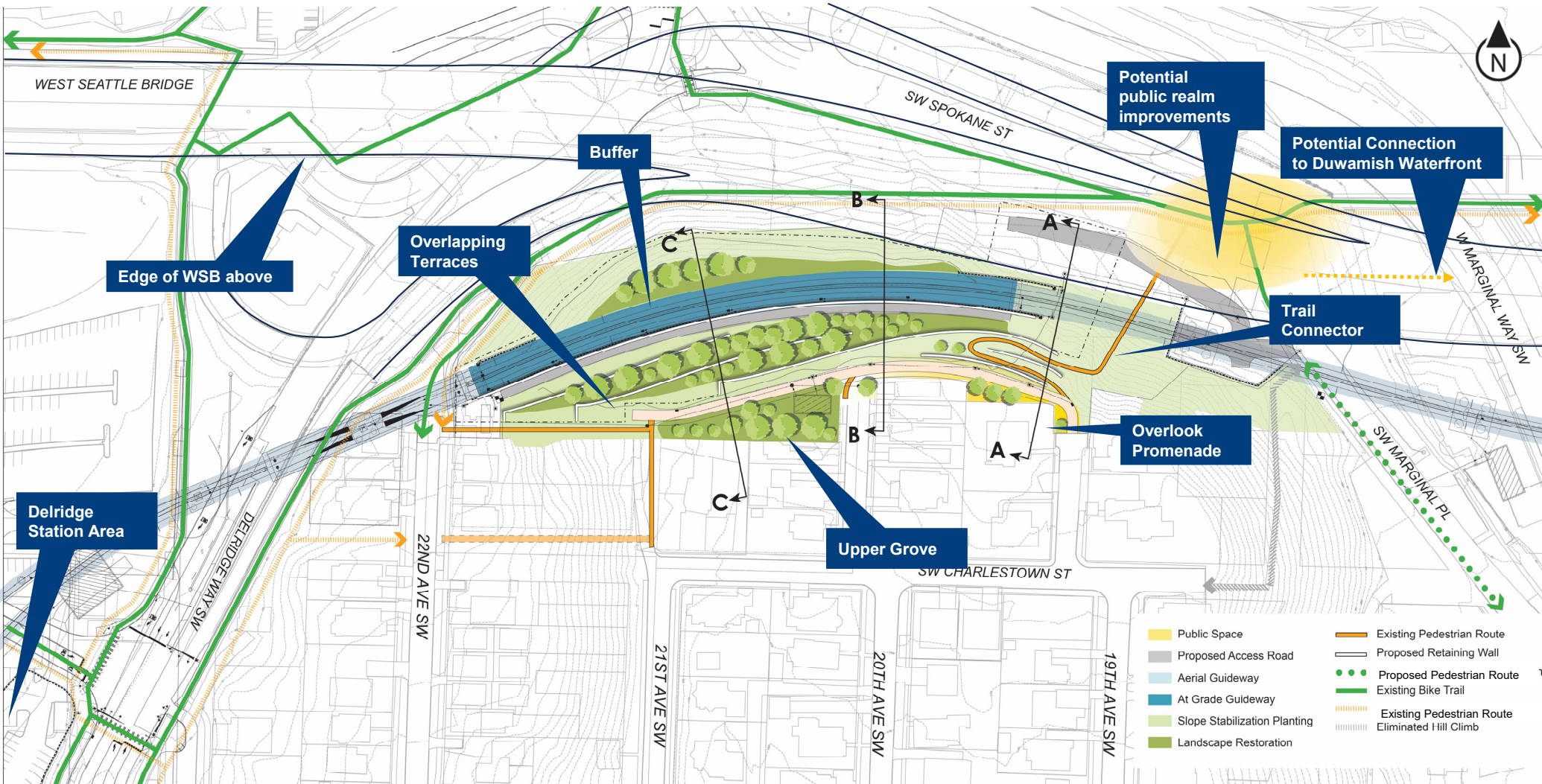
One Wall

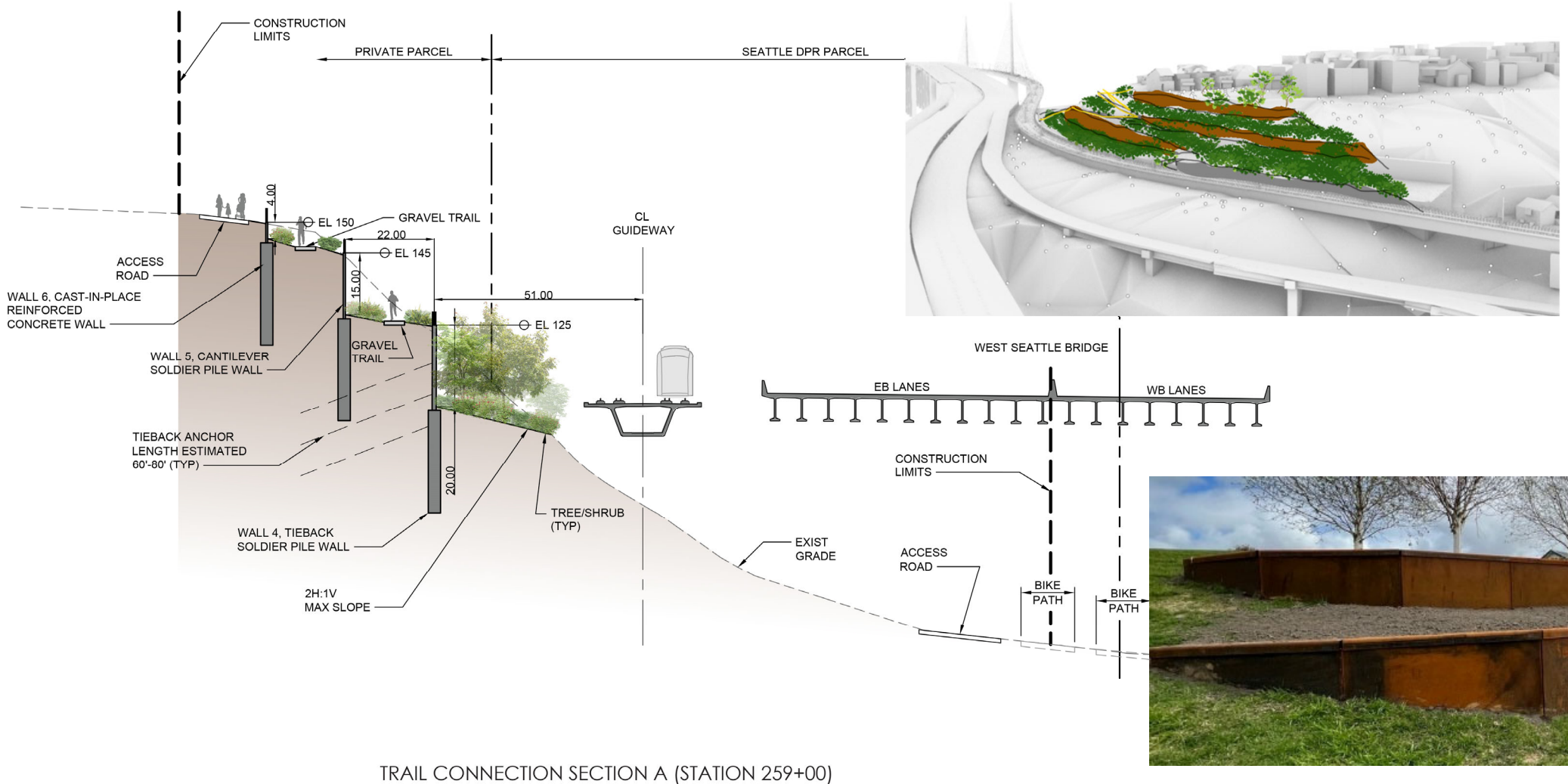


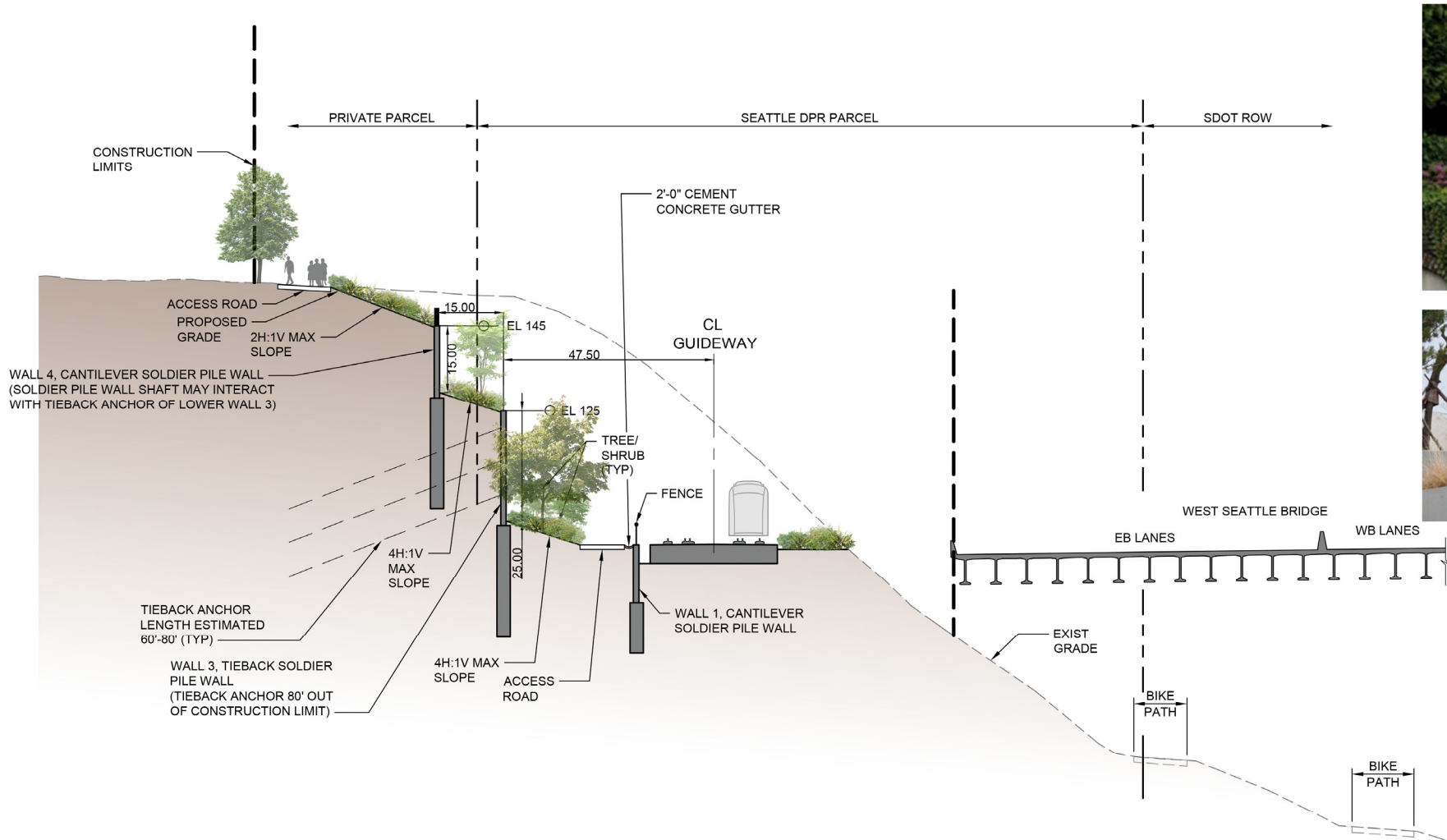
Trail

West Duwamish Greenbelt Trails

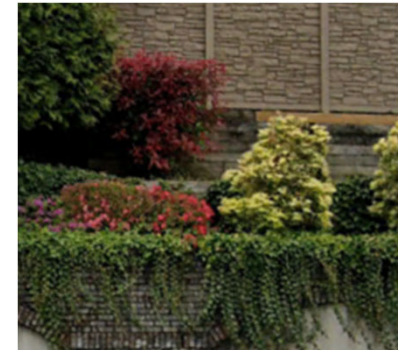


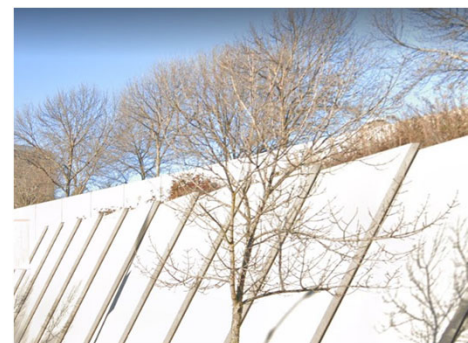
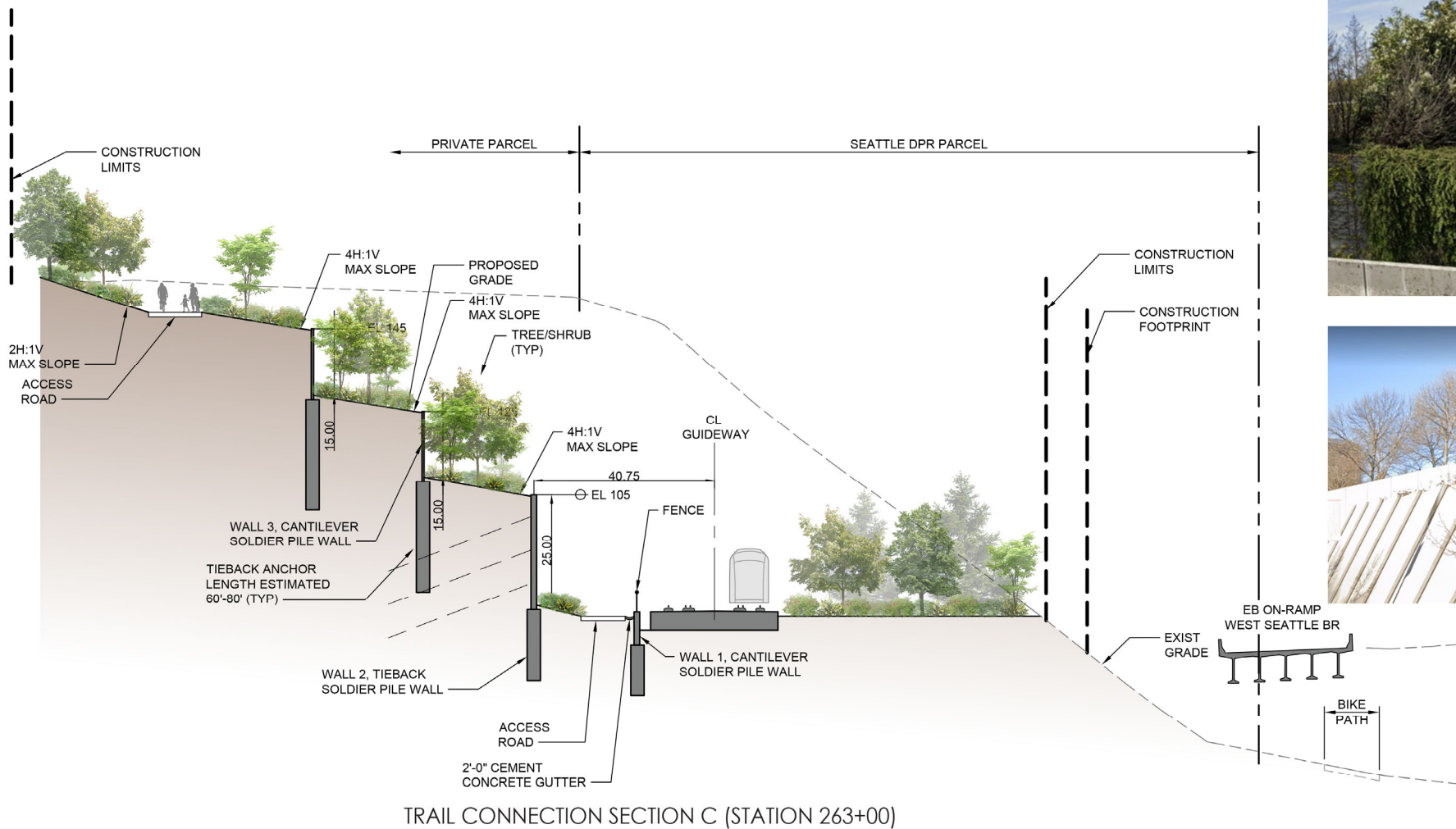


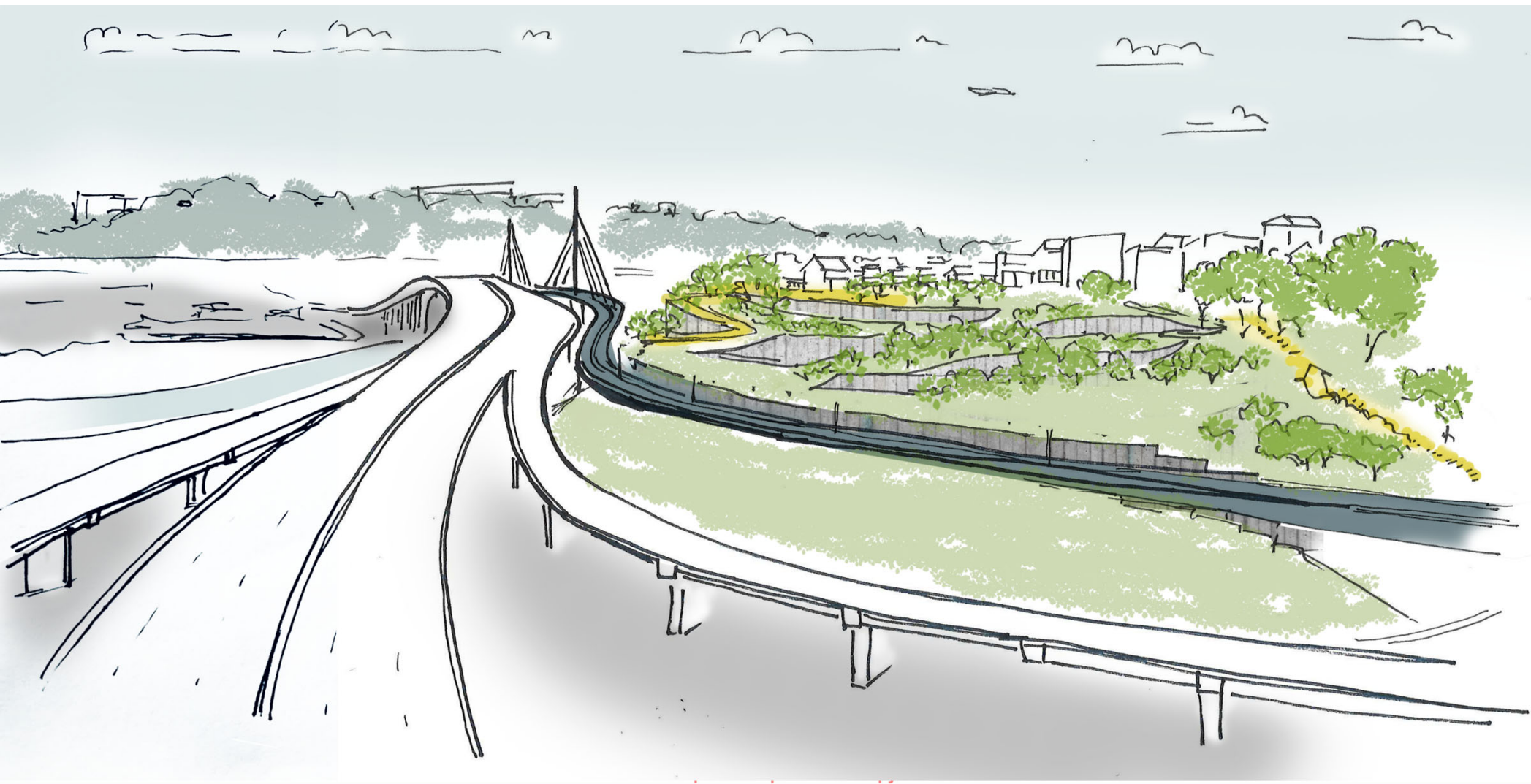




TRAIL CONNECTION SECTION B (STATION 261+00)

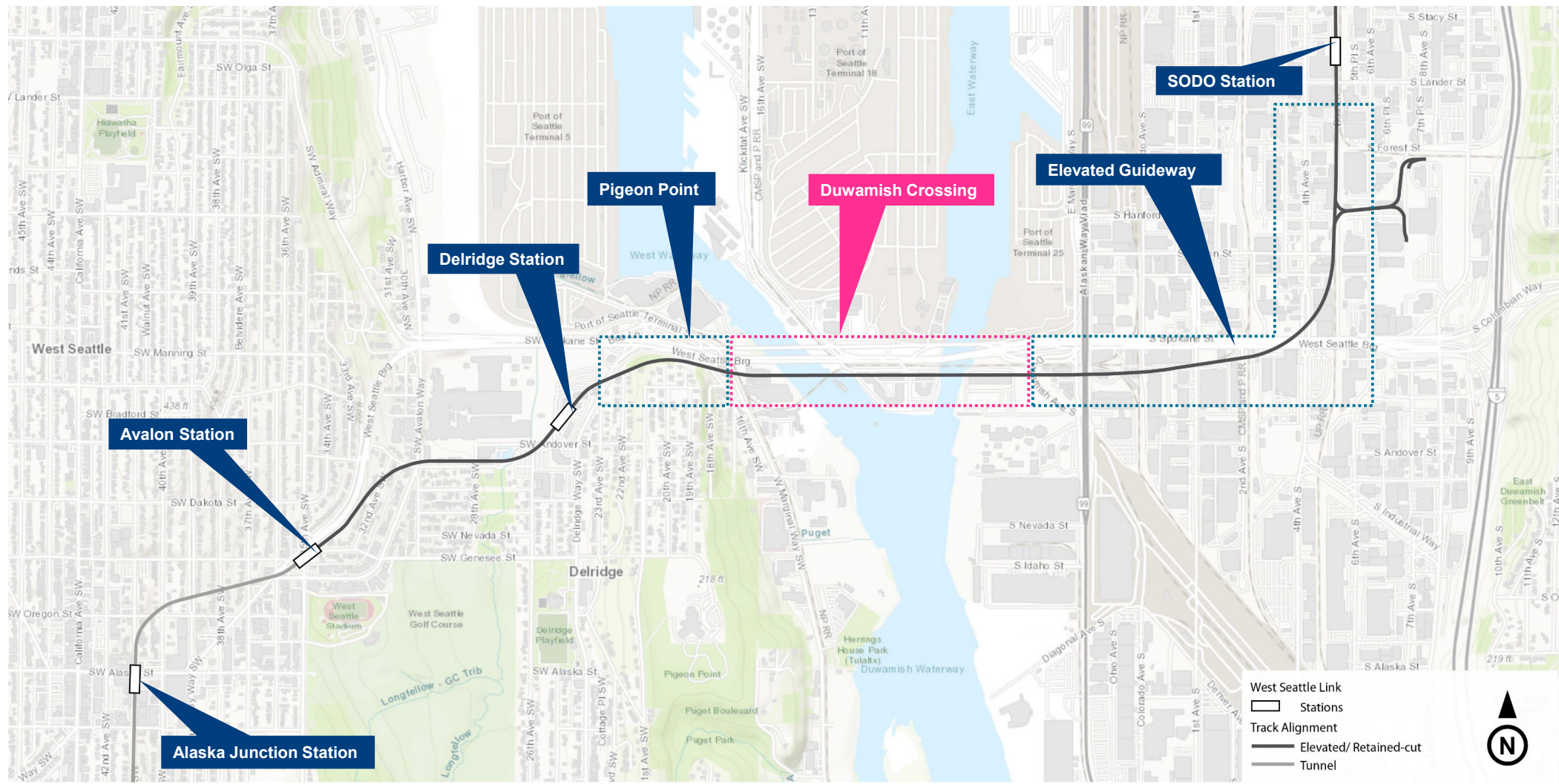






Q&A / Discussion

***PE Design Review:
Duwamish Crossing***



Engagement – Duwamish Crossing

- ***Briefings with Harbor Island Businesses, Port of Seattle Tenants, Port of Seattle and NWSPA***
- ***One-on-One Meetings with Businesses and Property Owners***
- ***Waterway User Survey (2020), Conducted a survey targeting maritime facilities and vessels.***
- ***Coordination with US Coast Guard for Clearances***
- ***Coordination with Tribes on in-water vs. clear span options***

Concept Evolution



Today

Context



Context



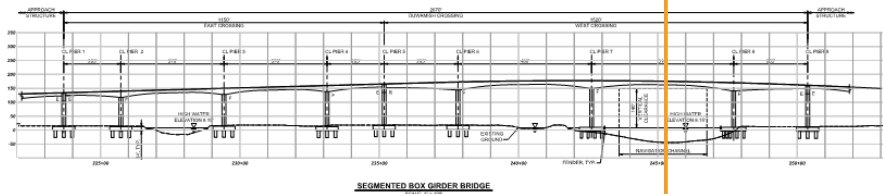
Crossing Development

- 1. Phase 1 - Multiple alignments and multiple bridge types***
- 2. Phase 2 - Focused on the preferred alignment (south) and four bridge types – Segmental Box Girder, Hybrid Extradosed, Steel Continuous Truss, and Cable-Stayed***
- 3. Phase 3 - Board confirmed the South Crossing as Preferred Alternative on July 28, 2022***
 - For Preferred Alternative, Sound Transit decided to limit consideration to bridges with no permanent in-water piers, following comments received on Draft EIS and workshops with interagency partners***
 - Sound Transit conducted Internal Evaluation on November 18, 2022***

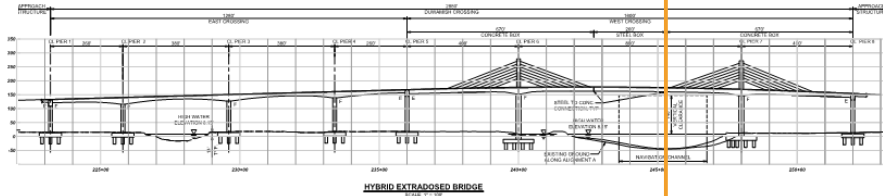
Phase 2 Bridge Alternatives

CL of Navigation Channel

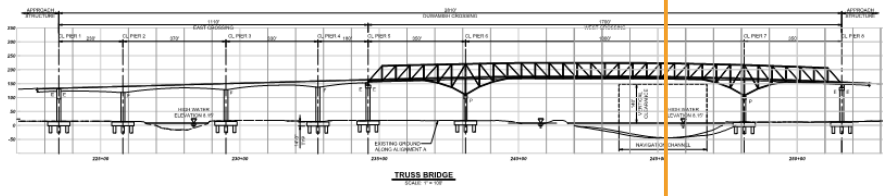
Segmental Box Girder



Hybrid Extradosed

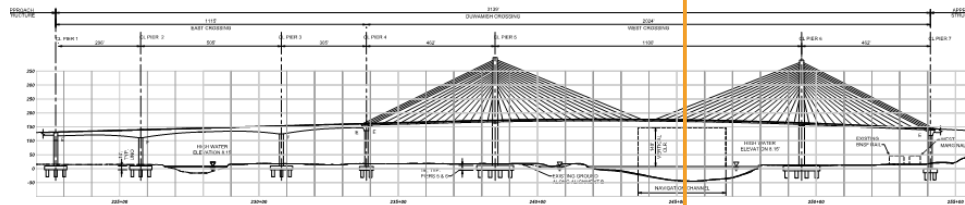


Steel Truss



Selected for PE

Cable-Stayed

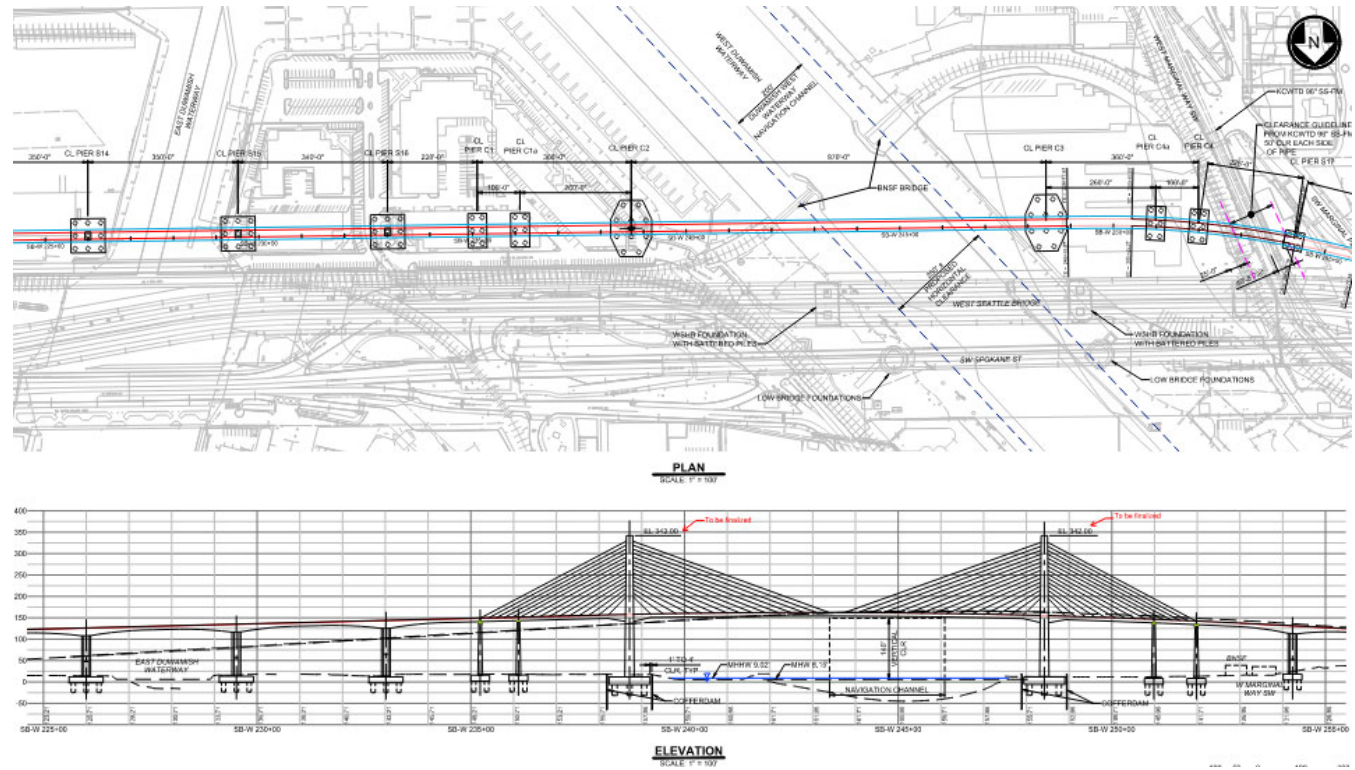


Cable-Stayed

- 1690' long bridge
- 360' - 970' - 360' span layout
- No in-water piers
- 12' diameter x 250' max deep shaft at main towers
- New type of bridge for ST



Skybridge, Surrey BC



Crossing Concept

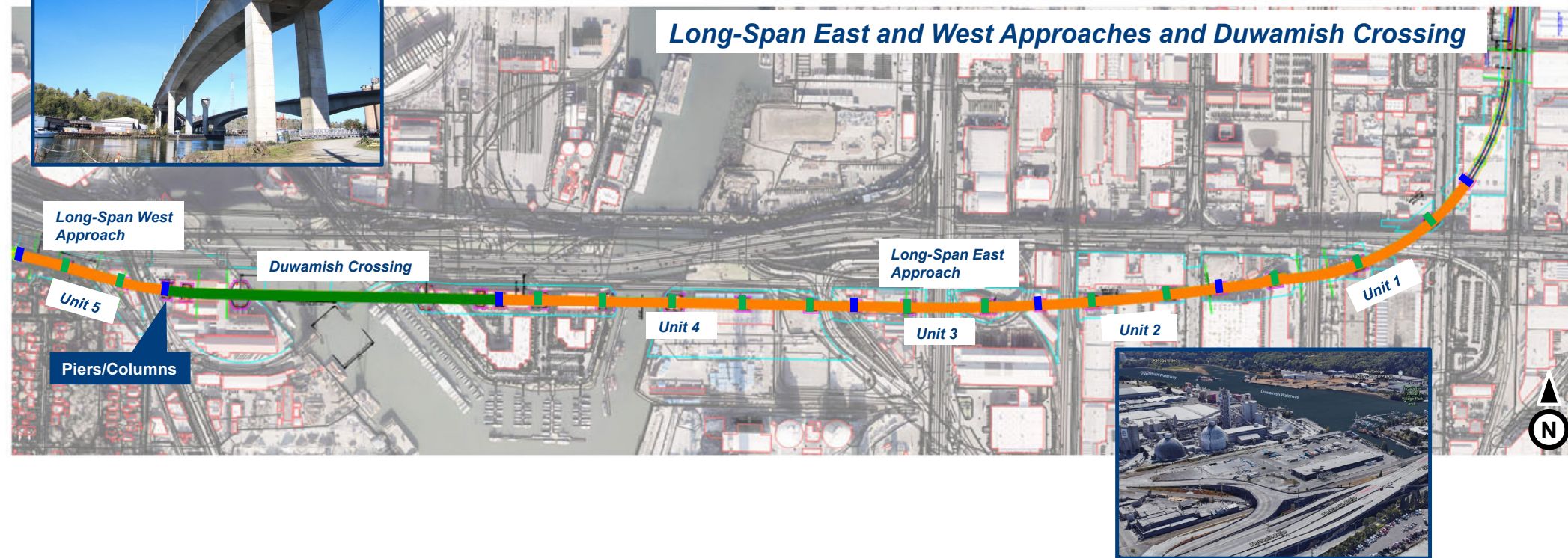


PE Concept Design

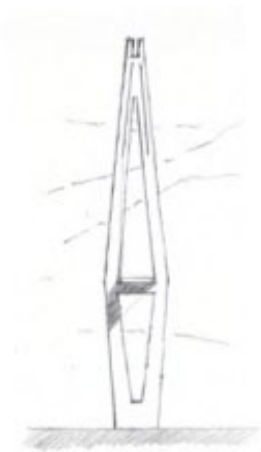
PE Concept Plan and Column Layout



Long-Span East and West Approaches and Duwamish Crossing



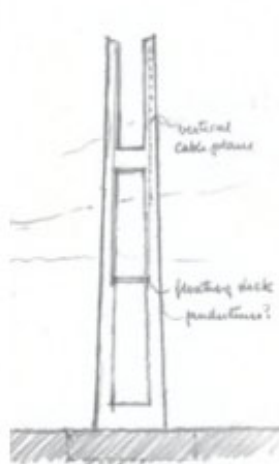
Early Bridge Studies – Cable Stayed



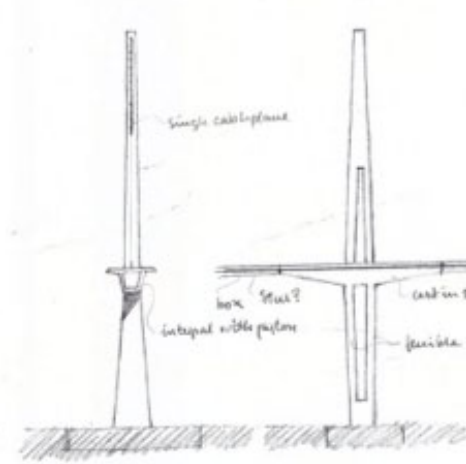
DIAMOND-PYLON



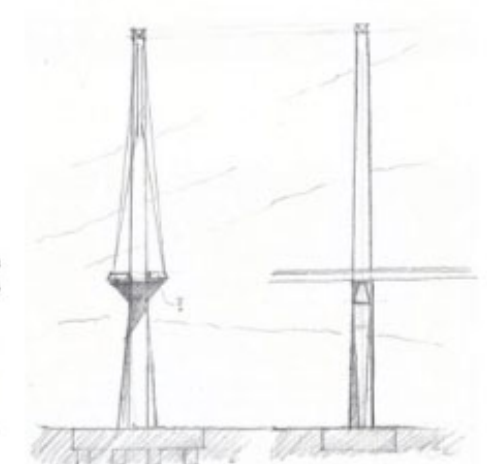
V-PYLON



H-PYLON



SINGLE PYLON WITH
SINGLE CABLE PLANE

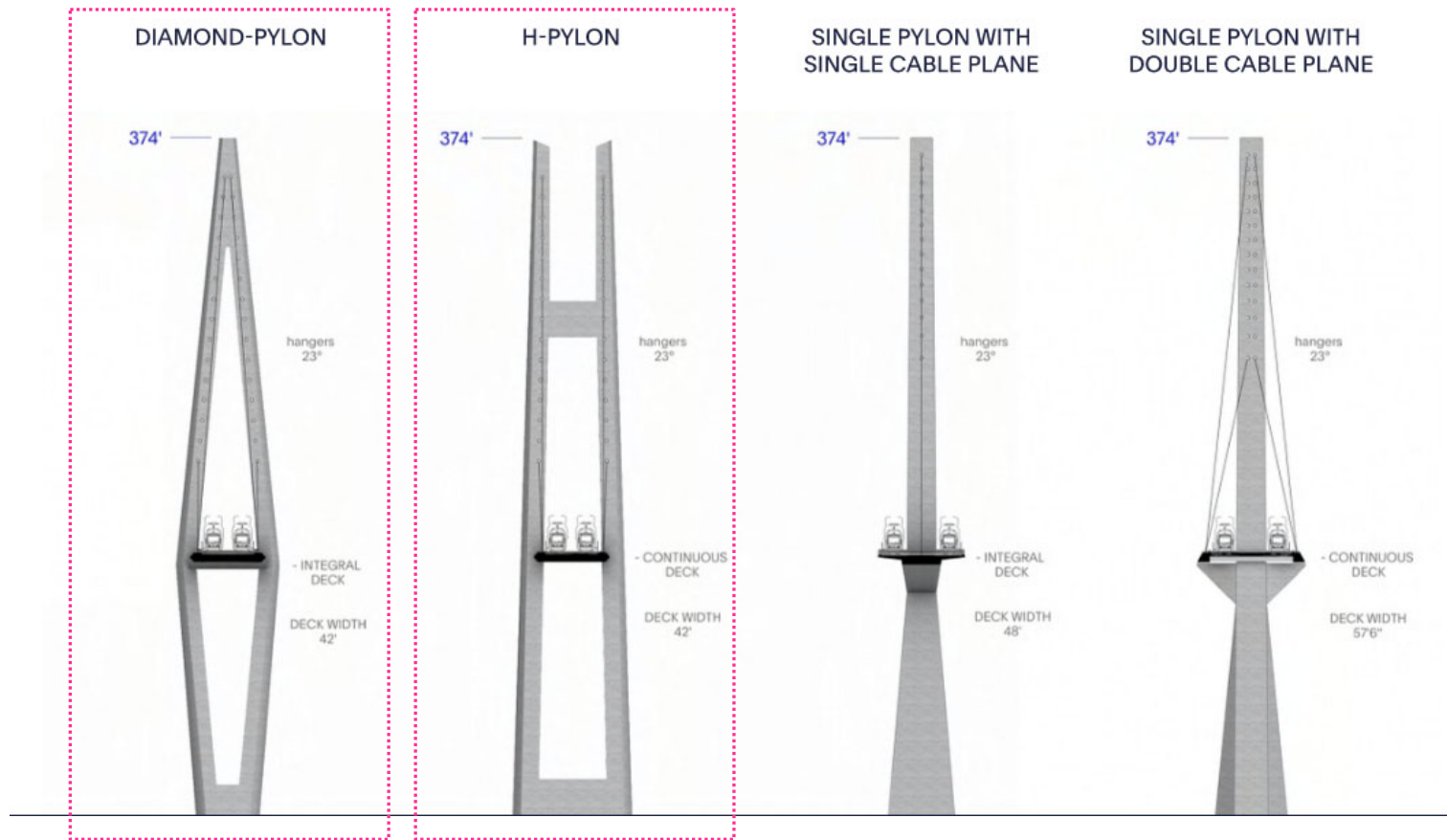


SINGLE PYLON WITH
DOUBLE CABLE PLANE

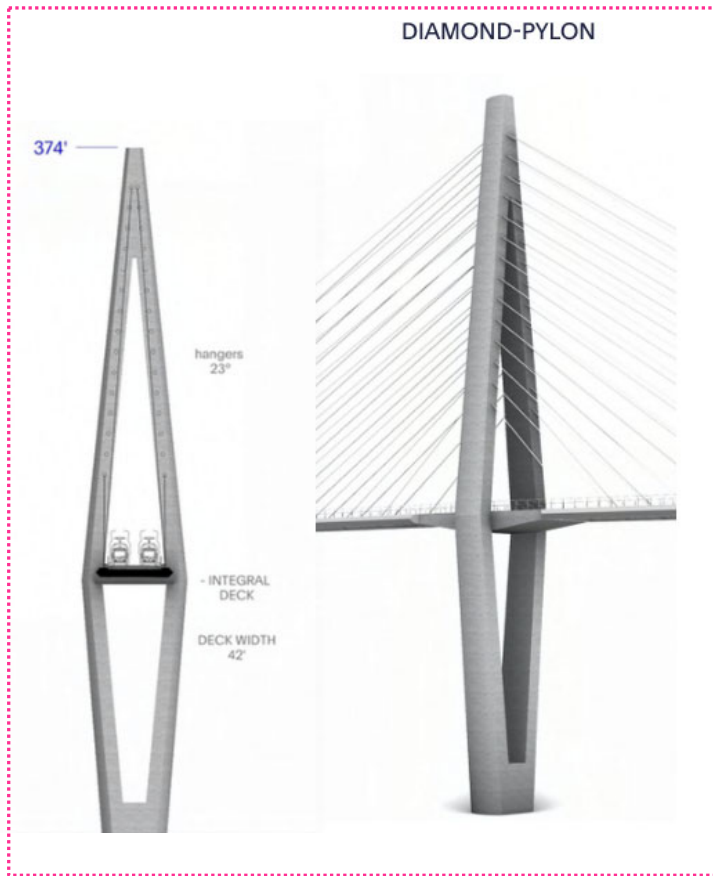
WSDOT
cable stay would be
single cable plane
terminating in 1/2 deck

WSDOT
cable stay floating deck
two cable planes
open deck

Early Bridge Studies – Pylon Options

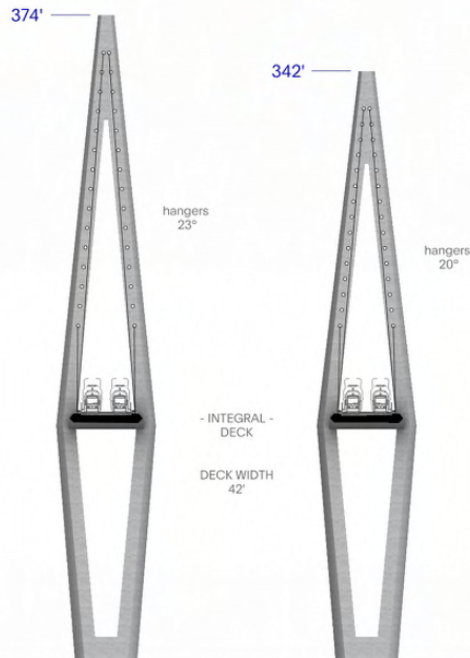


Final Pylon Options

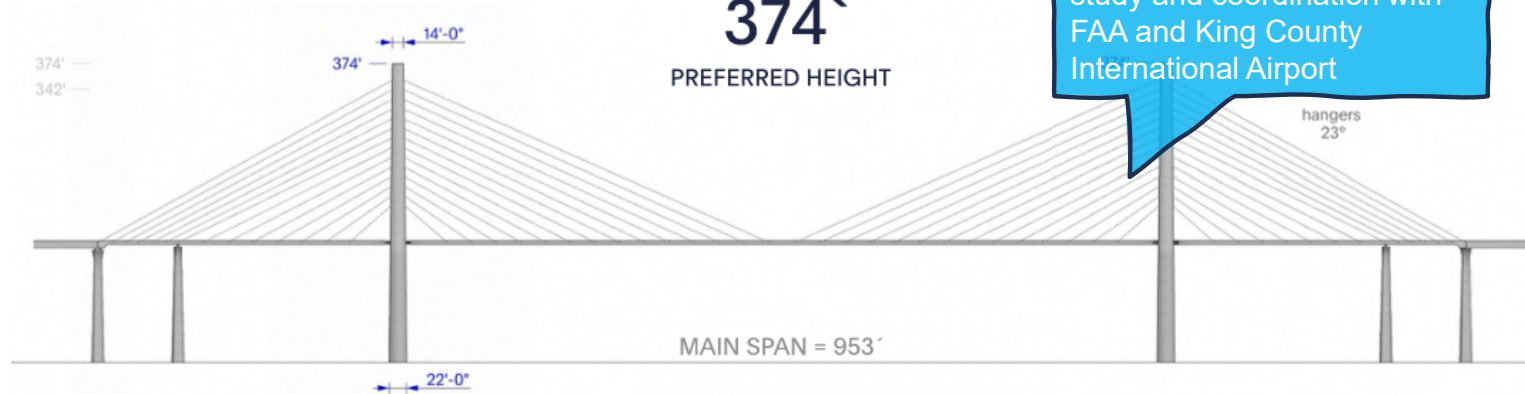


Pylon Height Study

DIAMOND-PYLON

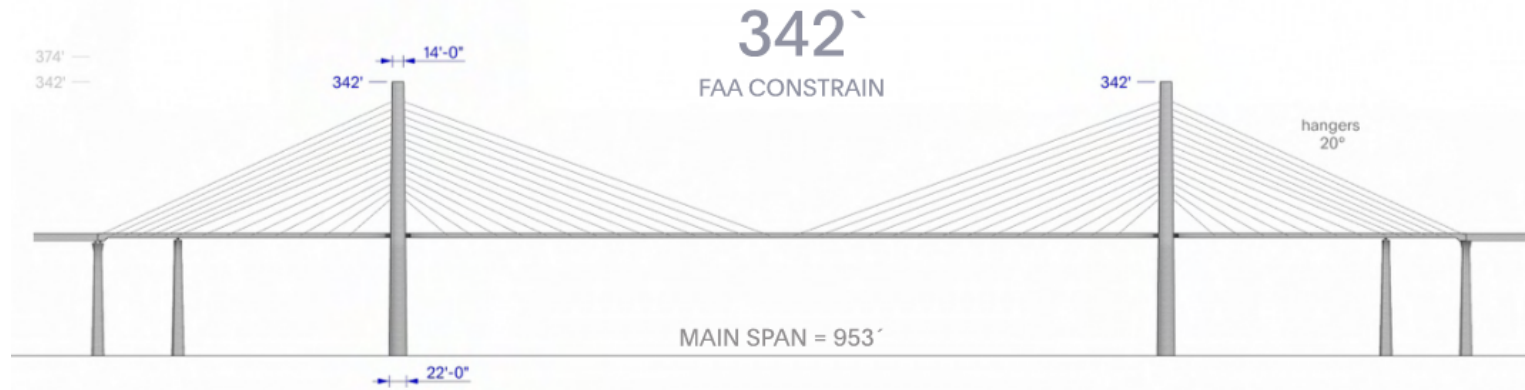


374'
PREFERRED HEIGHT



Taller pylon selected for aesthetics after airspace study and coordination with FAA and King County International Airport

342'
FAA CONSTRAINT



An aerial photograph of the Port of Seattle. The Alaskan Way Viaduct, a large cable-stayed bridge, runs diagonally across the frame. To the left, the Smith Tower and other industrial buildings are visible. The water of the harbor is filled with shipping containers, cranes, and various vessels. In the background, the city of Seattle is nestled on a hillside under a cloudy sky.



Diamond Pylon



Key Plan

***From Harbor Island
looking Northwest***

Diamond Pylon



Key Plan

***From Harbor Island
looking Northwest***

Diamond Pylon



Key Plan

***From Duwamish
looking North***

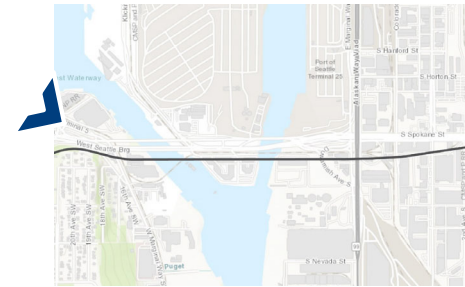
Diamond Pylon



Key Plan

Aerial looking South

Diamond Pylon



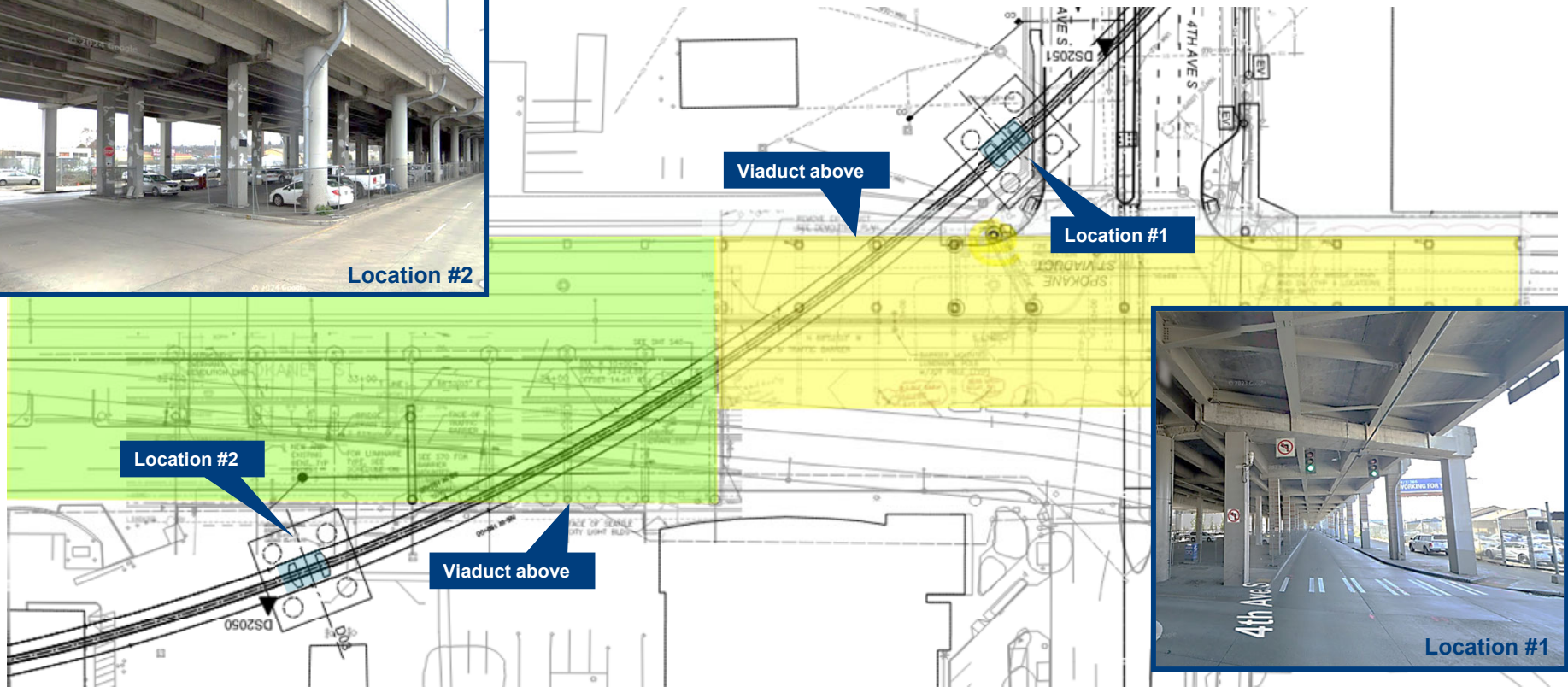
Key Plan

Aerial looking East

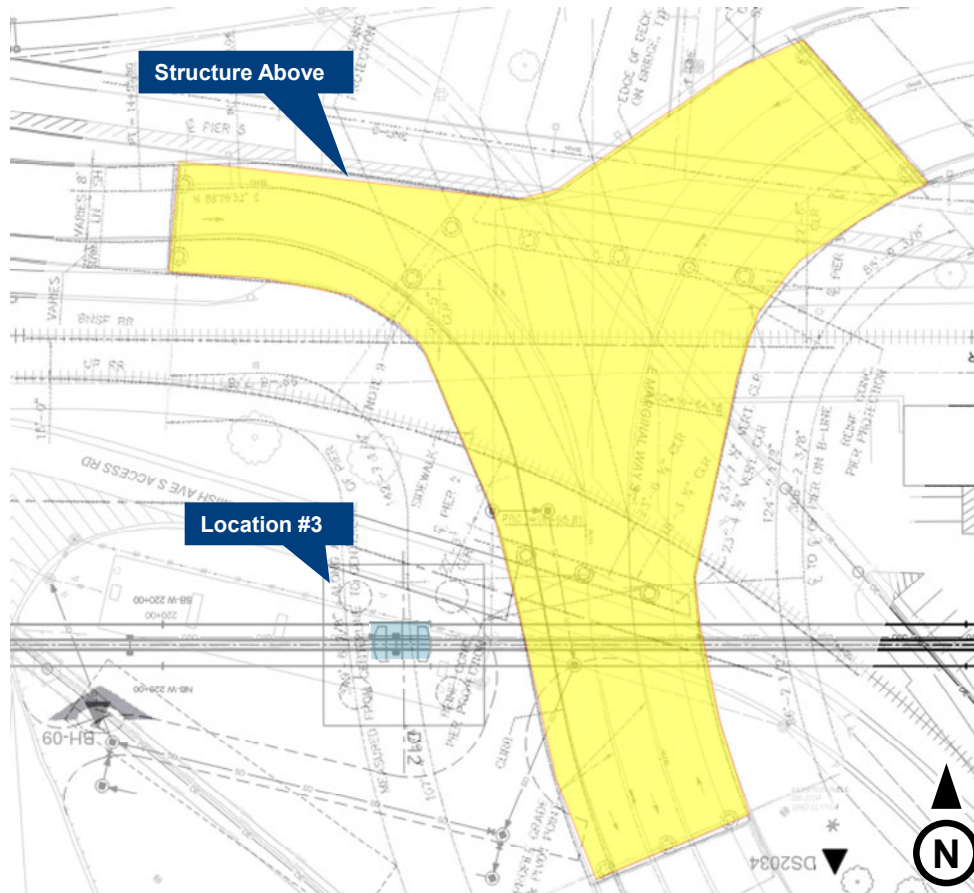
PE Concept Design
WSHB Proximity Analysis

A map of West Seattle, Washington, showing a proposed bus route. The route is indicated by a thick black line with four numbered stops (1, 2, 3, 4) marked in blue circles. The route starts at Stop 1 near S Forest St and 4th Ave S, goes south to Stop 2 near S Spokane St, then west along the West Seattle Bridge to Stop 3 near Alaskan Way Viaduct, and finally west to Stop 4 near 16th Ave SW. The map includes labels for various streets (S Hanford St, S Horton St, S Spokane St, S Forest St, 4th Ave S, 16th Ave SW, 18th Ave SW, Ave S, CMSP and P RR, Up RR, S Andover St), landmarks (Port of Seattle Terminal 25, Terminal 5, NP RR), and geographical features (West Waterway). A north arrow is located in the bottom right corner.

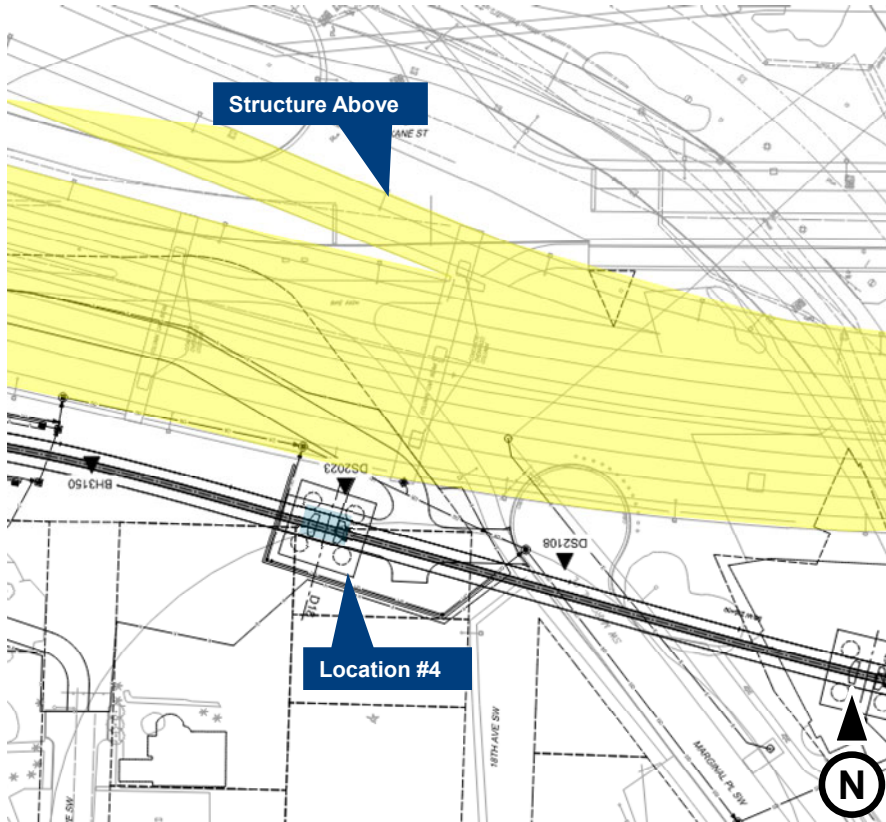
Structural Proximity Analysis



Structural Proximity Analysis



Structural Proximity Analysis



Q&A / Discussion

Thank you.



 *soundtransit.org*



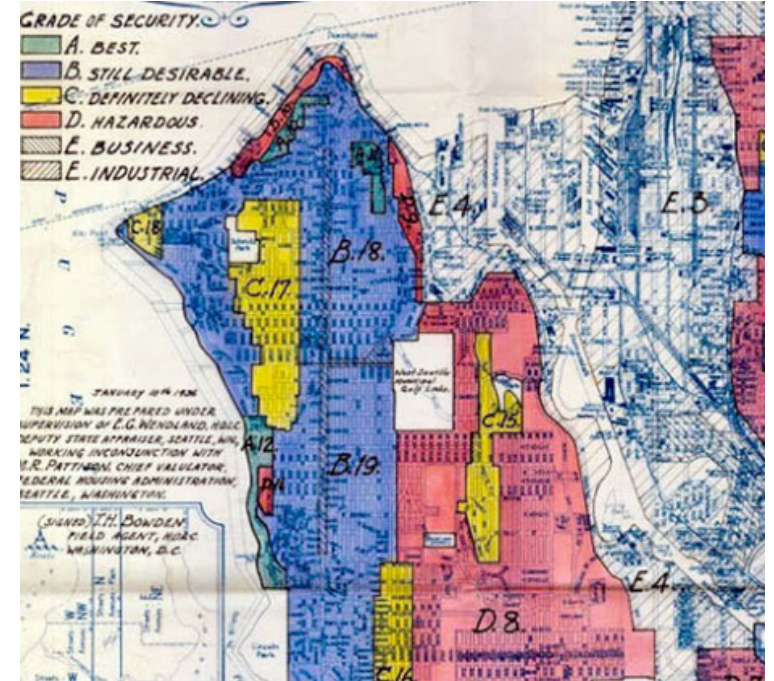
History of Disadvantage



Historic Flour Mill

Pigeon Point named for the pigeons that flocked to the area to eat the flour

Image Source: SW Seattle Historical Society - Log House Museum



Historic Commercial Map of Seattle - 1936

Image Source: History Link – Redlining in Seattle

Waterway History

