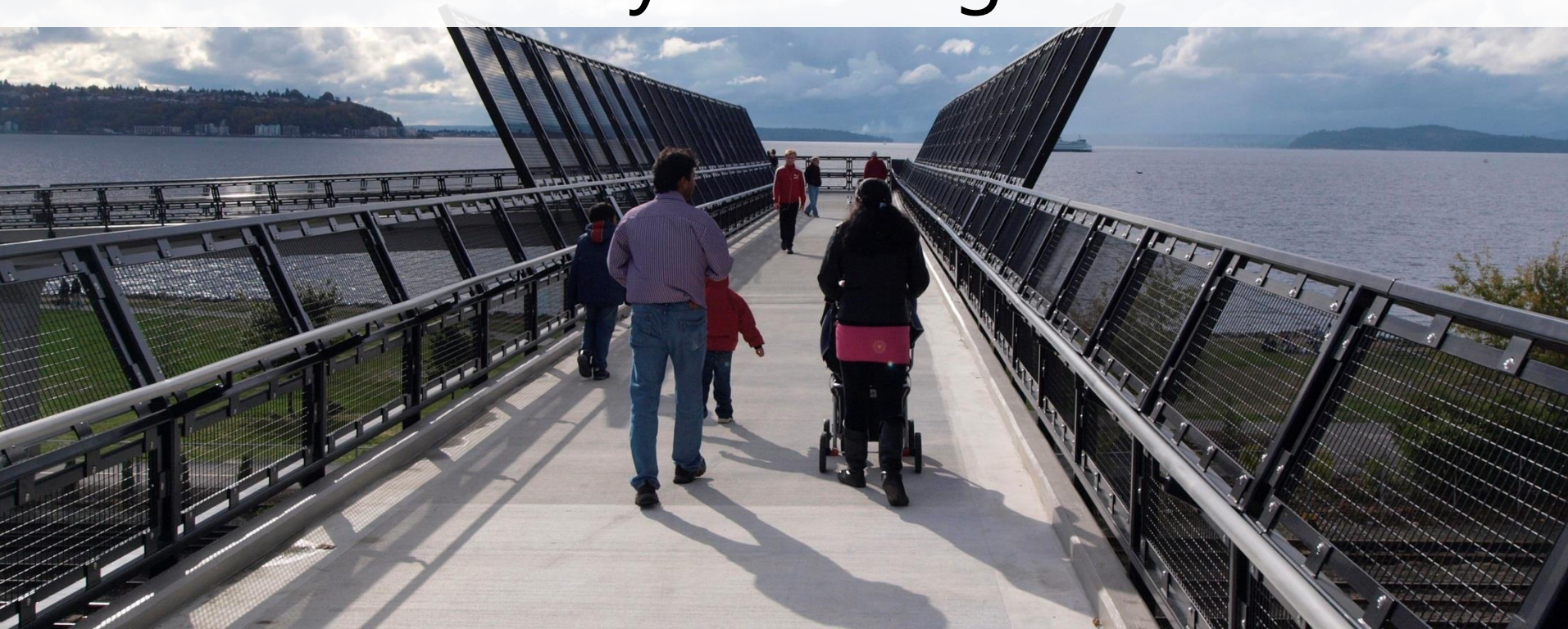


# Northgate Pedestrian and Bicycle Bridge



Stakeholder Briefing  
September 10, 2014



# SDOT's mission & vision

Mission: delivering a first-rate transportation system for Seattle.



Vision: a vibrant Seattle with connected people, places, and products.

# SDOT's values



# Presentation Agenda

- Project Need, Benefits and Background
- Level 1 Screening
- Level 2 Screening
- Summary of Findings
- Next Steps

# Project Need

- I-5 is a barrier separating the communities on the east and west sides.
- The project will create improved connections to major transit investments, education facilities, retail centers and reconnect the community.

# Project Benefits

- The project benefits Northgate neighborhoods, businesses and schools by:
  - Increasing ridership at the Transit Center and future Light Rail Station.
  - Creating an easier connection for students to and from North Seattle College by shortening the walk distance from the Transit Center by almost a mile.
  - Providing important access for bicyclists and pedestrians to other improvements coming to the Northgate area.

# Project Purpose

## Span I-5 Barrier:

- Connect neighborhoods
- Connect bicycle networks
- Connect businesses
- Connect higher education
- Connect light rail & transit hub

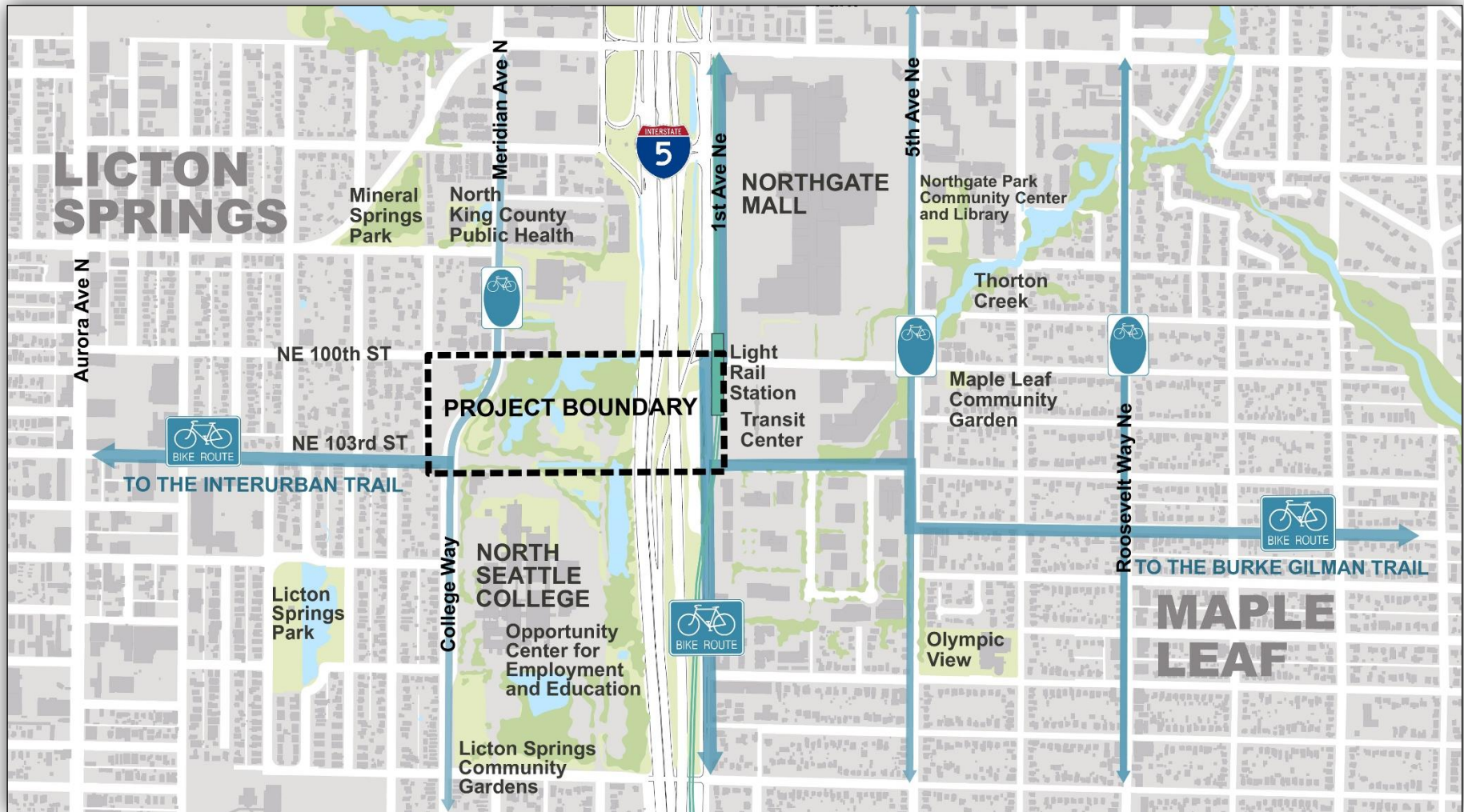
# Level 1 Screening

## Goals

- Establish project boundaries
- Develop Connectivity
  - Key nodes
  - Alignments
- Bridge Types



# Project Boundaries

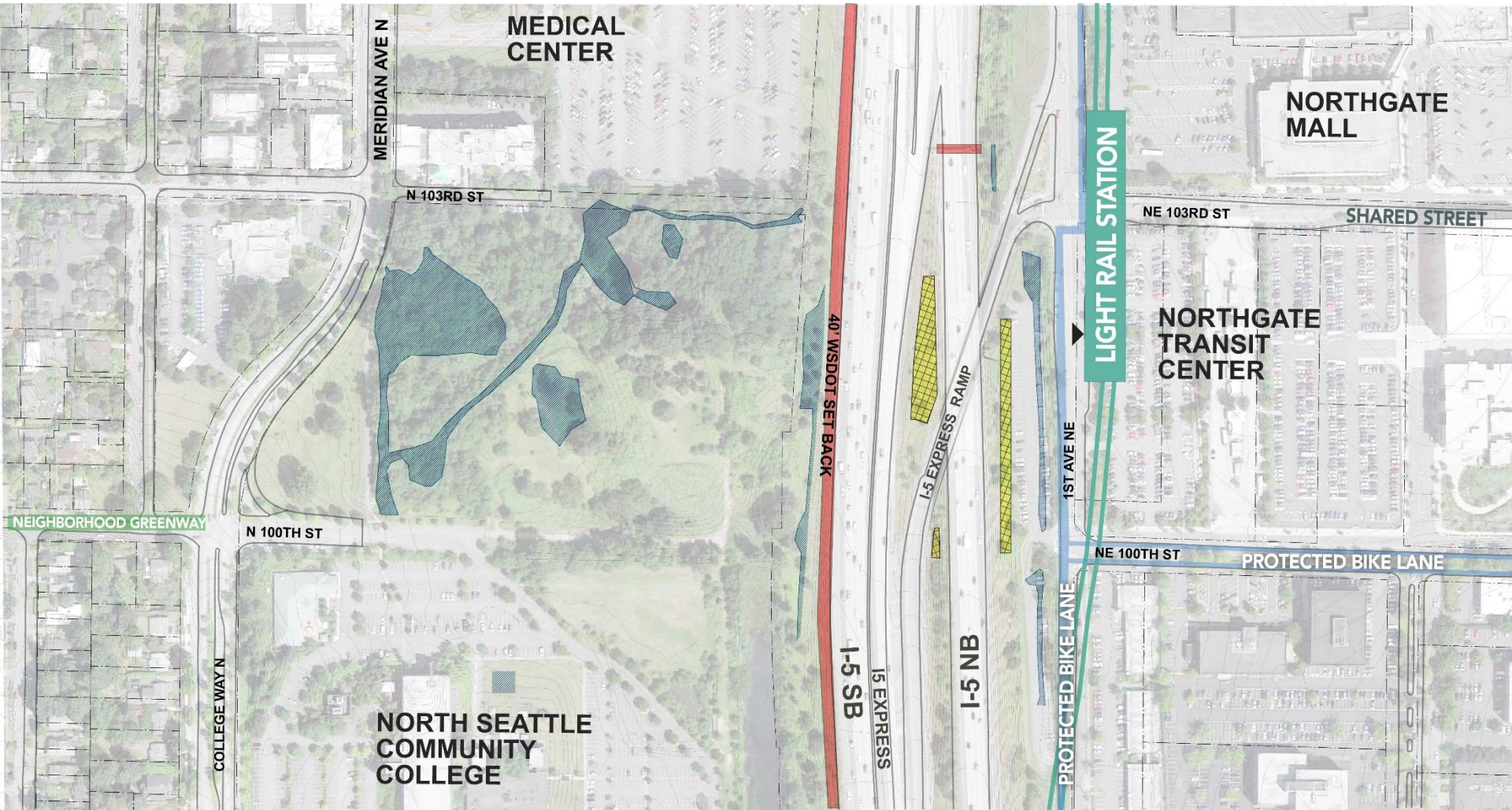


# Area Pedestrian & Bicycle Improvements





# Existing Conditions



# Level 2 Screening

## Screening Criteria

- Connectivity/Geometry
- Visual Impact/Presence
- Environmental Impact
- Safety
- Constructability
- Cost

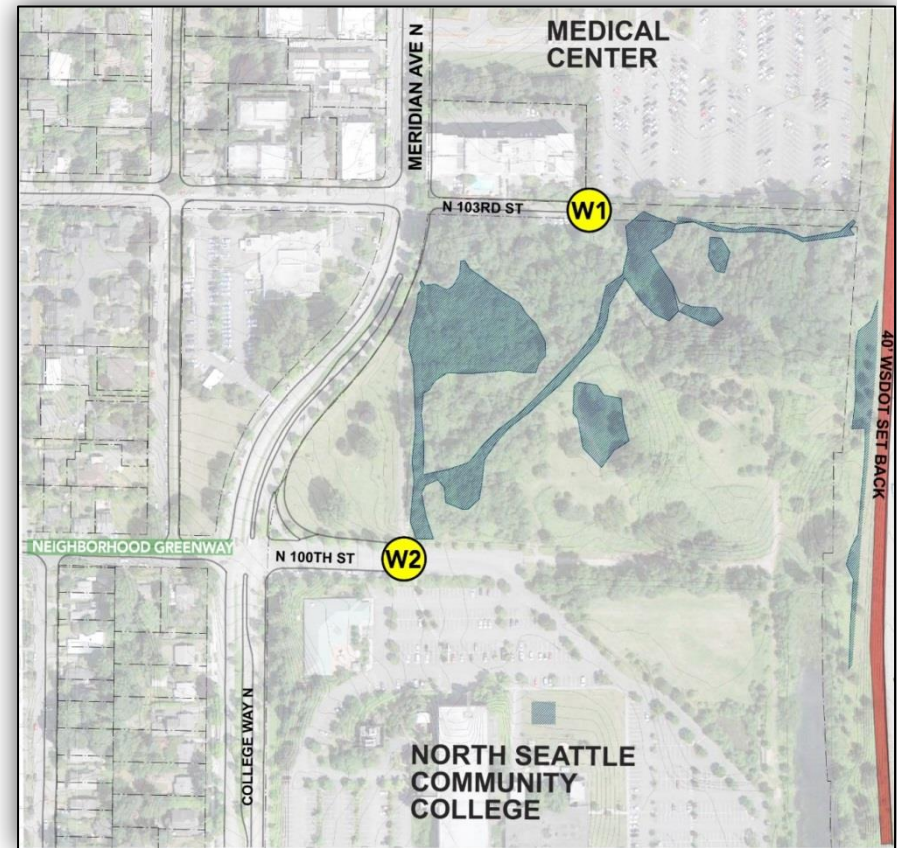


# Level 2 Screening

## Connectivity/Geometry

### West Approach

- How well does it connect to:
  - Licton Spring neighborhood
  - North Seattle College
  - Bicycle network
  - Mass transit stops
  - Pedestrian facilities

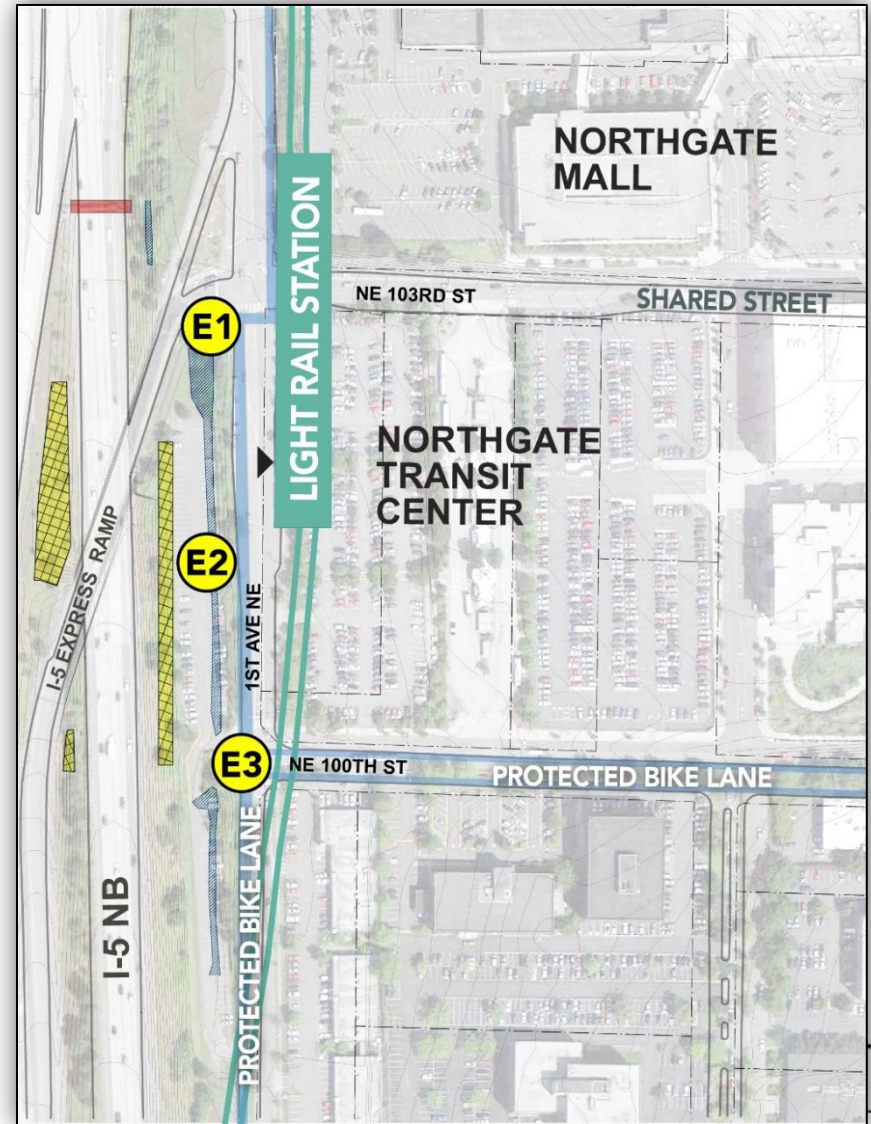


# Level 2 Screening

## Connectivity/Geometry

### East Approach

- How well does it connect to:
  - Maple Leaf neighborhood
  - Bicycle network/cycle track
  - ST North Link Station
  - King County transit centers
  - Pedestrian facilities





# Level 2 Screening

## Connectivity/Geometry

- I-5 Overcrossing
  - Minimize structural depth
  - Minimize approach length
  - Conform to WSDOT requirements

## Visual Impact/Presence

- West/East Approaches
  - Increase visibility and wayfinding from major transit, bicycle and pedestrian routes
- I-5 Overcrossing
  - Avoid distraction over I-5

# Level 2 Screening

## Environmental Impact

- Minimize wetlands impact
  - Thornton Creek
  - Bartonwood Sanctuary
- Enhance cultural resources
  - Bartonwood Sanctuary

# Level 2 Screening

## Safety

- West Approach
  - Maintain visibility from NSC and major public areas
- East Approach
  - Maintain visibility from transit hub
  - Maintain visibility to surrounding motorized and non-motorized routes
  - Safety of interaction between motorized and non-motorized users
- Bridge
  - Sight distance

# Level 2 Screening

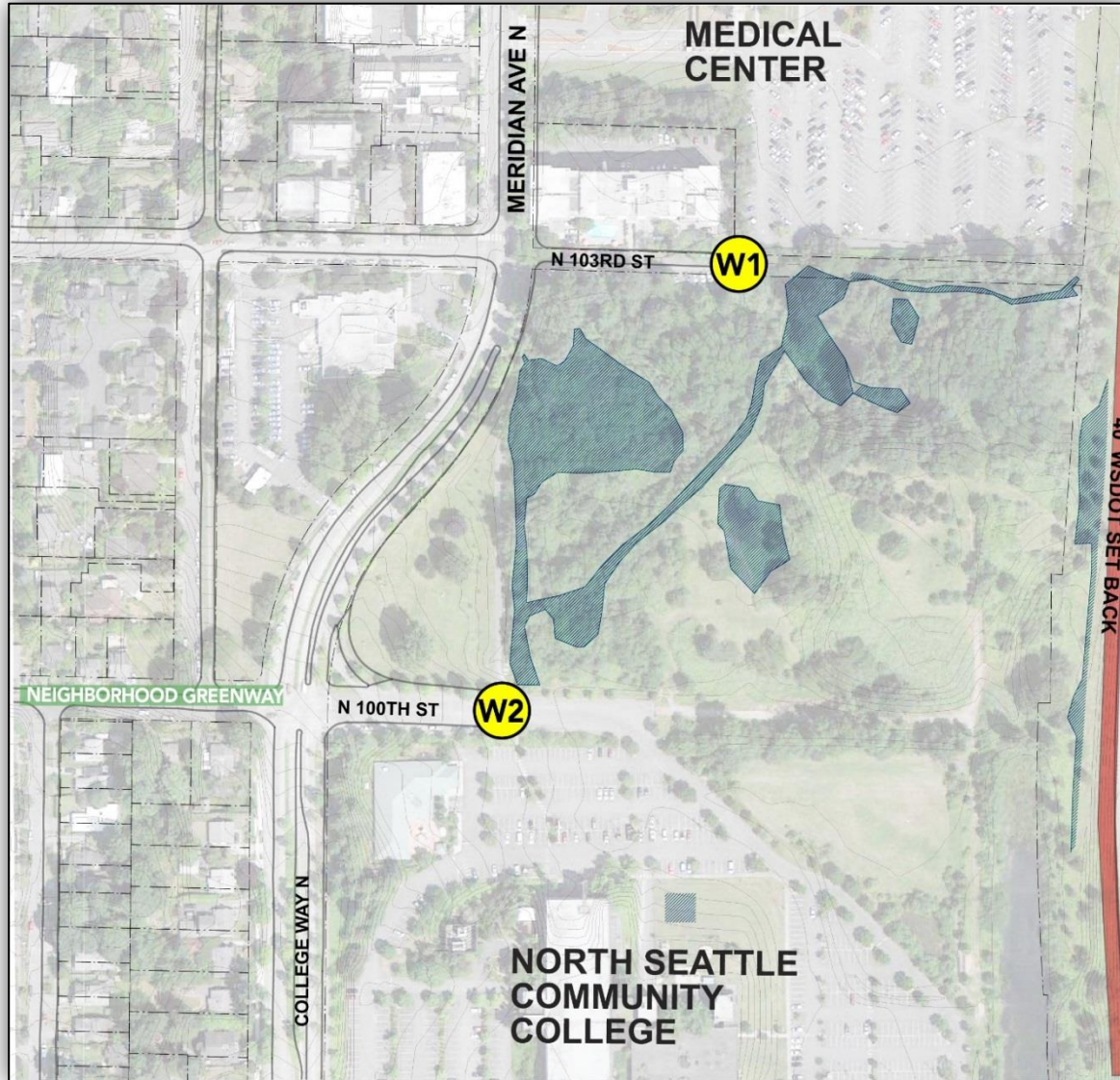
## Constructability

- Construction access
- Interruptions to traffic
- Duration

## Cost

- Right-of-way acquisition cost
- Maintenance and life-cycle costs
- Construction cost

# West Approach

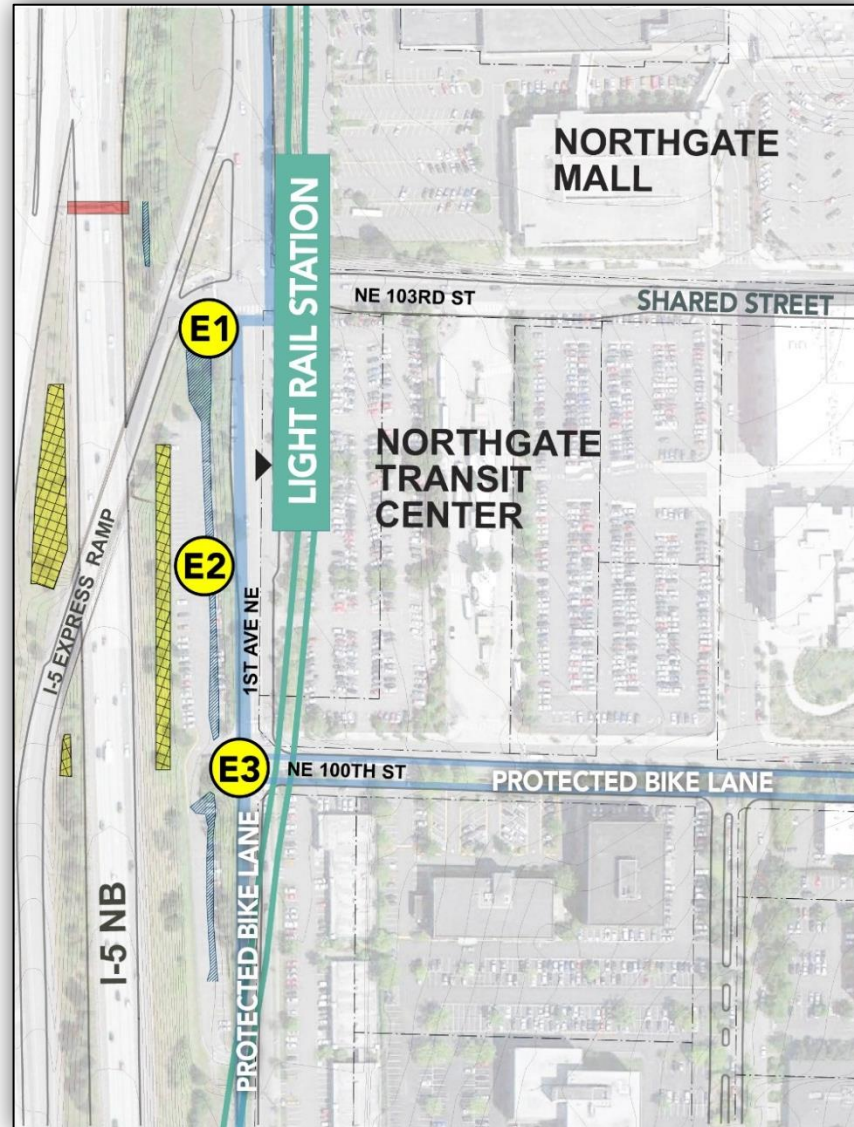


# West Approach Summary

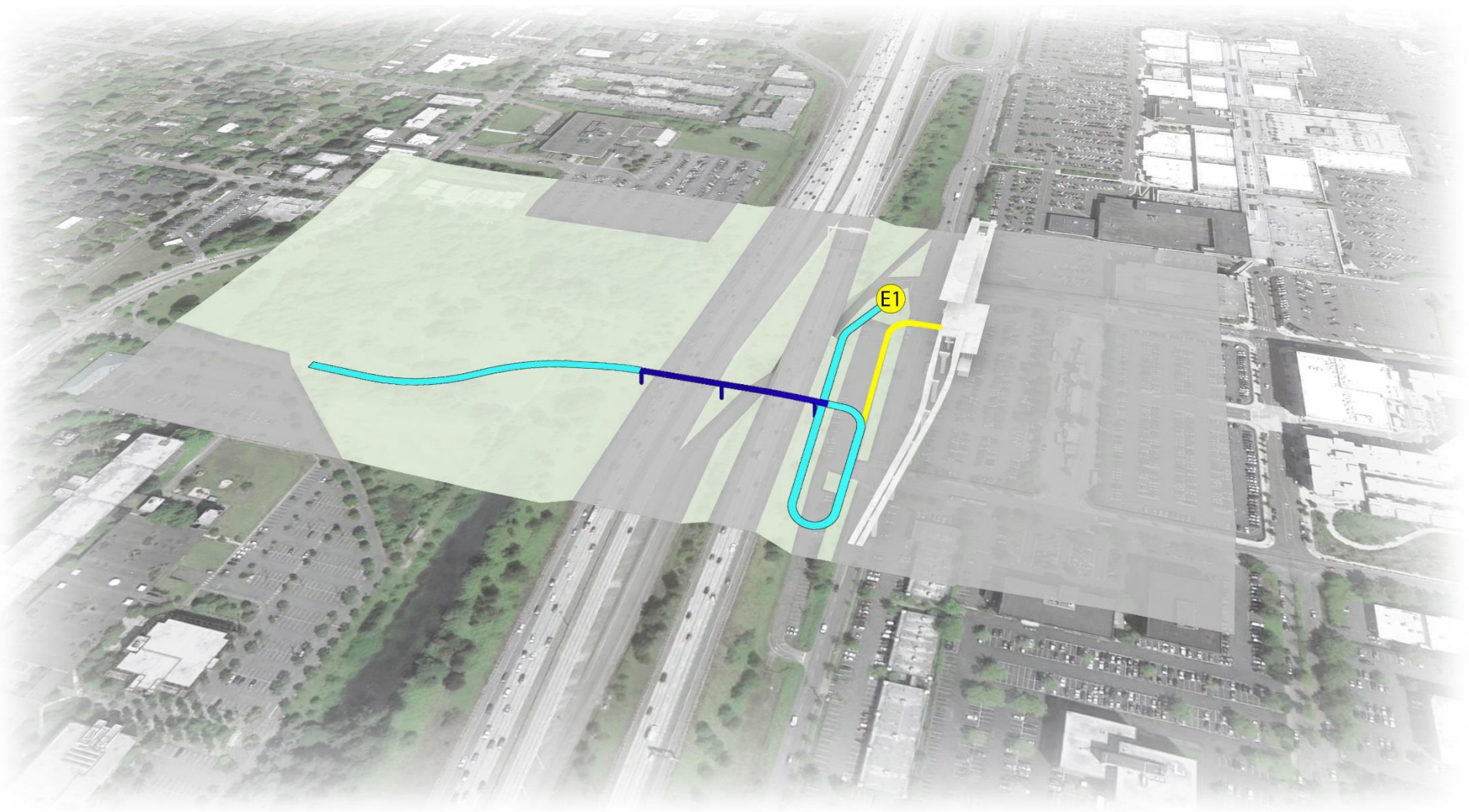
Screen Criteria	W1 N 103rd St		W2 N 100th St	
<b>Connectivity</b>	▼	<ul style="list-style-type: none"> <li>➤ Does not connect with major transportation or circulation routes</li> <li>➤ Does not connect with trail system</li> </ul>	▲ ▲	<ul style="list-style-type: none"> <li>➤ Adjacent to the N 100th St bicycle network</li> <li>➤ NSC preferred</li> </ul>
<b>Visual Presence/Impact</b>	▼ ▼	<ul style="list-style-type: none"> <li>➤ Not visible from major circulation routes</li> <li>➤ Associated alignments obstructs existing I-5 exit sign</li> </ul>	▲	<ul style="list-style-type: none"> <li>➤ Visible from NSC and 100th St</li> </ul>
<b>Environment Impact</b>	▼	<ul style="list-style-type: none"> <li>➤ Impacts to identified natural preserve and cultural resources</li> </ul>	▲	<ul style="list-style-type: none"> <li>➤ Located outside of wetland area and in area with less vegetation</li> <li>➤ Ability to enhance the awareness of cultural resources</li> </ul>
<b>Safety</b>	▼ ▼	<ul style="list-style-type: none"> <li>➤ Limited visibility and deposits users in private parking lot concealed by trees</li> </ul>	▲ ▲	<ul style="list-style-type: none"> <li>➤ Visible from NSC and major street connection</li> </ul>
<b>Constructability</b>	▼	<ul style="list-style-type: none"> <li>➤ Located inside of wetland area</li> <li>➤ Associated alignments require cost to move I-5 exit sign</li> </ul>	▲	<ul style="list-style-type: none"> <li>➤ Outside of wetland area in area with less vegetation</li> <li>➤ Adjacent to maintenance access road.</li> </ul>
<b>Cost</b>	▼	<ul style="list-style-type: none"> <li>➤ Located inside of wetland area</li> <li>➤ Requires substantial trail improvements/mitigation</li> </ul>	▲	<ul style="list-style-type: none"> <li>➤ Located outside of wetland area</li> <li>➤ Integrates existing trail system</li> </ul>



# East Approach

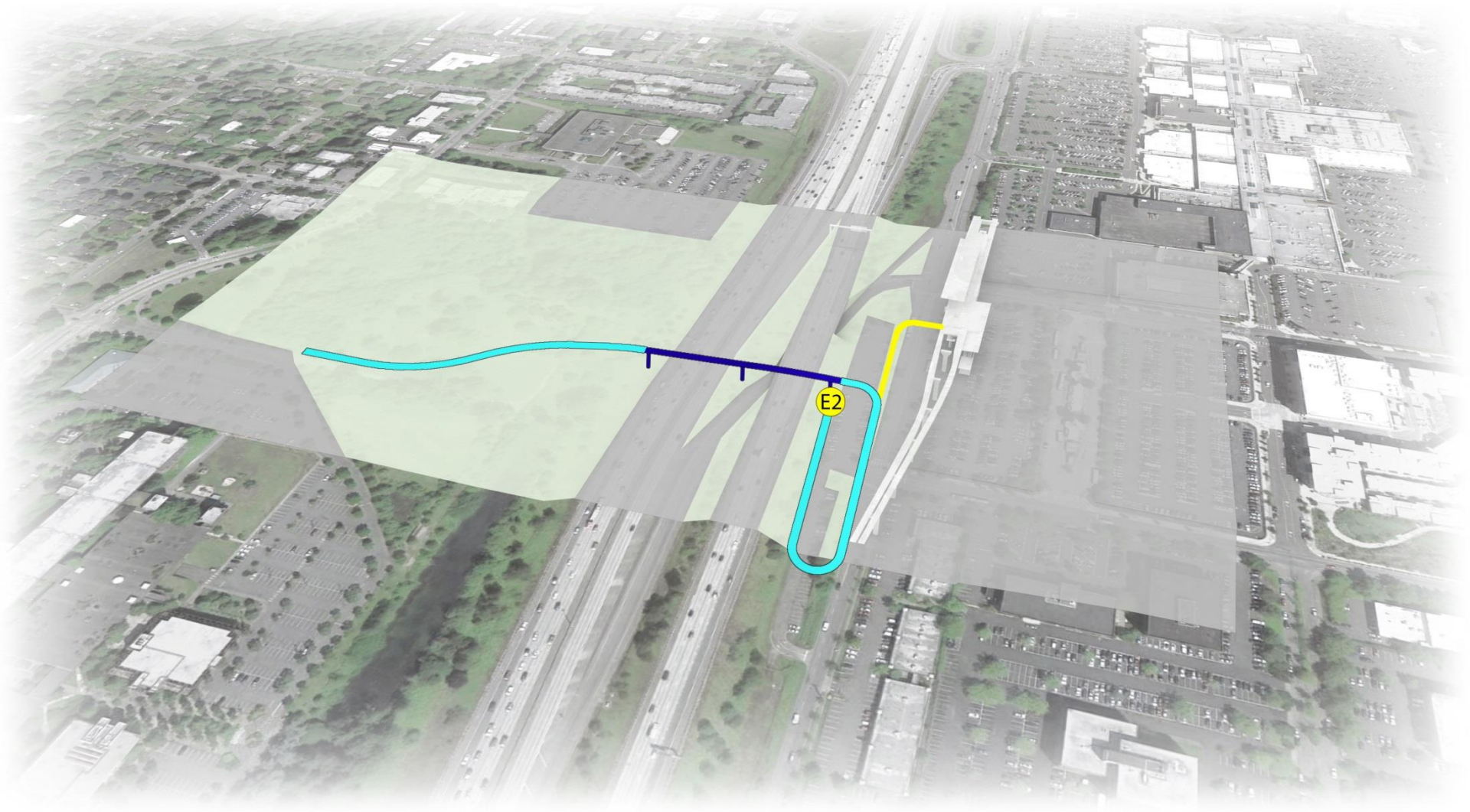


# East Approach

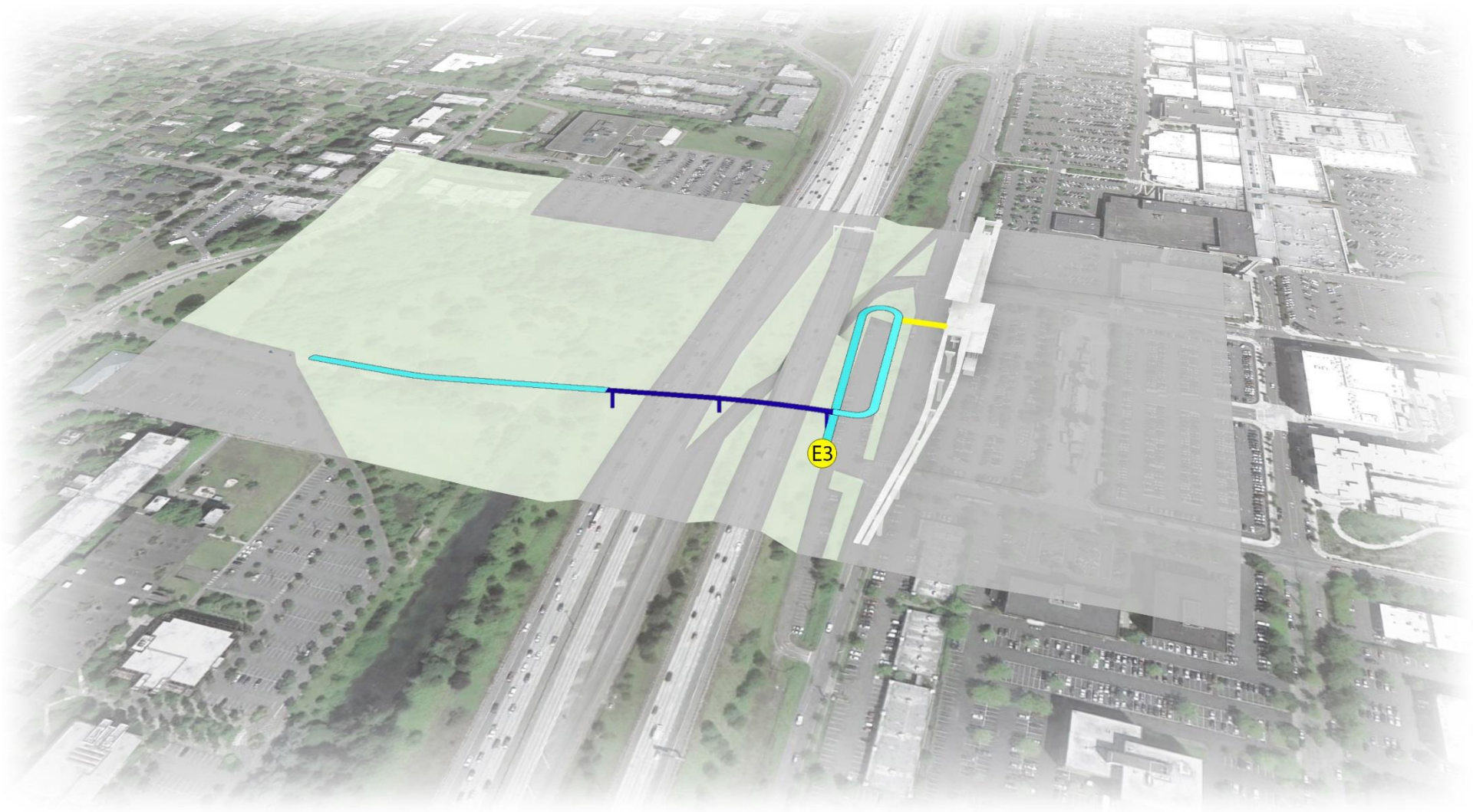




# East Approach



# East Approach

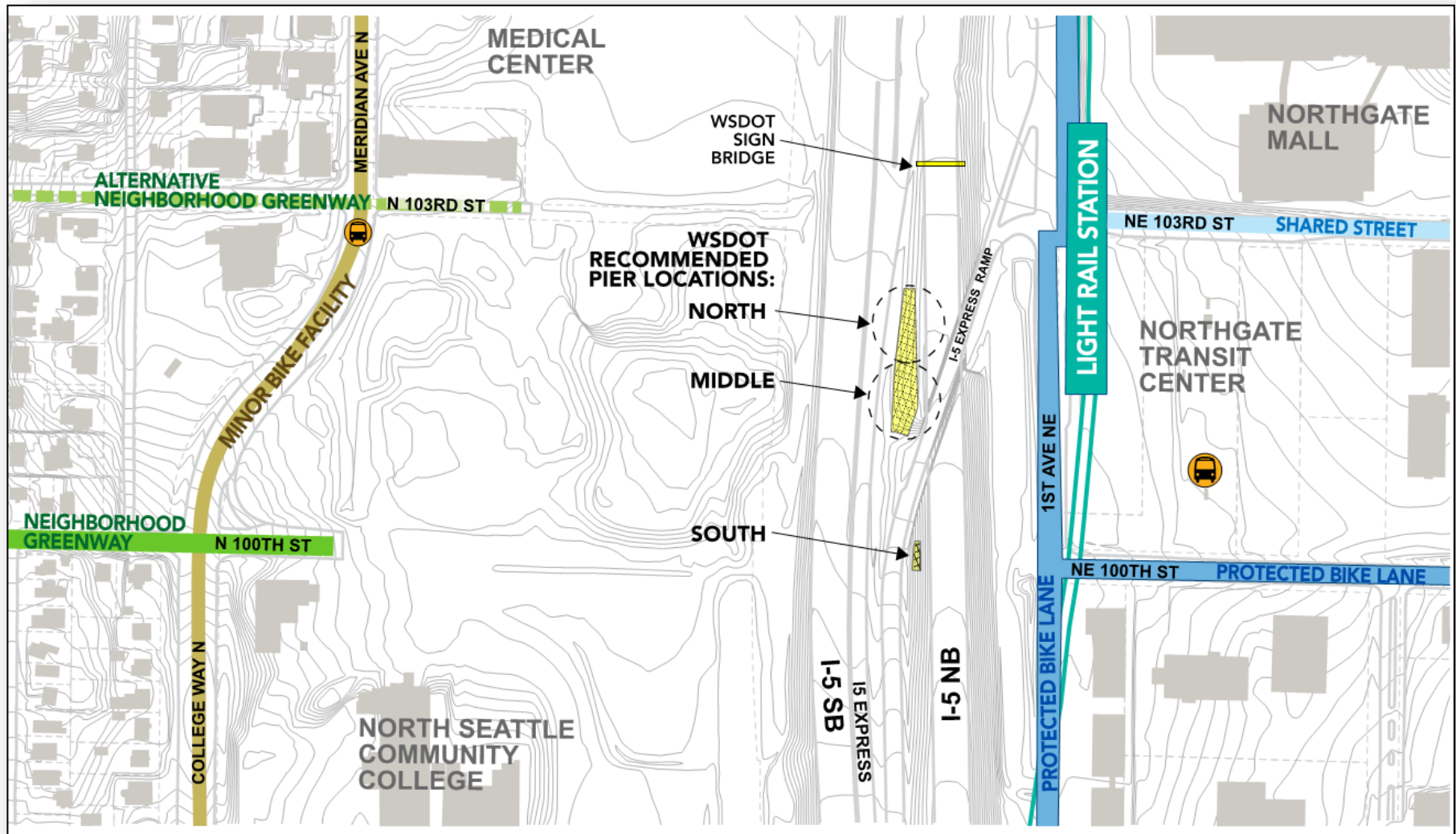




# East Approach Summary

Screen Criteria	E1 NE 103rd St		E2 Mid Parking Lot		E3 NE 100th St	
<b>Connectivity</b>	▼	➤ Confusing, congested intersection	▼ ▼	➤ Not at an intersection	▲ ▲	➤ Connects to primary bicycle network on NE 100th and 1st Ave Cycle Track ➤ Sets up ideal ramping connection into ST station
<b>Visual Presence/Impact</b>	▼	➤ Not connected to proposed bicycle network at NE 100th St ➤ Associated alignments require relocation of existing I-5 exit sign	▼ ▼	➤ Not immediately visible from NE 100th St or NE 103rd St	▲ ▲	➤ Easily seen from primary pedestrian route of NE 100th St
<b>Environment Impact</b>	▼	➤ Located in wetland area	■	➤	■	➤
<b>Safety</b>	▼ ▼	➤ Too many traffic movements at intersection, unsafe.	▼ ▼	➤ Deposits users in the middle of the parking lot	▲	➤ High visibility at multimodal transportation intersection
<b>Constructability</b>	▼	➤ Located in wetland area	■	➤	■	➤
<b>Cost</b>	▼ ▼	➤ Located in wetland area, mitigation ➤ Associated alignments require relocation of existing I-5 exit sign	■	➤ Potentially sets up longer ST Station connection	■	➤

# I-5 Crossing

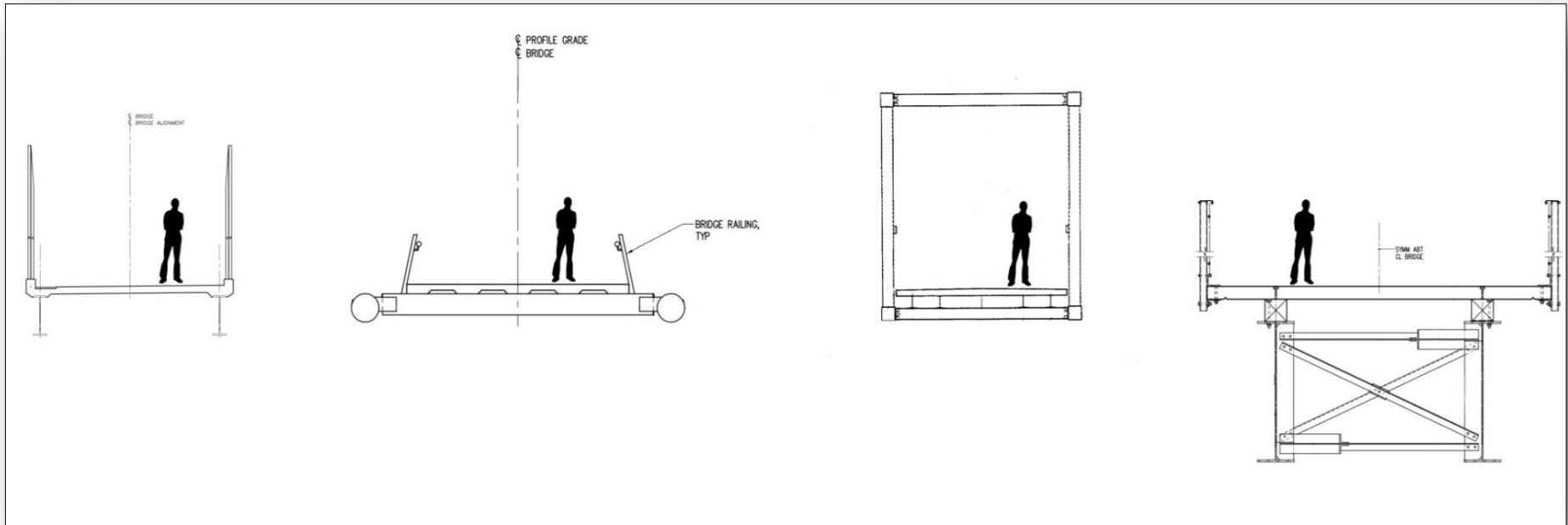




# Structural Depth

Structural Type	Span Capability
Reinforced Concrete Girder	< 60ft
Reinforced Concrete Box	< 120ft
<b>Prestressed Girder</b>	<b>&lt; 200ft</b>
<b>Post-Tensioned I-Girder</b>	<b>&lt; 250ft</b>
<b>Steel Girder</b>	<b>&lt; 400ft</b>
<b>Arch</b>	<b>&lt; 500ft</b>
<b>Post-Tensioned Concrete Box</b>	<b>&lt; 700ft</b>
<b>Truss</b>	<b>&lt; 1,200ft</b>
<b>Cable Stay</b>	<b>&lt; 1,200ft</b>

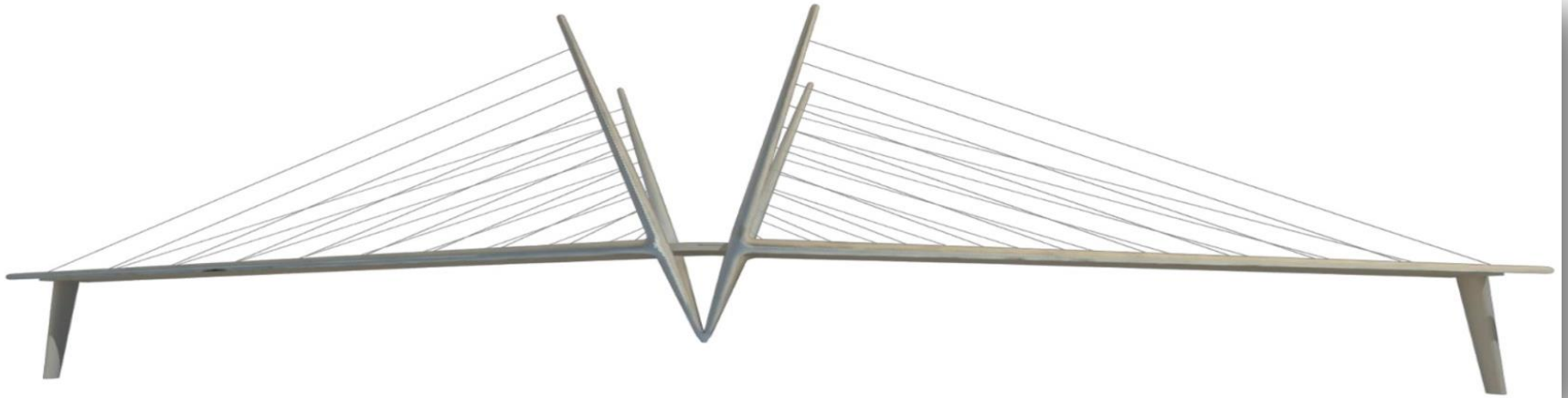
# Structural Depth



# Structural Depth vs. Length/Time

Structural Type	Structural Depth	ADA Ramp Length*		Travel Time**
		East	West	
Girder Bridge	8ft-10ft	1,225ft	1,175ft	10.5 minutes
Arch Bridge	2.5-3.5ft	900ft	850ft	8 minutes
Truss Bridge	2.5-3.5ft	900ft	850ft	8 minutes
Cable-Stayed Bridge	2.5-3.5ft	900ft	850ft	8 minutes
<p>* Approximate length of ramps using 2% slope. Length may vary based on final alignment.</p> <p>** Travel time based on pedestrian speed of 3mph, and includes 400ft of main bridge span length</p>				

# I-5 Crossing Bridge Types



# I-5 Crossing Cable-Stay



**VIEW FROM NORTHEAST**

# I-5 Crossing Cable-Stay



**VIEW FROM NE 100<sup>TH</sup> ST AND 1<sup>ST</sup> AVE N.**



# I-5 Crossing: Arch



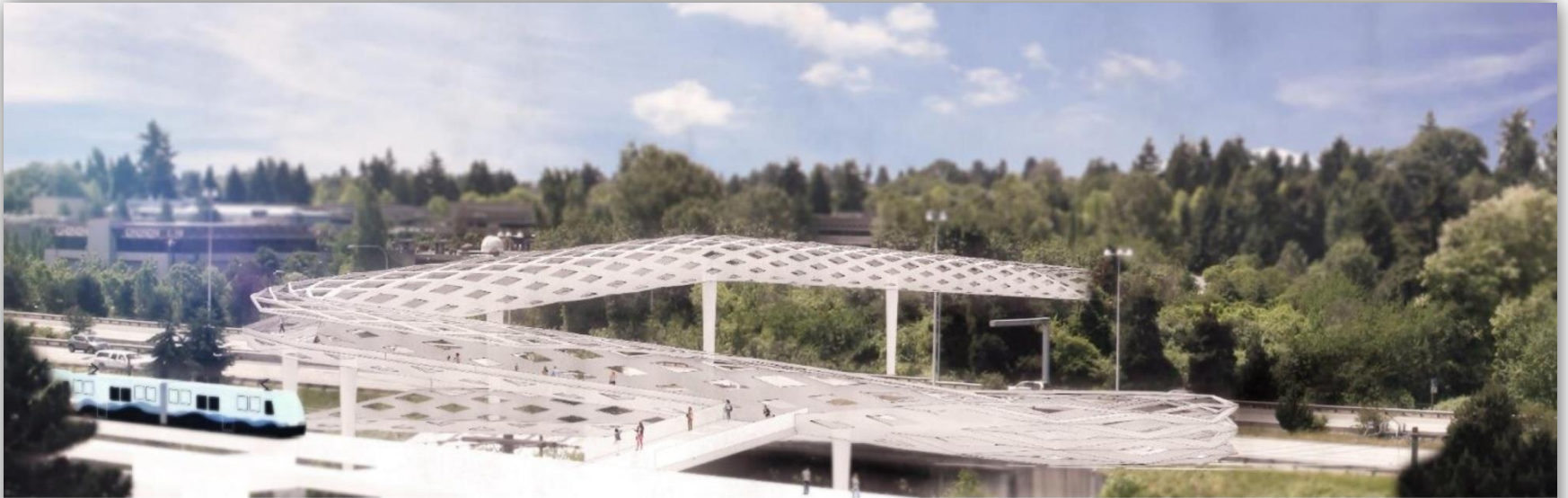
**VIEW FROM NORTHEAST**

# I-5 Crossing: Arch



**VIEW FROM NE 100<sup>TH</sup> ST AND I<sup>ST</sup> AVE N.**

# I-5 Crossing: Tube/Truss



**VIEW FROM NORTHEAST**



# I-5 Crossing: Tube/Truss



**VIEW FROM NE 100<sup>TH</sup> ST AND 1<sup>ST</sup> AVE N.**

# I-5 Crossing: Summary

Screen Criteria	Arch		Tube		Cable-stayed	
<b>Geometrics</b>	▲	➤ Thin structural depth	▲	<ul style="list-style-type: none"> <li>➤ Integration of throw barrier into structural system</li> <li>➤ Could create an integrated barrier to noise and wind over I-5</li> </ul>	▲	➤ Thin structural depth
<b>Visual Presence/Impact</b>	▲	➤ Minimal visual distraction from the perspective of WSDOT	▲	➤ Minimal visual distraction from the WSDOT perspective	▼	➤ WSDOT concerns with visual distraction
<b>Environment Impact</b>	■	➤	▲	➤ Internal lighting able to be contained within structure	▲	➤ Smaller foundation area at the bridge abutments
<b>Safety</b>	▲	➤ Open structure provides visibility from multiple angles	▲ ▲	➤ Opportunity for creating an integrated barrier to noise and wind over I-5	▲	➤ Open structure provides visibility from multiple angles
<b>Constructability</b>	▲	➤ Capable of being delivered to site in large pieces	▲ ▲	➤ Capable of being delivered to site in large pieces then assembled and lifted into place	▼	<ul style="list-style-type: none"> <li>➤ Large foundation in center of I-5</li> <li>➤ Challenging construction sequencing requires more I-5 interruptions</li> </ul>
<b>Cost</b>	■	➤ Options within budget	■	➤ Options within budget	■	➤ Options within budget

# Level 2 Screening Summary

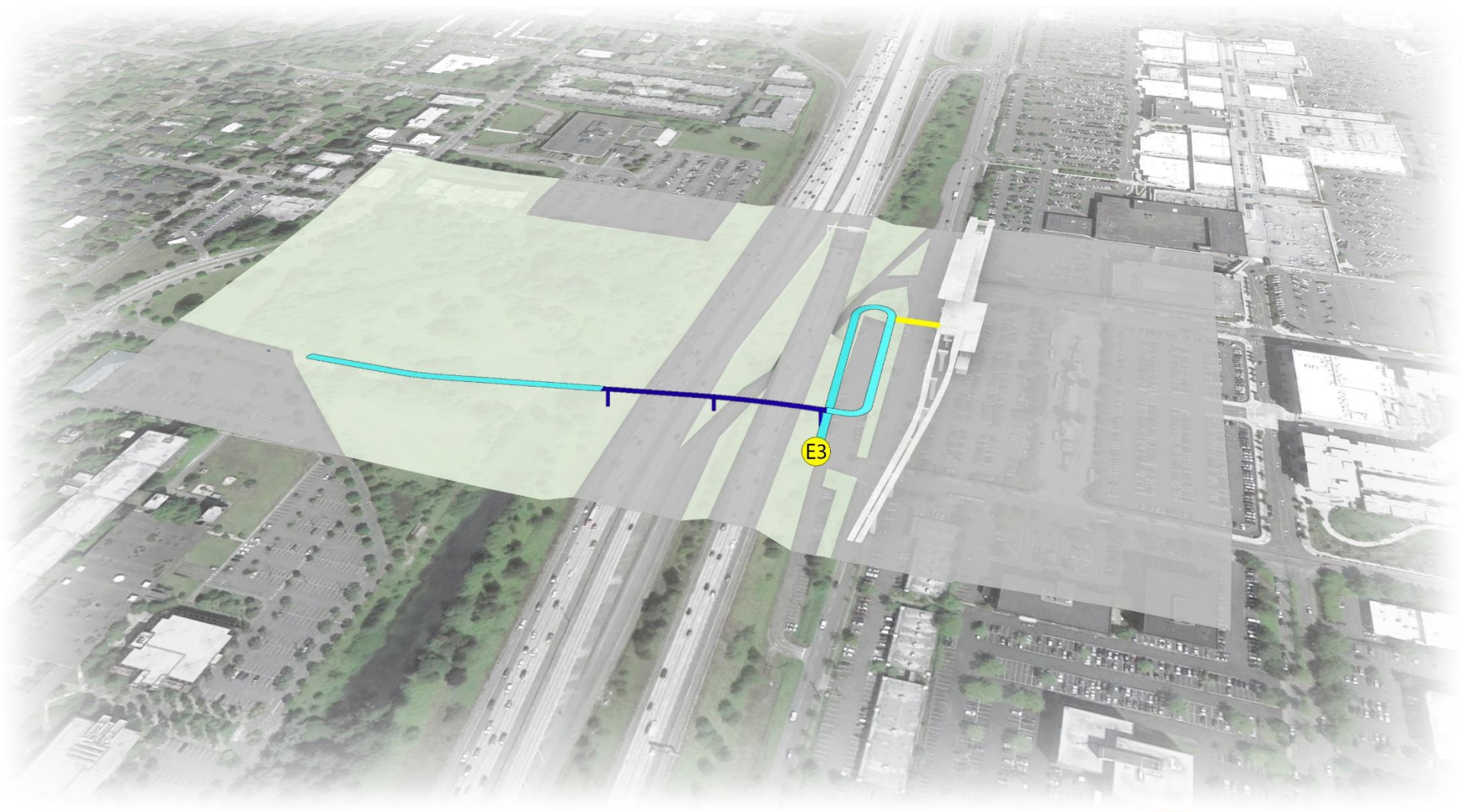
Screen Criteria	W2 N 100th St
Connectivity	▲ ▲
Visual Presence/Impact	▲
Environment Impact	▲
Safety	▲ ▲
Constructability	▲
Cost	▲

E3 NE 100th St
▲ ▲
▲ ▲
■
▲
■
■

Arch	Tube
▲	▲
▲	▲
■	▲
▲	▲ ▲
▲	▲ ▲
■	■



# Preferred Alignment



# Preferred Alignment

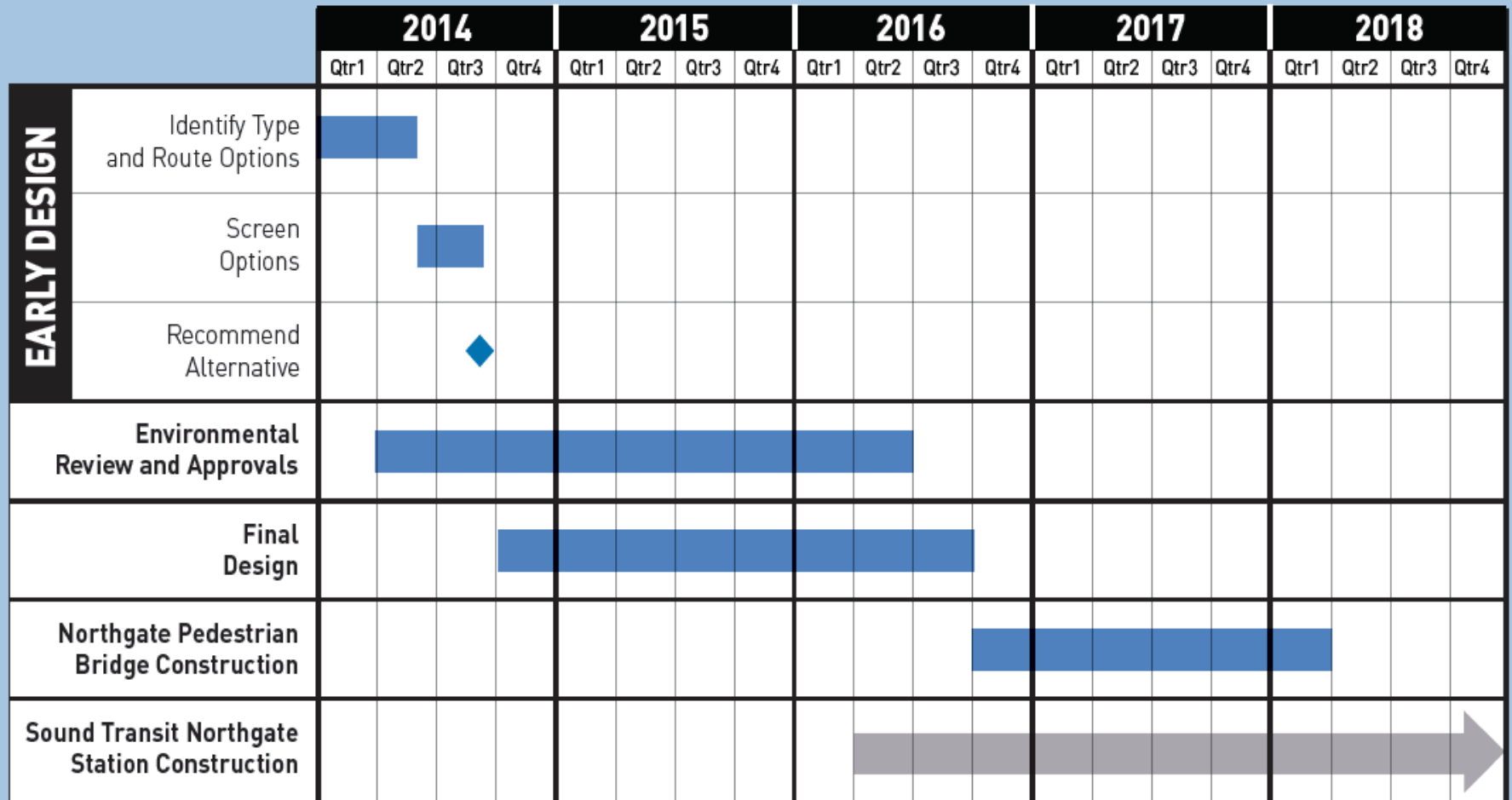




# Preferred Alignment



# Project Timeline





# Outreach Activities

- Seattle Bike Advisory Board – February 5, 2014
- Seattle Pedestrian Advisory Board – February 12, 2014
- Northwest District Council – April 23, 2014
- Maple Leaf Community Council – April 30, 2014
- Haller Lake Community Club – May 1, 2014
- North District Council – May 7, 2014
- Licton Springs Community Council – May 21, 2014
- Public Open House – June 3, 2014
- Thornton Creek Alliance – June 26, 2014
- Design Commission – August 7, 2014
- Regular meetings with Sound Transit, WSDOT and King County

# Next Steps

- Draft Alternative Analysis and Evaluation Report
- Further funding analysis
- Screening Level 3 – Preferred Alternative
- Keep in touch!
- Check out our website:  
[www.seattle.gov/transportation/northgatepedbridge.htm](http://www.seattle.gov/transportation/northgatepedbridge.htm)

# Questions?



# Thanks!

<http://www.seattle.gov/transportation>

