Northgate Pedestrian and Bicycle Bridge

Seattle Design Commission

August 7, 2014

SDOT
Seattle Department of Transportation


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Seattle Department of Transportation

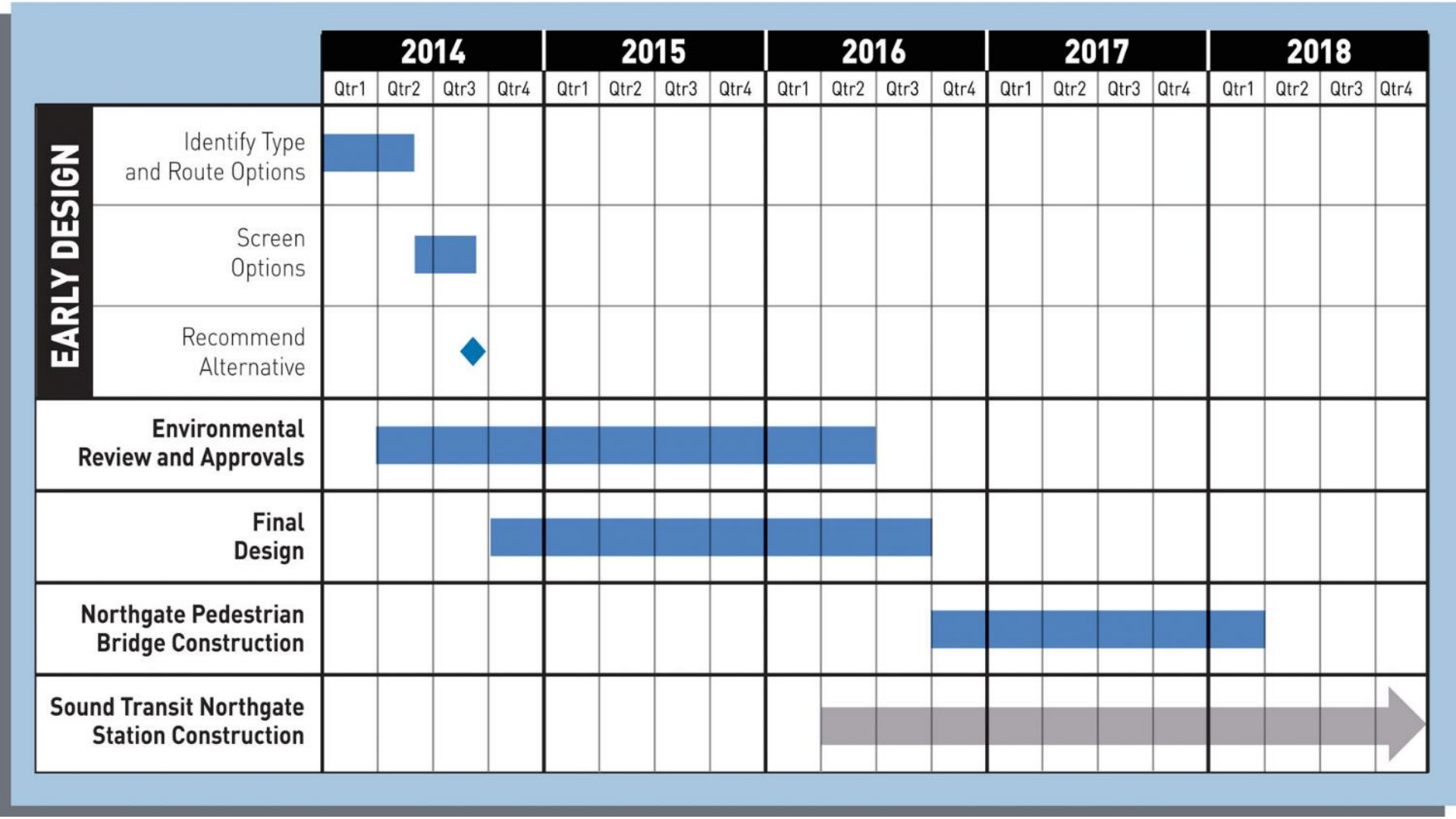

kpff


LMN


SWIFT COMPANY LLC


alta
PLANNING + DESIGN

Project Timeline



Outreach Activities

- Community briefings throughout the spring
- Open House held in early June and Social in late July
- Another round of briefings after final recommendation is made in the fall

Collaborative Integration

- Design input and outreach work with North Seattle College
- Design and schedule coordination with Sound Transit
- Technical and Right-of-Way coordination with WSDOT

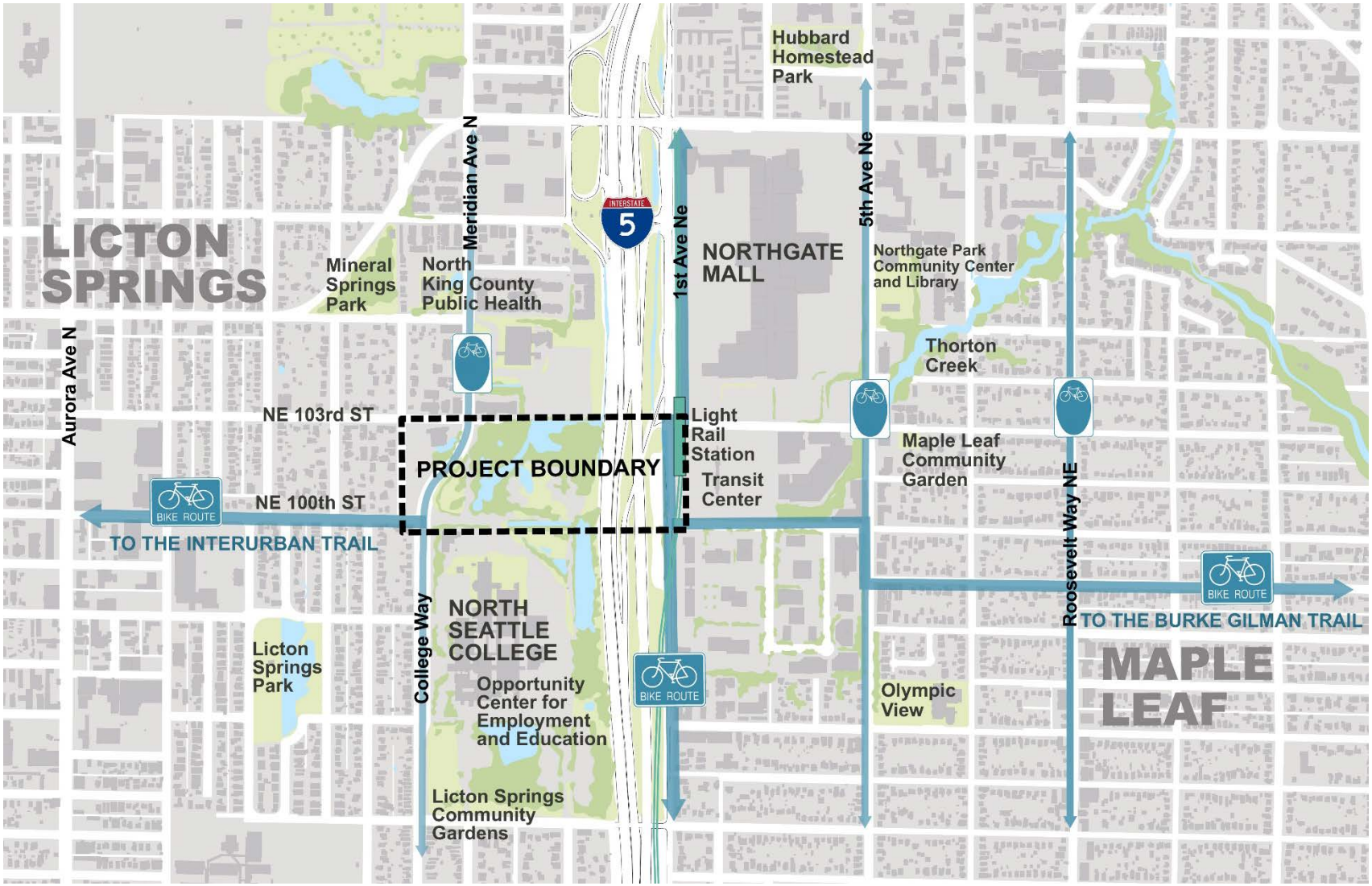
Project Need

This project will provide non-motorized improvements in the Northgate, North College Park and Licton Springs neighborhoods in the vicinity of Sound Transit's North Link Station and the North Seattle College.

Improvements include:

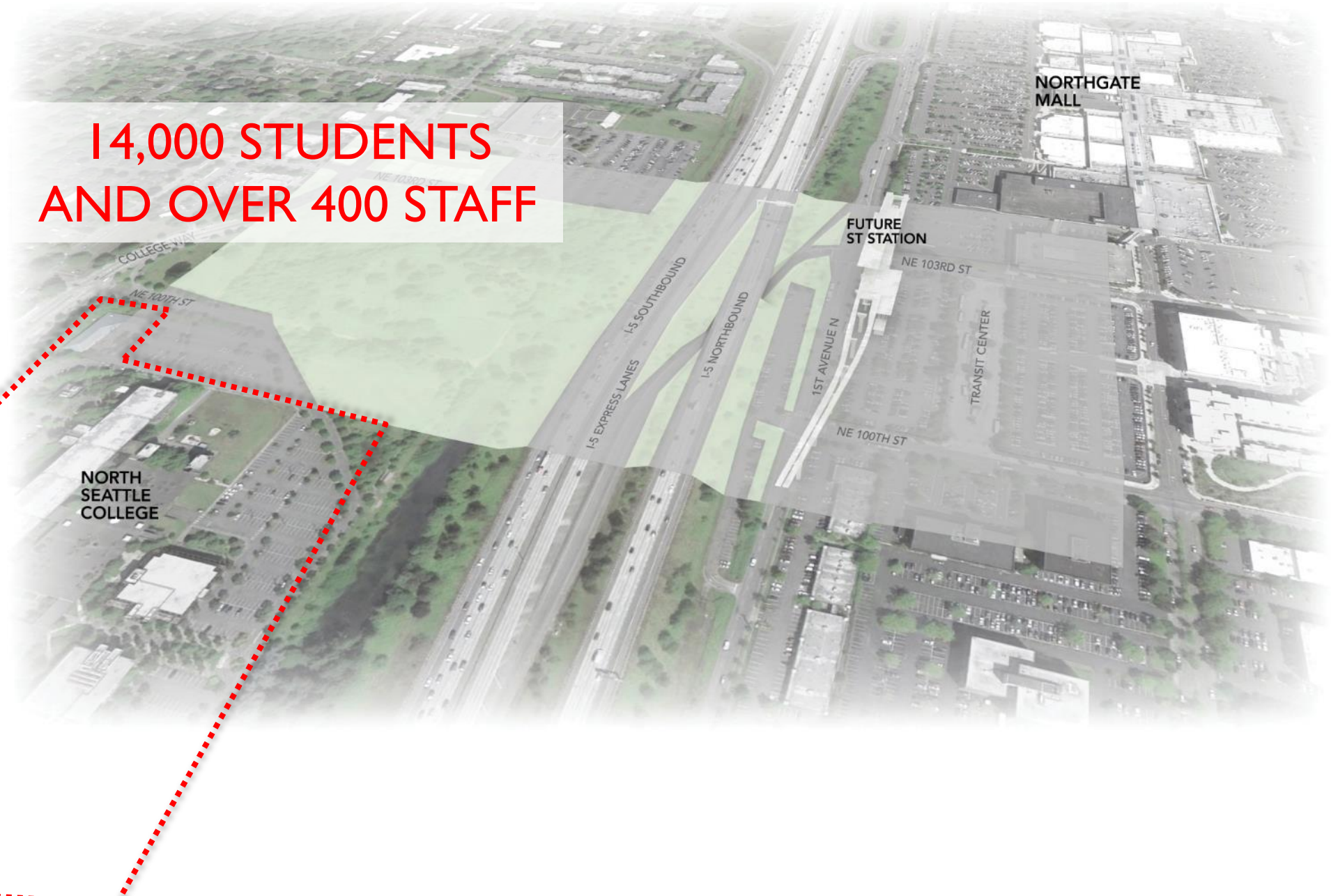
- Pedestrian/bicycle overpass over I-5
- Connections of west and east neighborhoods/businesses
- Connection of integrated transit facilities with the bridge and separated bicycle facilities

Project Boundaries



Project Site

North Seattle College



Existing Northgate Transit Center

Future Northgate Sound Transit Station

NORTHGATE MALL

FUTURE ST STATION

NE 103RD ST

I-5 NORTHBOUND

1ST AVENUE N

TRANSIT CENTER

NE 100TH ST

I-5 EXPRESS

NORTH SEATTLE COLLEGE

15,000 PASSENGERS PER DAY PROJECTED

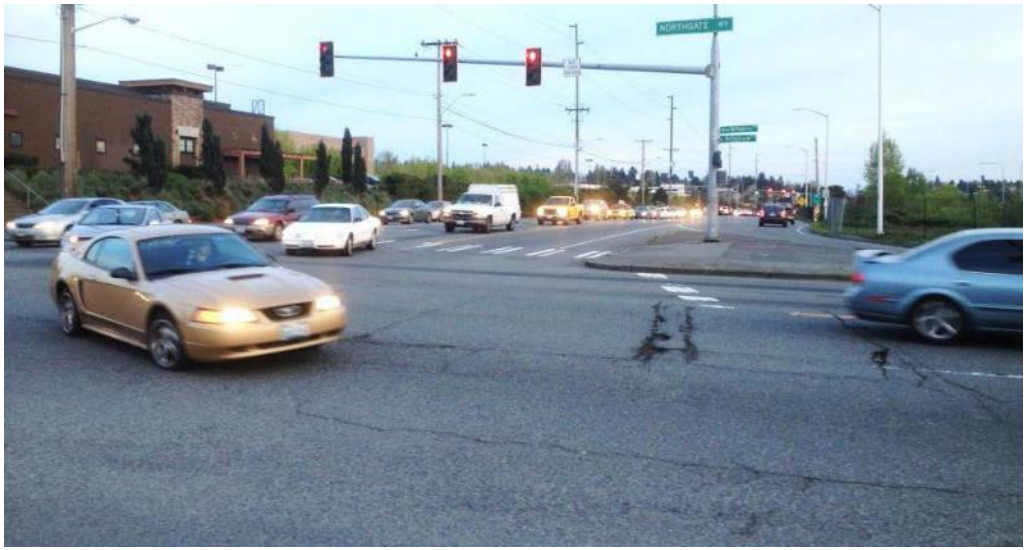
Existing West Walking Connections

92nd Street Overpass

Northgate Way at I-5 Overpass

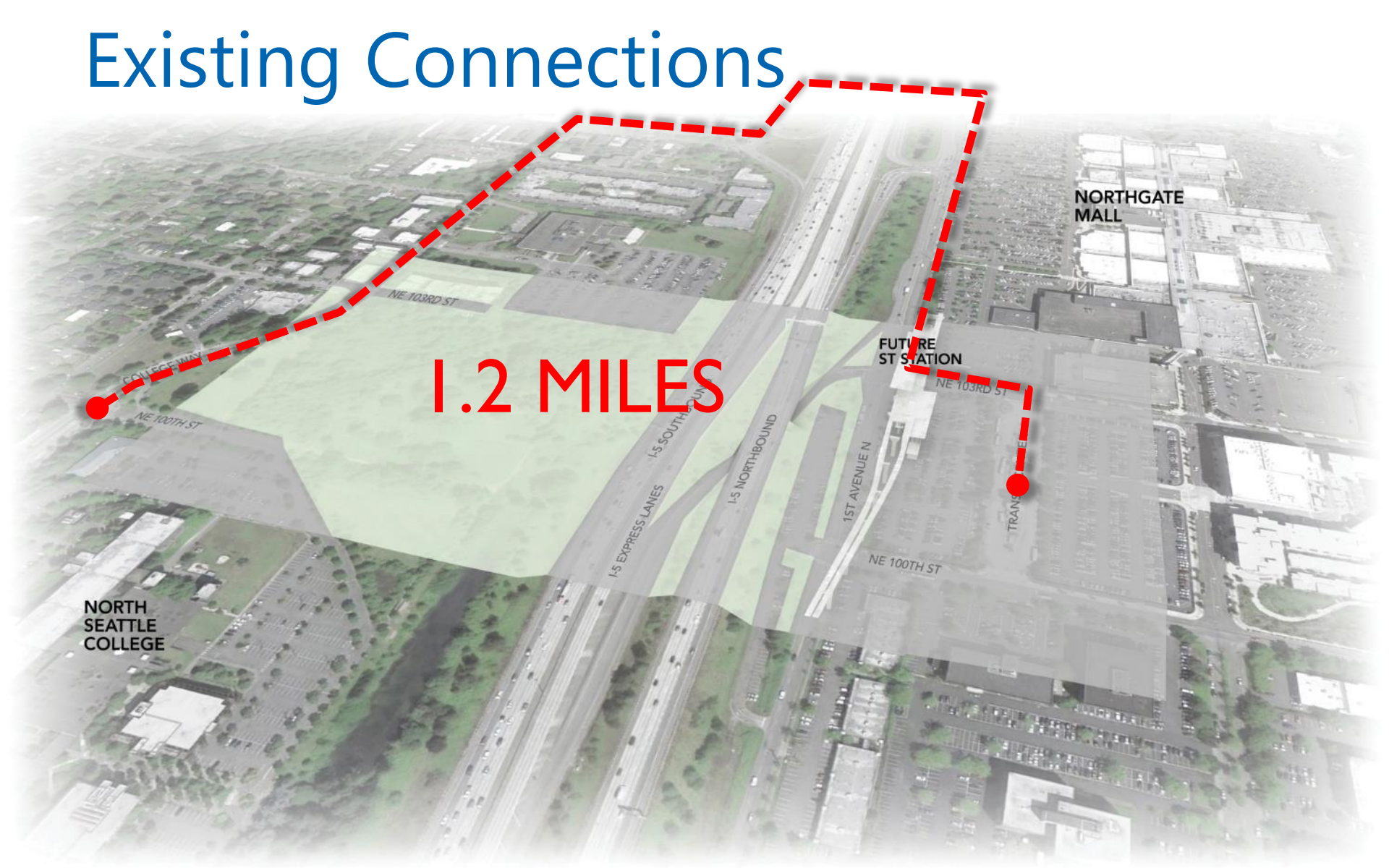
Existing East Walking Connections

Northgate Way at I-5 overpass

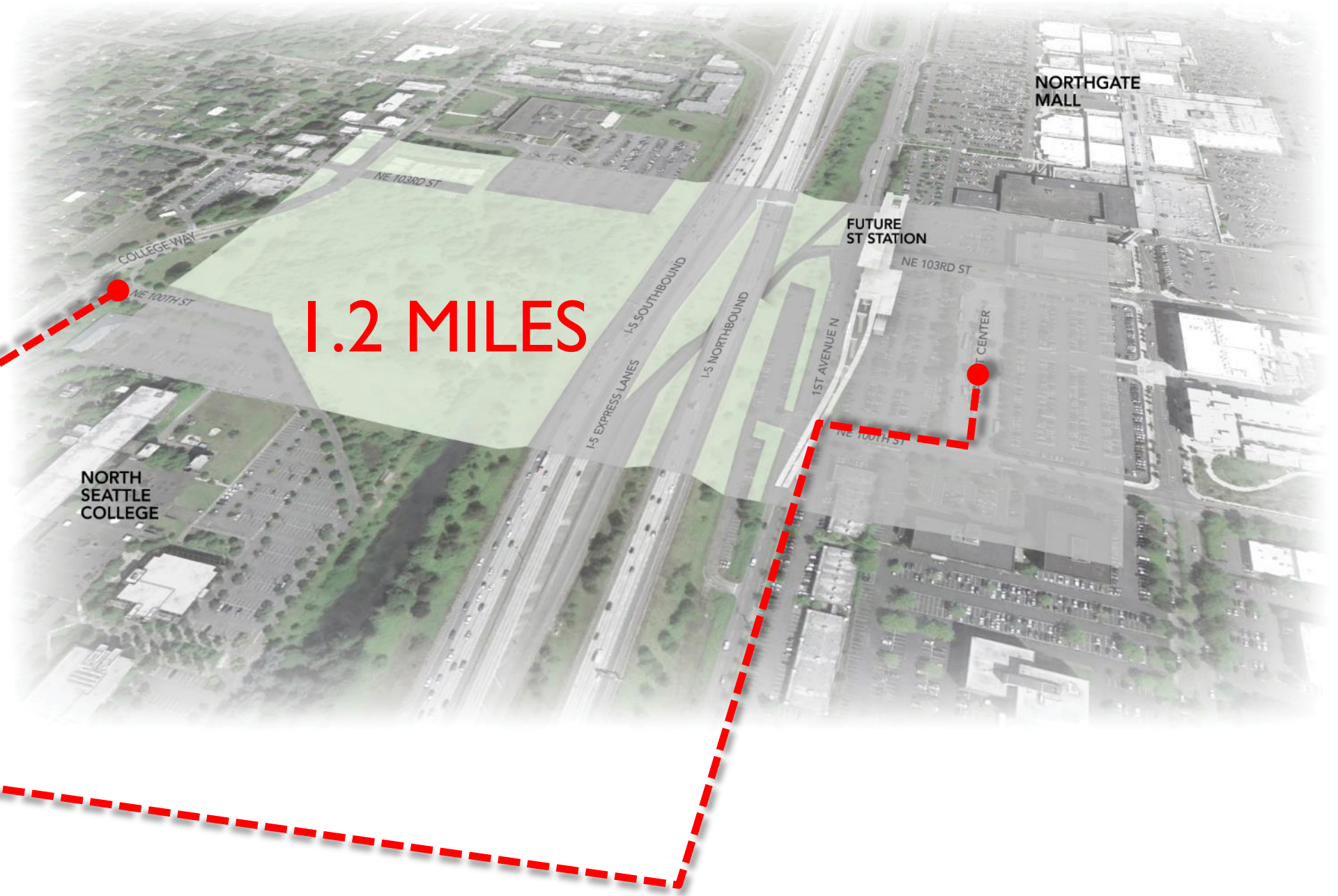


Northgate Way at 1st Ave NE

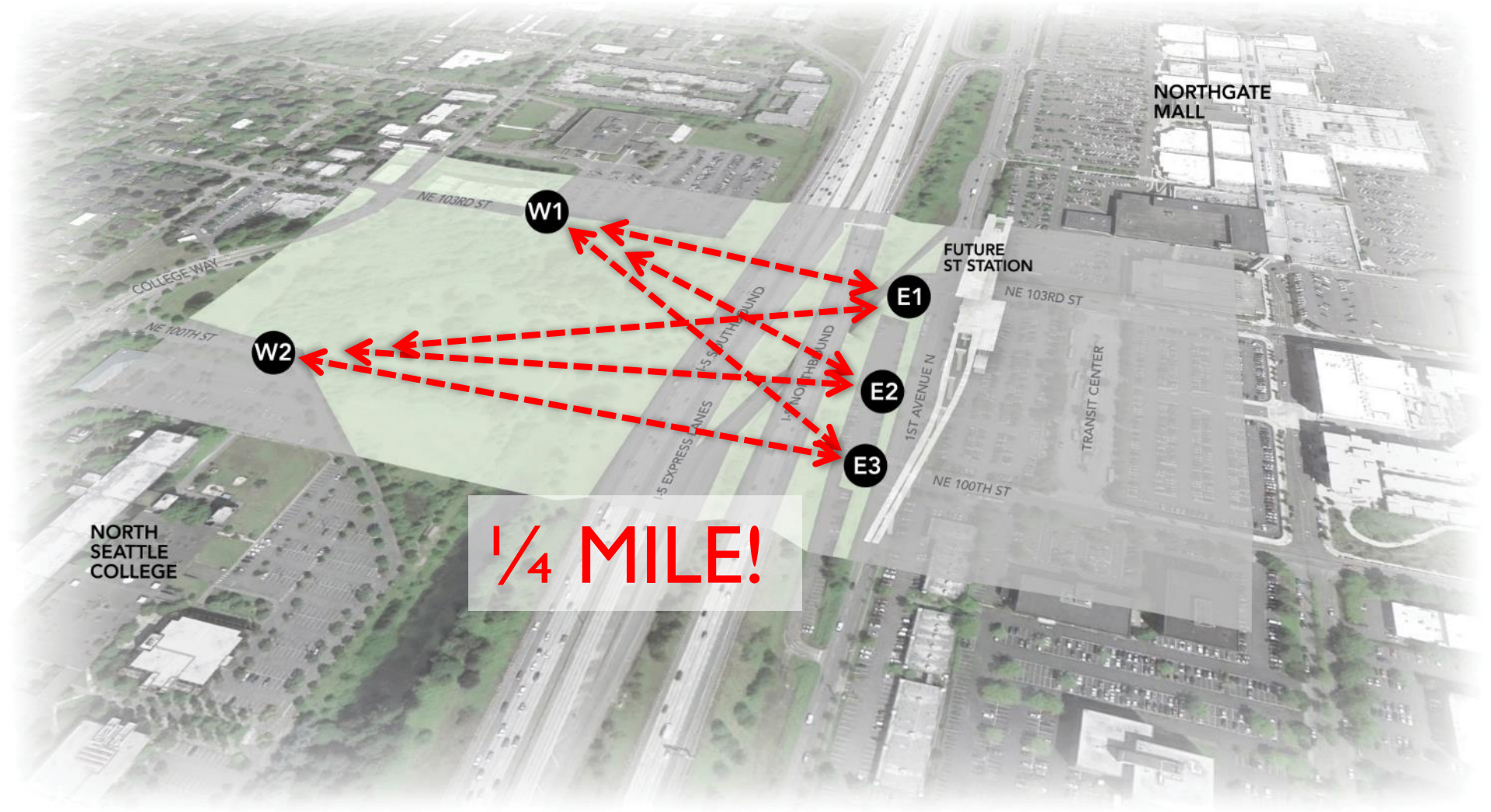
Existing Connections



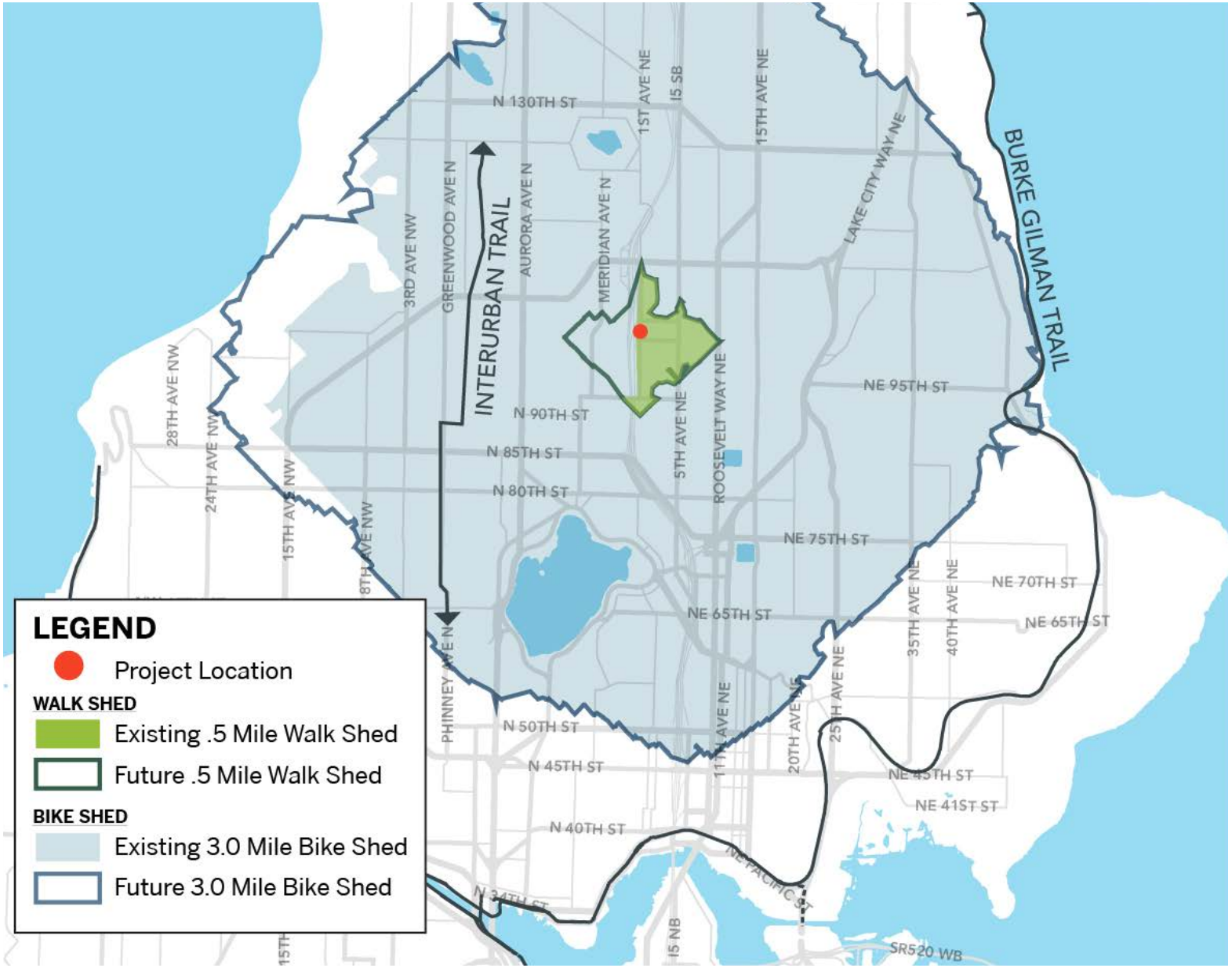
Existing Connections



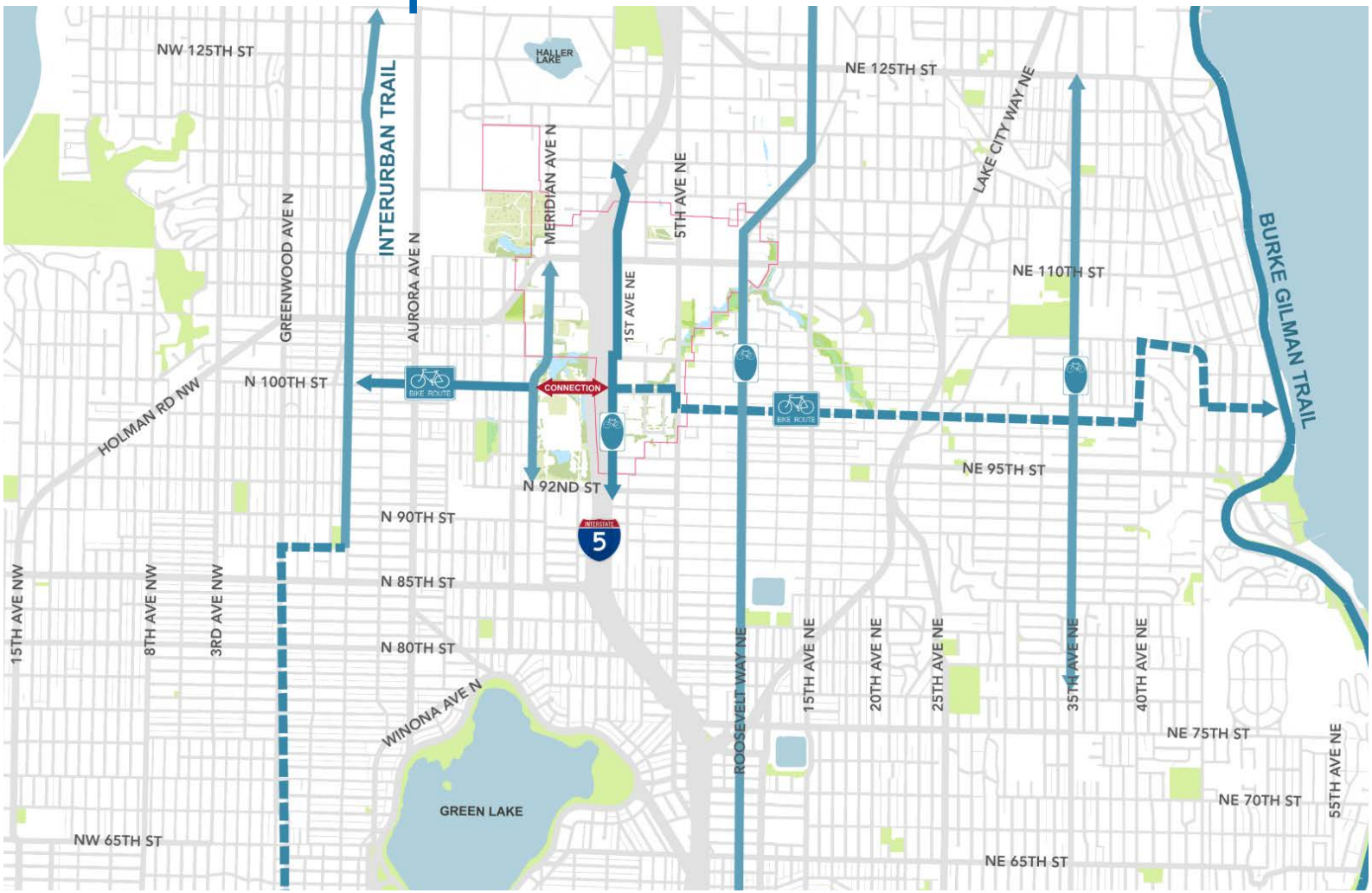
Bridge Alignment Options



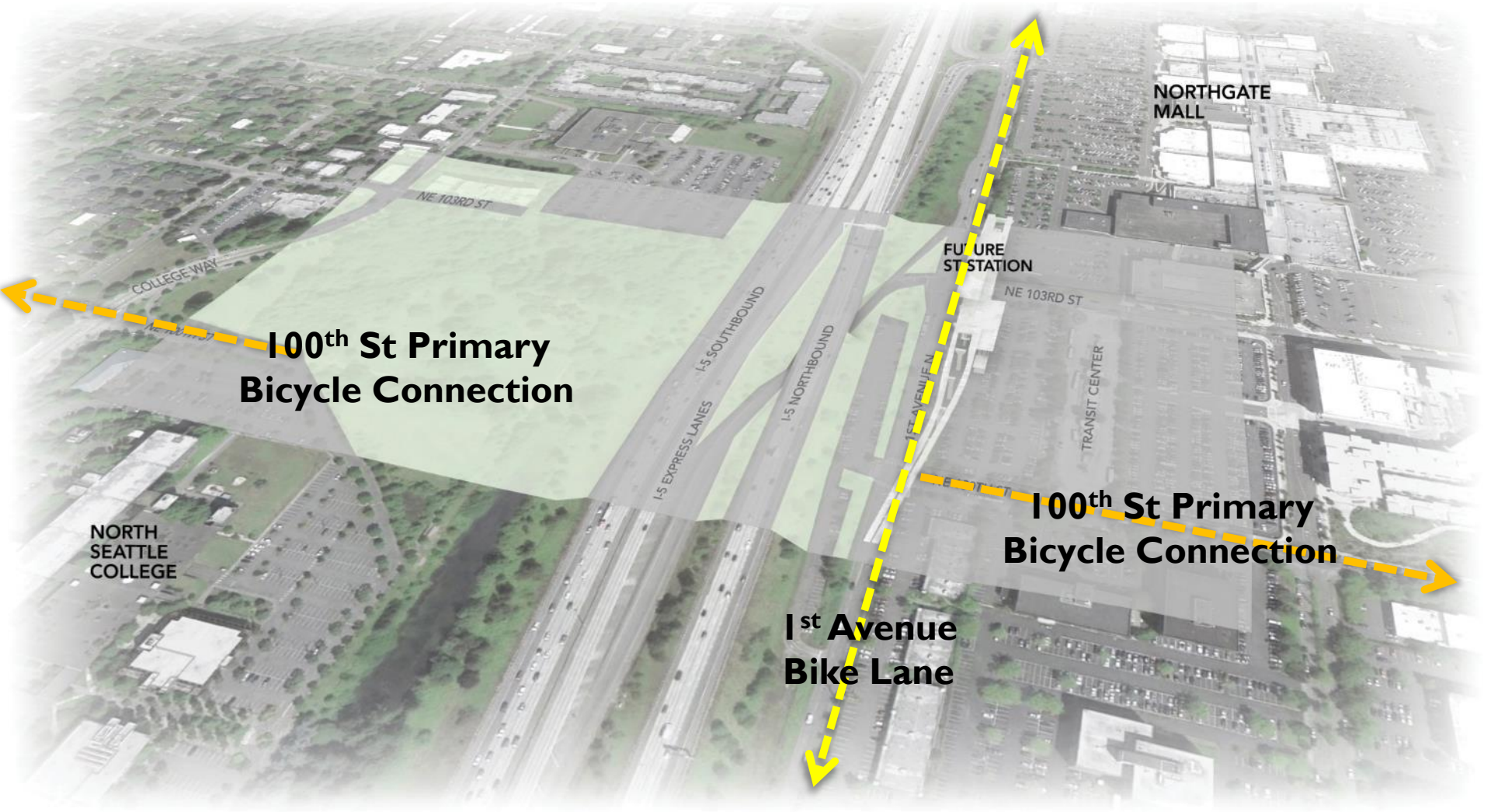
Expanded walk and bike sheds



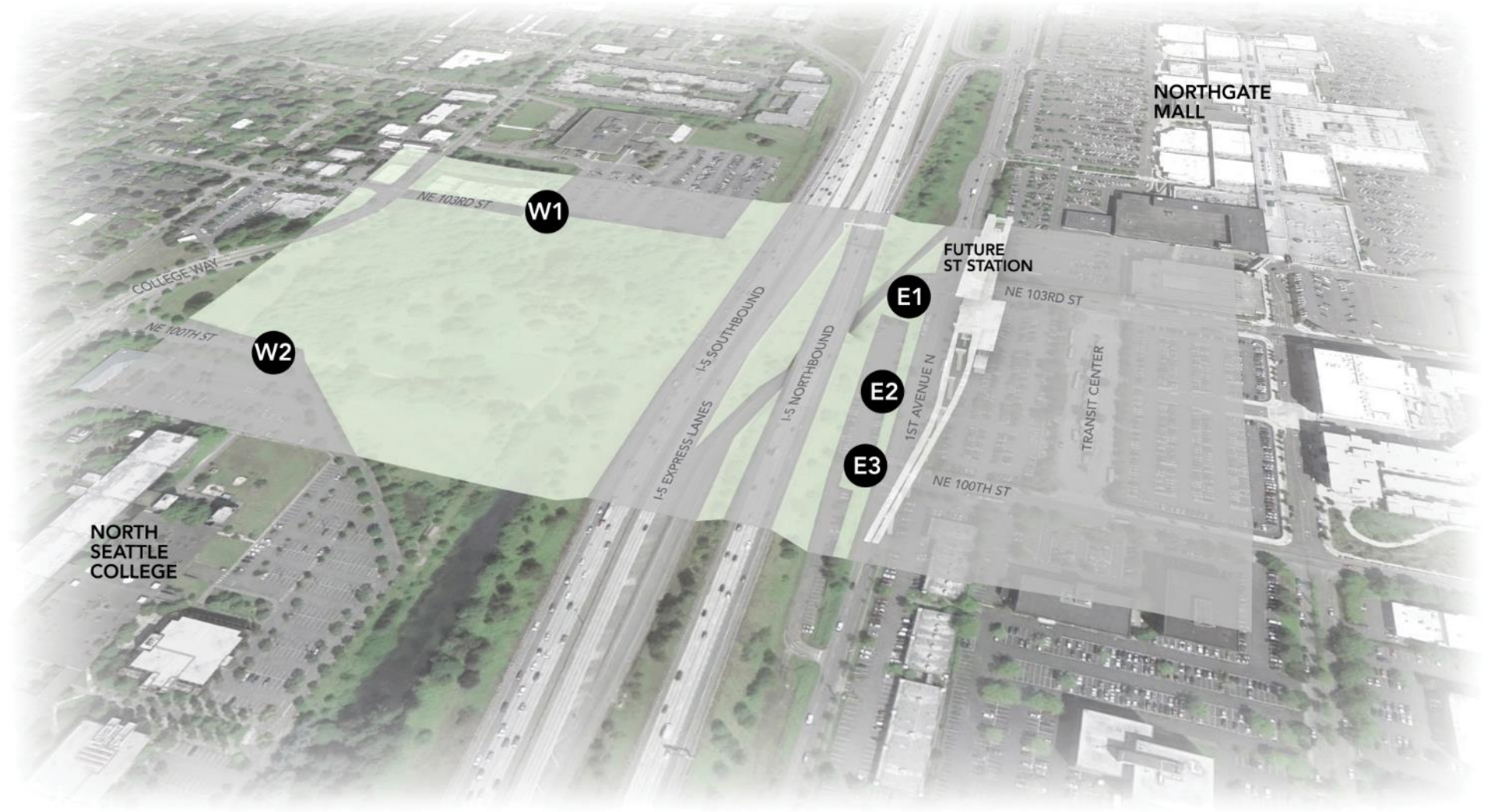
Completing the Interurban to Burke Gilman Loop



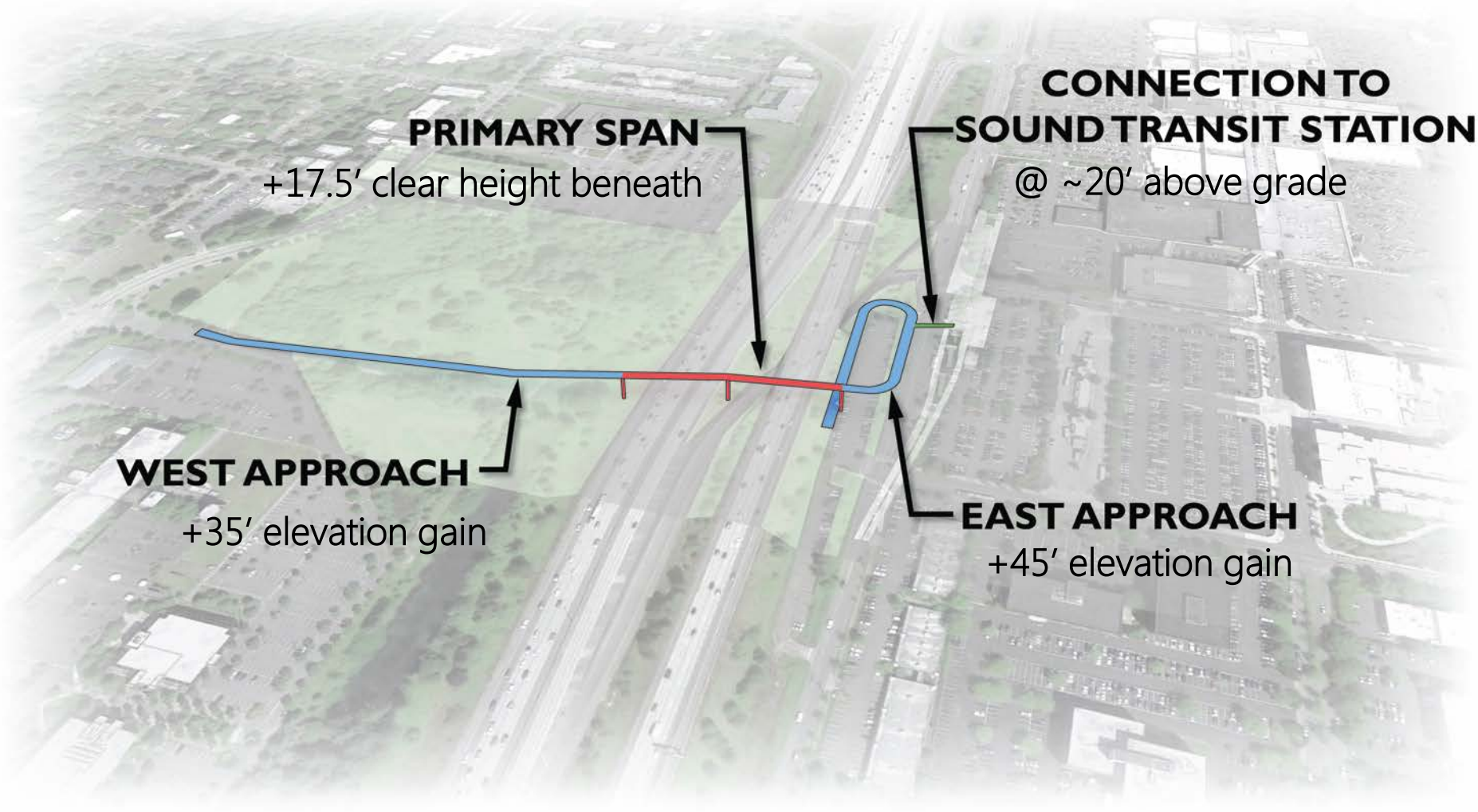
Proposed Bike Infrastructure



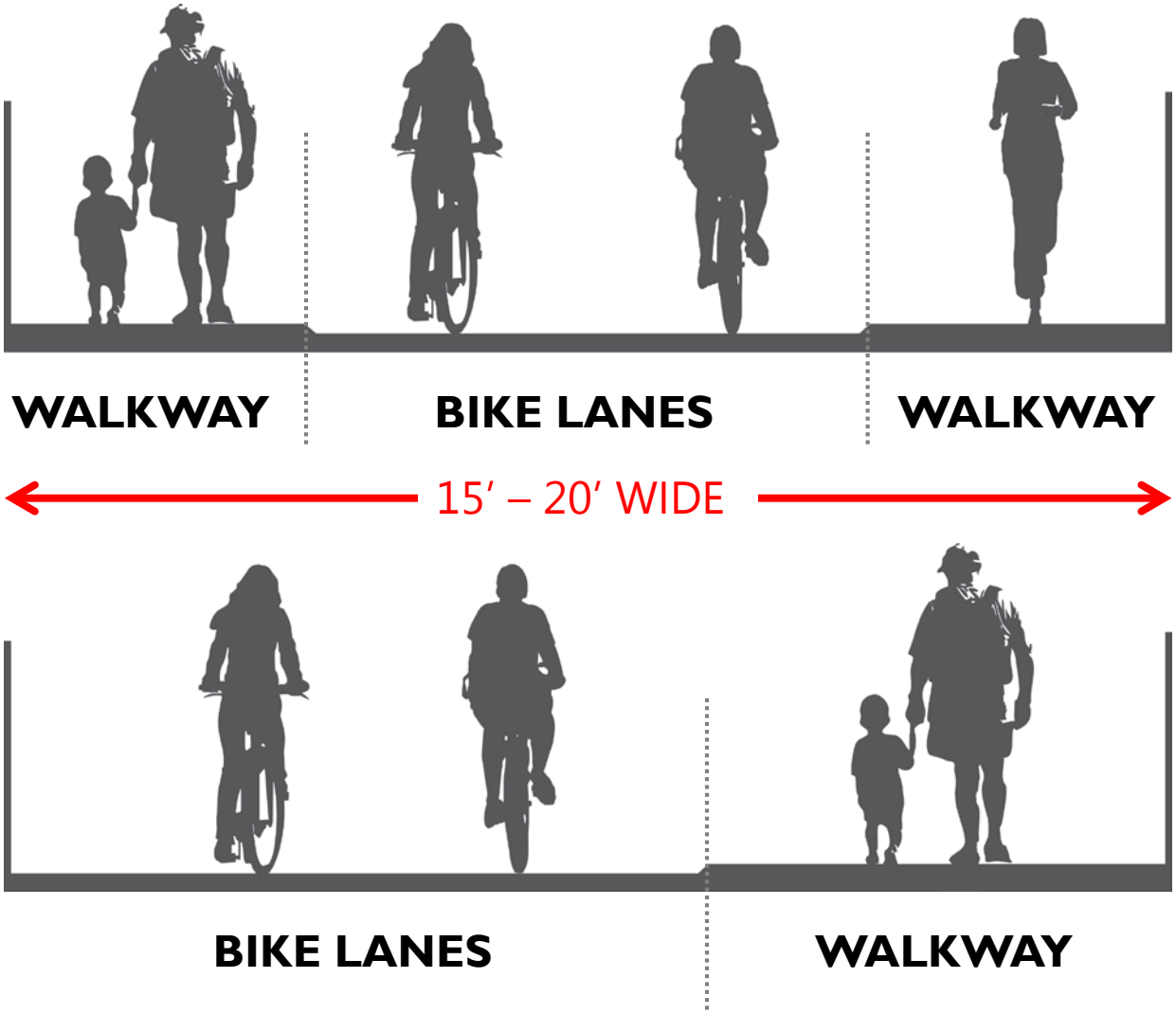
Bridge Access Points



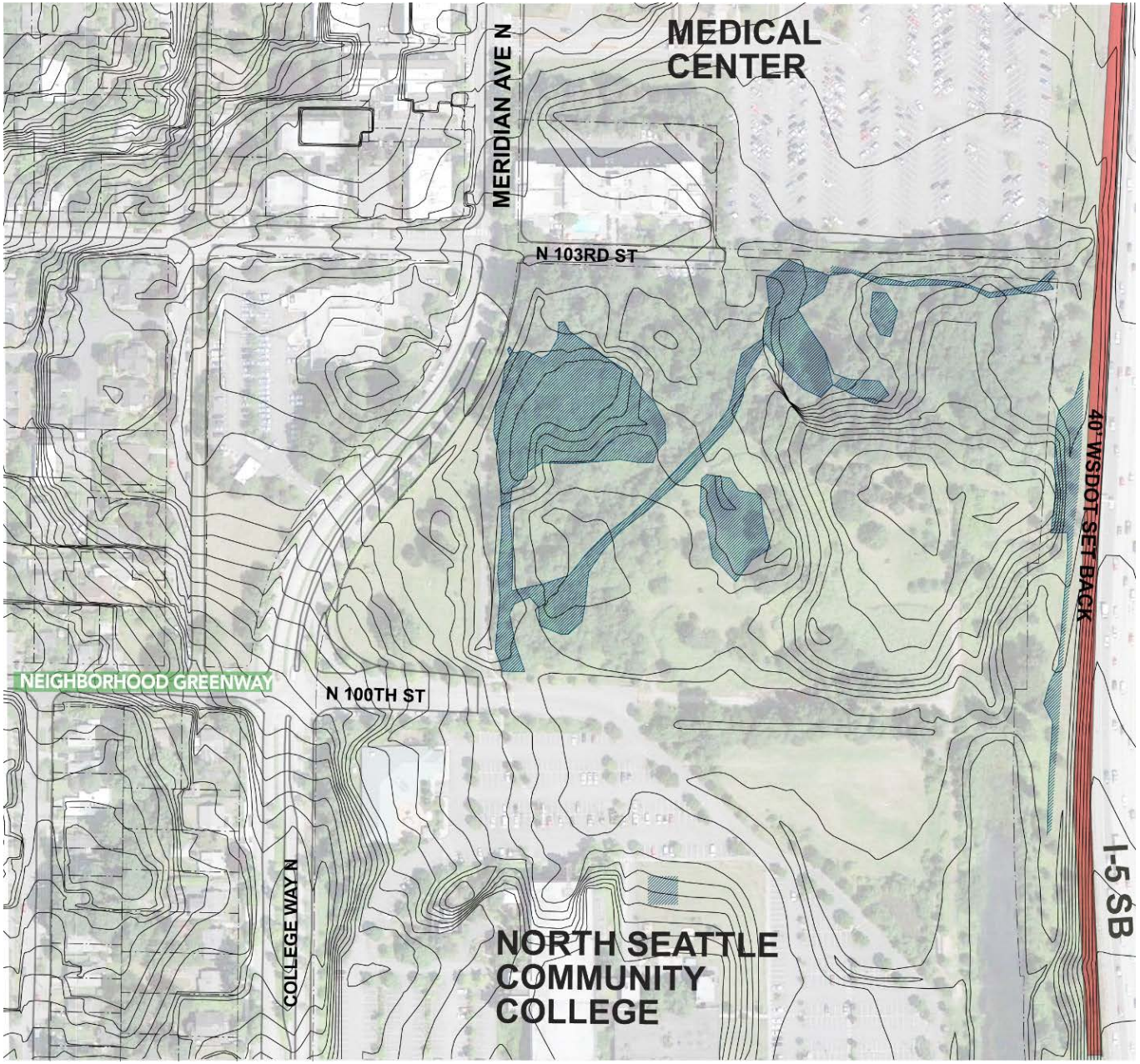
Bridge Components



Pathway Elements



Existing Conditions: **West Approach**



Existing Conditions: **West Approach**

NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

08.07.14 SITE CONDITIONS

KEY

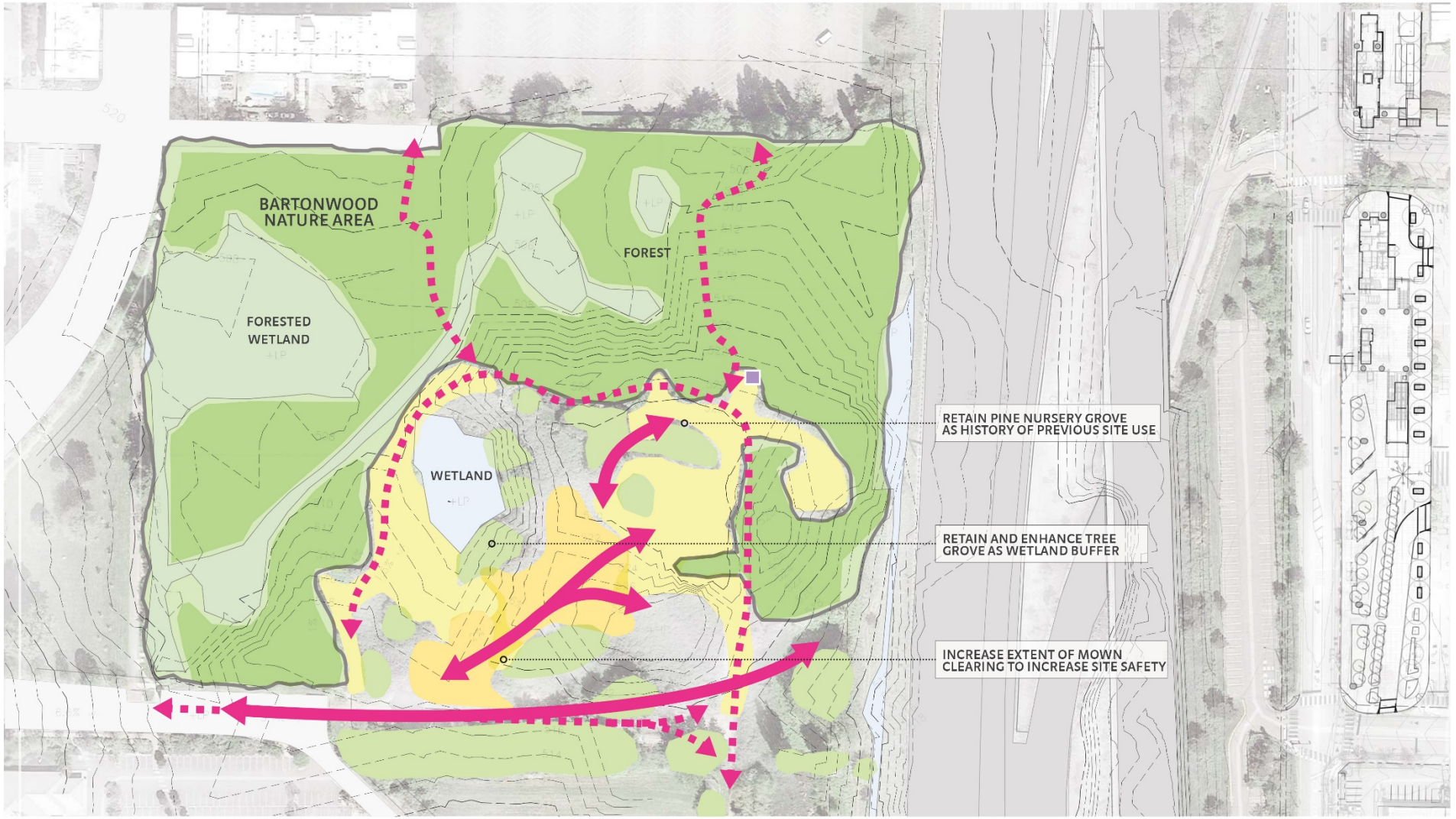
- EXISTING MOWN CLEARING
- SIGNIFICANT TREES AND FOREST
- WETLAND
- INTERSTATE 5
- PROPOSED CLEARING

NOTES

1. Approximate extent of forest, mown clearings and blackberry are shown along with wetlands, contours and significant trees to illustrate site characteristics.
2. The combination of landform, forest, trees and mown clearings create distinct site character and areas. The quality of the experience creates the sense of being in a natural environment separate from the city. The lack of city and freeway views coupled with bird sounds contributes to this characteristic. Discrete open clearings in the forested landscape create a memorable and distinct sense of place.
3. The structural diversity and mix of species provides a variety of habitat opportunities.
4. Site topography defines edges and clearings supporting the sense of place. The topography can provide for ease of pedestrian access.

NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

08.07.14 SITE RECOMMENDATIONS AND OBSERVATIONS



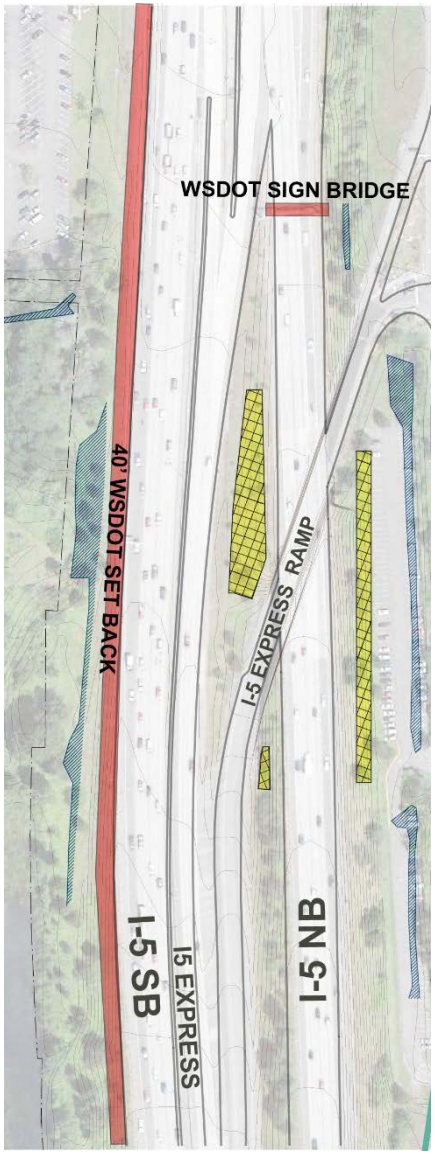
KEY

- EXISTING MOWN CLEARING
- SIGNIFICANT TREES AND FOREST
- WETLAND
- INTERSTATE 5
- EXISTING CIRCULATION
- PROPOSED CONNECTION
- PROPOSED CLEARING
- APPROXIMATE CALLBOX LOCATION

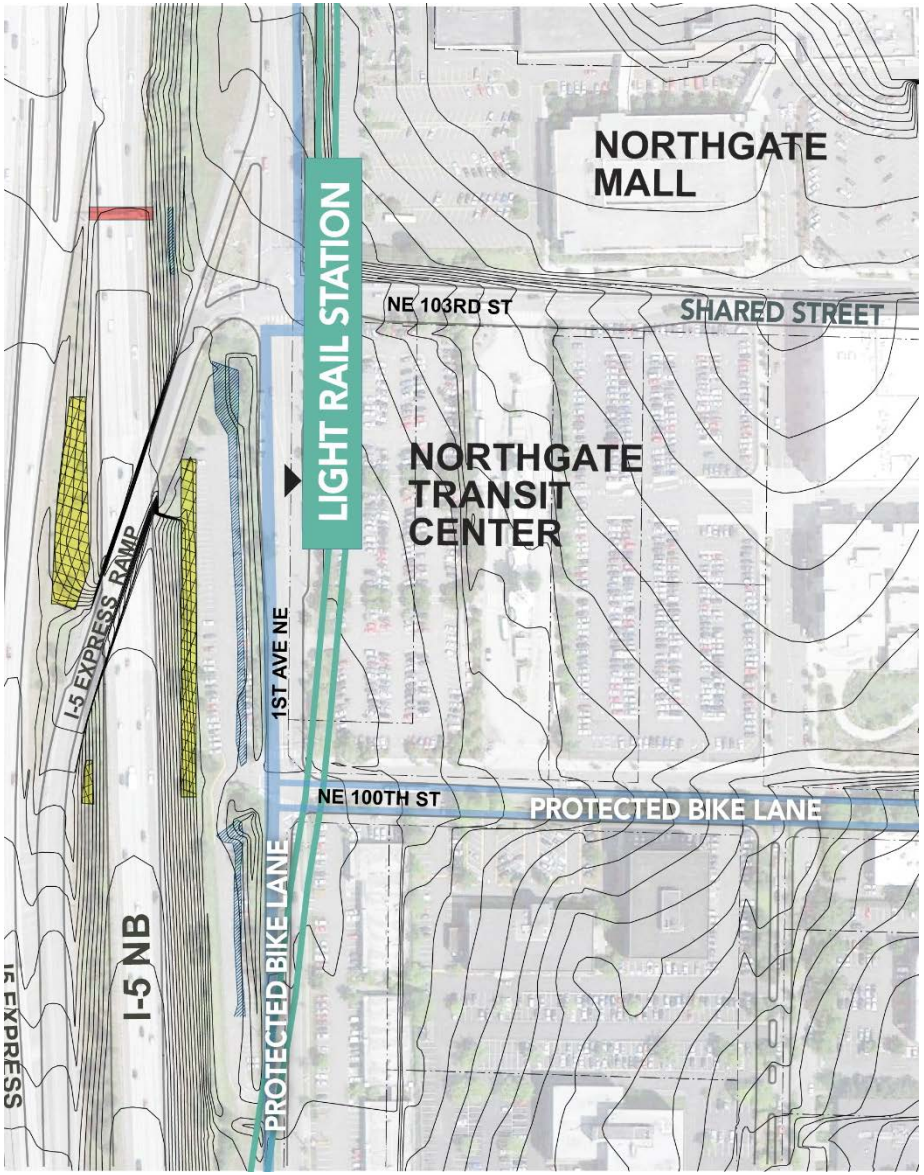
NOTES

1. These preliminary observations and recommendations are focused on the very selective modification of the Bartonwood Natural Area southern half to increase the sense of a defensible site by providing multiple routes for pedestrians. Increased visibility is achieved through mown clearings in existing blackberry areas. Recommendations include increasing tree groves to buffer wetlands and the retention of the former nursery groves of pine trees, a living indication of previous site use and history.

Existing Conditions: **I-5 Crossing**



Existing Conditions: **East Approach**



Existing Conditions: **East Approach**

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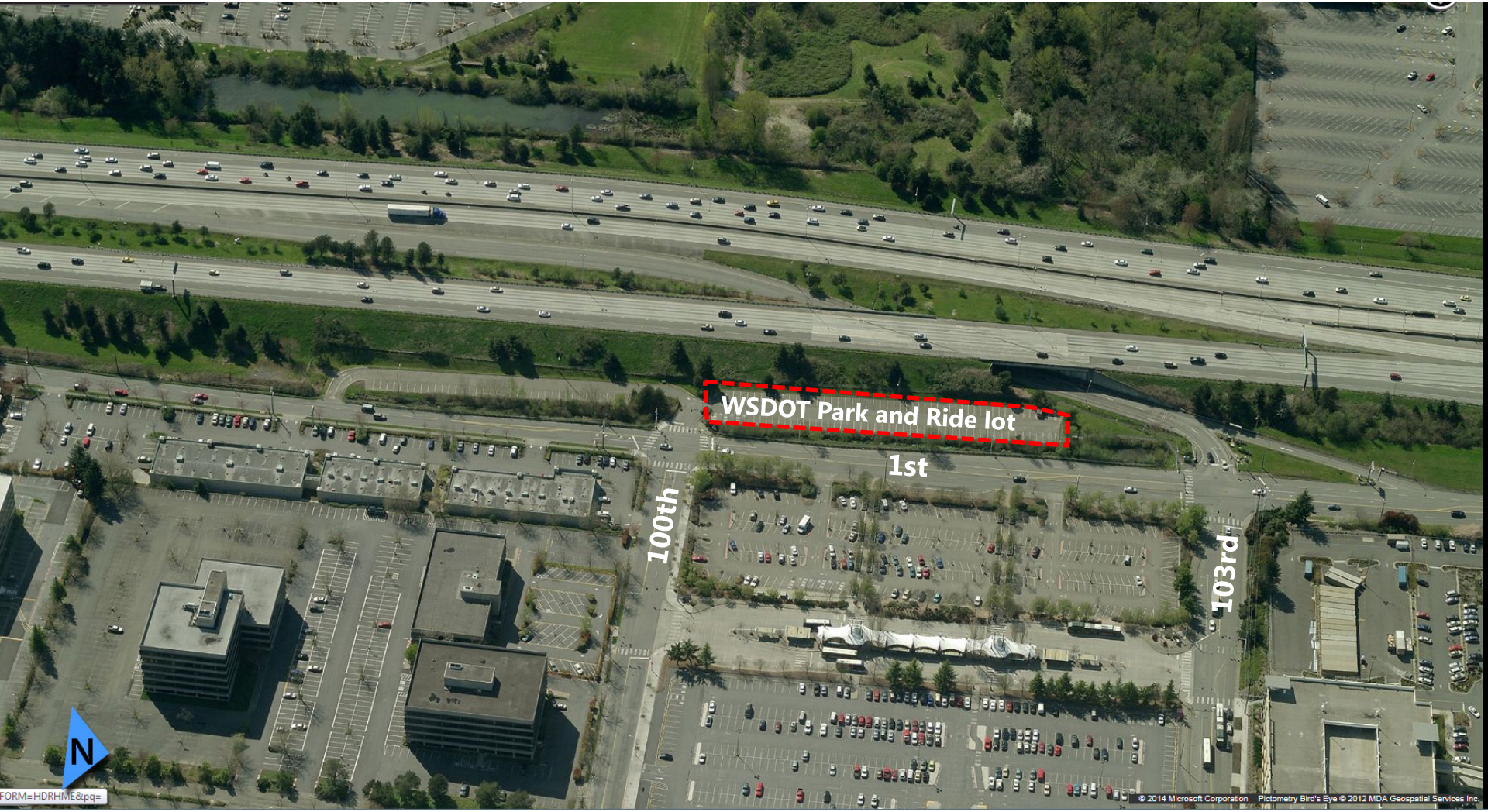
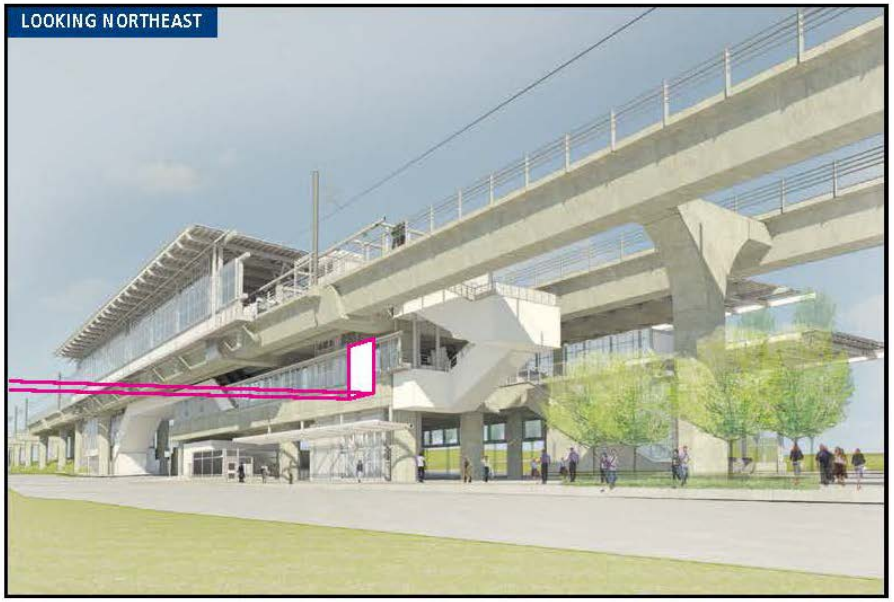
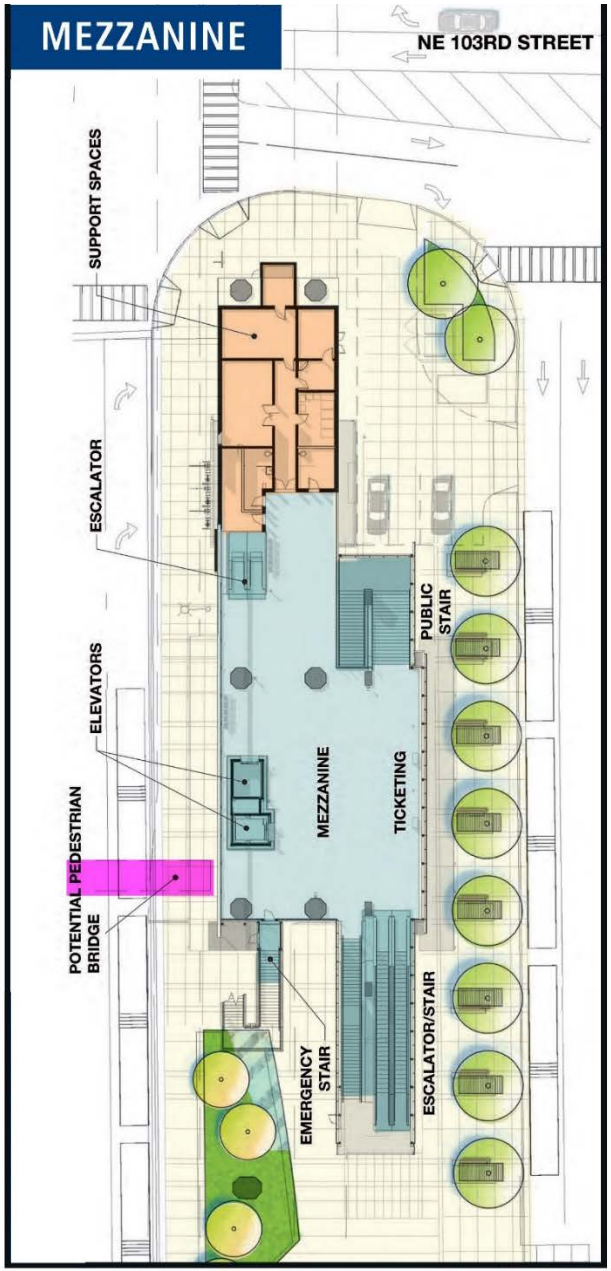


Existing Conditions: **East Approach**

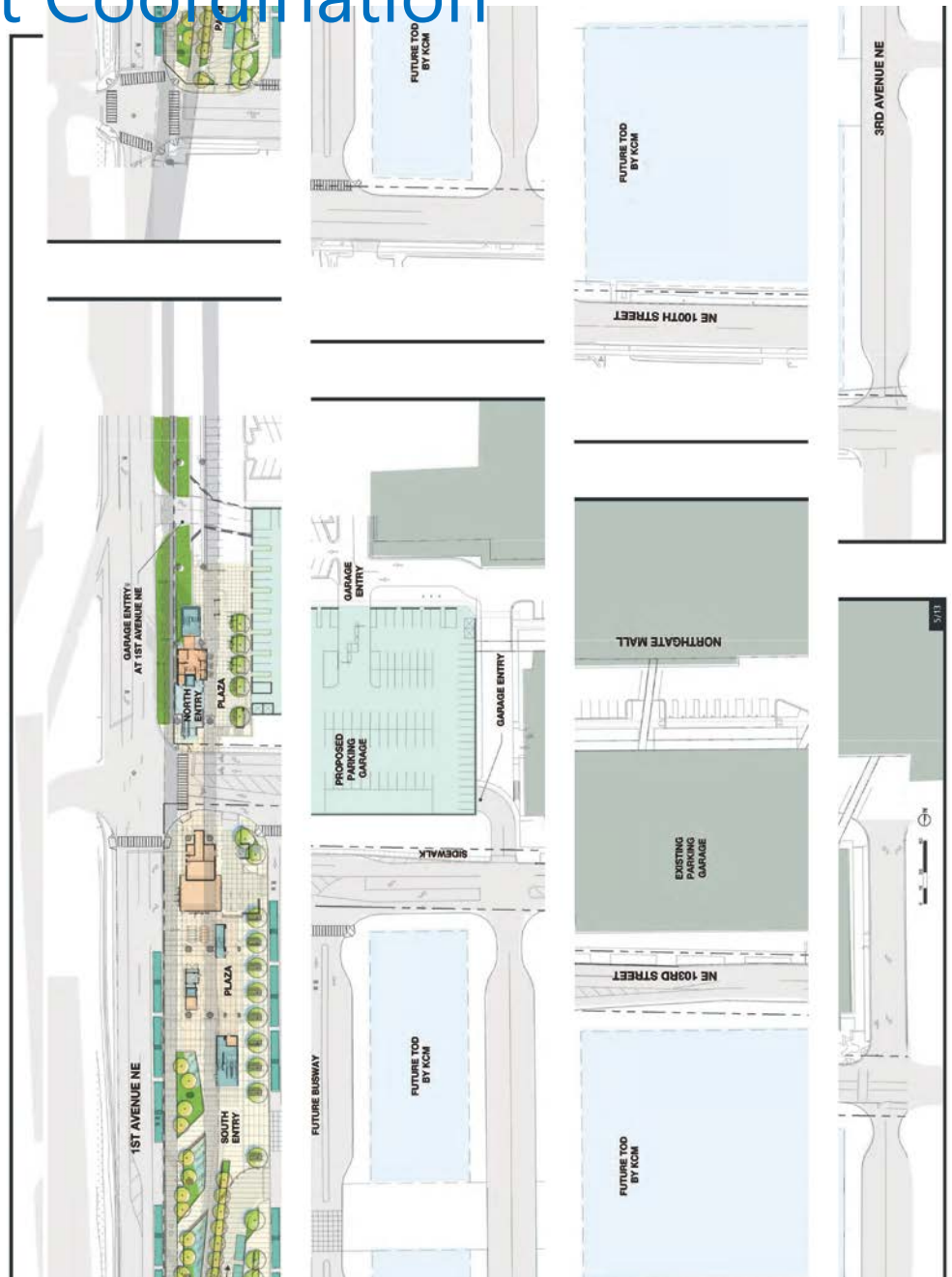
Sound Transit Coordination



Sound Transit Coordination



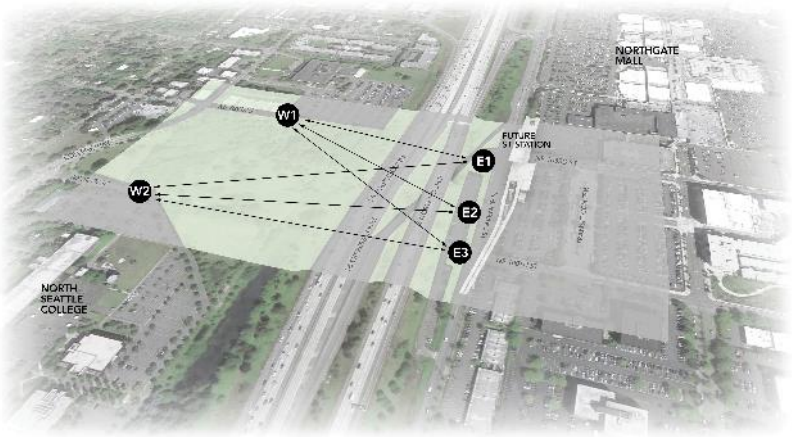
Sound Transit Coordination

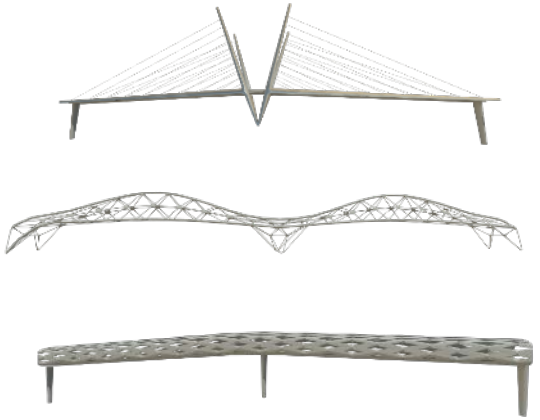


Level II Screening Criteria:

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

Design Alternatives for Screening:





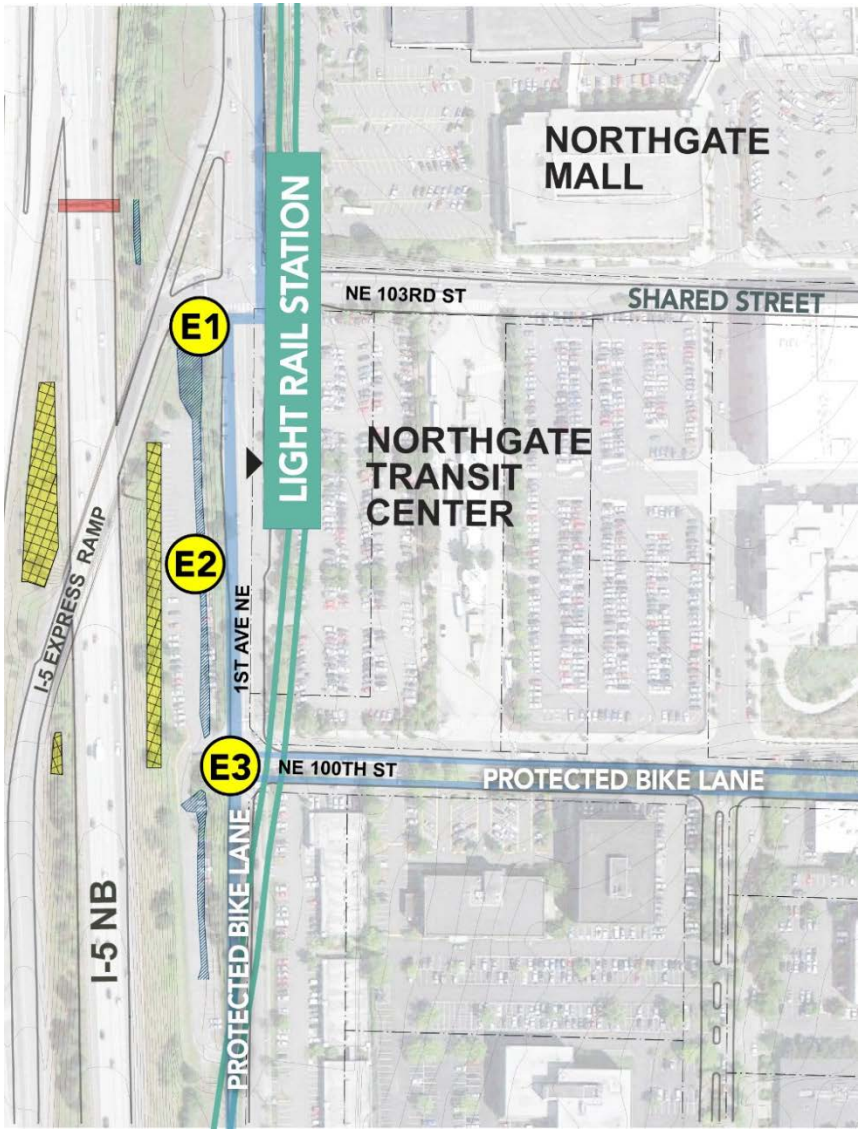
APPROACH NODES + **SPAN DESIGN**

West Approach

West Approach Summary

Screen Criteria	W1 N 103rd St	W2 N 100th St
Connectivity	▼	▲▲
Safety	▼▼	▲▲
Visual Presence/Impact	▼▼	▲
Environment Impact	▼	▲
Constructability	▼	▲
Cost	▼	▲

East Approach



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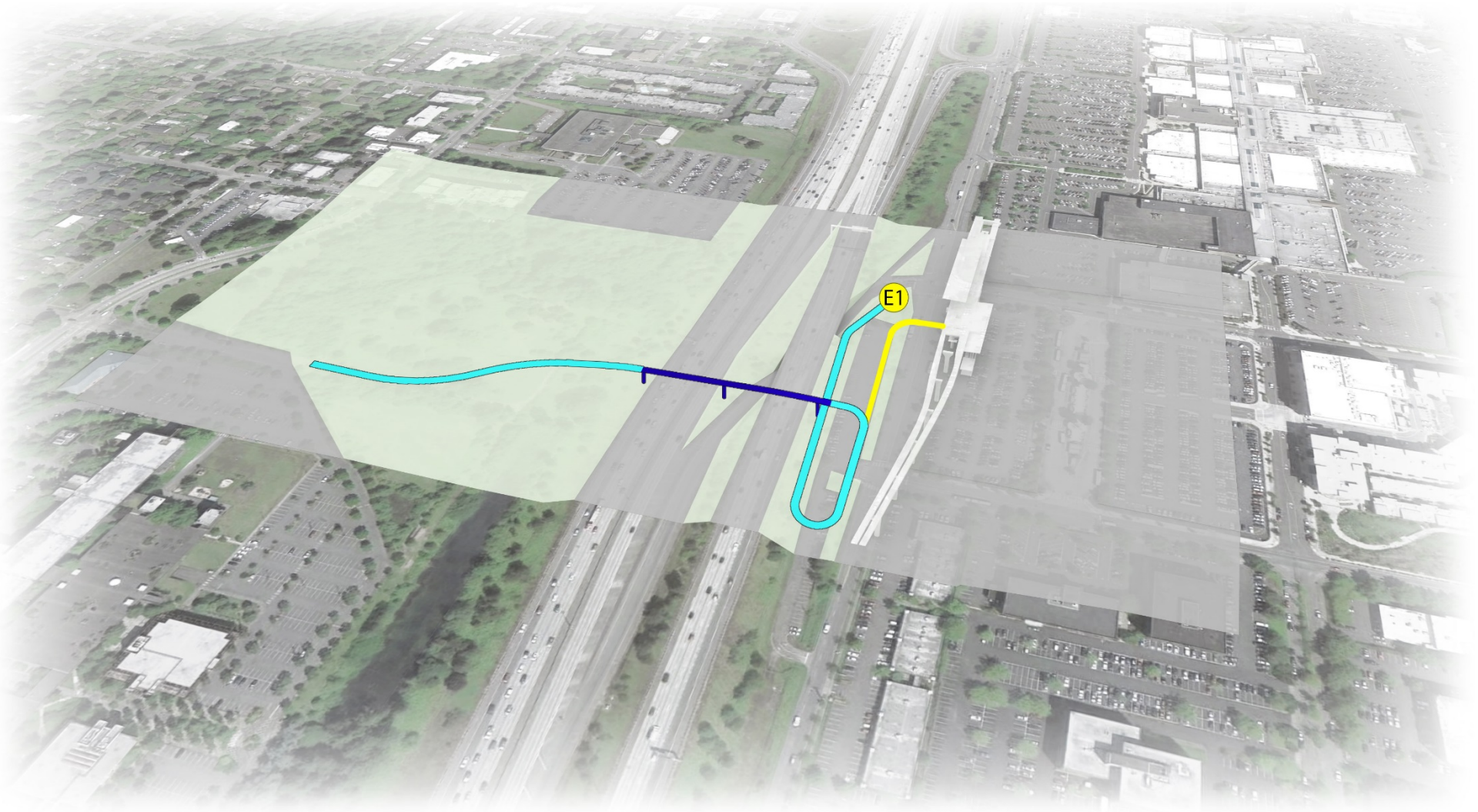

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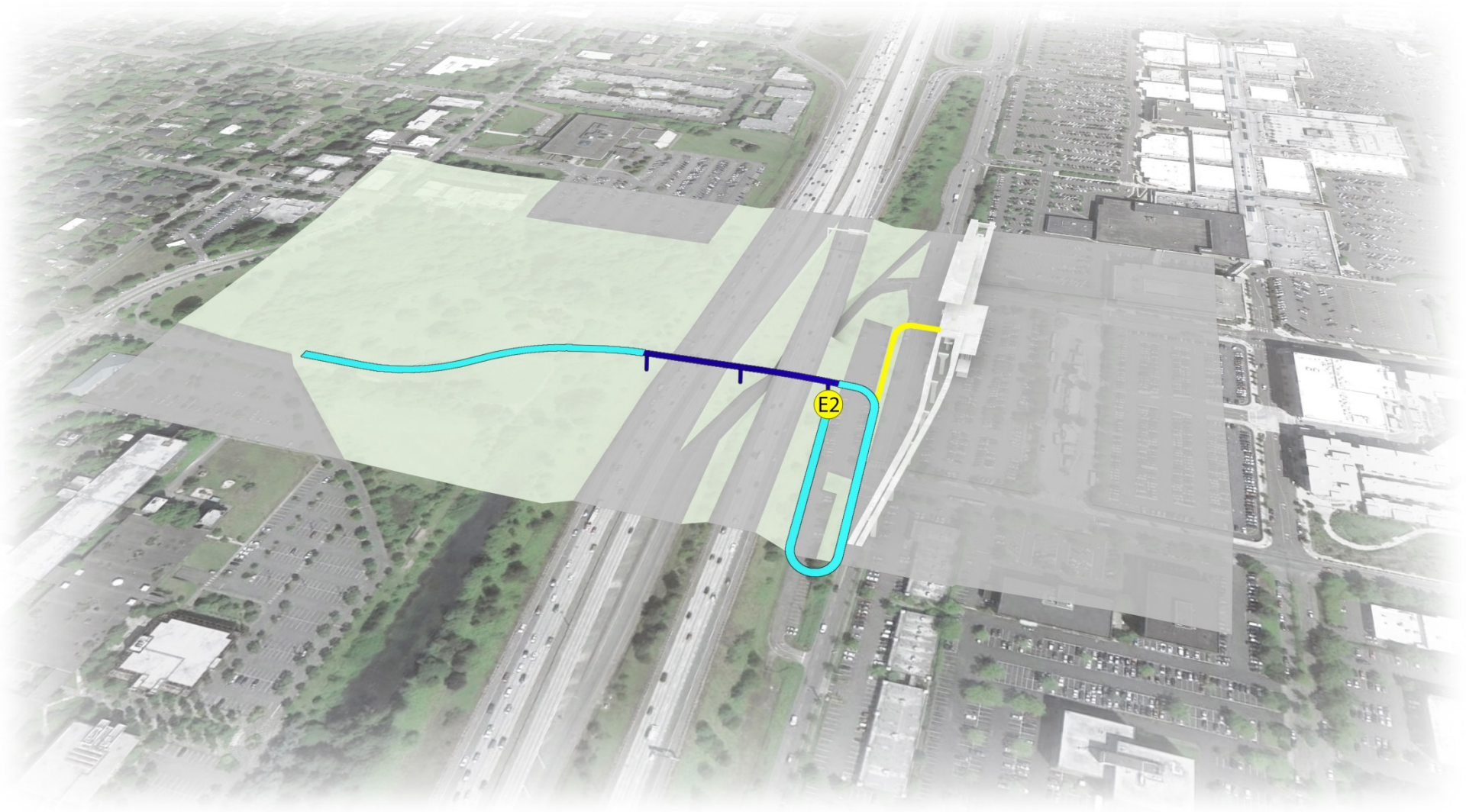

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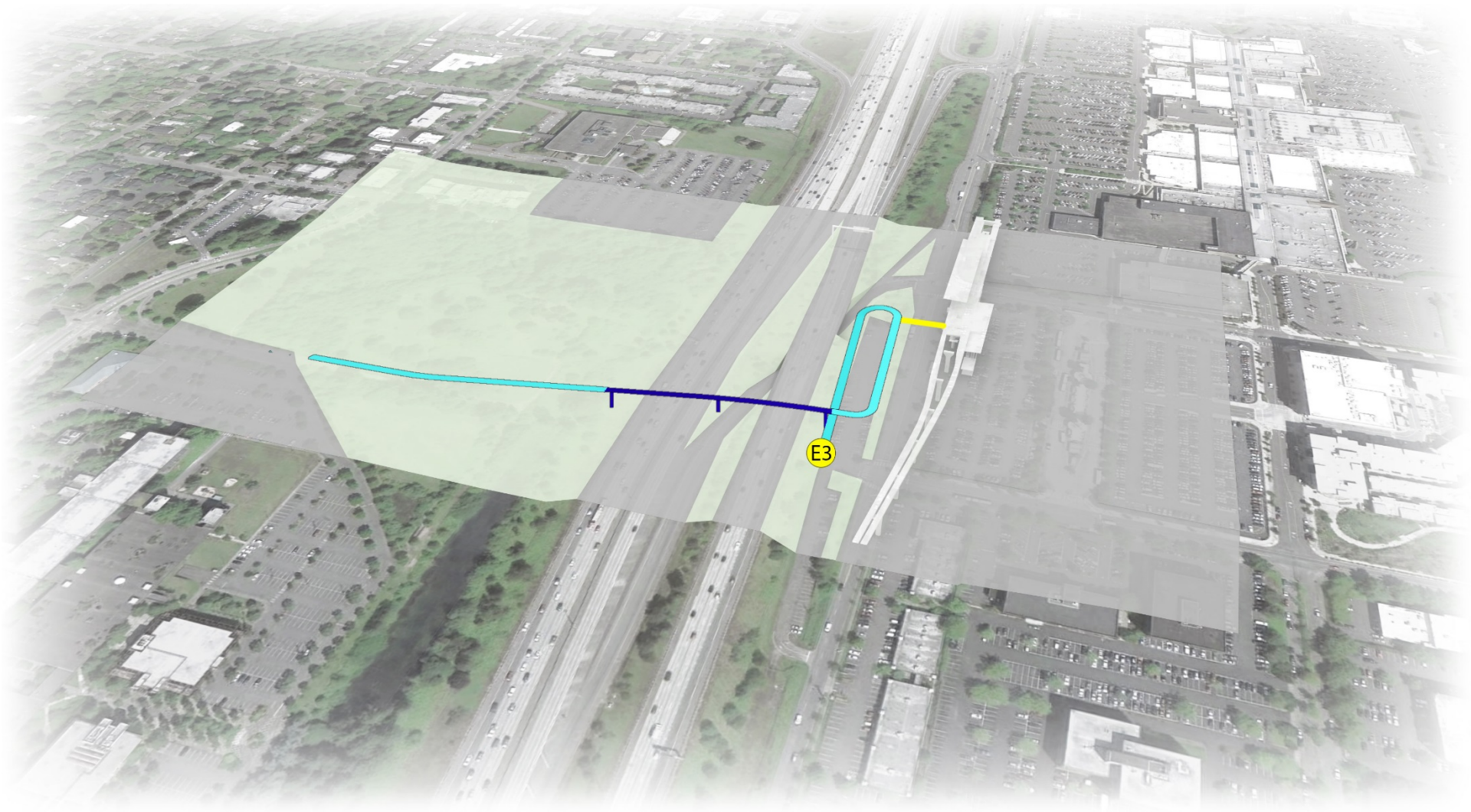

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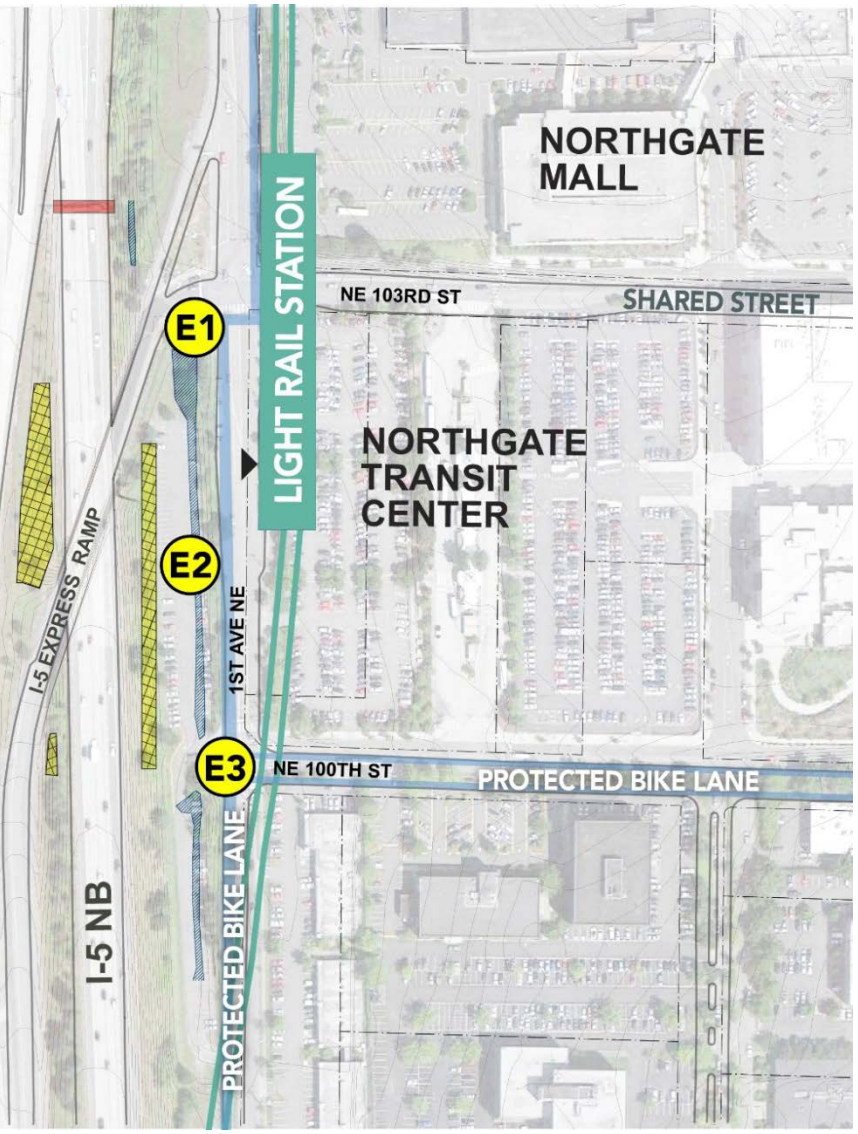
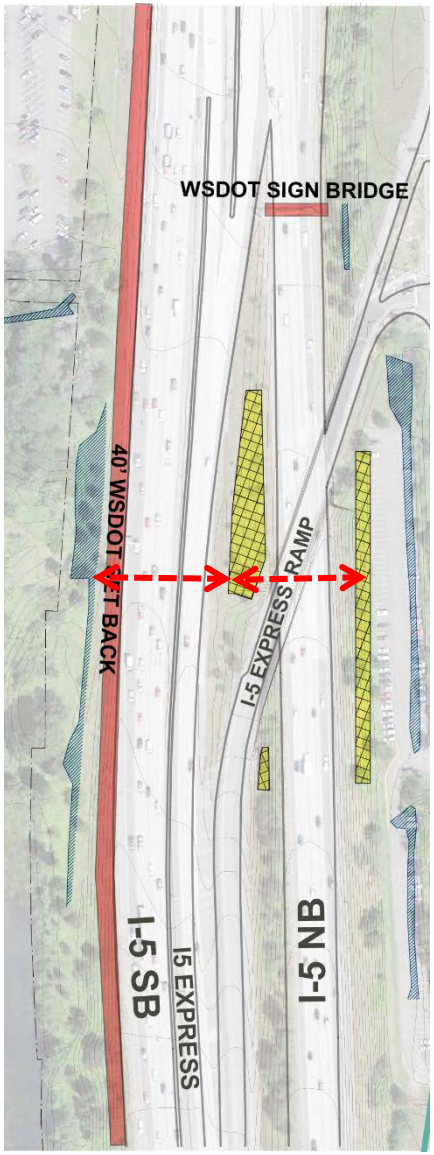


Screen Criteria	E1 NE 103rd St	E2 Mid Pkg Lot	E3 NE 100th St
Connectivity	▼	▼▼	▲▲
Safety	▼▼	▼▼	▲
Visual Presence/Impact	▼	▼▼	▲▲
Environment Impact	▼	■	■
Constructability	▼	■	■
Cost	▼▼	■	■

I-5 Crossing: Two 200’ Spans



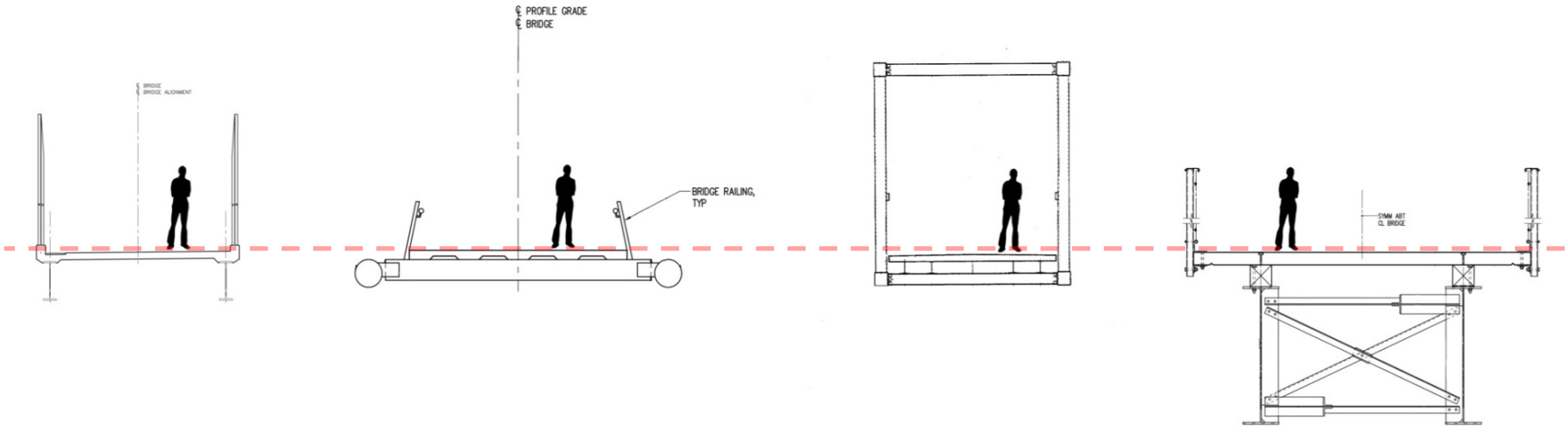
I-5 Southbound

I-5 Northbound

Structural Depth

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

Structural Depth



Arch

Cable Stay

Tube/truss

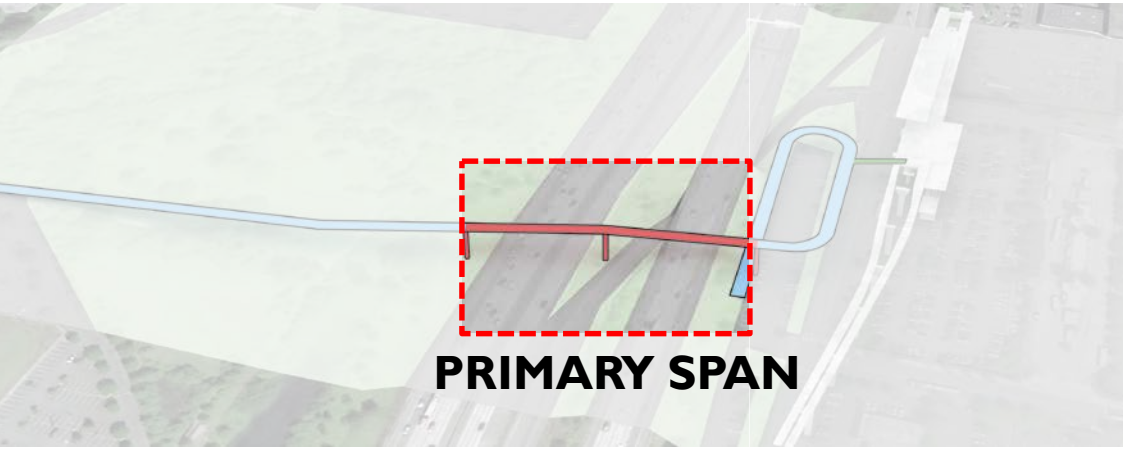
Girder

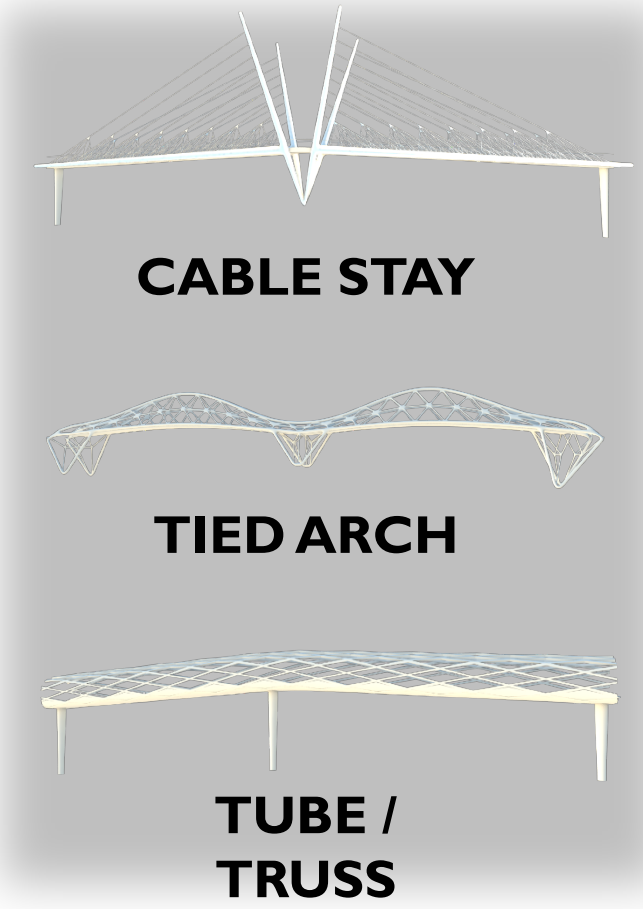
Depth vs. Length/Time

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

* Approximate length of ramps using 5% slope. Length may vary based on final alignment.
** Travel time based on pedestrian speed of 3mph, and includes 400ft of main bridge span length

Bridge Components: **Primary Span**





Primary Span Types: **Cable Stay**

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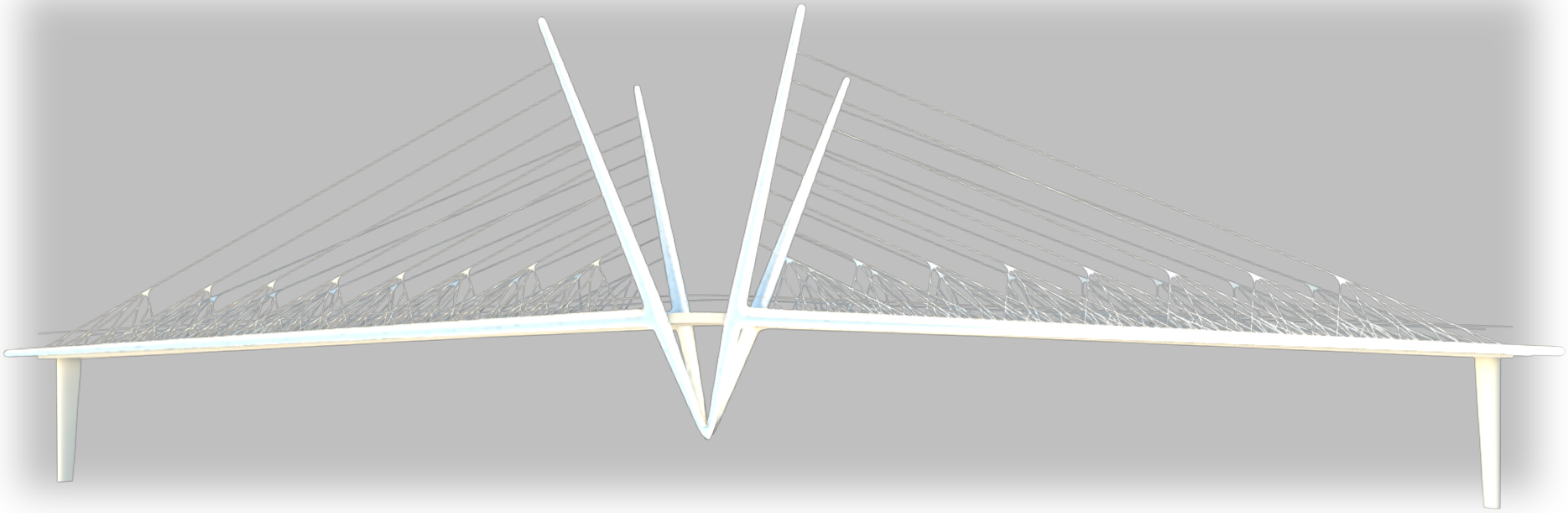
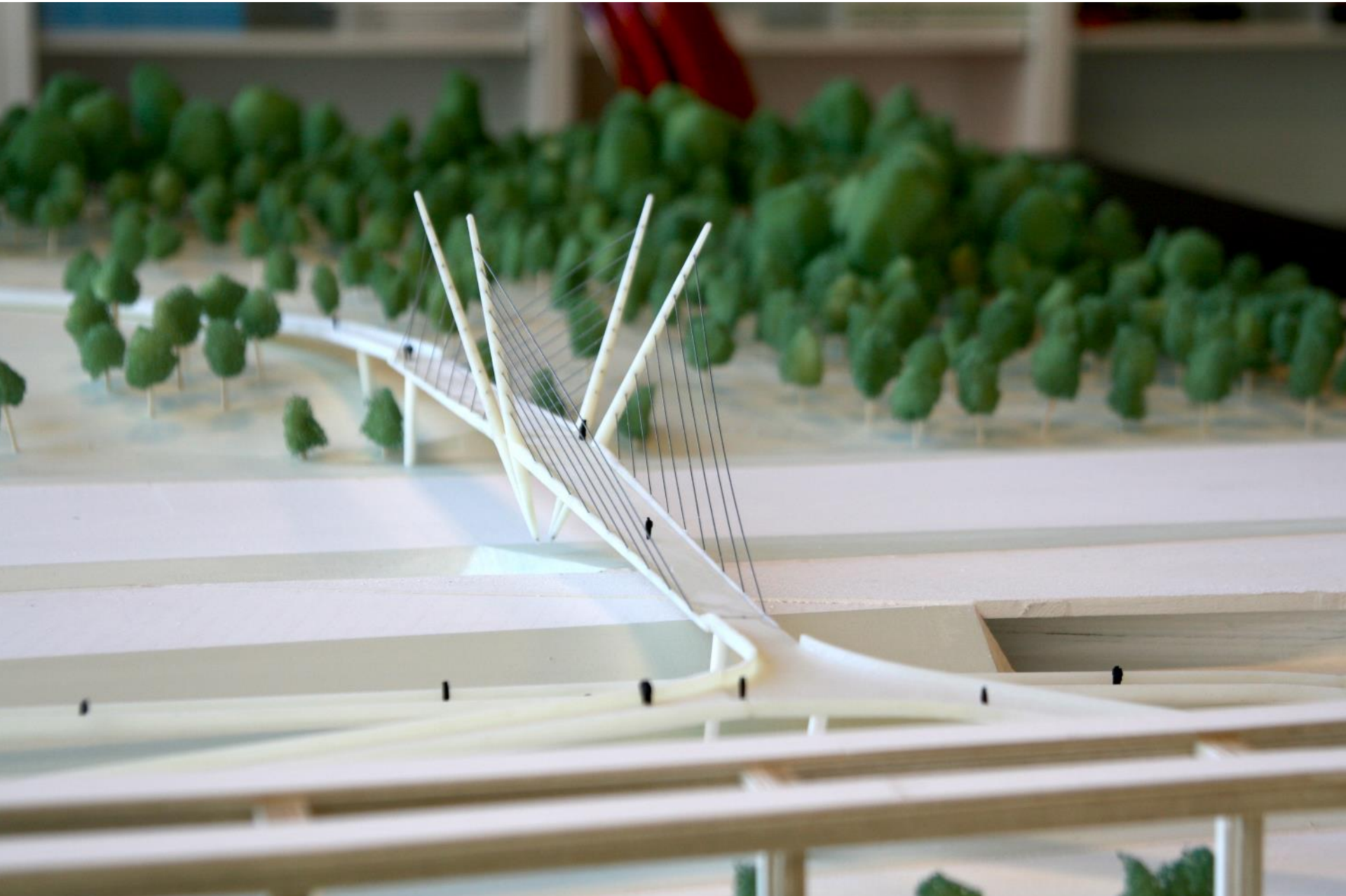


Preliminary Design Concept: **Cable Stay**



Preliminary Design Concept: **Cable Stay**

VIEW FROM NORTHEAST

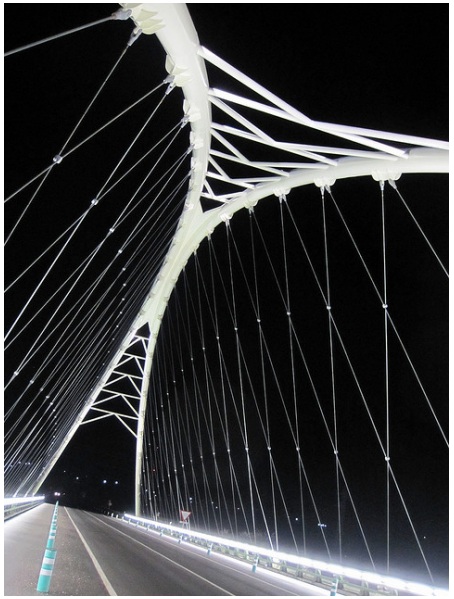
Preliminary Design Concept: **Cable Stay**

VIEW FROM NE 100TH ST AND 1ST AVE N.

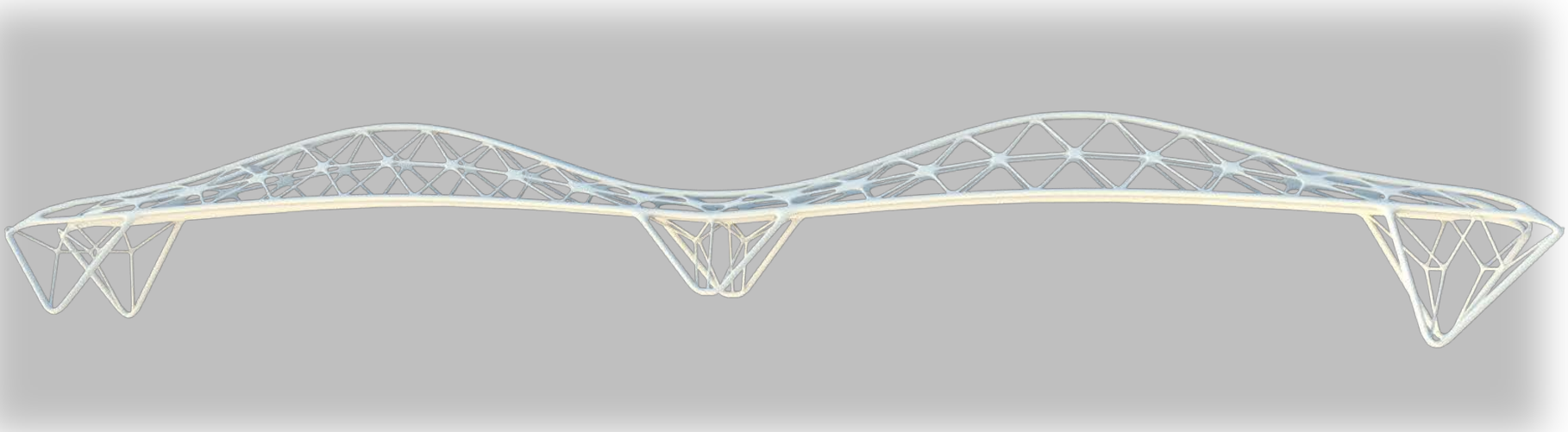
Preliminary Design Concept: **Cable Stay**

VIEW FROM SPAN

Primary Span Types: **Tied Arch**



Preliminary Design Concept: **Tied Arch**



Preliminary Design Concept: **Tied Arch**

Preliminary Design Concept: **Tied Arch**

VIEW FROM NORTHEAST

Preliminary Design Concept: **Tied Arch**

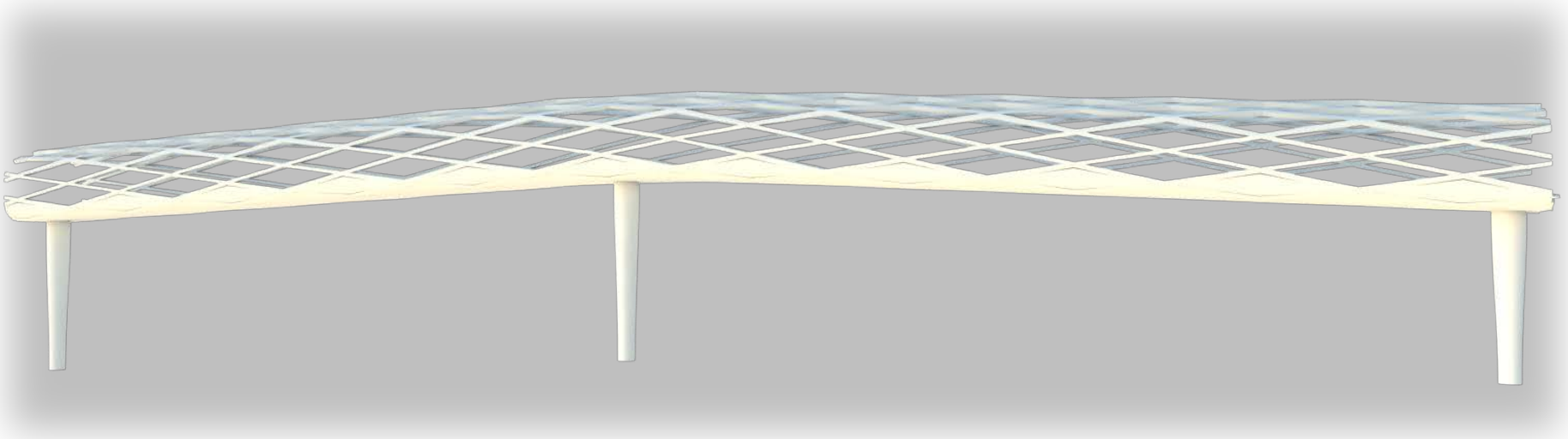
VIEW FROM NE 100TH ST AND 1ST AVE N.

Preliminary Design Concept: **Tied Arch**

VIEW FROM SPAN

Primary Span Types: **Tube / Truss**

Preliminary Design Concept: **Tube / Truss**



Preliminary Design Concept: **Tube / Truss**

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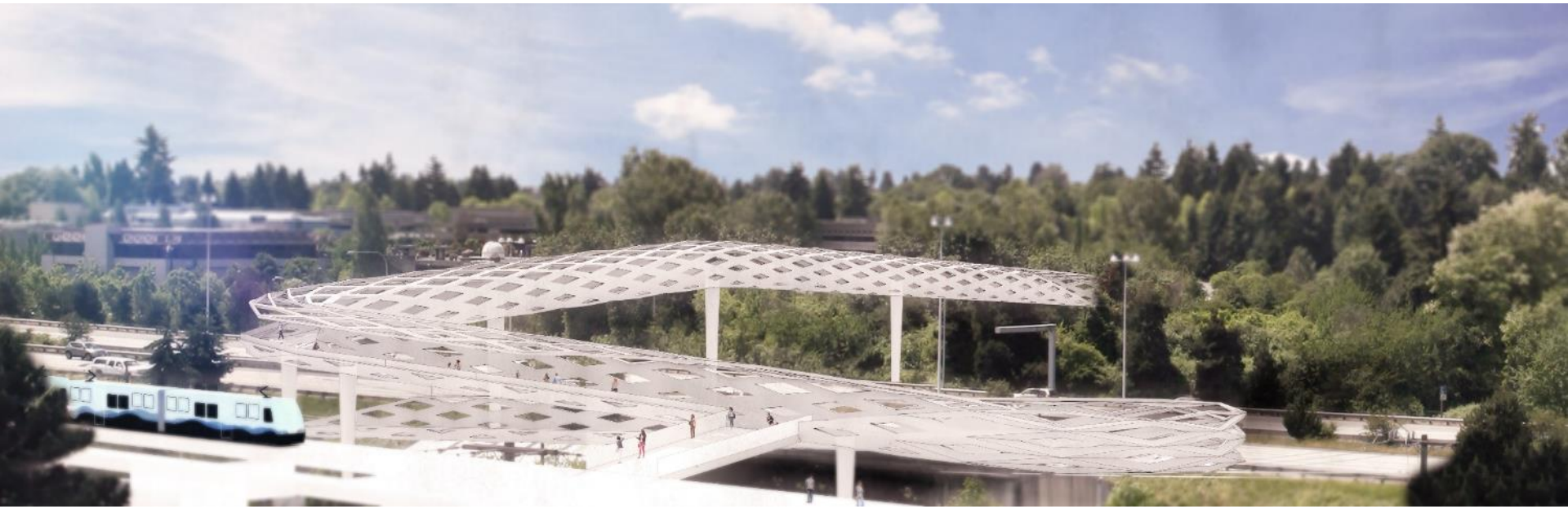


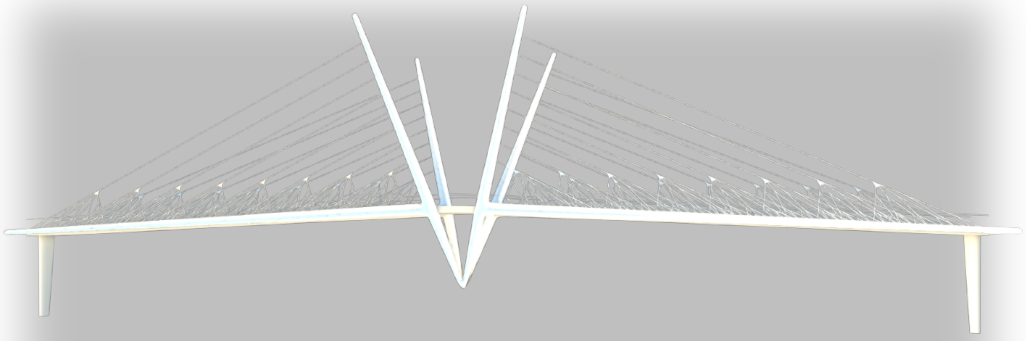
VIEW FROM NORTHEAST

Preliminary Design Concept: **Tube / Truss**

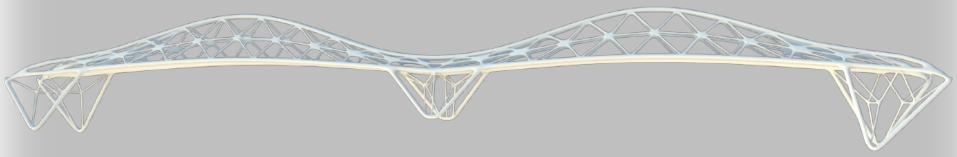
VIEW FROM NE 100TH ST AND 1ST AVE N.

Preliminary Design Concept: **Tube / Truss**

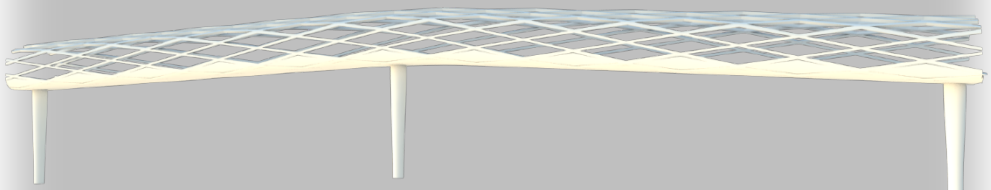
Span Type Screening



CABLE STAY



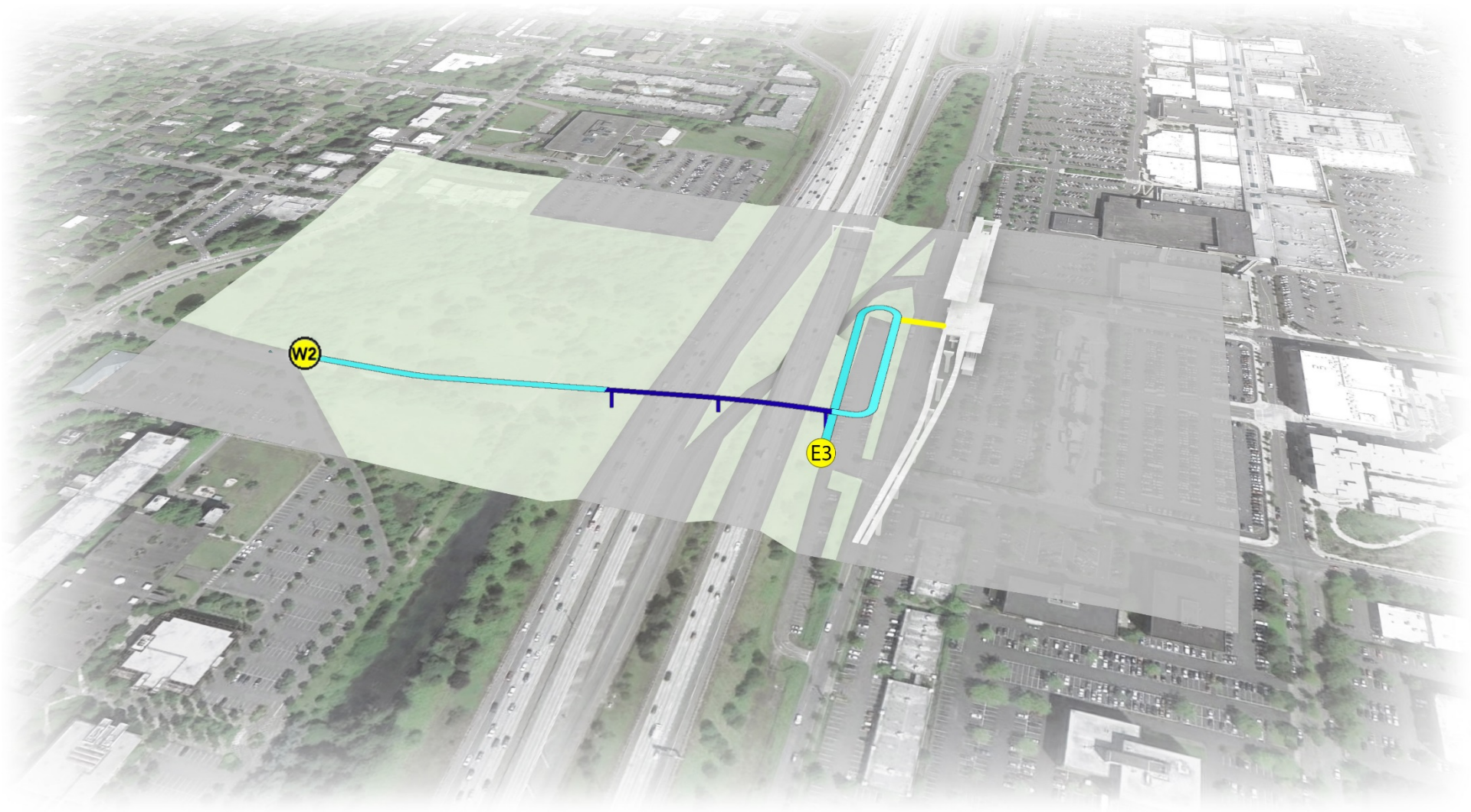
TIED ARCH



TUBE / TRUSS

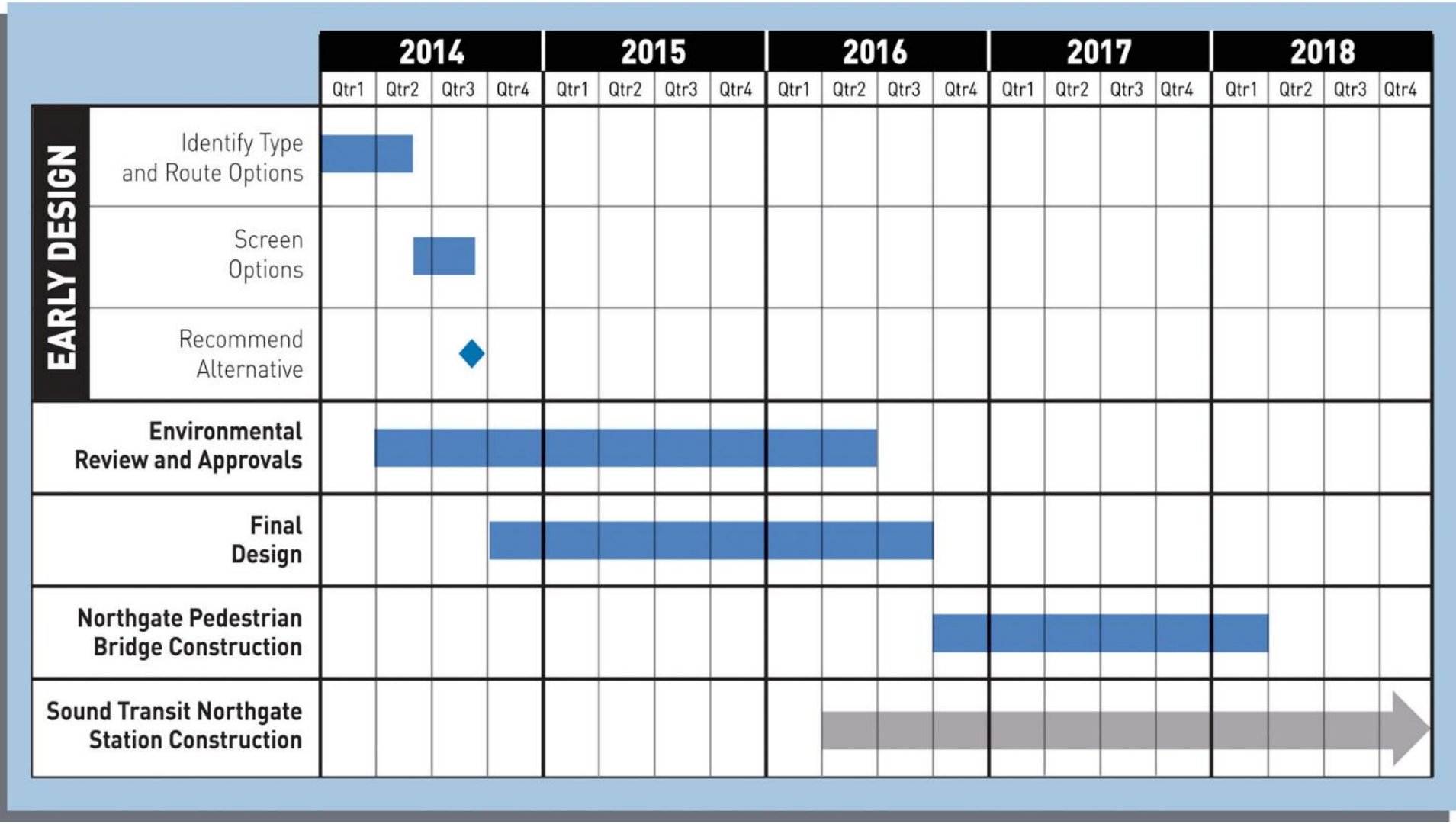
Screen Criteria	Arch	Tube	Cable-stayed
Geometrics	▲	▲	▲
Safety	▲	▲▲	▲
Visual Presence/Impact	▲	▲	▼
Environment Impact	■	▲	▲
Safety	▲	▲▲	▲
Constructability	▲	▲▲	▼
Cost	■	■	■

Preferred Alignment




232 ft
Image Landsat
Google earth

Project Timeline



Project Funding & TIGER Grant

- Funding:
  - $5 million from SDOT and Sound Transit.
  - $15 million is required fully fund the project.
- SDOT is seeking additional funding through a Federal TIGER Grant application, results expected Mid-September

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Feedback to-date

- Support for southern alignment (NSC, Sound Transit, Communities)
- Growing Consensus for Tube/Truss span
  - Aesthetics
  - Integration of critical systems:
    - Lighting
    - Acoustics
    - Throw Barrier
  - Ease of Pre-fabrication and Installation

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Design Team Next Steps

Develop approaches and span concepts further, with more focus on:

- Safety
- Art Integration
- Education
- Wayfinding
- Lighting
- Structural Design
- Cost Analysis

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Approaching Milestones

- Draft Alternative Analysis and Evaluation Report
- Screening Level III – Preferred Alternative

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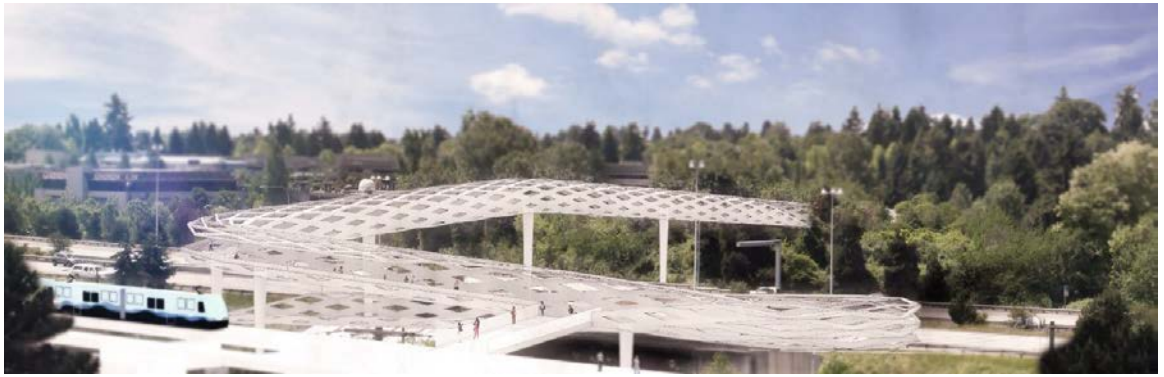
Northgate Pedestrian and Bicycle Bridge



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