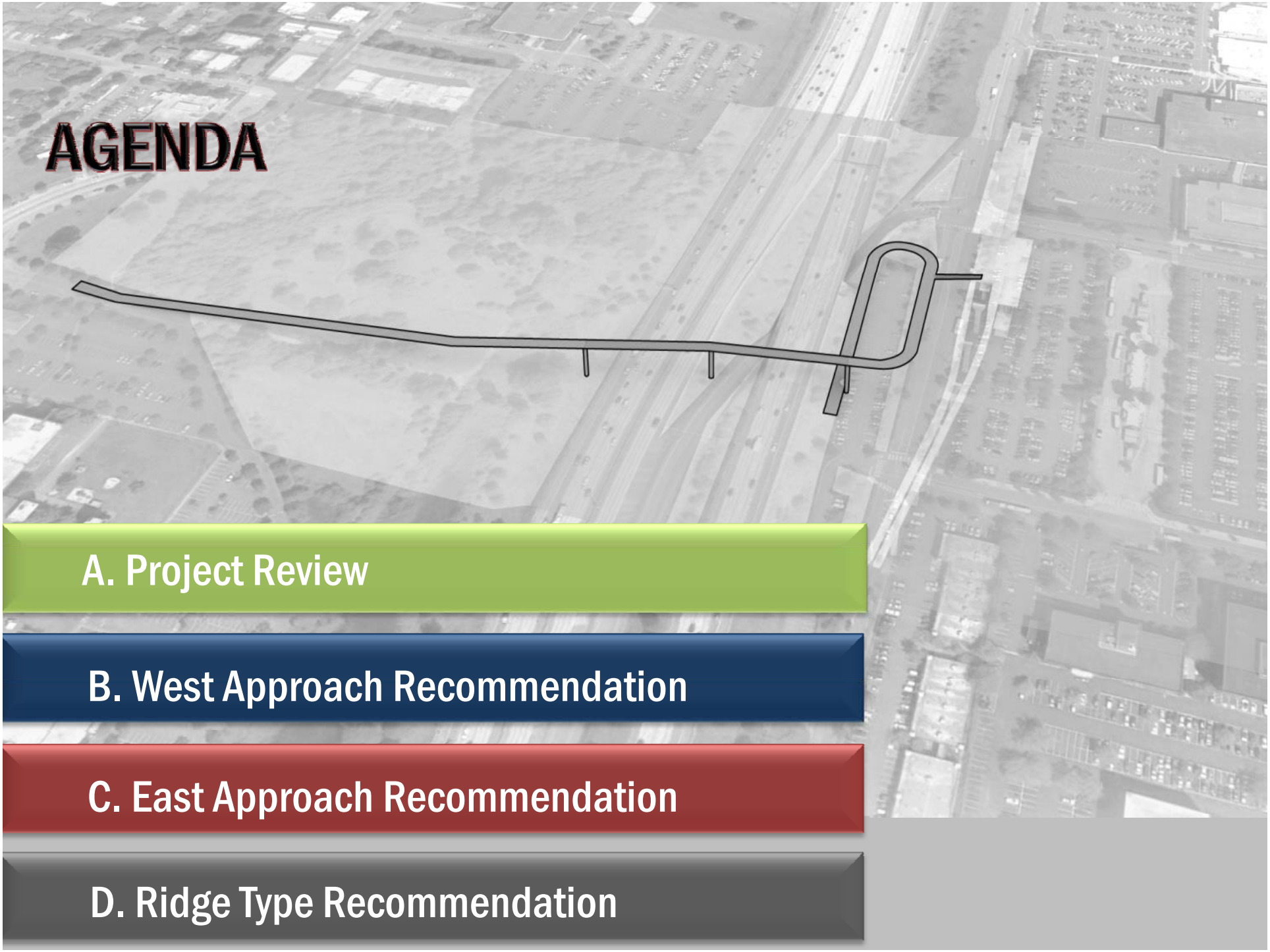
# NORTHGATE PEDESTRIAN AND BICYCLE BRIDGE

Monday, November 3, 2014

# AGENDA



A. Project Review

B. West Approach Recommendation

C. East Approach Recommendation

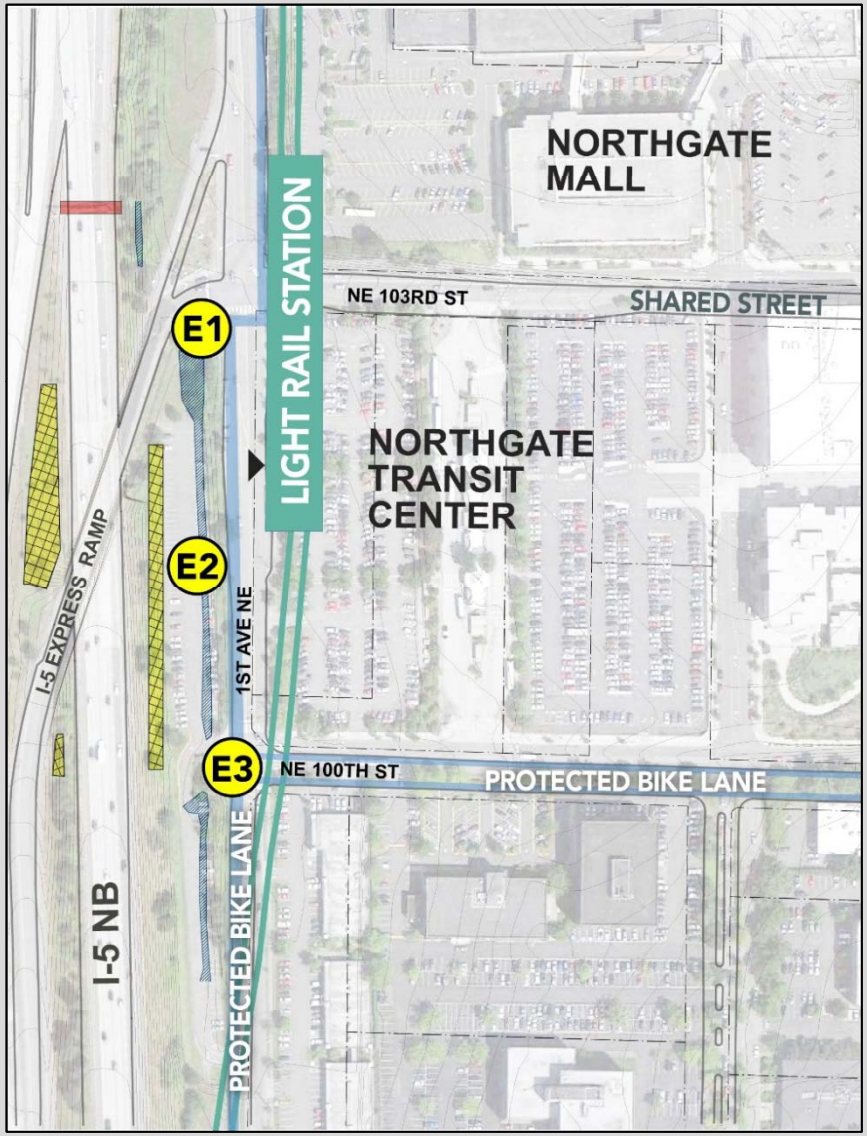
D. Ridge Type Recommendation

# West Approach

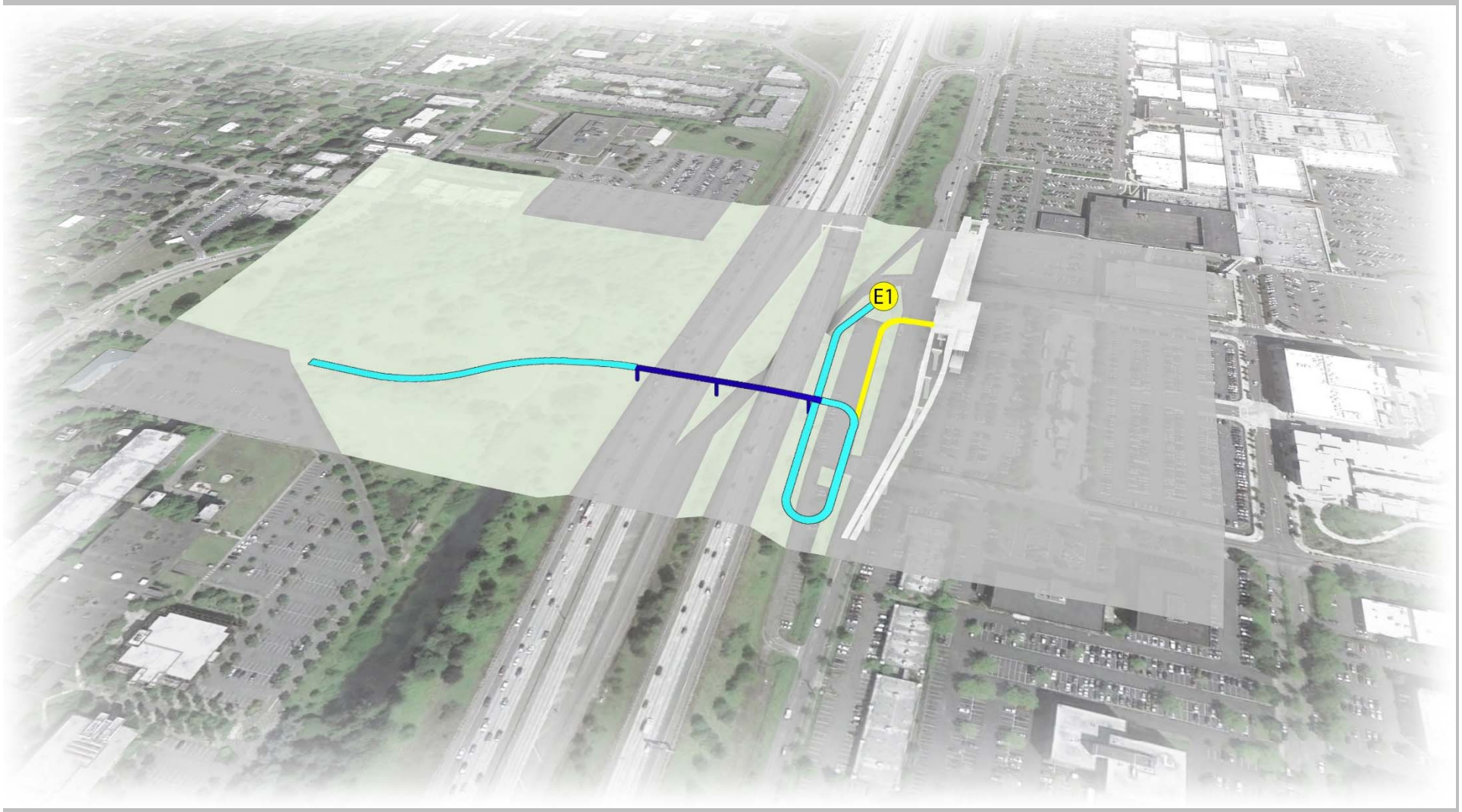
# West Approach Summary

| Screen Criteria | W1<br>N 103rd St | | W2<br>N 100th St | |
|---|---|---|---|---|
| **Connectivity** | ▼ | ➢ Does not connect with major transportation or circulation routes<br>➢ Does not connect with trail system | ▲ ▲ | ➢ Adjacent to the N 100th St bicycle network<br>➢ NSC preferred |
| **Visual Presence/Impact** | ▼ ▼ | ➢ Not visible from major circulation routes<br>➢ Associated alignments obstructs existing I-5 exit sign | ▲ | ➢ Visible from NSC and 100th St |
| **Environment Impact** | ▼ | ➢ Impacts to identified natural preserve and cultural resources | ▲ | ➢ Located outside of wetland area and in area with less vegetation<br>➢ Ability to enhance the awareness of cultural resources |
| **Safety** | ▼ ▼ | ➢ Limited visibility and deposits users in private parking lot concealed by trees | ▲ ▲ | ➢ Visible from NSC and major street connection |
| **Constructability** | ▼ | ➢ Located inside of wetland area<br>➢ Associated alignments require cost to move I-5 exit sign | ▲ | ➢ Outside of wetland area in area with less vegetation<br>➢ Adjacent to maintenance access road. |
| **Cost** | ▼ | ➢ Located inside of wetland area<br>➢ Requires substantial trail improvements/mitigation | ▲ | ➢ Located outside of wetland area<br>➢ Integrates existing trail system |

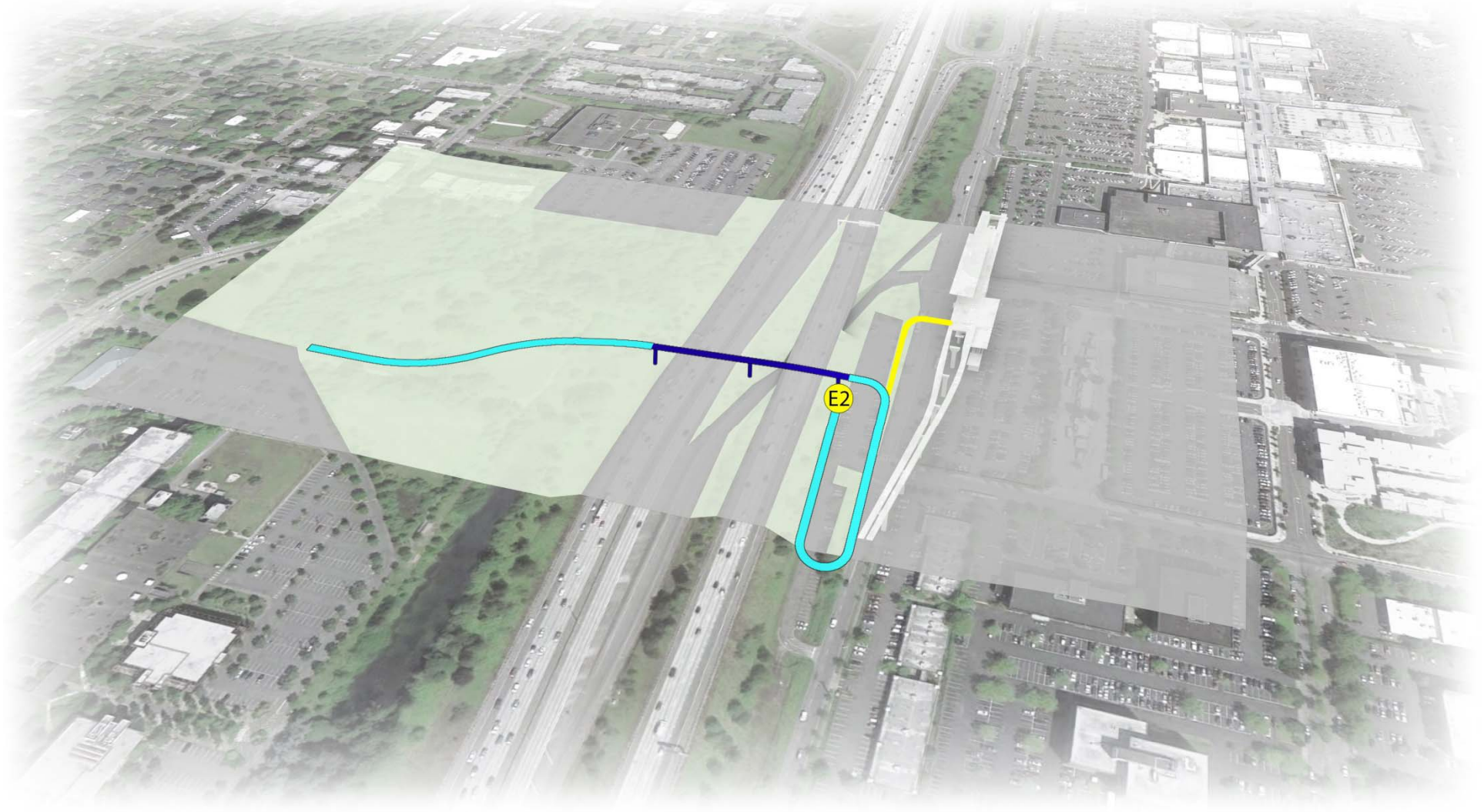
# East Approach



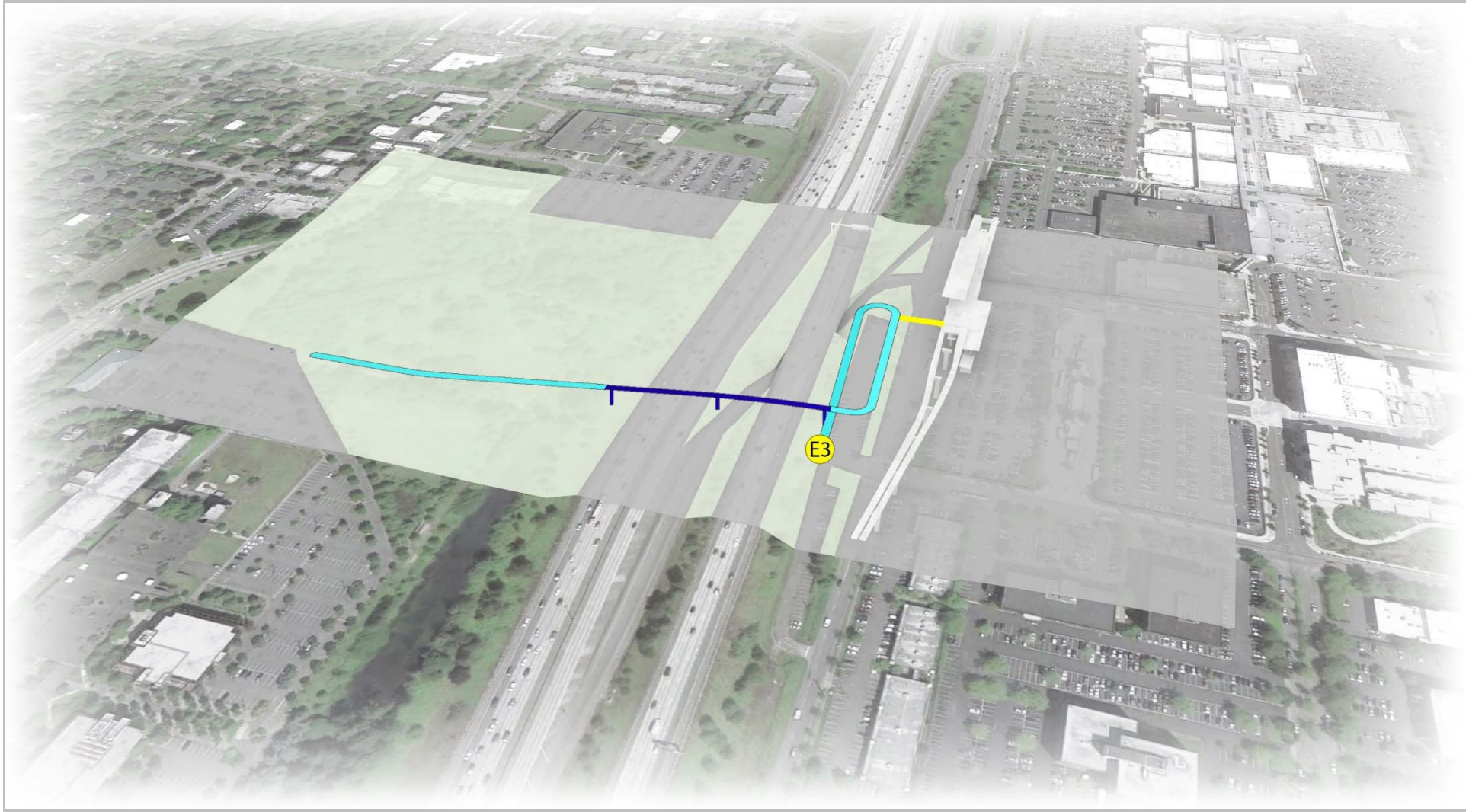
# East Approach



# East Approach



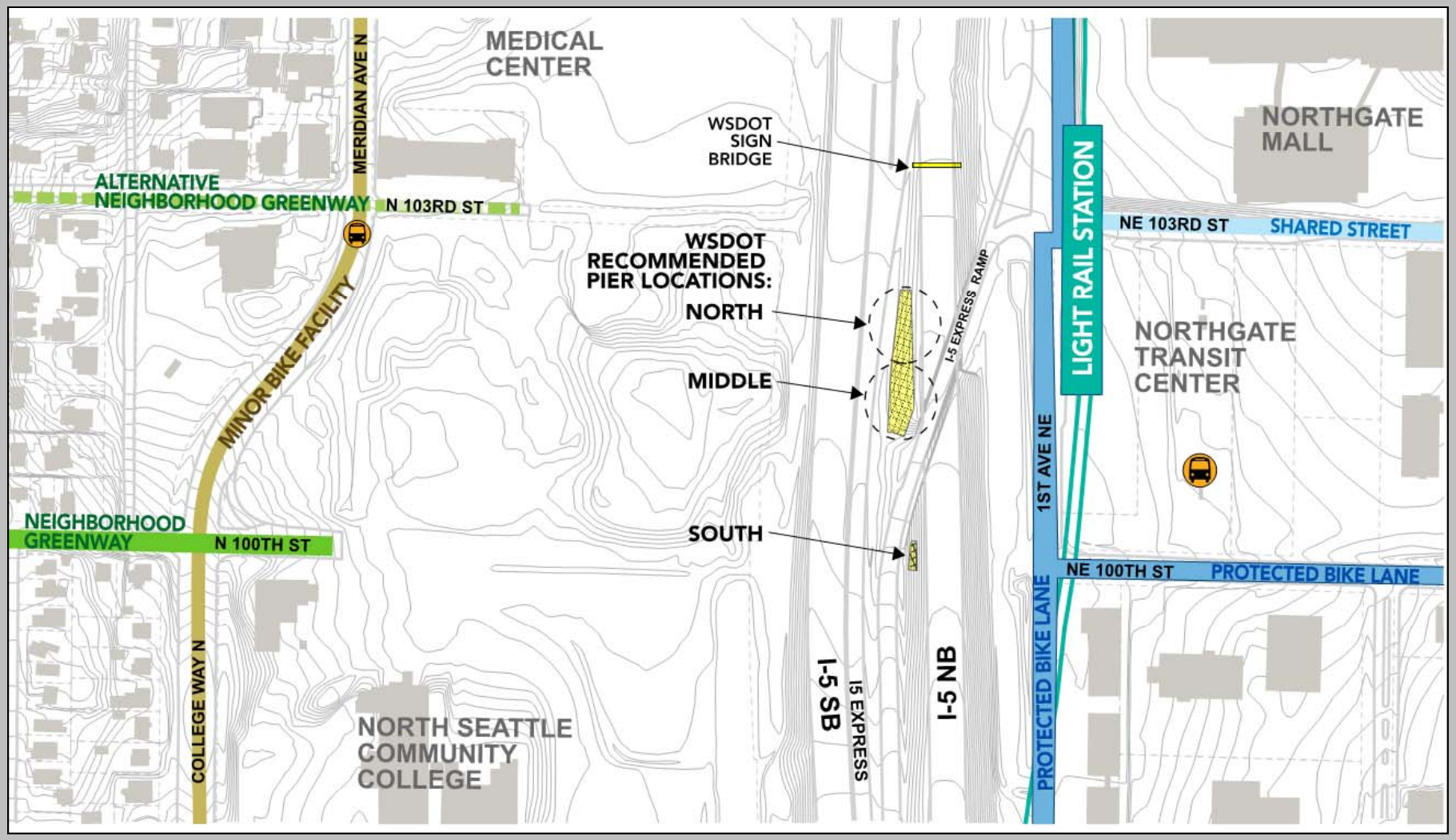
# East Approach



# East Approach Summary

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

# I – 5 Crossing


MEDICAL CENTER
MERIDIAN AVE N
WSDOT SIGN BRIDGE
NORTHGATE MALL
ALTERNATIVE NEIGHBORHOOD GREENWAY
N 103RD ST
NE 103RD ST
SHARED STREET
WSDOT RECOMMENDED PIER LOCATIONS:
NORTH
MIDDLE
SOUTH
I-5 EXPRESS RAMP
LIGHT RAIL STATION
NORTHGATE TRANSIT CENTER
MINOR BIKE FACILITY
1ST AVE NE
NEIGHBORHOOD GREENWAY
N 100TH ST
NE 100TH ST
PROTECTED BIKE LANE
PROTECTED BIKE LANE
COLLEGE WAY N
I-5 SB
I5 EXPRESS
I-5 NB
NORTH SEATTLE COMMUNITY COLLEGE

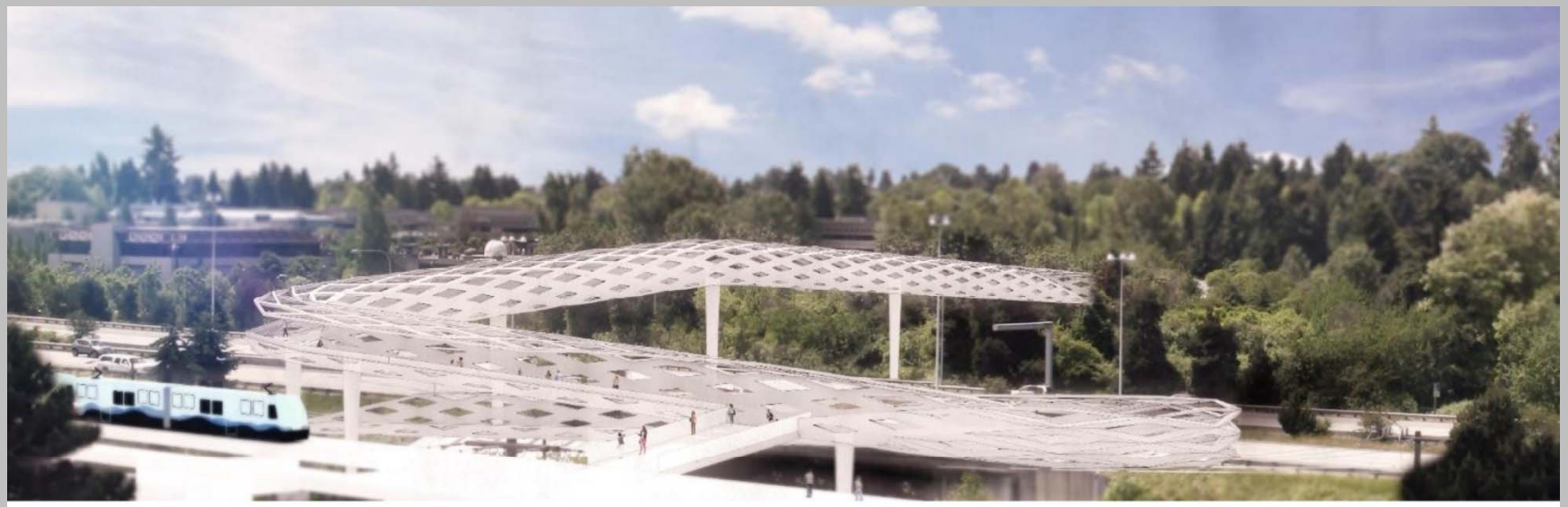
# I-5 Crossing: Cable-Stay

**VIEW FROM NORTHEAST**

# I-5 Crossing: Arch

**VIEW FROM NORTHEAST**

# I-5 Crossing: Tube/Truss



**VIEW FROM NORTHEAST**

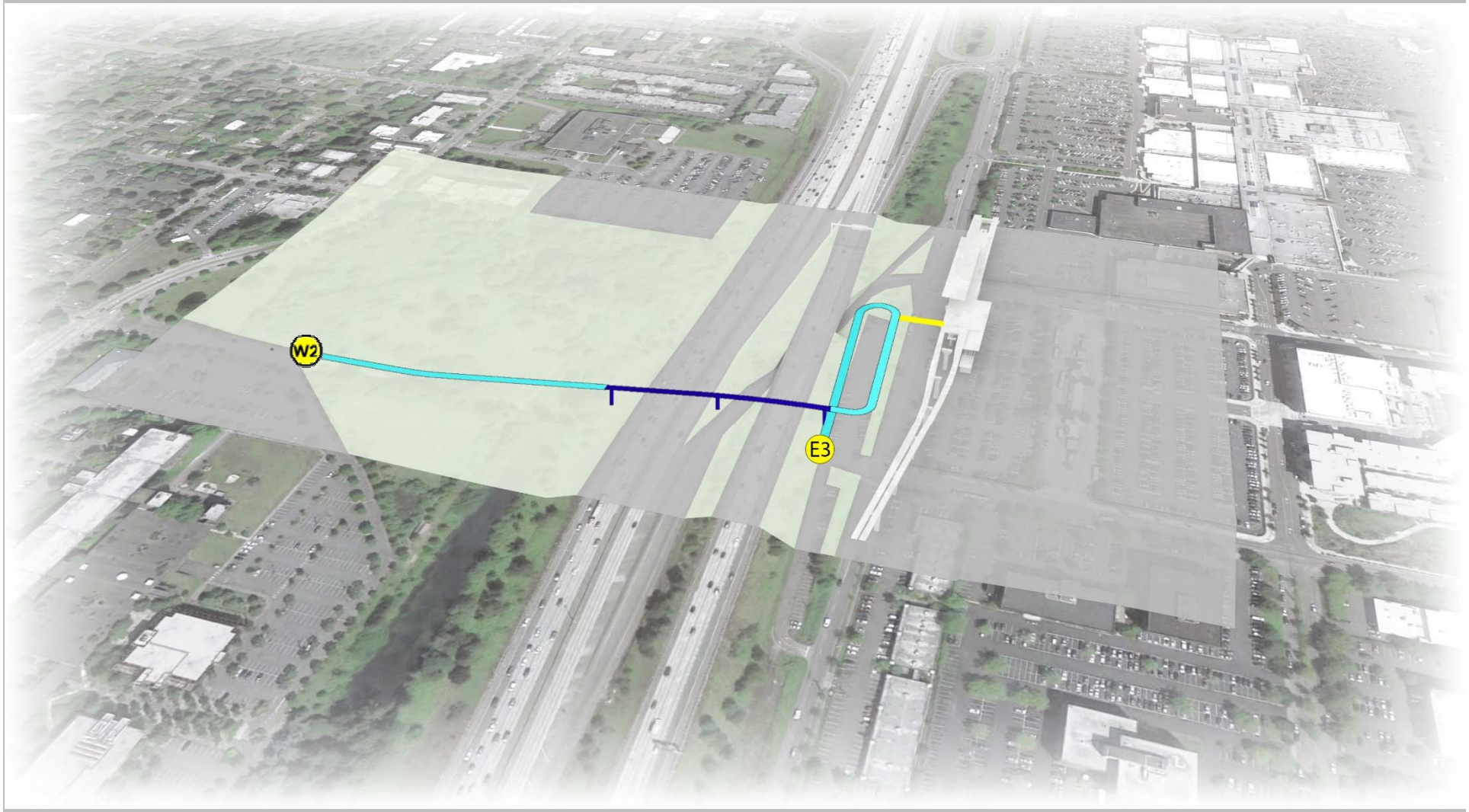
# I-5 Crossing – Summary

| Screen Criteria | Arch | | Tube | | Cable-stayed | |
|---|---|---|---|---|---|---|
| **Geometrics** | ▲ | ➢ Thin structural depth | ▲ | ➢ Integration of throw barrier into structural system<br>➢ Could create an integrated barrier to noise and wind over I-5 | ▲ | ➢ Thin structural depth |
| **Visual Presence/Impact** | ▲ | ➢ Minimal visual distraction from the perspective of WSDOT | ▲ | ➢ Minimal visual distraction from the WSDOT perspective | ▼ | ➢ WSDOT concerns with visual distraction |
| **Environment Impact** | ■ | ➢ | ▲ | ➢ Internal lighting able to be contained within structure | ▲ | ➢ Smaller foundation area at the bridge abutments |
| **Safety** | ▲ | ➢ 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 |
| **Constructability** | ▲ | ➢ Capable of being delivered to site in large pieces | ▲ ▲ | ➢ Capable of being delivered to site in large pieces then assembled and lifted into place | ▼ | ➢ Large foundation in center of I-5<br>➢ Challenging construction sequencing requires more I-5 interruptions |
| **Cost** | ■ | ➢ Options within budget | ■ | ➢ Options within budget | ■ | ➢ Options within budget |

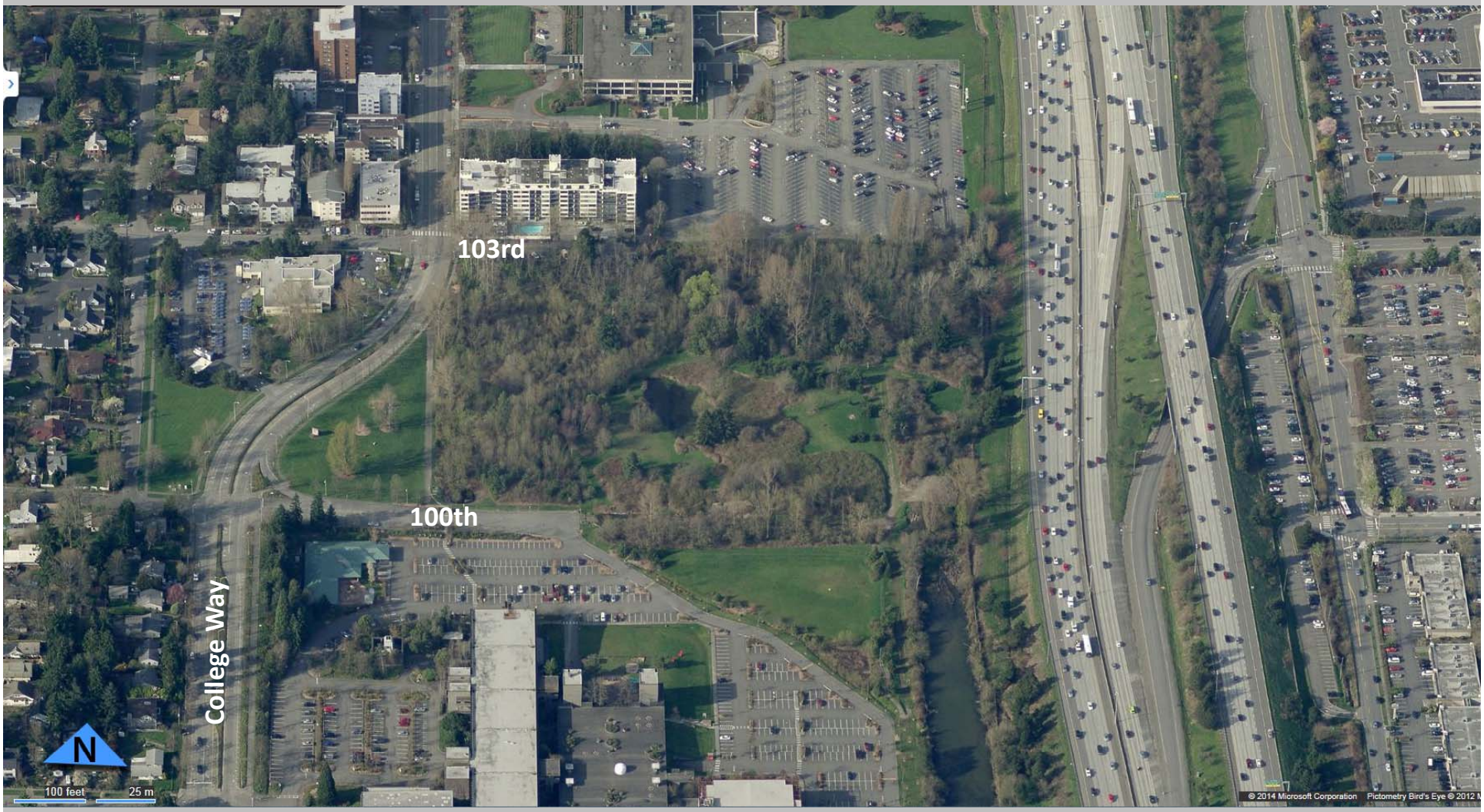
# Level II Screening Summary

| Screen Criteria | W2 N 100th St | E3 NE 100th St | Arch | Tube |
|---|---|---|---|---|
| Connectivity | ▲▲ | ▲▲ | ▲ | ▲ |
| Visual Presence/Impact | ▲ | ▲▲ | ▲ | ▲ |
| Environment Impact | ▲ | ■ | ■ | ▲ |
| Safety | ▲▲ | ▲ | ▲ | ▲▲ |
| Constructability | ▲ | ■ | ▲ | ▲▲ |
| Cost | ▲ | ■ | ■ | ■ |

# Preferred Alignment



# Existing Conditions



# CPTED

- **Natural Surveillance**

Deny private places “See and be Seen”

- **Access Control**

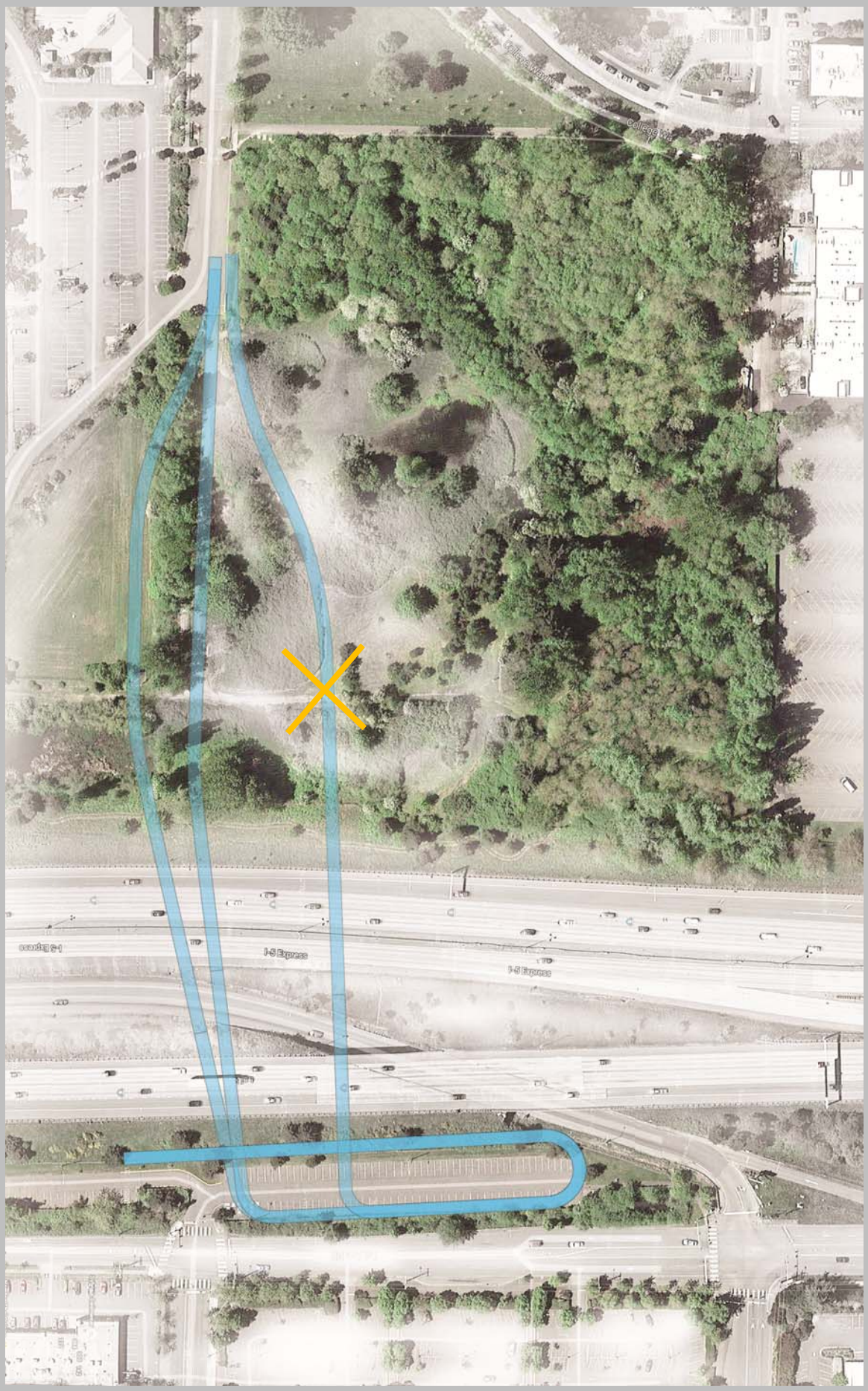
Distinct points of entry/exit

- **Territoriality**

Clearly defined public ownership of the space

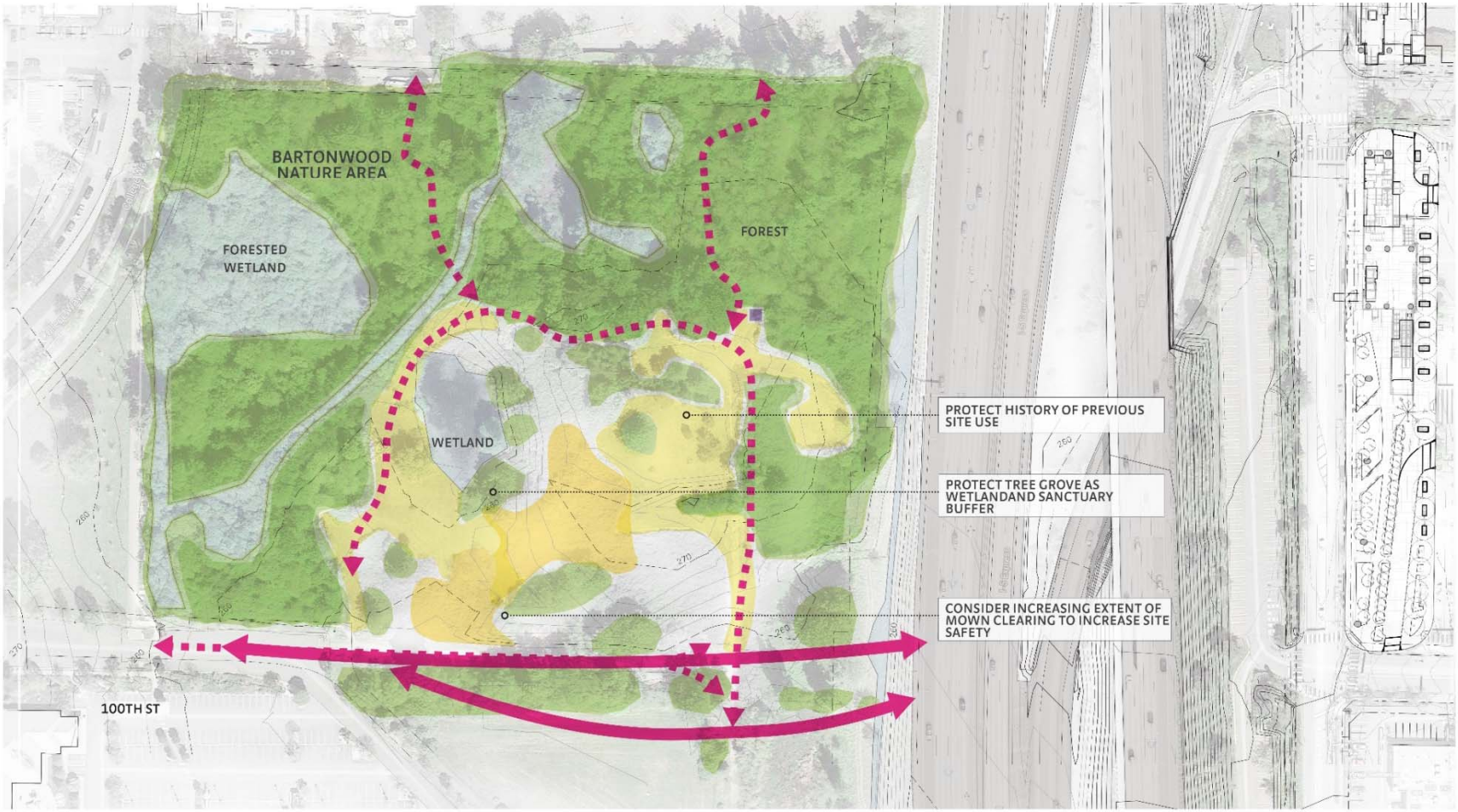
- **Maintenance**

Easy Upkeep (Broken Window Theory)


College Way
College Way
I-5 Express
I-5 Express

# NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

## SITE RECOMMENDATIONS AND OBSERVATIONS




### KEY

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

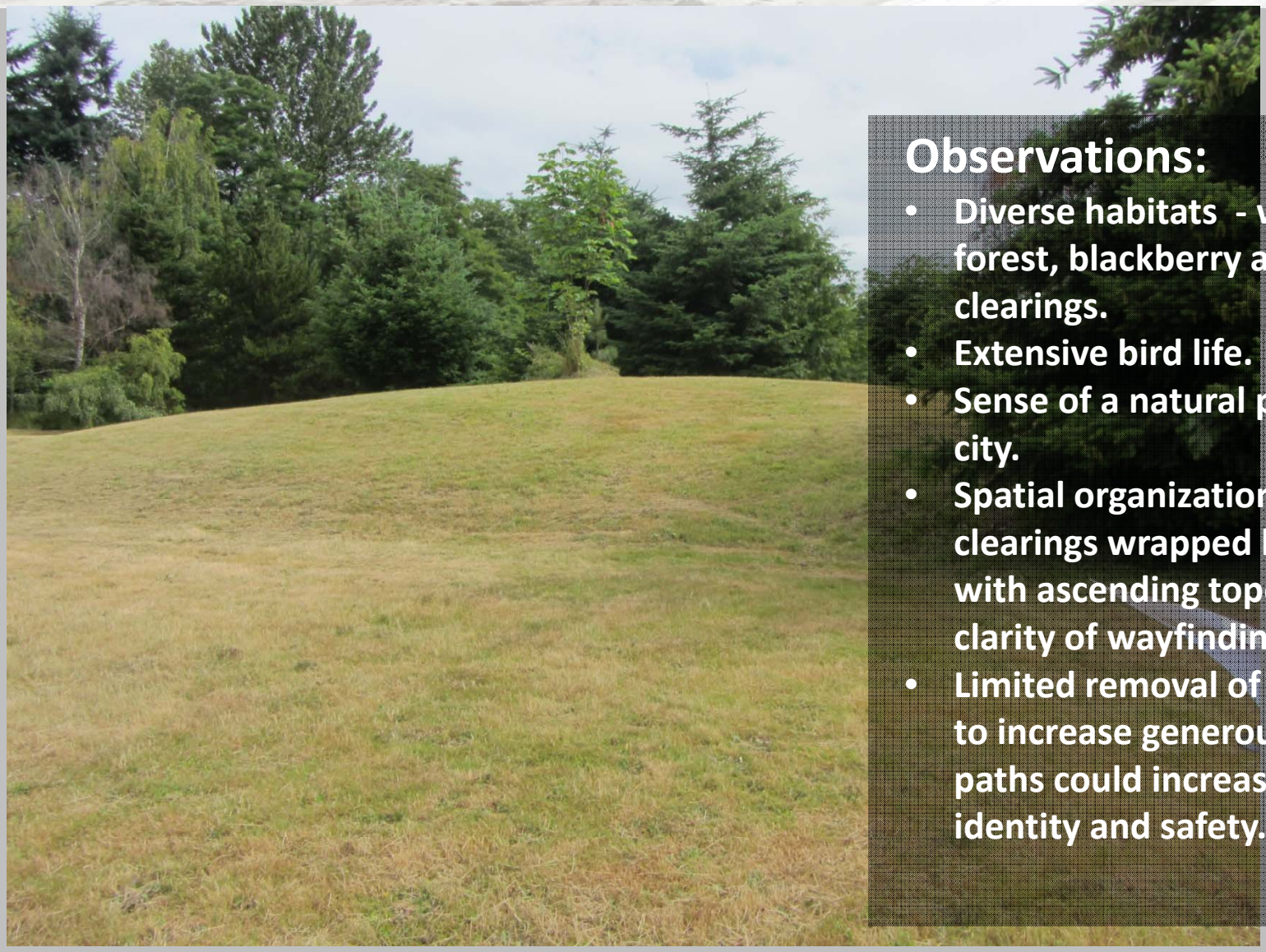
### NOTES

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.

# West Approach

# West Approach

# West Approach



## Observations:

- Diverse habitats - wetland to forest, blackberry and mown clearings.
- Extensive bird life.
- Sense of a natural place in the city.
- Spatial organization = two large clearings wrapped by forest with ascending topography = clarity of wayfinding.
- Limited removal of blackberry to increase generous mown paths could increase the identity and safety.

# NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

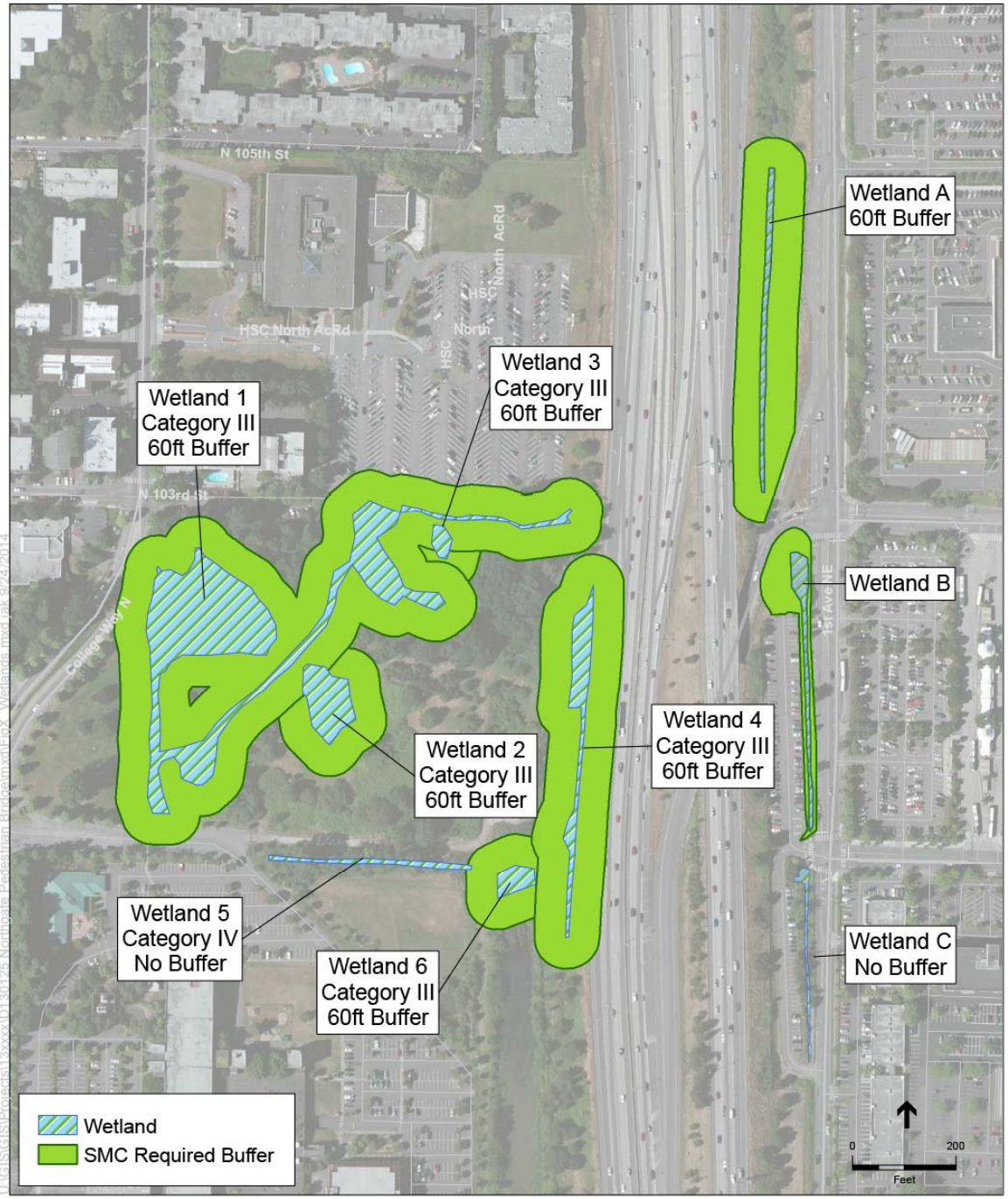
## SITE CONDITIONS

### 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.


Wetland A
60ft Buffer
Wetland B
Wetland C
No Buffer
Wetland 1
Category III
60ft Buffer
Wetland 2
Category III
60ft Buffer
Wetland 3
Category III
60ft Buffer
Wetland 4
Category III
60ft Buffer
Wetland 5
Category IV
No Buffer
Wetland 6
Category III
60ft Buffer
N 105th St
HSC North AcRd
N 103rd St
College Way N
1st Ave E
Wetland
SMC Required Buffer
0
200
Feet

1881 N 100th St
Exit Street View
© 2014 Google
© 2014 Google
Google earth
Report a problem

PERMIT ONLY

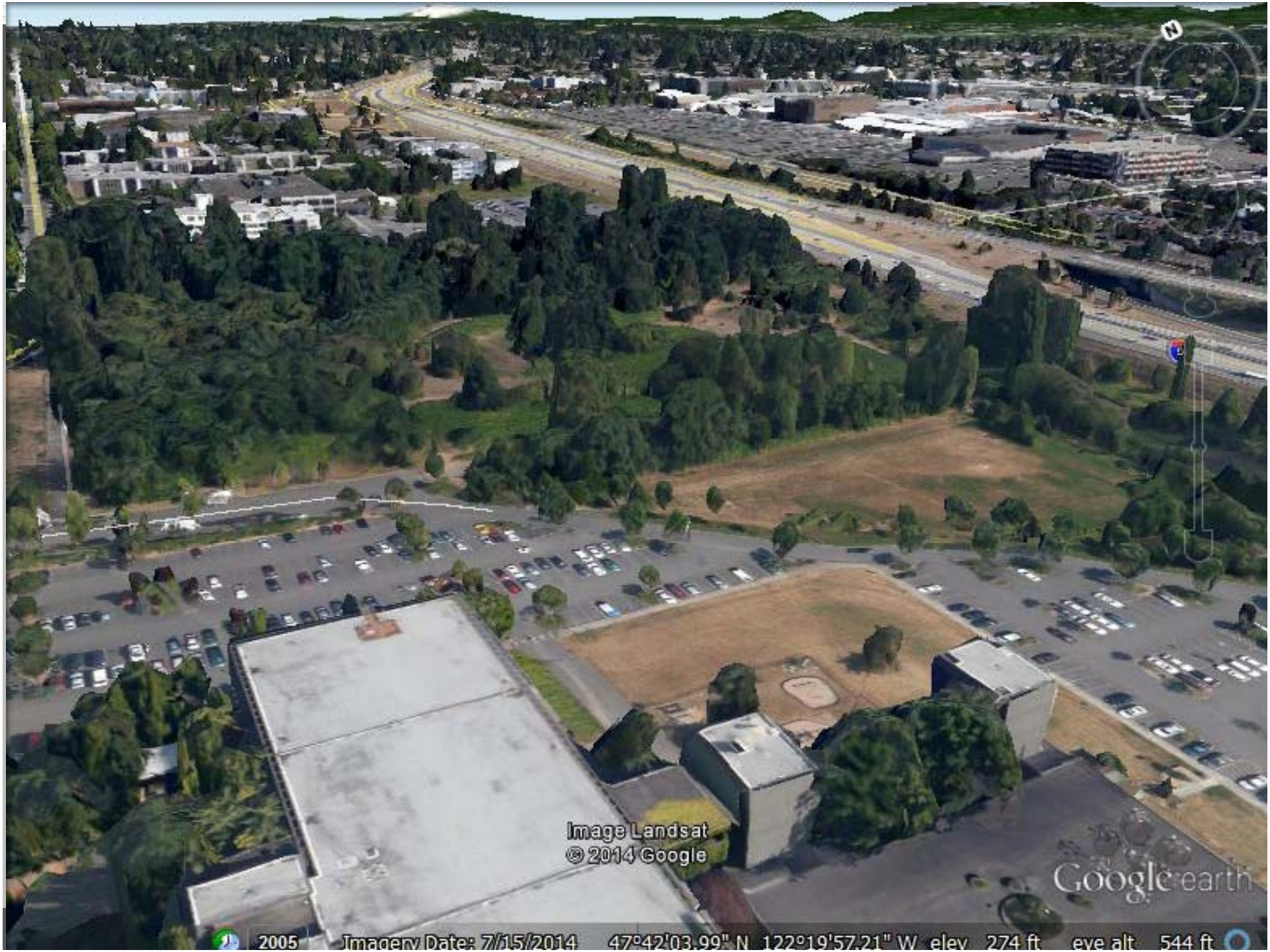


Image Landsat
© 2014 Google
Google earth
2005
Imagery Date: 7/15/2014
47°42'03.99" N 122°19'57.21" W elev 274 ft
eye alt 544 ft

# Bartonwood Natural Area + Pedestrian / Bicycle Bridge

## Issues / Objectives:

- Develop a safe identifiable welcoming access to the bridge.
- Provide for ADA access with slopes under 5%
- Minimize impact on the existing site character, condition and ecological function.
- Amplify positive site characteristics and ecological function.
- Reference history of site.

# NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

# SOUTH ALIGNMENT STUDY

## KEY

- EXISTING MOWN CLEARING
- SIGNIFICANT TREES AND FOREST
- WETLAND
- INTERSTATE 5
- POTENTIAL CONNECTION
- PROPOSED CLEARING
- +/-288.0 ESTIMATED BRIDGE DECK ELEVATION
- STAIR

## NOTES

1. Assume top of bridge structure is 28.5' above freeway at western edge of freeway.
2. Assume maximum of 4.8% slope for approach structure.
3. Assume location of approach access/egress approximately midpoint along approach length via stair or ramp to adjoining grade.
4. Assume existing path and clearing system to remain. Assume approach does not impact free use of existing path system
5. Assume significant trees and forest to remain.
6. Assume limited grading and clearing to allow for access, visibility and increased defensible space/ safety.
7. Clearance requirements over existing paths to be confirmed.

100 feet

Campus Pond

# NORTHGATE PEDESTRIAN – BICYCLE BRIDGE

# SOUTH ALTERNATIVE ALIGNMENT STUDY

## KEY

- EXISTING MOWN CLEARING
- SIGNIFICANT TREES AND FOREST
- WETLAND
- INTERSTATE 5
- POTENTIAL CONNECTION
- PROPOSED CLEARING
- +/-288.0 ESTIMATED BRIDGE DECK ELEVATION
- STAIR

## NOTES

1. Assume top of bridge structure is 28.5' above freeway at western edge of freeway.
2. Assume maximum of 4.8% slope for approach structure.
3. Assume location of approach access/egress approximately midpoint along approach length via stair or ramp to adjoining grade.
4. Assume existing path and clearing system to remain. Assume approach does not impact free use of existing path system
5. Assume significant trees and forest to remain.
6. Assume limited grading and clearing to allow for access, visibility and increased defensible space/ safety.
7. Clearance requirements over existing paths to be confirmed.

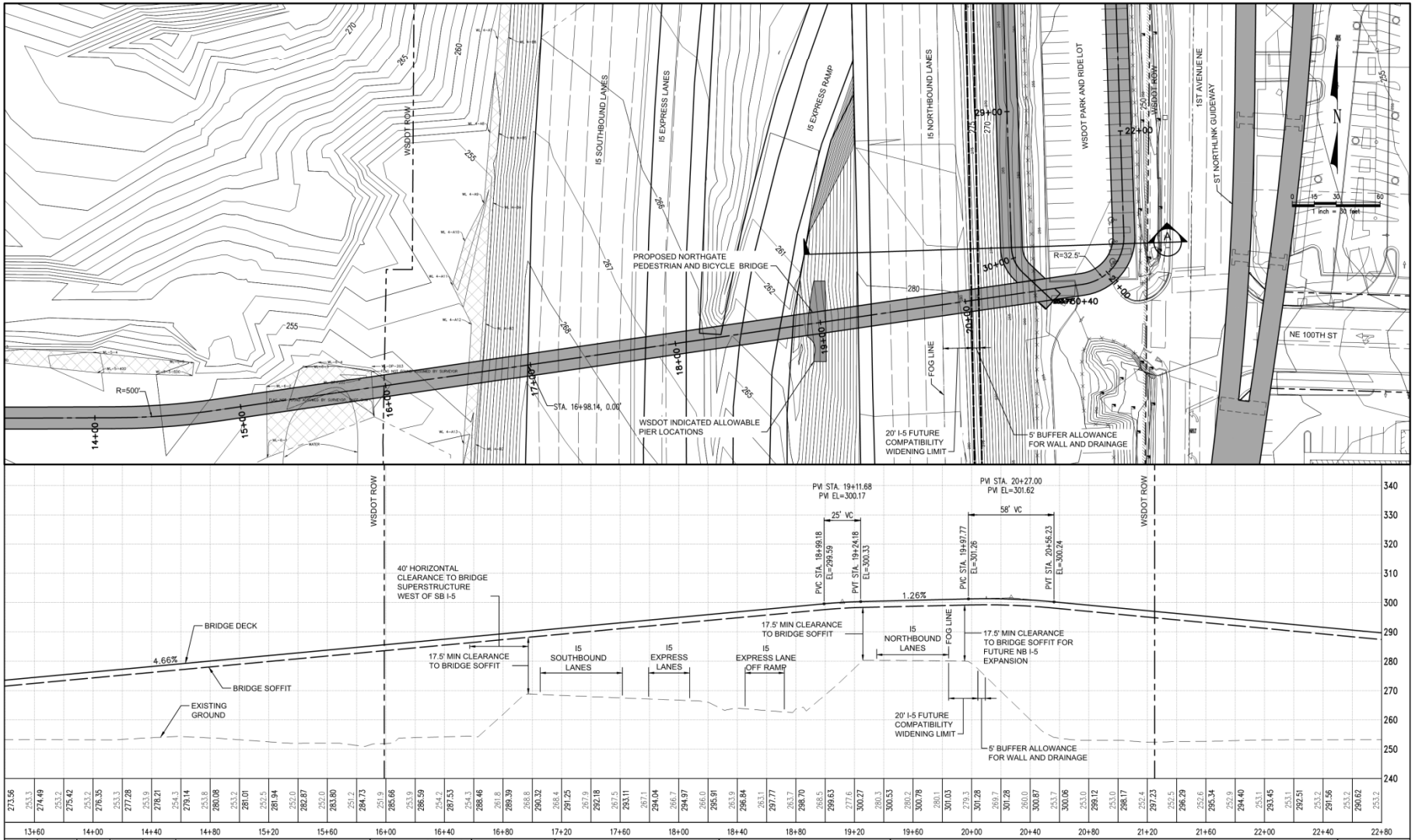
100 feet

Campus Pond

# Level III Screening Criteria:

- Safety
- Environmental Impact
- Cost

# East Approach




| NO. | DATE | BY | CHD. | APPR. | REVISION |
|---|---|---|---|---|---|

DRAWN BY JVL
DESIGNED BY ZRG
CHECKED BY ZRG
APPROVED BY RJL
DATE 10/08/2014
JOB No.: 113317

Call 811 two business days before you dig

SCALE:

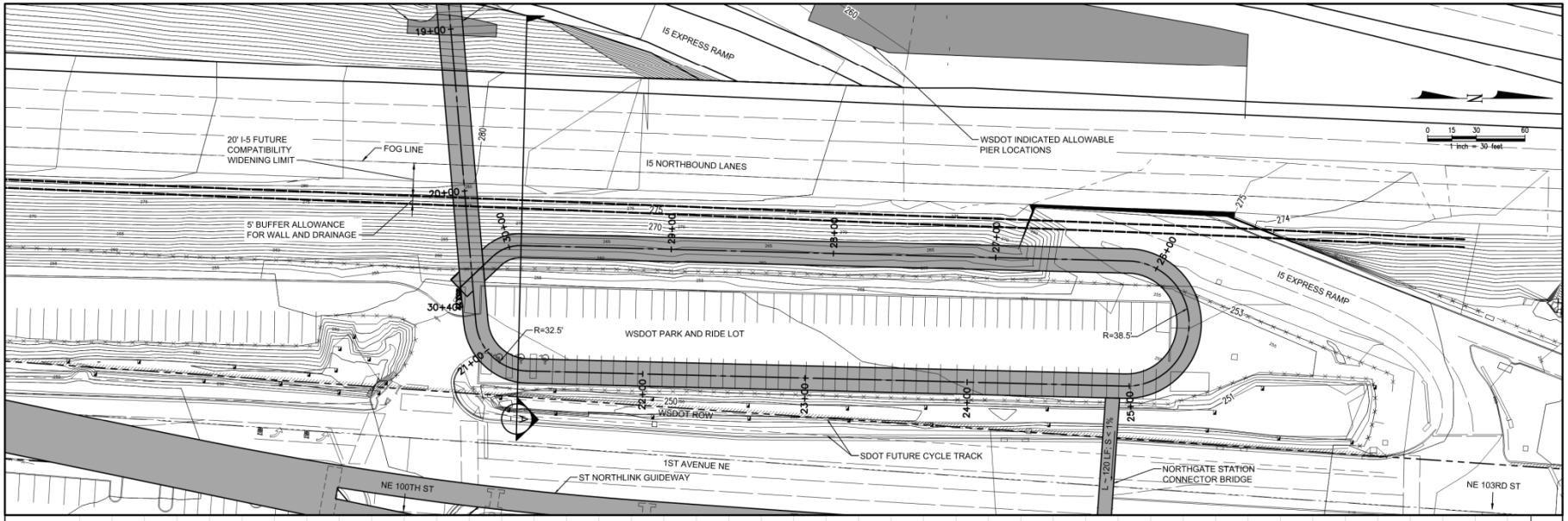
kpff Consulting Engineers
1601 Fifth Avenue, Suite 1600
Seattle, Washington 98101-3665
(206) 622-5822 Fax (206) 622-8130

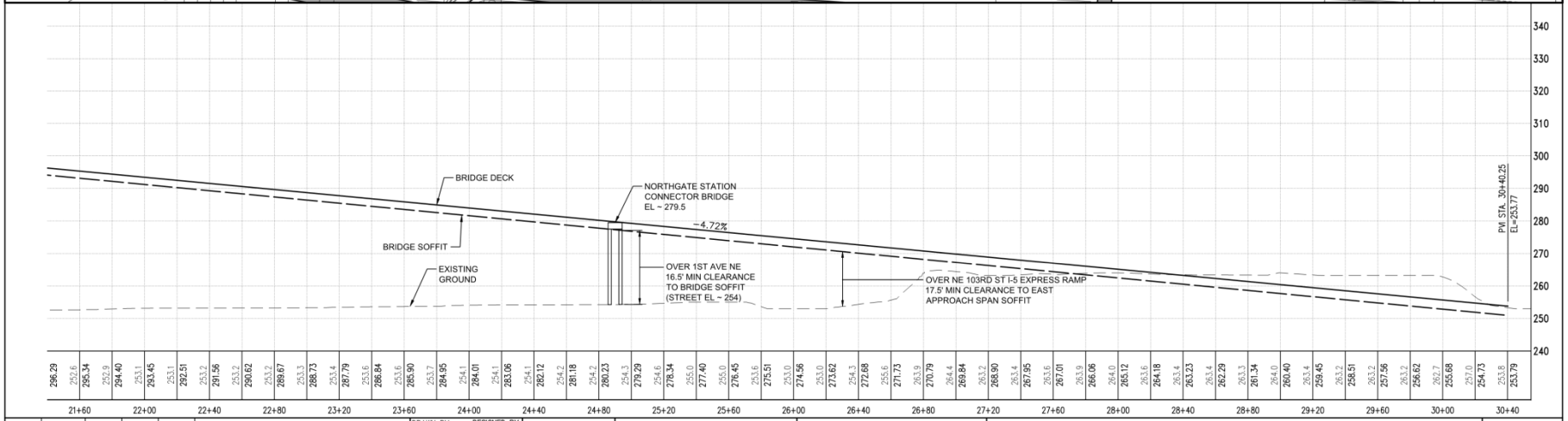
FOR DISCUSSION PURPOSES ONLY

SDOT-NORTHGATE PEDESTRIAN AND BICYCLE BRIDGE
SEATTLE, WA

WSDOT I-5 CROSSING AND PARK & RIDE
PEDESTRIAN & BICYCLE BRIDGE
PLAN & PROFILE-17.5' CLEARANCE

SHEET 1/2




| NO. | DATE | BY | CHD. | APPR. | REVISION |
|---|---|---|---|---|---|

DRAWN BY JVL | DESIGNED BY ZRG
CHECKED BY ZRG | APPROVED BY RJL
DATE 10/08/2014
J O B No. : 113317

Call 811 two business days before you dig

S C A L E:

kpff Consulting Engineers
1601 Fifth Avenue, Suite 1600
Seattle, Washington 98101-3665
(206) 622-5822 Fax (206) 622-8130

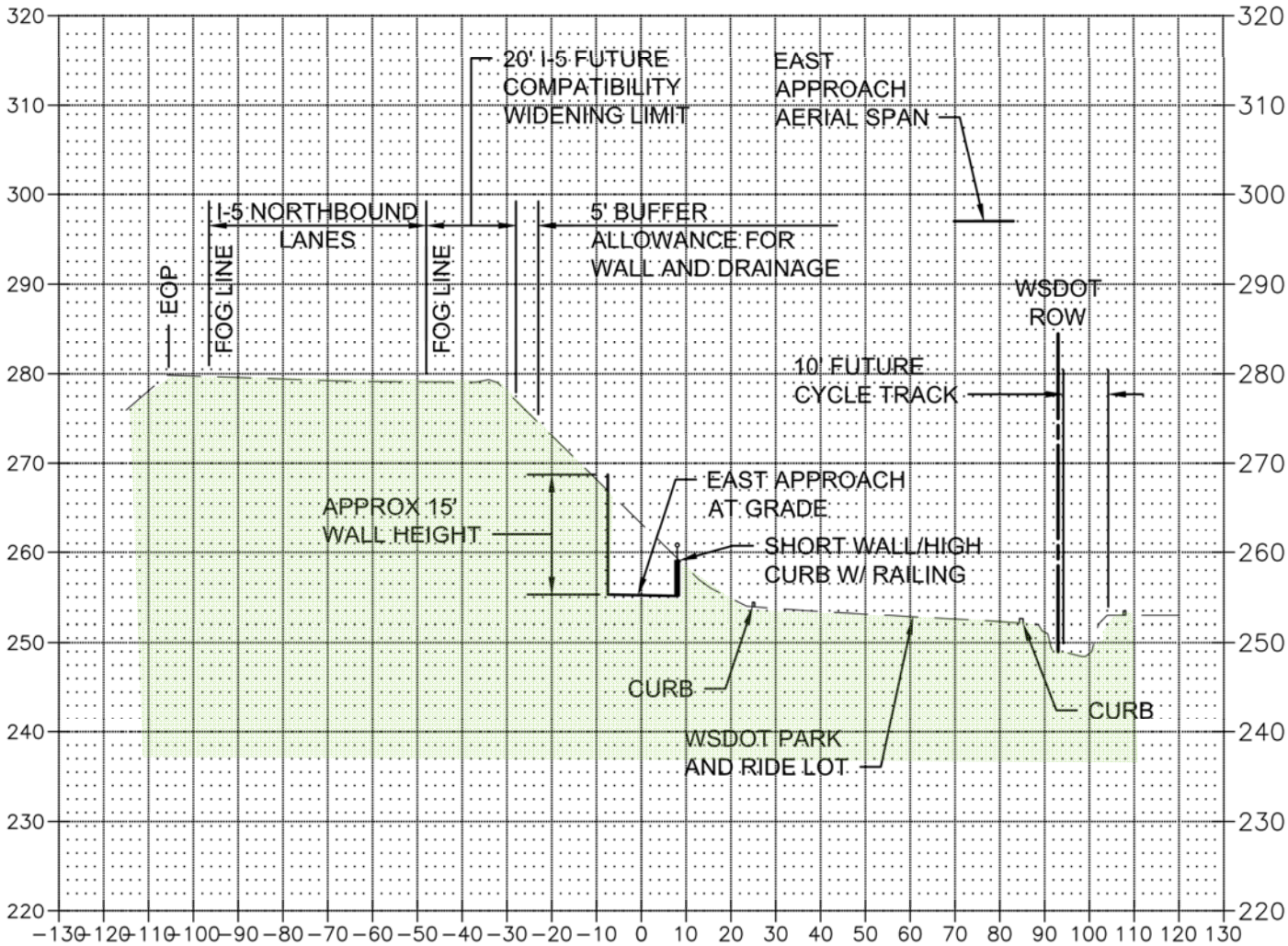
FOR DISCUSSION PURPOSES ONLY

**SDOT-NORTHGATE PEDESTRIAN AND BICYCLE BRIDGE**
SEATTLE, WA

WSDOT I-5 CROSSING AND PARK & RIDE
PEDESTRIAN & BICYCLE BRIDGE
PLAN & PROFILE-17.5' CLEARANCE

SHEET 2/2

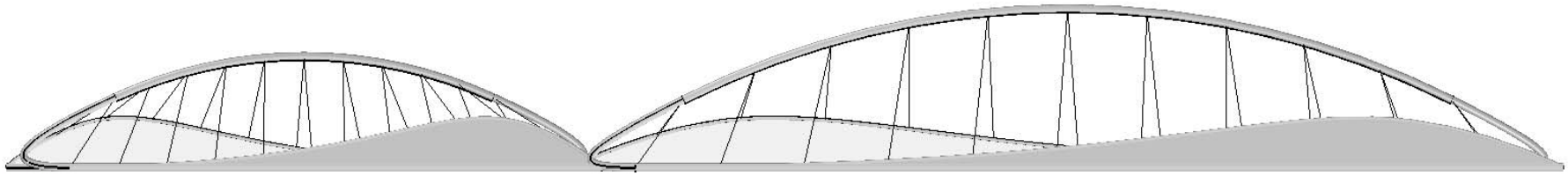
Oct 31, 2014 - 9:08am johnr
Xref Filename: \ 00-I-5 TITLE BLOCK \ 01-X-BASE \ 02-I-ALGN-2-17 \ WBD_L07_CK \ WBD_L07_SK \ 03-X-PROFILE-17 \ WBD_MOT_JOP_WM \ X-SDOT-COLUMN AREAS\
X:\113225-113500\113317 (Northgate Bridge)\CADD\Design\004-PLAN & PROFILE-17.5R.dwg



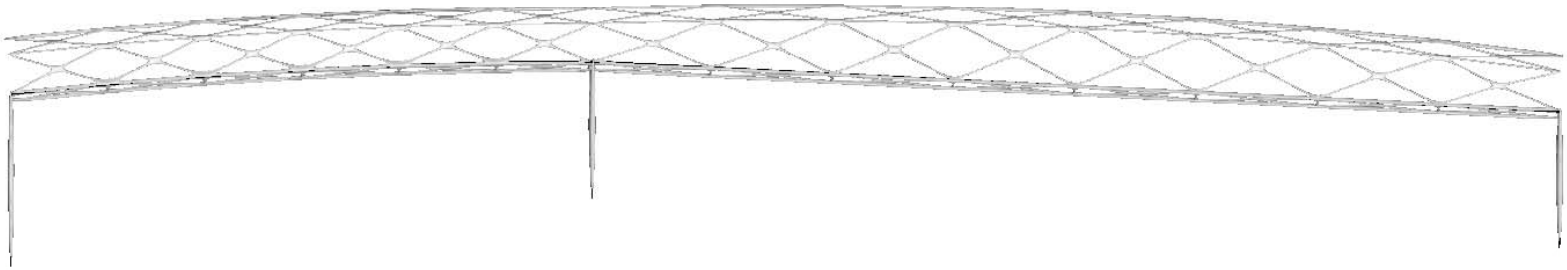

# SECTION A - 17.5' CLEARANCE

# Bridge Type

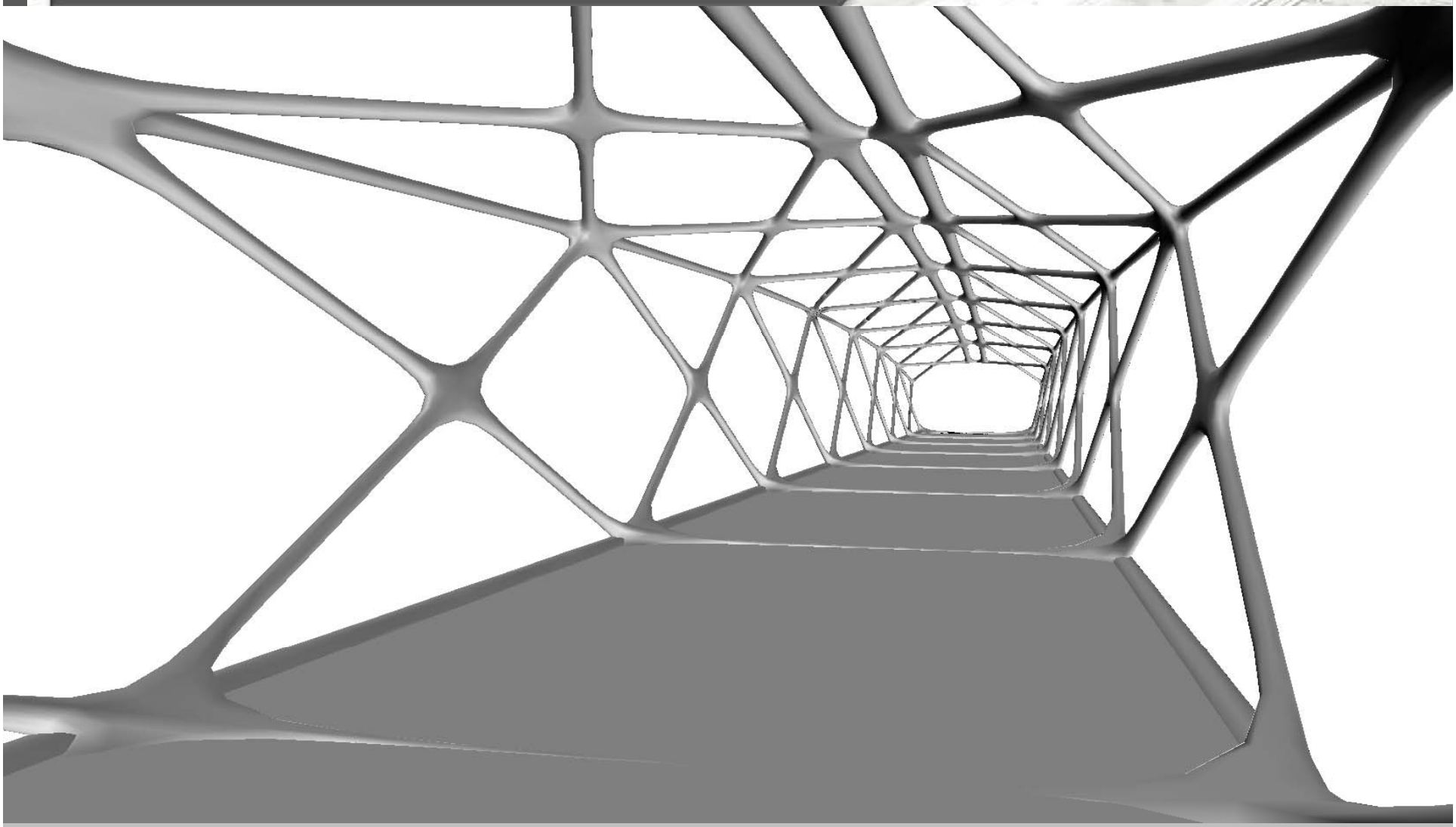
# Arch



# Tube/Truss



# Tube/Truss



# Recommendation Summary