



# ***West Seattle and Ballard Link Extensions***

***Elected Leadership Group Meeting | July 19, 2018***

# Agenda

- *Welcome*
- *Public comment*
- *Community engagement and collaboration*
- *Level 2 alternatives and screening criteria*
- *SODO alternatives and evaluation results*
- *Chinatown/International District alternatives and evaluation results*
- *Equity and Inclusion briefing*
- *Next steps*

# Public Comment

## WHO IS SOUND TRANSIT?

We plan, build and operate regional transit systems and services to improve mobility in urban areas of King, Pierce and Snohomish counties.



### Sounder commuter rail

The Sounder train line between Everett and Seattle, including stops in Bothell, Everett, Everett-Hall, Marysville, and Everett-Hall, provides a fast and reliable service for commuters and visitors.



### Link light rail

Link light rail runs from Everett to Seattle, including stops in Everett, Everett-Hall, Marysville, and Everett-Hall, providing a fast and reliable service for commuters and visitors.



### ST Express bus

ST Express bus runs from Everett to Seattle, including stops in Everett, Everett-Hall, Marysville, and Everett-Hall, providing a fast and reliable service for commuters and visitors.

### Our Board

Sound Transit is governed by an 18-member Board made up of local elected officials and the Secretary of the Washington State Department of Transportation. The Board establishes policy and gives direction and oversight.

### Funding

The system plan is paid for with a combination of voter-approved local taxes, federal grants, federal revenues, federal bonds, and federal revenues. By 2025, system operating costs will be paid for with local taxes, federal revenues, federal bonds, private sources and federal operating assistance.

## FUTURE SERVICE

### Sound Transit System Expansion will:

- Build a 116-mile light rail network extending from Everett to Tacoma and from Seattle neighborhoods to Redmond and Issaquah.
- Establish Bus Rapid Transit (BRT) to the north, east and south of Lake Washington.
- Expand Sounder south line capacity and service adding four new stations.
- Improve service and parking at stations.





[illegible]



# Community engagement and collaboration



Community Updates



Neighborhood Forums



Stakeholder Advisory Group



Elected Leadership Group



Sound Transit Board



Meeting dates subject to change.

# External Engagement Report: May 2018



**50** comments and questions



**4** Neighborhood forums

engaging more than  
**230** community members



**2** email updates

engaging more than  
**3,450** subscribers



**14** community briefings



**1** Stakeholder Advisory Group meeting



**3** Tweets

engaging more than  
**81,500** users



**1** Elected Leadership Group meeting

# External Engagement Report: June 2018



**4** comments and questions



**2** email updates engaging more than  
**3,450** subscribers



**1** Tweet engaging more than  
**82,000** users



**1** post engaging more than  
**29,500** users



**3** social service  
provider interviews



**15** community briefings



**2** festivals engaging more than  
**350** community  
members



**1** Stakeholder Advisory Group meeting



# *June-July briefings snapshot*

- ✓ Chinatown-International District BIA (6/7)
- ✓ Seattle Design Commission (6/7)
- ✓ Pigeon Point Neighborhood Council (6/11)
- ✓ South downtown stakeholders (6/12)
- ✓ Seattle Planning Commission (6/14)
- ✓ Neighborcare Health Ballard (6/18)
- ✓ SODO BIA Transportation Committee (6/19)
- ✓ Ballard Food Bank (6/20)
- ✓ Sound Transit Citizen Oversight Panel (6/21)
- ✓ CID Framework Capital Projects  
Coordination Workgroup (6/22)
- ✓ UW Medicine (6/25)
- ✓ NSIA (6/26)
- ✓ Ethiopian Community in Seattle (6/26)
- ✓ West Seattle Food Bank (6/28)
- ✓ Southwest Youth & Family Services (6/29)
- ✓ WSB Station Access Discussion (7/6)
- ✓ Mary's Place (7/10)
- ✓ Central Ballard Residents Council (7/12)
- ✓ South downtown stakeholders (7/12)
- ✓ SODO BIA Transportation Committee  
(7/13)



# 2018 Festivals

- ✓ Morgan Junction Festival (6/16)
- ✓ Festival Sundiata (6/16-6/17)
- ✓ West Seattle Summer Fest (7/13-7/15)
- ✓ Ballard Seafood Fest (7/13-7/15)
- ✓ Dragon Fest (7/14-7/15)
- South Lake Union Block Party (8/10)
- Delridge Day (8/11)
- Celebrate Little Saigon (8/26)
- Night Market (9/8)
- Fishermen's Fall Festival (9/15)
- Sustainable Ballard Festival (9/22)
- Dia de Muertos (10/27-10/28)
- Magnolia Farmers Market (TBD)



# Coming soon: Neighborhood Forums/Open Houses

## West Seattle

*(Includes Delridge, Avalon and Alaska Junction stations)*

## Downtown Seattle

*(Includes Denny, South Lake Union, Seattle Center, Midtown, Westlake, Chinatown-International District, Stadium and SODO stations)*

## Ballard

*(Includes Smith Cove, Interbay and Ballard stations)*

## Saturday, Sept. 8

9 – 11:30 a.m.

Seattle Lutheran High School  
Gym (4100 SW Genesee St.,  
Seattle)

## Tuesday, Sept. 11

5:30 – 8 p.m.

Ruth Fisher Boardroom,  
Union Station  
(401 S. Jackson St., Seattle)

## Monday, Sept. 17

5:30 – 8 p.m.

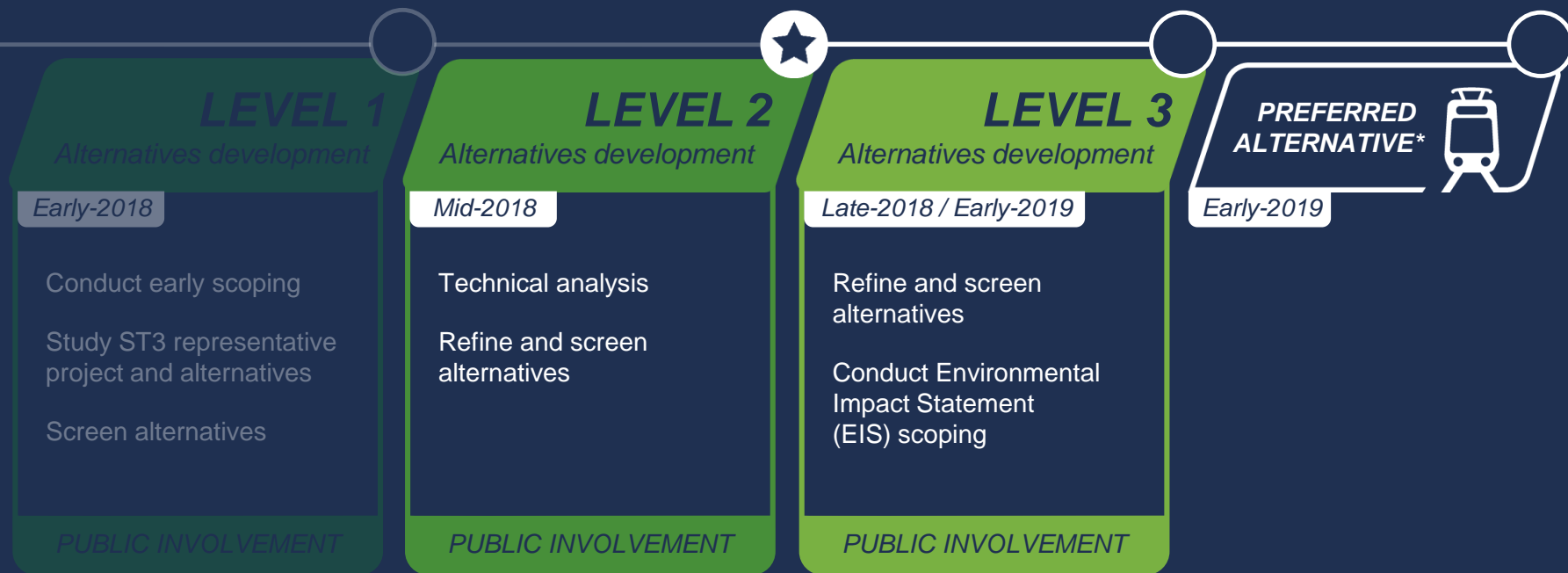
Ballard Eagleson VFW  
(2812 NW Market St., Seattle)



A photograph of a Sound Transit train, specifically car 139B, stopped at a station platform. The train is white with blue and grey accents. The platform has a metal railing in the foreground and a yellow tactile paving strip along the edge. A digital display above the train shows the word "Waiting". The text "Level 2 alternatives" is overlaid in a large, white, italicized font across the center of the image.

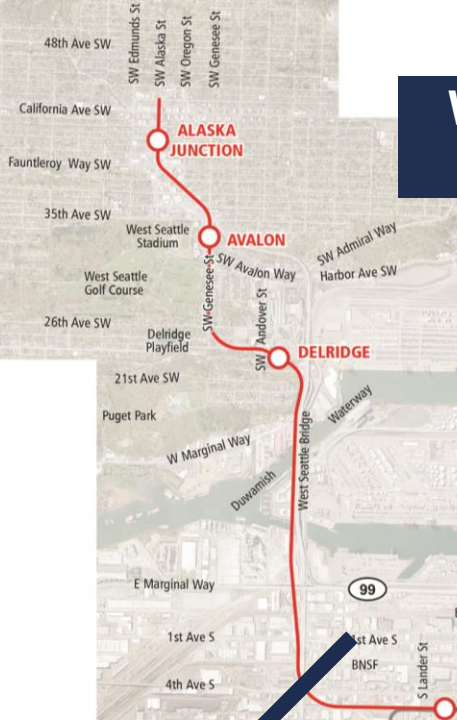
# *Level 2 alternatives*

# Alternatives development process

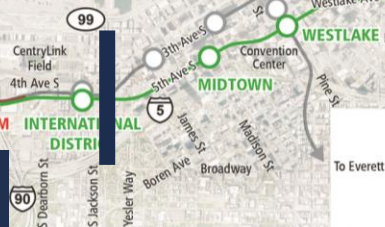


\*The Sound Transit Board identifies preferred alternatives and other alternatives to study.

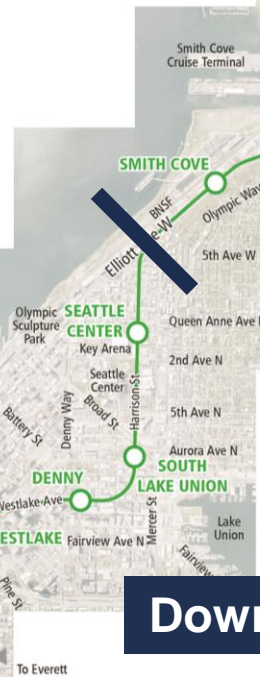
## West Seattle/ Duwamish



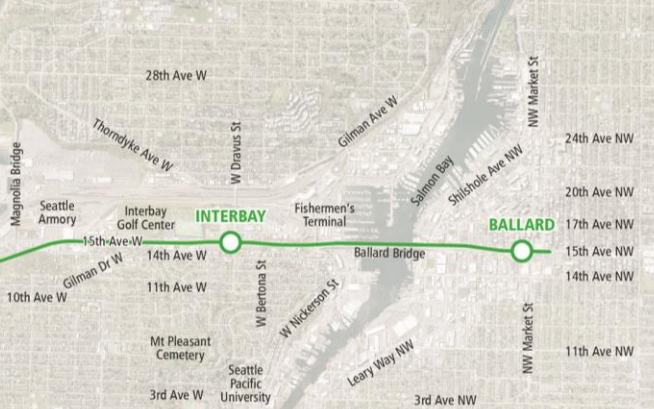
## SODO and Chinatown/ID



## Downtown



## Interbay/Ballard



### KEY MAP

- Red line with circle: West Seattle extension/Station area
- Green line with circle: Ballard extension/Station area
- Grey line with circle: Existing Link/Station area



# Study segments



# Level 2 alternatives

## West Seattle/Duwamish

- ST3 Representative Project
- Pigeon Ridge/West Seattle Tunnel
- Oregon Street/Alaska Junction/Elevated
- Oregon Street/Alaska Junction/Tunnel (new)
- Golf Course/Alaska Junction/Tunnel (modified)

## SODO and Chinatown/ID

- ST3 Representative Project
- Massachusetts Tunnel Portal
- Surface E-3

## Downtown

- ST3 Representative Project
- 5th/Harrison
- 6th/Boren/Roy
- 5th/Terry/Roy/Mercer (new)

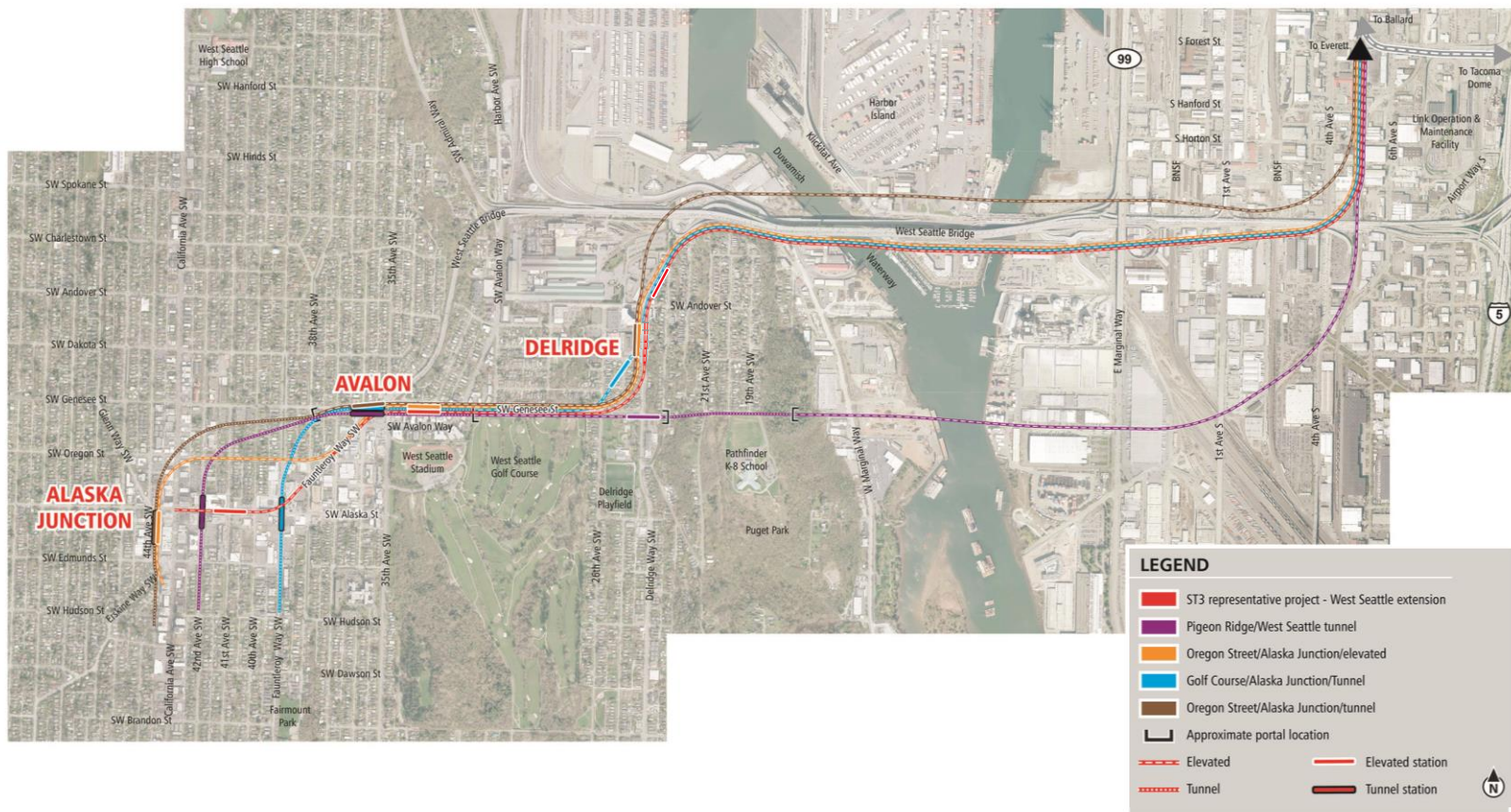
## Interbay/Ballard

- ST3 Representative Project
- 15th/Fixed Bridge/15th
- 20th/Fixed Bridge/17th
- 20th/Tunnel/15th
- Armory Way/Tunnel/14th
- Central Interbay/14th
  - Movable
  - Fixed (new)
- Central Interbay/Tunnel/15th (new)

# Level 2 alternatives

## West Seattle/Duwamish

- ST3 Representative Project
- Pigeon Ridge/West Seattle Tunnel
- Oregon Street/Alaska Junction/Elevated
- Oregon Street/Alaska Junction/Tunnel (new)
- Golf Course/Alaska Junction/Tunnel (modified)



# West Seattle/Duwamish – Level 2 alternatives





#### KEY MAP

- West Seattle extension/Station area
- Ballard extension/Station area



#### LEGEND

- ST3 representative project - West Seattle extension
- Pigeon Ridge/West Seattle tunnel
- Oregon Street/Alaska Junction/elevated
- Golf Course/Alaska Junction/Tunnel
- Oregon Street/Alaska Junction/tunnel
- Approximate portal location
- Elevated
- Tunnel
- Elevated station
- Tunnel station

 = Refinement from Level 1

# West Seattle/Duwamish

Level 2 Alternative – *ST3 Representative Project*



# West Seattle/Duwamish

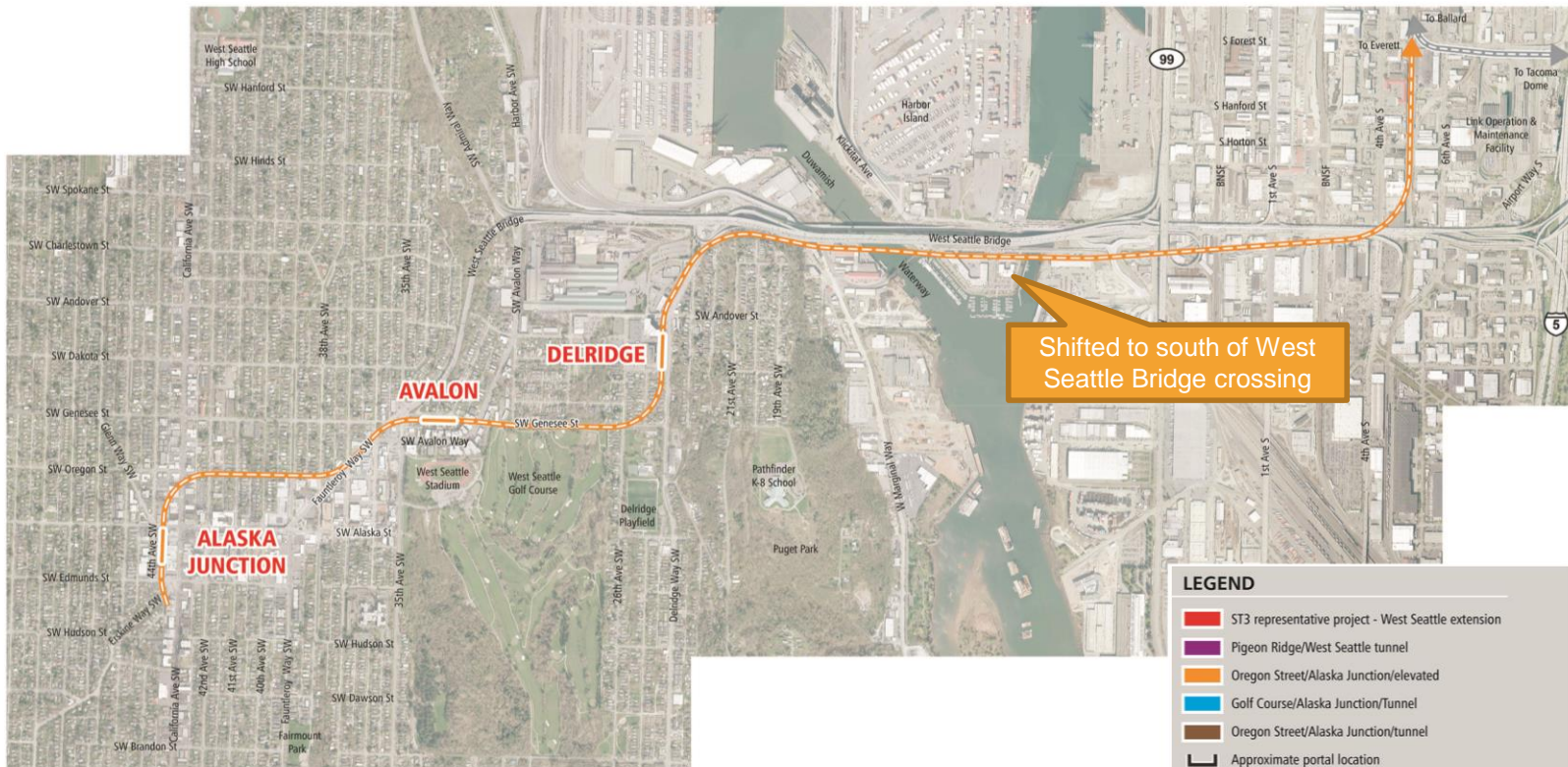
Level 2 Alternative – *Pigeon Ridge/West Seattle Tunnel*





#### KEY MAP

- West Seattle extension/Station area
- Ballard extension/Station area



Shifted to south of West Seattle Bridge crossing

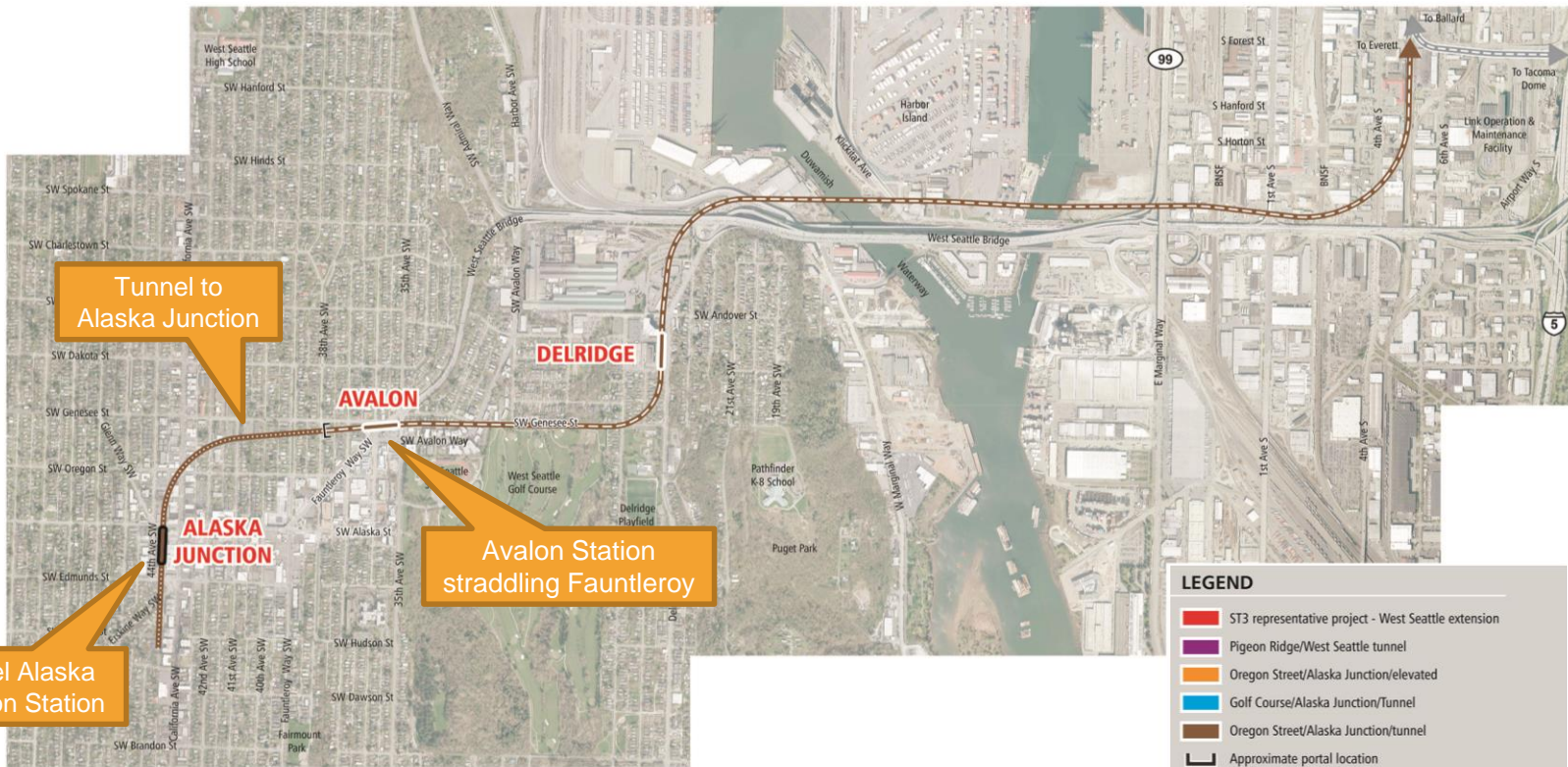
#### LEGEND

- ST3 representative project - West Seattle extension
- Pigeon Ridge/West Seattle tunnel
- Oregon Street/Alaska Junction/elevated
- Golf Course/Alaska Junction/Tunnel
- Oregon Street/Alaska Junction/tunnel
- Approximate portal location
- Elevated
- Tunnel
- Elevated station
- Tunnel station

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# West Seattle/Duwamish

Level 2 Alternative – Oregon Street/Alaska Junction/Elevated



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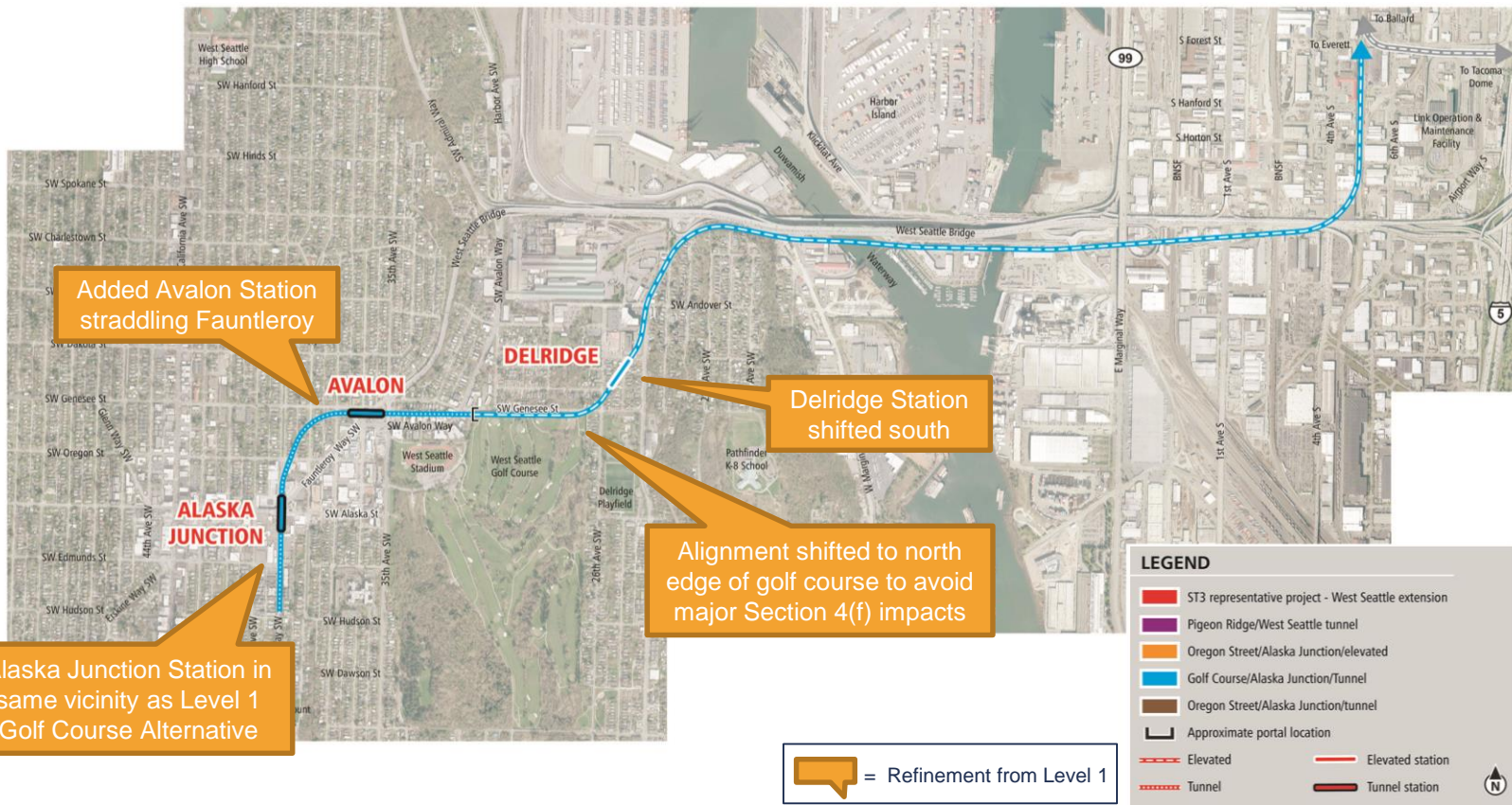
### LEGEND

-  ST3 representative project - West Seattle extension  
 Pigeon Ridge/West Seattle tunnel  
 Oregon Street/Alaska Junction/elevated  
 Golf Course/Alaska Junction/Tunnel  
 Oregon Street/Alaska Junction/tunnel  
 Approximate portal location  
 Elevated  
 Elevated station  
 Tunnel  
 Tunnel station

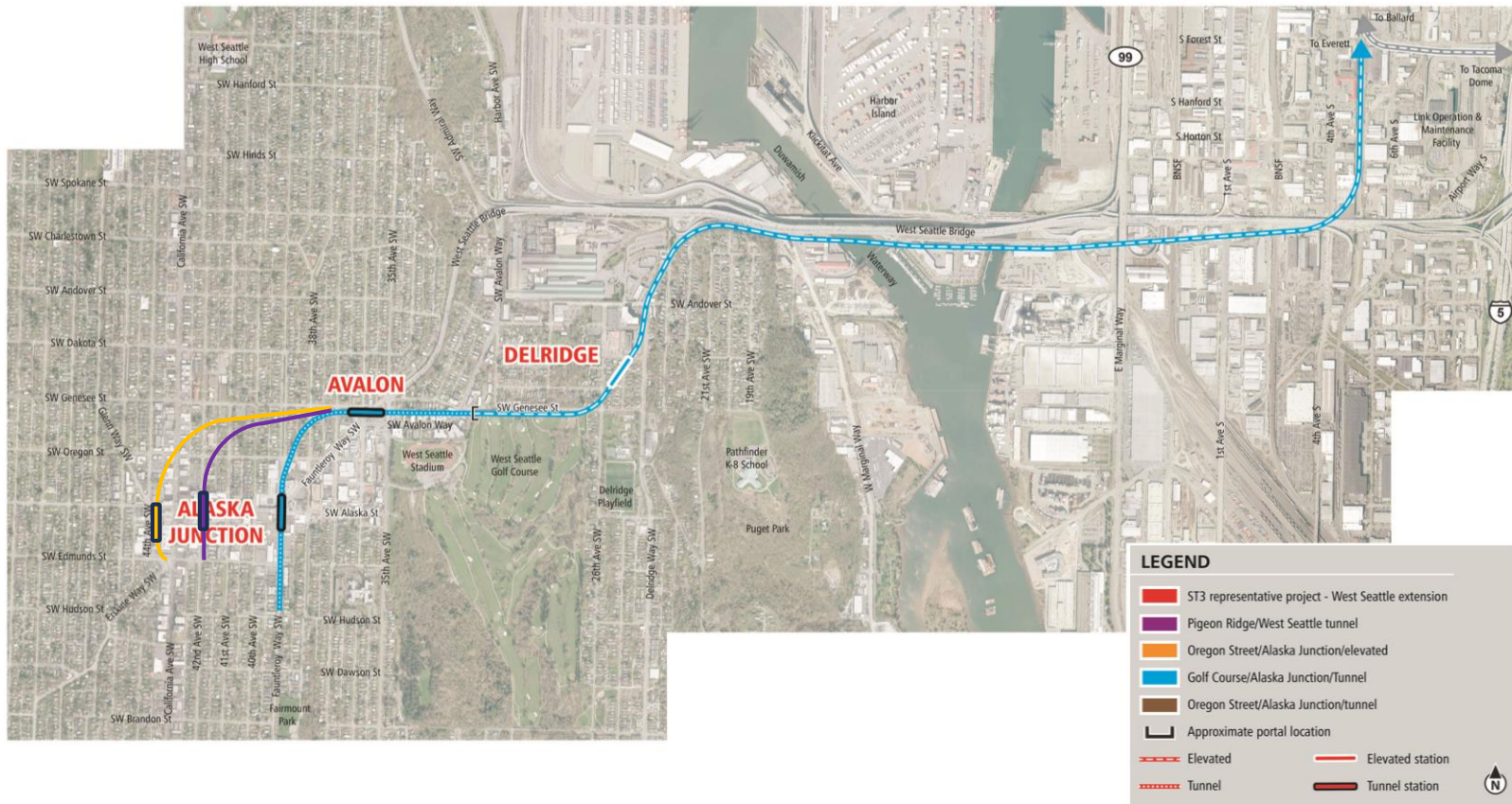
# West Seattle/Duwamish

## Level 2 Alternative – Oregon Street/Alaska Junction/Tunnel (new)









# West Seattle/Duwamish

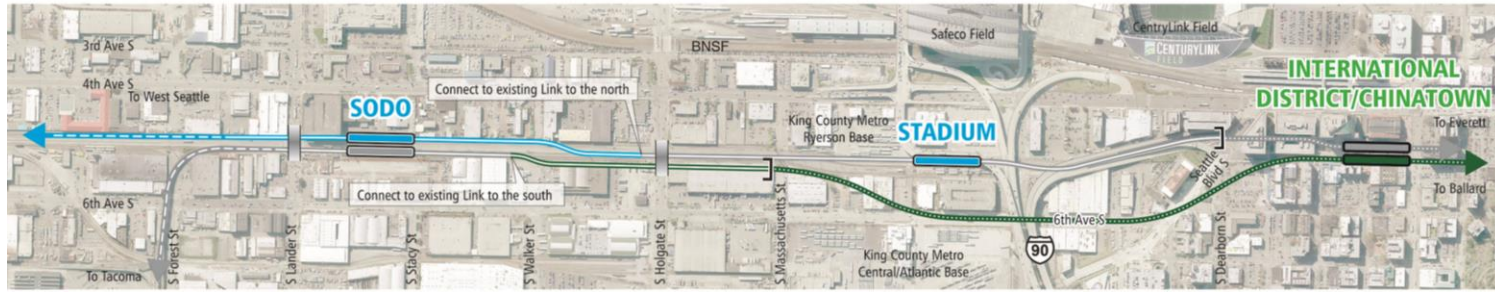
Mix-n-Match Example

# *Level 2 alternatives*

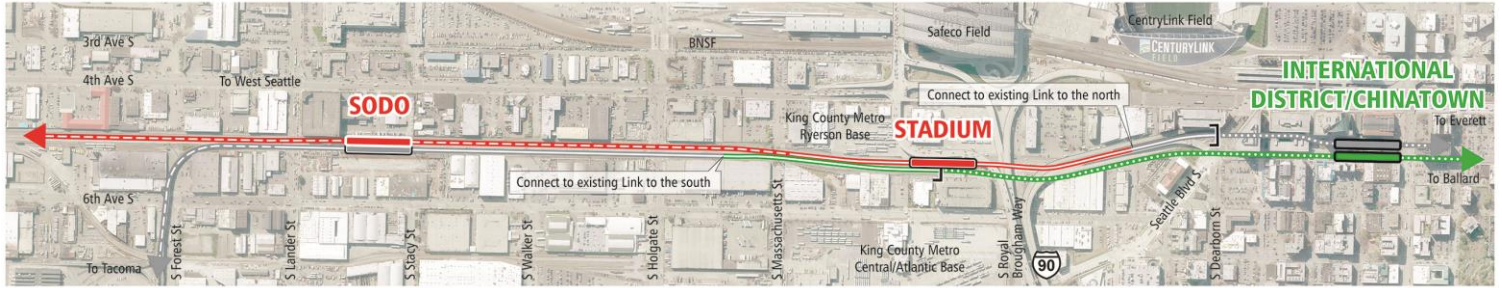
## • SODO and Chinatown/ID •

- ST3 Representative Project
- Massachusetts Tunnel Portal
- Surface E-3





# SODO and Chinatown/ID – Level 2 alternatives



# SODO and Chinatown/ID

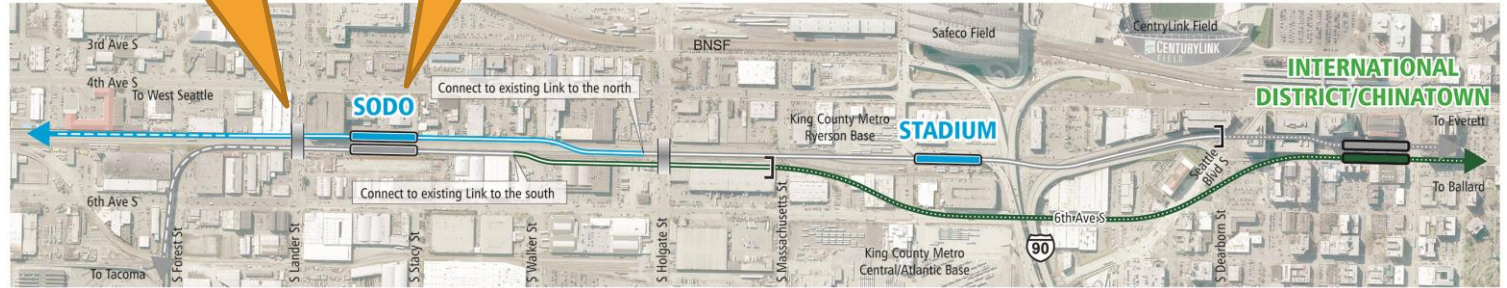
Level 2 Alternative – *ST3 Representative Project*





New Lander roadway overcrossing

At-grade SODO Station

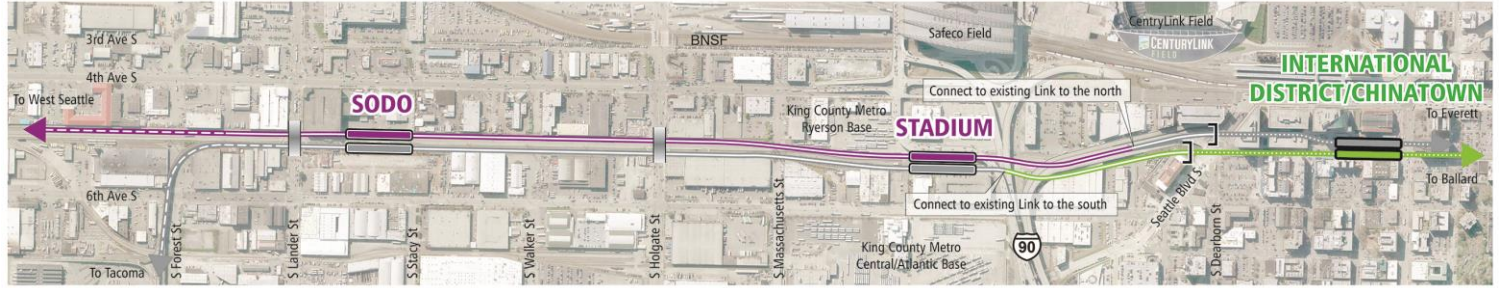


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# SODO and Chinatown/ID

Level 2 Alternative – *Massachusetts Tunnel Portal*





# SODO and Chinatown/ID

Level 2 Alternative – *Surface E-3*

# *Additional feedback*

## *SODO and Chinatown/ID*

- Consider 4th Avenue location for Chinatown/ID station
- Explore alignments further west of ST3 Representative Project

# *Level 2 alternatives*














The diagram features a light blue horizontal arrow pointing to the right, labeled 'Downtown'. Below this arrow, two vertical dotted lines extend downwards from the arrow's start and end points. Between these lines is a bulleted list of four items.

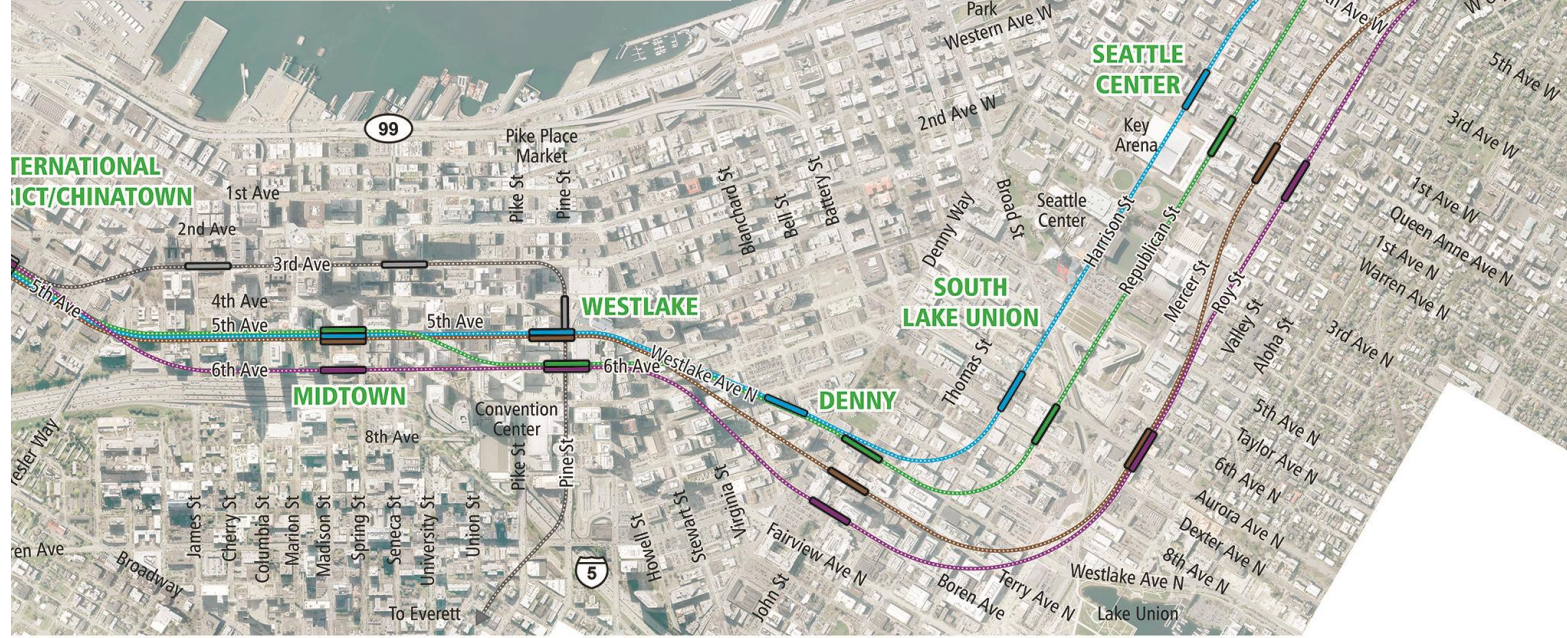
## Downtown

- ST3 Representative Project
- 5th/Harrison
- 6th/Boren/Roy
- 5th/Terry/Roy/Mercer (new)


**LEGEND**


 ST3 representative project - Ballard extension	 Existing Link light rail
 5th/Harrison	 Approximate portal location
 5thTerry/Roy/Mercer	 Surface
 6thBoren/Roy	 Tunnel
	 Elevated
	 Tunnel station






**KEY MAP**

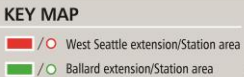
 West Seattle extension/Station area

 Ballard extension/Station area



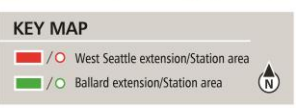
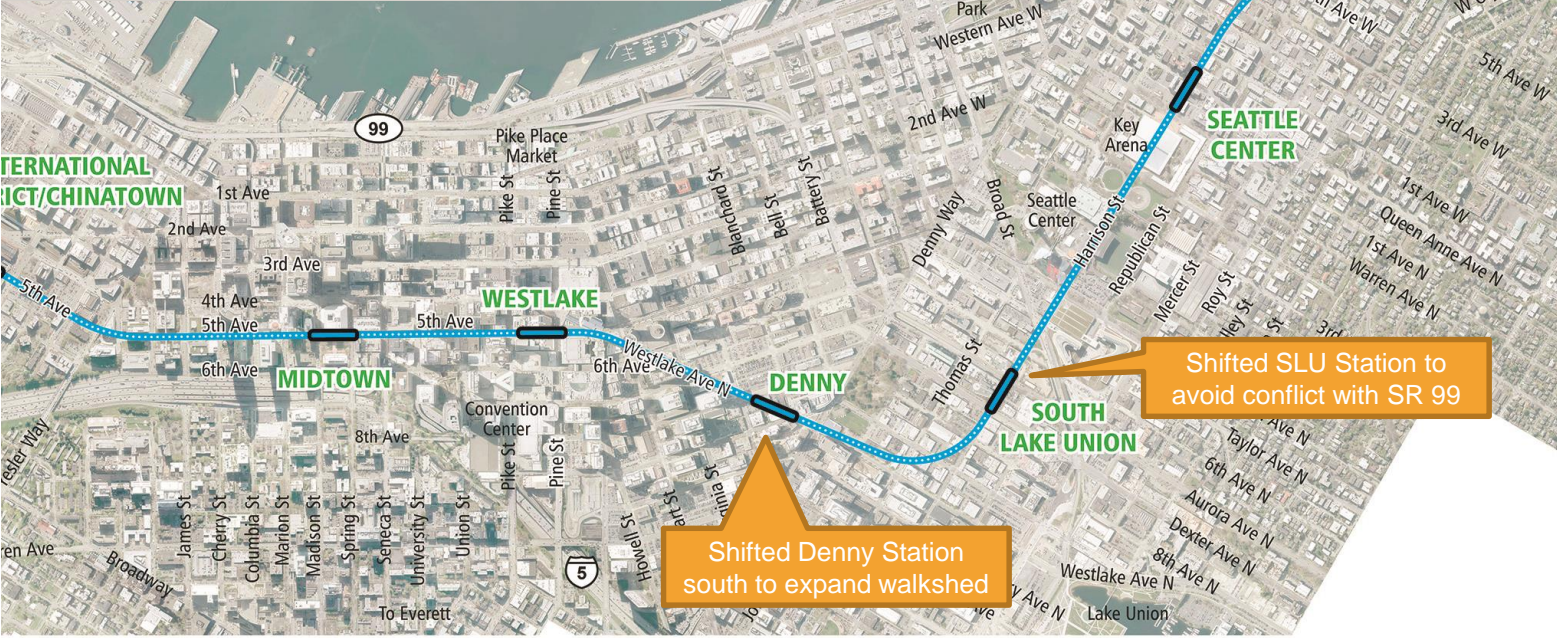
# Downtown – Level 2 alternatives





## Level 2 Alternative – *ST3 Representative Project*





 = Refinement from Level 1







**LEGEND**

ST3 representative project - Ballard extension	Existing Link light rail
5th/Harrison	Approximate portal location
5th/Terry/Roy/Mercer	Surface
6th/Boren/Roy	Tunnel
	Elevated
	Tunnel station



**KEY MAP**

West Seattle extension/Station area

Ballard extension/Station area



# Downtown

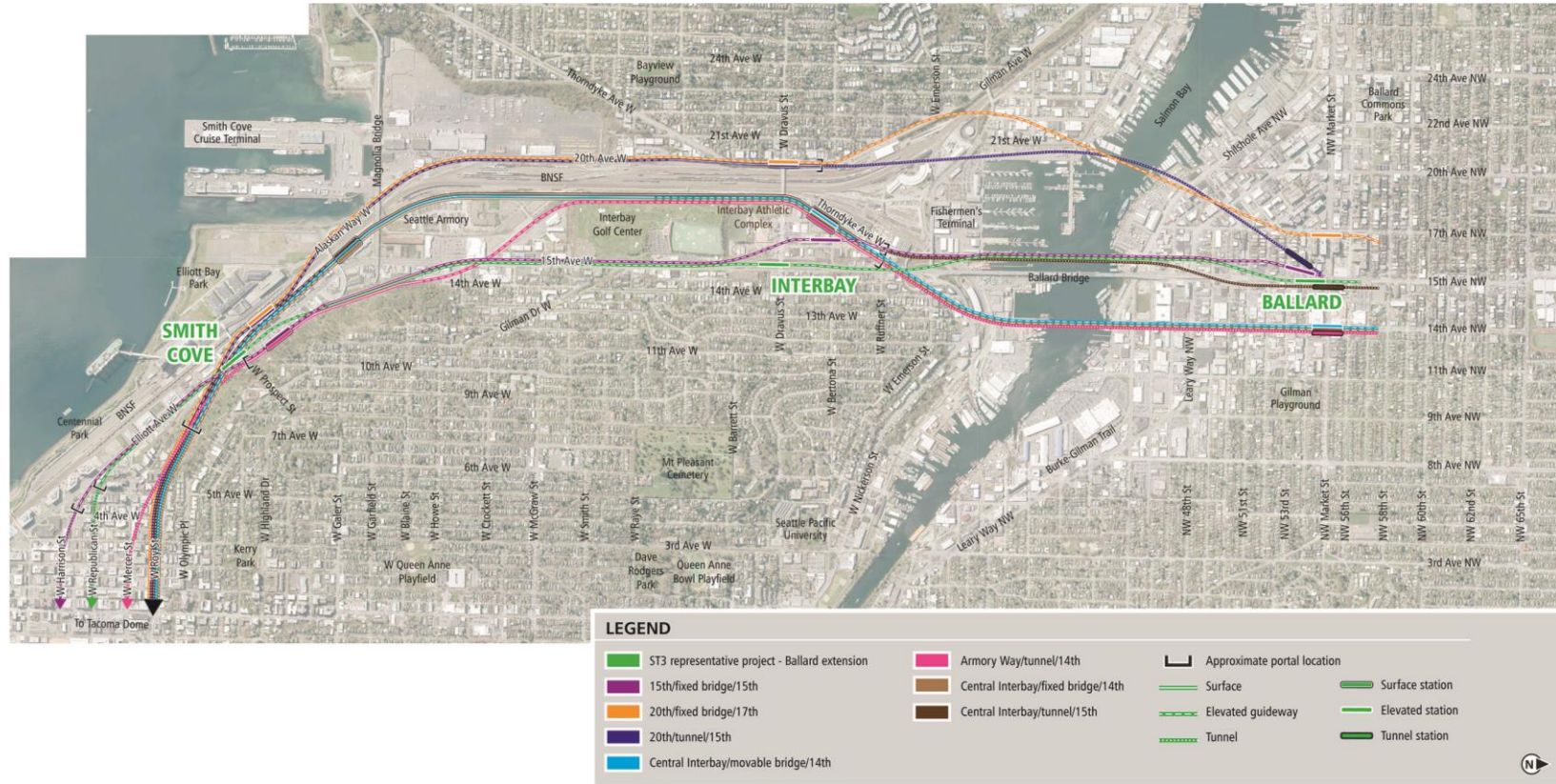
## Level 2 Alternative – 5th/Terry/Roy/Mercer (new)

# Level 2 alternatives

## Interbay/Ballard

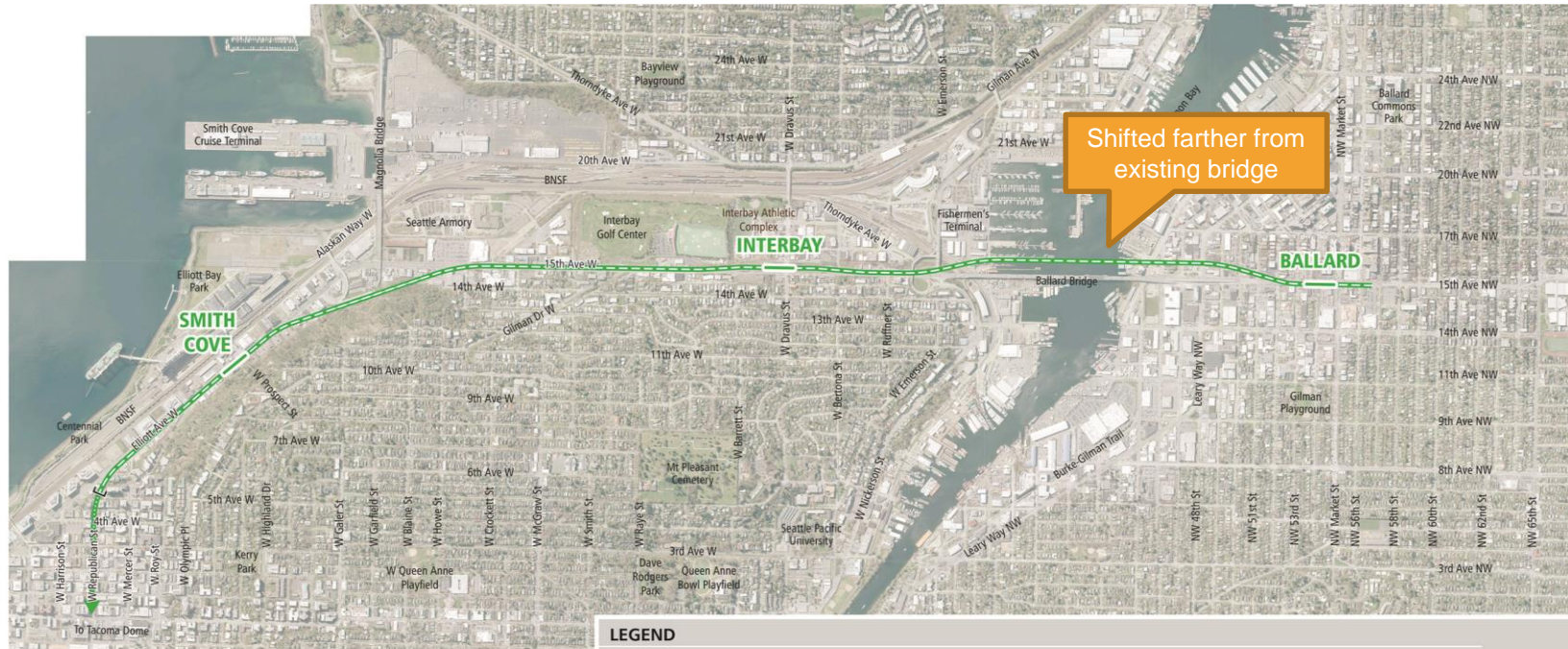
- ST3 Representative Project
- 15th/Fixed Bridge/15th
- 20th/Fixed Bridge/17th
- 20th/Tunnel/15th
- Armory Way/Tunnel/14th
- Central Interbay/14th
  - Movable
  - Fixed (new)
- Central Interbay/Tunnel/15th (new)





# Interbay/Ballard – Level 2 alternatives

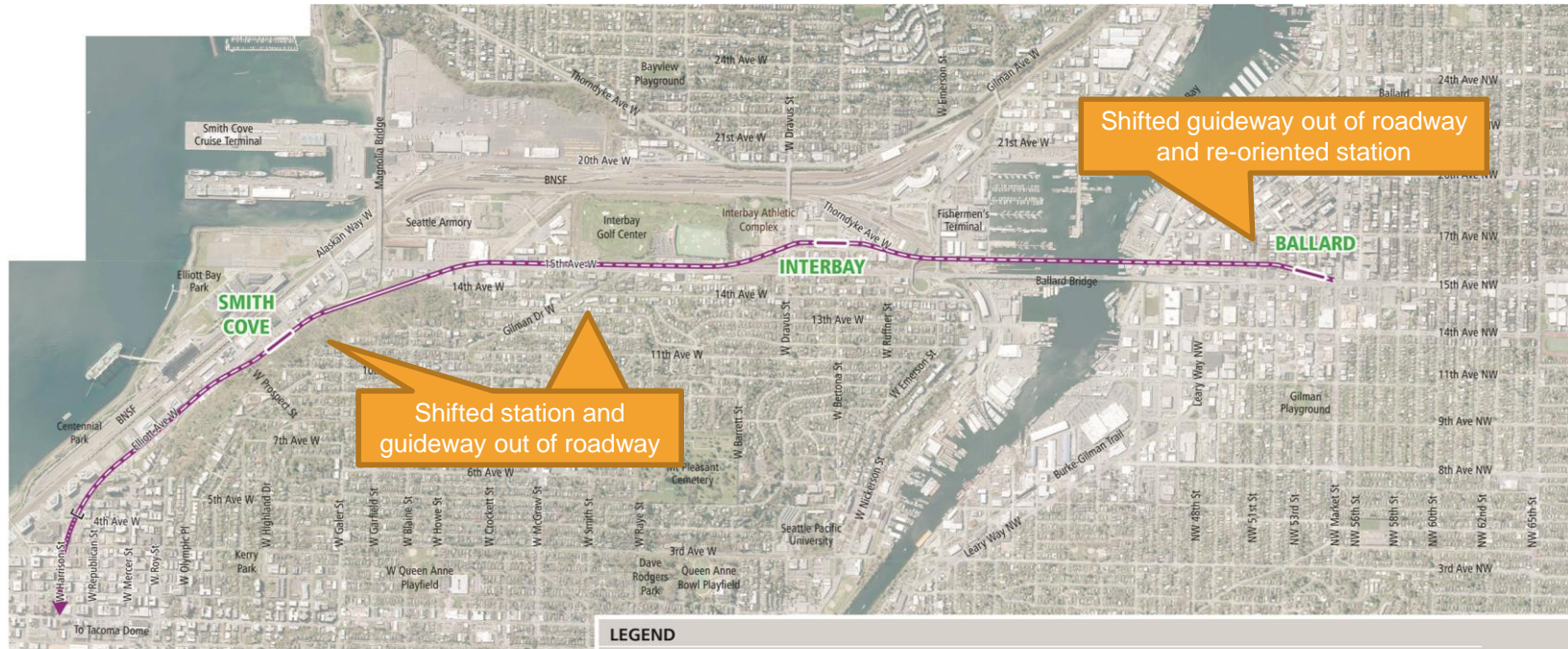




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# Interbay/Ballard

Level 2 Alternative – *ST3 Representative Project*



#### LEGEND

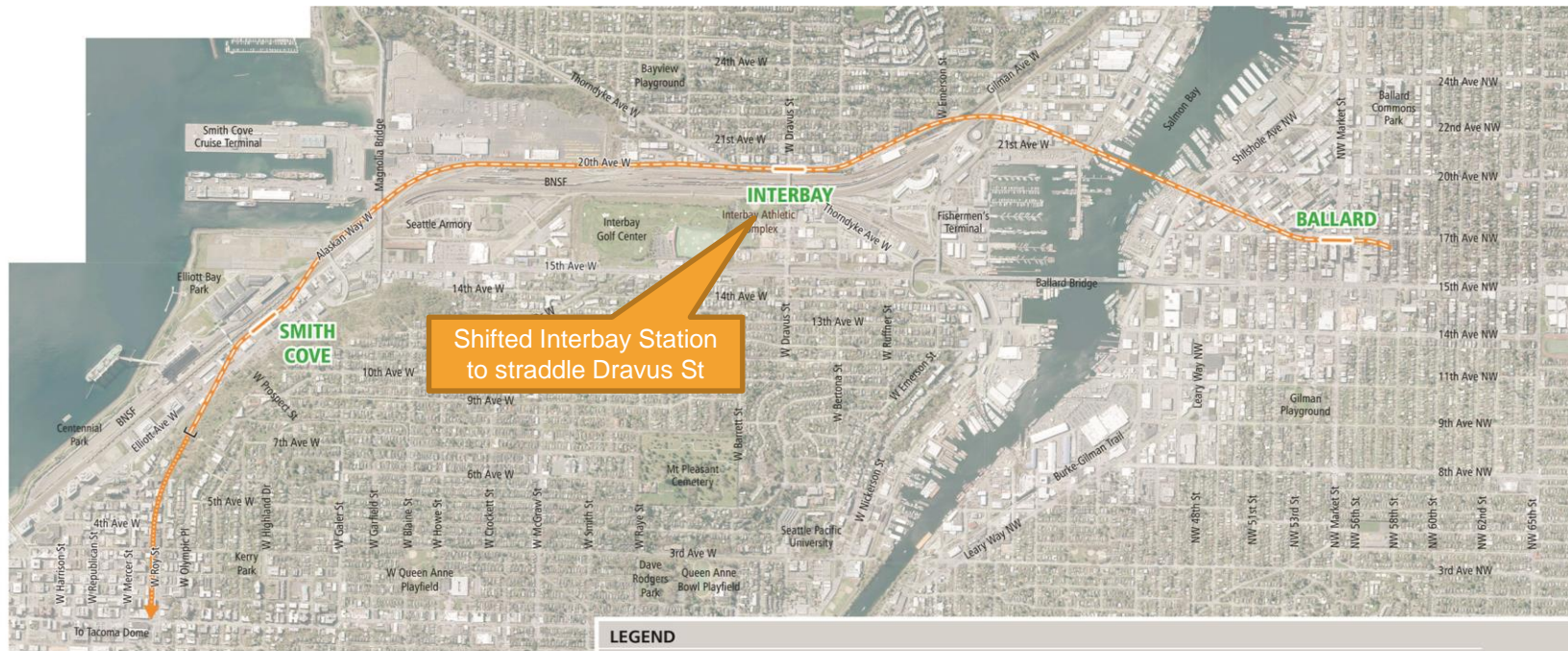
ST3 representative project - Ballard extension	Army Way/tunnel/14th	Approximate portal location
15th/fixed bridge/15th	Central Interbay/fixed bridge/14th	Surface station
20th/fixed bridge/17th	Central Interbay/tunnel/15th	Elevated station
20th/tunnel/15th		Tunnel station
Central Interbay/movable bridge/14th		
	Surface	
	Elevated guideway	
	Tunnel	

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# Interbay/Ballard

Level 2 Alternative – *15th/Fixed Bridge/15th*





#### LEGEND

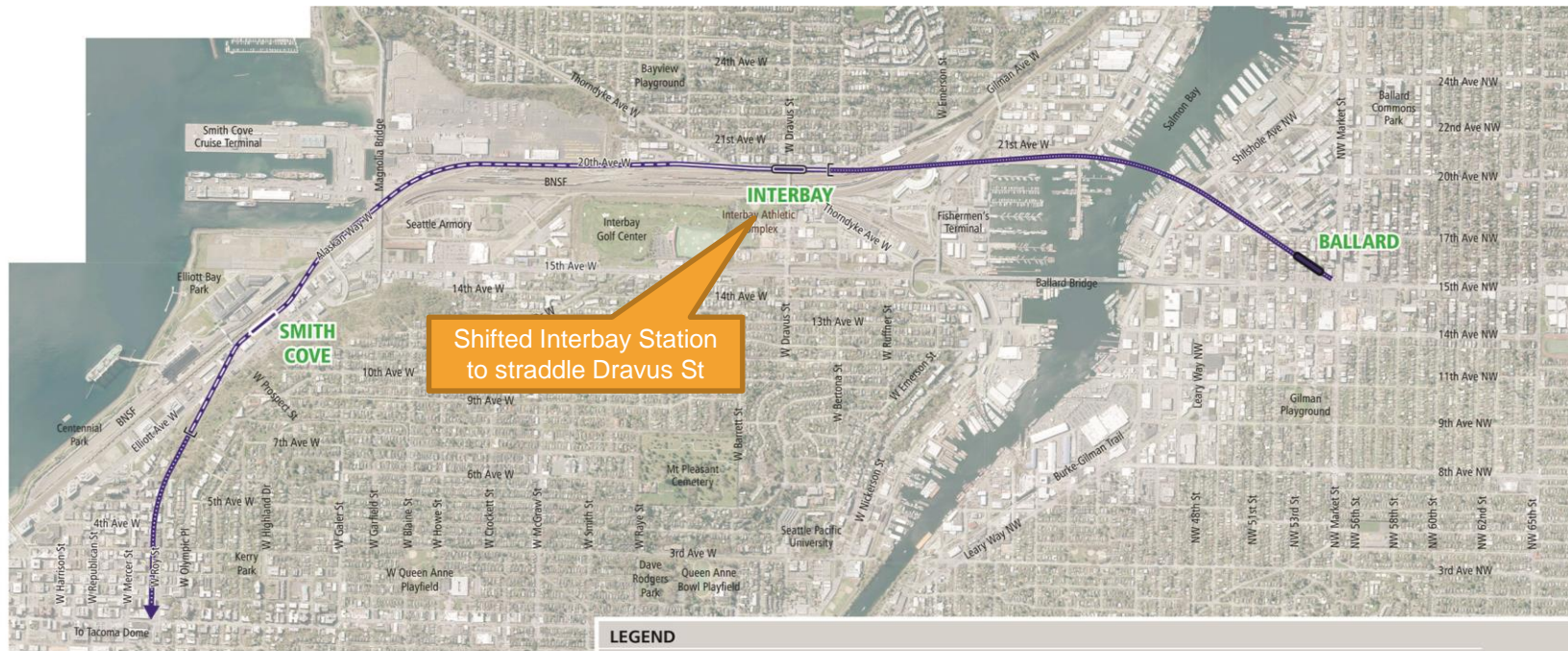
ST3 representative project - Ballard extension	Armory Way/tunnel/14th	Approximate portal location
15th/fixed bridge/15th	Central Interbay/fixed bridge/14th	Surface
20th/fixed bridge/17th	Central Interbay/tunnel/15th	Elevated guideway
20th/tunnel/15th		Tunnel
Central Interbay/movable bridge/14th		Surface station
		Elevated station
		Tunnel station

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# Interbay/Ballard














Level 2 Alternative – 20th/Fixed Bridge/17th





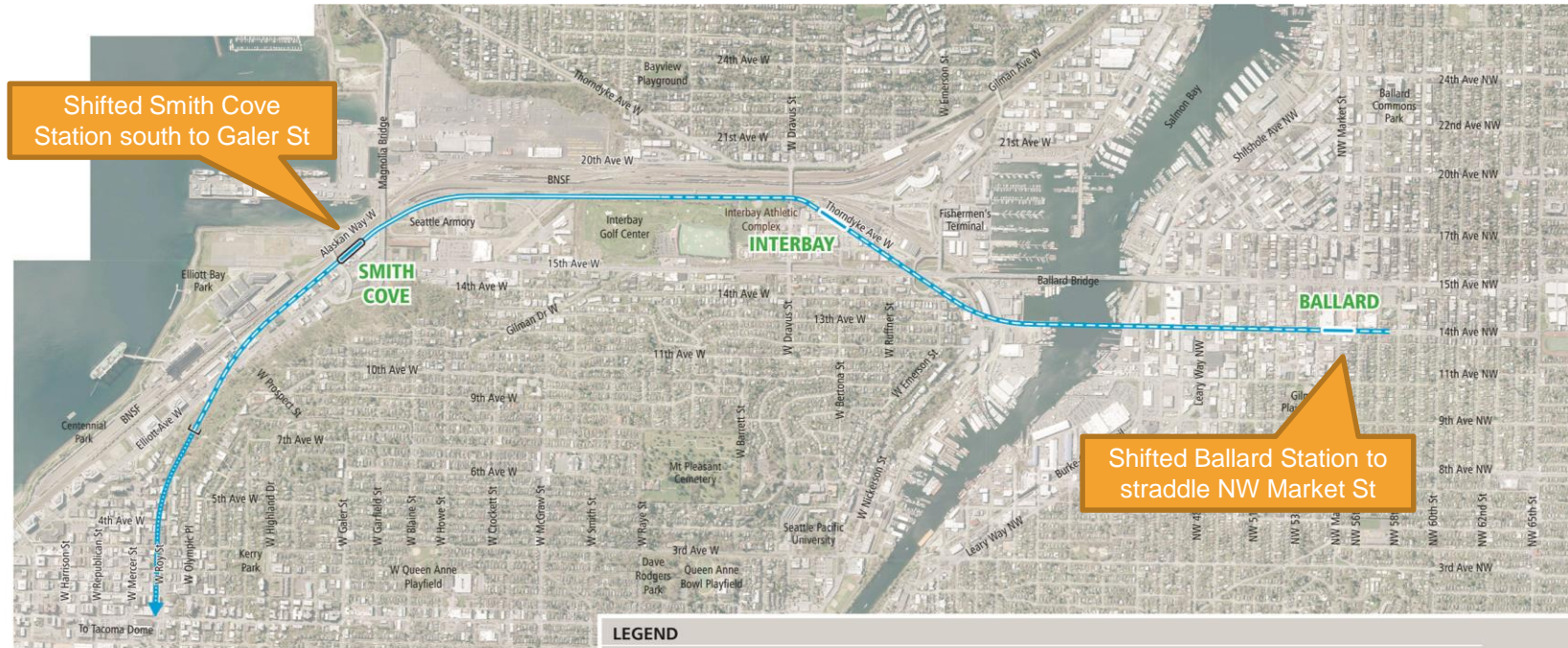
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#### LEGEND

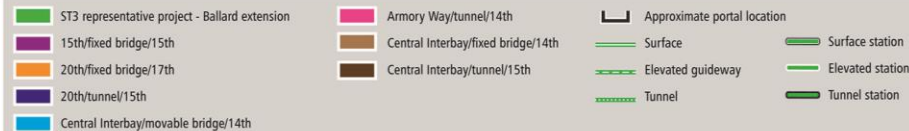
- |  |  |   |
|--|--|---|
|  ST3 representative project - Ballard extension |  Armory Way/tunnel/14th             |  Approximate portal location |
|  15th/fixed bridge/15th                         |  Central Interbay/fixed bridge/14th |  Surface                     |
|  20th/fixed bridge/17th                         |  Central Interbay/tunnel/15th       |  Elevated guideway           |
|  20th/tunnel/15th                               |  |  Tunnel                      |
|  Central Interbay/movable bridge/14th           |  |  Tunnel station              |

# Interbay/Ballard

Level 2 Alternative – 20th/Tunnel/15th



#### LEGEND



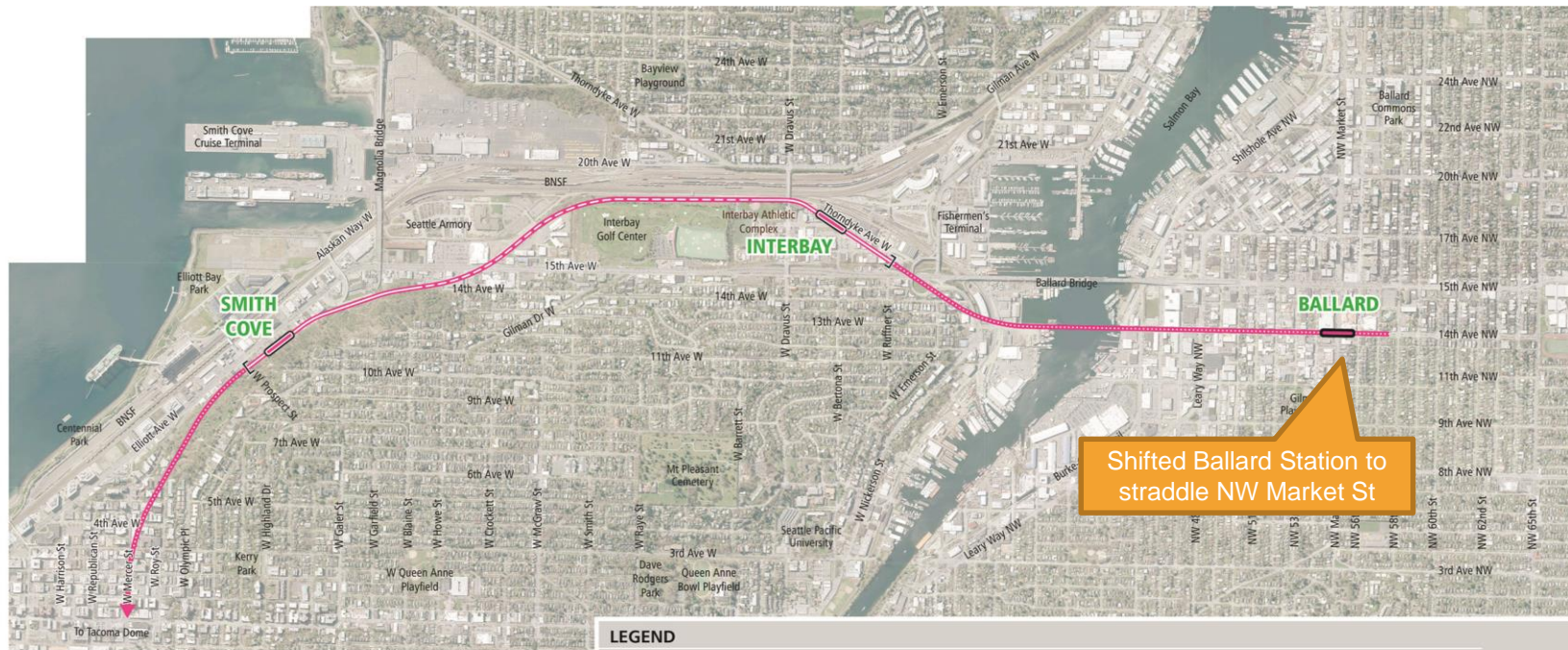
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# Interbay/Ballard

Level 2 Alternative – *Central Interbay/Movable Bridge/14th*







#### LEGEND

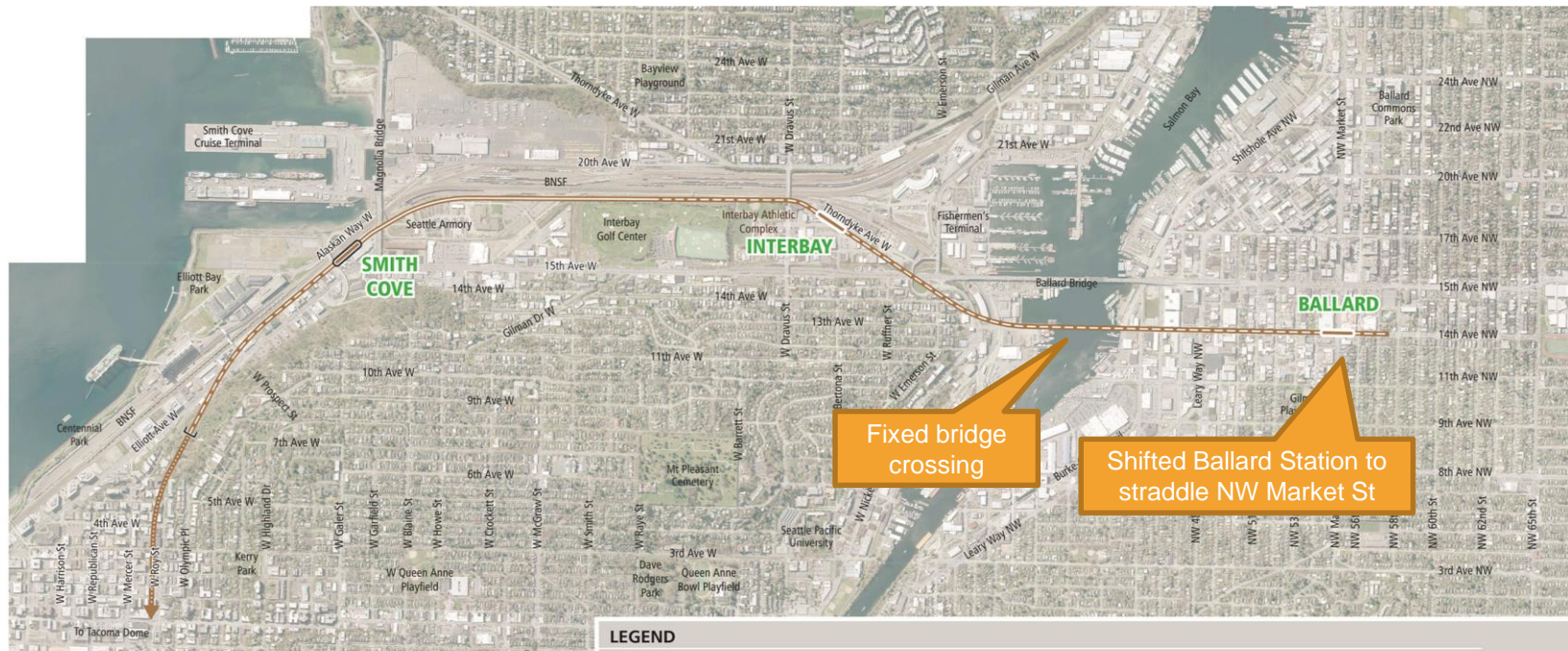
- |  |  |   |
|--|--|---|
| <span style="background-color: #00FF00; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> ST3 representative project - Ballard extension | <span style="background-color: #FF00FF; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Armory Way/tunnel/14th             | <span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Approximate portal location |
| <span style="background-color: #FF00FF; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> 15th/fixed bridge/15th                         | <span style="background-color: #FFA500; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Central Interbay/fixed bridge/14th | <span style="border-bottom: 1px dashed green; width: 20px; display: inline-block;"></span> Surface                    |
| <span style="background-color: #FFA500; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> 20th/fixed bridge/17th                         | <span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Central Interbay/tunnel/15th       | <span style="border-bottom: 1px dashed green; width: 20px; display: inline-block;"></span> Elevated guideway          |
| <span style="background-color: #0000FF; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> 20th/tunnel/15th                               |  | <span style="border-bottom: 1px dotted green; width: 20px; display: inline-block;"></span> Tunnel                     |
| <span style="background-color: #00FFFF; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Central Interbay/movable bridge/14th           |  | <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Surface station             |
|  |  | <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Elevated station            |
|  |  | <span style="border-bottom: 1px solid green; width: 20px; display: inline-block;"></span> Tunnel station              |

= Refinement from Level 1

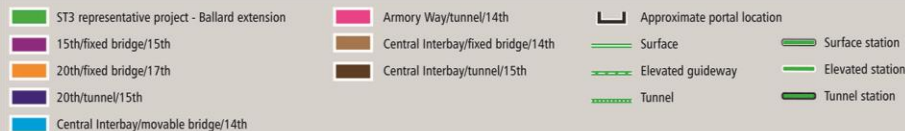
# Interbay/Ballard

Level 2 Alternative – *Armory Way/Tunnel/14th*





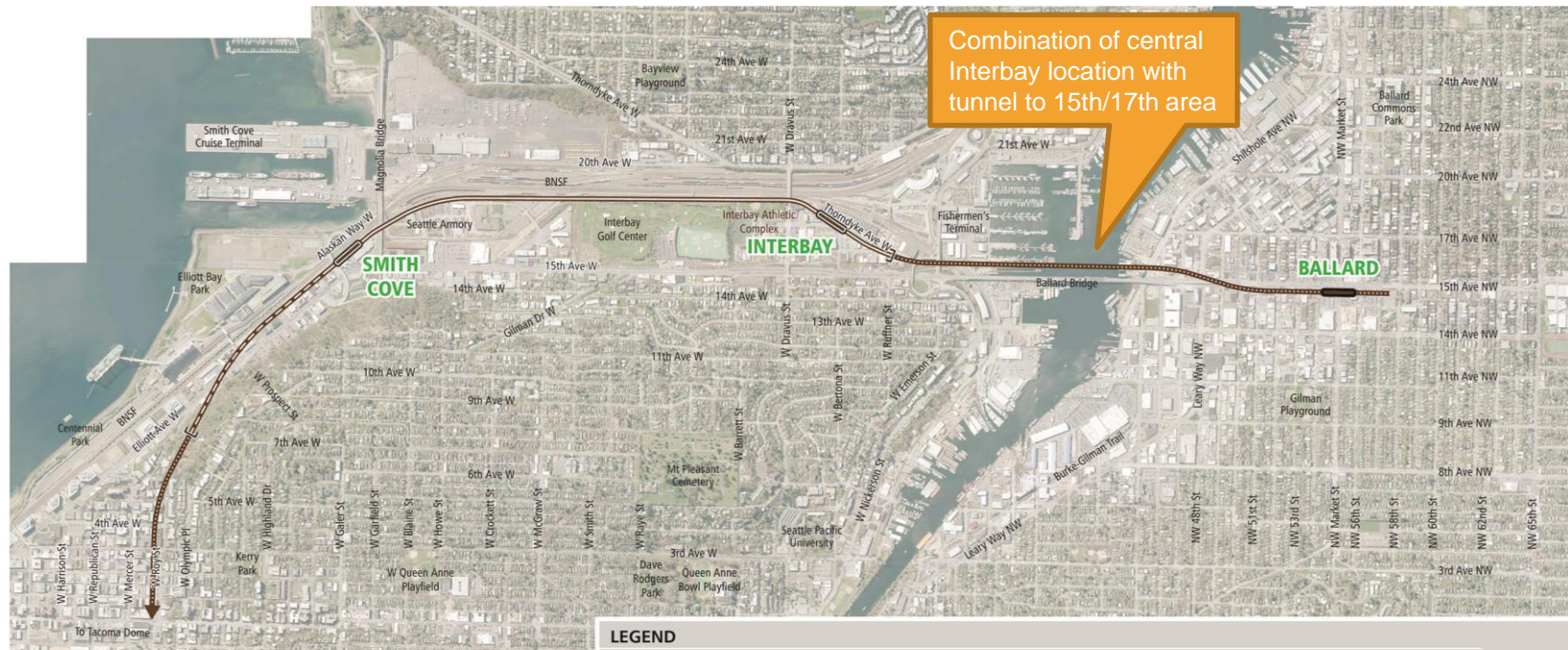
#### LEGEND



= Refinement from Level 1

# Interbay/Ballard

Level 2 Alternative – *Central Interbay/Fixed Bridge/14th (new)*



#### LEGEND

- |  |  |   |
|--|--|---|
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #2e8b57; border: 1px solid black;"></span> ST3 representative project - Ballard extension | <span style="display: inline-block; width: 20px; height: 10px; background-color: #ff69b4; border: 1px solid black;"></span> Armory Way/tunnel/14th               | <span style="display: inline-block; width: 20px; height: 10px; border-bottom: 2px solid black;"></span> Approximate portal location |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #800080; border: 1px solid black;"></span> 15th/fixed bridge/15th                         | <span style="display: inline-block; width: 20px; height: 10px; background-color: #a0522d; border: 1px solid black;"></span> Central Interbay/fixed bridge/14th   | <span style="display: inline-block; width: 20px; height: 10px; border-bottom: 2px dashed green;"></span> Surface                    |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #ffa500; border: 1px solid black;"></span> 20th/fixed bridge/17th                         | <span style="display: inline-block; width: 20px; height: 10px; background-color: #654321; border: 1px solid black;"></span> Central Interbay/tunnel/15th         | <span style="display: inline-block; width: 20px; height: 10px; border-bottom: 2px dashed green;"></span> Elevated guideway          |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #483d8b; border: 1px solid black;"></span> 20th/tunnel/15th                               | <span style="display: inline-block; width: 20px; height: 10px; background-color: #00bfff; border: 1px solid black;"></span> Central Interbay/movable bridge/14th | <span style="display: inline-block; width: 20px; height: 10px; border-bottom: 2px dotted green;"></span> Tunnel                     |
|  |  | <span style="display: inline-block; width: 20px; height: 10px; border: 2px solid green;"></span> Surface station                    |
|  |  | <span style="display: inline-block; width: 20px; height: 10px; border: 2px solid green;"></span> Elevated station                   |
|  |  | <span style="display: inline-block; width: 20px; height: 10px; border: 2px solid green;"></span> Tunnel station                     |

= Refinement from Level 1

# Interbay/Ballard

Level 2 Alternative – *Central Interbay/Tunnel/15th (new)*



A photograph of a Sound Transit train, specifically car 139B, stopped at a station platform. The train is white with blue accents. The station platform has a metal railing in the foreground and a yellow tactile paving strip along the edge. A digital display above the platform shows the word "Waiting". The background shows a clear sky and some distant structures.

# ***SODO alternatives and evaluation results***



# Agency workshops

- › *June 6: Identify alternatives*
- › *June 14: Review alternatives*
- › *Early July: Review evaluation*

*\*Community engagement in parallel*







*Service to SODO Destinations*



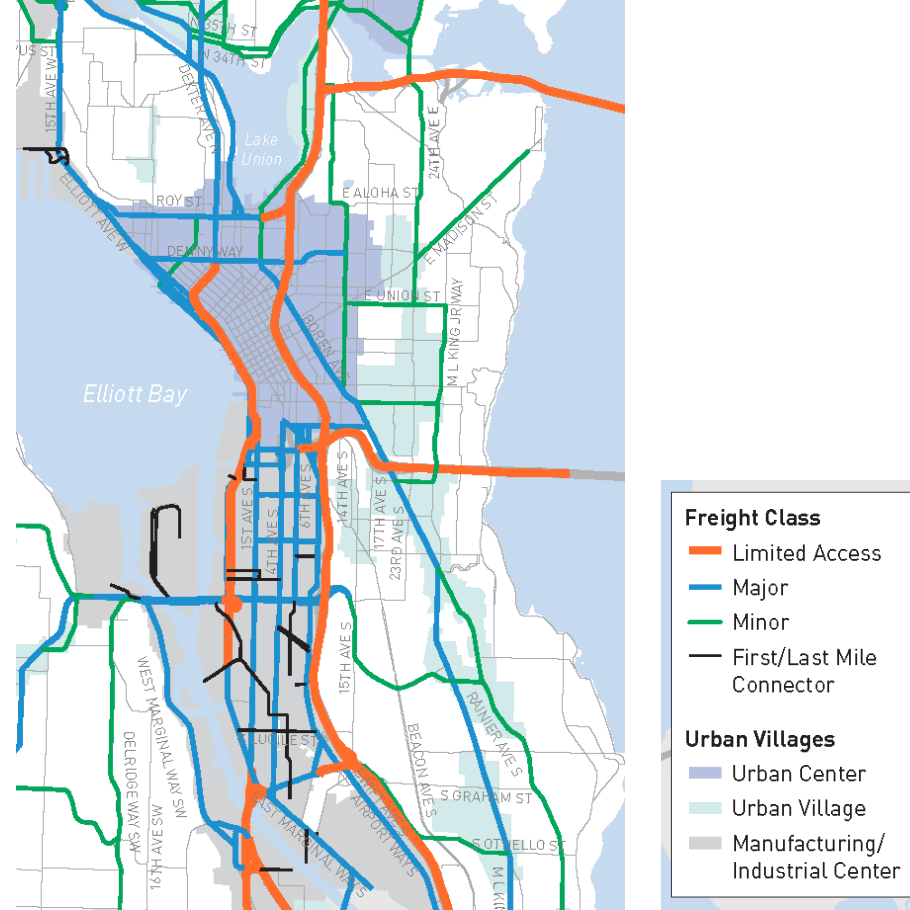


# *SODO Station Transfer*



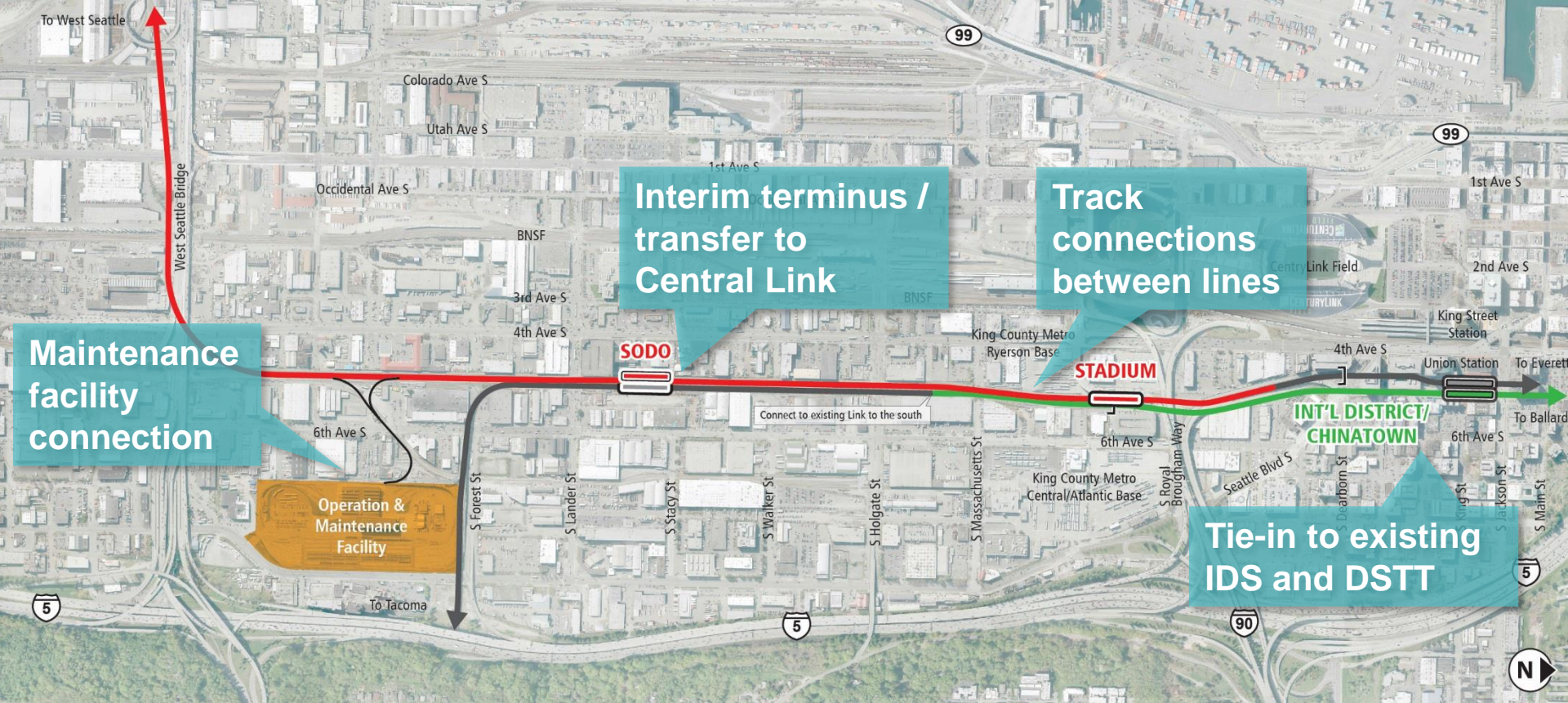


## *E-3 Busway Utilization*



## *Maintain Freight Mobility*





# *SODO Segment Operational Needs*

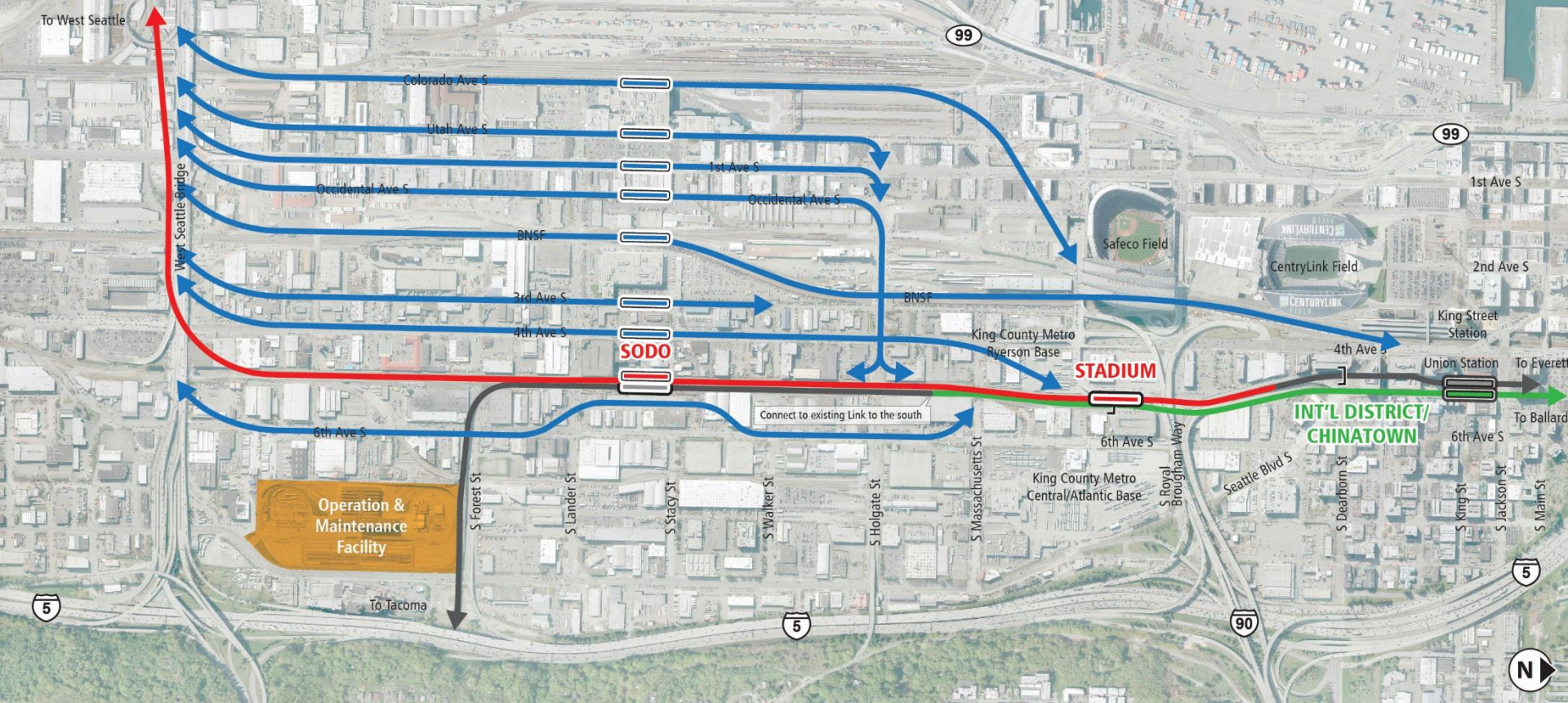
## ***SODO community concerns***

- ✓ SODO station transfer
- ✓ E-3 busway utilization
- ✓ Service to SODO destinations
- ✓ Freight mobility
- ✓ Safety

## ***Operational needs***

- ✓ Maintenance facility connection
- ✓ Tie-in to DSTT
- ✓ Interim terminus
- ✓ Track connections



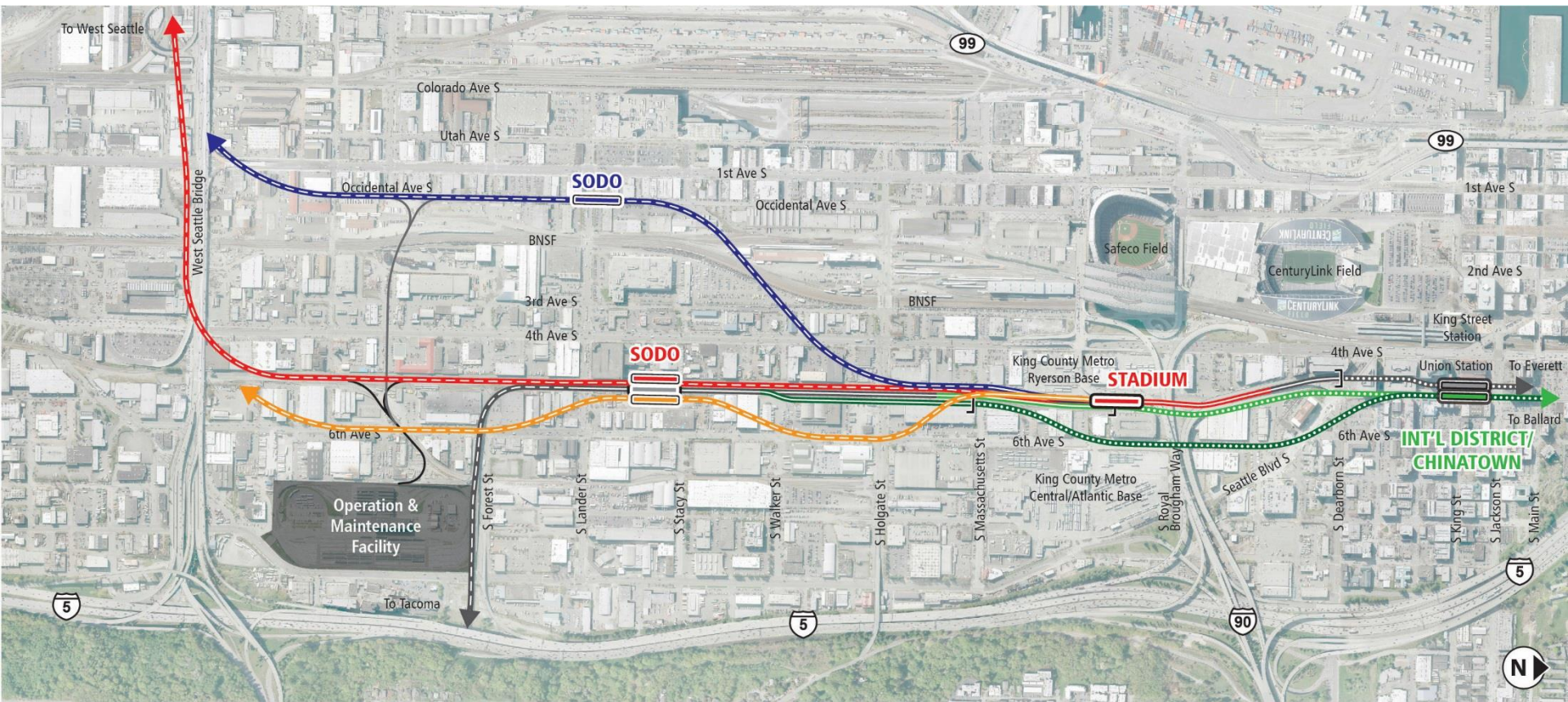


*SODO route ideas from agency workshop*



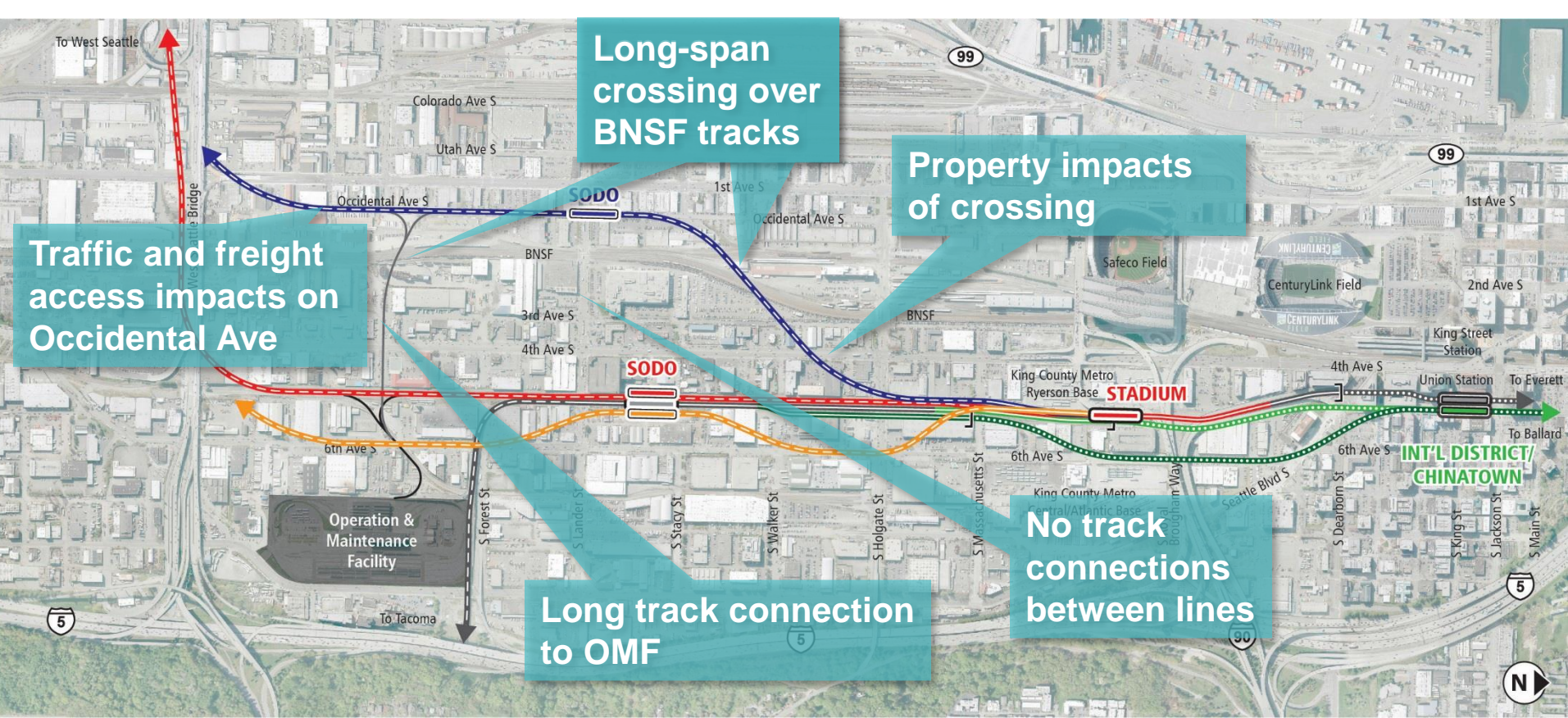






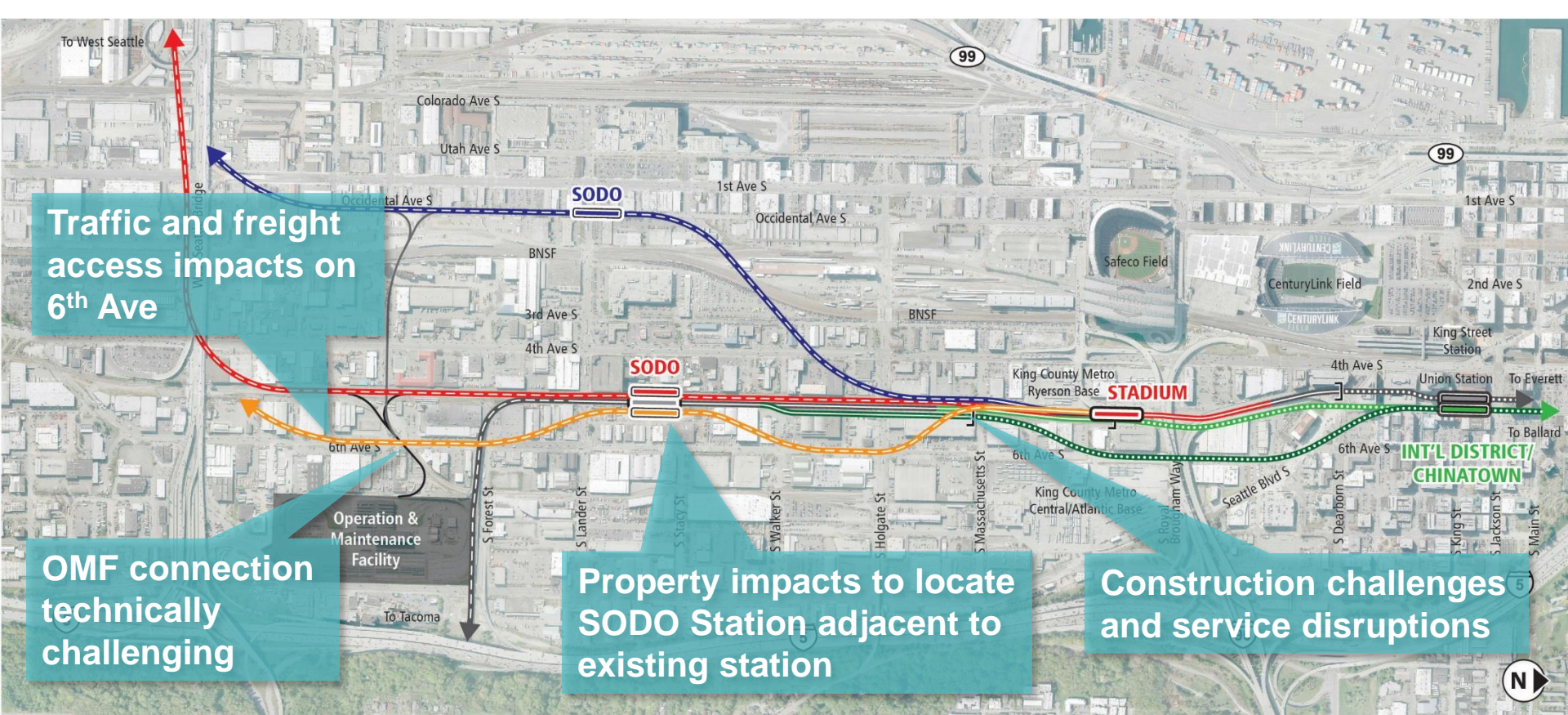
# New SODO Level 1 Alternatives





## Occidental Ave – *Key Findings*





# 6<sup>th</sup> Ave – Key Findings

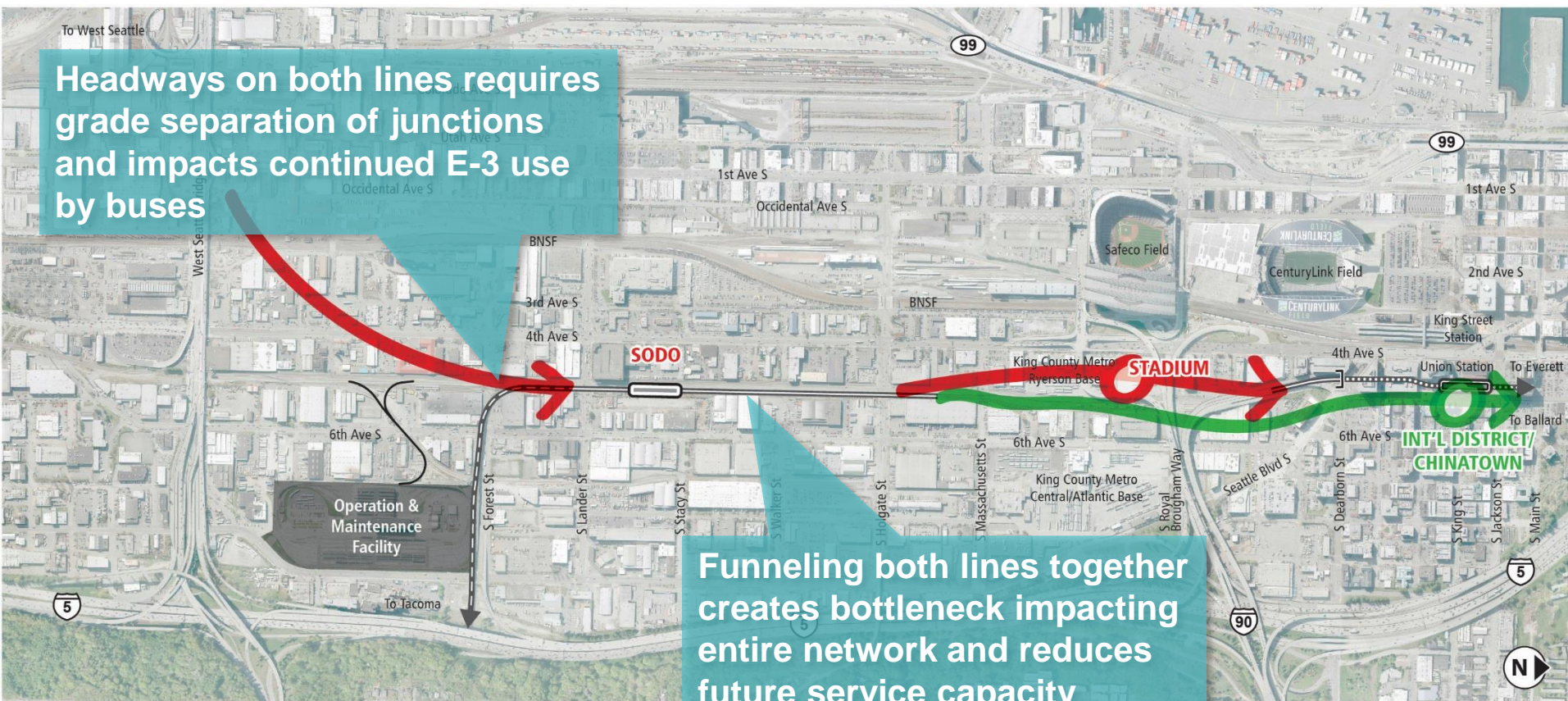






To West Seattle

Headways on both lines requires grade separation of junctions and impacts continued E-3 use by buses



Funneling both lines together creates bottleneck impacting entire network and reduces future service capacity

Other suggestions – “Track interlining”





*Other suggestions – “Extended Ballard line”*



To West Seattle

**Additional length of  
elevated guideway**

Colorado Ave S

Utah Ave S

**SODO**

1st Ave S

Occidental Ave S

**No track connections  
between lines**

Safeco Field

CenturyLink Field

1st Ave S

2nd Ave S

King Street  
Station

To Everett

4th Ave S

Union Station

To Ballard

**INT'L DISTRICT/  
CHINATOWN**

6th Ave S

Operation &  
Maintenance  
Facility

acom

**Extended service  
disruption and cost to  
rebuild Forest Street  
elevated structure**

S Forest St

S Lander St

S Stacy St

S Walker St

S Holgate St

S Massachusetts St

6th Ave S

King County Metro  
Central/Atlantic Base

Seattle Blvd S

6th Ave S

Dearborn St

S King St

S Jackson St

S Main St

**Deep piles under King  
Street Station, 4th Ave  
Viaduct, Union Station, IDS**

5

N

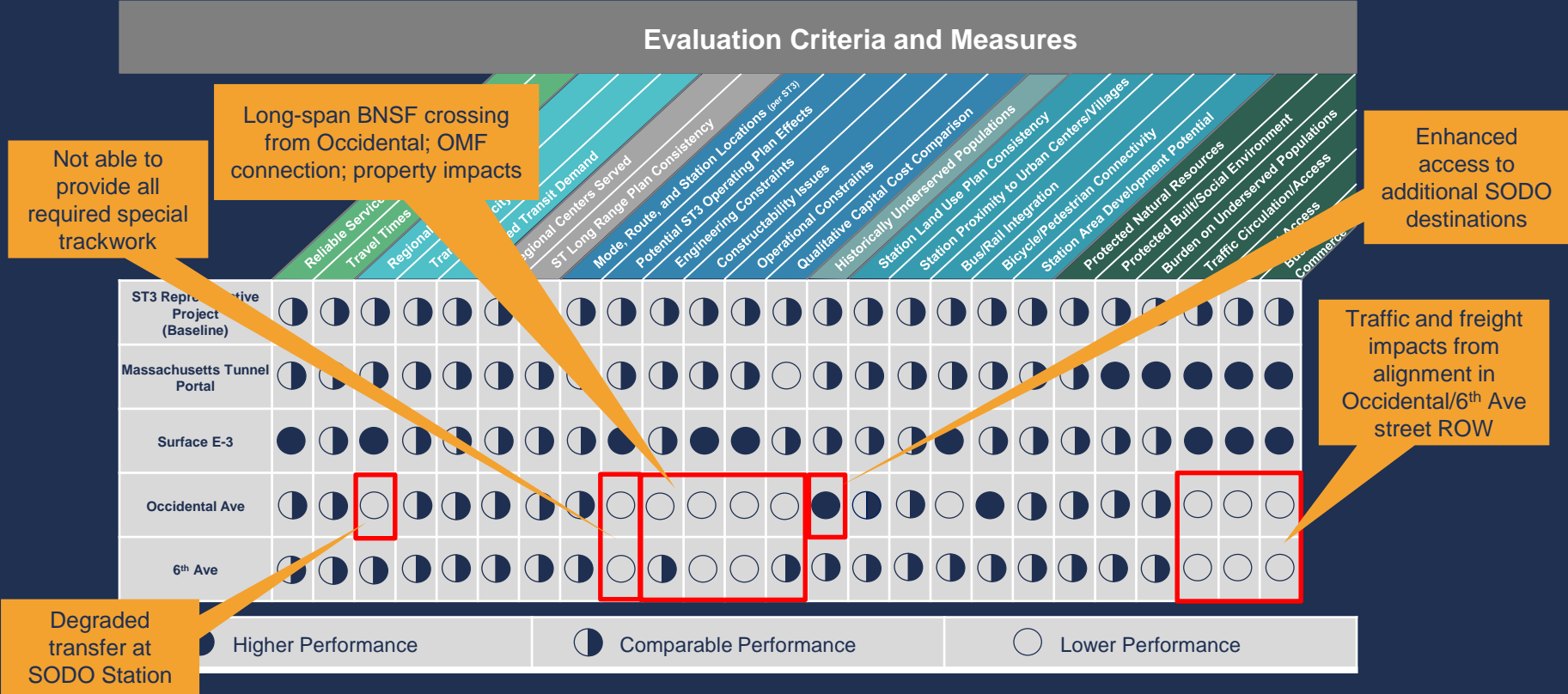
**Other suggestions – “Extended Ballard line”**

# SODO Level 1 Alternatives – Evaluation Results

Evaluation Criteria and Measures																																												
	Reliable Service		Travel Times		Regional Connectivity		Transit Capacity		Projected Transit Demand		Regional Centers Served		ST Long Range Plan Consistency		Mode, Route, and Station Locations (per ST5)		Potential ST3 Operating Plan Effects		Engineering Constraints		Constructability Issues		Operational Constraints		Qualitative Capital Cost Comparison		Station Land Use Plan Consistency		Bus/Rail Integration		Bicycle/Pedestrian Connectivity		Station Area Development Potential		Protected Natural Resources		Burden on Underserved Populations		Traffic Circulation/Access		Freight Access		Business/Commerce	
ST3 Representative Project (Baseline)	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Massachusetts Tunnel Portal	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Surface E-3	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Occidental Avenue	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
6th Avenue	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Higher Performance														Comparable Performance												Lower Performance																		



# SODO Level 1 Alternatives – Evaluation Results



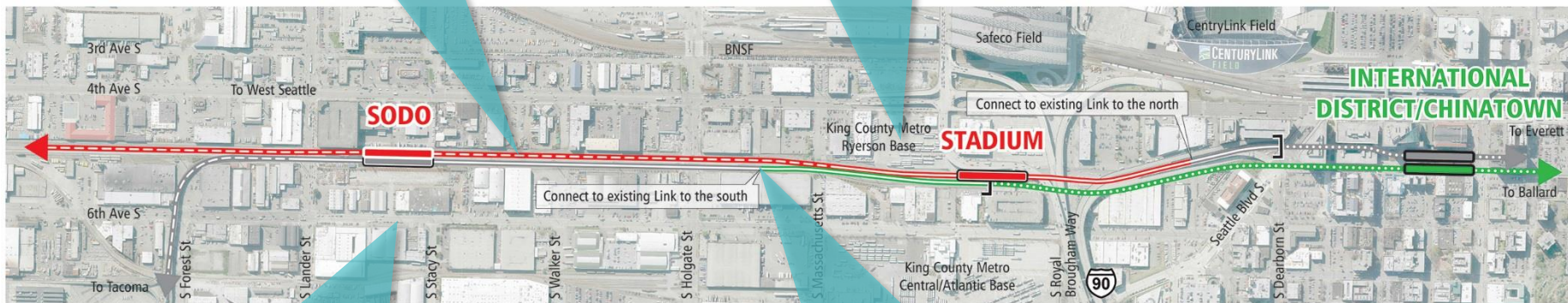


***E-3 Busway – Existing Bus Volumes (PM Peak Hour)***



Confirm future bus volumes expected to use E-3 corridor

Confirm extent of potential Ryerson Base capacity impacts



Assess potential 6th Ave roadway improvements to accommodate bus use

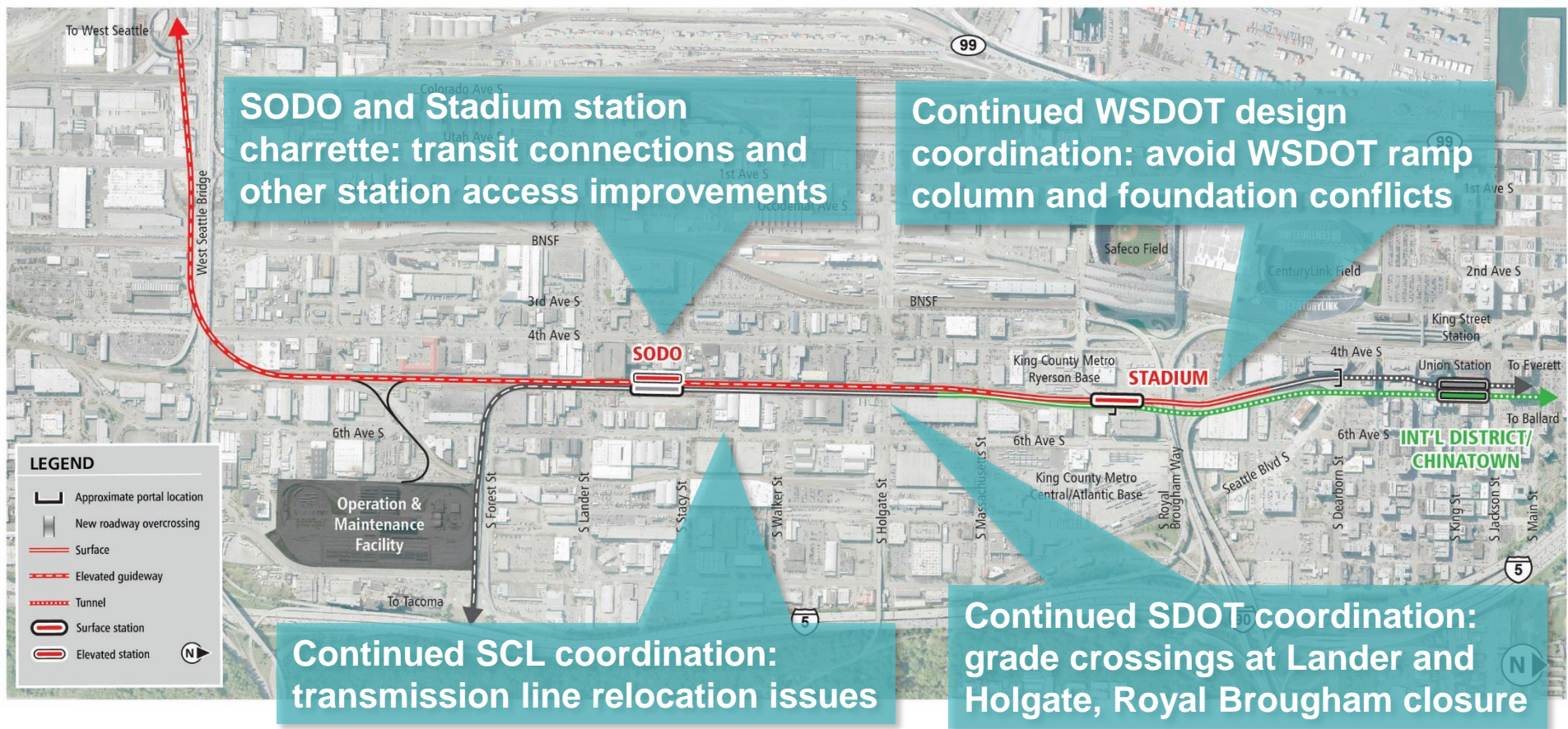
Confirm extent of future bus layover needs

***E-3 Busway – Level 2 technical work***  
***On-going discussions with partner agencies***








***SODO station access technical work***










# Level 2 – other technical work activities

# SODO Alternatives Summary – Level 1

Alternatives with more potential	ST3 Representative Project 	<ul style="list-style-type: none"> <li>• Baseline for comparison</li> </ul>
	Surface E-3 	<ul style="list-style-type: none"> <li>• Moved forward to Level 2</li> </ul>
	Massachusetts Tunnel Portal 	<ul style="list-style-type: none"> <li>• Moved forward to Level 2</li> </ul>
Alternatives with greater challenges	Occidental Ave 	<ul style="list-style-type: none"> <li>• Long-span elevated crossing over BNSF tracks</li> <li>• Traffic and freight access effects on Occidental Ave</li> <li>• Property impacts of alignment crossing from Occidental Ave to Stadium Station</li> <li>• Long track connection to OMF; no track connections between lines</li> </ul>
	6th Ave 	<ul style="list-style-type: none"> <li>• OMF connection technically challenging</li> <li>• Property impacts to locate SODO Station adjacent to existing station</li> <li>• Braiding lines could have major construction challenges and service disruptions</li> </ul>
Not practical concepts	“Track interlining”	<ul style="list-style-type: none"> <li>• Requires grade-separated junctions; does not accommodate buses on E-3</li> <li>• Creates bottleneck; impacts service reliability and limits system capacity</li> </ul>
	“Extended Ballard line”	<ul style="list-style-type: none"> <li>• Rebuild of Forest St junction requires disruption of existing LRT service</li> <li>• Deep mined C-ID station; constructability challenges</li> <li>• Additional guideway length; no track connections</li> </ul>



# SODO Alternatives Summary – Level 1 *SAG recommendations*

	Alternative		Carry forward?	Do not carry forward?
Alternatives with more potential	ST3 Representative Project		✓	
	Surface E-3		✓	
	Massachusetts Tunnel Portal		✓	
Alternatives with greater challenges	Occidental Ave		✓	
	6th Ave			✓
Not practical concepts	“Track interlining”			✓
	“Extended Ballard line”			✓

# *General Discussion – SODO*

- *Concern that station located on Occidental could put pressure on industrial areas and freight mobility.*
- *Felt need to continue to have an alternative to the west of existing line.*
- *Station planning focus on improving bus and other access in SODO.*





# ***Chinatown-ID Evaluation Results & Discussion***



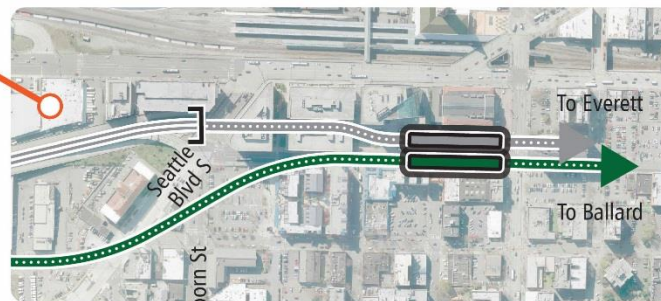
#### LEGEND

- ST3 representative project - West Seattle extension/Station area
- Massachusetts tunnel portal - West Seattle extension/Station area
- Surface E-3 - West Seattle extension/Station area
- Existing Link light rail
- Approximate portal location
- New roadway overcrossing
- Surface
- Elevated guideway
- Tunnel
- Surface station
- Elevated station



#### Station location alternative (straddle S Jackson St)

Note: applicable to both cut and cover and bored tunnel alternatives



#### Bored tunnel alternative

Reduces in-street cut-and-cover construction from 1,600' to 400'

# C-ID alignment and station alternatives



# *Additional feedback*

## *SODO and Chinatown-ID*

- Consider 4th Avenue location for Chinatown-ID station
- Explore alignments further west of ST3 Representative Project



Improve intermodal  
connections

Activate  
Union Station

Minimize Chinatown-ID  
construction impacts

# *Chinatown-ID community concerns*





Desire for better and safer connection to King Street Station

Opportunity to partner on 4th Ave viaduct rebuild

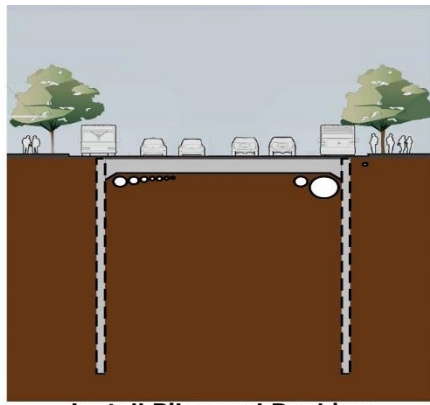
Avoid affordable housing impact

Traffic impacts of construction on 4th Ave

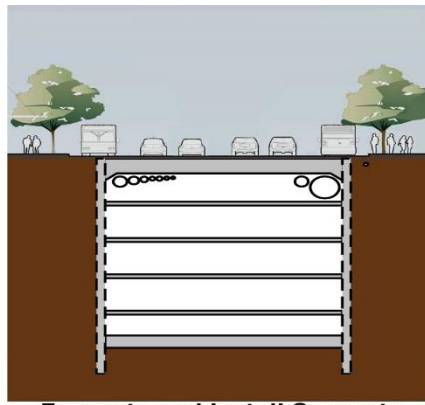
Trolley bus access

Avoid fire station and emergency operations center impact

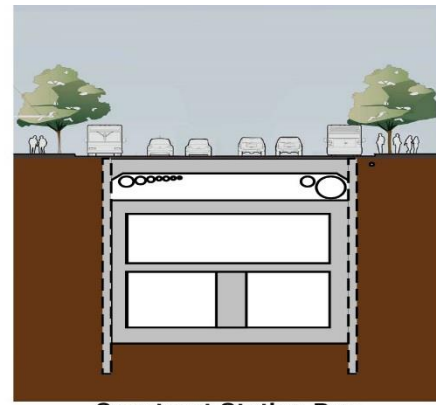
*Agency workshop feedback*



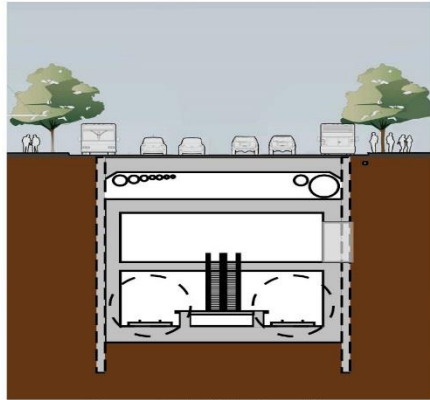
**Install Piles and Decking**



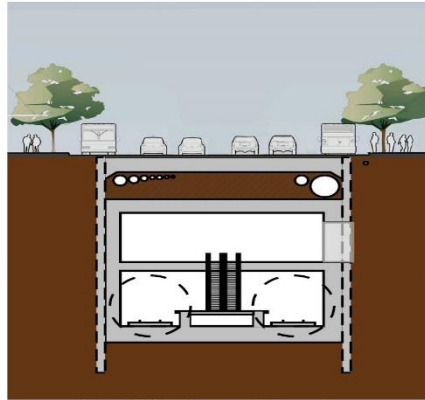
**Excavate and Install Supports  
(from beneath decking)**



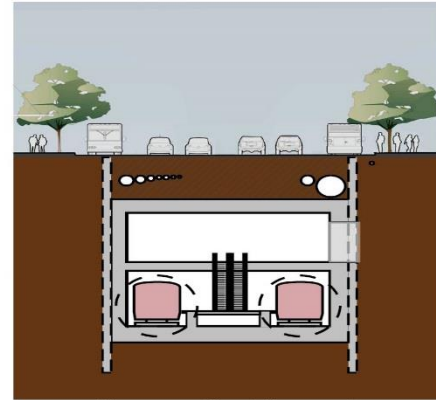
**Construct Station Box**



**Complete Station Box**



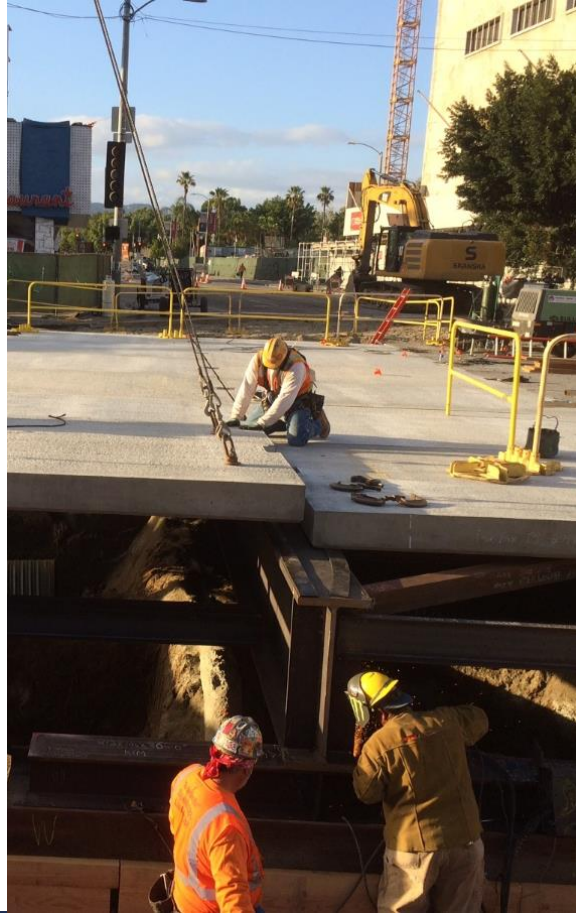
**Backfill Above Structure**



**Remove Decking and  
Restore Street**

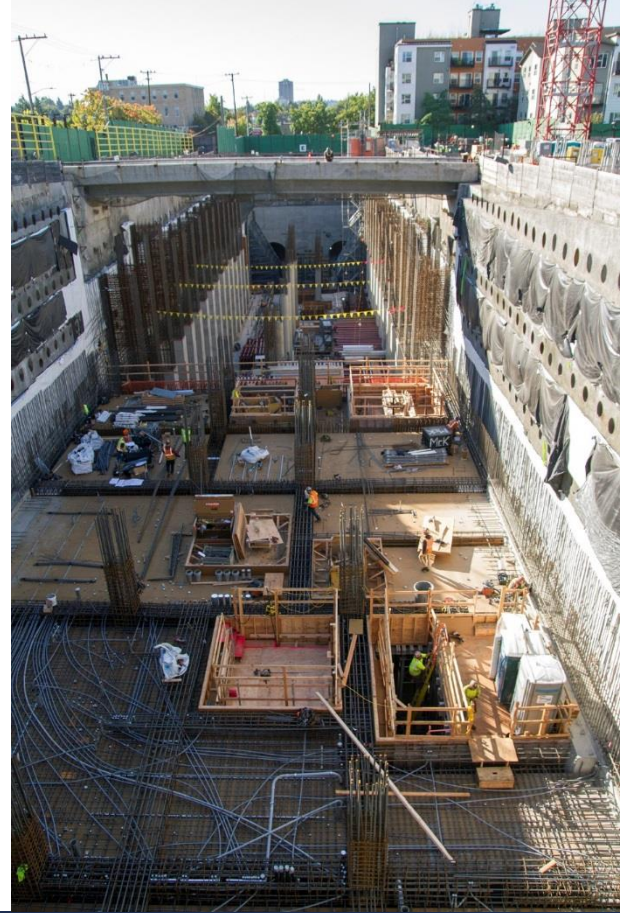
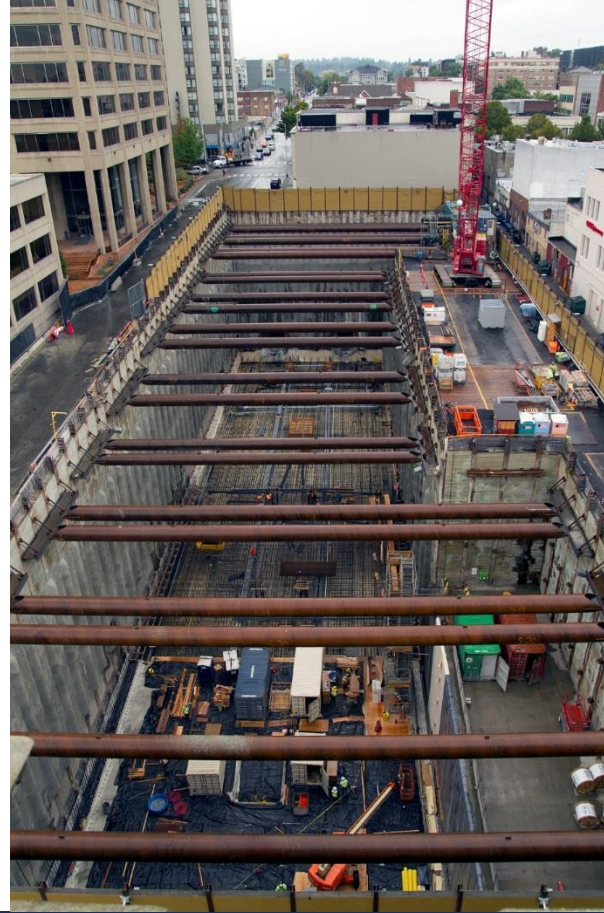
# ***Cut and Cover Station Construction***





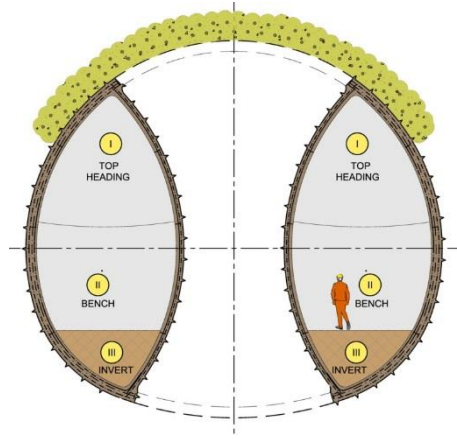
*Cut and Cover Station Construction*





*Open Cut Station Construction*





# *Mined Station Construction*

# *Underground Stations in Seattle*

## *Cut-and-cover stations:*

- Pioneer Square, University Street (DSTT)

## *Open-cut stations:*

- U District, Roosevelt (Northgate Link)
- Capitol Hill, UW (U-Link)
- International District/Chinatown, Westlake, Convention Place (DSTT)

## *Mined stations:*

- Beacon Hill (Central Link)



# *C-ID Station Construction Constraints*

## *Initial technical challenges*

- Limited right-of-way
- Poor soil conditions
- Deep piles under 4th Ave, Union Station, existing ID/C Station
- Conflicts with existing DSTT structures

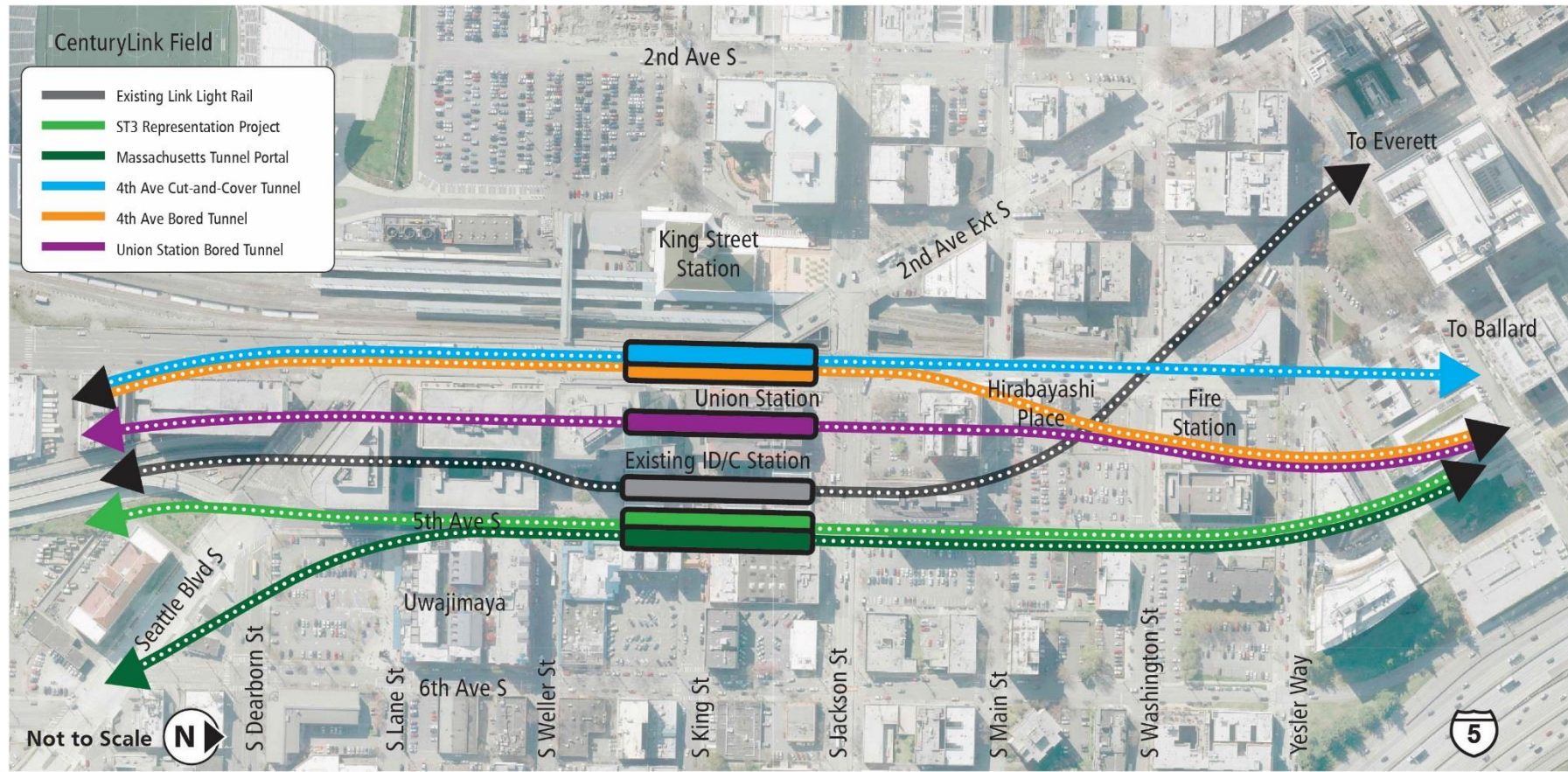
# *C-ID community concerns*

- ✓ Minimize construction impacts
- ✓ Improve intermodal connections
- ✓ Activate Union Station

# *Construction constraints*

- ✓ Limited right-of-way
- ✓ Poor soil conditions
- ✓ Deep piles under 4th Ave, Union Station, ID/C Station
- ✓ Conflicts with existing DSTT structures



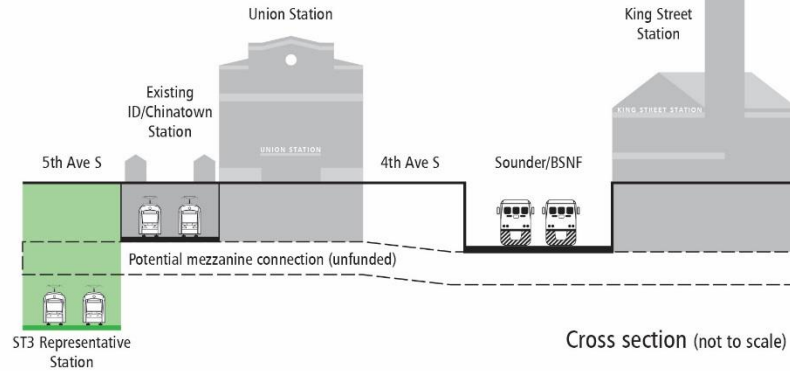
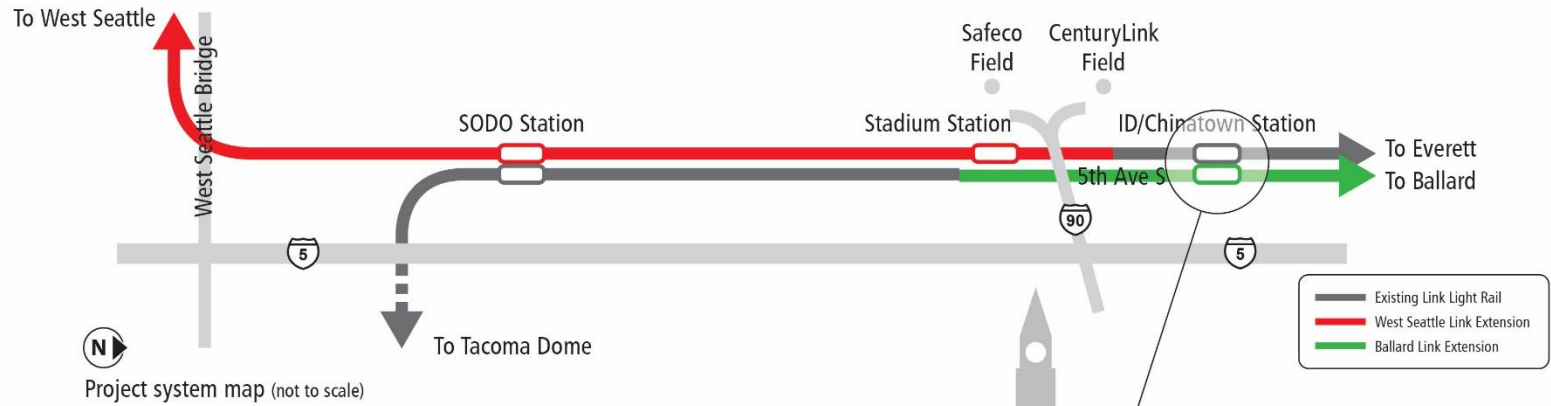


# New Chinatown-ID Level 1 Alternatives

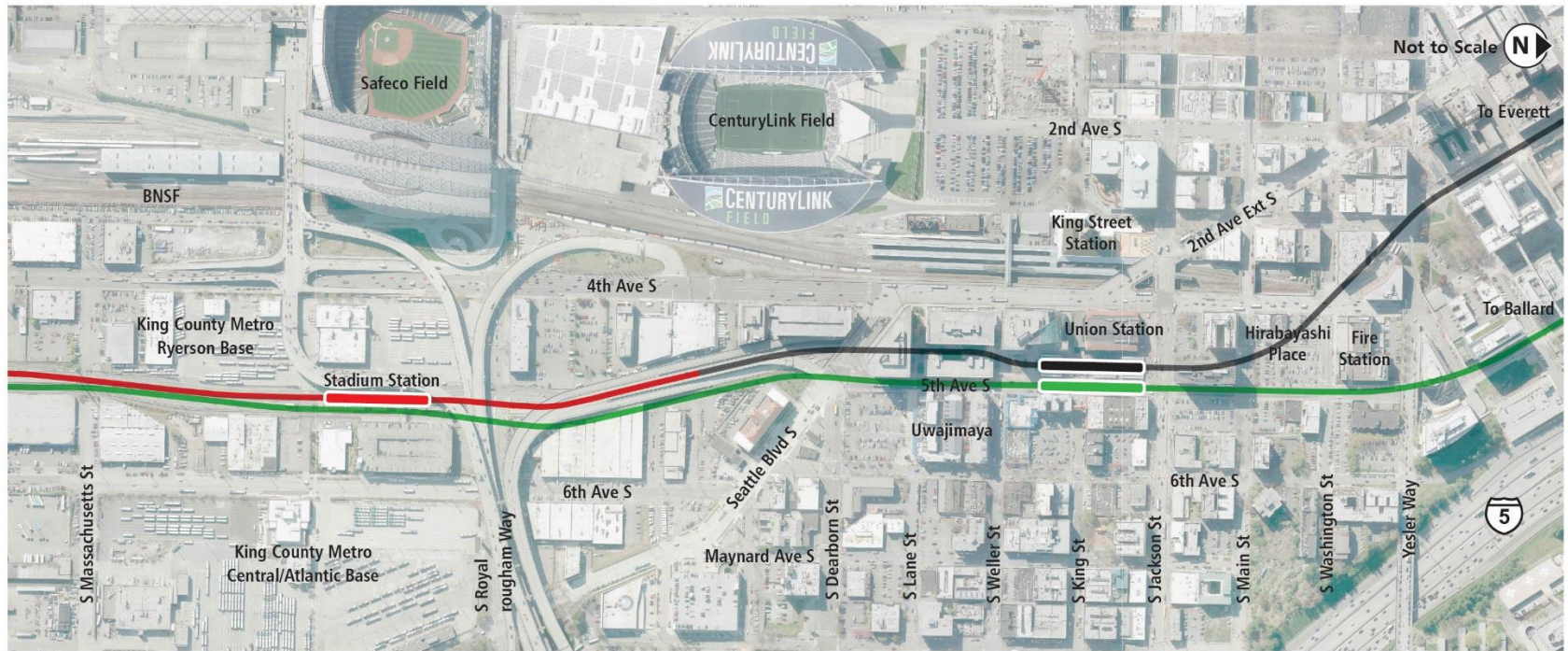
# Potential C-ID Station Locations

Tunnel / Station Type	5th Ave	4th Ave	Union Station
Cut-and-cover Platform depth:	✓ (40-50')	✓ (30-40')	✗
Bored / mined Platform depth:	✓ (100-120')	✓ (150-200')	✓ (150-200')





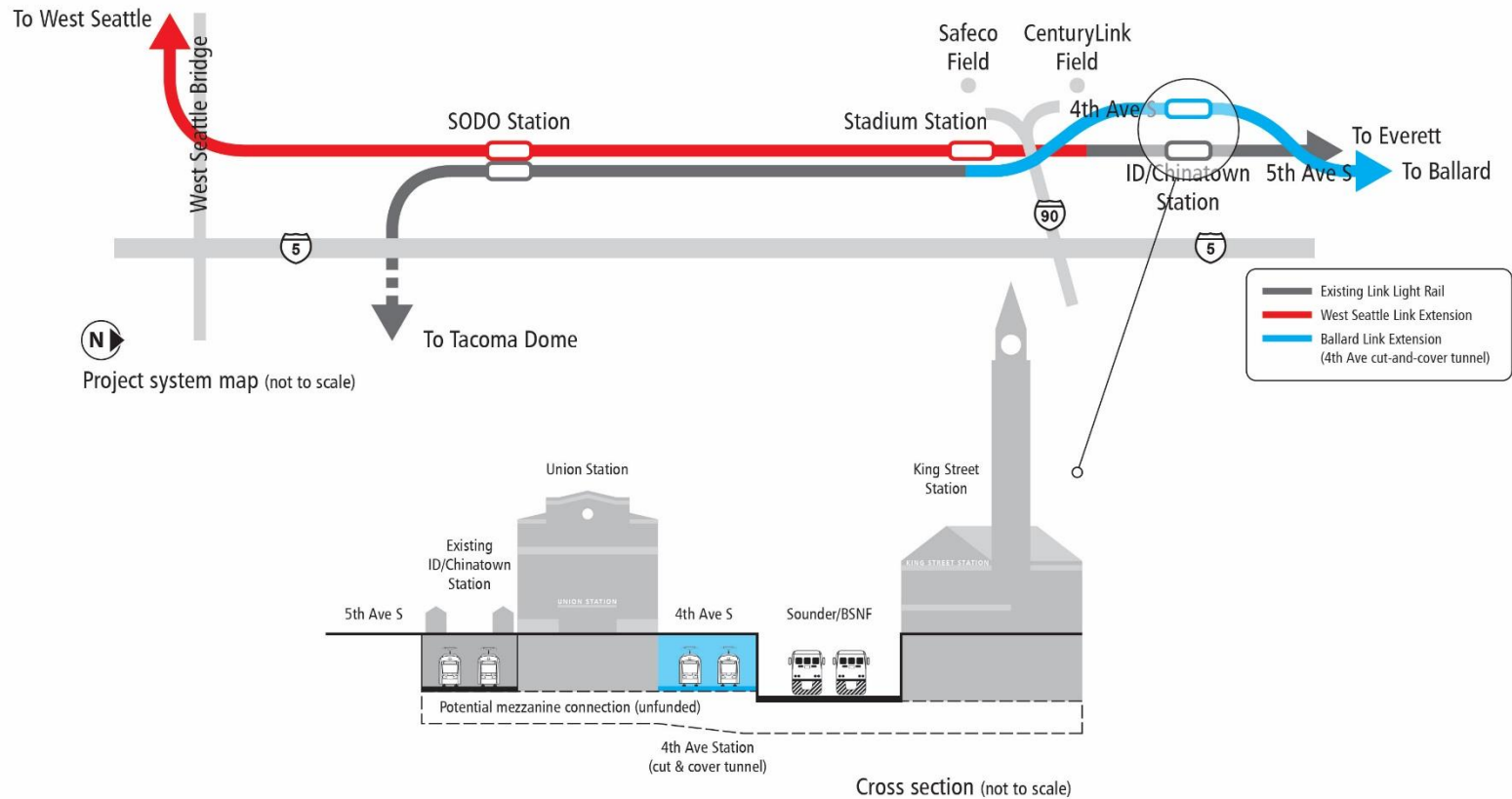
# C-ID Station at 5<sup>th</sup> Ave S



- Existing Link Light Rail
- West Seattle Link Extension
- Ballard Link Extension

# C-ID Station at 5<sup>th</sup> Ave S

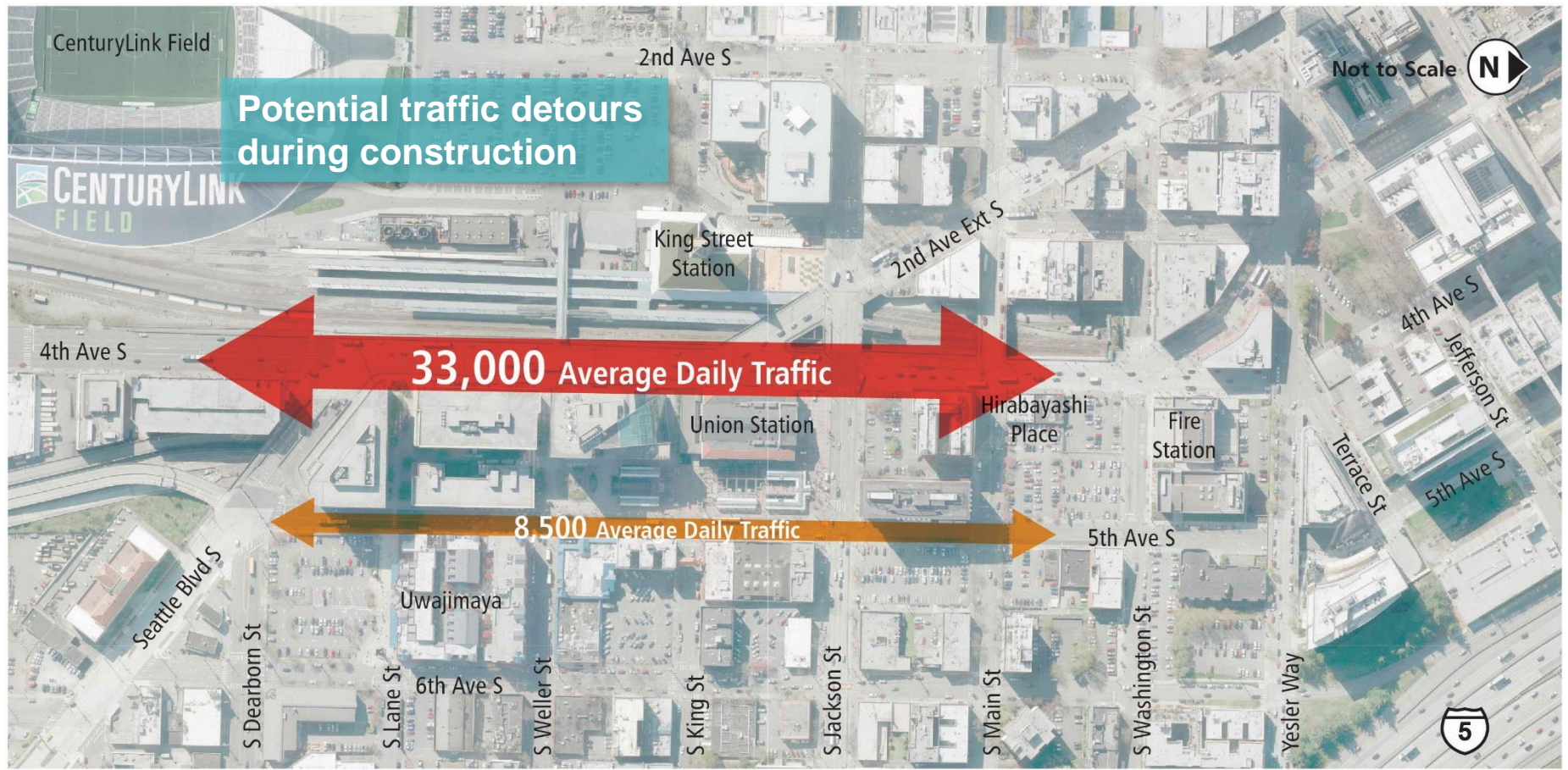




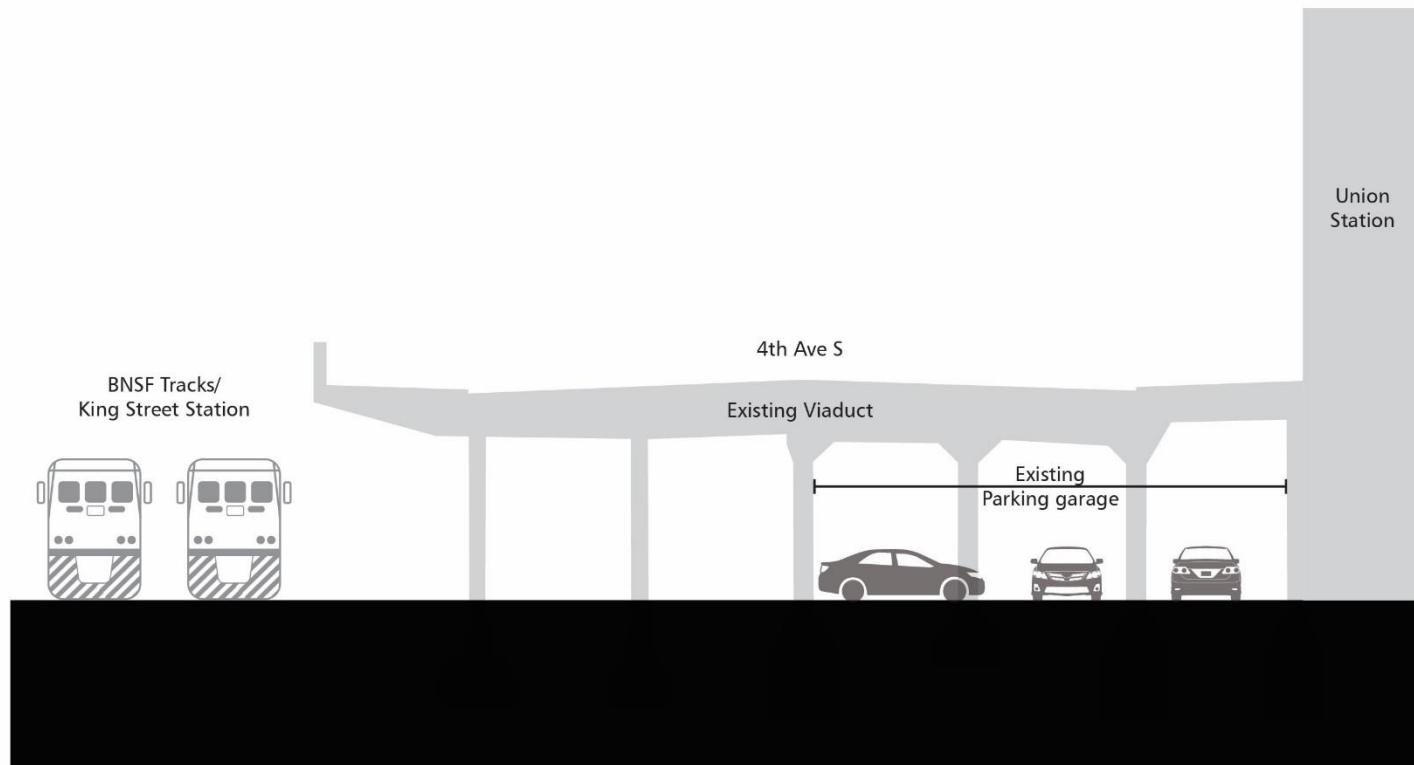
# C-ID Station at 4<sup>th</sup> Ave S Cut-and-cover





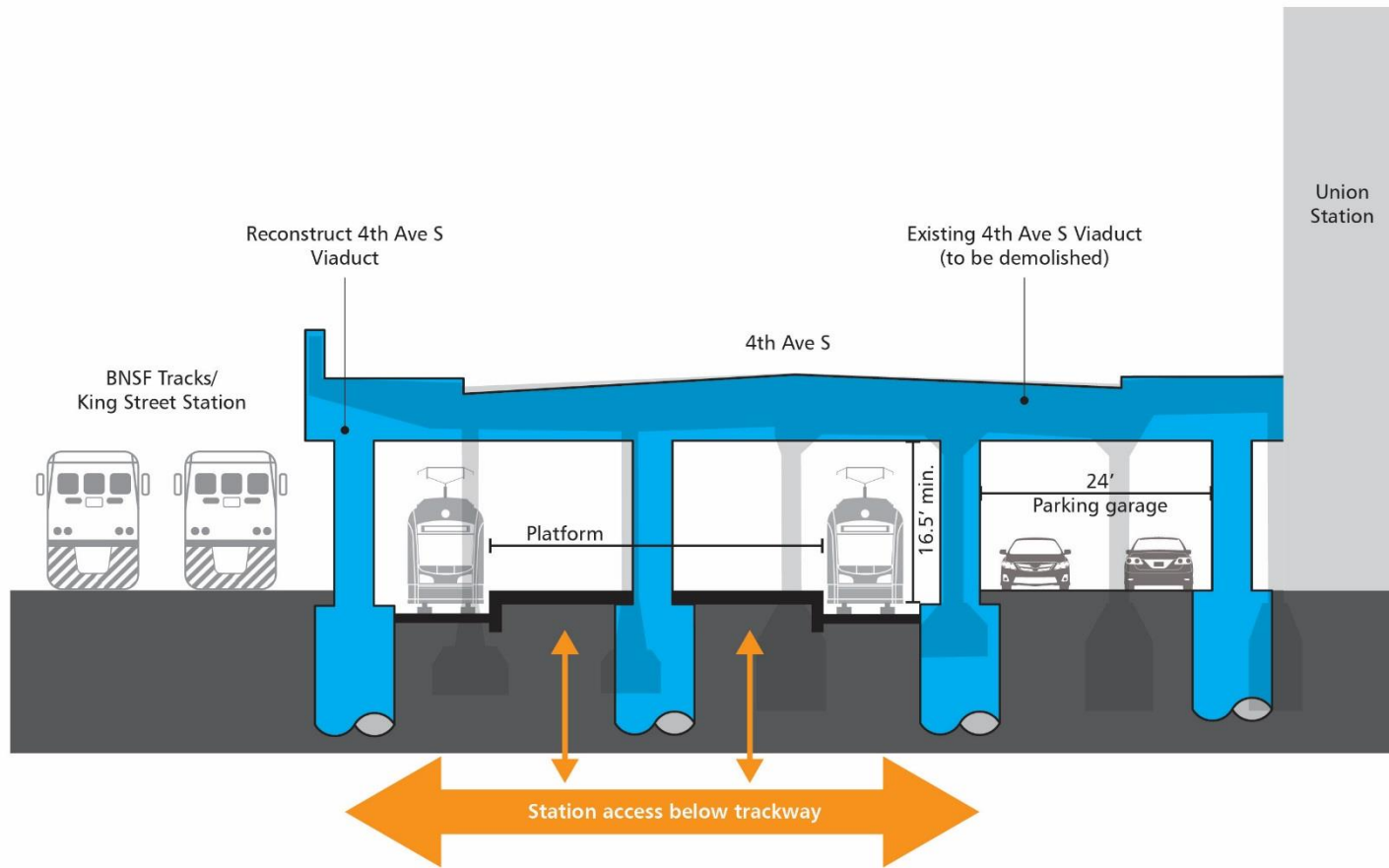


**Construction impacts/traffic diversion**



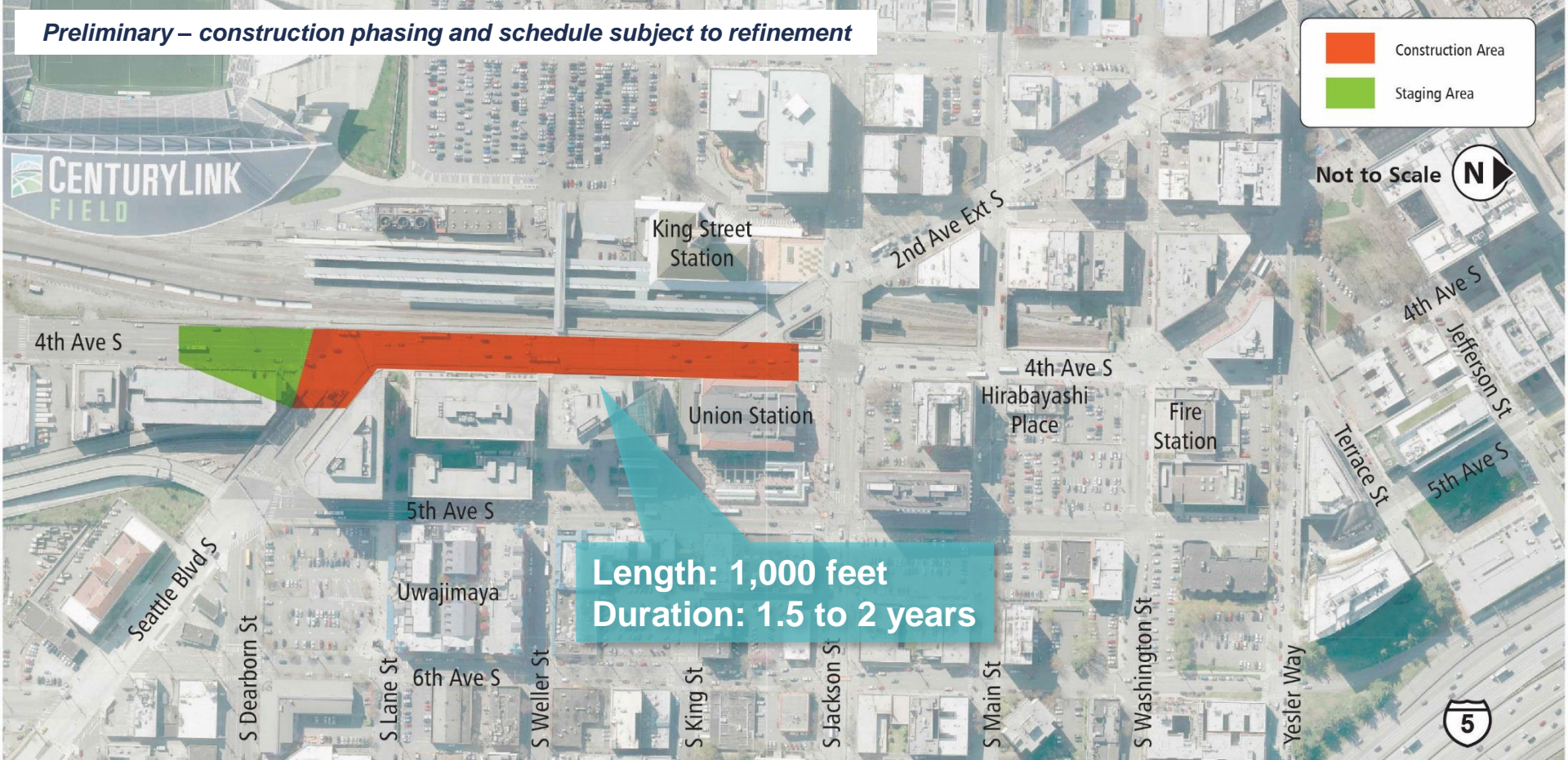
**4<sup>th</sup> Ave Viaduct** – *section looking north*





## 4<sup>th</sup> Ave Viaduct Rebuild – section looking north

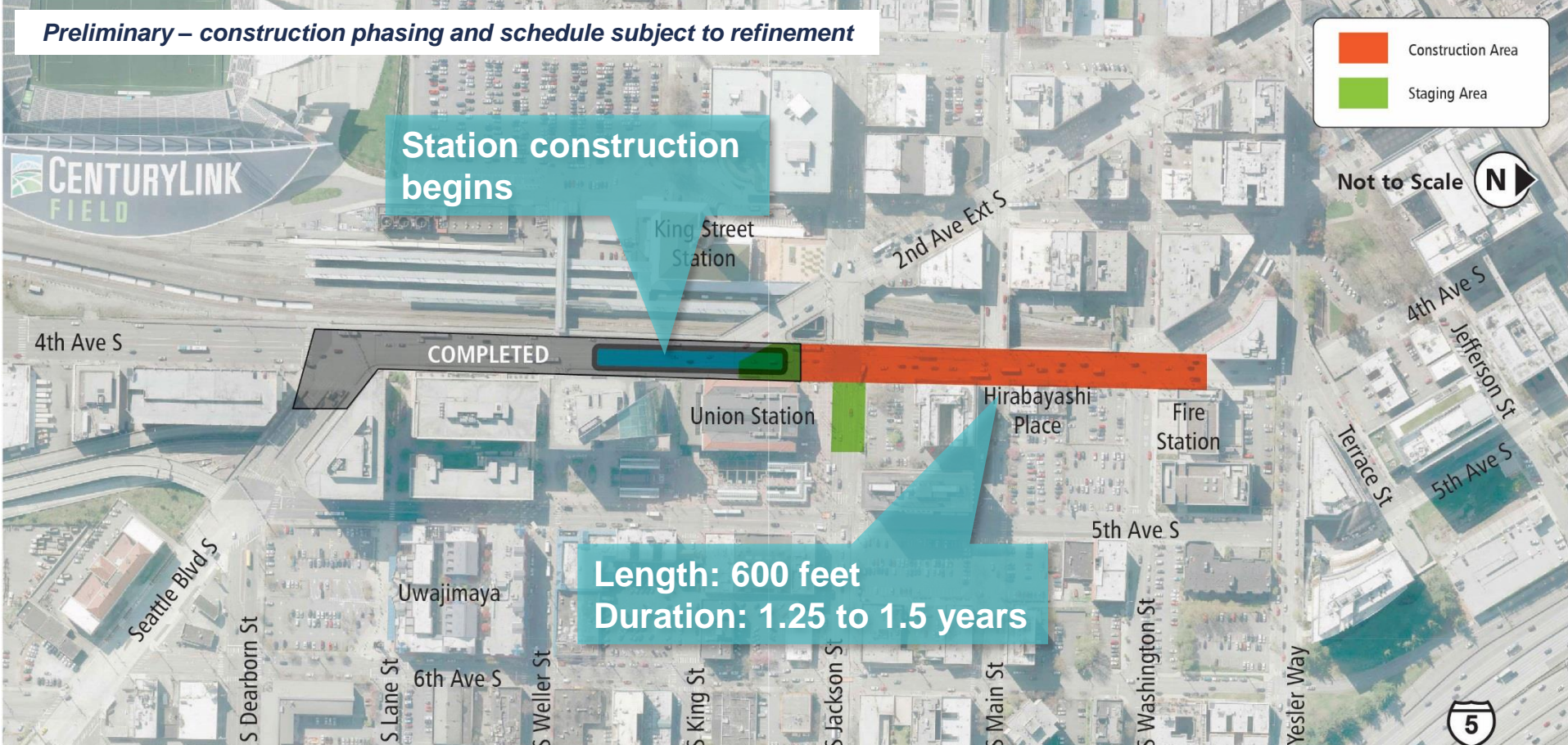
**Preliminary – construction phasing and schedule subject to refinement**



# 4<sup>th</sup> Ave Cut-and-Cover construction Phase 1



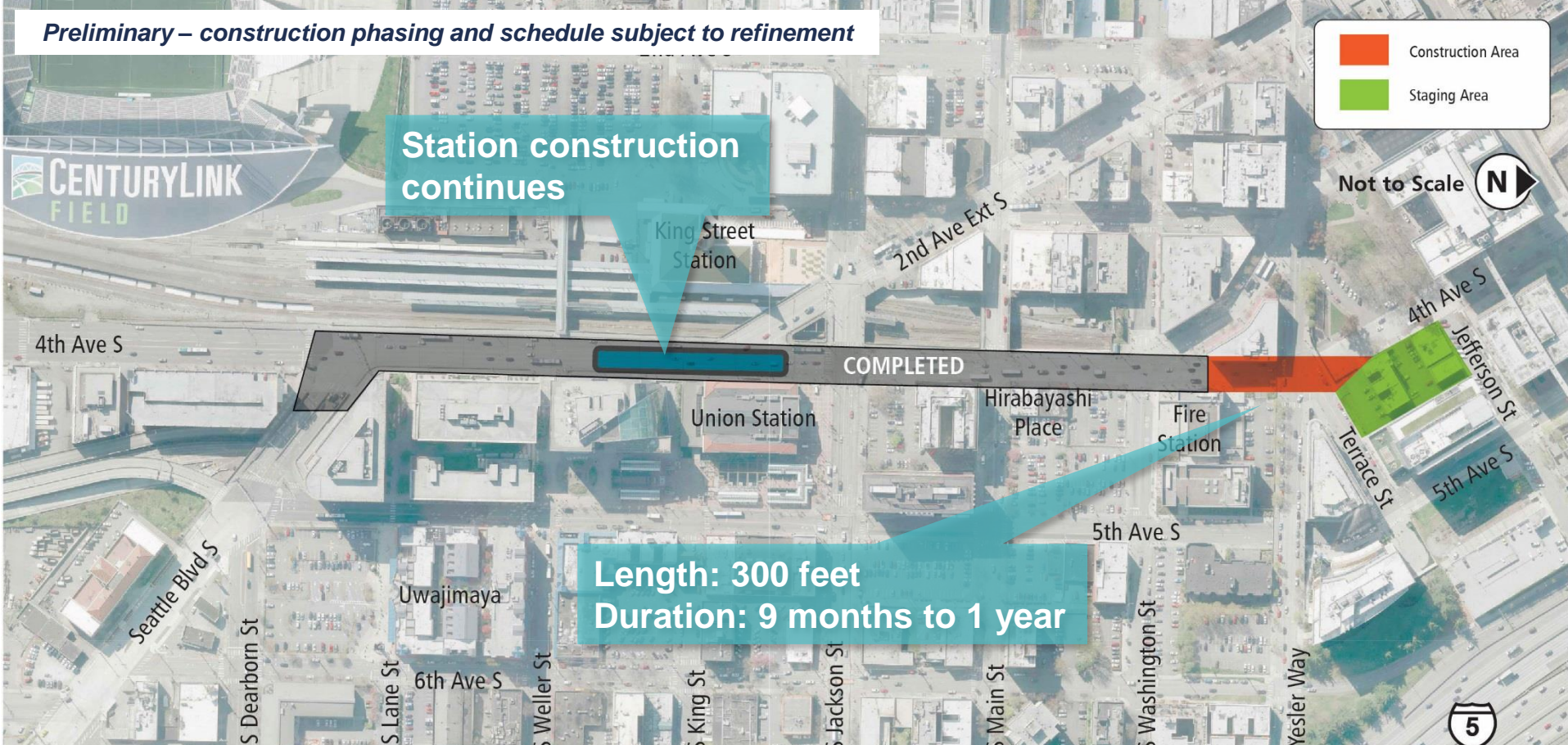
Preliminary – construction phasing and schedule subject to refinement



## 4<sup>th</sup> Ave Cut-and-Cover construction Phase 2



Preliminary – construction phasing and schedule subject to refinement



## 4<sup>th</sup> Ave Cut-and-Cover construction Phase 3



Preliminary – construction phasing and schedule subject to refinement

Not to Scale



Station construction continues  
(1 year)

King Street  
Station

2nd Ave Ext S

4th Ave S

Jefferson St

5th Ave S

Terrace St

Fire  
Station

Hirabayashi  
Place

COMPLETED

Union Station

5th Ave S

Total construction  
duration: 4.5 to 5.5 years

Uwajimaya

6th Ave S

S Weller St

S King St

S Jackson St

S Main St

S Washington St

Yesler Way

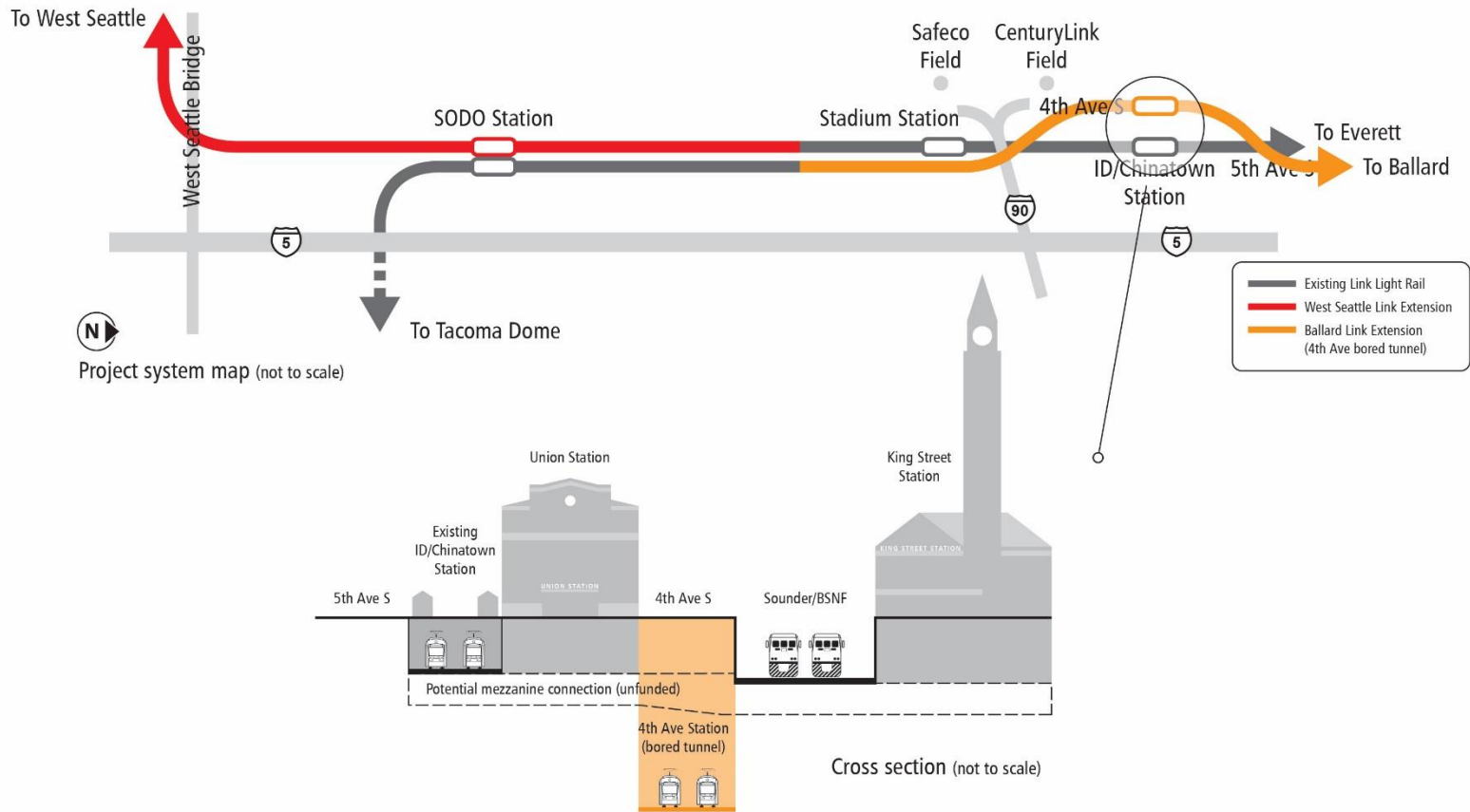
S Dearborn St

S Lane St

Seattle Blvd S

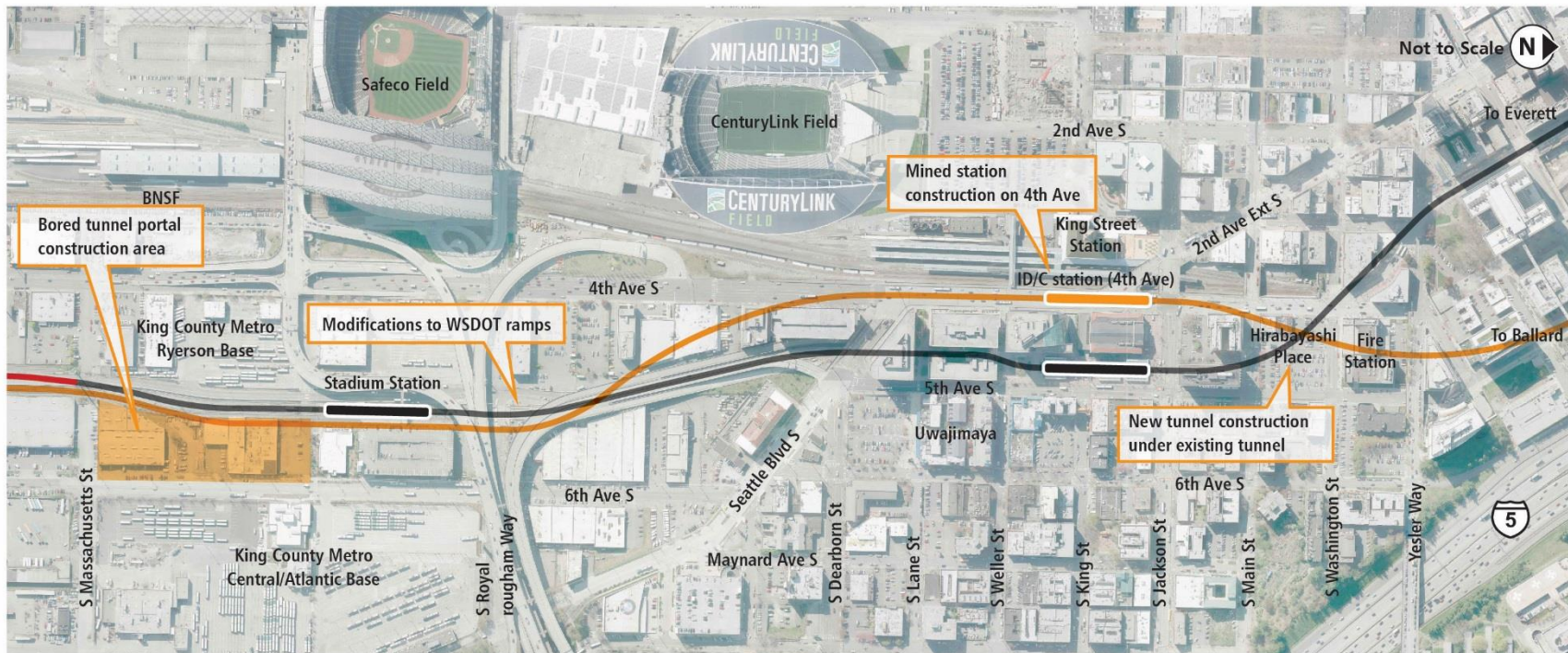


4<sup>th</sup> Ave Cut-and-Cover construction Phase 4

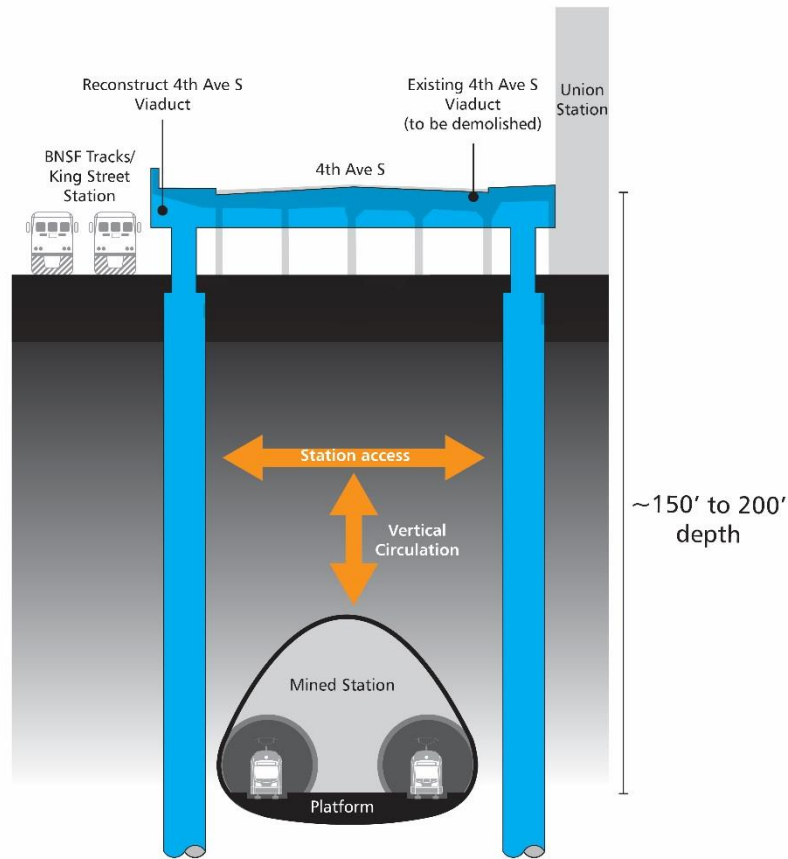


# C-ID Station at 4<sup>th</sup> Ave S Bored tunnel





# C-ID Station at 4<sup>th</sup> Ave S Bored tunnel

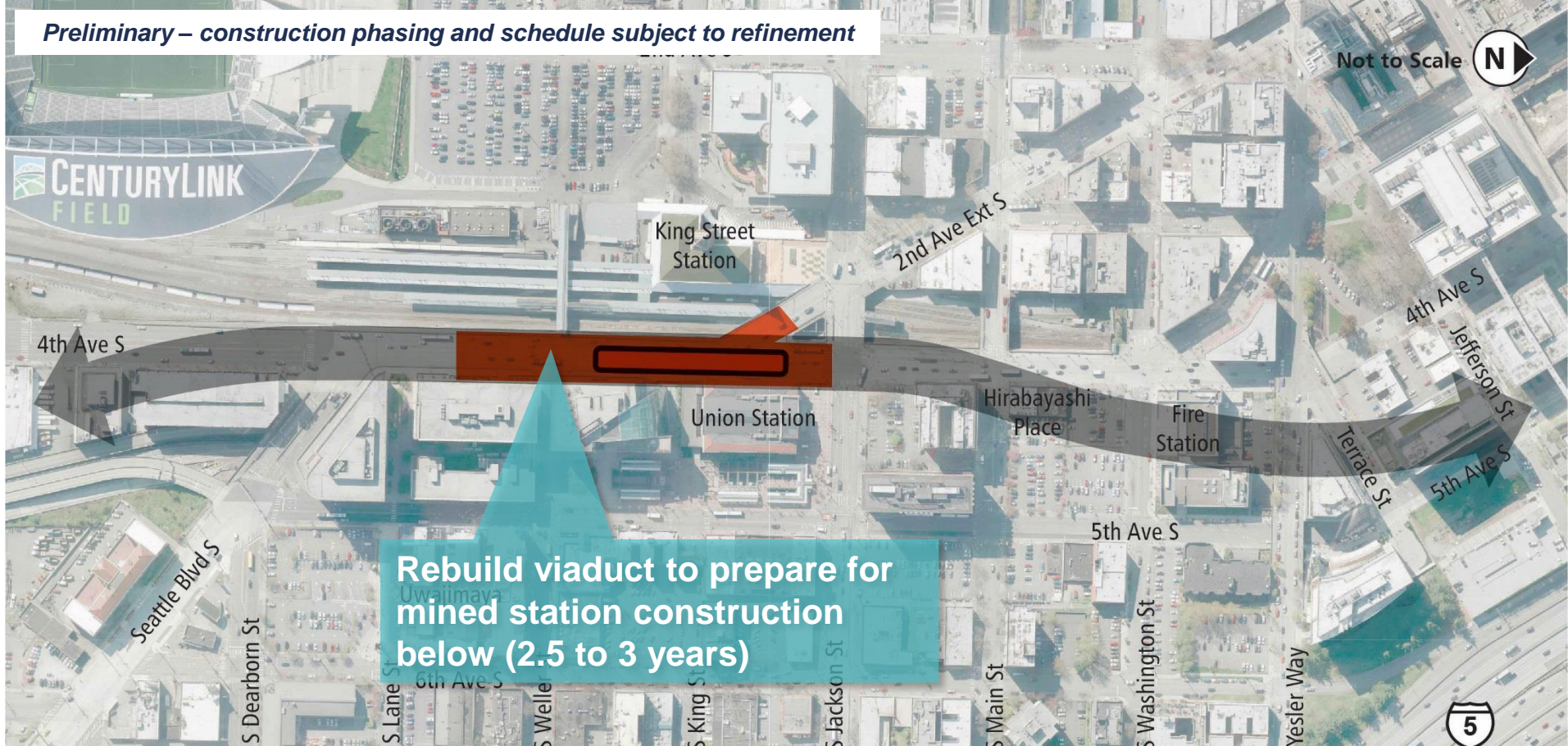


## **4<sup>th</sup> Ave Bored Tunnel Mined Station Construction**



Preliminary – construction phasing and schedule subject to refinement

Not to Scale



# 4<sup>th</sup> Ave Bored Tunnel – Construction Phase 1



Preliminary – construction phasing and schedule subject to refinement

Not to Scale



Station construction  
(2.5 to 3 years)

Station

2nd Ave Ext S

4th Ave S

Jefferson St

5th Ave S

Terrace St

Fire Station

Hirabayashi Place

Union Station

5th Ave S

Total construction  
duration: 5 to 6 years

Uwajimaya

6th Ave S

S Weller St

S King St

S Jackson St

S Main St

S Washington St

Yesler Way



4th Ave S

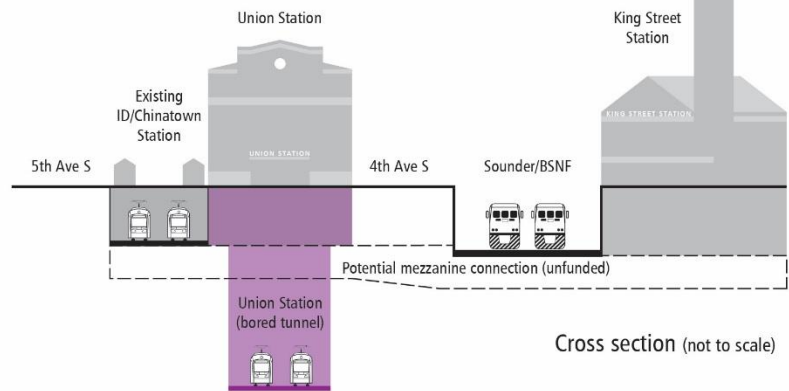
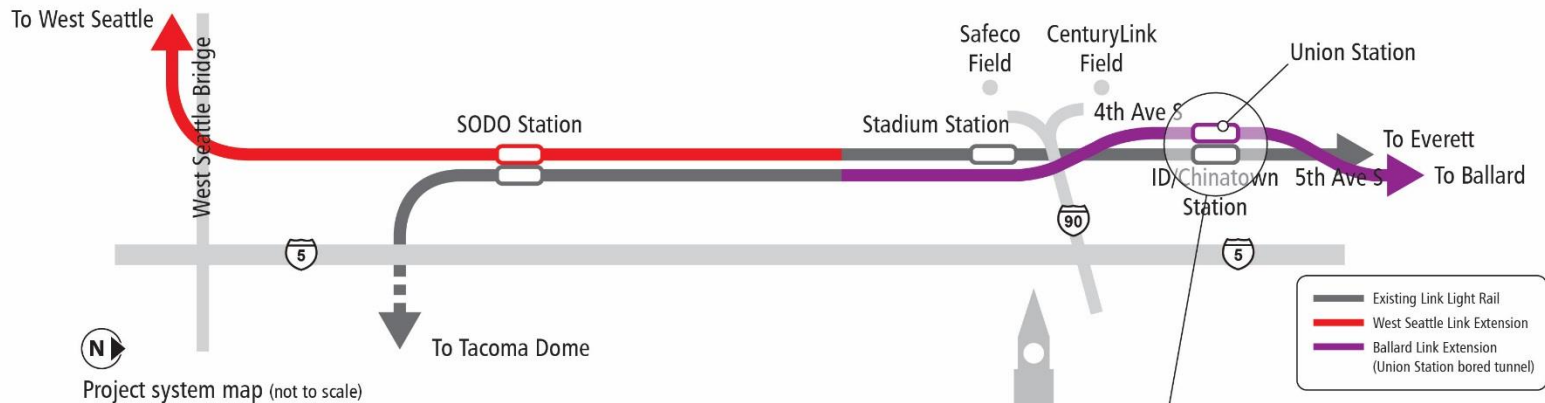
Seattle Blvd S

S Dearborn St

S Lane St

4<sup>th</sup> Ave Bored Tunnel – Construction Phase 2

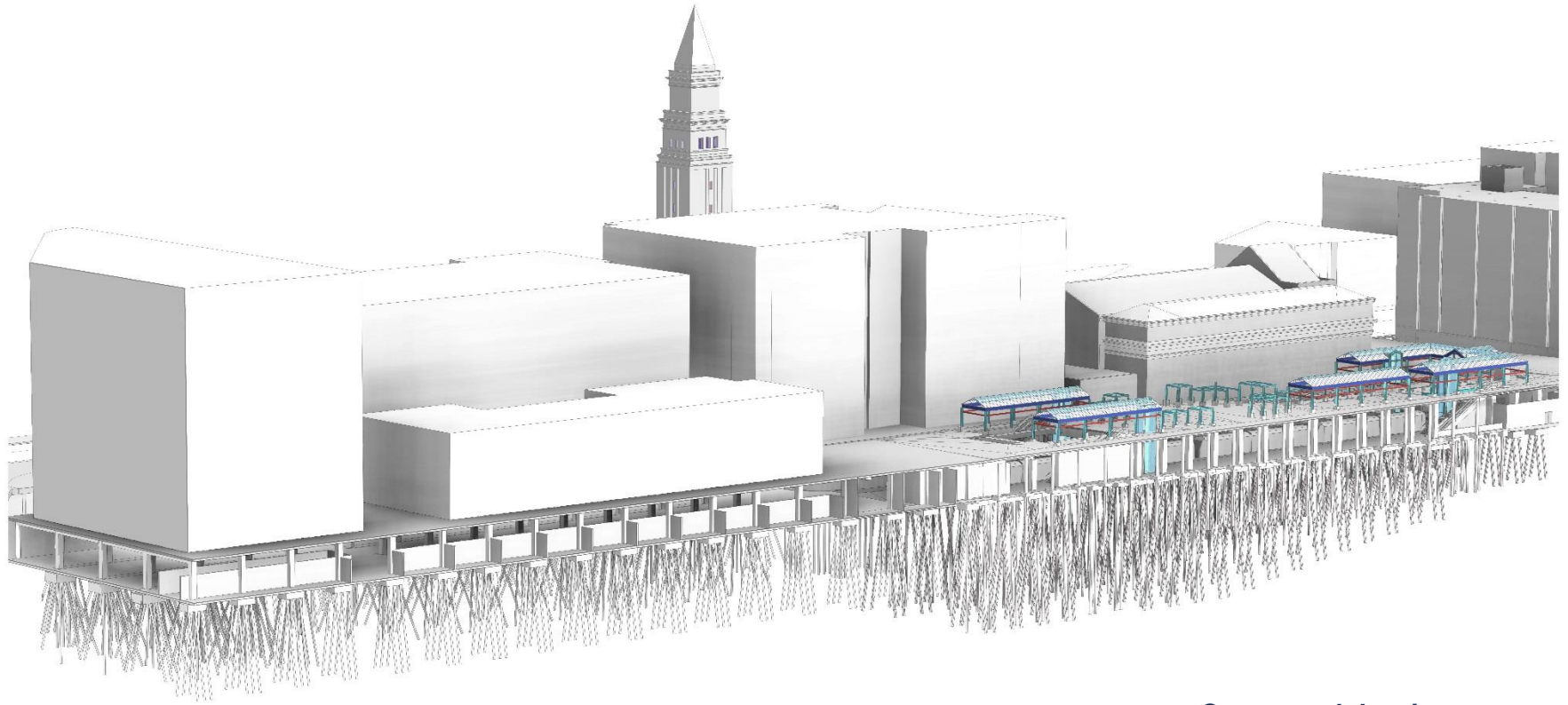




**C-ID Station under Union Station Bored tunnel**







*Conceptual drawing not to scale.*

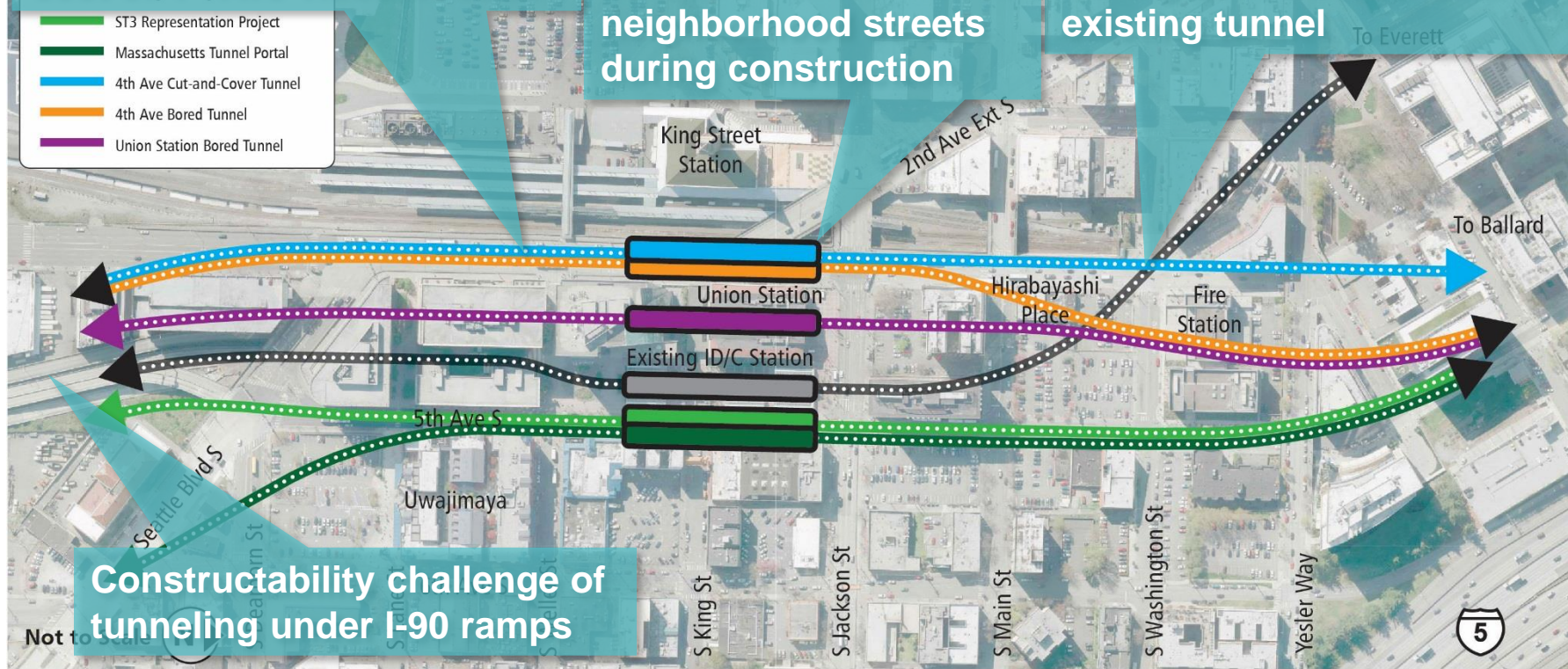
***Piles under Union Station/IDS complex***

Constructability challenges,  
cost of 4th Ave viaduct rebuild

- ST3 Representation Project
- Massachusetts Tunnel Portal
- 4th Ave Cut-and-Cover Tunnel
- 4th Ave Bored Tunnel
- Union Station Bored Tunnel

High volume of traffic  
diverted from 4th Ave to  
neighborhood streets  
during construction

Potential service disruption  
during construction over  
existing tunnel



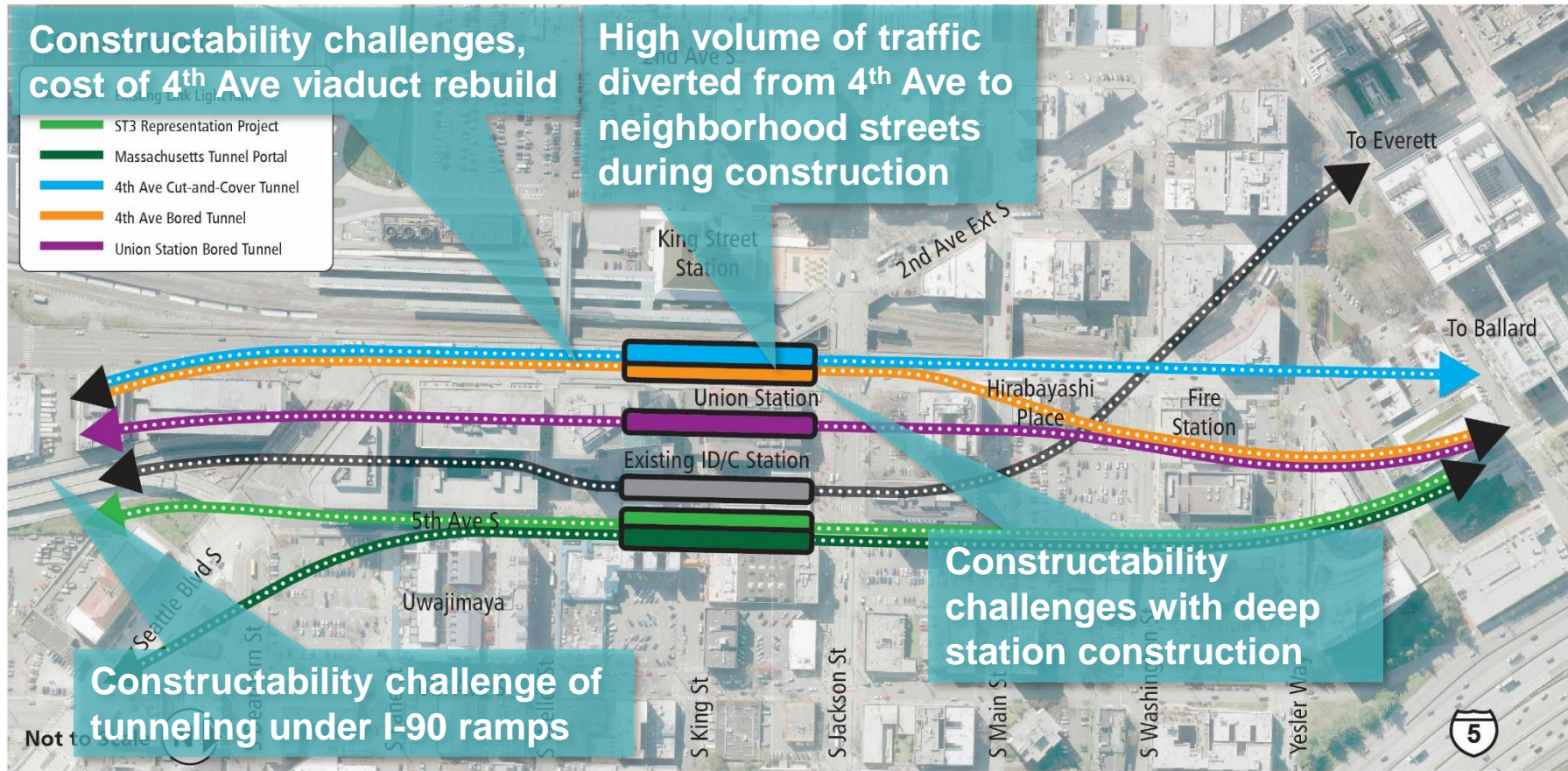
**4th Ave Cut-and-Cover Tunnel – Key Findings**



## Constructability challenges, cost of 4th Ave viaduct rebuild

- ST3 Representation Project
- Massachusetts Tunnel Portal
- 4th Ave Cut-and-Cover Tunnel
- 4th Ave Bored Tunnel
- Union Station Bored Tunnel

High volume of traffic  
diverted from 4th Ave to  
neighborhood streets  
during construction

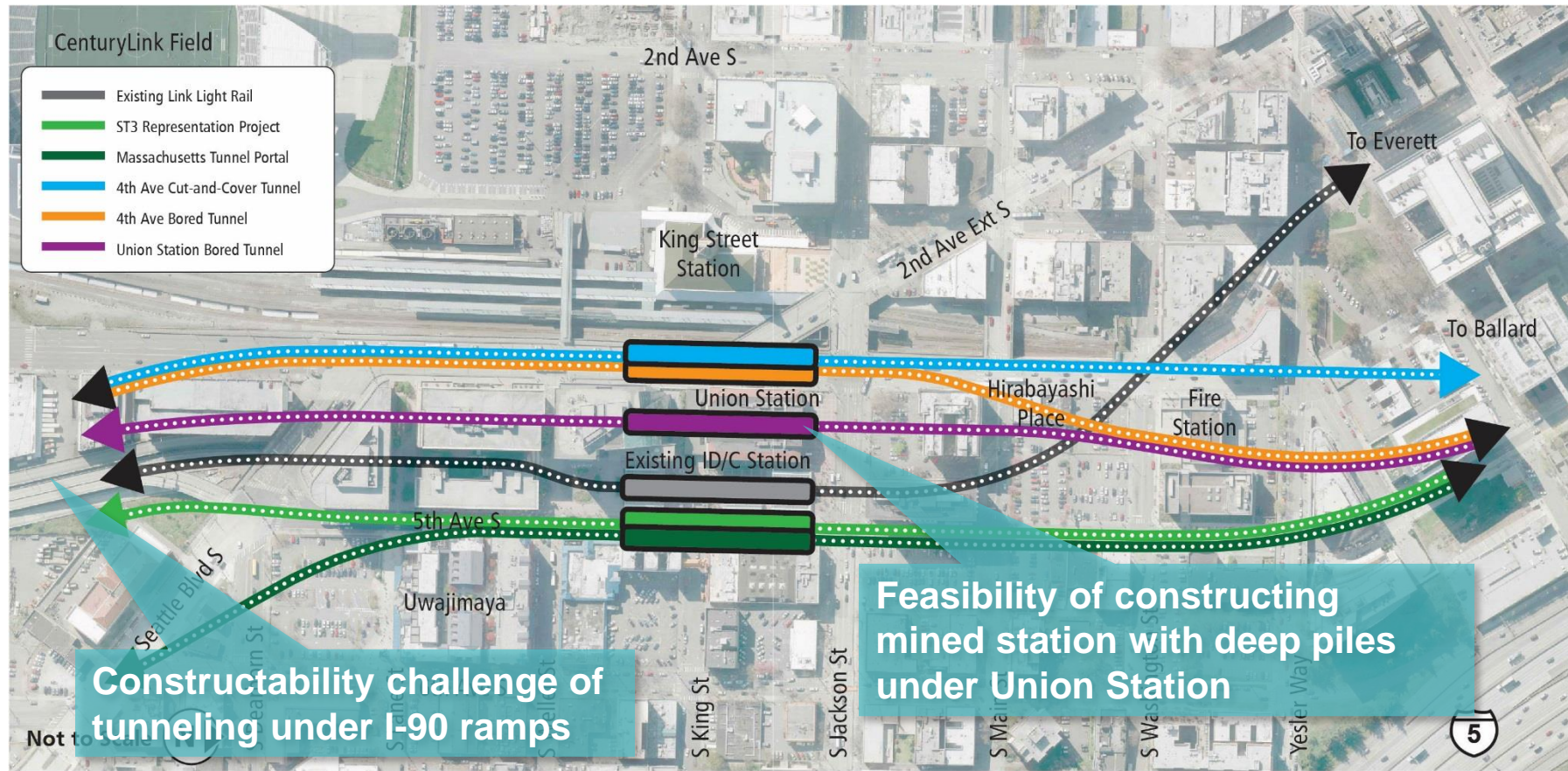


Constructability challenge of  
tunneling under I-90 ramps

Constructability  
challenges with deep  
station construction

# 4th Ave Bored Tunnel – Key Findings

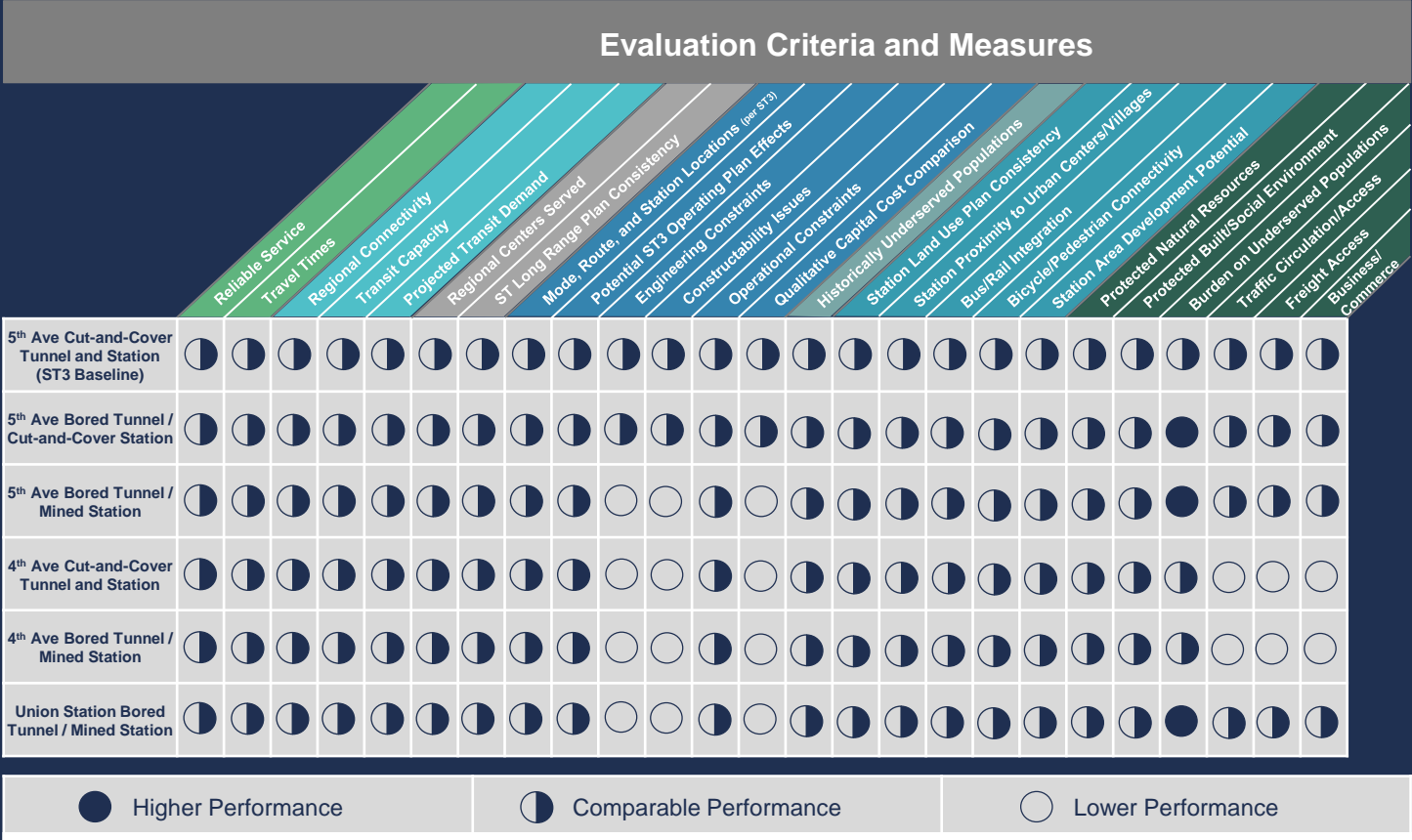




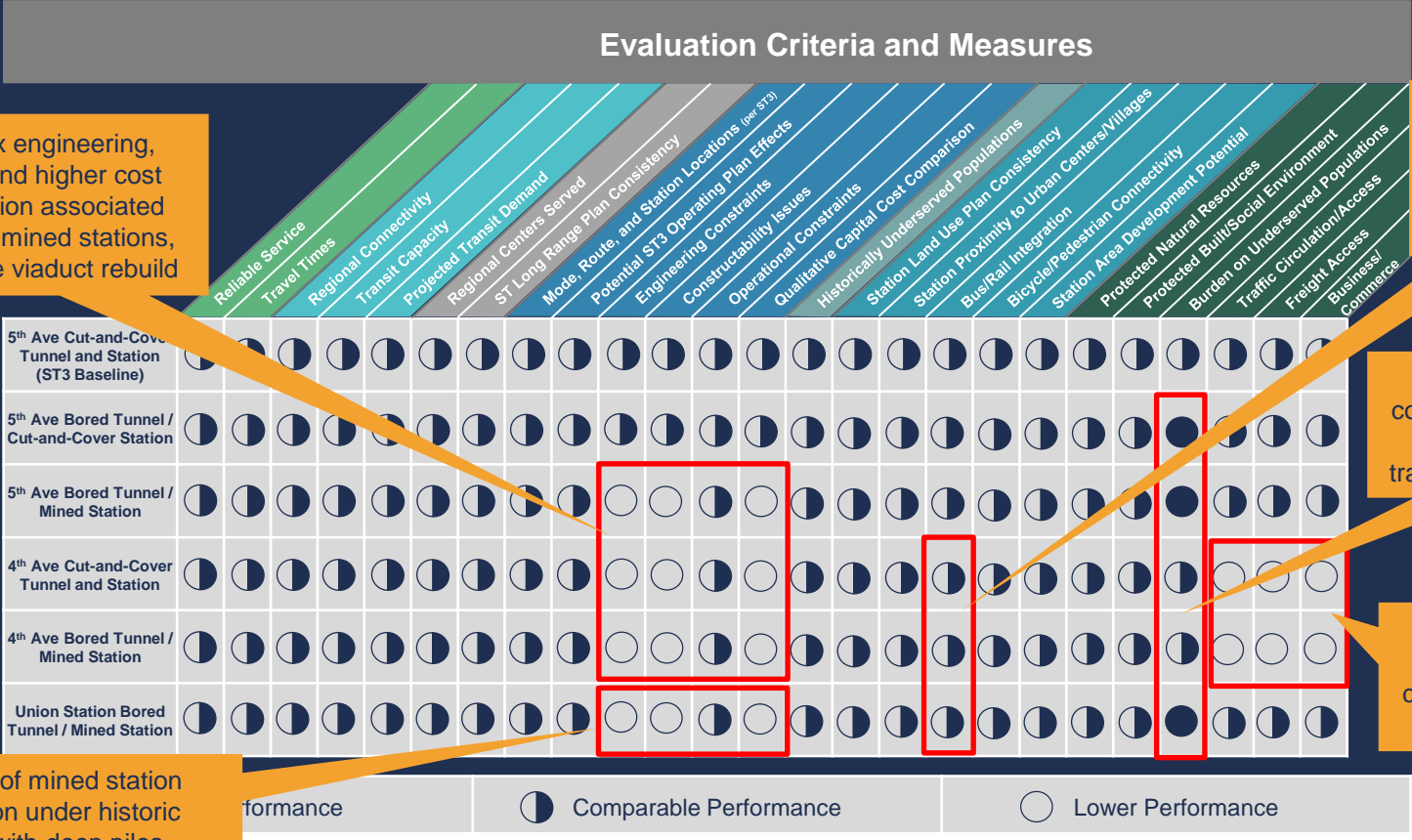
# Union Station Bored Tunnel – Key Findings



# C-ID Level 1 Alternatives – Evaluation Results



# C-ID Level 1 Alternatives – Evaluation Results



Complex engineering, difficult and higher cost construction associated with deep mined stations, 4th Avenue viaduct rebuild

Closer proximity to Sounder, but less convenient LRT transfers







Reduced construction impacts offset by 4th Ave traffic detour impacts

Detours from 4th Avenue during construction affect traffic, freight

Feasibility of mined station construction under historic building with deep piles



# C-ID Alternatives Summary – Level 1

Alternatives with more potential	5 <sup>th</sup> Ave Cut-and-Cover Tunnel and Station (ST3/Baseline) 	<ul style="list-style-type: none"> <li>• Baseline for comparison</li> </ul>
	5 <sup>th</sup> Ave Bored Tunnel / Cut-and-Cover Station 	<ul style="list-style-type: none"> <li>• Reduces extent of cut-and-cover construction impacts</li> <li>• Moved forward to Level 2</li> </ul>
Alternatives with greater challenges	5 <sup>th</sup> Ave Bored Tunnel / Mined Station 	<ul style="list-style-type: none"> <li>• Reduces extent of cut-and-cover construction impacts</li> <li>• Deep mined station construction technically challenging (platform 100 – 120' deep)</li> </ul>
	4 <sup>th</sup> Ave Cut-and-Cover Tunnel and Station 	<ul style="list-style-type: none"> <li>• 4<sup>th</sup> Ave viaduct rebuild; potential major traffic, freight, and transit mobility impacts</li> <li>• Construction detours could impact neighborhood streets</li> <li>• 4<sup>th</sup> Ave viaduct rebuild; requires third party funding</li> <li>• LRT service disruptions during construction over existing tunnel</li> <li>• Constructability challenge of tunneling under I-90 ramps</li> </ul>
	4 <sup>th</sup> Ave Bored Tunnel / Mined Station 	<ul style="list-style-type: none"> <li>• 4<sup>th</sup> Ave viaduct rebuild (at station); potential traffic, freight, and transit mobility impacts</li> <li>• Construction detours could impact neighborhood streets</li> <li>• Deep mined station construction under 4<sup>th</sup> Ave (platform 150 – 200' deep)</li> <li>• Property impacts of TBM portal site in E-3 busway</li> </ul>
Not practical concept	Union Station Bored Tunnel / Mined Station 	<ul style="list-style-type: none"> <li>• Deep piles under Union Station, existing ID Station and adjacent buildings require deep mined station (platform 150 - 200' deep)</li> <li>• Deep station precludes easy ped connections to IDS and King St. stations</li> <li>• Risk of settlement damage to landmark US building</li> <li>• Lacks construction staging and access shaft sites</li> </ul>

# C-ID Alternatives Summary – Level 1 SAG recommendations

	Alternative		Carry forward?	Do not carry forward?
Alternatives with more potential	5 <sup>th</sup> Ave Cut-and-Cover Tunnel and Station (ST3/Baseline) 		✓	
	5 <sup>th</sup> Ave Bored Tunnel / Cut-and-Cover Station 		✓	
Alternatives with greater challenges	5 <sup>th</sup> Ave Bored Tunnel / Mined Station 		✓	
	4 <sup>th</sup> Ave Cut-and-Cover Tunnel and Station 		✓	
	4 <sup>th</sup> Ave Bored Tunnel / Mined Station 		✓	
Not practical concept	Union Station Bored Tunnel / Mined Station 			✓



## *General Discussion – Chinatown-ID*

- *Desire to carry forward multiple alternatives until more is known about construction impacts and duration.*
- *Lack of full consensus but majority support to carry forward both 5<sup>th</sup> Ave Bored Tunnel/Mined Station and 4<sup>th</sup> Ave Bored Tunnel/Mined Station alternatives.*
- *Need for clarity from City of Seattle regarding 4<sup>th</sup> Avenue viaduct replacement need and funding availability.*

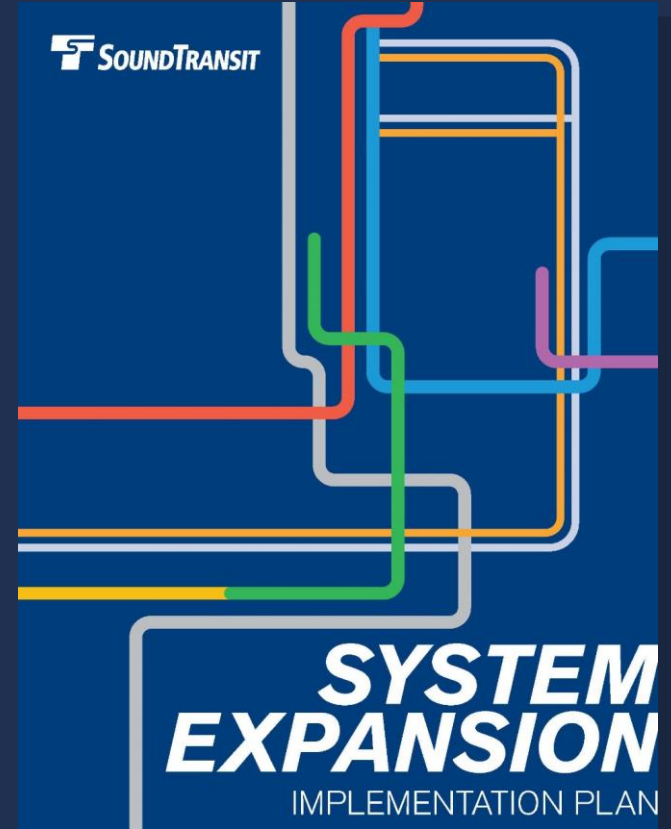


# ***Equity and Inclusion***



# *New approach to project development*

- Enhance commitment to partnership, community engagement, collaboration, transparency and accountability
- Apply innovative ideas and lessons learned to streamline project delivery
- Enhance access to the system and develop an equitable regional TOD strategy



# *Equity and the environmental process*

During environmental review, Sound Transit conducts an **environmental justice analysis** in compliance with federal regulations.

- **Executive Order 12898:** Federal Actions to Address Environmental Justice to Minority Populations and Low-Income Populations (1994)
- **USDOT Order 5610.2:** Actions to Address Environmental Justice (1997) and 2012 Update
- FTA environmental justice policy guidance, FTA Circular



# *Partnership with the City of Seattle*

Partnering agreement provides framework for Sound Transit and the City to **work closely together** during the alternatives development phase of the project to **identify a preferred alternative** as well as other alternatives to study in the EIS.



# Mayor Durkan Executive Order

- An Executive Order affirming the City of Seattle's commitment to the ***Race and Social Justice Initiative (RSJI)***.
- The RSJI vision is to ***achieve racial equity*** in the community and the mission is to ***end institutional and structural racism*** in City government, ***promoting inclusion*** and full participation of all residents, and ***partnering with the community*** to achieve racial equity across Seattle.





## Racial Equity Toolkit

to Assess Policies, Initiatives, Programs, and Budget Issues



The vision of the Seattle Race and Social Justice Initiative is to eliminate racial inequity in the community. To do this requires ending *individual racism*, *institutional racism* and *structural racism*. The Racial Equity Toolkit lays out a process and a set of questions to guide the development, implementation and evaluation of policies, initiatives, programs, and budget issues to address the impacts on racial equity.

### When Do I Use This Toolkit?

Early. Apply the toolkit early for alignment with departmental racial equity goals and desired outcomes.

### How Do I Use This Toolkit?

With Inclusion. The analysis should be completed by people with different racial perspectives.

Step by step. The Racial Equity Analysis is made up of six steps from beginning to completion:



# What is a Racial Equity Toolkit (RET)?

- Assessment tool developed by City of Seattle to address impacts on racial equity.
- Data-driven and inclusive

# *West Seattle and Ballard Link Extensions*

## *RET process*

- › Sound Transit and City of Seattle RET collaborative team
- › Working group structure focused on engagement and data analysis
- › Conducted data analysis to determine focus areas

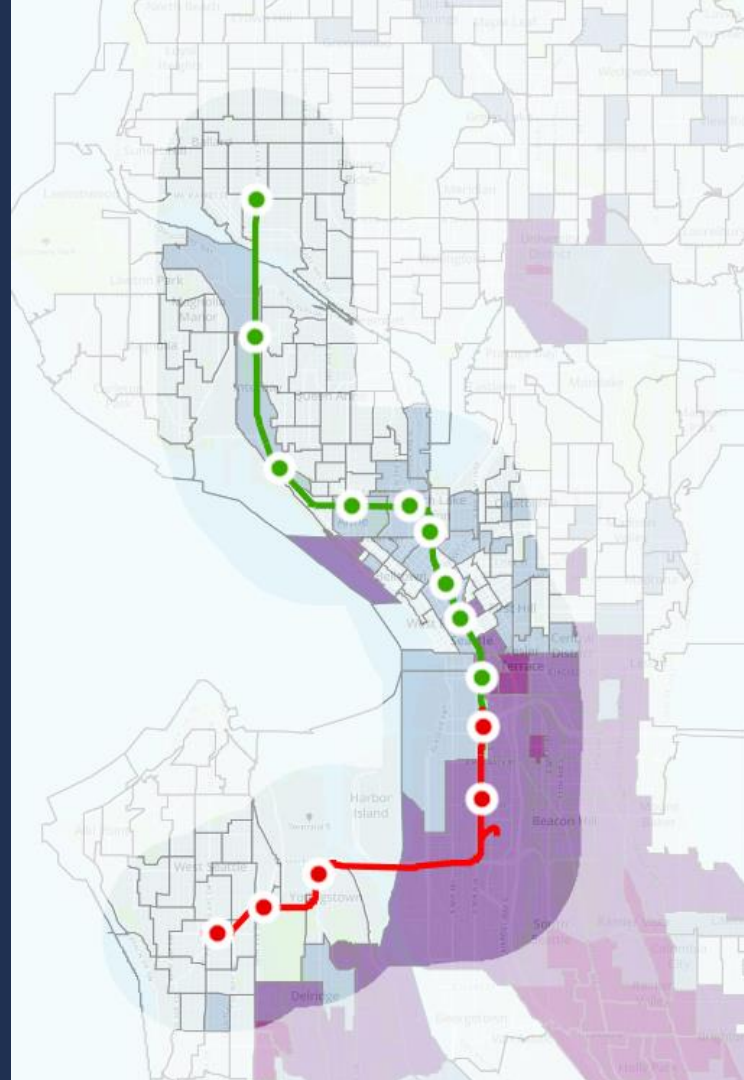


# Level 1 data findings

- › Mapped concentrations of communities of color in project corridor
- › **Chinatown/ID and Delridge Stations** emerged as station areas of focus for RET analysis

**Figure:** Concentrated communities of color (non-white population)

**Source:** 2011-2016 American Community Survey, projected in ArcGIS  
Online *WSBLE Community Conditions Basemap*

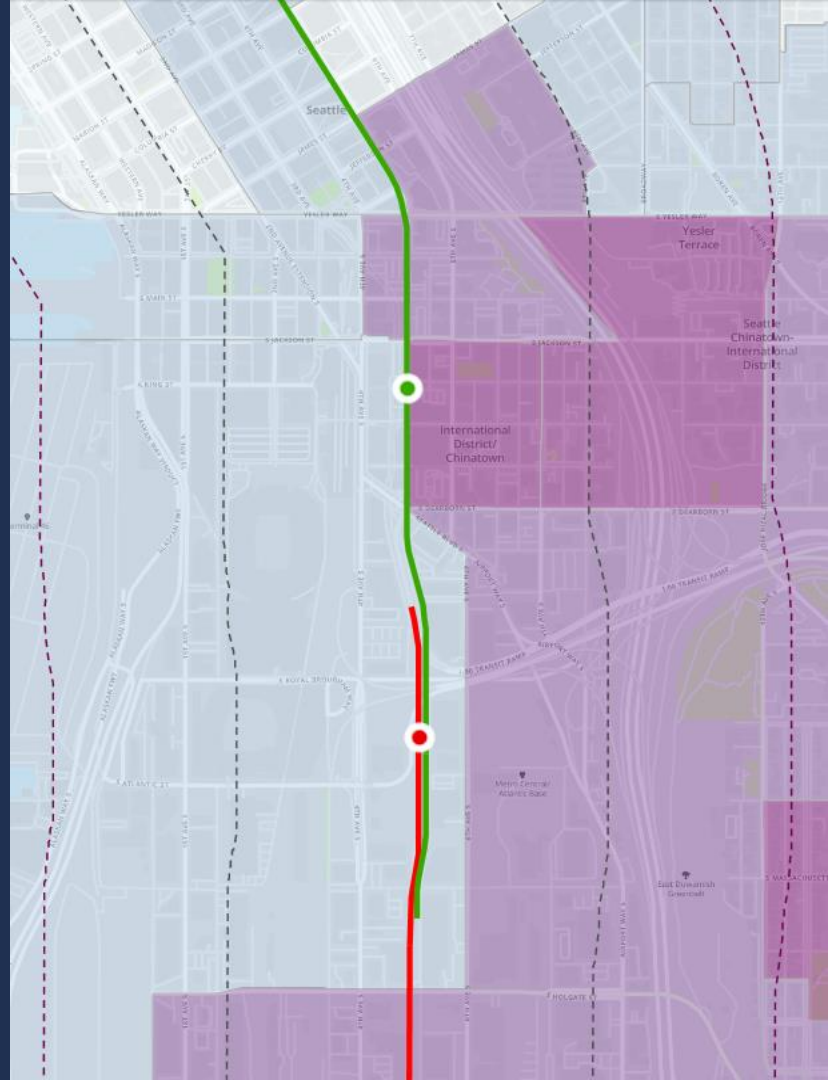


# Level 1 data findings

- Chinatown/International District station area is the only station area ***densely populated by communities of color*** in the WSBL project corridor

**Figure 1:** Communities of Color in ½ mile catchment of C/ID and South Downtown

**Source:** 2011-2016 American Community Survey, projected in ArcGIS Online *WSBLE Community Conditions Basemap*



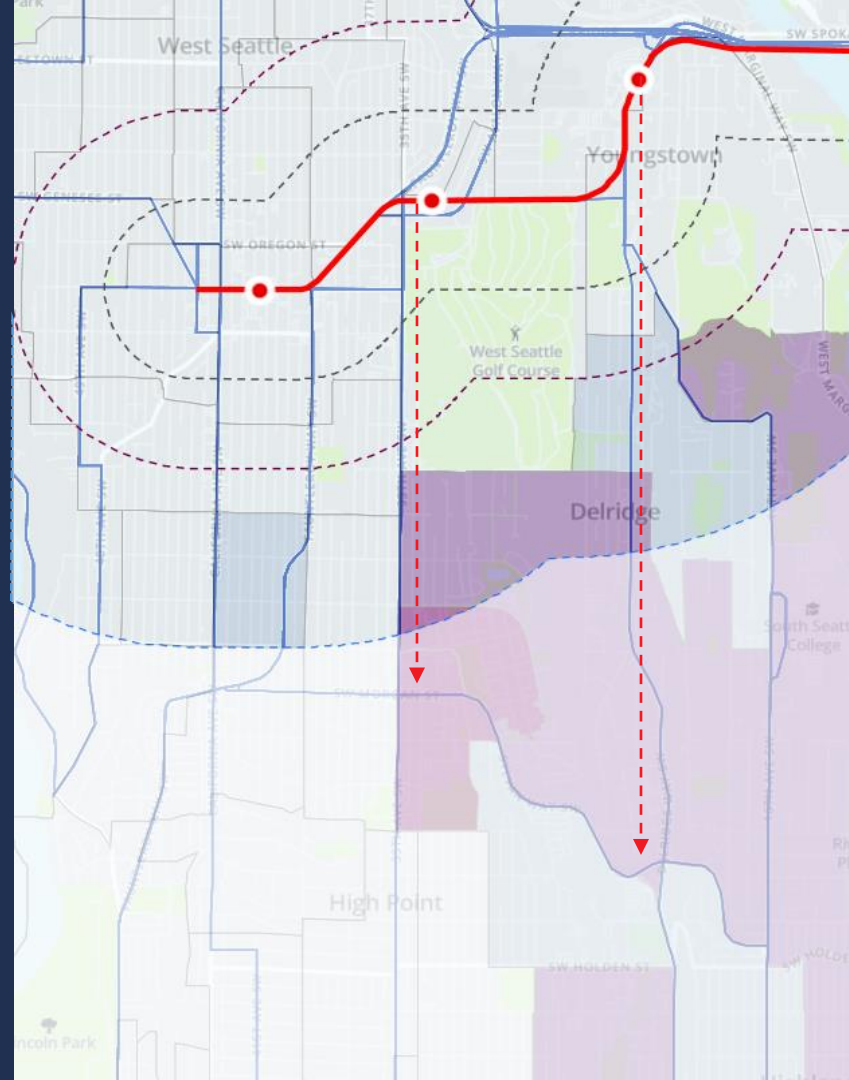


# Level 1 data findings

- › Densely populated communities of color lie ***within the bike and transit sheds*** of the Delridge and Avalon stations, but are ***outside of those stations' immediate walksheds***

**Figure 2:** Communities of color beyond 1/2-mile catchment of Delridge and Avalon Stations and major bus routes

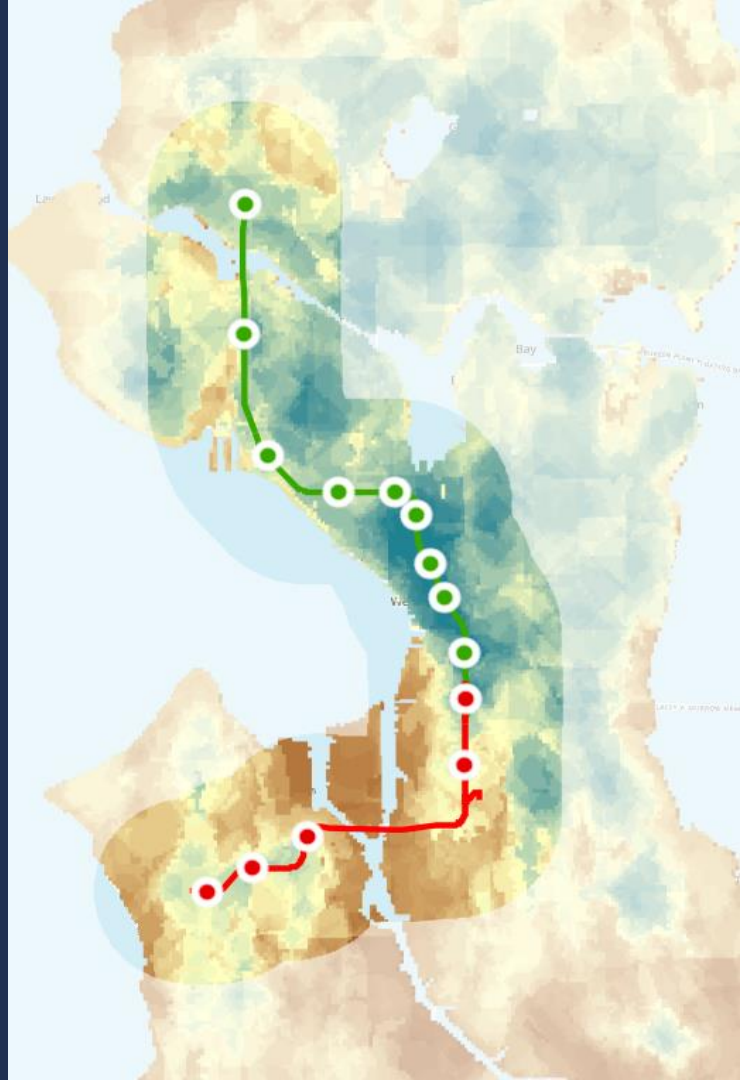
**Source:** 2011-2016 American Community Survey, projected in ArcGIS Online WSBLE Community Conditions Basemap)



# Level 1 data findings

- › Many stations in areas of “**high opportunity**”
- › **Correlation between race and class** where communities of color have lower incomes and access to opportunity than majority white communities

**Figure 3:** Opportunity Index (blue = higher score, brown = lower score;  
**Source:** City of Seattle, projected in ArcGIS Online WSBLE Community Conditions Basemap)





# *How the RET has informed work so far*

- › Established shared outcomes  
(next slide)
- › Collaboration on Chinatown-  
International District engagement  
and alternatives development
- › Social service provider interviews  
centering race
- › Modifications to screening criteria
- › Delridge station charrette  
collaboration



# *How the RET has informed work so far*

## › Shared outcomes

- **Enhance mobility and access** to create opportunity for communities of color and low-income populations.
- Create opportunities for **equitable development** that benefit communities of color.
- **Avoid disproportionate adverse impacts** on communities of color and for low-income populations.
- **Meaningful involvement** with communities of color and low-income populations.

# Looking ahead in Level 2

- › Collaboration will continue to elevate issues and considerations to ***better inform the alternatives development process.***
- › Strive to ***provide information*** that data alone cannot provide.
- › ***Sharing findings*** of Level 2 data analysis and community engagement.






***Next steps***

# *Upcoming Level 2 meetings*

<b>SAG Meeting #8</b> Sept. 5, 2018	<ul style="list-style-type: none"><li>• Community engagement and collaboration</li><li>• Level 2 evaluation results</li></ul>
<b>SAG Meeting #9</b> Sept 26, 2018	<ul style="list-style-type: none"><li>• Community engagement and collaboration</li><li>• Level 2 recommendations</li></ul>
<b>ELG Meeting</b> Oct. 5, 2018	<ul style="list-style-type: none"><li>• Community engagement and collaboration</li><li>• Level 2 recommendations</li></ul>



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