

# West Seattle and Ballard Link Extensions

Planning Commission Meeting | April 26, 2018



- > Welcome & introductions
- > Alternatives development process
- Level 1 alternatives & evaluation
- > Public and stakeholder engagement
- > Questions

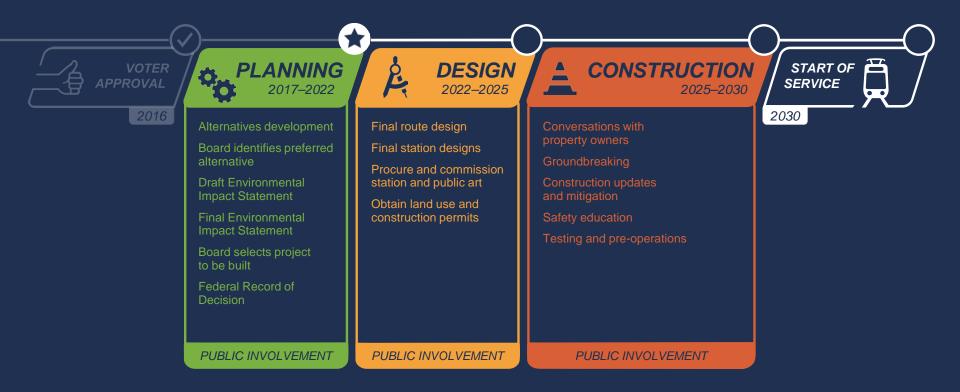
# Alternatives development process



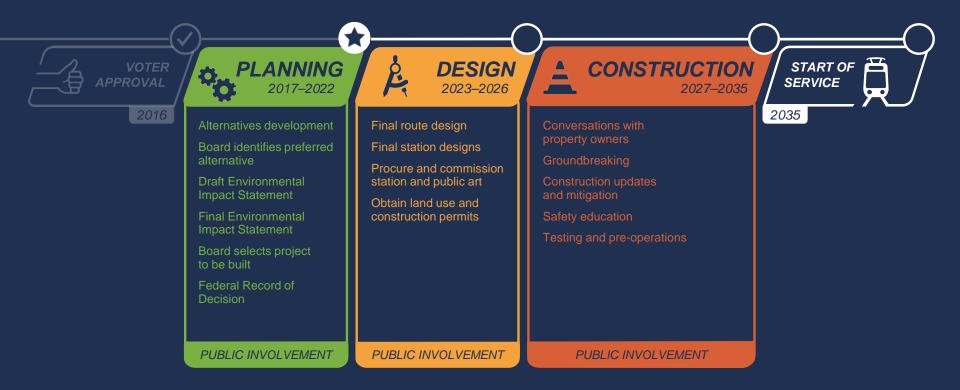
# ST3 Representative project

- Identifies mode, corridor, number of stations, general station locations
- Informs cost, schedule, operating needs

# West Seattle project timeline



# Ballard project timeline



VOTER APPROVAL



## **PLANNING**

2017-2019

Alternatives development

Board identifies preferred alternative

2019–2022

Draft Environmental Impact Statement

Final Environmental Impact Statement

Board selects project to be built

Federal Record of Decision

#### PUBLIC INVOLVEMENT

# Alternatives development process

#### LEVEL 1

Alternatives development

#### Early-2018

Conduct early scoping

Study ST3 representative project and alternatives

Screen alternatives

#### LEVEL 2

Alternatives development

#### Mid-2018

Technical analysis

Refine and screen alternatives

PUBLIC INVOLVEMENT

Alternatives development

LEVEL 3

Late-2018 / Early-2019

Refine and screen alternatives

Conduct Environmental Impact Statement (EIS) scoping

PUBLIC INVOLVEMENT

Early-2019

PREFERRED ALTERNATIVE\*

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

#### Community engagement and collaboration





#### Early Scoping Summary Report

April 2018

# **Early Scoping**

- Early scoping: Feb. 2 March 5
- 3 public meetings, 1 agency meeting and online open house
- 2,800+ total comments received via meetings and other methods
- All comments captured in Early Scoping Summary Report



# Level 1 alternatives and evaluation



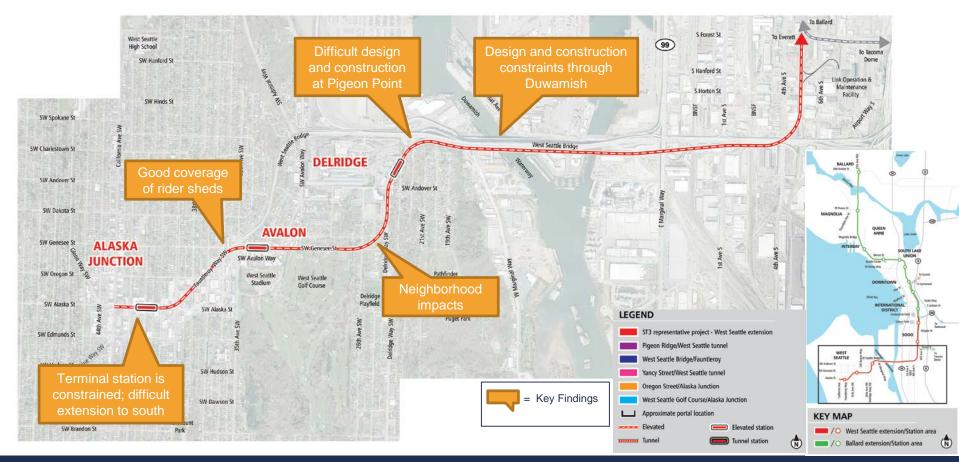
#### **Representative project – study segments**

# Level 1 alternatives

West Seattle/Duwamish	
<ul> <li>ST3 Representative Project</li> </ul>	
<ul> <li>Pigeon Ridge/West Seattle Tunnel</li> </ul>	
<ul> <li>West Seattle Bridge/ Fauntleroy</li> </ul>	
<ul> <li>Yancy Street/West Seattle Tunnel</li> </ul>	
Oregon Street/Alaska Junction	
West Seattle Golf Course/ Alaska Junction	



#### West Seattle / Duwamish – Level 1



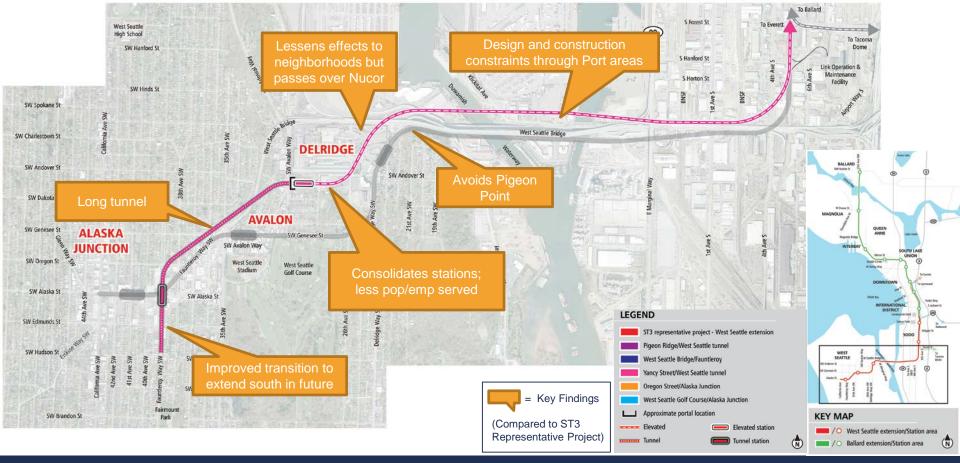
#### West Seattle/Duwamish Key Level 1 findings – ST3 Representative Project



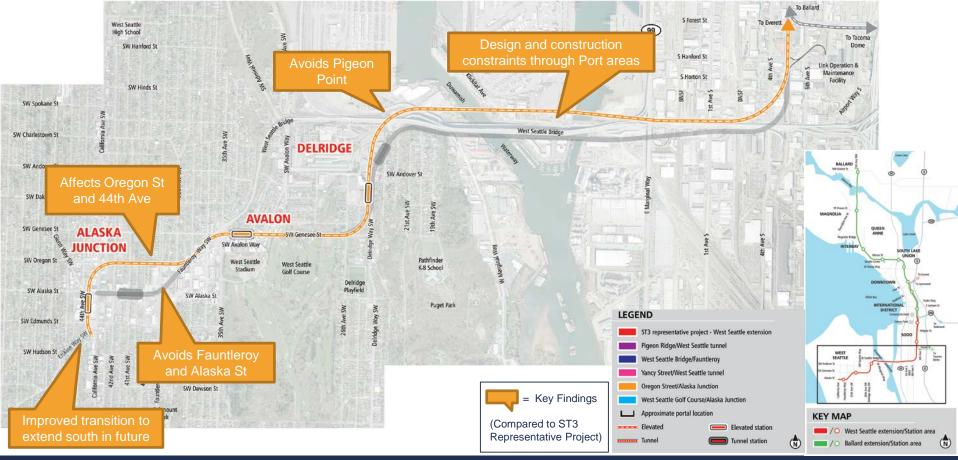
#### West Seattle/Duwamish Key Level 1 findings – Pigeon Ridge/West Seattle Tunnel



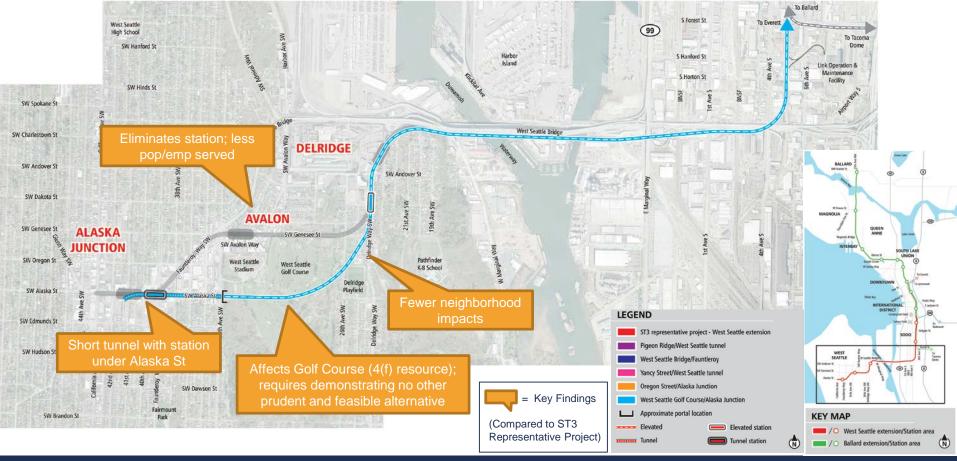
Key Level 1 findings – West Seattle Bridge/Fauntleroy



Key Level 1 findings - Yancy Street/West Seattle Tunnel

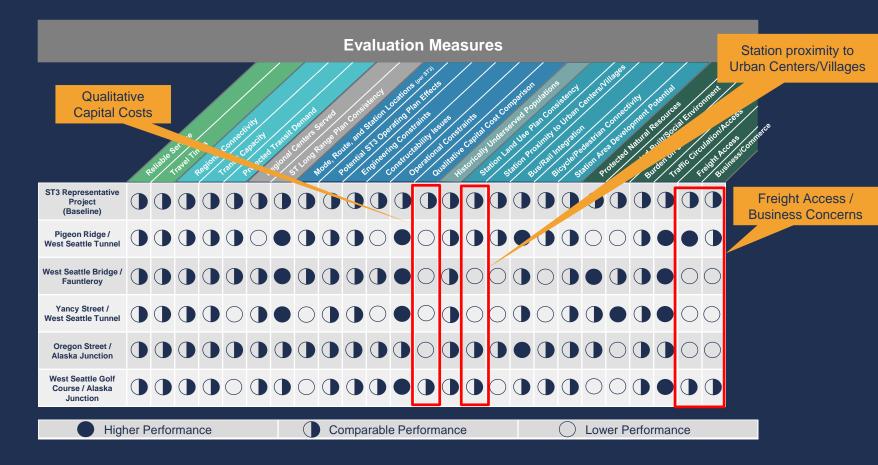


Key Level 1 findings - Oregon Street/Alaska Junction



Key Level 1 findings - West Seattle Golf Course/Alaska Junction

#### Segment Alternatives



## West Seattle / Duwamish summary

	ST3 Representative Project	Baseline for comparison		
Alternatives with more	Oregon Street/Alaska Junction	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>		
potential	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>		
	Pigeon Ridge/West Seattle	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; may require 3<sup>rd</sup> Party funding</li> </ul>		
Alternatives with greater	Yancy Street/West Seattle Tunnel	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>		
challenges	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>		
	Tunnel under Duwamish	Impractical tunnel depth and length		
Not practical suggestions	West Seattle Bridge	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>		
	Gondola, rail/bus bridge	Mode not consistent with ST3 Plan		
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan		

#### West Seattle/Duwamish Recommendations

	Alternative	Carry forward?	Do not carry forward?	Notes/Comments
Alternatives	ST3 Representative Project			
with more	Oregon Street/Alaska Junction	$\checkmark$		Explore elevated and tunnel options
potential	West Seattle Bridge/Fauntleroy		$\checkmark$	
	Pigeon Ridge/West Seattle Tunnel	√		
Alternatives	Yancy Street/West Seattle Tunnel		$\checkmark$	
with greater challenges	West Seattle Golf Course/Alaska Junction (Tunnel)		$\checkmark$	Add Avalon station, modify to reduce 4(f) impact
	Tunnel under Duwamish		$\checkmark$	
Not practical	West Seattle Bridge		$\checkmark$	
suggestions	Gondola, rail/bus bridge		$\checkmark$	
	Extensions to Alki, Admiral, etc.		$\checkmark$	

# Level 1 alternatives

SODO	
<ul> <li>ST3 Representative Project</li> <li>Massachusetts Tunnel Portal</li> <li>Surface E-3</li> </ul>	

#### LEGEND

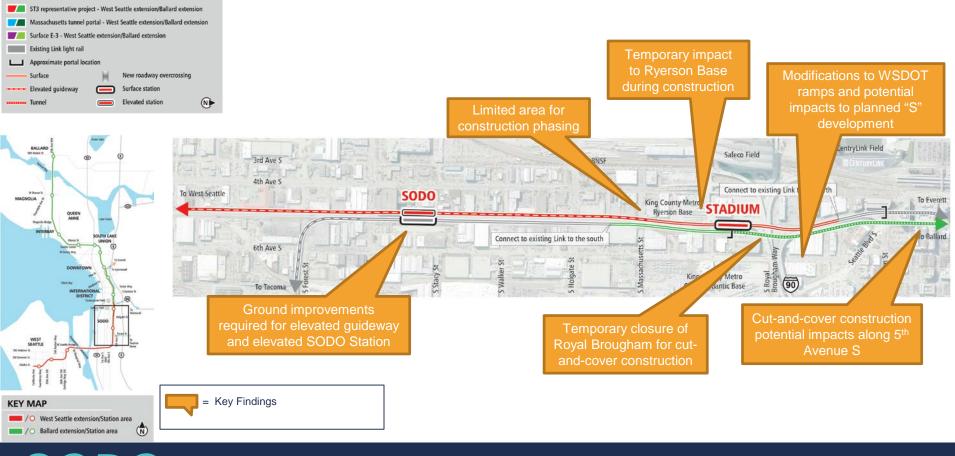




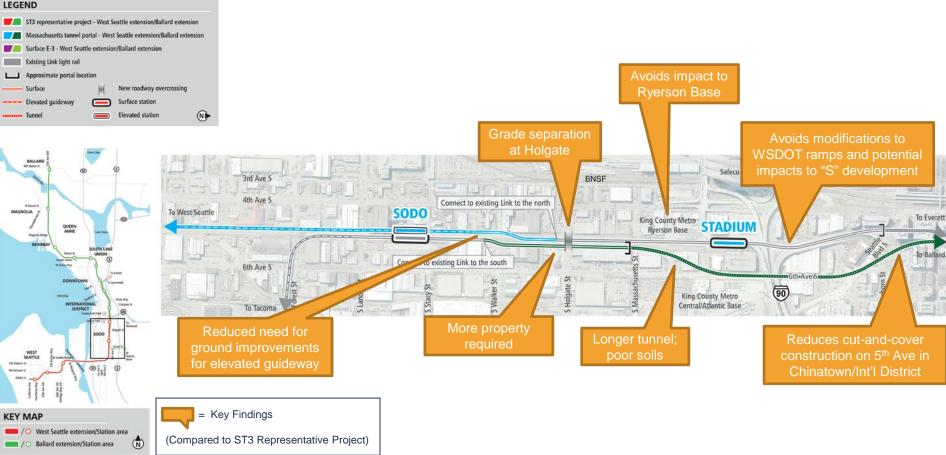


### SODO – Level 1



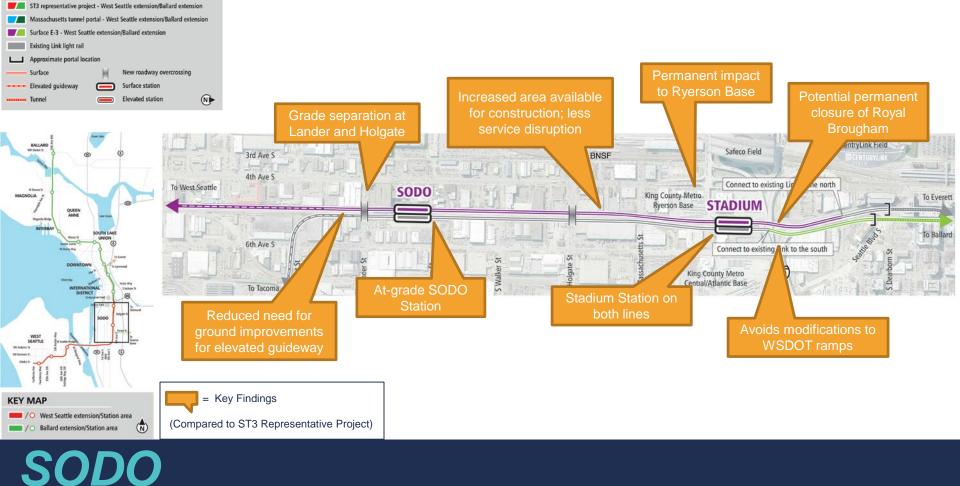


#### **SODO** Key Level 1 findings – ST3 Representative Project



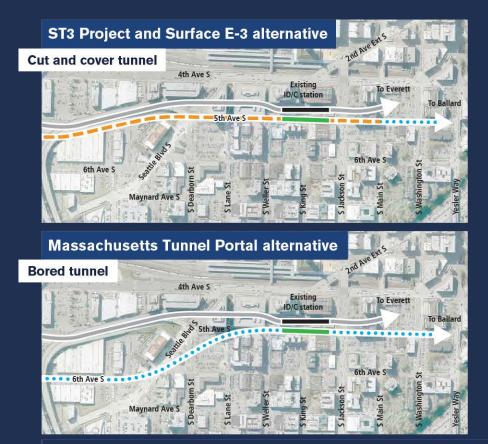
#### **SODO** Key Level 1 findings – *Massachusetts Tunnel Portal*





Key Level 1 findings – *Surface E-3* 

## International District/Chinatown Station





Station location alternative (straddle S Jackson St) Note: applicable to both cut and cover and bored tunnel alternatives

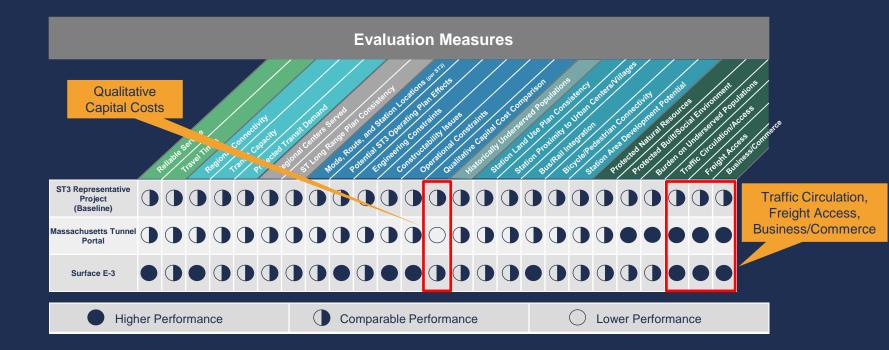
Existing Link station

Proposed station (cut and cover)

Potential Cut and Cover tunnel

### SODO

#### Segment Alternatives



# SODO summary

Alternatives with more	ST3 Representative Project	Baseline for comparison		
potential	Surface E-3	<ul> <li>Less service disruption during construction</li> <li>Accommodates Stadium Station on both lines</li> <li>Eliminates existing grade crossings at Lander, Holgate; closes Royal Brougham</li> </ul>		
		<ul> <li>Reduces cut-and-cover construction on 5<sup>th</sup> Ave in Chinatown/Int'l District</li> <li>Less service disruption during construction</li> <li>Eliminates existing grade crossing at Holgate</li> <li>Requires longer tunnel; more property; may require 3<sup>rd</sup> Party funding</li> </ul>		
	Maintain buses on E-3	Not practical due to ROW constraints		
Not practical suggestions	First Ave alignment	Alignment and stations locations not consistent with ST3		
	Design for potential extension south to Georgetown	Not included in ST3 or long range plan		

## **SODO Recommendations**

	Alternative	Carry forward?	Do not carry forward?	Notes/Comments
Alternatives	ST3 Representative Project			
with more potential	Surface E-3	✓		
	Massachusetts Tunnel Portal	√		Consider hybrid with full grade separation
	Maintain buses on E-3		✓	Need to study impacts to buses during construction and long term
Not practical suggestions	First Ave alignment	✓		Explore modifications that meet operational requirements, including potential additional station to serve First Ave
	Design for potential extension south to Georgetown		✓	

# Level 1 alternatives

#### Downtown Seattle

- ST3 Representative Project
- 5th/Mercer
- 5th/Harrison
- 6th/Boren/Roy
- 8th/6th/Republican
- 5th/Roy/Consolidated SLU Station

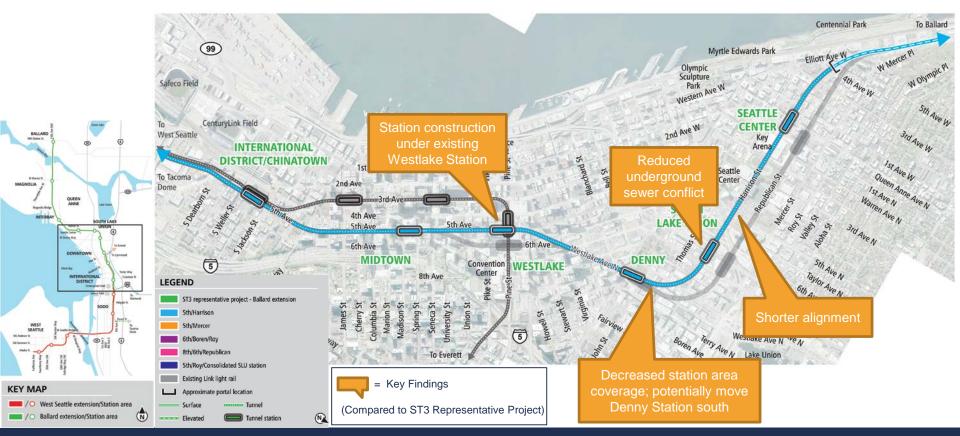


#### Downtown — Level 1

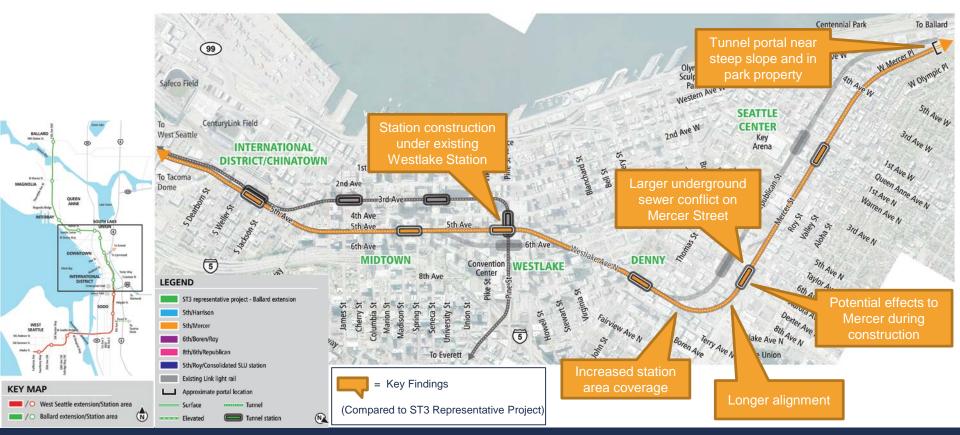


#### Downtown

Key Level 1 findings – ST3 Representative Project



#### **Downtown** Key Level 1 findings – 5th/Harrison



### **Downtown** Key Level 1 findings – 5th/Mercer



### **Downtown** Key Level 1 findings – 6th/Boren/Roy



## **Downtown**

Key Level 1 findings - 8th/6th/Republican

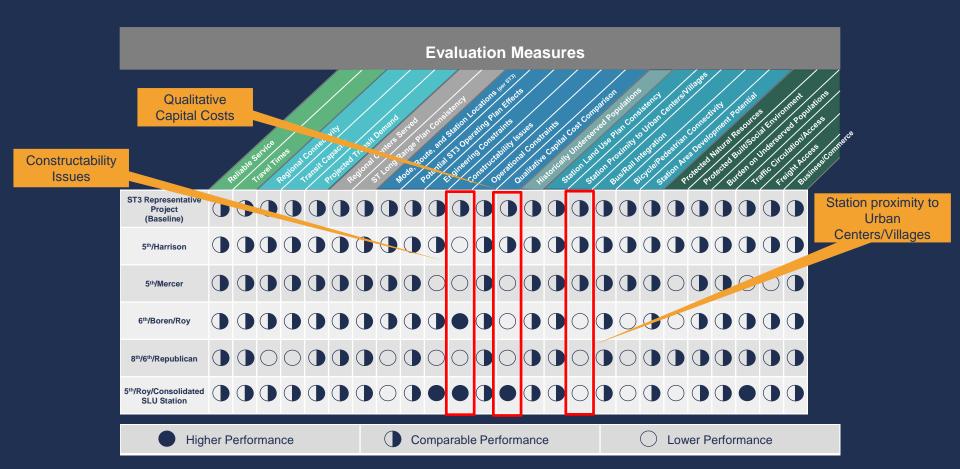


### Downtown

Key Level 1 findings – 5th/Roy/Consolidated SLU Station

### Downtown

#### Segment Alternatives



### Downtown summary

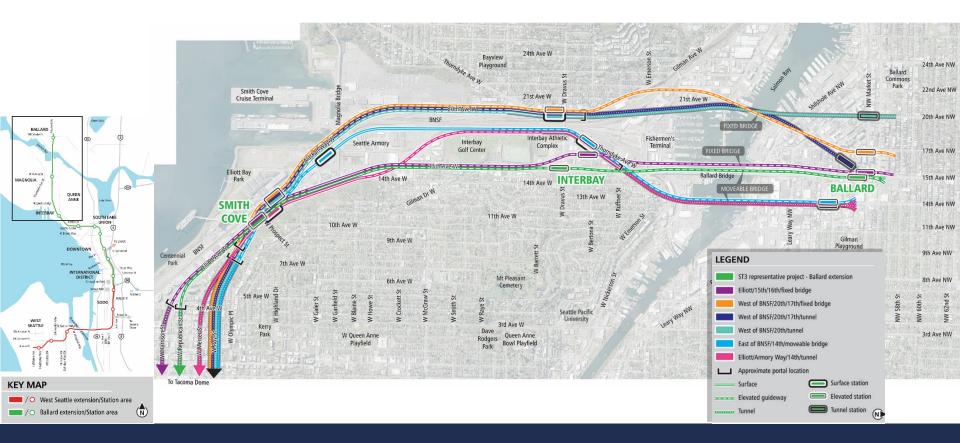
Alternatives with more potential	ST3 Representative Project	Baseline for comparison		
	5th/Harrison	<ul> <li>Avoids utility conflicts on Republican and station under SR 99 off-ramp</li> <li>Decreased station coverage; potentially move Denny Station south</li> </ul>		
	6 <sup>th</sup> /Boren/Roy	<ul> <li>Avoids utility conflicts on Republican and station under SR 99 off-ramp</li> <li>Increases construction risk due to I-5 walls along 6<sup>th</sup> Ave; avoids tiebacks on 5<sup>th</sup> Ave</li> </ul>		
Alternatives with greater	5 <sup>th</sup> /Mercer	<ul> <li>Avoids utility conflicts on Republican and station under SR 99 off-ram</li> <li>Increases construction risk due to large sewer on Mercer</li> </ul>		
challenges	5 <sup>th</sup> /Roy/Consolidated SLU Station	<ul> <li>Avoids utility conflicts on Republican and station under SR 99 off-ramp</li> <li>Consolidates stations; potentially not consistent with ST3</li> </ul>		
	8th/6th/Republican (First Hill)	<ul> <li>Increases construction risk due to two crossings under I-5</li> <li>First Hill station not consistent with ST3</li> </ul>		
Not practical suggestions	Use Downtown Seattle Transit Tunnel (DSTT)	Existing DSTT capacity constraints		
	Design for potential extensions to north and/or east	<ul> <li>Extensions to north and/or east not included in ST3 or long range plan</li> </ul>		

### **Downtown Recommendations**

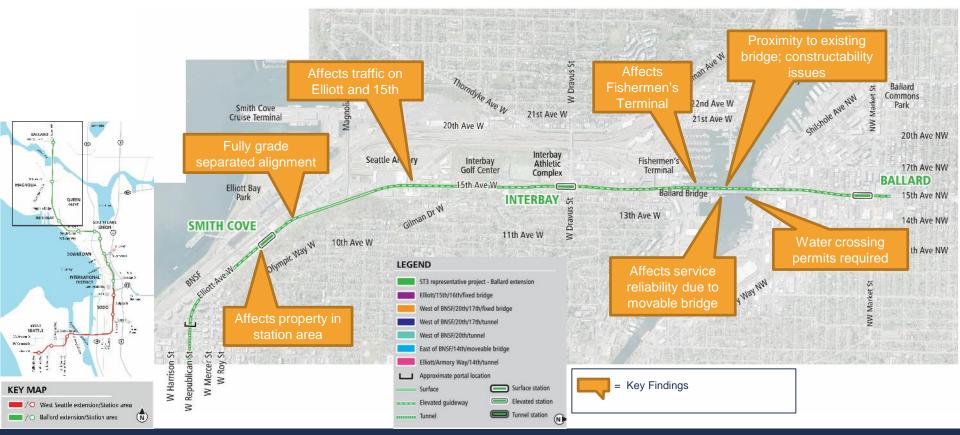
	Alternative	Carry forward?	Do not carry forward?	Notes/Comments
	ST3 Representative Project			
Alternatives with more	5th/Harrison	$\checkmark$		
potential	6 <sup>th</sup> /Boren/Roy	$\checkmark$		Move Seattle Center station south
Alternatives with greater challenges	5 <sup>th</sup> /Mercer		$\checkmark$	Freight impacts on Mercer; some prefer Seattle Center station location
	5 <sup>th</sup> /Roy/Consolidated SLU Station		$\checkmark$	
	8 <sup>th</sup> /6 <sup>th</sup> /Republican (First Hill)	~		Mix of opinions on carrying forward
Not practical suggestions	Use Downtown Seattle Transit Tunnel (DSTT)		✓	
	Design for potential extensions to north and/or east		✓	

## Level 1 alternatives

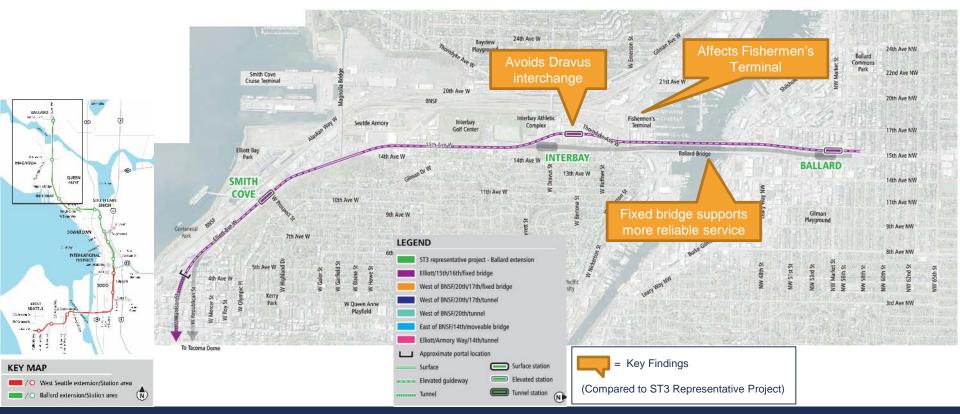




### Interbay / Ballard – Level 1



Key Level 1 findings – ST3 Representative Project



# **Interbay/Ballard** Key Level 1 findings – *Elliott/15th/16th/Fixed Bridge*



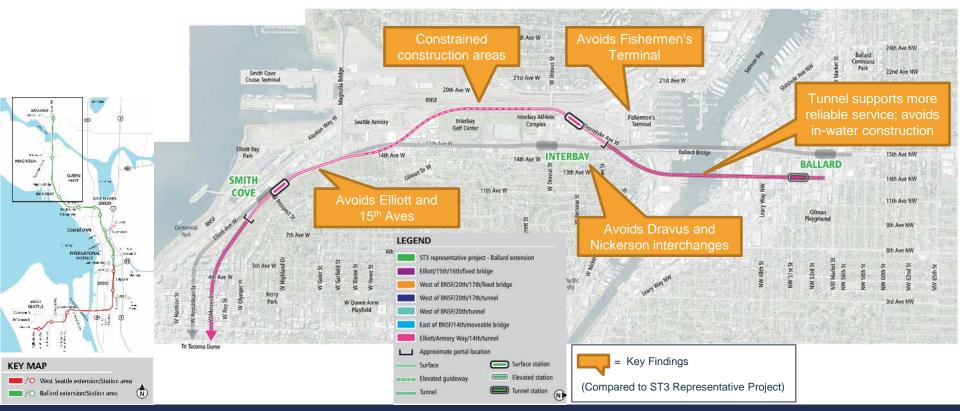
Key Level 1 findings - West of BNSF/20th/17th/Fixed Bridge



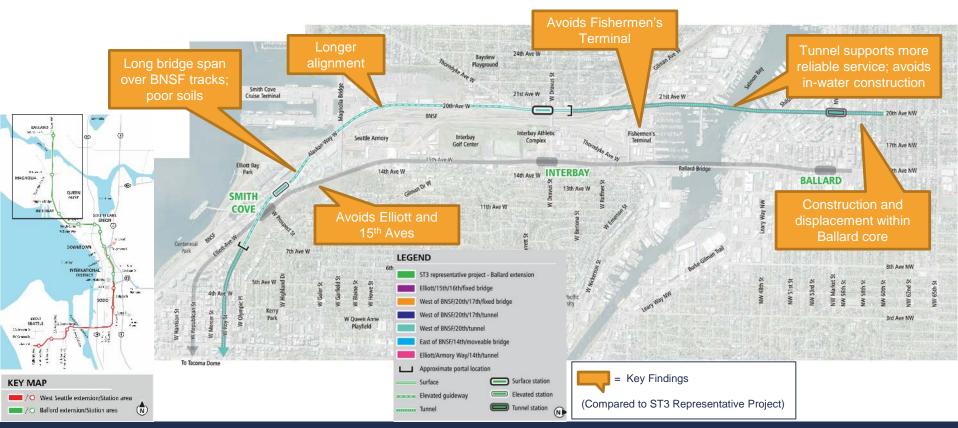
Key Level 1 findings – West of BNSF/20th/17th/Tunnel



Key Level 1 findings - East of BNSF/14th/Movable Bridge

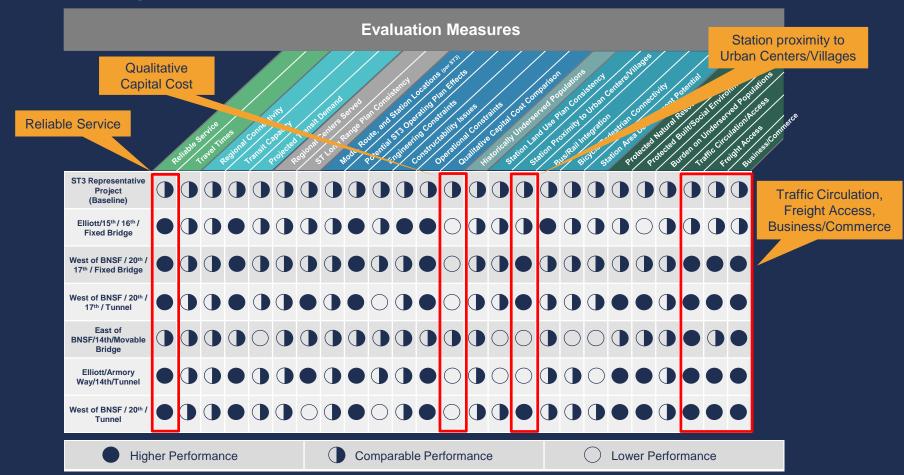


Key Level 1 findings – Elliott/Armory Way/14th/Tunnel



Key Level 1 findings – West of BNSF/20th/Tunnel

### Segment Alternatives



### Interbay / Ballard summary

Alternatives with more potential	ST3 Representative Project	Baseline for comparison	
	Elliott/15 <sup>th</sup> /16 <sup>th</sup> /Fixed Bridge	<ul> <li>Avoids 15<sup>th</sup> Ave/Dravus interchange</li> <li>Supports more reliable service (no bridge openings)</li> </ul>	
	West of BNSF/20 <sup>th</sup> /17 <sup>th</sup> /Fixed Bridge	<ul> <li>Avoids Elliott Ave,15th Ave and Fishermen's Terminal</li> <li>Supports more reliable service</li> </ul>	
	East of BNSF/14 <sup>th</sup> /Movable Bridge	<ul> <li>Avoids Elliott Ave,15<sup>th</sup> Ave and Fishermen's Terminal</li> <li>Locates station on 14<sup>th</sup> Ave within industrial area</li> </ul>	
	West of BNSF/20th/17th Tunnel	<ul> <li>Avoids Elliott Ave, 15th Ave, Fishermen's Terminal and Salmon Bay</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>	
	Elliott/Armory Way/14 <sup>th</sup> /Tunnel	<ul> <li>Avoids Elliott Ave, 15th Ave, Fishermen's Terminal and Salmon Bay</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>	
Alternatives with greater challenges	West of BNSF/20 <sup>th</sup> /Tunnel	<ul> <li>Avoids Elliott Ave, 15th Ave, Fishermen's Terminal and Salmon Bay</li> <li>Requires longer tunnel; may require 3<sup>rd</sup> Party funding</li> <li>Requires construction and displacement within Ballard core</li> </ul>	
Not practical suggestions	Tunnel through Queen Anne/Interbay	Depth and length impractical; would affect downtown tunnel depth	
	Extensions to 65 <sup>th</sup> , 85 <sup>th</sup> , Northgate	Not included in ST3 plan	
	Multi-modal Salmon Bay bridge	ST3 plan defined project as rail-only bridge	
	Eliminate or add stations	Not consistent with ST3 plan	

### Interbay / Ballard Recommendations

	Alternative	Carry forward?	Do not carry forward?	Notes/Comments
Alternatives with	ST3 Representative Project			
	Elliott/15 <sup>th</sup> /16 <sup>th</sup> /Fixed Bridge	✓		
more potential	West of BNSF/20 <sup>th</sup> /17 <sup>th</sup> /Fixed Bridge	✓		
	East of BNSF/14 <sup>th</sup> /Movable Bridge	✓		
	West of BNSF/20 <sup>th</sup> /17 <sup>th</sup> Tunnel	√		
	Elliott/Armory Way/14 <sup>th</sup> /Tunnel	$\checkmark$		
Alternatives with greater challenges	West of BNSF/20 <sup>th</sup> /Tunnel	✓		Mix of opinions on carrying forward; agreement to carry forward
Not practical suggestions	Tunnel through Queen Anne/Interbay		✓	
	Extensions to 65 <sup>th</sup> , 85 <sup>th</sup> , Northgate		✓	
	Multi-modal Salmon Bay bridge		✓	Minority opinion to carry forward
	Eliminate or add stations		✓	

# **Public and** Stakeholder Engagement

### Community engagement and collaboration





### Neighborhood forums Completed

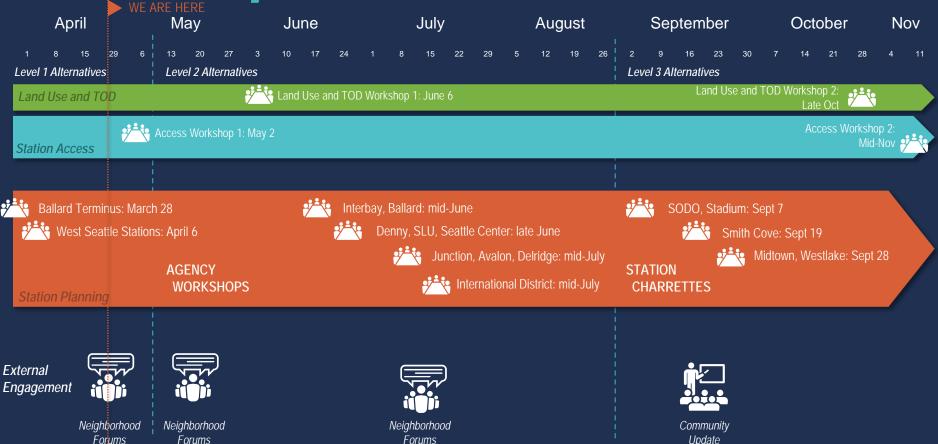
- 4/21: Chinatown / Int'l District
- 4/23: Denny / SLU / Seattle Center
   Upcoming
- 5/2: Midtown / Westlake
- 5/5: Delridge / Avalon / Alaska Junction
- 5/9: SODO / Stadium
- 5/12: Ballard / Interbay / Smith Cove

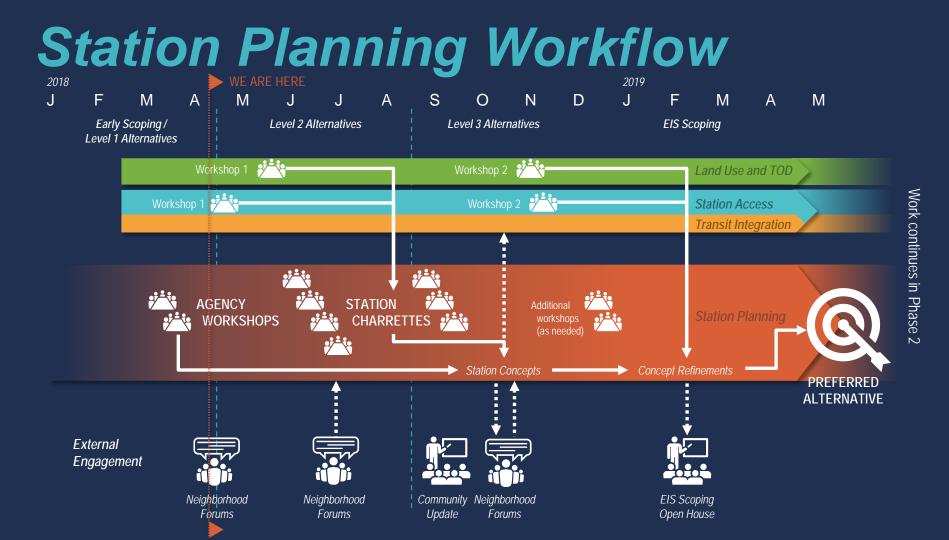


## Agency Workshops

- Collaborative design-focused sessions on early station alternatives
- Ballard Terminus (March 28) and West Seattle Stations (April 6)
- Central Segment workshops scheduled for mid-May
- Attendance from City of Seattle, King County Metro, Port of Seattle

### Workshop/Charrette Schedule





### soundtransit.org/wsblink >>



## SAG questions

ST3 Plan consistency
 Ord Dents of the elinest

3<sup>rd</sup> Party funding





### ST3 Plan consistency

- Identifies mode, corridor, number of stations, general station locations
- Informs cost, schedule, operating needs



### ST3 Plan consistency

- Identifies *mode*, corridor, number of stations, general station locations
- Informs cost, schedule, operating needs

### West Seattle/Duwamish summary

Alternatives with more	ST3 Representative Project	Baseline for comparison	
	Oregon Street/Alaska Junction	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>	
potential	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>	
	Pigeon Ridge/West Seattle Tunnel	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; may require 3<sup>rd</sup> Party funding</li> </ul>	
Alternatives with greater challenges	Yancy Street/West Seattle Tunnel	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>	
	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>	
	Tunnel under Duwamish	Impractical tunnel depth and length	
Not practical suggestions	West Seattle Bridge	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>	
	Gondola, rail/bus bridge	Mode not consistent with ST3 Plan	
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan	



### ST3 Plan consistency

- Identifies mode, *corridor*, number of stations, general station locations
- Informs cost, schedule, operating needs

### West Seattle/Duwamish summary

Alternatives with more	ST3 Representative Project	Baseline for comparison		
	Oregon Street/Alaska Junction	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>		
potential	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>		
	Pigeon Ridge/West Seattle Tunnel	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; may require 3<sup>rd</sup> Party funding</li> </ul>		
Alternatives with greater challenges	Yancy Street/West Seattle Tunnel	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>		
	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>		
	Tunnel under Duwamish	Impractical tunnel depth and length		
Not practical suggestions	West Seattle Bridge	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>		
	Gondola, rail/bus bridge	Mode not consistent with ST3 Plan		
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan		



### ST3 Plan consistency

- Identifies mode, corridor, *number of stations, general station locations*
- Informs cost, schedule, operating needs

### West Seattle/Duwamish summary

Alternatives with more potential	ST3 Representative Project	Baseline for comparison
	Oregon Street/Alaska Junction	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>
	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>
	Pigeon Ridge/West Seattle Tunnel	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; may require 3<sup>rd</sup> Party funding</li> </ul>
Alternatives with greater challenges	Yancy Street/West Seattle Tunnel	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel; may require 3<sup>rd</sup> Party funding</li> </ul>
	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>
	Tunnel under Duwamish	Impractical tunnel depth and length
Not practical suggestions	West Seattle Bridge	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>
	Gondola, rail/bus bridge	Mode not consistent with ST3 Plan
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan



### ST3 Plan consistency

 Identifies mode, corridor, number of stations, general station locations

# • Informs *cost*, schedule, operating needs

### West Seattle/Duwamish summary

Alternatives with more	ST3 Representative Project	Baseline for comparison	
	Oregon Street/Alaska Junction	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>	
potential	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>	
	Pigeon Ridge/West Seattle Tunnel	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; <i>may require 3<sup>rd</sup> Party funding</i></li> </ul>	
Alternatives with greater challenges	Yancy Street/West Seattle Tunnel	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel; <i>may require 3<sup>rd</sup> Party funding</i></li> </ul>	
	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>	
	Tunnel under Duwamish	Impractical tunnel depth and length	
Not practical suggestions	West Seattle Bridge	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>	
	Gondola, rail/bus bridge	Mode not consistent with ST3 Plan	
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan	

### West Seattle/Duwamish summary

_	ST3 Representative Project	Baseline for comparison
Alternatives with more potential	Funding identified?	<ul> <li>Avoids Fauntleroy and Alaska; better orientation south</li> <li>Affects Oregon St and 44<sup>th</sup> Ave</li> </ul>
potential	West Seattle Bridge/Fauntleroy	<ul> <li>Lessens effects to Junction and Delridge; better orientation south</li> <li>Creates isolated Delridge Station</li> </ul>
	Pigeon Ridge/West Seattle Tunnel	<ul> <li>Lessens effects to Port, Junction, Delridge; better orientation south</li> <li>Requires two tunnels; may require 3rd Party funding</li> </ul>
	Yancy Street/West Seattle	Lessens effects to Junction and Delridge; better orientation south
Alternatives with greater		<ul> <li>Consolidates stations; potentially not consistent with ST3 Plan</li> <li>Requires tunnel may require 3<sup>rd</sup> Party funding</li> </ul>
challenges	West Seattle Golf Course/Alaska Junction (Tunnel)	<ul> <li>Crosses golf course, Section 4(f)</li> <li>Lessens effects to Junction, Delridge</li> <li>Eliminates station; potentially not consistent with ST3 Plan</li> </ul>
	Tunnel under Duwamish	Impractical tunnel depth and length
Not practical suggestions	Funding not <sup>ge</sup>	<ul> <li>Existing structure not built to accommodate LRT</li> <li>Constructability issues</li> </ul>
	identified? bridge	Mode not consistent with ST3 Plan
	Extensions to Alki, Admiral, etc.	Not included in ST3 Plan or long range plan

Intentionally blank