West Seattle and Ballard Link Extensions
Stakeholder Advisory Group Meeting | April 17, 2018

Agenda

› Welcome & Introductions
› Previous Meeting Summary
› What We Heard – March
› Alternatives Development Process
› Level 1 Alternatives Evaluation Results
› Next Steps & Next Meeting
What we heard - March

Early Scoping Summary Report

- 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
External Engagement Report: March 2018

- 524 comments/questions
- 1 Tweet engaging more than 81,000 users
- 3 email updates engaging more than 3,380 subscribers
- 1 Facebook boosted post engaging more than 29,500 users
- 1 Stakeholder Advisory Group meeting
- 9 community briefings
- 1 online open house engaging more than 1,886 visitors

Neighborhood forums

**Spring Schedule**

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

Community engagement and collaboration
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

LEVEL 3
Alternatives development
Late-2018 / Early-2019
- Refine and screen alternatives
- Conduct Environmental Impact Statement (EIS) scoping

PREFERRED ALTERNATIVE*
Early-2019

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

Where we’re going

Getting to a Level 1 recommendation

- Today’s meeting, April 17th – Learn about the Level 1 alternatives and evaluation results
- Next meeting, April 24th – Collectively make recommendations that will be shared with the Elected Leadership Group and Sound Transit Board
Purpose and need

- Provide high quality rapid, reliable, and efficient peak and off-peak light rail transit service to communities in the project corridors defined in ST3.
- Improve regional mobility by increasing connectivity and capacity through downtown Seattle to meet projected transit demand.
- Connect regional growth centers as described in adopted regional and local land use, transportation, and economic development plans and Sound Transit's Regional Transit Long-Range Plan.
- Implement a system that is consistent with the ST3 Plan that established transit mode, corridor, and station locations and that is technically feasible and financially sustainable to build, operate, and maintain.
- Expand mobility for the corridor and region’s residents, which include transit dependent, low income, and minority populations.
- Encourage equitable and sustainable urban growth in station areas through support of transit-oriented development, station access, and modal integration in a manner that is consistent with local land use plans and policies.
- Preserve and promote a healthy environment and economy by minimizing adverse impacts on the natural, built and social environments through sustainable practices.
Evaluation criteria

- Reliable service
- Travel times
- Regional connectivity
- Transit capacity
- Projected transit demand
- Regional growth centers served
- ST Long-Range Plan consistency
- ST3 consistency
- Technical feasibility
- Financial sustainability
- Historically underserved populations
  - Station area land use plan consistency
  - Modal integration
  - Station area development opportunities
  - Environmental effects
  - Traffic operations
  - Economic effects (new)

Purpose and need

Provide high quality rapid, reliable and efficient peak and off-peak light rail transit service to communities in the project corridors defined in ST3

Level 1 criteria and measure

Reliable service
  - Potential service interruptions and recoverability

Travel times
  - Light rail travel times
Purpose and need

✓ Improve regional mobility by increasing connectivity and capacity through downtown Seattle to meet projected transit demand

Level 1 criteria and measure

Regional connectivity
• Network integration and operational flexibility to meet future demand

Projected transit demand
• Ridership potential

Transit capacity
• Passenger carrying capacity in downtown

Purpose and need

✓ Connect regional growth centers as described in adopted regional and local land use, transportation and economic development plans and Sound Transit’s Long-Range Plan

Level 1 criteria and measure

Regional centers served
• Station proximity to PSRC-designated regional centers

Sound Transit Long-Range Plan consistency
• Accommodates future light rail extensions beyond ST3
**Purpose and need**

Implement a system that is consistent with the ST3 Plan that established transit mode, corridor and station locations and that is technically feasible and financially sustainable to build, operate and maintain.

**Level 1 criteria and measures**

**ST3 consistency**
- Mode, route and general station locations per ST3
- Potential operating plan effects

**Technical feasibility**
- Engineering constraints
- Constructability issues
- Operational constraints

**Financial sustainability**
- Qualitative capital cost comparison

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**Purpose and need**

Expand mobility for the corridor and region’s residents, which include transit dependent, low income and minority populations.

**Level 1 criteria and measure**

**Historically underserved populations**
- Opportunities for historically underserved populations
**Purpose and need**

Encourage equitable and sustainable urban growth in station areas through support of transit-oriented development, station access and modal integration in a manner that is consistent with local land use plans and policies.

**Level 1 criteria and measures**

**Station area land use plan consistency**
- General station locations consistent with local land use plans
- Station proximity to Seattle-designated urban centers / villages

**Modal integration**
- Bus / rail and rail / rail integration
- Bicycle, pedestrian and persons with limited mobility connectivity

**Station area development opportunities**
- Development potential

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**Purpose and need**

Preserve and promote a healthy environment and economy by minimizing adverse impacts on the natural, built and social environments through sustainable practices.

**Level 1 criteria and measure**

**Environmental effects**
- Protected natural resources
- Protected built and social environment
- Burden on historically underserved populations

**Economic effects**
- Freight movement and access on land and water
- Business and commerce effects

**Traffic operations**
- Traffic circulation and access
Level 1 alternatives evaluation

ST3 Representative Project
Study segments
Key Level 1 findings – Sample alternative

ST3 Representative Project (Baseline)

Elliott/15th/16th/Fixed Bridge
West of BNSF/20th/17th/Tunnel

Evaluation Measures

Higher Performance
Comparable Performance
Lower Performance

Avoids Dravus interchange
Fixed bridge supports more reliable service
Sample segment summary

<table>
<thead>
<tr>
<th>Alternatives with more potential</th>
<th>ST3 Representative Project</th>
<th>Baseline for comparison</th>
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<tr>
<td>Elliott/15th/16th/Fixed Bridge</td>
<td>• Avoids 15th Ave/Dravus interchange</td>
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<td>• Supports more reliable service</td>
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<tr>
<td>Alternative</td>
<td>• Key findings</td>
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<tr>
<th>Alternatives with greater challenges</th>
<th>Alternative</th>
<th>• Key findings</th>
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<tr>
<th>Not practical suggestions</th>
<th>Alternative</th>
<th>• Key findings</th>
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</table>

- Map of alternative
- Evaluation measures
- Segment summary
- Small Group Discussion
Level 1 alternatives

- West Seattle/Duwamish
  - ST3 Representative Project
  - Pigeon Ridge/West Seattle Tunnel
  - West Seattle Bridge/Fauntleroy
  - Yancy Street/West Seattle Tunnel
  - Oregon Street/Alaska Junction
  - West Seattle Golf Course/Alaska Junction
West Seattle/Duwamish
Early scoping feedback

West Seattle/Duwamish
Level 1 alternatives
**West Seattle/Duwamish**

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

- Terminal station is constrained; difficult extension to south
- Difficult design and construction at Pigeon Point
- Design and construction constraints through Duwamish
- Good coverage of rider sheds
- Neighborhood impacts

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**West Seattle/Duwamish**

**ST3 Representative Project**

**Evaluation Measures**

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<tr>
<th>Project</th>
<th>Higher Performance</th>
<th>Comparable Performance</th>
<th>Lower Performance</th>
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<td>West Seattle Golf Course / Alaska Junction</td>
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**West Seattle/Duwamish**

Key Level 1 findings – *Pigeon Ridge/West Seattle Tunnel*

**Evaluation Measures**

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<th>Evaluation Measures</th>
<th>ST3 Representative Project (Baseline)</th>
<th>Pigeon Ridge/West Seattle Tunnel</th>
<th>West Seattle Bridge/Fauntleroy</th>
<th>Yancy Street/West Seattle</th>
<th>Pigeon Street/Alaska Junction</th>
<th>West Seattle Golf Course/Alaska Junction</th>
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<tr>
<td>Two tunnels; potential constructability and cost issues; fewer curves</td>
<td><img src="#" alt="Higher Performance" /></td>
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<td><img src="#" alt="Higher Performance" /></td>
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<tr>
<td>Good future extension to south</td>
<td><img src="#" alt="Comparable Performance" /></td>
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<tr>
<td>Duwamish crossing possible Superfund site, in-water work, golf course edge</td>
<td><img src="#" alt="Lower Performance" /></td>
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Improved transition to extend south in future

Avoids Delridge neighborhood but affects properties along Fauntleroy

Avoids sensitive natural areas

Isolated station; near Port property

Design and construction constraints through Port areas

West Seattle/Duwamish
Key Level 1 findings – West Seattle Bridge/Fauntleroy

Key Findings (Compared to ST3 Representative Project)

Avoids Delridge and Alaska Junction stations on periphery of land use centers

Good future extension to south

Avoids sensitive environmental areas in Pigeon Point and Longfellow Creek

Avoids Delridge neighborhood but affects properties along Fauntleroy

Avoids Pigeon Point

Avoids sensitive natural areas

Improved transition to extend south in future

West Seattle Bridge/Fauntleroy

Evaluation Measures

Higher Performance
Comparable Performance
Lower Performance

ST3 Representative Project (Baseline)

Pigeon Ridge / West Seattle Tunnel

West Seattle Bridge / Fauntleroy

Yancy Street / West Seattle Tunnel

Oregon Street / Alaska Junction

West Seattle Golf Course / Alaska Junction

DeLridge and Alaska Junction stations on periphery of land use centers

Avoids sensitive environmental areas in Pigeon Point and Longfellow Creek

Affect Port and business operations
West Seattle/Duwamish
Key Level 1 findings – Yancy Street/West Seattle Tunnel

- Consolidales stations: less pop/emp served
- Long tunnel: potential cost issues
- Fewer neighborhood impacts
- Doesn’t directly serve Avalon and Delridge land use centers
- Affects Port and business operations

Evaluation Measures

- Higher Performance
- Comparable Performance
- Lower Performance
West Seattle/Duwamish

Key Level 1 findings – Oregon Street/Alaska Junction

- Affects Oregon St and 44th Ave
- Avoids Pigeon Point
- Design and construction constraints through Port areas
- Avoids Fauntleroy and Alaska St
- Improved transition to extend south in future

Evaluation Measures

<table>
<thead>
<tr>
<th>Evaluation Measure</th>
<th>Oregon Street/Alaska Junction</th>
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<tbody>
<tr>
<td>Good transit integration at Alaska Junction Station</td>
<td>Generally similar to Representative Project</td>
</tr>
<tr>
<td>Affects Port and business operations, and also near California</td>
<td>Affects Oregon St and 44th Ave</td>
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</tbody>
</table>

West Seattle/Duwamish

ST3 Representative Project (Baseline)

- Pigeon Ridge / West Seattle Tunnel
- West Seattle Bridge / Fauntleroy
- Yancy / West Seattle Tunnel
- Oregon Street / Alaska Junction
- West Seattle Golf Course / Alaska Junction

Higher Performance | Comparable Performance | Lower Performance
West Seattle/Duwamish

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

- Eliminates station; less pop/emp served
- Short tunnel with station under Alaska St
- Fewer neighborhood impacts
- Affects Golf Course (4(f) resource); requires demonstrating no other prudent and feasible alternative

West Seattle Golf Course / Alaska Junction

Evaluation Measures

- Golf course 4(f) resource; potential habitat impacts; some fewer residential impacts
- Doesn’t serve Avalon; affects golf course
- Eliminates station; less pop/emp served
Section 4(f)

- Stipulates that United States Department of Transportation (USDOT) agencies, such as the Federal Transit Administration (FTA), cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless:
  - There is no feasible and prudent avoidance alternative to the use of land; and includes all possible planning to minimize harm to the property resulting from such use;
  OR
  - The Administration determines that the use of the property will have a de minimis impact.

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## West Seattle/Duwamish summary

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

#### Level 1 alternatives
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Level 1 alternatives

- ST3 Representative Project
- Massachusetts Tunnel Portal
- Surface E-3
SODO
Early scoping feedback

SODO
Level 1 alternatives
SODO
Key Level 1 findings – ST3 Representative Project

- Limited area for construction phasing
- Temporary impact to Ryerson Base during construction
- Modifications to WSDOT ramps and potential impacts to planned “S” development
- Temporary closure of Royal Brougham for cut-and-cover construction
- Ground improvements required for elevated guideway and elevated SODO Station
- Cut-and-cover construction potential impacts along 5th Avenue S

ST3 Representative Project

Evaluation Measures

<table>
<thead>
<tr>
<th>Evaluation Measure</th>
<th>ST3 Representative Project (Baseline)</th>
<th>Massachusetts Tunnel Portal</th>
<th>Surface E:3</th>
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<tbody>
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<td>Higher Performance</td>
<td>Comparable Performance</td>
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</table>
Key Level 1 findings – Massachusetts Tunnel Portal

- Avoids impact to Ryerson Base
- Avoids modifications to WSDOT ramps and potential impacts to “S” development
- Grade separation at Holgate
- Reduces cut-and-cover construction on 5th Ave in Chinatown/Int’l District
- More property required
- Longer tunnel; poor soils
- Reduced need for ground improvements for elevated guideway
- Reduces potential effects to freight, traffic, and business during construction
- Avoids potential effects to historic INS building; reduces cut-and-cover in Chinatown/Int’l District

ST3 Representative Project (Baseline)
**Key Level 1 findings – Surface E-3**

**SODO**

- Grade separation at Lander and Holgate
- Increased area available for construction; less service disruption
- Permanent impact to Ryerson Base
- Potential permanent closure of Royal Brougham
- At-grade SODO Station
- Stadium Station on both lines
- Avoids modifications to WSDOT ramps
- Reduced need for ground improvements for elevated guideway

**Surface E-3**

*Evaluation Measures*

- Improves light rail network reliability; two Stadium Stations provides greater regional connectivity
- Avoids modifications to WSDOT ramps; increased area available for construction; less service disruption
- Eliminates existing grade crossings at Lander and Holgate Streets

**Legend**

- Key Findings
- (Compared to ST3 Representative Project)
International District/Chinatown Station

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# SODO summary

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<th>Alternatives with more potential</th>
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<th>Not practical suggestions</th>
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<tbody>
<tr>
<td>Surface E-3</td>
<td>• Baseline for comparison</td>
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<tr>
<td></td>
<td>• Less service disruption during construction</td>
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<td></td>
<td>• Accommodates Stadium Station on both lines</td>
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<tr>
<td></td>
<td>• Eliminates existing grade crossings at Lander, Holgate; closes Royal Brougham</td>
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<td>Massachusetts Portal</td>
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<tr>
<td>Maintain buses on E-3</td>
<td>• Not practical due to ROW constraints</td>
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<tr>
<td>First Ave alignment</td>
<td>• Alignment and stations locations not consistent with ST3</td>
<td></td>
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<tr>
<td>Design for potential extension south to Georgetown</td>
<td>• Not included in ST3 or long range plan</td>
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Not practical suggestions:
- Maintain buses on E-3: Not practical due to ROW constraints
- 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

## Level 1 alternatives

Legend:
- ST3 representative project - Wrek route extension/South extension
- Massachusetts portal - Wrek route extension/Link extension
- Surface 35: Wrek route extension/suburban extension
- Existing grade lines

Key map:
- Needle point: Existing line
- Surface: Elevated structure
- Elevated structure: Elevated structure
Level 1 alternatives

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

Downtown Seattle
**Downtown**

Early scoping feedback

**Downtown**

Level 1 alternatives
Key Level 1 findings – ST3 Representative Project

Downtown

Evaluation Measures

- Higher Performance
- Comparable Performance
- Lower Performance

Tunnel portal in limited ROW

Underground sewer conflict on Republican Street

Tunnel construction through/under building tie-backs

ST3 Representative Project

Baseline

5th/Marion
6th/Mercer
6th/Boren/Roy
8th/6th/Republican
5th/Roy/Consolidated SLU Station

Myrtle Edwards Park
SEATTLE CENTER
Key Arena
CenturyLink Field
To Ballard
Lake Union
Denny
Lake Union
4th Ave
SR 99

INTERNATIONAL DISTRICT/CHINATOWN

LEGEND
- ST3 representative project - Gallard extension
- 5th/Marion
- 6th/Mercer
- 6th/Boren/Roy
- 8th/Republican
- 5th/Roy/Consolidated SLU station
- Tunnel portal in limited ROW
- Station under SR 99 off-ramp
- Approx. portal location
- Surface
- Tunnel
- Crossed
- Sewer tunnel
**Downtown**

Key Level 1 findings – 5th/Harrison

- **Key Findings** (Compared to ST3 Representative Project)
  - **Shorter alignment**
  - **Reduced underground sewer conflict**
  - **Decreased station area coverage; potentially move Denny Station south**
  - **Station construction under existing Westlake Station**

**Evaluation Measures**

- **Generally comparable to ST3; off-setting pros/cons**
- **Construction under existing Westlake Station more challenging**

<table>
<thead>
<tr>
<th>Evaluation Measures</th>
<th>5th/Harrison</th>
<th>ST3 Representative Project (Baseline)</th>
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<td>Higher Performance</td>
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Downtown

Key Level 1 findings – 5th/Mercer

Key Findings

Compared to ST3 Representative Project

- Longer alignment
- Tunnel portal near steep slope and in park property
- Larger underground sewer conflict on Mercer Street
- Potential effects to Mercer during construction
- Increased station area coverage

Evaluation Measures

<table>
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<th>ST3 Representative Project (Baseline)</th>
<th>5th/Morrison</th>
<th>5th/Mercer</th>
<th>6th/Boren/Roy</th>
<th>8th/Republic</th>
<th>8th/Consolidated SLU Station</th>
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Downtown

5th/Mercer

Larger underground sewer conflict on Mercer Street; construction under existing Westlake Station

Potential effects to Mercer during construction

Tunnel portal on steep slope, park property

Increased station area coverage

Longer alignment
Downtown
Key Level 1 findings – 6th/Boren/Roy

- Reduced underground sewer conflict
- Tunnel construction under/adjacent to I-5 walls; avoids tiebacks on 5th Ave
- Increased station area coverage
- Longer alignment

Evaluation Measures

- Key Findings
  (Compared to ST3 Representative Project)

- Tunnel portal near steep slope and in park property
- Reduced underground sewer conflict
- Increased station area coverage
- Longer alignment

- Seattle Center Station on edge of Uptown urban center; degraded ped/bike access
- Tunnel portal on steep slope, park property

Avoids underground sewer conflicts
Downtown

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

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**Location of Midtown Station not consistent with ST3 plan**

**Longer alignment, deeper station**

**Construction risk of tunneling under I-5 at two locations**

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<td>8th/6th/Republican</td>
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<td>8th/6th Republican</td>
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<td>1st/Key/Consolidated SLU Station</td>
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**Longer alignment, construction under I-5; deeper Midtown Station**

**Longer walk/bike distance to commercial core**
Downtown
Key Level 1 findings – 5th/Roy/Consolidated SLU Station

Tunnel portal near steep slope and in park property
Station construction under existing Westlake Station
Reduced underground sewer conflict
Number of stations not consistent with ST3 plan
Longer alignment

Downtown

5th/Roy/Consolidated SLU Station

Evaluation Measures

Consolidated station reduces constructability issues
Number of stations not consistent with ST3 plan
Seattle Center Station on edge of Uptown urban center; degraded ped/bike access
Tunnel portal on steep slope, park property
Reduced traffic impacts during construction
# Downtown summary

## Alternatives with more potential

<table>
<thead>
<tr>
<th>Alternative</th>
<th>ST3 Representative Project</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th/Harrison</td>
<td>Baseline for comparison</td>
<td>• Avoids utility conflicts on Republican and station under SR 99 off-ramp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decreased station coverage; potentially move Denny Station south</td>
</tr>
<tr>
<td>6th/Boren/Roy</td>
<td></td>
<td>• Avoids utility conflicts on Republican and station under SR 99 off-ramp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increases construction risk due to I-5 walls along 6th Ave; avoids</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tiebacks on 5th Ave</td>
</tr>
</tbody>
</table>

## Alternatives with greater challenges

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>5th/Mercer</td>
<td>• Avoids utility conflicts on Republican and station under SR 99 off-ramp</td>
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<tr>
<td></td>
<td>• Increases construction risk due to large sewer on Mercer</td>
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<tr>
<td>5th/Roy/Consolidated SLU Station</td>
<td>• Avoids utility conflicts on Republican and station under SR 99 off-ramp</td>
</tr>
<tr>
<td></td>
<td>• Consolidates stations; potentially not consistent with ST3</td>
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</tbody>
</table>

## Not practical suggestions

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Downtown Seattle Transit Tunnel (DSTT)</td>
<td>• Existing DSTT capacity constraints</td>
</tr>
<tr>
<td>Design for potential extensions to north and/or east</td>
<td>• Extensions to north and/or east not included in ST3 or long range plan</td>
</tr>
</tbody>
</table>

## Downtown

### Level 1 alternatives

[Diagram of Downtown Seattle Transit Network]
Level 1 alternatives

- ST3 Representative Project
- Elliott/15th/16th/Fixed Bridge
- West of BNSF/20th/17th/Fixed Bridge
- West of BNSF/20th/17th/Tunnel
- East of BNSF/14th/Movable Bridge
- Elliott/Armory Way/14th/Tunnel
- West of BNSF/20th/Tunnel

Intentionally blank
Interbay/Ballard
Early scoping feedback

Interbay/Ballard
Level 1 alternatives
### Key Level 1 findings – *ST3 Representative Project*

**Interbay/Ballard**

- **Affects traffic on Elliott and 15th**
- **Fully grade separated alignment**
- **Affects property in station area**
- **Proximity to existing bridge; constructability issues**
- **Affects Fishermen’s Terminal**
- **Water crossing permits required**
- **Affects service reliability due to movable bridge**

---

### ST3 Representative Project

#### Evaluation Measures

<table>
<thead>
<tr>
<th>Item</th>
<th>Higher Performance</th>
<th>Comparable Performance</th>
<th>Lower Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST3 Representative Project (Baseline)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Elliott/15th / 16th / Flood Bridge</td>
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<tr>
<td>West of BNSF / 20th / 17th / Flood Bridge</td>
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<tr>
<td>West of BNSF / 20th / 17th / Tunnel</td>
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<td></td>
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<tr>
<td>East of BNSF / 18th / Movable Bridge</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Elliott/Armory Way/16th/Tunnel</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>West of BNSF / 20th / Tunnel</td>
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</tbody>
</table>

**Legend**:
- ST3 Representative Project – baseline scenario
- Elliott/15th/16th/flood bridge
- West of BNSF/20th/17th/flood bridge
- West of BNSF/20th/17th/tunnel
- East of BNSF/18th/movable bridge
- Elliott/Armory Way/16th/tunnel
- Water crossing permits required
- Proximity to existing bridge; constructability issues
- Affects Fishermen’s Terminal
- Affects property in station area
- Affects traffic on Elliott and 15th
- Fully grade separated alignment
**Interbay/Ballard**

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

- **Fixed bridge supports more reliable service**
- **Avoids Dravus interchange**
- **Affects Fishermen’s Terminal**

**Evaluation Measures**

- Higher Performance
- Comparable Performance
- Lower Performance

(Compared to ST3 Representative Project)
Interbay/Ballard
Key Level 1 findings – *West of BNSF/20th/17th/Fixed Bridge*

**Fixed bridge supports more reliable service**

**Avoids Fishermen’s Terminal**

**Proximity to historic district**

**Construction and property displacement within Ballard core**

**Longer alignment**

**Avoids Elliott and 15th Aves**

**Fixed bridge potentially adds cost**

**Evaluation Measures**

- Higher Performance
- Comparable Performance
- Lower Performance

**Key Findings** (Compared to ST3 Representative Project)

- Higher Performance
- Comparable Performance
- Lower Performance

**Long bridge span over BNSF tracks; poor soils**
Interbay/Ballard
Key Level 1 findings – West of BNSF/20th/17th/Tunnel

Key Findings
(Compared to ST3 Representative Project)

- Longer alignment
- Avoids Elliott and 15th Aves
- Avoids Fishermen’s Terminal
- Tunnel supports more reliable service; avoids in-water construction

Evaluation Measures

- Tunnel supports more reliable service
- Closer to Ballard historic core
- Avoids Elliott/15th, Fishermen’s Terminal and Salmon Bay waterway
- Tunnel potentially adds cost
Interbay/Ballard
Key Level 1 findings – **East of BNSF/14th/Movable Bridge**

- Station near Terminal 91 but access constrained from other areas
- At-grade alignment
- Avoids Fishermen’s Terminal
- Water crossing permits required
- Station within BINMIC Industrial area
- Avoids Elliott and 15th Aves

**Evaluation Measures**

- Higher Performance
- Comparable Performance
- Lower Performance

- **ST3 Representative Project (Baseline)**
- **Elliott/15th/16th/Fixed Bridge**
- **West of BNSF / 20th / 17th / Tunnel**
- **East of BNSF/16th/Movable Bridge**
- **Elliott/Armory Way/14th/Tunnel**
- **West of BNSF / 20th / Tunnel**

- Station near Terminal 91 but access constrained from other areas
- Avoids Elliott and 15th Ave
Interbay/Ballard
Key Level 1 findings – *Elliott/Armory Way/14th/Tunnel*

- **Constrained construction areas**
- **Avoids Fishermen’s Terminal**
- **Tunnel supports more reliable service; avoids in-water construction**
- **Avoids Elliott and 15th Aves**
- **Avoids Dravus and Nickerson interchanges**

---

**Interbay/Ballard**

**Evaluation Measures**

- **Tunnel crossing supports more reliable service**
- **Avoids Elliott/15th, Fishermen’s Terminal and Salmon Bay waterway**
- **Tunnel potentially adds cost**
- **Stations within industrial areas**

---

**ST3 Representative Project**

- **Baseline**
- **Elliott/15th/16th/Fixed Bridge**
- **West of BNSF / 20th/17th/Fixed Bridge**
- **West of BNSF/14th/Movable Bridge**

**Elliott/Armory Way/14th/Tunnel**

- **Higher Performance**
- **Comparable Performance**
- **Lower Performance**
Interbay/Ballard
Key Level 1 findings – *West of BNSF/20th/Tunnel*

- Tunnel crossing supports more reliable service
- Longer alignment
- Avoids Elliott and 15th Aves
- Avoids Fishermen’s Terminal
- Avoids Elliott and Salmon Bay waterway
- Tunnel potentially adds cost
- Construction and displacement within Ballard core

*Evaluation Measures*

Tunnel crossing supports more reliable service; avoids in-water construction.
### Interbay/Ballard summary

<table>
<thead>
<tr>
<th>Alternatives with more potential</th>
<th>ST3 Representative Project</th>
<th>Baseline for comparison</th>
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</table>
| West of BNSF/20th/17th/Fixed Bridge | • Avoids Elliott Ave, 15th Ave and Fishermen’s Terminal  
• Supports more reliable service (no bridge openings) |
| East of BNSF/14th/Movable Bridge  | • Avoids Elliott Ave, 15th Ave and Fishermen’s Terminal  
• Locates station on 14th Ave within industrial area |

| Alternatives with greater challenges | West of BNSF/20th/Tunnel | • Avoids Elliott Ave, 15th Ave, Fishermen’s Terminal and Salmon Bay  
• Requires longer tunnel; may require 3rd Party funding  
• Requires construction and displacement within Ballard core |

<table>
<thead>
<tr>
<th>Not practical suggestions</th>
<th>Tunnel through Queen Anne/Interbay</th>
<th>• Depth and length impractical; would affect downtown tunnel depth</th>
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<tbody>
<tr>
<td></td>
<td>Extensions to 65th, 85th, Northgate</td>
<td>• Not included in ST3 plan</td>
</tr>
<tr>
<td></td>
<td>Multi-modal Salmon Bay bridge</td>
<td>• ST3 plan defined project as rail-only bridge</td>
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<tr>
<td></td>
<td>Eliminate or add stations</td>
<td>• Not consistent with ST3 plan</td>
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</tbody>
</table>

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### Interbay/Ballard

**Level 1 alternatives**

[Map of Interbay/Ballard alternatives]
### Next steps

**ST3 Representative Project**
- Elliott/15th/16th/Fixed Bridge
  - Avoids 15th Ave/Dravus interchange
  - Supports more reliable service

**Alternatives with more potential**
- Alternative
  - Key findings

**Alternatives with greater challenges**
- Alternative
  - Key findings
- Alternative
  - Key findings

**Not practical suggestions**
- Alternative
  - Key findings
- Alternative
  - Key findings

### Sample recommendation worksheet

<table>
<thead>
<tr>
<th>Alternatives with more potential</th>
<th>ST3 Representative Project</th>
<th>Advance?</th>
<th>Comments/Discussion</th>
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<tbody>
<tr>
<td>Elliott/15th/16th/Fixed Bridge</td>
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