Phases and Purpose of Risk Assessment

- Phases of Risk Assessment
  - Part I – Focused on Individual Projects (Week of February 1, Ongoing)
  - Part II – System Analysis (Date TBD)

- Purpose
  - Part I - Support Decision Making of ST3 Candidate Projects
    - Develop Shared Level of Project Scope Understanding
    - Identify Potential Project Risks
    - Improve Confidence of Cost Information
  - Part II - Support Decision Making of ST3 Plan
Approach to Part I – Individual Projects

• ST3 Risk Assessment Differs from Typical ST Project Risk Assessment
  – Very Early Planning
  – Much Less Known About Projects

• Project Scope Review Process
  – Project Summary Sheets
  – Conceptual Drawings
  – Right of Way Maps, Google Maps
  – Cost Estimates
• Review the scope of projects with multi-disciplinary teams (design, planning, operations, etc.)
• Identify uncertainties including:
  – Threats
  – Opportunities (possible savings)
• Review of quantities, unit prices, and allowances
### Project Scope Review: S-03-SegB

<table>
<thead>
<tr>
<th>Project Number</th>
<th>S-03-SegB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subarea</td>
<td>South King/Pierce</td>
</tr>
<tr>
<td>Primary Mode</td>
<td>Light Rail</td>
</tr>
<tr>
<td>Facility Type</td>
<td>Corridor</td>
</tr>
<tr>
<td>Length</td>
<td>4.0 miles</td>
</tr>
<tr>
<td>Version</td>
<td>ST Board Workshop</td>
</tr>
<tr>
<td>Date Last Modified</td>
<td>11-25-2015</td>
</tr>
</tbody>
</table>

### Short Project Description

This project would extend light rail from South Federal Way to Fife via I-5 with one elevated station.

*Note: The elements included in this representative project will be refined during future phases of project development and are subject to change.*
Project Scope Review: S-03-SegB
Project Scope Review: S-03-SegB
### Project Scope Review: S-03-SegB

<table>
<thead>
<tr>
<th>Cost (Millions 2014)</th>
<th>Cost</th>
<th>Cost with Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency Administration</td>
<td>$41.00</td>
<td>$43.87</td>
</tr>
<tr>
<td>Prel. Engineering &amp; Environmental Review**</td>
<td>$22.86</td>
<td>$24.46</td>
</tr>
<tr>
<td>Final Design &amp; Specifications</td>
<td>$45.33</td>
<td>$48.51</td>
</tr>
<tr>
<td>Property Acquisition &amp; Permits</td>
<td>$33.69</td>
<td>$36.04</td>
</tr>
<tr>
<td>Construction***</td>
<td>$462.41</td>
<td>$494.78</td>
</tr>
<tr>
<td>Construction Management</td>
<td>$40.80</td>
<td>$43.66</td>
</tr>
<tr>
<td>Third Parties**</td>
<td>$9.27</td>
<td>$9.92</td>
</tr>
<tr>
<td>Vehicles</td>
<td>$68.90</td>
<td>$73.72</td>
</tr>
<tr>
<td>Contingency</td>
<td>$45.33</td>
<td>$48.51</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$769.59</strong></td>
<td><strong>$823.46</strong></td>
</tr>
</tbody>
</table>
Project Risk Assessment Process

• Characterize Risks (or Opportunities)
  – Identify project uncertainties
  – Categorize risks and identify nature of risk

• Project Risk Categories
  – Design
  – Construction
  – Stakeholders / Public
  – Environmental / Permitting
  – Right-of-Way / Utilities
Project Risk Assessment Process, Cont.

• Establish Risk Scales and Analyze Risks
  – Identify likelihood of risk (probability – very low to very high)
  – Identify degree of risk exposure (expected impact – very low to very high)

• Summary of Potential Risk Exposure
  – Develop range of potential cost risk exposure
Prioritize Risks/Opportunities by Relative Severity (Hypothetical Example)

- 1. ROW acquisition
- 2. Local station location preference
- 3. Environmental Impacts
- 4. Impacts to local businesses
- 5. Tribal lands
- 6. Possible use of two way left turn lane
- 7. Additional ROW impacts
- 8. Local grant
- 9. Possible use of two way left turn lane
- 10. Additional ROW impacts
- 11. Local grant
Independent Project Cost Estimate Validation (Underway)

• Evaluate Assumptions
  – Quantities
  – Prices
  – Estimating Methodology
  – Review allowances, reserves

• Validate Conceptual Project Capital Costs
  – Identify “missing” items
  – Suggest revisions to existing items where appropriate
Next Steps

• Complete Part I of Risk Assessment
  – Complete Cost Estimate Validation
  – Prepare Summary of Potential Risk Exposure

• Conduct Part II of Risk Assessment
  – Additional projects (if needed)
  – System Plan Phasing
  – Agency Capacity
  – Industry Capacity
  – Program-Wide Risks
Thank you.