Agenda

1. Introductions
2. Project Update
3. Screening Process
4. Screening Results
5. Schedule Review
6. Closing Remarks
2. Project Update

Key Activities

- Board of County Commissioners
- Policy Group
- Senior Agency Staff
- Technical Community
- Public
- Stakeholders (Including the Stakeholder Representative Group (SRG))
2. Project Update

Stakeholder Outreach – Key Activities

- **Committee Meetings**
  - SRG #1 – April 17, 2017
  - SASG #2 – July 14, 2017

- **Briefings**
  - Kerns Neighborhood Assoc., March 15, 2017
  - MultCo Bike Ped Committee, April 12, 2017
  - Buckman Neighborhood Assoc., April 13, 2017
  - Port of Portland, July 6, 2017
  - USACE, July 11, 2017

- **Equity & Diversity Outreach**
  - Briefings vs. workshops
  - Bridgetown Night Strike, July 11, 2017
  - VOZ, July 21, 2017
2. Project Update

Technical Community – Key Activities

- Emergency Management Roundtable, June 14\textsuperscript{th}, 2017

- Seismic Resiliency Committee Meeting, June 20\textsuperscript{th}, 2017
  - Seismic Design Criteria
  - Technical Design Guidance
2. Project Update

Technical Community – Emergency Management Round Table

Key Finding #1

➢ Assumptions have been made about the availability of transportation routes after a major earthquake
2. Project Update

Technical Community – Emergency Management Round Table

Key Finding #2
- Agencies working towards the same goal
  - Transportation Recovery Plan (PBEM)
  - Debris Management Plan (Metro)
  - URM Seismic Retrofit Project (PBEM)

Key Finding #3
- Many opportunities to coordinate moving forward
2. Project Update

Technical Community – Seismic Resiliency Committee

Key Performance Criteria

➢ Examples:

• What does the earthquake look like?

• What heavy haul or specialty vehicles will need to use the bridge?

• When will the bridge be operable following an earthquake?

• What assumptions are being made about crossing design features (height, width, elevation, etc.)?
2. Project Update

Technical Community – Seismic Resiliency Committee

- Key Finding #1
  - What does the soil look like?
  - How bad is the liquefaction?
  - How much would it cost to fix it?
2. Project Update

Technical Community – Seismic Resiliency Committee

- Key Finding #2 – A Different Look
  - Enlarged members
    - Widened and thickened piers
    - Enlarged footings
    - Additional deep foundation members
2. Project Update

Key Activities

- Board of County Commissioners
- Project Team
- Public
- Stakeholders (Including the Stakeholder Representative Group (SRG))
- Technical Community
- Senior Agency Staff
- Policy Group
2. Project Update

Key Activities – Public Outreach

➢ Outreach
  • Website, social media
  • Videos
  • Survey
2. Project Update

Key Activities – Public Outreach

Website/Videos

Project Overview - Teaser

Lifeline
Earthquake
Emergency Response
Simulation
2. Project Update

Key Activities – Public Outreach

Survey
2. Project Update

Key Activities – Public Outreach

Survey

- What should Multnomah County consider as we begin to look at options for an earthquake ready river crossing?
- What opportunities do you see with this project?
- What questions do you have about this project?
- Is there anything else you want to tell us?
2. Project Update

Key Activities – Public Outreach

Survey

What should Multnomah County consider as we begin to look at options for an earthquake ready river crossing?
2. Project Update

Discussion Break
3. Screening Results

Screening Process

PASS/FAIL

SCORING

EVALUATION

NEPA DOCUMENTATION
3. Screening Results

Screening Process – Pass/Fail Criteria

PASS/FAIL

- Major Infrastructure Compatibility
- Seismic Resiliency
- Emergency Response
3. Screening Results

Pass/Fail Criteria – Major Infrastructure Compatibility

**FAIL** =
Causes prolonged, substantial interruption or degradation of the use or function of other major infrastructure
3. Screening Results

Pass/Fail Criteria – Seismic Resiliency

FAIL = The crossing option does not fully comply with the Seismic Design Criteria
3. Screening Results

Pass/Fail Criteria – Emergency Response

FAIL (any of the following) =

- The route from the lifeline to the crossing:
  - Has two or more blockage locations, including seismically vulnerable bridges
  - Is more than 2 miles of out of direction travel

- The crossing option has two or fewer travel lanes usable by emergency vehicles
3. Screening Results

Scoring Criteria

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor</td>
</tr>
<tr>
<td>3</td>
<td>Fair</td>
</tr>
<tr>
<td>5</td>
<td>Good</td>
</tr>
</tbody>
</table>

SCORING

- Post-Earthquake
  - Seismic Design
  - Emergency Function
  - Emergency Response
  - Emergency Plan Consistency

- Pre-Earthquake
  - Everyday Function
  - Ease of Maintenance
3. Screening Results

Scoring Criteria – Seismic Design

<table>
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<tr>
<td>5</td>
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</tr>
</tbody>
</table>
3. Screening Results

Scoring Criteria – Emergency Response

**Rating**

- 1 = Poor
- 3 = Fair
- 5 = Good

**PASS/FAIL SCORING**

- Earthquake
- Pre-Earthquake
- Emergency Function
- Emergency Plan Completeness
- Post-Earthquake

**Emergency Response**

- A. Access / Obstructions
- B. Distance / Travel Time
- C. Capacity / Congestion
3. Screening Results

Scoring Criteria – Emergency Function

**Rating**

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</tr>
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<td></td>
</tr>
</tbody>
</table>

A. ADA

B. Bike / Ped

C. Motor Vehicle

D. River Users
3. Screening Results

Scoring Criteria – Emergency Plan Consistency

Rating
1 = Poor
3 = Fair
5 = Good
3. Screening Results

Scoring Criteria – Everyday Function

**Rating**

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</tbody>
</table>
3. Screening Results

Scoring Criteria – Ease of Maintenance

Rating

1 = Poor
3 = Fair
5 = Good
## 3. Screening Results

### Sample Calculation

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Seismic</th>
<th>2a Access</th>
<th>2b Distance</th>
<th>2c Capacity/Congestion</th>
<th>3a ADA</th>
<th>3b Bike/Ped</th>
<th>3c Motor Vehicle</th>
<th>3d River Users</th>
<th>4 Plan Consistency</th>
<th>5a Preventative Maintenance</th>
<th>5b Routine Functionality</th>
<th>Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-kind, Low Movable Replacement weighted scores</td>
<td>3</td>
<td>60.0</td>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
<td>5</td>
<td>25.0</td>
<td>25.0</td>
<td>3</td>
<td>3</td>
<td>15.0</td>
<td>15.0</td>
</tr>
</tbody>
</table>

### Calculation Sheet Description

1. **Alternative ID**
2. **Screening Numerical Criteria Ratings**
   - 1 = Poor
   - 3 = Fair
   - 5 = Good
3. **Criteria Equally Weighted**
4. **Ratings Distributed by % of Total Available Score**
3. Screening Results

Alternative Groupings

<table>
<thead>
<tr>
<th>Alternative Groups</th>
<th>Scoring Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preserve</td>
<td>Fail</td>
</tr>
<tr>
<td>Seismic Retrofit</td>
<td>Fail</td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
</tr>
<tr>
<td>Hybrid</td>
<td></td>
</tr>
<tr>
<td>Enhance Another Bridge</td>
<td></td>
</tr>
</tbody>
</table>
# 3. Screening Results

## Alternative Groupings Results

<table>
<thead>
<tr>
<th>ALTERNATIVE GROUPS</th>
<th>SCORING RANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREERVE</strong></td>
<td>FAIL</td>
</tr>
<tr>
<td><strong>RETROFIT</strong></td>
<td>FAIL</td>
</tr>
<tr>
<td><strong>REPLACEMENT</strong></td>
<td></td>
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<td><strong>HYBRID</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ENHANCE ANOTHER BRIDGE</strong></td>
<td></td>
</tr>
</tbody>
</table>

- Rehab Only
- Rehab + Floating Bridge
- Rehab + Water Taxi/ferry
- Rehab + Tram
- Rehab + Phase 1 Retrofit
- Rehab + Phase 1 & 2 Retrofit
- Low, Existing Alignment
- Low, Offset North
- Low, Offset South
- Low, Offset N. Twin Multi-Modal
- Low, Offset N. Twin Mode-Separated
- Low, Offset S. Twin Multi-Modal
- Low, Offset S. Twin Mode-Separated
- Low, Stacked, Existing
- High, Existing Alignment
- High, Offset N. Alignment
- High, Offset S. Alignment
- High, Offset South
- High, Offset N. Twin Multi-Modal
- High, Offset N. Twin Mode-Separated
- High, Offset S. Twin Multi-Modal
- High, Offset S. Twin Mode-Separated
- Tunnel
- Replace River Spans 20-21, No Wide
- Replace River Spans 20-21, Widen
- Replace River Spans 20-22, No Wide
- Replace River Spans 20-22, Widen
- Replace East Spans, No Wide
- Replace East Spans, Widen
- Replace River + East, No Widen
- Replace River + East, Widen
- Fremont
- Broadway
- Steel Bridge
- Morrison
- Hawthorne
- Marquam
- Tilikum
- Ross Island
- Sellwood Bridge
3. Screening Results

Alternative Grouping – Preserve

- All ‘Preserve’ alternatives failed the Pass/Fail criteria
  - **Preservation (No Build):** Did not meet seismic standards
  - **Preservation (+ Misc.):** Did not satisfy immediate Emergency Service requirements
3. Screening Results

Alternative Grouping – Seismic Retrofit

- All ‘Retrofit’ alternatives failed the Pass/Fail criteria
  - Pure Seismic Retrofit: Could not be constructed to avoid long-term disruptions to I-5
3. Screening Results

Alternative Grouping – Replacement

- All ‘Replacement’ alternatives pass
  - **Low-elevation Movable**: Scored high for most criteria
  - **High-elevation Fixed**: Scored in middle due to more bike / pedestrian impacts vs low-elevation
  - **Tunnel**: Scored lowest due to impacts to bike / pedestrian, challenges for connectivity, and less ideal post-EQ recovery accessibility vs other alternatives
3. Screening Results

Alternative Grouping – Hybrid

- All ‘Hybrid’ alternatives pass despite reliance on aging materials
  - **Hybrid**: Reliance on many existing structural elements reduced the seismic score compared to replacement alternatives
3. Screening Results

Alternative Grouping – Enhance Another Bridge

- All alternatives except Morrison Bridge failed the Pass/Fail criteria
  - **All except Morrison**: Long detour routes, multiple obstructions, and/or narrow bridges resulted in **FAIL**
  - **Morrison Bridge**: Has the lowest score of all rated alternatives
Of the 5 groups of alternative types, 3 groups were eliminated through the screening process.
3. Screening Results

Key Findings and Recommendations

Results:
Of the 5 groups of alternative types, 3 groups were eliminated through the screening process.
4. Alternatives Evaluation
4. Alternatives Evaluation

Guiding Principles

1. Measurable at the level of design and information that will be available in this step
2. Help differentiate alternatives
3. Reflect input received to date
4. Narrow range of crossing options to be carried forward into an environmental impact statement
4. Alternatives Evaluation

Potential Criteria Topics

- Equity and Diversity
- Social Resources (neighborhoods, social services, etc.)
- Right-of-Way
- Traffic Congestion
- Recreation
- Land Use and Economic Development
- Historic/Cultural
- Natural Environment
- Bike/Ped/ADA Access
- Facility Use (HazMat, emergency equipment, vessels, heavy haul, etc.)
- Sustainability
- Construction
- Seismic Performance
- Permitting Requirements
- Others?
4. Alternatives Evaluation

Concepts Development – Example
5. Schedule Review

We are here
6. Closing Remarks

Thank You