**SWC Cost Elements**

*Note: Assume 3.5% escalation*

**Project Scope Target (YOE):** 2.375B

**2018 Estimate (YOE):** 2.733B

**Total Cost/Scope Gap:** 2.733B/(-1.358M)

To Reach Bridgeport:

- Solve Viaducts Funding: D
- Reduce High Value ROW Costs: E
- Reduce O&M Facility: C
- Reduce Bonita to Bridgeport Costs: H or I
- Continue to Balance Cost Pressures: A thru G

**Expected Scorecard**

- **Downtown Tie-in**
  - $10-40M
  - [+/$20M]

- **Marquam Hill Connector**
  - $12-60M

- **Consolidate Station(s)**
  - -$3.4-7.5M

- **Viaducts**
  - -$100-200M

- **High Value ROW**
  - -$15-50M

- **B2 - Short Span**
  - -$10-7.5M

- **O&M Facility**
  - -$15-50M

- **74th Alignment Options**
  - [N/A]

- **Upper Boones At-Grade**
  - -$53M

**Total:** -$93M

*Updated: 05.28.2019*
Process

**Summer**  
Next Full Project Estimate

**September**  
Project *Definition* for *Funding* that aligns with *budget*

**Ongoing**  
Refine estimates as design progresses
**MOS - Definition**

**Minimum Operable Segment**

- Required by FTA
- A segment of the LPA that is most cost effective with greatest benefit
- Able to function as a stand-alone project
MOS - Guidelines

- Fit within $2.375B target

- Be competitive for FTA funding
  - New Starts Capital Investment Grant
  - Discretionary funding – cities across the county compete
FTA funding criteria

- Local commitment
- Project justification
## MOS - Considerations

<table>
<thead>
<tr>
<th>Potential Evaluation Considerations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridership</td>
<td>Cost Effectiveness</td>
</tr>
<tr>
<td>Access to Jobs</td>
<td>Bus Connections</td>
</tr>
<tr>
<td>Access to Affordable Homes</td>
<td>Extendability</td>
</tr>
<tr>
<td>Economic Development</td>
<td>Park and Ride</td>
</tr>
<tr>
<td>Others?</td>
<td></td>
</tr>
</tbody>
</table>
## Process

<table>
<thead>
<tr>
<th>Month</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>Potential MOS options</td>
</tr>
<tr>
<td>September</td>
<td>Select MOS within FEIS</td>
</tr>
<tr>
<td>Ongoing</td>
<td>Design and environmental study for MOS and full-length project</td>
</tr>
</tbody>
</table>
Public Process Review

- Open house  
  April 10
- Online open house  
  April 15 - 29
- Committee on Accessible Transportation  
  April 11
- Portland Design Commission briefing  
  April 18
- Portland City Council work session  
  June 4

- Green Ribbon Committee
  - February 23, March 13, April 10, May 8, June 5
- Community Advisory Committee
  - May 2, June 6
- Steering Committee Decision  
  June 10
# Open House Feedback

## How well does the option meet the project goals?

<table>
<thead>
<tr>
<th>Option</th>
<th>Not at all</th>
<th>Not very well</th>
<th>Somewhat</th>
<th>Well</th>
<th>Very well</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclined Elevator</td>
<td>9%</td>
<td>14%</td>
<td>23%</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>Bridge + Elevator</td>
<td>12%</td>
<td>17%</td>
<td>23%</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Aerial Tram</td>
<td>12%</td>
<td>21%</td>
<td>24%</td>
<td>25%</td>
<td>17%</td>
</tr>
<tr>
<td>Tunnel + Elevator</td>
<td>21%</td>
<td>27%</td>
<td>22%</td>
<td>19%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Total Responses: 308
Preferred options for use of mode, safety, connections and accessibility:

- Bridge + Elevator
- Inclined Elevator
## Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Rough Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge + Elevator</td>
<td>$15 – 25 million</td>
</tr>
<tr>
<td>Inclined Elevator (Funicular)</td>
<td>$35 – 45 million</td>
</tr>
<tr>
<td>Aerial Tram</td>
<td>$50 – 85 million</td>
</tr>
<tr>
<td>Tunnel + Elevator</td>
<td>$55 – 125 million</td>
</tr>
</tbody>
</table>
Goals & Objectives

- **Access:** Develop **equitable, efficient and convenient** connections for **all users** to a number of destinations on Marquam Hill.

- **Safety:** Create a **safe and secure, 24/7** connection for all users.

- **Context:** Enhance and improve the **historic, scenic and recreational resources**; consider the unique character of the area in the design.

- **Environmental:** Protect and enhance **natural resources and habitat**.
Goals & Objectives

• Operational: Provide a long-term, sustainable connection for current and future users.

• Budget/Schedule: Be cost effective and timely within the SW Corridor Light Rail project.

• Experience: Create a connection that provides a high-quality user experience and inspires civic pride.
Destinations on Marquam Hill

21 different institutions on Marquam Hill
Upper Routes on Marquam Hill

Blue line: Common 9th floor connecting buildings on upper campus
Vertical Access Choices on Campus
## Capacity comparison

<table>
<thead>
<tr>
<th></th>
<th>Capacity Assumption</th>
<th>Total cabin round trip time (minutes)</th>
<th>People/hour</th>
<th>Max load: Number of cycles</th>
<th>Max load: Max wait time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclined Elevator to Casey Eye</td>
<td>2 40-person cabins</td>
<td>3.5</td>
<td>1360</td>
<td>4 elevator cycles</td>
<td>3.5 - 5.5</td>
</tr>
<tr>
<td>Inclined Elevator to Terwilliger</td>
<td>2 40-person cabins</td>
<td>2.3</td>
<td>2080</td>
<td>4 elevator cycles</td>
<td>2.3 - 3.5</td>
</tr>
<tr>
<td>Bridge + Elevator to Terwilliger</td>
<td>2 80-person cabins</td>
<td>1.5</td>
<td>3200</td>
<td>2 tram cycles</td>
<td>1.5 - 2.3</td>
</tr>
<tr>
<td>Aerial Tram to Campus/Sam Jackson</td>
<td>2 40-person cabins</td>
<td>6</td>
<td>1600</td>
<td>4 elevator cycles</td>
<td>3</td>
</tr>
<tr>
<td>Tunnel to Campus/Sam Jackson</td>
<td>2 40-person cabins</td>
<td>2.9</td>
<td>1600</td>
<td>4 elevator cycles</td>
<td>2.9 - 4.3</td>
</tr>
</tbody>
</table>
Green Ribbon Committee

• Do not pursue aerial tram & tunnel

• Preference for inclined elevator
  • Current technology seems workable.
  • Poses least visual & environmental impact.
  • Safe, reliable & convenient.
  • Best option to encourage ridership.
  • Serves riders well in all weather conditions.
Further Considerations

Inclined Elevator:

• Investigate landing and alignment alternatives to assess impact & costs
• Explore public private partnership opportunities to address additional cost

General

• Explore opportunities for placemaking
• Integrate elements to enhance historic Parkway
Marquam Hill Connector
Community Advisory Committee
Station Access/ Park & Rides
June 6, 2019
Overview

- Connected Transportation
- Station Access
- Revisit Park & Rides
- Online Outreach
  - Park & Ride Scenarios
- Next Steps
Connected Transportation Choices

- Light Rail
- Bus
- Westside Express Service
- Park & Ride

Existing bus routes in & near Southwest Corridor

Image Source: Bruce Forster

Image Source: Mayer/Reed
Connected Transportation Choices

- Multi-use Trails for Cycling & Walking
- Bike Facilities
Connected Transportation Choices

- Electric bikes, scooters & shuttles are being considered for connections to stations.

- Phone apps will make trip planning & fare payments simple & easy to use.
Station Access

What next?

Source: Fehr & Peers
Station Access

What strategies are other cities taking?

Seattle, WA

Denver, CO

Fort Collins, CO

Los Angeles, CA
Station Access

Conceptual Design Report (CDR)

- Patron Experience
- Climate Change
- Resilience
- Environment
- Community
- Mobility

Station Area Planning
Station Access

Mode of Access

- Hall (Downtown Tigard): 28% WALK, 61% BUS, 11% CAR
  - Direct access to major arterials
  - Access to frequent bus service/transfer

- Hamilton:
  - 56% WALK, 35% BUS, 9% CAR
  - Access to frequent bus service/transfer

- Custer:
  - 61% WALK, 30% BUS, 9% CAR
  - Direct access to major arterials

- 19th:
  - 70% WALK, 29% BUS, 9% CAR

- 30th:
  - 95% WALK, 5% CAR

- Barbur Transit Center:
  - 49% WALK, 35% BUS, 16% CAR
  - Access to frequent bus service/transfer

- 53rd:
  - 46% WALK, 29% BUS, 25% CAR

- 68th:
  - 69% WALK, 11% BUS, 20% CAR

- Elmhurst:
  - 41% WALK, 0% BUS, 59% CAR

- Bonita:
  - 89% WALK, 10% BUS, 1% CAR

- Upper Boones Ferry:
  - 94% WALK, 6% BUS, 0% CAR

- Bridgeport:
  - 32% WALK, 36% BUS, 32% CAR

- SW Corridor

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Station Access

First Mile  Metro Provided  Last Mile

Trip
Station Access

Access Sheds

Image Source: LA Metro, First/Last Mile Strategic Plan
Station Access

What is a Shared Mobility Hub?
Park & Rides

- Station access; bring riders from low density areas with limited mode options to high capacity stations
- Typically adjacent to arterials
- Surface lot or structure

Orange Line: SE Tacoma Park & Ride

Blue Line: Sunset Park & Ride
Park & Rides

Goals & Objectives

Access
Budget
Development and Land Use
Environment
Demand
Park & Rides

Goals & Objectives

- Equitable, Efficient, Convenient
- Complement other modes and transit (bus)
- Balance with other project cost pressures
- Support Transit Oriented Development (TOD)
- Sensitive to zoning, community visions, etc.
- Minimize visual impacts, traffic mitigations
- Greenhouse Gas Reduction Goals
- Respond to ridership needs
Park & Ride Criteria

Viable Park & Ride Locations

✓ Outside of Central City
✓ Land Availability
✓ Direct Access to Major Arterials
✓ Lack Access to Frequent Bus Service/Transfer Opportunities
Park & Ride Scenarios

Scenario A
Park & Rides Spread Among Stations

Scenario B
Large Regional Structures only at Major Arterials

Scenario C
Maintain Existing Park & Rides (No New Facilities)

LEGEND

<table>
<thead>
<tr>
<th>Symbol/ Name</th>
<th>Park &amp; Ride Spaces (Existing &amp; Proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>L</td>
<td>1-200</td>
</tr>
<tr>
<td>M</td>
<td>201-400</td>
</tr>
<tr>
<td>L</td>
<td>401-950</td>
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<tr>
<td>L</td>
<td>401-950</td>
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</tbody>
</table>
Online Engagement

Content

• Station Access Overview
• Lessons Learned
• Project Considerations
• Station Considerations
• Park & Ride Scenarios
• Feedback & Comments

June 10 - 28th
Available in English & Spanish
Help us spread the word!
Next Steps

- **July**
  - Station Access/ Park & Ride (Update)
  - Conceptual Design Report (Intro)
  - MOS (Update)

- **August**
  - No Meetings

- **September**
  - Park & Ride (Recommendation/ Decision)
  - MOS (Recommendation/Decision)

- **Ongoing**
  - Conceptual Design Report / Station Access
Questions and Comments

Website: www.trimet.org/swcorridor
Email: swcorridor@trimet.org
Phone: 503.962.2150