SOUTHWEST CORRIDOR
LIGHT RAIL PROJECT

Station Access/ Park & Rides
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

Image Source: Bruce Forster
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.
Park & Ride Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Description</th>
<th>Cost</th>
<th>Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Park &amp; Rides Spread Among Stations</td>
<td>$48.3 million</td>
<td>1,763</td>
</tr>
<tr>
<td>B</td>
<td>Large Regional Structures only at Major Arterials</td>
<td>$83.3 million</td>
<td>1,713</td>
</tr>
<tr>
<td>C</td>
<td>Maintain Existing Park &amp; Rides (No New Facilities)</td>
<td>$0</td>
<td>793</td>
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</table>
Considerations
STATION ACCESS AND PARK & RIDE ONLINE OPEN HOUSE

• June 10 to June 28, 2019
• Version in English and Spanish
• Promoted through email, social media, signage at P&R
• 569 total responses
Respondents

• Access transit by*:
  • 36% drive
  • 71% bike/walk

5% of TriMet rides originate from Park & Rides

*Is more than 100% because respondents could provide multiple answers.
Key Survey Takeaways

- Priorities for station areas is strongly correlated with how a person accesses transit
- Overall preference for Scenario A - Park & Rides spread among stations
- Those who bike and walk prefer less parking
- Most respondents want better bike, walk, and bus access
Scenario Preferences

How well does each scenario address the considerations of access, budget, development, environment, and demand?

Rate the scenario from 1-5 stars with 5 being best.

⭐⭐⭐⭐⭐
Scenario Preferences

All Respondents

569 responses

4 stars 2 stars
5 stars 1 stars
3-star ratings excluded

Scenario

A
Dispersed

B
Concentrated

C
Existing

GREAT PLACES
Corridor
Scenario Preferences

202 responses

4 stars 2 stars
5 stars 1 stars
3-star ratings excluded

Scenario
A Dispersed
B Concentrated
C Existing

32% 16%
33% 20%
17% 45%

64% 41%
67%
Scenario Preferences

311 responses

4 stars 2 stars
5 stars 1 stars
3-star ratings excluded

Scenario

<table>
<thead>
<tr>
<th>Scenario</th>
<th>A Dispersed</th>
<th>B Concentrated</th>
<th>C Existing</th>
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<tbody>
<tr>
<td>Percent</td>
<td>39%</td>
<td>45%</td>
<td>38%</td>
</tr>
<tr>
<td>5 stars</td>
<td>20%</td>
<td>15%</td>
<td>13%</td>
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<tr>
<td>4 stars</td>
<td>19%</td>
<td>29%</td>
<td>25%</td>
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<tr>
<td>2 stars</td>
<td>13%</td>
<td>15%</td>
<td>24%</td>
</tr>
<tr>
<td>1 stars</td>
<td>17%</td>
<td>30%</td>
<td>19%</td>
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</table>
Scenario Preferences

95 responses

4 stars 2 stars

5 stars 1 stars

3-star ratings excluded

Scenario

<table>
<thead>
<tr>
<th>Scenario</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>Dispersed</td>
<td>17%</td>
<td>23%</td>
<td>43%</td>
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<tr>
<td>Concentrated</td>
<td>64%</td>
<td>67%</td>
<td>54%</td>
</tr>
<tr>
<td>Existing</td>
<td>8%</td>
<td>11%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>9%</td>
<td>13%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

5 stars: 64%, 67%, 54%
4 stars: 18%, 15%, 11%
3 stars: 8%, 13%, 11%
2 stars: 9%, 10%, 10%
1 stars: 8%, 10%, 10%

95 responses

3-star ratings excluded
Scenario Preferences

SW Corridor Residents

276 responses

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Rating 1</th>
<th>Rating 2</th>
<th>Rating 3</th>
<th>Rating 4</th>
<th>Rating 5</th>
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</thead>
<tbody>
<tr>
<td>A Dispersed</td>
<td>26%</td>
<td>18%</td>
<td>10%</td>
<td>27%</td>
<td>53%</td>
</tr>
<tr>
<td>B Concentrated</td>
<td>17%</td>
<td>24%</td>
<td>20%</td>
<td>44%</td>
<td>33%</td>
</tr>
<tr>
<td>C Existing</td>
<td>15%</td>
<td>30%</td>
<td>27%</td>
<td>25%</td>
<td>57%</td>
</tr>
</tbody>
</table>

3-star ratings excluded

4 stars 2 stars
5 stars 1 stars

276 responses
Scenario Preferences

Top Rated Scenario
- Scenario A
- Scenario C

Map showing different areas with ratings:
- East Metro: 42
- NW Portland: 10
- Inner NE: 12
- Inner SE: 33
- SW Portland: 191
- Tigard: 85
- Lake Oswego: 25
- SE Metro: 15
- SW Metro: 40
- East County: 16
## Considerations (Overall Rankings)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Consideration</th>
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<tbody>
<tr>
<td>1</td>
<td><strong>Access</strong></td>
</tr>
<tr>
<td>2</td>
<td><strong>Environment</strong></td>
</tr>
<tr>
<td>3</td>
<td>Demand</td>
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<tr>
<td>4</td>
<td>Development</td>
</tr>
<tr>
<td>5</td>
<td>Budget</td>
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</tbody>
</table>
Considerations (Top Two)

- Access
- Demand
- Environment
- Development
- Access
- Environment
Considerations (Top Two)

Residents

SW Portland
- Access
- Environment

Tigard & Tualatin
- Access
- Demand
# Values (Overall Rankings)

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<thead>
<tr>
<th>Rank</th>
<th>Value</th>
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<tr>
<td>1</td>
<td>Bus Connections</td>
</tr>
<tr>
<td>2</td>
<td>Bike/Walk Access</td>
</tr>
<tr>
<td>3</td>
<td>Automobile Parking</td>
</tr>
<tr>
<td>4</td>
<td>Mobility Hub</td>
</tr>
<tr>
<td>5</td>
<td>Affordable Housing</td>
</tr>
<tr>
<td>6</td>
<td>Housing and Shops</td>
</tr>
<tr>
<td>7</td>
<td>Green Space and Nature</td>
</tr>
<tr>
<td>8</td>
<td>Public Gathering Space</td>
</tr>
</tbody>
</table>
Values (Top Two)

- Automobile Parking
- Bike/Walk Access
- Bus Connections
- Bike/Walk Access
- Bus Connections
- Bike/Walk Access
- Bus Connections
Values (Top Two)

SW Portland
Bike/Walk Access
Bus Connections

Tigard & Tualatin
Bus Connections
Automobile Parking
Fee for Parking?

- Yes: 61%, 39%
- No: 34%, 66%

Yes No
Fee for Parking?

46% Yes, 53% No

62% Yes, 38% No

SW Portland           Tigard & Tualatin
Next Steps

• Define project scope          October 2019

• Conceptual Design Report (CDR)  Early 2020

• Final Environmental Impact Statement (FEIS)  Early 2020
Conceptual Design Report (CDR)
Introduction
Overview

Reference:
Portland-Milwaukie Light Rail Project
Purpose

✓ Communication Tool for team, project partners and the public; defines project vision, principles, goals and measures;

✓ Documents project opportunities and issues, what was evaluated, what is recommended via the public process;

✓ High level concepts, used to help evolve design for project development;

✓ Documents shared investments; and

✓ Builds public support for the project.
Timeline

- Public Draft – December
- Engagement – early 2020
- Final CDR – mid-2020
1 EXECUTIVE SUMMARY
   1.1 Project Purpose and Need
   1.2 Project Principles and Goals
   1.3 Project Definition
   1.4 Project Summary: Issues and Opportunities
   1.5 Project Budget and Schedule
   1.6 Next Steps

2 INTRODUCTION
   2.1 Purpose of Conceptual Design Report
   2.2 Document Mapping
   2.3 Document Organization

3 PROJECT PROCESS
   3.1 Public Involvement Process
   3.2 Project Oversight

4 PROJECT DESIGN GOALS AND FEATURES
   4.1 Project Goals and Objectives
   4.2 Project Requirements
   4.3 Design Extents
   4.4 Station Characteristics
   4.5 Elements of Continuity
   4.6 Elements of Distinction

5 DESIGN CONCEPTS: SEGMENT A
   5.1 Segment A Overview
   5.2 South Downtown Land Use District
   5.3 Lair Hill Land Use District
   5.4 Woods Land Use District

6 DESIGN CONCEPTS: SEGMENT B
   6.1 Segment B Overview
   6.2 Historic Barbur Land Use District
   6.3 West Portland Town Center Land Use District
   6.4 Far Southwest Land Use District

7 DESIGN CONCEPTS: SEGMENT C
   7.1 Segment C Overview
   7.2 Tigard Triangle Land Use District
   7.3 Downtown Tigard Land Use District
   7.4 Tigard Employment Corridor Land Use District
   7.5 Bridgeport Village Land Use District
Framing the Project
Principles, Goals, Objectives
Terminology

1. **Vision**: An aspirational description of what the Project would like to accomplish, intended to serve as a clear guide for choosing current and future courses of action

2. **Principles**: Overarching **values** used to frame Goals and Objectives

3. **Goals**: Desired outcomes that support the Vision and Principles

4. **Objectives**: Strategies or implementation steps (actions) required to achieve stated goals
   - SMART (Specific, Measurable, Achievable, Realistic, and Time-bound)

5. **Requirements**: Measurable project requirements based on technical, safety, and funding requirements
Maintain and Create Equitable Places: Build partnerships to support vibrant and unique places for diverse people living in, and moving to, the Corridor.

- **Goal 1:** Maintain and strengthen existing community and cultural assets.
  - Seek community input to identify essential assets within the corridor to avoid.
  - Design transportation facilities with efficient footprint to avoid or minimize impacts.
  - Encourage transit access to community features and assets.
  - Encourage the development of assets near transit centers.

- **Goal 2:** Promote equitable access to community resources and transit benefits.

- **Goal 3:** Support creation of welcoming and intuitive spaces for users of all abilities to support the well-being of individuals and the larger social fabric.

- **Goal 4:** Inspire equitable economic development.
DRAFT- Project Principles

MOBILITY
EQUITABLE COMMUNITIES
ENVIRONMENT
RESILIENCE
DRAFT- Project Principles

MOBILITY
MOVE AND CONNECT PEOPLE: Move people between destinations quickly, conveniently, and safely.

GOALS
• Goal 1: Design and implement a safe, dependable transit project that is competitive for Federal funds.
• Goal 2: Provide riders with an attractive and desirable transit experience.
• Goal 3: Design for adaptability to future modes and technology.
• Goal 4: Support completion of a multi-modal transportation network.
DRAFT - Project Principles

EQUITABLE COMMUNITIES

Maintain and Create Equitable Places: Build partnerships to support vibrant and unique places for diverse people living in, and moving to, the Corridor.

GOALS

- **Goal 1:** Maintain and strengthen existing community and cultural assets.
- **Goal 2:** Promote equitable access to community resources and transit benefits.
- **Goal 3:** Support creation of welcoming and intuitive spaces for users of all abilities to support the well-being of individuals and the larger social fabric.
- **Goal 4:** Inspire equitable economic development.
DRAFT - Project Principles

ENVIRONMENT

ENVIRONMENTAL PROTECTION, RESTORATION, AND CONNECTION:
Preserve, restore, and create natural resources to increase ecosystem benefits and habitat.

GOALS

• **Goal 1:** Preserve and support wildlife habitat and connectivity within the regional ecosystem.

• **Goal 2:** Design a Project that is ecologically responsive and optimized to support the natural environment.

• **Goal 3:** Provide and maintain access to nature, recreation, and green spaces.
RESILIENCE

WALK, BIKE AND TRANSIT IS THE PREFERRED CHOICE: Maximize the community’s physical and social resilience while reducing carbon emissions.

GOALS

• **Goal 1:** Promote community sustainability by incorporating flexibility, adaptability, affordability, and diversity into the Project to withstand the test of time.

• **Goal 2:** Assist communities with the transition to a low-carbon future.
CDR Document: Overview
Scale & Content

Project-wide Study Areas

Segments
• Project area defined in DEIS
• Segments based on historic land use and transportation context, LRT configuration, and local jurisdiction

Land Use Districts
• Districts within each segment with regional and local plans and existing qualities that contribute to their unique character
• Existing land use, mobility, and environmental patterns and assets
Organization

Segment

Land Use District A
- Station
- Corridors
- Focus Areas

Land Use District B
- Station
- Corridors
- Focus Areas

Land Use District C
- Station
- Corridors
- Focus Areas
Segment B

- Historic Barbur
- West Portland Town Center
- Far Southwest

Corridor
- Station
- Focus Area

PCC

SW Corridor

Great Places
Station

Station Community
- 1/2 mile around each station
- Focus on issues and opportunities shared through land use district

Station Core
- 1/4 mile around each station
- Basic station elements (platform, parking, access) included
- Focus on issues and opportunities unique to station
Corridors

- Areas between stations following the LRT alignment
- Varies between on-street ROW vs. off-street vs. elevated structure
- Landscape, stormwater, and utilities, etc.
Focus Areas

Geography-Based Focus Areas
• Specific areas along the alignment that are not stations
• Examples include street design, creeks, and overcrossings

Topic-Based Focus Areas
• Project programs and elements along the corridor
• Examples include micro-mobility, retaining walls, pedestrian crossings, raised protected bike lanes (RPBLs), etc.
Next Steps

- **CAC Homework Assignment:**
  - What did we miss?
  - Please send homework to swcorridor@trimet.org by Friday July 26

- Public Draft – December
- Engagement – early 2020
- Final CDR – mid-2020
SOUTHWEST CORRIDOR
LIGHT RAIL PROJECT

Project Cost Update
July 18, 2019
Context

June meeting
• Cost gap based on late 2018 estimate
• MOS required for FEIS

Today
• Updated cost estimate with larger gap
• Process to define competitive project to Bridgeport (and MOS) by October
Paradigm shift needed

2019 cost estimate
  • Larger gap between scope and target

Funding constraints
  • Local sources
  • Criteria for federal dollars
Cost estimates (billions)

Scope target
$2.375 b

Finance costs

Gap
$462m

Scope

DEIS Scenarios (2017)
Initial Route Proposal (Spring 2018)
LPA with modifications (Late 2018)
Pre-FEIS (Mid-2019)
Cost elements

Scope

• Design, construction, acquisition, relocation, mitigation, vehicles

Escalation: 3.5%

Contingency: 25% overall at entry to engineering phase (required by FTA)

Financing

• Cost of borrowing before funds arrive
Estimate accuracy

TriMet estimators and consultant expertise

- Industry best practices
- Two independent estimates are within 2% of each other
- Risk assessment: FTA-required analysis of ability to deliver project; contingency
- Market analysis: independent review of materials, contractors, escalation
What Changed? (Late 2018)

- Estimating changes
  - Escalation: 2.75% → 3.5%

- Scope
  - Added viaducts
  - Grade separated Upper Boones Ferry Road
**SWC Cost Elements**

*Note: Assume 3.5% escalation*

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost Range</th>
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<tbody>
<tr>
<td>Project Scope Target (YOE)</td>
<td>$2.375B</td>
</tr>
<tr>
<td>2018 Estimate (YOE)</td>
<td>$2.733B</td>
</tr>
</tbody>
</table>

**Total Cost/Scope Gap:** $2.733B (-$358M)

- **To Reach Bridgeport:** $2.733B (-$358M)
  - Solve Viaducts Funding:
  - Reduce High Value ROW Costs:
  - Reduce O&M Facility:
  - Reduce Bonita to Bridgeport Costs:
  - Continue to Balance Cost Pressures:

**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
  - [- $30M]

- **B2 - Short Span**
  - $0-7.5M
  - [- $10M]

- **O&M Facility**
  - $15-50M
  - [- $25M]

- **74th Alignment Options**
  - $0-75M
  - [N/A]

- **Upper Bonita At-Grade**
  - $55M
  - [- $53M]

**Total:** [- $98M]

*Updated: 05.28.2019*
What Changed? (Mid-2019)

- Increased costs
  - Stormwater, utilities
  - Property acquisition; relocations
  - Downtown tie-in
- Reduced Costs
  - Light Rail Vehicles
  - Shorter structure over I-5 at BTC
  - Upper Boones at-grade refined
Potential solutions for $462 m gap

• Increase funding

• Reduce scope
## Funding assumptions

<table>
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<tr>
<th>Partner</th>
<th>Request ($m)</th>
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<tbody>
<tr>
<td>FTA</td>
<td>1,250</td>
</tr>
<tr>
<td>Metro / voters</td>
<td>850</td>
</tr>
<tr>
<td>State of Oregon</td>
<td>150</td>
</tr>
<tr>
<td>TriMet</td>
<td>75</td>
</tr>
<tr>
<td>City of Portland</td>
<td>75</td>
</tr>
<tr>
<td>Washington County</td>
<td>75</td>
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<tr>
<td>Regional Flexible funds</td>
<td>50</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>2,525</strong></td>
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<tr>
<td>(Interim finance)</td>
<td>(150)</td>
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<tr>
<td><strong>YOE Scope Target</strong></td>
<td><strong>2,375</strong></td>
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Competitiveness for federal funding

- Competing projects
- Criteria
- Ratings
## Current FTA projects

<table>
<thead>
<tr>
<th>Current LRT Project</th>
<th>Total cost (b)</th>
<th>FTA share (b)</th>
<th>FTA percent</th>
<th>Overall rating</th>
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</thead>
<tbody>
<tr>
<td>LA regional connector</td>
<td>$1.4</td>
<td>$0.7</td>
<td>48%</td>
<td>M-H</td>
</tr>
<tr>
<td>San Diego Mid-Coast Corridor</td>
<td>$2.2</td>
<td>$1.0</td>
<td>48%</td>
<td>M-H</td>
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<tr>
<td>Boston Green Line Extension</td>
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<td>43%</td>
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<td>37%</td>
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<td>50%</td>
<td>M-H</td>
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<td>Minneapolis Blue Line (Eng)</td>
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<td>$0.8</td>
<td>49%</td>
<td>M-H</td>
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<tr>
<td>Minneapolis Southwest (Eng)</td>
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<td>50%</td>
<td>M-H</td>
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<td>M</td>
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<td>$3.1</td>
<td>$1.2</td>
<td>38%</td>
<td>M-H</td>
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FTA funding criteria

Rating target: Medium-High
Project justification

✓ Mobility improvements
✓ Environmental benefits
✓ Congestion relief
❑ Cost effectiveness
  \[(\text{annualized capital cost} + \text{operating cost}) / \text{ridership}\]
✓ Economic development
❑ Land use
Local financial commitment

✓ Current financial condition of agency

☒ Commitment of capital and operating funds

  One level higher rating if local partners provide significant additional funds

✓ Reliability/capacity of capital and operating funds
Conclusions

• The project scope must be reduced to maintain cost effectiveness

• Additional local funds could help the project be competitive for federal funds
Revisit fundamental assumptions to address $462 m gap

Explore scope reductions over $100 m

- Narrow Barbur
- Adjacent to Barbur
- Avoid viaduct structures
Additional local funding?

- Add Jurisdictional Transfer $65m
  - Increases revenue to $2.44b
  - Reduces gap to $397m

- Additional funds from local partners
## Next steps

<table>
<thead>
<tr>
<th>Summer</th>
<th>Staff develop feasible options</th>
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<tr>
<td>September</td>
<td>Review feasible options (full-length and MOS)</td>
</tr>
<tr>
<td>October</td>
<td>Select options (full-length and MOS) for FEIS, local funding commitments, continuing design</td>
</tr>
</tbody>
</table>
Questions and Comments

Website: www.trimet.org/swcorridor

Email: swcorrdior@trimet.org

Phone: 503.962.2150