Portland North Alternatives Modes Project

Coordination Meeting
December 10, 2009
Agenda

• Introductions
• Progress Update
• Summary of Alternatives
• Ridership Projections
• Preliminary Costs
• Small Starts
• Next Steps
• Schedule
• Other
What We Have Accomplished

• Station host community meetings
• FTA coordination
• Alternative refinement
  – Alignment
  – Station
  – Cost
  – Ridership
What Would be Served

- Three service alternatives
  - Yarmouth
  - Brunswick (Bath)
  - South Auburn (Lewiston)

- Three route alternatives:
  - Saint Lawrence and Atlantic Railway (SLR)
  - Pan Am Railway
  - Highways (Bus)

- Five Portland terminal alternatives:
  - Bayside (SLR)
  - India Street (SLR)
  - Union Station (Pan Am)
  - Center Street (Pan Am)
  - Monument Square (Express Bus)
How Often Service Would Operate

• 22 Roundtrips per Weekday
• Service Headways
  – 30 minute peak
  – 60 minute offpeak
• First trip arrives Portland: 6:45 AM
• Last trip departs Portland: 10:55 PM
• Shuttle Bus Service from some rail stations
Where Would it Leave You
Yarmouth Rail Service

SLR
- Yarmouth (Exit 15)
- Falmouth (Exit 10)
- India Street
- Bayside

Pan Am
- West Falmouth (Exit 53)
- Cumberland
- Union Station
- Center Street
- Yarmouth Jct
Yarmouth Express Bus Service

**Exclusive ROW**

- Yarmouth (Exit 15)
- Falmouth (Exit 10)
- PULSE

**Highway Shoulder Running**

- Yarmouth (Exit 15)
- Falmouth (Exit 10)
- PULSE
Bath Express Bus Service

Exclusive Bus ROW

Highway Shoulder Running

Bath
Brunswick
Freeport
Yarmouth (Exit 15)
Falmouth (Exit 10)
PULSE
Lewiston Rail Service

SLR

Lewiston
Auburn Intermodal
Bayside
India Street
Falmouth (Exit 10)
Pineland East
Yarmouth (Exit 15)

Pan Am

Auburn
South Auburn (Exit 75)
Cumberland
West Falmouth (Exit 53)
Pineland West
Union Station
Center Street

Lewiston
Pineland East
Auburn Intermodal
Bayside
India Street
Falmouth (Exit 10)
Yarmouth (Exit 15)

Lewiston
Pineland East
Auburn Intermodal
Bayside
India Street
Falmouth (Exit 10)
Yarmouth (Exit 15)
How Much it Would Cost to Build

Capital Costs by Terminal Without Downeaster Extension to Brunswick ($2009)

<table>
<thead>
<tr>
<th>Location</th>
<th>Bayside</th>
<th>India St</th>
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<th>Center St</th>
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<tbody>
<tr>
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<td>$44</td>
<td>$49</td>
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<td>$195</td>
<td>$196</td>
<td>$102</td>
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<tr>
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<td>$148</td>
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<td>Bath</td>
<td>$165</td>
<td>$167</td>
<td>$122</td>
<td>$127</td>
<td>$19</td>
<td>$52</td>
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</tbody>
</table>

Yarmouth, Lewiston, South Auburn, Brunswick, Bath
How Much it Would Cost to Operate

Annual Operating Costs by Service and Terminal ($ millions)

- Bayside
- India Street
- Union Station
- Center Street
- Highway Running
- Exclusive Bus ROW

<table>
<thead>
<tr>
<th>Service</th>
<th>Terminal</th>
<th>Yarmouth</th>
<th>Lewiston</th>
<th>South Auburn</th>
<th>Brunswick</th>
<th>Bath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayside</td>
<td></td>
<td>$1.8</td>
<td>$3.8</td>
<td>$3.2</td>
<td>$3.9</td>
<td>$4.2</td>
</tr>
<tr>
<td>India Street</td>
<td></td>
<td>$1.8</td>
<td>$3.8</td>
<td>$3.2</td>
<td>$3.9</td>
<td>$4.2</td>
</tr>
<tr>
<td>Union Station</td>
<td></td>
<td>$2.6</td>
<td>$4.2</td>
<td>$3.5</td>
<td>$3.7</td>
<td>$3.5</td>
</tr>
<tr>
<td>Center Street</td>
<td></td>
<td>$2.6</td>
<td>$4.2</td>
<td>$3.5</td>
<td>$3.7</td>
<td>$3.5</td>
</tr>
<tr>
<td>Highway Running</td>
<td></td>
<td>$2.2</td>
<td>$3.5</td>
<td>$2.8</td>
<td>$2.8</td>
<td>$2.1</td>
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<tr>
<td>Exclusive Bus ROW</td>
<td></td>
<td>$2.2</td>
<td>$3.5</td>
<td>$2.8</td>
<td>$2.8</td>
<td>$2.1</td>
</tr>
</tbody>
</table>
Our Approach to Calculating Riders

1. **ARRF**
   - Sketch planning tool

2. **ARRF adjustments**
   - More behaviorally sound

3. **Regional land use and transportation model**
   - Most complex
     - Smaller zones (TAZs not tracts)
     - Most sensitive to policy changes, walking distances, competing modes
Regional Model Structure

- Based on Maine statewide model
- Represent all travel flows
- Mode choice for each zone pair
  - attributes of alternative modes
  - calibrate based on experiences elsewhere, common sense, locally to ZOOM
**How well does model represent flows?**

**Vehicle volumes (screenlines)**

<table>
<thead>
<tr>
<th>screenline</th>
<th>ADT</th>
<th>model</th>
<th>% difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>North of Saco</td>
<td>137,225</td>
<td>137,545</td>
<td>0.23</td>
</tr>
<tr>
<td>East of Gorham</td>
<td>82,730</td>
<td>72,289</td>
<td>-12.62</td>
</tr>
<tr>
<td>North of Portland</td>
<td>75,220</td>
<td>59,049</td>
<td>-21.50</td>
</tr>
<tr>
<td>South of Yarmouth</td>
<td>80,122</td>
<td>88,701</td>
<td>10.71</td>
</tr>
<tr>
<td>South of Auburn</td>
<td>49,345</td>
<td>53,781</td>
<td>8.99</td>
</tr>
<tr>
<td>SE of Lewiston</td>
<td>22,968</td>
<td>31,776</td>
<td>38.35</td>
</tr>
<tr>
<td>South of Freeport</td>
<td>87,365</td>
<td>91,261</td>
<td>4.46</td>
</tr>
<tr>
<td>all screenlines</td>
<td>534,975</td>
<td>534,402</td>
<td>-0.11</td>
</tr>
</tbody>
</table>
## How well does model represent flows?

### Travel times (minutes)

<table>
<thead>
<tr>
<th>From Location</th>
<th>To Location</th>
<th>AM peak</th>
<th>Leave</th>
<th>Leave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewiston (Oak &amp; Bates)</td>
<td>Portland (Franklin &amp; Marginal Way)</td>
<td>3 hrs</td>
<td>6:15</td>
<td>7:35</td>
</tr>
<tr>
<td>Bath (Rt 1 &amp; Washington St)</td>
<td>Portland (Franklin &amp; Marginal Way)</td>
<td>3 hrs</td>
<td>6:00</td>
<td>7:58</td>
</tr>
<tr>
<td>Saco P&amp;R</td>
<td>Congress &amp; Bramhall</td>
<td>3 hrs</td>
<td>Zoom schedule</td>
<td>20 to 23</td>
</tr>
</tbody>
</table>
How well does model represent flows?

ZOOM Turnpike Express Boardings

<table>
<thead>
<tr>
<th>Location</th>
<th>Model</th>
<th>Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biddeford P&amp;R</td>
<td>82</td>
<td>85</td>
</tr>
<tr>
<td>Saco P&amp;R</td>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>Bramhall &amp; Congress</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>High &amp; Congress</td>
<td>82</td>
<td>25</td>
</tr>
<tr>
<td>Monument Square</td>
<td>36</td>
<td>98</td>
</tr>
<tr>
<td>USM</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>324</strong></td>
<td><strong>320</strong></td>
</tr>
</tbody>
</table>
Key Factors Affecting Behavior

- Strong preference for auto
  - transit ASC equal to 40 minutes IVTT
- Increasing, non-linear penalty for walks over 10 minutes
- Direct service preferable to local bus connection
  - transfer equal to 15 minutes IVTT
- Travelers “don’t drive backwards” to a park & ride
- “let someone else drive” more important with increasing distance
- No modeled preference for rail compared to bus
Mode Shares to Central Portland

- Bath Center Street alignment
- ZOOM Turnpike Express
- Base year shares
Trip origins of commuters to Portland

Forecasting to 2035

Commute trips to Central Portland

- Central Portland
- Rest of Portland
- Westbrook
- S. Portland
- Falmouth/Foreside
- Other near towns
- Yarmouth/Cumberland
- Freeport
- Brunswick
- Topsham
- Bath
- Saco/Biddeford
- Southern Maine
- Lewiston
- Auburn

CTPP adj
Model base year
Model 2035
Forecasting to 2035

Changing work trip destinations

2005 and Projected 2035 Total Employment

- Central Portland
- rest of Portland
- Westbrook
- S. Portland
- Falmouth/Foreside
- Other near towns
- Yarmouth/Cumberland
- Freeport
- Brunswick
- Topsham
- Bath
- Saco/Biddeford
- Southern Maine
- Lewiston
- Auburn
Estimated Daily Ridership (2035)
Ridership Observations

• Center Street service has highest ridership for each starting point

• Two key reasons for this:
  – Two stops in Portland, short walk to business centers
  – Line stops at Cumberland Center, not served by SLR or bus options

• Portland is attraction end for at least 79 percent of trips (99 percent for alignments only to Yarmouth)

• Model estimates ridership in same range as earlier methods--but shows a more sensible pattern by station
### Capital Costs by Terminal Without Downeaster Extension to Brunswick ($2009)

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<td>$84</td>
<td>$16</td>
<td>$13</td>
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<tr>
<td>South Auburn</td>
<td>$158</td>
<td>$160</td>
<td>$146</td>
<td>$148</td>
<td>$104</td>
<td>$95</td>
</tr>
<tr>
<td>Brunswick</td>
<td>$173</td>
<td>$165</td>
<td>$167</td>
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<td>Bath</td>
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#### Estimated Daily Ridership Build Year

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<tbody>
<tr>
<td>Yarmouth</td>
<td>173</td>
<td>201</td>
<td>296</td>
<td>304</td>
<td>312</td>
<td>519</td>
</tr>
<tr>
<td>Lewiston</td>
<td>400</td>
<td>479</td>
<td>589</td>
<td>505</td>
<td>419</td>
<td>526</td>
</tr>
<tr>
<td>South Auburn</td>
<td>353</td>
<td>412</td>
<td>423</td>
<td>426</td>
<td>423</td>
<td>426</td>
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<tr>
<td>Brunswick</td>
<td>433</td>
<td>482</td>
<td>594</td>
<td>594</td>
<td>742</td>
<td>742</td>
</tr>
<tr>
<td>Bath</td>
<td>549</td>
<td>590</td>
<td>707</td>
<td>712</td>
<td>819</td>
<td>819</td>
</tr>
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</table>

The graphs illustrate the estimated capital costs and daily ridership for each terminal, providing a comprehensive view of the project's financial and operational impacts.
Small Starts Parameters

- Capital costs associated with new fixed guideway systems, extensions, and bus corridor improvements
- Requests under $75 million and total project costs must be under $250 million
- In addition, Small Starts eligible if:
  - (a) meet the definition of a fixed guideway for at least 50% of the project length in the peak period
  - (b) be a new fixed guideway project, or
– (c) be new corridor-based bus project with all of the following minimum elements:

• Substantial transit stations
• Traffic signal priority/pre-emption, to the extent, if any, that there are traffic signals on the corridor
• Low-floor vehicles or level boarding
• Branding of the proposed service
• 10 minute peak/15 minute off peak headways or better while operating at least 14 hours per weekday
What Has Been Funded (FY10)

• $174 Million for 16 projects

• Maximum grant $54.5 Million
Geographic and Modal Distribution

- Flagstaff, AZ, Mountain Links BRT
- Livermore, CA, Livermore-Amador Route 10 BRT
- Los Angeles, CA, Metro Rapid Bus System Gap Closure
- Los Angeles, CA, Wilshire Boulevard Bus-Only Lane
- Monterey, CA, Monterey Bay Rapid Transit
- Riverside, CA, Perris Valley Line Medium
- San Bernardino, CA, E Street Corridor BRT
- San Diego, CA, Mid-City Rapid
- San Joaquin, CA, Metro Express - Airport Way Corridor BRT Project
- Fort Collins, CO, Mason Corridor BRT
- Roaring Fork Valley, CO, BRT Project
- Fitchburg, MA, Commuter Rail Improvements
- Kansas City, MO, Troost Corridor BRT
- Austin, TX, Metro Rapid BRT
- King County, WA, Bellevue - Redmond BRT
- King County, WA, Pacific Highway South BRT
FTA Critical Success Factors

Overall Project Rating

- Project Justification Criteria
- Local Financial Commitment
  - Cost Effectiveness
  - Land Use
  - Other Factors – Economic Development
FTA Small Starts Evaluation Criteria

• Cost Effectiveness (which is a combined measure of annual travel time savings and annualized cost)
• Total Cost compared to State and Local Financial Capacity
  – Capital cost (including highway or rail improvements including railroad bridge costs)
  – Operations and Maintenance (O&M) costs
• Transportation Measures (which would be roughly proportional to vehicular emissions)
  – Level of Service
  – Total System Vehicle Miles Traveled
  – Total System Vehicle Hours Traveled
• Land Use
  – Existing Land Use Patterns
  – Transit supportive plans and policies
  – Performance and impact of these policies
• Economic Development
What Happens Next

• Finalize Phase 1 – 12/09
• Initiate Phase 2 – 1/10
• Public meeting to present Phase 2 – 3/10
• Finalize Phase 2 – 4/10
• Initiate Small Starts application work
Questions?