Meeting Agenda

• Presentation
  • Meeting Objectives
  • Study Overview
  • East-West Corridor Context
  • East-West Corridor Alternatives
  • Next Steps

• General Q/A

• Open House
Meeting Objectives

Inform

Describe how market demand and physical constraints influence the potential approaches to providing rail service

Review the range of options available for providing rail service

Learn

What are your priorities for a rail service on the East-West corridor?

What would you like to see in the service alternatives?
Study Overview

**Purpose:** To conduct an evaluation of the benefits, costs, and impacts of a range of alternatives for rail service between Boston and Pittsfield.
Study Corridor

CSX
- 14 regularly operated through freights each day
- Additional through (on demand) and local freight per day

MBTA
- 54 weekday trips on the Worcester Line

Amtrak
- 2 trips per day between Boston and Albany / Chicago
Background

• Northern New England Intercity Rail Initiative (NNEIRI)
  • Constrained by existing ROW
  • Preferred plan: 9 round trips BOS-SPG
  • 80 mph maximum speed
  • 1:50 minute travel time for preferred alternative
  • $550 million Springfield to Worcester Section (2014)

• State Rail Plan recommendation
  • Understand benefits and requirements for high speed rail and how that compares to NNEIRI and other alternatives
  • Unconstrained by existing ROW
  • Examine Boston to Pittsfield corridor
East-West Corridor Context

Market Demand
Existing Rail Conditions
Challenges and Opportunities
Market Demand

Market demand informs the level of rail service to provide.

Service Parameters
- Travel time
- Frequency
- Cost of fare
- Amenities (both on-board and at stations)
- Span of service
- Connections

Demand Factors
- Demographics (population, density, income)
- Travel patterns (employment, other)
- Competitiveness of other modes
- Major destinations
Market Demand – Demographics
Projected Population Change
Market Demand – Travel Patterns

Vehicle Use Along the Corridor

<table>
<thead>
<tr>
<th>Rail</th>
<th>Metropolitan Statistical Area (MSA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Average Daily Traffic</td>
<td></td>
</tr>
<tr>
<td>(Vehicles)</td>
<td></td>
</tr>
<tr>
<td>&lt;=10,000</td>
<td>30,001 - 60,000</td>
</tr>
<tr>
<td>10,000 - 30,000</td>
<td>60,001 - 100,000</td>
</tr>
<tr>
<td>&gt; 100,000</td>
<td></td>
</tr>
</tbody>
</table>
## Market Demand – Competitiveness
### Existing Travel Options Along the Corridor

<table>
<thead>
<tr>
<th>Travel Mode</th>
<th>Provider</th>
<th>Performance</th>
</tr>
</thead>
</table>
| Automobile  | Mass Pike I-90 | • Traffic volume increased an avg. of 2% per year from 2008 to 2017  
• Annual growth rates are higher than forecast in 2012 (0.5%)  
• Significant travel time ranges at different portions of the corridor |
| Commuter Rail | MBTA Worcester/ Framingham Line | • Number of trains increased from 46 one-way trains in 2014 & 2015 to 54 one-way trains in 2018 (26%) |
| Intercity Rail | Amtrak Lake Shore Limited | • One round trip per day Boston to Chicago  
• On time performance is poor – single track in western MA a constraint |
| Intercity Bus | Greyhound and Peter Pan | • 4 Greyhound weekday roundtrips and 6 Peter Pan weekday roundtrips between Boston and Springfield  
• 2 Peter Pan trips between Springfield and Pittsfield  
• No change in weekday service frequency since 2012 |
Existing Rail Conditions

Physical and operating conditions inform capital investments needed for improved rail service.

Physical Constraints
• Curves
• Terrain (grades)
• Track maintenance standards (track class)
• Track condition
• Train control
• Station stops
• Vehicle type
• Number of tracks
• Terminal capacity

Operations
• MBTA service
• CSX freight service

Source: NNEIRI
Existing Conditions – Physical Constraints

Existing Maximum Passenger Rail Speeds

- Pittsfield
- Springfield
- Worcester
- Boston

**Passenger Rail Speeds**

- Rail: 80 - 110 mph
- Metropolitan Statistical Area (MSA):
  - 110 - 220 mph
  - 50 - 65 mph
  - 65 - 80 mph
  - < 50 mph
Existing Conditions – Operations
Freight Issues and Constraints

- Boston – Albany rail line is owned by CSX from Worcester to New York
- Accommodating both passenger rail and freight rail on a single corridor is challenging
- While Amtrak has the right to provide passenger service on freight-owned lines, the host railroad has the right to set the terms for an operating agreement

Recent right-of-way upgrades and an expansion of the intermodal facility in Worcester has increased capacity and efficiency of this primary freight corridor in New England.
Capital Investments to Address Constraints

- Straightening curves
- Upgrading tracks
- Adding tracks
- Expanding right-of-way (ROW)
- Expanding station capacity
- Expanding terminal capacity
- Utilizing an alternate ROW
East-West Corridor Alternatives

Service Goals
Alternative Analysis Process
Typology of Potential Service Alternatives
Goals for Service Alternatives

• Improve attractiveness of Western MA as an affordable place to live
• Support economic development
• Provide better transportation options to/from Western MA
• Reduce the number of automobile trips along the corridor
• Reduce greenhouse gas emissions and air quality impacts from transportation

KEY CONSIDERATIONS

 Impacts to freight
 Environmental and community impacts
 Cost
Alternatives Analysis Process

Wide range of alternatives
High level screening

6 alternatives
Analysis of impacts and projection of key variables – travel time, ridership

3 alternatives
Operations simulation, benefit – cost analysis
Typology of Potential Alternatives

Benefits and Drawbacks

• Shared Corridor without ROW Changes
  • Easiest to implement and most cost effective
  • Longest travel time

• Shared Corridor with Selected ROW Changes
  • Enables faster travel times
  • Requires ROW purchases and significant investment/service interruptions during construction

• Separated Corridor
  • Enables fastest travel times and does not affect current usage
  • Requires very significant ROW purchases and capital investments
## Typology of Potential Alternatives

### Summary of Initial Approaches

<table>
<thead>
<tr>
<th>Corridor Type</th>
<th>Alternative</th>
<th>Travel Time Range BOS – SPG (Hr:Mn)</th>
<th>Travel Time Range BOS – PIT (Hr:Mn)</th>
<th>Max Speed Range (mph)</th>
<th>Frequency Range (Round Trips)</th>
<th>Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Rail Corridor (Existing Right-of-Way (ROW))</td>
<td>No Build (Existing Amtrak)</td>
<td>2:28</td>
<td>3:44</td>
<td>60</td>
<td>1</td>
<td>Pittsfield, Springfield, Worcester, Framingham, Back Bay, Boston</td>
</tr>
<tr>
<td>Shared Rail Corridor (Existing Right-of-Way (ROW))</td>
<td>Existing Track</td>
<td>2:10 – 2:30</td>
<td>3:20 – 3:45</td>
<td>60 – 80</td>
<td>2 – 10</td>
<td>Local or Express</td>
</tr>
<tr>
<td>Shared Rail Corridor (Existing Right-of-Way (ROW))</td>
<td>Upgraded Track</td>
<td>1:55 – 2:10</td>
<td>3:00 – 3:20</td>
<td>60 – 80</td>
<td>2 – 10</td>
<td>Local or Express</td>
</tr>
<tr>
<td>Shared Rail Corridor (Existing Right-of-Way (ROW))</td>
<td>Upgraded Track + Bus (Hybrid)</td>
<td>1:55 – 2:10</td>
<td>3:00 – 3:20</td>
<td>60 – 80</td>
<td>4 – 20</td>
<td>Local or Express</td>
</tr>
<tr>
<td>Shared with Improvements (Expanded ROW)</td>
<td>Expanded ROW and Upgraded Track</td>
<td>1:30 – 1:45</td>
<td>2:20 – 2:45</td>
<td>80 – 110</td>
<td>6 – 20</td>
<td>Local or Express</td>
</tr>
<tr>
<td>Separate Corridor (I-90)</td>
<td>Bus Rapid Transit</td>
<td>1:50 – 2:10</td>
<td>2:45 – 3:20</td>
<td>60 – 65</td>
<td>20 – 40</td>
<td>Express</td>
</tr>
<tr>
<td>Separate Corridor (I-90)</td>
<td>High Speed Rail</td>
<td>0:55 – 1:05</td>
<td>1:20 – 1:40</td>
<td>110 – 150</td>
<td>20 – 40</td>
<td>Express</td>
</tr>
<tr>
<td>Separate Corridor (I-90)</td>
<td>Maglev</td>
<td>0:50 – 1:00</td>
<td>1:15 – 1:30</td>
<td>125 – 175</td>
<td>20 – 40</td>
<td>Express</td>
</tr>
</tbody>
</table>

All Time, Speed, Frequency, and Station Stops are approximate, pending detailed analysis.
Separate Corridor
Difference in Curvatures between Existing Rail and Highway

• The I-90 corridor has significantly fewer curves than the existing rail corridor, though the grades are steeper.
Next Steps

Initial Alternatives Analysis
Future Engagement
Open House Stations
Initial Alternatives Analysis

• Confirm characteristics for alternatives
  • Alignment for rail corridor (existing corridor, separate corridor)
  • Potential stations
  • Achievable travel times

• Solicit feedback from Study Advisory Committee

• Analyze six alternatives
  • Determine travel times
  • Project ridership
  • Identify necessary investments
  • Understand potential benefits/impacts (social, economic, environmental)
Future Engagement

- **Input on six alternatives**
  - Advisory Committee #2
    - Spring 2019

- **Findings from six alternatives**
  - Advisory Committee #3
    - Summer 2019

- **Findings from six alternatives**
  - Input on final three alternatives
  - Public meeting #2
    - Summer 2019

- **Findings from six alternatives**
  - Input on final three alternatives
  - Advisory Committee #4
    - Fall 2019

- **Findings from final alternatives**
  - Next steps
  - Public meeting #3
    - Early 2020

- **Release draft report**
Open House Stations

• About the study
• Demand for rail service
• Interactive activity:
  • How would you use rail service? What are your priorities?
• Existing physical and operational conditions
• Preliminary set of alternatives
• Case studies
• Comment box
Contact

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Existing Conditions – Travel Times

Key Constraints Along the Corridor

- Large number of private at-grade crossings between Springfield and Pittsfield
- Capacity, infrastructure, and environmental constraints along CSX mainline from Worcester to Springfield
- Higher curves (>2°30') affecting rail speed at several locations between Worcester and Springfield
- Constrained capacity on Worcester Line
- Higher vertical grade (>1%) and higher curve (>2°30') in Leicester
- Complex at-grade crossings
- Higher curves (>2°30') affecting rail speed at some locations between Boston and Worcester

Trackage
- Single Track
- Two or More Tracks

Environmental Constraints
- Wetlands within 500 Feet