U.S. System Summary: NORTHERN NEW ENGLAND

HighSpeedRail
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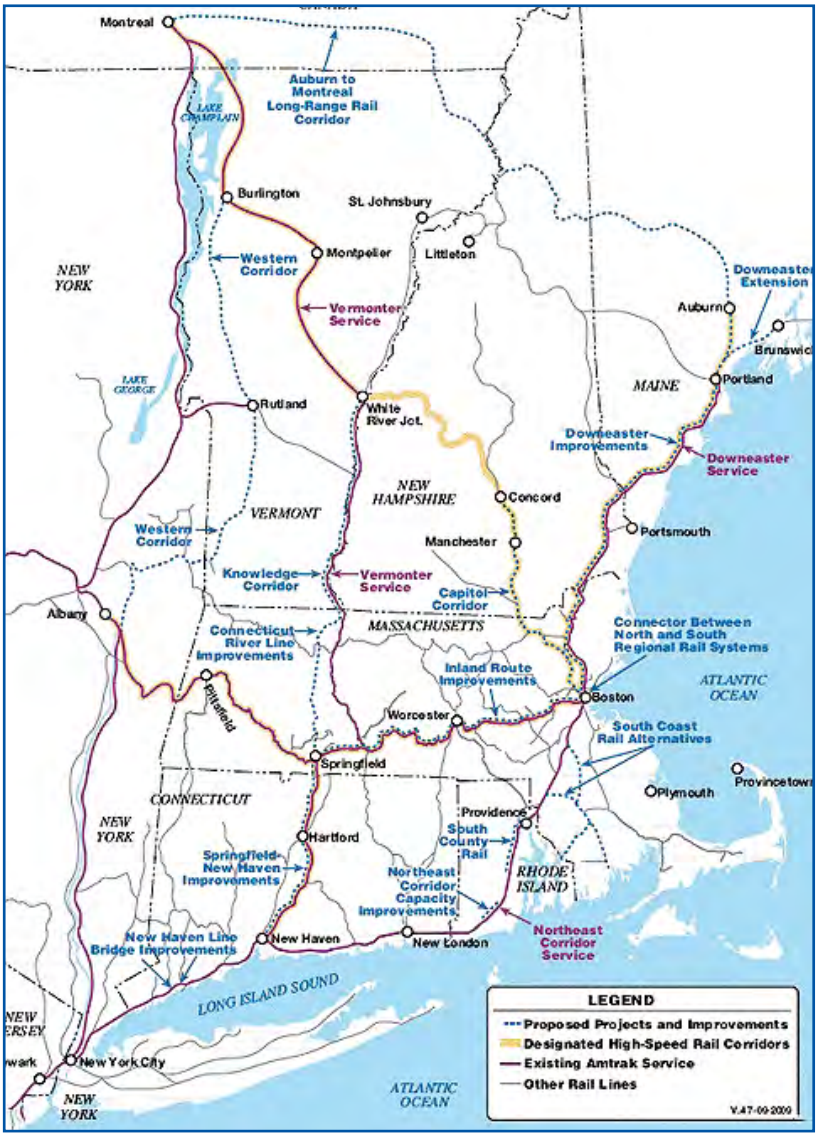

Northern New England High-Speed Rail System (Source: Massachusetts DOT)

The Northern New England high-speed rail system consists of a proposed 707 miles of routes in four segments in the Northeastern U.S. states of Connecticut, Maine, Massachusetts, New Hampshire, New York and Vermont, as well as the Canadian province of Quebec. The New Haven, CT, to Springfield, MA, segment of the system is the most advanced, with plans for 110 mph service in this segment in the ***Planning/Environmental*** stage. Of the three remaining segments (all radiating out of Boston, MA), two segments are in the ***Planning/Environmental*** stage while one is in the ***Proposed*** stage. All four segments of the Northern New England high-speed rail system are part of the federally-designated Northern New England High-Speed Rail Corridor. Proposed service in the Northern New England high-speed rail system described in this summary is based on incremental improvements to existing freight, Amtrak-owned, or commuter railroad rights-of-way, with maximum train speeds between 110 and 125 mph, depending upon the segment considered.

SYSTEM DESCRIPTION AND HISTORY

System Description

The Northern New England high-speed rail system consists of four segments, as summarized below.

Northern New England High-Speed Rail System Segment Characteristics

Segment Description	Distance	Segment Status	Designated Corridor?	Segment Population
Boston, MA, to Portland, ME	116 Miles	Planning/Environmental	Yes	5,066,500
Boston, MA, to Albany, NY	200 Miles	Proposed	Yes	7,045,831
Boston, MA, to Montreal, Canada	329 Miles	Planning/Environmental	Yes	7,287,000
New Haven, CT, to Springfield, MA	62 Miles	Planning/Environmental	Yes	2,767,800

The Boston, MA, to Portland, ME, segment is 116 miles in length and includes major communities such as Durham, NH, and Dover, NH, along the route. The total population of the 10 communities along this segment that are currently served by Amtrak service was 5,066,500 in 2010. Proposed high-speed rail service on this segment is based on incremental improvements to existing Pan Am Railways freight railroad infrastructure/right-of-way between Boston and Portland, with a portion of the segment operating in shared right-of-way with Massachusetts Bay Transportation Authority (MBTA) commuter rail transit services.

The Boston, MA, to Albany, NY, segment is 200 miles in length and includes major communities such as Worcester and Springfield, MA, along the route. The total population of communities along this segment that are currently served by Amtrak service was 7,045,831 in 2010. Proposed high-speed rail service on this segment is based on incremental improvements to existing CSX freight railroad right-of-way between Boston and Albany.

The Boston, MA, to Montreal, Canada, segment is 329 miles in length and includes major communities such as Manchester, NH; Concord, NH; Montpelier, VT; and Burlington, VT, along the route. The total population of communities being considered for proposed high-speed rail stations along this segment was 7,287,000 in 2010. Proposed high-speed rail service on this segment is based primarily on incremental improvements to existing freight railroad right-of-way (portions owned by New England Central Railroad, Canadian National Railroad, and Pan Am Railways), sharing existing transit right-of-way with MBTA commuter rail as well as re-activating a 57 mile stretch of abandoned right-of-way in New Hampshire.

The New Haven, CT, to Springfield, MA, segment is 62 miles long and includes the Connecticut state capital of Hartford along the route. The total population of communities along this segment that are currently served by Amtrak or expected to be served by new high-speed rail service was 2,767,800 in 2010. Proposed high-speed rail service on this segment is based on incremental improvements to existing Amtrak-owned right-of-way between New Haven and Springfield.

System History

Planning for high-speed intercity passenger rail in the four segments of the Northern New England high-speed rail system is informally guided by a plan entitled *Vision for the New England High-Speed and Intercity Rail Network*, developed in 2009 by the state Departments of Transportation of the six states in the region: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. The Vision plan outlines an integrated regional plan for high-speed and intercity passenger rail in the four segments of the Northern New England high-speed rail system and the New York City to Boston segment of the Northeast Corridor high-speed rail system, as well as other intercity corridors in the region where conventional (non-high speed) service is envisioned. Implementation of this plan is critical in supporting the Northeast Governors' goal to double passenger rail ridership in the region by the year 2030.

Intercity passenger rail service between Boston, MA, and Portland, ME, is currently provided by the Amtrak Downeaster route, which has been operational on the 116-mile route since December 2001. The State of Maine, through the Northern New England Passenger Rail Authority (NNEPRA), received a $600,000 grant from the Federal Railroad Administration, which was matched with $150,000 in state funds to complete a service development plan for increasing speeds on the Downeaster corridor. The service development plan, which is anticipated to be completed by June 2012, is expected to outline capital improvements and model an operating plan for the route. It is not clear, however, if high-speed service (i.e., 110 mph

Boston, Massachusetts

maximum speed) is a future goal for the Downeaster or otherwise incorporated into the service development plan.

In April 2003, a planning and feasibility study for high-speed rail in the Boston, MA, to Montreal, Canada, segment of the Northern New England high-speed rail system was completed. The purpose of the study was to identify institutional and policy issues associated with implementing high-speed rail between Boston and Montreal, develop preliminary service ridership projections, and inventory basic corridor infrastructure elements. The study was implemented as a Phase I study, concluding that a Phase II study with more detailed financial and operational analysis was warranted based on the Phase I study findings. However, the Phase II study for the full Boston to Montreal segment has not yet been implemented at the time this summary was completed. More recently, planning for passenger rail services on the Boston to Concord, NH, portion of the Boston to Montreal segment (known as the New Hampshire Capitol Corridor) has gained traction, led by the New Hampshire Rail Transit Authority, the New Hampshire Department of Transportation, and local agencies. A March 2010 white paper developed for the New Hampshire Capitol Corridor assessed the feasibility of establishing rail service in the Boston to Concord corridor as part of the broader Boston to Montreal high-speed rail service.

Amtrak has owned the 62-mile line between New Haven, CT, and Springfield, MA, since 1976, with current Amtrak operations along the segment connecting Springfield, Hartford, and intermediate stations with Amtrak's Northeast Corridor mainline routes in New Haven. In 2002, the Connecticut Department of Transportation (CTDOT) conducted feasibility studies to implement commuter rail service between New Haven and Springfield. However, with the availability of new funding for high-speed intercity passenger rail projects in 2009, the focus for rail planning in this segment shifted from commuter-type service to improved regional intercity passenger rail service. A service development plan for improved intercity passenger rail service in the New Haven to Springfield segment was developed in July 2010 and updated in March 2011. The project proposes incremental improvements to existing Amtrak service along this segment, increasing frequencies to as many as 25 daily round-trip trains in the corridor at a maximum train speed of 110 mph with new equipment and new or improved stations. A service-level Environmental Assessment for the New Haven–Hartford–Springfield High-Speed Intercity Rail Program has been undertaken to coordinate the various environmental documentation that will be necessary for the project.

Federally-Designated Corridors

The four Northern New England high-speed rail system segments described in this summary are part of the federally-designated Northern New England High-Speed Rail Corridor. The Northern New England High-Speed Rail Corridor achieved federally-designated status in October 2000, as authorized by the *Transportation Equity Act for the 21st Century* (TEA-21), with the initial corridor designation including the segments connecting Boston, MA, with Portland, ME, and Montreal, Canada. In December 2004, the Northern New England High-Speed Rail Corridor was extended from Boston, MA, to Albany, NY, and from Springfield, MA, to New Haven, CT.

Existing Intercity Passenger Rail Service

Existing Amtrak intercity passenger rail service in the Northern New England high-speed rail system includes the Downeaster, which operates short-distance corridor service in the Boston, MA, to Portland, ME, segment; the Lake Shore Limited long-distance train between Boston, MA, and Albany, NY; and various corridor and Shuttle services operating between Springfield, MA, and New Haven, CT.

Sources: 2010 U.S. Census, Vision for the New England High-Speed and Intercity Rail Network, Amtrak Downeaster Website, Boston to Montreal High-Speed Rail Planning and Feasibility Study: Phase I, New Hampshire Capitol Corridor Project Overview, New Haven-Hartford-Springfield Line Rail Project Service Development Plan, New Haven-Hartford-Springfield Line High Speed Intercity Passenger Rail Project Environmental Assessment/ Environmental Impact Evaluation, Federal Railroad Administration, Amtrak System Timetable Fall 2011/Winter 2012 Pennsylvania Feasibility Studies Report, Keystone West Passenger Train Study, Federal Railroad Administration, Amtrak System Timetable Fall 2011/Winter 2012

ESTIMATED SYSTEM COSTS AND FUNDING SOURCES

Estimated System Costs

Feasibility studies and service development plans provided capital cost estimates for the Northern New England high-speed rail system. The estimated capital costs on a per-mile basis are shown below.

Projected Funding Sources

A portion of the funding for the operation of the current Boston, MA, to Portland, ME, service, the Amtrak *Downeaster*, comes from Congestion Mitigation and Air Quality (CMAQ) program funds. Funding sources for additional corridors and/or speed upgrades have not yet been specified beyond the improvements and studies described in the following section.

Recent Funding Awards

Several states in the region have received funding to further HSR development in the past few years. These include:

- Connecticut: $120,900,000 from FY 2010 high-speed rail appropriations for the installation of double track and other improvements to increase rail capacity on the New Haven, CT, to Springfield, MA, segment.
- Connecticut: $70,000,000 from the *American Recovery and Reinvestment Act of 2009* funds for various improvements to increase rail capacity on the New Haven, CT, to Springfield, MA, segment.
- Maine: $59,207,836 awarded to the Northern New England Passenger Rail Authority from the *American Recovery and Reinvestment Act of 2009* funds to rehabilitate 30 miles of track to extend the existing Amtrak Downeaster service to Brunswick, ME, and various projects along the existing route.
- Maine: $600,000 awarded to the Northern New England Passenger Rail Authority from FY 2010 high-speed rail appropriations for the completion of a service development plan and environmental study for the Downeaster corridor from Boston, MA, to Portland, Brunswick, and Auburn, Maine.
- New Hampshire: $2,240,000 from FY 2010 high-speed rail appropriations for the preparation of a service development plan and environmental documentation for the Boston to Concord portion of the Boston to Montreal segment.

Sources: Amtrak Downeaster Website, Northeast Corridor Infrastructure Master Plan, New Hampshire Capitol Corridor Project Overview, New Haven-Hartford-Springfield Line Rail Project Service Development Plan, Federal Railroad Administration

TRANSPORTATION SYSTEM IMPACTS

Ridership Estimates

Ridership forecasts for the Boston to Montreal segment of the Northern New England high-speed rail system were developed in an April 2003 feasibility study. Three speed scenarios were considered: low speed (maximum train speed 60 mph), mid-speed (maximum train speed 110 mph with restrictions for track geometry), and high speed (maximum train speed 110 mph with no restrictions). Daily round-trips ranging from two to eight per day were varied as was the number of stations. Ridership estimates for a buildout year of 2025 ranged from 86,962 for the mid-speed, low frequency scenario to 683,667 for the

Northern New England High-Speed Rail System Capital Cost Estimates

Segment Description/Study Name/Year	Maximum Speed/ Scenario	Estimated Capital Cost per Mile ($ Millions)
Boston, MA, to Montreal, Canada		
• New Hampshire Capitol Corridor Project (2010)	Not Specified	$4.1
New Haven, CT, to Springfield, MA		
• Northeast Corridor Infrastructure Master Plan (2010)	Upgrade existing 79 mph service to 110 mph	$15.3
• NHHS Rail Project Service Development Plan (2011)	Upgrade existing 79 mph service to 110 mph	$6.2

Hartford, Connecticut

mid-speed, low fare scenario. The percentage of passengers traveling the entire length of the corridor (329 miles from Boston to Montreal) ranged from 6.3 percent for the low speed scenario to 32.4 percent for the mid-speed, low fare scenario. Ridership estimates for the Boston to Concord New Hampshire Capitol Corridor were developed in March 2010, based on ridership achieved in the nearby Boston to Portland, ME, Downeaster corridor. Ridership estimates for the initial service (5 daily round trips in 2014) was 441,597 passengers, increasing to 1,004,859 passengers in 2019 (10 daily round trips) and to 1,086,116 passengers by 2024 (12 daily round trips).

The March 2011 New Haven–Hartford–Springfield rail project service development plan provided ridership estimates for the implementation of improved intercity passenger rail service in this 62-mile segment of the Northern New England high-speed rail system. The project proposes incremental improvements to existing Amtrak service in this segment that would increase train speed to 110 mph and increase rail capacity to allow for additional train frequencies. Ridership forecasts were developed using Amtrak's travel demand model. Improved high-speed rail service on the New Haven, CT, to Springfield, MA, segment was estimated to generate 780,600 new passengers by year 2020 and 1,255,000 new passengers by year 2030, in addition to the ridership generated by passengers currently using this route (projected to be 490,000 in 2020 and 546,500 in 2030).

Mode Choice

Ridership forecasts for the Boston to Montreal segment of the Northern New England high-speed rail system estimated that more than 96 percent of passengers would be attracted from other travel modes (mainly automobile) operating in the corridor. Ridership estimates from the March 2011 New Haven–Hartford–Springfield rail project service development plan estimated that approximately 91 percent of new passengers on the route would be attracted from automobile while 9 percent would be attracted from air service. As a result, an estimated net reduction of 32,000 M-T of carbon dioxide could be realized by the year 2020.

The four Northern New England high-speed rail system segments described in this summary are part of the federally-designated Northern New England High-Speed Rail Corridor.

Connectivity with Other High-Speed Rail Systems

The four segments of the Northern New England high-speed rail system connect to two other U.S. high-speed rail systems in three separate locations, the Northeast Corridor high-speed rail system in Boston, MA, and New Haven, CT; and the Empire Corridor high-speed rail system in Albany, NY. The existing Amtrak Downeaster rail line does not directly connect with other existing intercity passenger rail services in Boston because it uses the North Station in Boston while the other services utilize South Station. The proposed Boston to Montreal high-speed rail service also assumed the use of Boston North Station.

Sources: Boston to Montreal High-Speed Rail Planning and Feasibility Study: Phase I, New Hampshire Capitol Corridor Project Overview, New Haven-Hartford-Springfield Line Rail Project Service Development Plan

GOVERNANCE

Intercity passenger rail planning and implementation activities in the Northern New England high-speed rail system are coordinated by the various state Departments of Transportation in the region, as well as two independent agencies serving specific segments of the system. The Northern New England Passenger Rail Authority (NNEPRA) is a public transportation authority created in 1995 by the Maine State Legislature to develop and provide passenger rail service between Maine and Boston. NNEPRA's efforts have resulted in the Amtrak *Downeaster* service, which currently operates on the Boston, MA, to Portland, ME, segment of the Northern New England high-speed rail system. High-speed intercity passenger rail planning in the State of New Hampshire is under the purview of the New Hampshire Rail Transit Authority. The New Hampshire Rail Transit Authority was established in July 2007 by state legislation, with a mission to develop and provide commuter and passenger rail and related public rail transportation services in New Hampshire. The present focus of the NHRTA is on developing intercity passenger rail on the Boston, MA, to Concord, NH, portion of the Boston to Montreal segment of the Northern New England high-speed rail system.

Sources: Northern New England Passenger Rail Authority Website, New Hampshire Rail Transit Authority Website

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