

# **FINDING OF NO SIGNIFICANT IMPACT**

**Northern New England Intercity Rail Initiative**

**Boston-Springfield-New Haven-Montreal**



**U.S. Department of Transportation**

**Federal Railroad Administration**

## 1 INTRODUCTION

The Massachusetts Department of Transportation (MassDOT) and the Vermont Agency of Transportation (VTrans) are conducting a feasibility and planning study – the Northern New England Intercity Rail Initiative (NNEIRI) – that examines the opportunities and impacts of adding more frequent and higher speed intercity passenger rail service on two major rail routes, the Inland Route and the Boston-to-Montreal Route (the NNEIRI Study). The Inland Route runs between Boston, Massachusetts and New Haven, Connecticut via Springfield, Massachusetts. The Boston-to-Montreal Route runs between Boston and Montreal, Quebec via Springfield. The two routes share trackage between Boston and Springfield, Massachusetts, and are collectively identified in this document as the NNEIRI Corridor.

The Federal Railroad Administration (FRA) provided grant funding to MassDOT and VTrans for the NNEIRI Study. The NNEIRI Study team consists of MassDOT and VTrans, in coordination with the Connecticut Department of Transportation (CTDOT). The NNEIRI Study: defines and evaluates a Build Alternative, described in Section 5, for implementing improved passenger rail service in the NNEIRI Corridor; identifies and evaluates the potential environmental effects of railroad infrastructure and service improvements necessary to increase train speed and frequency; forecasts ridership and revenue; and estimates capital and operating costs in two segments of the NNEIRI Corridor: the Boston to Springfield, Massachusetts segment and the Springfield, Massachusetts to US/Canada border segment.<sup>1</sup>

In June 2016, FRA, MassDOT, and VTrans evaluated the NNEIRI Study in an Environmental Assessment (EA). The EA analyzes and documents whether the NNEIRI Study would have significant effects on the environment. The EA is a Tier 1 analysis and addresses broad issues and impacts associated with the Build Alternative. Tier 2 environmental documents would be prepared for component projects that receive Federal funding.

MassDOT and VTrans, in consultation with FRA, prepared the EA in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, 42 U.S.C. §§ 4321 *et seq.*, its implementing regulations, 40 CFR parts 1500–1508, and FRA’s Procedures for Considering Environmental Impacts, 64 FR 28545 (May 26, 1999). FRA has made this Finding of No Significant Impact (FONSI) based on the information included in the EA.

## 2 STUDY AREA

The NNEIRI Corridor is 470 miles long and is comprised of two major rail routes known as the Inland Route and the Boston-to-Montreal Route (see Figure 2-1). The Inland Route runs west from South Station in Boston to Springfield, Massachusetts via Worcester. From Springfield, the Inland Route continues south to New Haven, Connecticut where it connects to Amtrak’s Northeast Corridor.

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<sup>1</sup> The NNEIRI Study did not estimate capital and operating costs along the New Haven-Hartford-Springfield (NHHS) segment because these were previously considered as part of the 2012 NHHS Intercity Passenger Rail Corridor Program environmental assessment. For more information, visit: <http://www.nhhsrail.com/> and <https://www.fra.dot.gov/Page/P0433>.

**Figure 2-1: NNEIRI Corridor**



The Boston-to-Montreal Route follows the Inland Route to Springfield then runs northerly through Holyoke, Northampton and Greenfield, Massachusetts. In Vermont, the Route continues north to White River Junction, northwest to Montpelier and Essex Junction, north to St. Albans, and crosses the Canadian border at Alburgh, Vermont. The route terminates at Central Station in Montreal, Quebec, Canada.

Ownership of the 470-mile long NNEIRI Corridor varies by segment, as follows:

- Commonwealth of Massachusetts: 44 miles between Boston and Worcester;
- CSX Transportation Corporation (CSX): 55 miles between Worcester and Springfield;
- Commonwealth of Massachusetts: 49 miles between Springfield and East Northfield, Massachusetts;

- New England Central Railroad (NECR): 207 miles from East Northfield, Massachusetts to three miles south of the U.S./Canada border;
- Canadian National Railroad (CN): 53 miles from three miles south of the U.S./Canada border to Montreal; and
- Amtrak: 62 miles from Springfield to New Haven.

### **3 PURPOSE AND NEED**

#### **Purpose**

The purpose of the NNEIRI Study is to enhance intercity transportation choices in the New England region, particularly between major cities and the smaller cities and rural areas of the NNEIRI Corridor, by improving, through more frequent and higher speed service, intercity passenger rail service on two major rail routes, the Inland Route and the Boston-to-Montreal Route.

#### **Need**

The need for the NNEIRI Study is based on the following: many small and medium size cities and economic centers geographically dispersed across New England are not adequately served by intercity passenger rail service along the NNEIRI Corridor. With the exception of the Springfield to New Haven segment, only one train per day provides intercity service on the NNEIRI Corridor. Resident, employees, and visitors would benefit from improved transportation connections between these centers. Additionally, strong sustained increases in Amtrak ridership in New England show that demand for intercity transportation in the NNEIRI Corridor is trending towards alternative transportation modes, including intercity passenger rail. Between 1997 and 2012, ridership on Amtrak lines serving New England increased by 71%, with even greater increases in specific metropolitan areas.<sup>2</sup> Many highways along the NNEIRI Corridor experience periodic congestion and capacity issues making rail travel a more attractive alternative. According to the *2015 Urban Mobility Scorecard*<sup>3</sup> report, yearly delay per auto commuter<sup>4</sup> in the Boston metropolitan area was 64 hours. Hartford and New Haven commuters experienced 45 and 40 hours of yearly delay per auto commuter, respectively. Introducing additional intercity passenger rail services would provide a competitive modal option for travel in the NNEIRI Corridor. Improvements and expansion of intercity passenger rail service would enhance options for the mobility and connectivity needed in the NNEIRI Corridor for the region to grow and prosper.

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<sup>2</sup> Brookings Institution, 2013.

<sup>3</sup> 2015 Urban Mobility Scorecard. The Texas A&M Transportation Institute and INRIX. August 2015.

<sup>4</sup> Yearly delay per auto commuter is the extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.

## 4 ALTERNATIVES

FRA and the NNEIRI Study Team evaluated two alternatives in the EA: (1) the No-Build Alternative; and (2) the Build Alternative.

### a. Initial Alternatives

At the beginning of the alternatives development process, the NNEIRI Study Team defined 18 initial alternatives with ranges of speed, frequency, and equipment. The NNEIRI Study Team analyzed these alternatives to assess impacts on ridership and train performance.

Based on the results of the NNEIRI Study Team’s analysis of the 18 initial alternatives and the input provided by stakeholders and the public (see Section 7 for more information), the initial alternatives were screened down to three preliminary build alternatives. The three preliminary build alternatives, which are described below, represent the range of potential service and speed options that are the most feasible and efficient based on the analysis of the 18 initial alternatives. These three preliminary build alternatives meet the NNEIRI Study’s Purpose and Need in a cost effective manner.

### b. Preliminary Build Alternatives

The alternatives analysis in the EA provides a comparison of the three preliminary build alternatives and the No-Build Alternative based on preliminary service plans, ridership forecasts, capital costs, and operations and maintenance costs (O&M). Table 5-1 summarizes these criteria for each of the three preliminary build alternatives and No-Build Alternative.

**Table 5-1: Alternatives Comparison**

Alternative	Capital Costs	Operating Support	Annual Riders (2035)
No-Build	No additional capital costs	No additional operating costs	79,900 riders
Preliminary Build Alternative 1	\$615-785 million	\$24 million	681,500 riders
Preliminary Build Alternative 2	\$1,065-1,350 million	\$39 million	1,201,200 riders
Preliminary Build Alternative 3	\$1,255-1,590 million	\$48 million	1,334,800 riders

At a high-level, NNEIRI Corridor-wide environmental screening was completed during the preliminary alternatives analysis to identify any known significant impacts that would result from the proposed preliminary alternatives. The NNEIRI Study Team found that impacts along the NNEIRI Corridor are anticipated to be generally minor and moderate with some minor impacts in specific locations due to operations and infrastructure needs; however, no impacts are anticipated to be significant because the infrastructure improvements, including the restoration of second track along this historically double tracked railroad, would occur within existing railroad right-of-way (ROW).

**Preliminary Build Alternative 1 - Corridor Service:** Preliminary Build Alternative 1 would provide local service (i.e., service that stops at all stations) on the NNEIRI Corridor. In addition to the passenger rail services identified in the No-Build Alternative (see Section 4d. below), Preliminary Build Alternative 1 would provide four daily round trip trains between Boston and New Haven, two daily round trip trains between Boston and Montreal, and one daily round trip train between New Haven and Montreal. Speeds on the NNEIRI Corridor would be improved to 60 mph – the current maximum speed limit – in locations where the speed is currently slower and standard train equipment would be used. Infrastructure upgrades between Boston and Springfield and Springfield and Montreal would include adding sidings and making track and bridge improvements. Preliminary Build Alternative 1 is the least expensive of the three preliminary build alternatives, with an estimated cost of \$615-\$785 million, and would result in the least ridership, with an estimated 681,500 passengers annually.

**Preliminary Build Alternative 2 - Corridor Service with Speed Improvements:** Preliminary Build Alternative 2 would add to the services provided by Preliminary Build Alternative 1 with the addition of four daily round trip express trains between Boston and New Haven, one daily round trip express train from Boston to Montreal, and one daily round trip express train from New Haven to Montreal. Preliminary Build Alternative 2 would also increase maximum train speeds to 79 mph and would use standard operations and train equipment. Infrastructure upgrades would include the improvements described in Preliminary Build Alternative 1 and a second track for all single track segments in the Worcester to Springfield Corridor as well as additional passing sidings in Vermont. Preliminary Build Alternative 2 is estimated to require capital costs of \$1,065-\$1,350 million. Under Preliminary Build Alternative 2, estimated ridership would increase by 76% over Preliminary Build Alternative 1, to 1,201,200 passengers annually.

**Preliminary Build Alternative 3 - Corridor Service with Speed and Equipment Improvements:** Preliminary Build Alternative 3 would, in addition to providing the service in Preliminary Build Alternatives 1 and 2, add five daily local round trip trains between Boston and Springfield. Preliminary Build Alternative 3 would also increase maximum train speeds to 90 mph and would utilize new tilting train sets. Necessary infrastructure upgrades for Preliminary Build Alternative 3 would include improvements to the existing railroad ROW, full train signalization, and additional sidings/double tracking. Under Preliminary Build Alternative 3, stations for non-express trains would be the same as in Preliminary Build Alternative 1 and would include the addition of express service for certain routes as in Preliminary Build Alternative 2. Preliminary Build Alternative 3 would include all of the capital improvements and services indicated in Preliminary Build Alternative 2 with the additional infrastructure and operations changes. Capital costs for Preliminary Build Alternative 3 are estimated to be \$1,255-\$1,590 million and ridership is expected to be 1,334,800 annual riders, approximately 96% more annual riders than Preliminary Build Alternative 1.

c. Evaluation of Preliminary Build Alternatives

There are limited locations on the NNEIRI Corridor that enable trains to operate at 90 mph due to track geometry. As a result, the travel time savings provided by Preliminary Build Alternative

3 compared to Preliminary Build Alternative 2 are significantly limited and did not justify the higher cost. Additionally, ridership would be significantly less under the Preliminary Build Alternative 1 with a maximum speed of 60 mph as compared to Preliminary Build Alternative 2 with a maximum speed of 79 mph. For these reasons, the NNEIRI Study Team considered Preliminary Build Alternative 2 to be the most promising of the three preliminary build alternatives due to a combination of infrastructure constraints, ridership, and costs. With some modifications described in the following section, the NNEIRI Study Team carried forward Preliminary Build Alternative 2 for further analysis in the EA.

d. No-Build Alternative

The No-Build Alternative includes all recently completed, ongoing, and planned improvements to the NNEIRI Corridor through 2035, including improved New Haven-Hartford-Springfield (NHHS) rail service, Springfield Union Station improvements, expansion of South Station in Boston, extension of the Amtrak Vermonter to Montreal, and improvements to the Montreal-area rail network. The No-Build Alternative does not include any additional improvements beyond those that have been recently completed, or are currently underway or planned for the NNEIRI Corridor. Under the No-Build Alternative, the maximum train speed is 59 mph on both the Inland and Boston-to-Montreal routes. The NNEIRI Study Team chose an analysis year of 2035 to assess the full impacts of service implementation. The 20-year time horizon is a standard FRA requirement for long-range rail planning.

*Existing and Proposed Passenger Service*

The No-Build Alternative assumes the continuation of the passenger rail services that currently operate on the NNEIRI Corridor, including:

- MBTA Southside Commuter Rail Services (Boston South Station – Back Bay Station);
- MBTA Worcester Line Service (Boston to Worcester);
- Amtrak Lakeshore Limited Service (Boston to Chicago via Springfield and Albany);
- Amtrak Vermonter Service (Washington, D.C. to St. Albans via New Haven, Springfield, and White River Junction); and
- Amtrak Northeast Shuttle and Northeast Regional Service (New Haven to Springfield).

In addition, new and improved passenger rail operations are anticipated for:

- MassDOT Knowledge Corridor/Restore Vermonter Project service changes between Springfield and East Northfield, Massachusetts;
- CTDOT New Haven-Hartford-Springfield Rail Service between New Haven, Connecticut and Springfield, Massachusetts; and
- Amtrak Vermonter extension from St. Albans, Vermont to Montreal, Quebec on the NECR and CN Lines.

Existing intercity passenger rail service along the NNEIRI Corridor varies significantly by segment, ranging from 24 daily round trips between Boston and Worcester to one round trip each between Springfield and St. Albans, and Springfield and Worcester.

### *Current and Planned Infrastructure Upgrades*

The No-Build Alternative assumes known capacity and speed upgrades to the NNEIRI Corridor that are currently in progress or planned to occur. Completed or underway improvements include:

- As part of the Knowledge Corridor/Restore Vermonter Project, Amtrak Vermonter service has been reestablished along the Connecticut River Line between Springfield and East Northfield, Massachusetts. Service on this track segment began in December 2014 and all related project work will be completed in fall 2016;
- CTDOT infrastructure improvements on the NHHS rail line, including double tracking and station improvements between New Haven, Hartford, and Springfield; and
- Restoration of Springfield Union Station, including installation of a high level station platform.

Planned improvements include:

- Expansion of Boston South Station to accommodate additional track capacity, train storage space, and provide additional station platforms;
- Construction of a new U.S. Customs and Immigration Services and Canada Border Services Agency station at Montreal Central Station Customs Checkpoint to allow faster travel in and out of Canada for passenger trains; and
- Improvements to infrastructure between the U.S. border and Montreal, Quebec identified in the Quebec Ministry of Transportation study, *Study Of CN And CP's Rail Networks Between Montréal And The U.S. Border* released in 2014.

#### e. Build Alternative

Based on the preliminary build alternatives analysis, stakeholder input, public meetings, and technical review by public agencies, the NNEIRI Study Team developed a single Build Alternative. The Build Alternative is based on a combination of elements from the three preliminary build alternatives that best addressed the NNEIRI Study's Purpose and Need, while balancing feasibility and cost effectiveness.

The three primary factors used to determine the Build Alternative were infrastructure constraints, ridership, and cost. The Build Alternative is most similar to Preliminary Build Alternative 2 in terms of infrastructure, but it also includes changes to the proposed service plan. Capacity constraints in the vicinity of Montreal as well as anticipated limited ridership based on ridership forecasting on the Boston to Montreal service warranted reducing the proposed service in that segment. The Build Alternative eliminates Express Service because it would result in minimal travel time savings and effect on ridership. Table 5-2 compares the Build Alternative to Preliminary Build Alternative 2. Figure 5-1 profiles the services and speeds of the Build Alternative.

The Build Alternative would utilize existing rail corridors and existing stations except at Palmer, Massachusetts where a new station is proposed, and at Worcester Station where an additional passenger platform is proposed. The Build Alternative proposes the addition of a second track in



all locations between Springfield and Worcester in Massachusetts where second track existed historically, but is currently single tracked, and between Brattleboro and Bellows Falls, and St. Albans and Swanton in Vermont where single track currently exists. The segment between Springfield and Montreal has portions which currently have two tracks, historically had two tracks, or have always been single tracked with sidings. A new third track is proposed between Spencer and East Brookfield in Massachusetts where double tracks currently exist. The Build Alternative proposes to extend passing sidings at East Northfield, Massachusetts to Vernon, Vermont and at Randolph and Roxbury, Vermont.

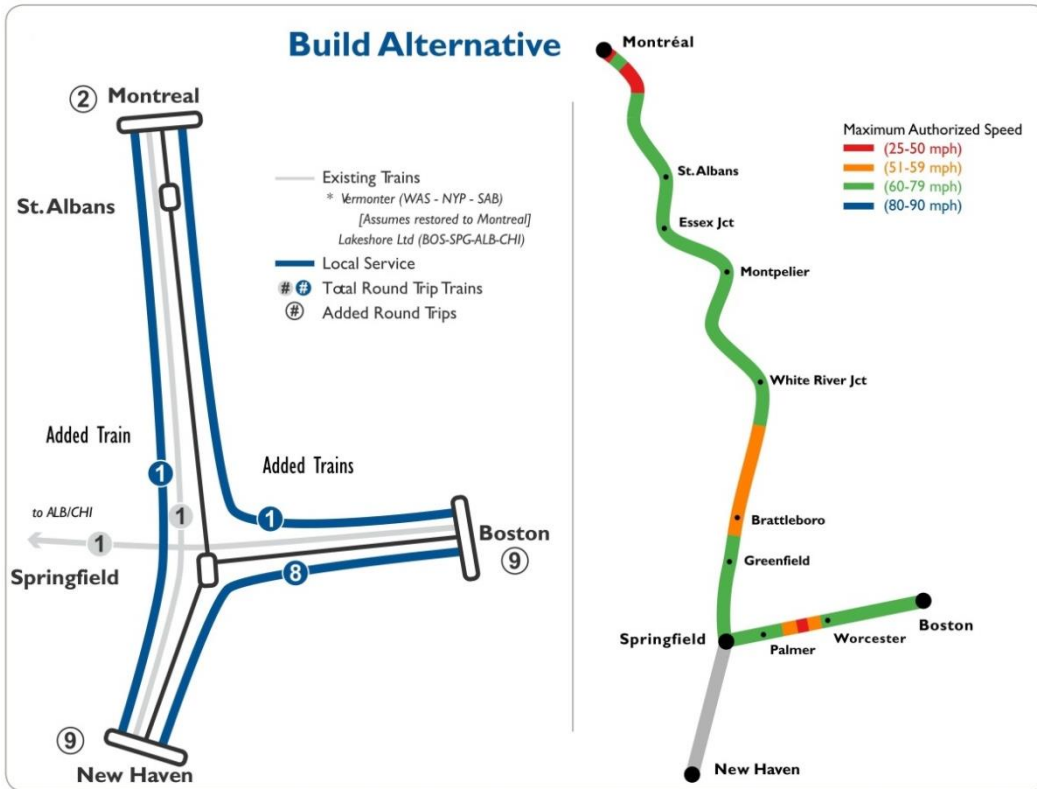
The Build Alternative would add eight new daily round trip trains between Boston and New Haven, one new daily round trip between Boston and Montreal, and one new daily round between New Haven and Montreal. The NNEIRI service would use the same border crossing as the existing NECR line and is the same border crossing that was used by the legacy Amtrak Montrealer service.

**Table 5-2: Preliminary Build Alternative 2 vs. Build Alternative**

	Preliminary Build Alternative 2	Build Alternative
Top Speed	79 MPH	79 MPH
Express Service	Yes	No
BOS to NHV Roundtrips	8	8
BOS to MTL Roundtrips	3	1
NHV to MTL Roundtrips (Including Vermonter)	3	2
Worcester to Springfield Double Track	Yes	Yes
Additional Vermont Sidings	Yes	Yes
Infrastructure Costs (Excluding Trainsets)	\$610-760M <sup>5</sup>	\$736-821M
Annual Ridership (2035)	1,201,200	875,700

<sup>5</sup> Preliminary Build Alternative 2’s infrastructure costs are higher than the Build Alternative due to refinement in the infrastructure cost between the Alternatives Analysis and Service Development Plans.

**Figure 5-1: Build Alternative Services and Speeds**



*Build Alternative Service Plan*

*Boston to Montreal*

There is currently no passenger rail service in the region connecting northern New England to Montreal. Amtrak’s Adirondack line currently serves Montreal, but the route originates in New York City and only travels through the state of New York. Under the Build Alternative, one new roundtrip local service train would operate daily between Boston and Montreal, with trains serving all existing stations and a new station that would be constructed in Palmer, Massachusetts. The frequency of service is optimal due to the level of demand anticipated in the NNEIRI Study Team’s ridership forecasting.

Station stops would include:

- Boston (South Station and Back Bay)
- Framingham
- Worcester
- Palmer
- Springfield\*
- Holyoke\*
- Northampton\*
- Greenfield\*
- Brattleboro
- Bellows Falls
- Claremont
- Windsor (Vermont)
- White River Junction
- Randolph
- Montpelier
- Waterbury
- Burlington (Essex Junction)
- St. Albans
- Montreal (Central Station)

*Note: (\*) impacts previously reviewed in NHHS and Knowledge Corridor/Restore Vermonter EAs.*

#### *New Haven to Montreal*

Under the Build Alternative, one new roundtrip local service train would operate daily between New Haven and Montreal. This additional NNEIRI service would complement Amtrak’s Vermonter service and provide additional services to meet demand anticipated by ridership studies.<sup>6</sup> Station stops would include:

- New Haven\*
- Wallingford\*
- Meriden\*
- Berlin\*
- Hartford\*
- Windsor (Connecticut)\*
- Windsor Locks\*
- Springfield\*
- Holyoke\*
- Northampton\*
- Greenfield\*
- Brattleboro
- Bellows Falls
- Claremont
- Windsor (Vermont)
- White River Junction
- Randolph
- Montpelier
- Waterbury
- Burlington (Essex Junction)
- St. Albans
- Montreal (Central Station)

*Note: (\*) impacts previously reviewed in NHHS and Knowledge Corridor/Restore Vermonter EAs.*

#### *Boston to New Haven*

Under the Build Alternative, eight new round trips would operate daily between Boston, Massachusetts and New Haven, Connecticut. These services would be extensions of existing services operating on the NNEIRI Corridor between New Haven, Connecticut and Springfield, Massachusetts. The ultimate destination of each train (i.e., New Haven, New York, or Washington, D.C.) would be determined through discussions with Amtrak and coordination with other services operating along the Northeast Corridor at the time of NNEIRI service implementation. The service would make station stops at:

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<sup>6</sup> The NNEIRI Study assumes the extension of the Vermonter service to Montreal would occur as part of the No Build Alternative.

- Boston (South Station and Back Bay)
- Framingham
- Worcester
- Palmer
- Springfield\*
- Windsor Locks\*
- Windsor (Connecticut)\*
- Hartford\*
- Berlin\*
- Meriden\*
- Wallingford\*
- New Haven\*

Note: (\*) impacts previously reviewed in NHHS EA.

Table 5-3 compares by segment the Build Alternative passenger rail service to the existing weekday passenger rail service and the anticipated No-Build Alternative passenger rail service.

**Table 5-3. Summary of Weekday Revenue Passenger Service**

Segment	Operator(s)	Existing Revenue Daily Round trips	No-Build Alternative 2035 Revenue Daily Round Trips	Build Alternative 2035 Revenue Daily Round Trips
Boston to Worcester	MBTA	23	23	23
	Amtrak Lake Shore Limited	1	1	1
	NNEIRI Service	-	-	9*
Worcester to Springfield	Amtrak Lake Shore Limited	1	1	1
	NNEIRI Service	-	-	9*
Springfield to New Haven	Amtrak (Northeast Regional Shuttle, Northeast Regional & Vermonter)	6-8	25	25
	NNEIRI Service	-	-	9*
Springfield to St. Albans	Amtrak Vermonter	1	1	1
	NNEIRI Service	-	-	2

Note:

\* Of the total 9 daily round trip trains, 8 are extensions of the existing shuttle services that operate on the Corridor between New Haven and Springfield.

*Build Alternative Infrastructure Program*

The Build Alternative would require infrastructure upgrades at some locations on the NNEIRI Corridor to provide additional capacity and support increased speed. The Build Alternative’s track upgrades would support a maximum speed of 79 mph where possible. A second track or passing siding would be added in certain locations to support increased passenger and freight service. Full signalization would be installed in locations where it does not currently exist.

### *Right-of-Way (ROW)*

The Build Alternative does not propose any changes to the existing track alignment and all track work would take place within the existing railroad ROW. However, certain segments of the ROW would require improvements to accommodate increased speed and capacity. The following describes these improvements by segment.

*Boston to Springfield* – The Build Alternative would not necessitate significant changes on the line between Boston and Worcester. Beginning in Worcester, the following upgrades would be necessary to accommodate passenger operations and existing freight traffic.

- **Track Improvements:** Track upgrades would allow for FRA Class 4 train operations between Worcester and Springfield, allowing passenger trains to operate up to 79 mph where track geometry allows. The Build Alternative would include two miles of new track, three new turnouts, and one railroad crossing upgrade.
- **Track Capacity Upgrades:** The ROW between Worcester and Springfield was historically a double track corridor. However, most of the second track was removed in the mid- 20th century. The additional NNEIRI service of the Build Alternative would require the reconstruction of the second track between Worcester and Springfield in all locations where it existed historically, but is currently single tracked. In addition, one double track location in this segment would require an additional siding to accommodate NNEIRI service. The location is Spencer to East Brookfield (Milepost 59.3-63.3).
- **Bridge Work:** The Build Alternative would utilize existing bridges and improve them, where necessary, in order to accommodate the proposed service. Bridge work would include approximately 2,135 feet of bridge rehabilitation as well as 1,805 feet of bridge redecking. Bridge work is necessary for the restoration of the second track between Boston and Springfield and would take place on the CSX-owned track sections.

*Springfield to the Canadian Border* - The Build Alternative would require upgrades to accommodate passenger operations and existing freight traffic, as follows:

- **Track Improvements:** Track upgrades would allow for Class 4 train operations between Springfield and the Canadian Border, allowing passenger trains to operate up to 79 mph where track geometry allows. The Build Alternative would include 40 miles of new track, 45 new turnouts, and 18 railroad crossing upgrades.
- **Track Capacity Upgrades:** To accommodate the Build Alternative’s increased passenger service in this segment, a second track or passing siding would be added at 6 segments and/or locations from East Northfield, Massachusetts to Swanton, Vermont.
- **Bridge Work:** The Build Alternative would utilize existing bridges and improve them, where necessary, in order to accommodate the proposed service. This work would include approximately 350 feet of bridge replacement for Walpole, New Hampshire and East Alburgh, Vermont.

### *Signal Systems*

The NNEIRI Corridor currently has train control signal systems between Boston and Springfield. Due to the additional level of service of the Build Alternative, a full train control signal system would be needed along the full length of the ROW. The Build Alternative would include state-of-good-repair conditions for signals and grade crossings.

Centralized Traffic Control (CTC) would be added over the areas of the NECR that are currently under Track Warrant Control (TWC) and compatible with positive train control (PTC) regulatory requirements, including the section from East Northfield, Massachusetts to West River (located in Brattleboro, Vermont), and from White River Junction, Vermont to the Canadian border at Alburgh, Vermont. To upgrade to CTC in these Vermont areas, 57 intermediate signals would be installed approximately every two miles along the line and interlocking signals would be added at both ends of key existing passing sidings intended for use in this area. These sidings are located at St. Albans, Oakland (Georgia), Berlin, Roxbury, Bethel, S. Royalton, Hartland, Swanton, Fonda Jct. (Swanton), Bolton, Randolph, and Brattleboro.

### *Station Infrastructure*

The Build Alternative would not require any major improvements to existing stations on the NNEIRI Corridor, except for the construction of an additional passenger platform at Worcester Union Station. The new platform would be located in the center of the existing ROW. Connection to the Worcester Union Station would be provided via a new vertical access to an existing pedestrian tunnel that was historically used to connect passengers to center island platforms. Tracks at the station would be re-configured to accommodate the new platform, including the addition of new interlockings. Additionally, a controlled siding in Worcester would be taken out of service to accommodate the new platform and track configuration.

In addition, the Build Alternative proposes service to Palmer, Massachusetts, which would require construction of a new station in the town. Despite a historic headhouse and station platforms, the configuration of the existing historic station in Palmer precludes the installation of high level platforms and double main tracks that are included in the Build Alternative. The exact location of a new station in Palmer would be determined upon further refinement in a later phase of the NNEIRI Study and evaluated in a future project level, Tier 2 analysis.

### *Ridership Forecasts*

Based on the 2035 annual ridership forecasts, the Build Alternative would result in a total of 875,000 annual riders (an increase of 795,100 riders over the No-Build Alternative) and an annual diversion of 113,847,700 vehicle miles traveled (VMT). Table 5-4 summarizes the 2035 annual forecast results.

**Table 5-4. 2035 Annual Forecast Results**

	No-Build Alternative	Build Alternative
Total Annual Ridership <sup>a</sup>	79,900	875,000
Incremental Ridership <sup>b</sup>		795,100
<b>Total Annual VMT Diverted<sup>a</sup></b>		<b>113,847,700</b>

Notes:

<sup>a</sup> Ridership is based on boardings with origins and/or destinations in the NNEIRI Corridor. The ridership does not include trips in the NHHS Corridor, including between Springfield, New Haven, and New York/NEC.

<sup>b</sup> Relative to No-Build Alternative. Ridership is based on boardings.

## 5 SELECTED ALTERNATIVE

MassDOT, VTrans, and FRA have selected the Build Alternative for the NNEIRI Study (Selected Alternative). The No-Build Alternative was not selected because it would not meet the NNERI Study’s Purpose and Need of enhancing intercity transportation options in New England. The Selected Alternative would allow for more frequent and higher speed intercity passenger rail service on two major rail routes, the Inland Route and the Boston-to-Montreal Route, connecting cities in northern New England and adding service from the region to Montreal where it currently does not exist.

## 6 AFFECTED ENVIRONMENT AND CONSEQUENCES

Based upon the EA (which along with associated appendices are incorporated by reference in this FONSI), the FRA has concluded the Selected Alternative will have no foreseeable significant impact on the quality of the natural and human environment, in large part due to the use of existing operating rail lines within existing ROW, and the proposed infrastructure improvements being located within alignments that were in the past double or triple tracked. The FRA finds the Selected Alternative is best able to achieve the NNERI Study’s Purpose and Need without significant environmental impacts and by minimizing costs.

If the NNEIRI Study 1) advances to the project level; and 2) federal approval is required or federal funding is provided for implementation of any of the improvements described in the Selected Alternative, individual project proponent(s) would follow the Tier 1 EA with a Tier 2 analysis, or analyses. The Tier 2 analysis, or analyses, would identify and evaluate project-specific impacts, and describe any mitigation measures associated with those impacts.

The FONSI focuses only on those resources that have a reasonable likelihood to be adversely affected by the NNEIRI Study. The following potential impact areas are not located within the NNEIRI Study’s study area or will otherwise not be significantly adversely affected by the NNEIRI Study, and are therefore not addressed in this FONSI: coastal zone management, solid waste disposal, recreational resources, and use of natural resources, such as water, minerals, or timber.

The potential environmental impacts of the NNIERI Study are summarized in Table 6-1. Table 6-1 also presents the additional NEPA analysis that may be needed at Tier 2, if: (1) the proposed improvements described in the Selected Alternative are advanced through design; and (2) there is federal funding for construction of those improvements and/or required federal permitting or other approval. Mitigation measures for Tier 2 project(s) are also described in the table.

**Table 6-1. Summary of Potential Environmental Consequences and Next Steps**

Environmental Resource	Impact of Selected Alternative	Next Steps	
		Mitigation Measures	Tier 2 NEPA Analysis
Air Quality	A shift to passenger rail expected to reduce vehicle miles traveled (VMT) and improve regional air quality.	Mitigation measures not anticipated.	General Conformity analysis would be conducted by FRA or other lead federal agency.
Noise and Vibration	Potential for a total of 435 severe noise impacts, 11,827 moderate noise impacts, and 2,234 vibration annoyance impacts. * <i>*Impacts based on worst case scenario, estimates would likely decrease when a more detailed analysis is performed.</i>	Mitigation measures would be required for any severe noise impacts. These may include noise barriers, operational changes, stationary wayside horns at grade crossings, horn shrouds on locomotives, and resilient rail fasteners and ties.	Project level analysis by FRA or another lead federal agency would more precisely determine the number of potential noise and vibration impacts that may require mitigation.
Flood Hazards and Floodplain Management	Minor impacts possible. Additional track construction would take place within or adjacent to mapped floodplain for approximately 28 miles. Impacts expected to be minor due to restoration of historically double-tracked corridor.	If significant impacts are unavoidable, mitigation would be required, such mitigation could include constructing a detention/retention basin to handle runoff and any lost flood storage capacity.	Tier 2 project proponent(s) would attempt to avoid and minimize loss of flood storage capacity. Potential impacts to floodplains would require further assessment and agency coordination to determine whether mitigation measures are necessary.
Water Quality	Minor impacts possible. Additional track construction would take place within or adjacent to water resources in MA and VT. Impacts expected to be minor due to restoration of historically double-tracked corridor.	All construction activities would comply with the applicable state's stormwater quality manual. Best Management Practices (BMP)s for erosion and sedimentation control would be followed.	Design details would be developed to avoid or reduce potential water quality impacts associated with the Selected Alternative. The Tier 2 project proponent(s) would coordinate with Vermont Department of Environmental Conservation (VTDEC) and Massachusetts Department of Environmental Protection (MassDEP) for final designs and permits.
Wetlands	Minor impacts possible. Additional track construction would take place for approximately 13 miles within mapped wetland buffer area in MA and VT. Impacts	If significant wetland impacts cannot be avoided, mitigation measures that compensate for or offset those impacts would be required. Such measures	Tier 2 project proponent(s) would attempt to avoid and minimize wetland impacts. Potential impacts to wetlands would require further



Environmental Resource	Impact of Selected Alternative	Next Steps	
		Mitigation Measures	Tier 2 NEPA Analysis
	expected to be minor due to restoration of historically double tracked corridor.	could include restoration, creation, enhancement, and/or preservation of wetlands.	assessment and be subject to state and federal permitting requirements.
Ecological Systems, Threatened and Endangered Species (T&E), and Wildlife	Minor impacts possible. Additional track construction would take place within or adjacent to mapped endangered species habitat for approximately 16 miles. Construction activities could require clearing of trees and vegetation that serve as habitat for protected species. Impacts expected to be minor due to utilization of historically double tracked corridor.	If significant impacts cannot be avoided, then mitigation measures include but are not limited to: pre- and/or post-construction monitoring of populations, and restoration, enhancement, and conservation of impacted habitats. Appropriate mitigation would be determined through consultation under Section 7 of the Endangered Species Act during Tier 2.	The Tier 2 the project proponent(s) would confirm records of federal- or state-listed species with the appropriate resource agencies and seek to avoid and minimize impacts. FRA or another lead federal agency would informally or formally consult, as necessary, with the US Fish and Wildlife Service in accordance with Section 7 of the Endangered Species Act.
Land Use, Existing and Planned	No impacts anticipated due to use of existing rail corridor. Improvements would be consistent with existing land use as a transportation corridor. Palmer Station is not anticipated to have impacts on land use because any new improvements would be limited to the existing railroad ROW and would be consistent with the existing local land use and zoning.	Mitigation measures not anticipated.	During Tier 2, the location and design of a new Palmer Station would be determined. Project proponent(s) would coordinate with the affected municipalities to ensure compatibility with present and future land uses.
Socioeconomic and Environmental Justice	Potential beneficial impact on economic development and EJ populations in the vicinity of existing and proposed stations is anticipated as there is a high percentage of minority and low-income populations near the stations along the NNEIRI Corridor. Positive impacts are anticipated through service enhancements and additional trains, which would improve access to regional passenger rail services and to employment and commercial centers.	Any potential mitigation measures, if required, would be determined during the Tier 2 project level analysis.	Upon completion of engineering plans, additional EJ analysis would be conducted by the project proponent(s).
Possible Barriers to the Elderly and Handicapped	Positive impacts to elderly and handicapped persons are anticipated, as people who cannot drive may be able to use rail service. Does not create any additional barriers to	Mitigation measures not anticipated.	Further analysis not anticipated.

Environmental Resource	Impact of Selected Alternative	Next Steps	
		Mitigation Measures	Tier 2 NEPA Analysis
	elderly and handicapped.		
Public Health and Safety	Positive impacts are anticipated through the diversion of 113 million vehicle miles travelled per year (analysis year 2035) to rail mode, which has a low fatality rate compared to motor vehicles. Improvements to some signals and grade crossings would result in a benefit to public health and safety.	Mitigation measures not anticipated.	Further analysis not anticipated.
Hazardous Materials	No impacts anticipated. No active hazardous waste sites were identified in locations where construction would take place.	If required, mitigation measures may include soil samples to determine the nature of contaminated soil, storage techniques that contain run-off, use of material within ROW, and requirements for transporting and disposing of unused contaminated materials.	If hazardous materials are encountered during construction, the project proponent(s) would coordinate with MassDEP and VTDEC, as appropriate, to comply with all applicable regulations.
Aesthetic and Design Quality Impacts	No impacts anticipated. There may be potential visual impacts at Palmer due to construction of a new station. Palmer Station design would be addressed during Tier 2.  No impacts anticipated at Worcester Union Station since the platform would be located within the ROW in an area historically used for station platforms and the elevator and stair would be connected from tunnel below the tracks; therefore, no visual impacts to Worcester Union Station are anticipated.	If necessary, mitigation strategies could include landscaping to screen views of adverse impacts or use of building materials consistent with the surrounding area.	During Tier 2, more details relating to the design of a new Palmer Station and a platform at Worcester Union Station would be developed. At that time, further analysis would be conducted to determine any adverse visual impacts.
Cultural Resources and Historic Properties	Based on the nature of the improvements that would be necessary to implement NNEIRI service, direct and indirect effects to historic properties are likely. Replacement or rehabilitation of bridges would directly affect these resources. Ground disturbing activities in undisturbed areas could potentially affect archaeological resources. Construction of new railroad infrastructure and increased train frequencies and speeds could potentially result in visual, noise,	If adverse effects to properties listed in or eligible for listing in the National Register of Historic Places (NRHP) are determined, measures to avoid, minimize or mitigate those effects would be developed through consultation with the appropriate State Historic Preservation Officer(s) and other consulting parties as part of consultation under Section 106 of the National	The National Historic Preservation Act Section 106 process would be followed if construction of the Selected Alternative receives federal funding or permits. This would involve defining the project Area of Potential Effects (APE), further identification of historic properties, assessment of effects, and resolution of adverse effects by FRA or another lead federal agency

Environmental Resource	Impact of Selected Alternative	Next Steps	
		Mitigation Measures	Tier 2 NEPA Analysis
	and/or vibration effects to historic architectural resources adjacent to the ROW. At the Tier 1 level, there is not enough information to be able to assess and determine effects to historic properties.	Historic Preservation Act at Tier 2.	in consultation with the MA, NH and/or VT SHPOs and other consulting parties as appropriate.  Section 11504 of the Fixing America's Surface Transportation (FAST) Act (Pub. L. 114-94) enacted on December 4, 2015 mandates the development of a Section 106 exemption for railroad ROW; it is possible that certain railroad-related properties along the NNEIRI Corridor will be exempt from the requirements of Section 106 in the future.
4(f) Protected Properties	Based on the type of improvements that would be necessary to implement NNEIRI service, there is the potential for the use of 4(f) historic properties. However, at the Tier 1 level, there is not enough information to be able to assess and determine the use of these properties.  Improvements that would be necessary to implement NNEIRI service are not anticipated to require the use of other types of 4(f)-protected resources (e.g., parks, wildlife refuges), because the improvements would be located within the existing ROW of active rail corridors.	If there is both the use of a 4(f) property and no prudent and feasible alternative, the project would include all possible planning to minimize harm.	Full Section 4(f) analysis would occur during Tier 2 project level analysis to determine impacts to publicly owned parks, recreation areas, wildlife and waterfowl refuges, public or private historic sites, historic bridges and culverts and possible archaeological sites. A 4(f) determination would be made at Tier 2.
Section 6(f) Lands	Improvements would be limited to the existing ROW and therefore impacts to 6(f) properties are unlikely.	If a conversion of 6(f) property is required, a request must be submitted to the NPS including a proposal to substitute the property with another of equal or better usefulness and value.	During Tier 2, once the design has advanced, additional data may be collected regarding 6(f) properties to determine impacts.
Traffic and Transportation	Given the low number of traffic movements anticipated at each station, significant impacts are unlikely. The addition of passenger rail service would result in benefits to transportation by providing options for modes of travel.	Mitigation measures not anticipated.	As the design develops and more data can be collected, further traffic impact analysis around stations would be conducted during Tier 2.

Environmental Resource	Impact of Selected Alternative	Next Steps	
		Mitigation Measures	Tier 2 NEPA Analysis
Use of Energy Resources	Beneficial impact to energy resources due to overall energy reduction from diverting passenger car trips.	Mitigation measures not anticipated.	Construction impact analysis would be conducted during Tier 2.
Construction Period Impacts	Construction-related impacts would be temporary at any given location along the NNEIRI Corridor. Track work would largely be sited within the existing rail ROW using rail-mounted equipment, and should not involve large quantities of earthwork.	Construction-phasing plans that avoid, minimize or mitigate temporary impacts would be developed in coordination with appropriate agencies. Temporarily impacted natural resources would be restored to their pre-construction conditions. Standard construction BMPs would be followed to address stormwater runoff, fugitive dust, emissions from construction equipment, etc.	During Tier 2, the duration of construction would be better defined and appropriate mitigation measures identified. The sequence and extent of construction would be determined and staging plans developed.
Indirect and Cumulative Impacts	Indirect and cumulative impacts generally beneficial due to induced development and additional transportation mode choice.	Mitigation measures not anticipated.	During Tier 2, once the design has advanced, further evaluation of indirect and cumulative impacts would be conducted.

## 7 STAKEHOLDER OUTREACH AND COORDINATION

MassDOT and VTrans formed a Stakeholder Committee to provide oversight, direction and primary product review for the NNEIRI Study. The committee was comprised of key stakeholders, including MassDOT, CTDOT, VTrans, Québec Ministry of Transportation, New Hampshire Department of Transportation, FRA, Amtrak, the Massachusetts Bay Transportation Authority, Metropolitan Transportation Authority Metro-North Railroad (Metro-North), CSX, NECR, and thirteen regional planning commissions located in Massachusetts, Vermont, Connecticut and New Hampshire.

The NNEIRI Study Team used feedback from stakeholder meetings to develop the Build Alternative. MassDOT and VTrans integrated public participation into the study process through the Stakeholder Committee, public outreach meetings, a project website, newsletters/bulletins, and coordination with other rail projects such as the NHHS Project, Vermont Rail Plan and Northeast Corridor (NEC) Future.

Stakeholder and public outreach was carried out with the following six major objectives:

- Identify a broad range of stakeholders from all geographic regions of the NNEIRI Corridor.
- Integrate public outreach activities and meetings with key study tasks and key milestones.

- Engage potentially affected communities, including minority and low-income populations, in compliance with the Title VI of the U.S. 1964 Civil Rights Act and Environmental Justice Executive Order 12898.
- Provide written materials and communication to non-English speaking populations.
- Consider public input. Monitor public comments submitted through the NNEIRI Study website, emails and letters to staff, comment forms received at public meetings, and provide direct responses to questions posed by members of the public.
- Utilize many communication tools. Provide information in multiple formats to reach a broad spectrum of the public.

MassDOT and VTrans conducted five Stakeholder Committee meetings between December 2013 and June 2015. The Stakeholder Committee supported the goals and objectives of the NNEIRI Study and provided feedback through open discussion during the Stakeholder Committee meetings on all study documents produced, including the Existing Conditions Assessment, statement of Purpose and Need, Station Site Assessment and Guidelines, Alternatives Analysis Report, and draft SDPs.

MassDOT and VTrans held three rounds of public meetings. There were two meetings in each round, except for the third and final round in which there were three public meetings. In January 2014, a meeting was held in White River Junction, Vermont and in Springfield, Massachusetts with approximately 40 and 115 attendees, respectively. In November 2014, a meeting was held in White River Junction, Vermont and in Worcester, Massachusetts, with each drawing approximately 35 attendees. The final round of meetings occurred in September 2015, in Boston and Springfield, Massachusetts and White River Junction, Vermont. Each drew approximately 15, 50 and 30 attendees, respectively.

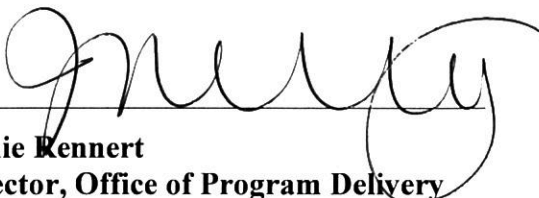
Public input included comments specific to a region, such as advocacy for the preservation of a station stop in Claremont, New Hampshire and disappointment that the NNEIRI Study did not focus on increasing passenger service to the Berkshire Region of western Massachusetts, as well as common overarching themes. Many meeting attendees cited the need for more frequent trains, not high speed trains, and better connections to airports and intercity bus service. Several people said more trains should be run on existing tracks as soon as possible while plans for track and train set upgrades are developed. Assumptions used to project ridership and costs were discussed at the public meetings. Attendees offered the opinion that ridership projections were too low. Public views about the cost of establishing new rail service varied. Some thought the projected costs were too high while others thought they were too low because they believed the need to replace railroad infrastructure such as bridges was underestimated.

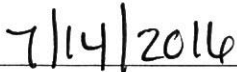
Twenty-seven (27) written comments have been received since the initiation of the NNEIRI Study. Several comments were submitted by members of the Stakeholder Committee or by attendees of the public meetings. Many of the comments reiterated themes expressed at previously held meetings such as advocacy for station stops, especially the Claremont, New Hampshire station and at Palmer, Massachusetts. Throughout the study, the NNEIRI Study Team explained how the NNEIRI service would serve these communities as analysis showed that intercity service within the NNEIRI Corridor yielded the majority of the ridership, not the longer end-to-end passenger trip. Members of the public in Southern Vermont advocated for better connections between Brattleboro, Vermont to Boston and to New York City. The NNEIRI

service would increase the number of trains operating between these destinations. Several people supported the re-connection of service to Montreal. The NNEIRI service proposed the reconnection of this route. One person recommended extending Amtrak's Downeaster service from Boston to Worcester via the Grand Junction cut off tracks through Cambridge, Massachusetts, a route outside the scope of this study.

## 8 CONCLUSION

FRA finds that the NNEIRI Study as presented and assessed in the attached EA satisfies the requirements of NEPA (42 USC § 4321 *et seq.*), Council on Environmental Quality (CEQ) regulations (40 CFR parts 1500-1508), and FRA's Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999), and the Selected Alternative would have no foreseeable significant impact on the quality of the human or natural environment provided it is implemented in accordance with the commitments identified in this FONSI. The EA provides sufficient evidence and analysis for FRA to determine that an environmental impact statement is not required for the NNEIRI Study as presented.

  
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**Jamie Kennert**  
**Director, Office of Program Delivery**  
**Federal Railroad Administration**

  
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**Date**

FRA's Office of Railroad Policy and Development, with assistance from FRA's Office of Chief Counsel, prepared this document in July 2016 in accordance with FRA's Procedures for Considering Environmental Impacts and NEPA. For further information regarding this FONSI contact:

Laura A. Shick  
Environmental Protection Specialist  
U.S. Department of Transportation  
Federal Railroad Administration  
Office of Railroad Policy and Development  
RPD-13  
1200 New Jersey Avenue, SE  
Washington, DC 20590  
(202) 366-0340

MassDOT and VTrans assisted FRA's Office of Railroad Policy and Development in preparing the attached EA.