

What is NEC FUTURE?

A Long Term Vision for the NEC

NEC FUTURE is the Federal Railroad Administration's (FRA) comprehensive effort to plan for future investments in the Northeast Corridor (NEC), the rail transportation spine from Washington, D.C. to Boston. The FRA is developing both a long-term vision for the NEC and near-term actions to improve passenger service.

The NEC was built for a different era and lacks capacity to meet future needs. In planning for improvements, the FRA seeks a better understanding of the changing travel patterns in the Northeast and what they mean for the NEC's future:

- How and where will people need to travel in 2040?
- What types of rail service would best serve these markets?
- How much more capacity will be needed?



The FRA, its partner agencies and the public have important decisions to consider:

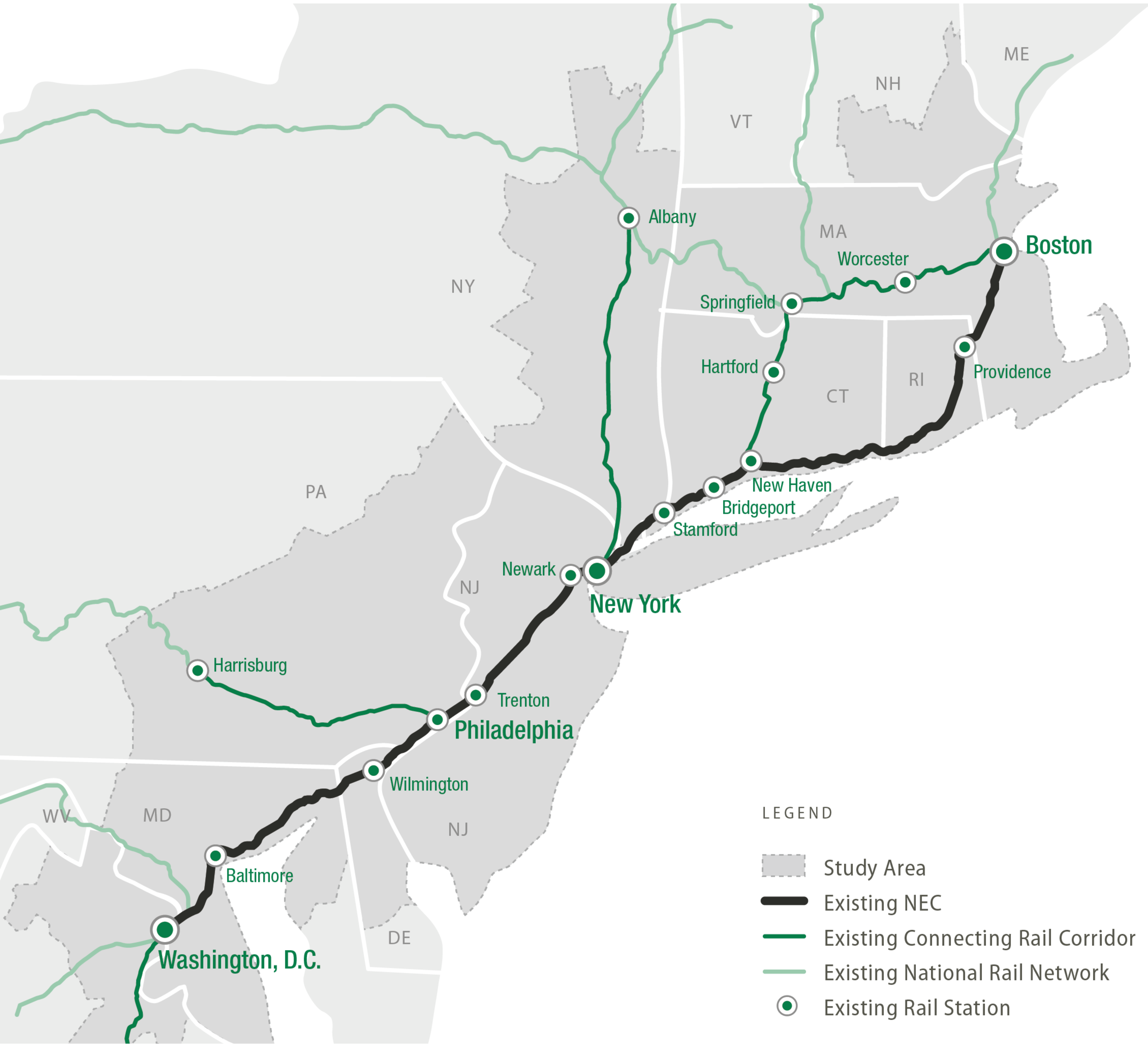
- What role will passenger rail play in the region's future?
- What improvements are needed to make the most of the existing NEC?
- How should NEC services evolve?



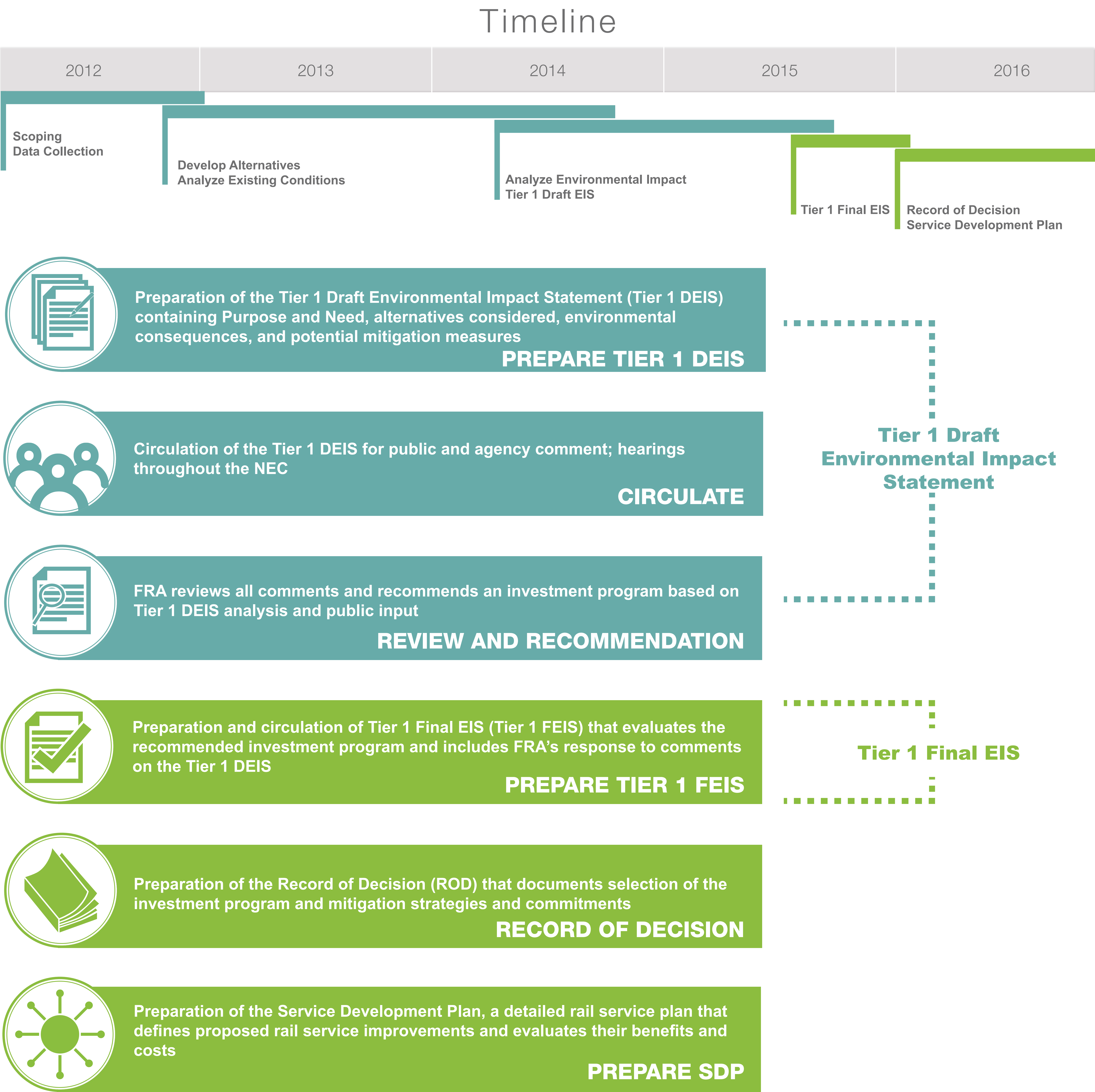
STUDY AREA



The NEC FUTURE Study Area extends from the Washington, D.C. metropolitan area to the Boston, MA metropolitan area. It includes the areas where benefits and impacts of improvements to the NEC are most likely to occur. NEC FUTURE is also considering the implications of rail travel to and from markets and areas connected to the Study Area, such as the effects of future demand from trips originating in Virginia, Vermont, New Hampshire, Maine, and Montreal.



The NEC FUTURE program includes a broad environmental analysis, called a **Tier 1 Environmental Impact Statement** (EIS) and a **Service Development Plan** (SDP). Together these studies will guide investments in the corridor through 2040. The outcome will be a package of improvement projects intended for phased completion.



THE NEC TODAY AND BEYOND



Operations and Ridership

The NEC is used by **intercity**, **regional**, and **freight** carriers. Balancing their current and future needs is a major focus of NEC FUTURE.

The NEC is one of the most heavily traveled rail corridors in the world:

- Over 2,000 passenger trains move 750,000 passengers daily
- Services provided by 8 commuter railroads and Amtrak
- 70 daily freight trains move 350,000 million tons of freight annually

Constraints to Growth

The NEC faces constraints that increasingly create delays and limit the ability to expand service. These include:

- Limited track capacity
- Speed restrictions
- Aging Infrastructure:
 - Bridges
 - Tunnels
 - Obsolete interlockings (equipment that enables trains to move between tracks)
 - Power systems that rely on 1930s era components

Addressing these issues and bringing the NEC to a state of good repair is essential to ensure safe and reliable operations and the ability to grow to meet future demand.

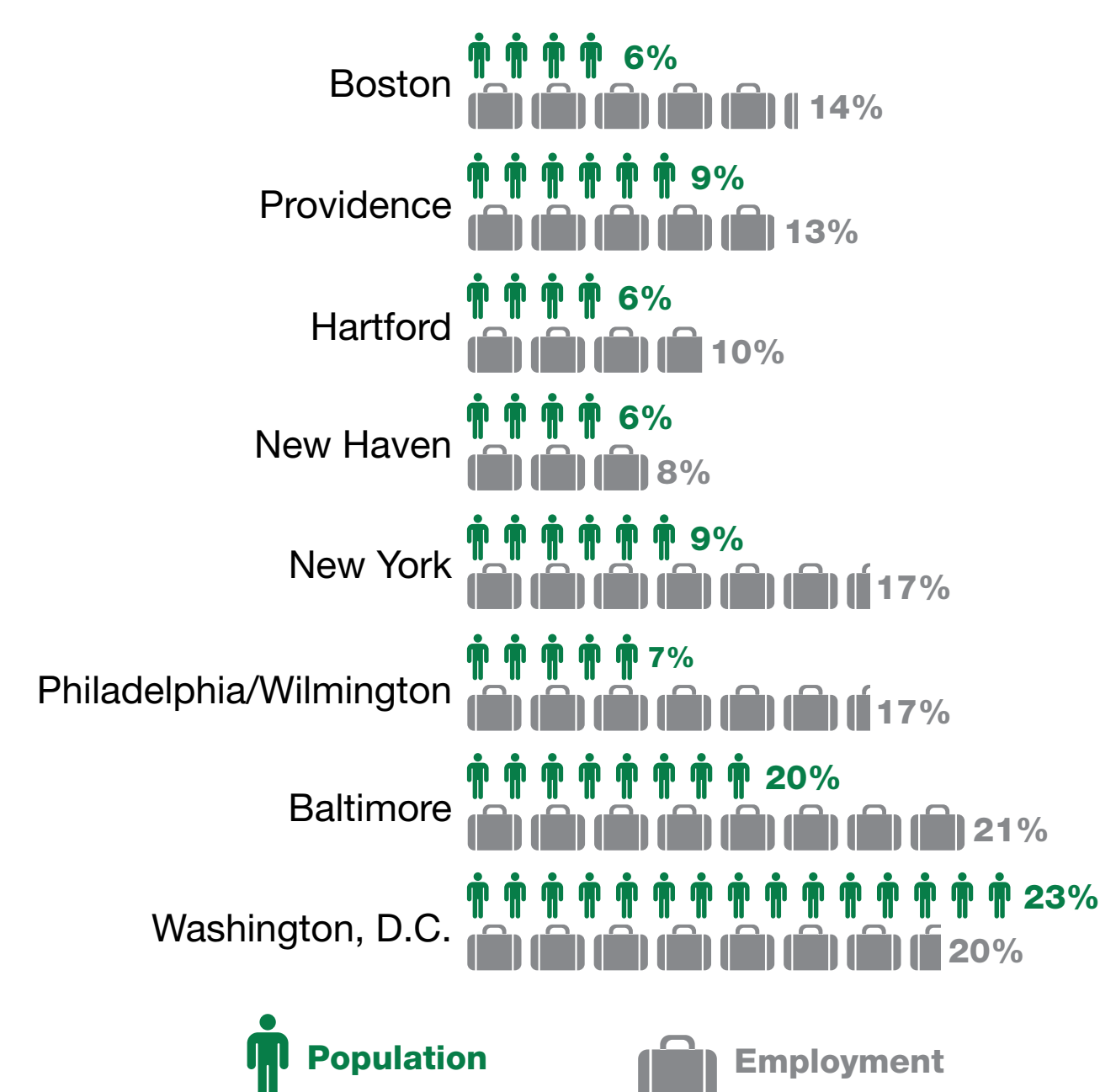


Importance to Region

- The Northeast Region generates 20% of the national gross domestic product.
- Daily NEC users contribute over \$50 billion to the American economy per year
- A loss of the NEC for one day could cost the nation nearly \$100 million in transportation-related impacts and productivity losses.*
- The region's population and employment are expected to grow 12% and 11%, respectively, by 2040. This will increase demands on all transportation modes.

*NEC Commission, 2014

Projected Change in Population and Employment by Metropolitan Area, 2012-2040



Source: Moody's Economic Forecast, July 2014



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PURPOSE AND NEED

Purpose

The purpose of the NEC FUTURE program is to upgrade aging infrastructure and to improve the reliability, capacity, connectivity, performance, and resiliency of passenger rail service on the NEC for both intercity and regional trips, while promoting environmental sustainability and economic growth.

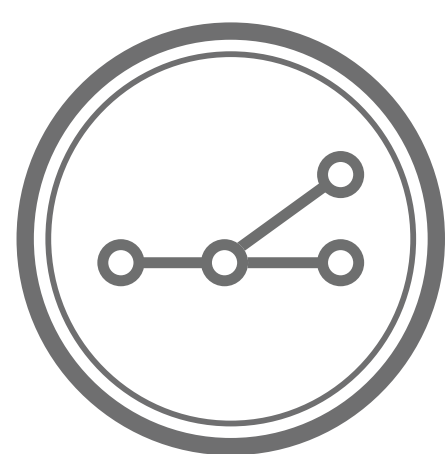


Overall **needs** for the NEC FUTURE program include the following:



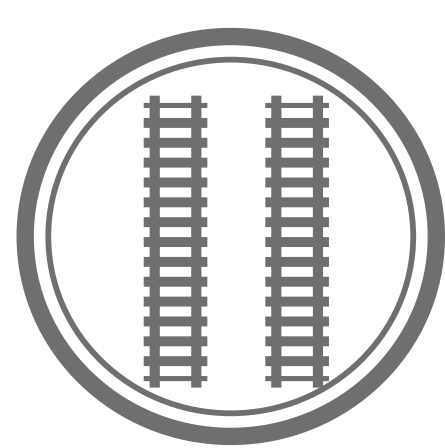
State of Good Repair

Service quality currently falls short, due to the aging and obsolete infrastructure that has resulted from insufficient investment in maintaining a state of good repair on the existing NEC. Achieving and maintaining a good repair is needed to improve service.



Connectivity

The reach and effectiveness of the passenger rail network are limited by gaps in connectivity among transportation modes and between different rail services.



Capacity

Severe capacity constraints at critical infrastructure chokepoints limit service expansion and improvement, making it difficult to accommodate existing riders and growth in ridership.



Performance

In many markets, the trip times on passenger rail within the Study Area are not competitive with travel by air or highway. Improvements in travel times, frequency, or hours of service are needed to make passenger rail competitive with other modes.



System-Wide Resiliency

The NEC is vulnerable to the effect of severe storms. A more resilient and redundant passenger rail network is needed to enhance safety, security, and the reliability of the region's transportation system.



Environmental Sustainability

Throughout the Study Area, energy use and emissions associated with transportation affect the built and natural environment. Passenger rail can help meet the region's mobility needs with fewer environmental impacts.



Economic Growth

A transportation system that provides options for reliable, efficient, and cost effective movement of passengers and goods is needed for continued economic growth in the Northeast region. The region's knowledge-based economic sector, including academic research and medical facilities, is especially reliant on access to convenient, reliable, and frequent rail service.



ALTERNATIVES DEVELOPMENT PROCESS



The FRA has considered a broad range of alternatives for the NEC, beginning with a public scoping process in 2012. The alternatives development process included three steps:

Initial Alternatives

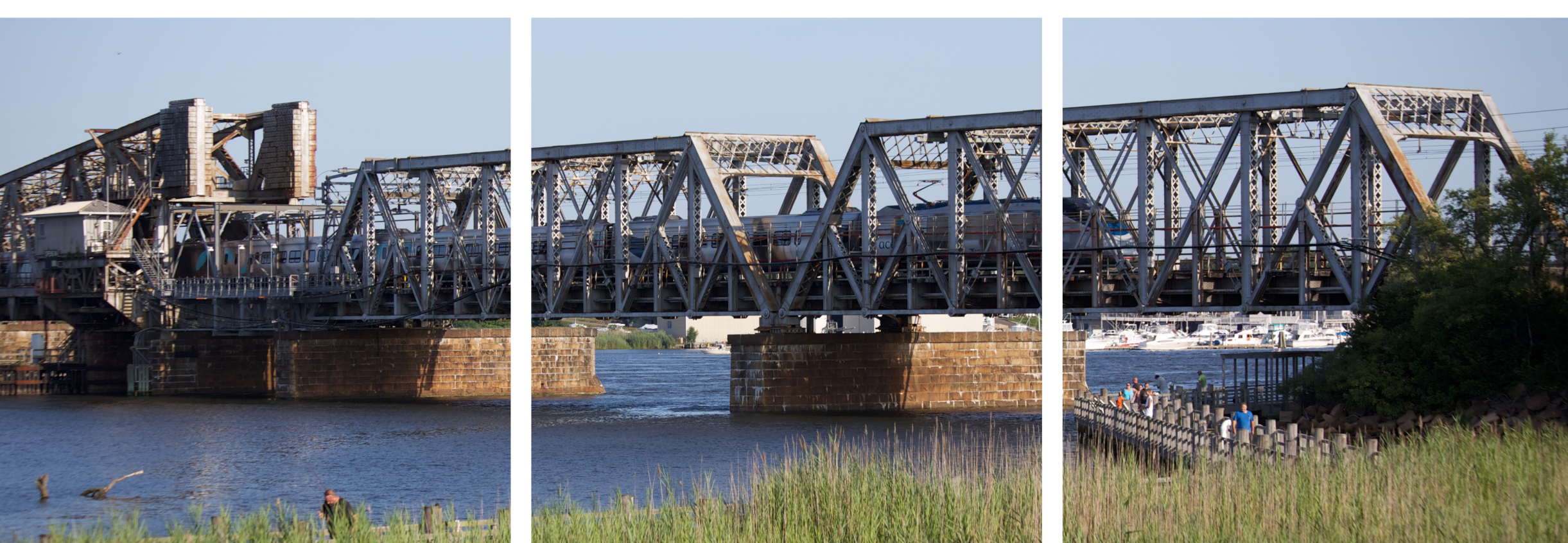
Approximately 100 Initial Alternatives were identified covering the spectrum of opportunities to upgrade and expand the NEC.

Preliminary Alternatives

The Initial Alternatives were organized and consolidated into a smaller set of 15 Preliminary Alternatives, organized into varied investment, service, and route options.

Tier 1 EIS Alternatives

The Preliminary Alternatives were analyzed and evaluated to produce alternatives for study in the Tier 1 EIS.



No Action Alternative

The three Tier 1 EIS “Action” Alternatives will be compared to a No Action Alternative that assumes the NEC remains operational at today’s service levels. The No Action Alternative includes:

- Rail improvements already funded or mandated
- Highway and transit improvements included in state and regional transportation improvement programs
- Planned airport/air system improvements
- Investments toward a state of good repair

The No Action Alternative is not a “do-nothing” scenario, and in fact requires considerable investment. However, under a No Action Alternative, NEC services would not expand to keep pace with the region’s growth, and as a result service quality would likely decline.



Preliminary Alternatives Evaluation

The evaluation of the Preliminary Alternatives was both a technical process and a collaborative one, involving over 100 meetings with railroad operators, agencies, and other stakeholders. The evaluation showed that some alternatives performed better than others to expand capacity, accommodate passengers, improve performance, and enhance connectivity. The testing process allowed the FRA to “mix and match” elements of the Preliminary Alternatives, combining the best performing features.

More information on the evaluation is available in the *Preliminary Alternatives Evaluation Report* (on the website at www.necfuture.com).



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TIER 1 EIS ALTERNATIVES

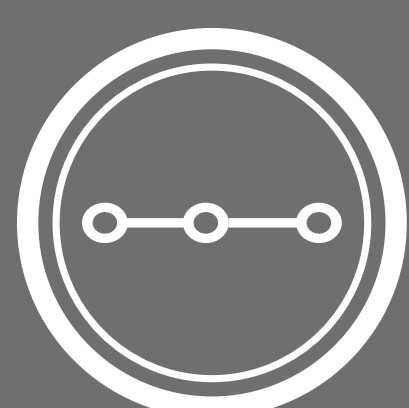
The FRA has developed **three distinct alternatives** for detailed study in the Tier 1 EIS. The alternatives are based on initial data analysis and information gained from over 200 meetings with stakeholders (including the NEC railroads, federal, state, and regional agencies), and input from other interested organizations and individuals.

What's in an Alternative?

Each Tier 1 EIS Alternative is an investment program for 2040, consisting of:



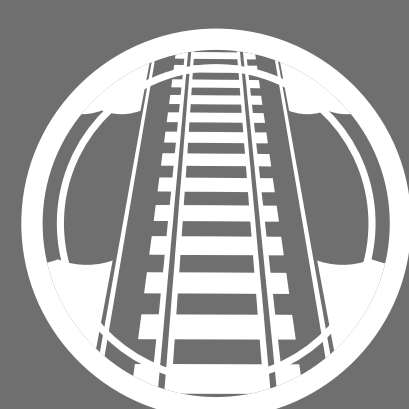
A set of geographic markets (cities) to be served by passenger rail



A representative route that connects these markets



Assumptions about the level of passenger rail service that will be provided to those markets in 2040



Infrastructure improvements, defined at a conceptual level, that would support the level of service identified



Distinct Choices for the NEC

Each of the Tier 1 EIS Alternatives reflects a different assumption about the role passenger rail will play in meeting the region's transportation needs through 2040:

- **No Action:** Includes planned and programmed projects to keep the NEC operating
- **Alternative 1:** Maintain the current role of rail
- **Alternative 2:** Grow the role of rail
- **Alternative 3:** Transform the role of rail



All Action Alternatives Will:

- Maintain and improve service on the existing NEC
 - Achieve a state of good repair, through a set of initial projects that meet the most immediate needs of the NEC
 - Increase capacity and improve service by addressing choke points that constrain operations
- Protect freight rail access and the opportunity for future expansion
- Expand the range of service offerings to fill gaps in existing service



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ALTERNATIVE 1 MAINTAIN THE ROLE OF RAIL

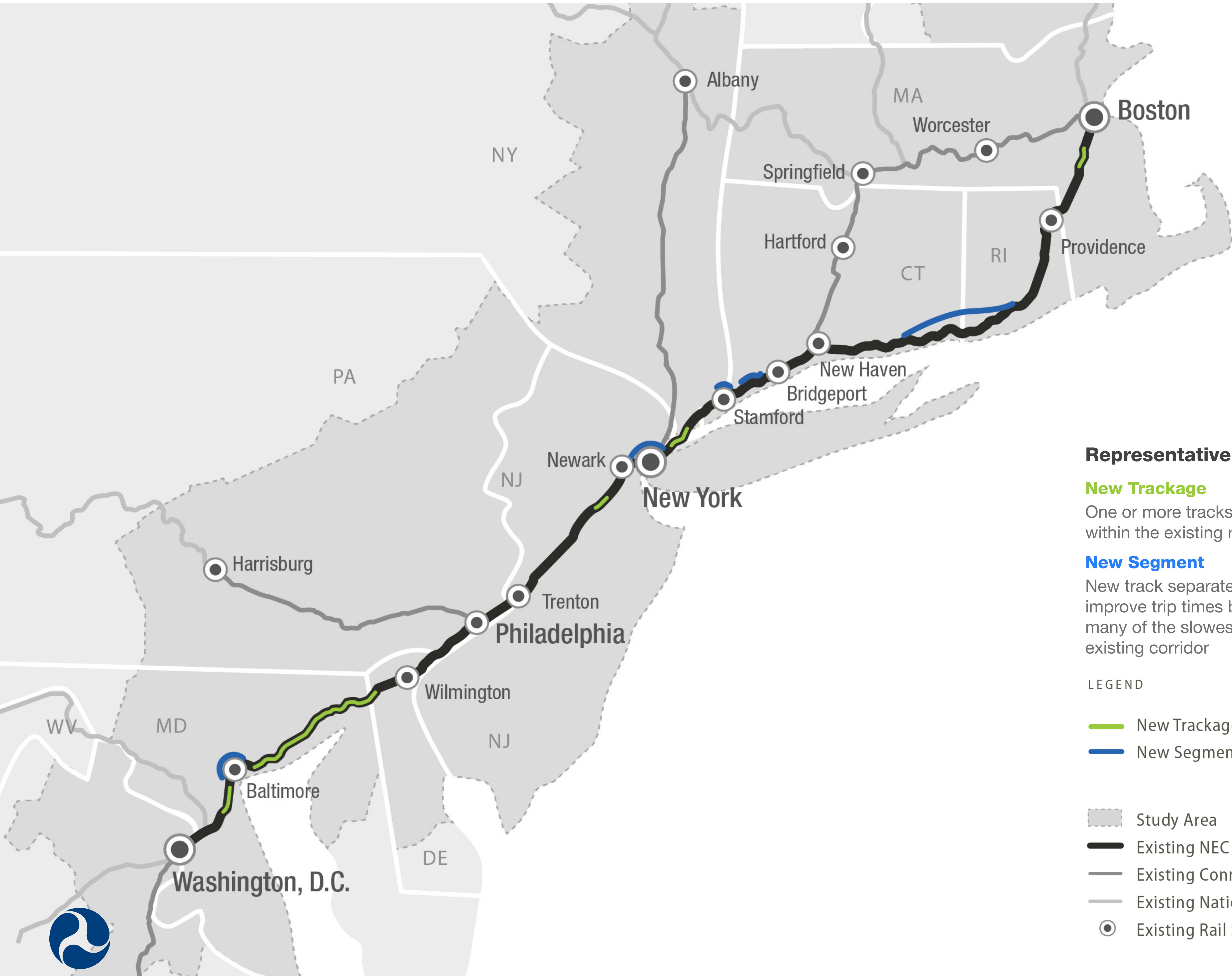


Alternative 1 maintains today’s role of rail, so that the capacity of the rail system expands to accommodate population and economic growth and continues to deliver service that is similar to what is offered today. This is accomplished by alleviating or eliminating the choke points that currently constrain the capacity of the NEC and contribute to delays and congestion.



Potential Key Features

- Increases intercity service (doubles the number of intercity trains, compared to today)
- Increases regional rail service (more frequent peak period travel and longer trains)
- Expands intercity service from connecting corridors onto the NEC
- Alleviates chokepoints that currently constrain the capacity and contribute to delays and congestion
- Adds new trackage and new segments, where additional capacity is needed, including third and fourth Hudson River tunnels



Representative Improvements:

New Trackage

One or more tracks parallel to the NEC, within the existing right-of-way

New Segment

New track separate from the existing NEC, to improve trip times by improving or bypassing many of the slowest-speed portions of the existing corridor

LEGEND

- New Trackage
- New Segment

- Study Area
- Existing NEC - Upgraded
- Existing Connecting Rail Corridor
- Existing National Rail Network
- Existing Rail Station

ALTERNATIVE 2

GROW THE ROLE OF RAIL

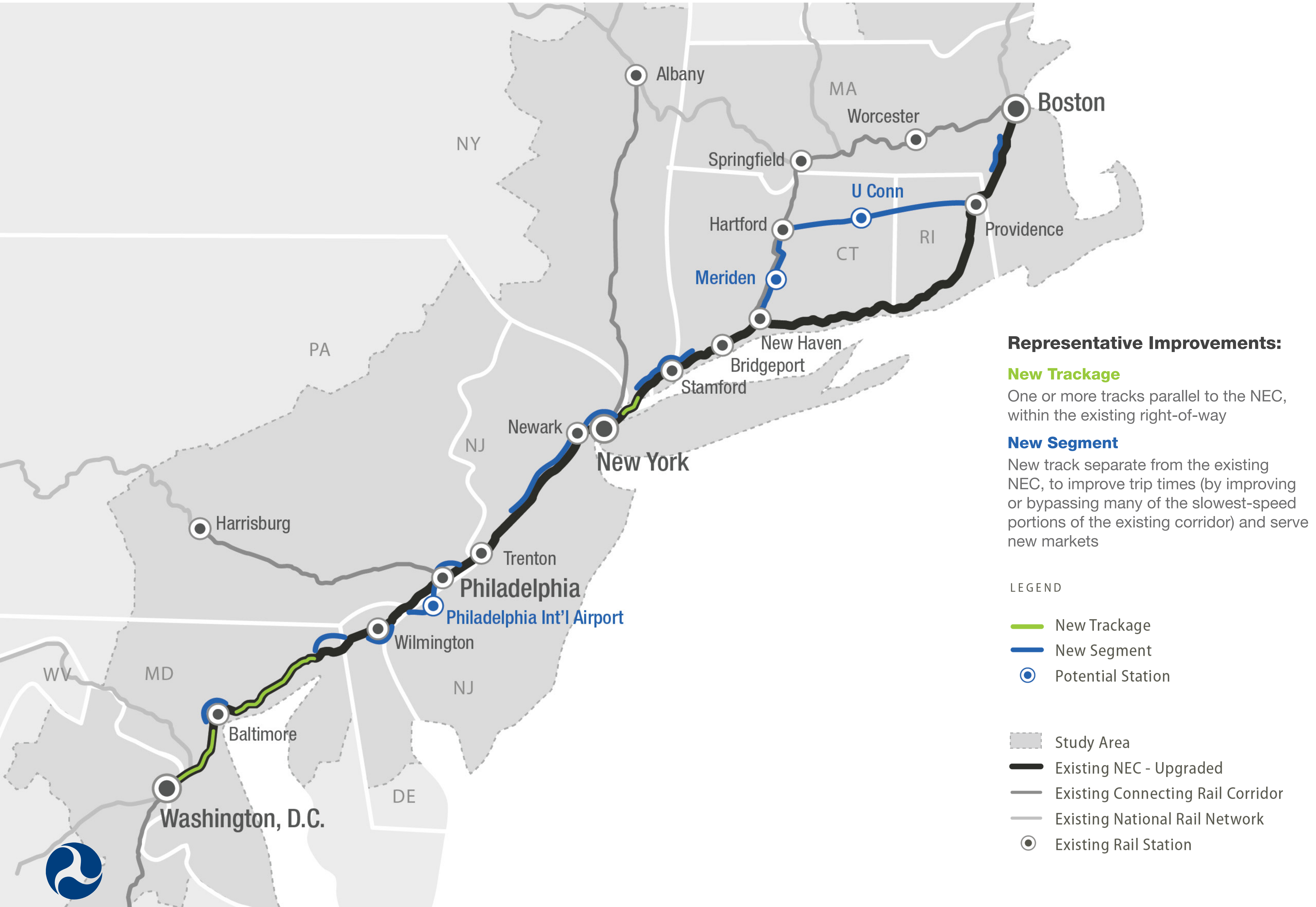


Alternative 2 grows the role of rail, so that the rail system can accommodate a larger proportion of Northeast travelers, as population and employment grow. This alternative maximizes the capacity of the existing NEC and focuses on adding new capacity where future demand will be greatest.



Potential Key Features

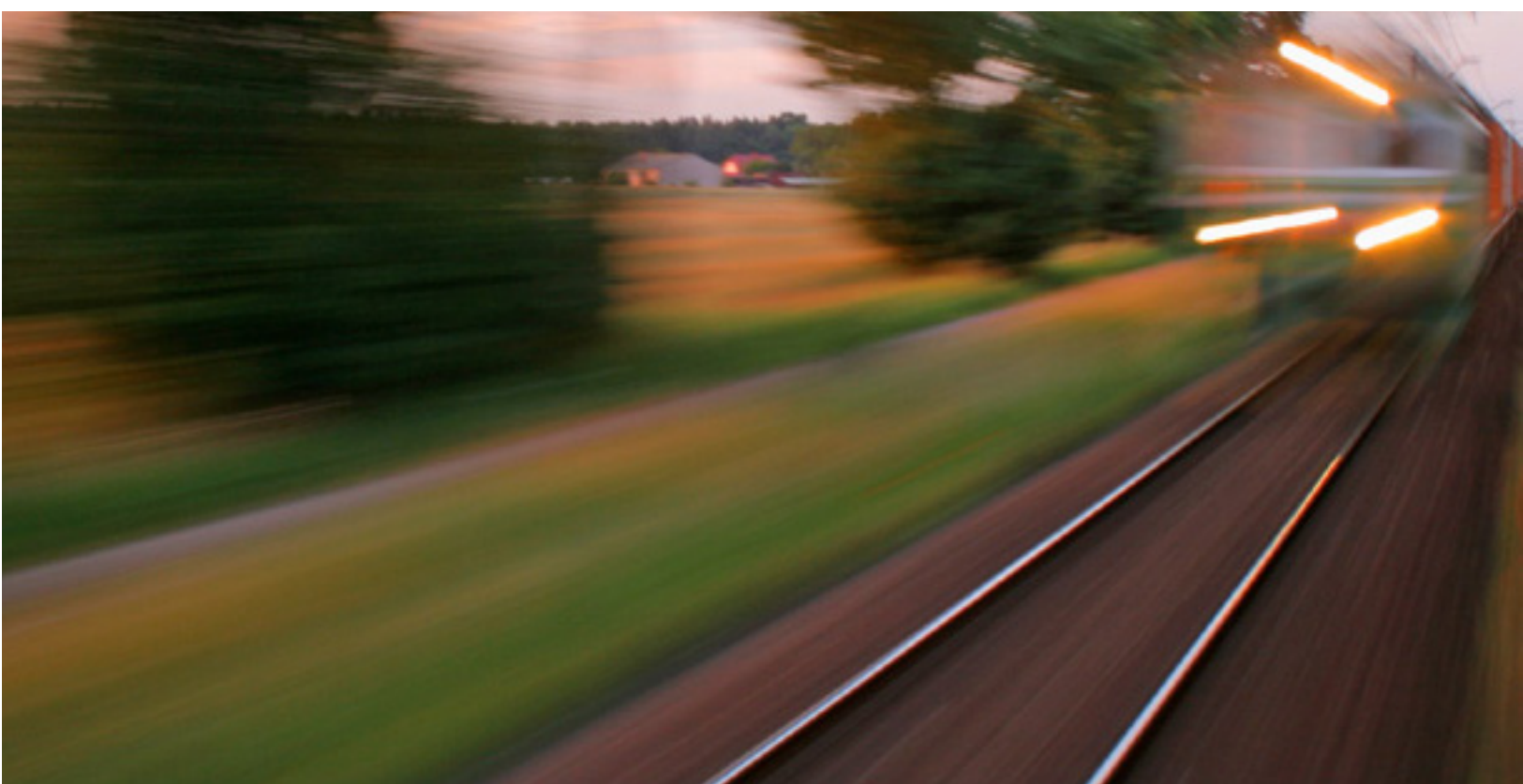
- Increases intercity service (quadruples the number of trains, compared to today)
- Provides new direct service to Philadelphia Airport
- Incorporates operational best practices and new rolling stock to operate a higher density
- Alleviates chokepoints that currently constrain the capacity and contribute to delays and congestion
- Adds new trackage and new segments, where additional capacity is needed, including third and fourth Hudson River tunnels and fifth and sixth East River tunnels



ALTERNATIVE 3 TRANSFORM THE ROLE OF RAIL



Alternative 3 transforms the role of rail in the Northeast, so that the rail service can accommodate a significantly higher percentage of travelers, enabling new travel patterns and resulting in fundamental changes to travel behavior in the Northeast. This is accomplished through a major increase in the capacity of the NEC along its entire length and a dramatic reduction in trip times achieved through higher-speed track alignments and higher-performance rolling stock.

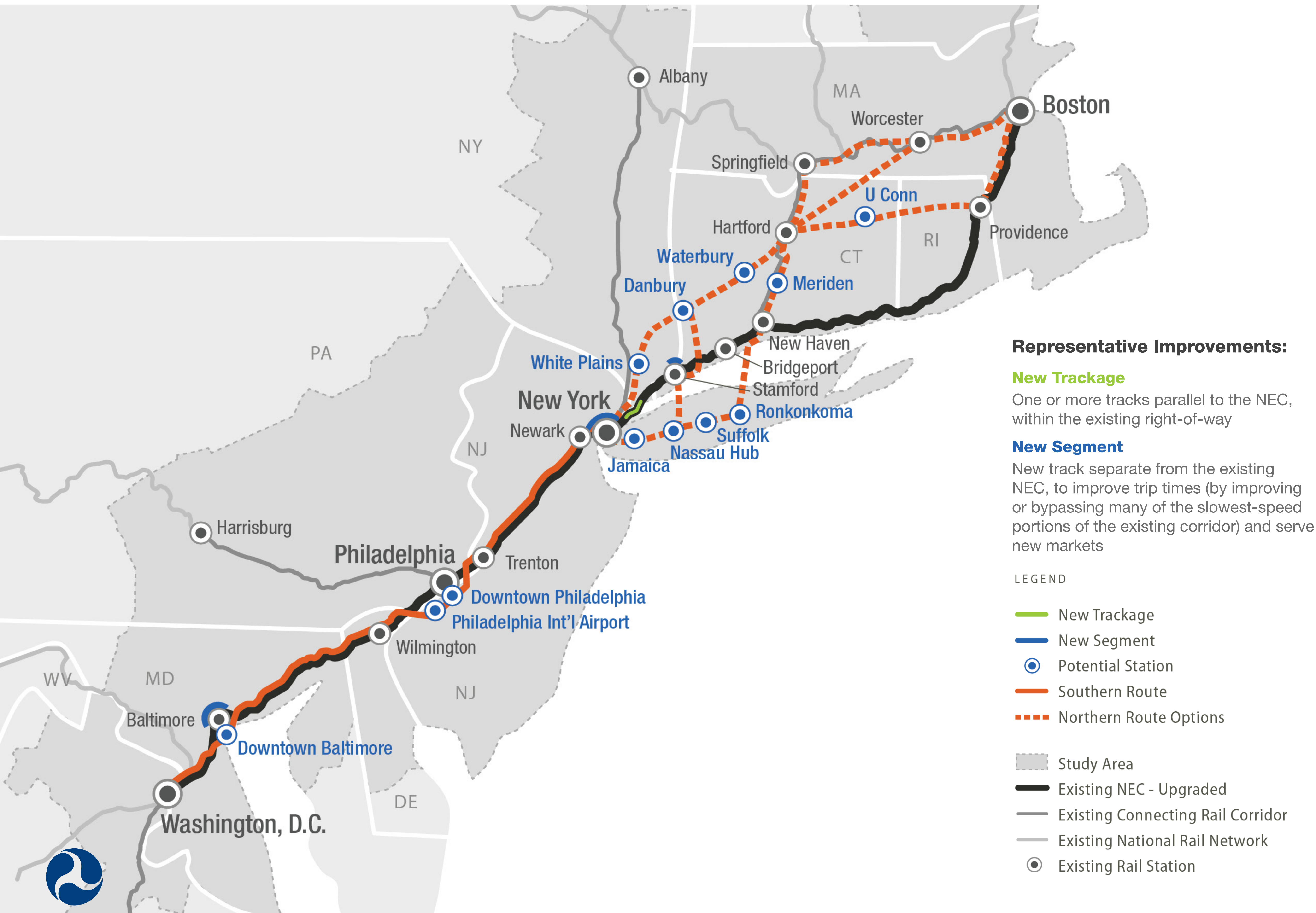


Potential Key Features

- Significantly increases intercity and regional rail service (faster and more frequent trains)
- Provides a major service expansion to new markets
- Adds new stations in downtown Baltimore, Philadelphia International Airport and downtown Philadelphia, among others
- Expands service to connecting corridors
- Includes two new tracks the full length of the corridor, with six Hudson River and East River tunnels

Potential Route for High-Speed Service

Alternative 3 includes new high-speed service between Washington, D.C. and Boston. From Washington, D.C. to New York, this service would run on a route closely parallel to the existing NEC. The route between New York and Boston has not been determined. For analysis purposes, several options will be developed as representative of what this route might look like. The representative routes to be analyzed will be end-to-end routes from Washington, D.C. to Boston.



PASSENGER SERVICE PERSPECTIVE



AMY, STUDENT

Amy is a student at Temple University in Philadelphia. Her family lives in Aberdeen, Maryland. She rarely comes home during the school semester, because intercity train travel is beyond her budget and bus service is not convenient to her needs.

Alternative 1: With expanded service options, she can access more locations along the NEC, including Aberdeen, Maryland.

Alternative 2 and 3: Similar to Alternative 1



CHRIS, BASEBALL FAN

Chris is a Baltimore Orioles fan who lives in Newark, Delaware. Although he loves watching his favorite team in person, traveling to Camden Yards is not convenient for him. Traffic congestion and high parking costs make driving a hassle. For him to travel by train today, he would have to backtrack to Wilmington on SEPTA, catch an Amtrak train to Baltimore, and then the light rail shuttle to Camden Yards.

Alternative 1: With a new integrated service approach for the NEC, Chris can now travel directly from Newark to Baltimore, with one easy connection to the light rail. And with frequent service, he and his daughter can easily stay for the whole game.

Alternative 2: With expanded capacity and more convenient connecting corridor service, Chris invites his father who lives in Paoli, Pennsylvania to join him for a game. His dad takes the Keystone train and makes a convenient transfer across the platform at the 30th Street Philadelphia station. They can take the light rail together, and reminisce about when Chris hit his first home run in Little League.

Alternative 3: Similar to Alternative 2



JOE, BUSINESSMAN

Joe lives outside of Boston and regularly travels to New York for business. Today, he either travels by train or plane. He makes this decision depending on when his meeting starts and the train schedule.

Alternative 1: With more frequent service, he is more likely to travel by train. He will save about a half an hour, due to investment along the Connecticut shore. Fewer chokepoints and better maintained infrastructure allow him to arrive in New York on time, more reliably.

Alternative 2: With a new potential route between Providence and New Haven via Hartford, Joe can pick up his colleague from Hartford on the way to New York. They can use this time productively to prep for their important client meeting. Joe and his colleague save an additional half an hour, due to improved express service and greater frequencies.

Alternative 3: With trip times between Boston and New York less than two hours and departures every few minutes, Joe will definitely take the train. Even in situations like this.... His client calls and asks him to attend a meeting in two hours. He texts her back while boarding the train, "No problem!"



JUDY, BUSINESSWOMAN

Judy lives in White Plains, New York and travels to London on business each month. Today, her most practical option is to fly from JFK. This means driving to the airport and paying the high parking cost or taking an expensive cab ride. While transit options exist, they require multiple connections and long travel times.

Alternative 1: With improved access to the NEC and better connections within the New York metropolitan area, she now has convenient access to Newark Airport. She drives to the New Rochelle station, where she now has a one seat ride with frequent service to the Newark Airport rail station.

Alternative 2: With even greater frequencies from the New Rochelle station, Judy can leave her home later and spend less time waiting at the airport.

Alternative 3: With a new potential station in White Plains, Judy's train trip to the airport is faster, and the station is a short walk or bus ride away. Also, with fast, frequent service to New York Penn Station, transfers to JFK become viable. She deletes the cab company from her cell phone.



WHAT IS A TIER 1 EIS?



The FRA is conducting a broad environmental review of potential improvements to the NEC in accordance with the requirements of the National Environmental Policy Act (NEPA). This type of environmental review is known as a Tier 1 Environmental Impact Statement (EIS). Once completed, more specific Tier 2 environmental reviews will be conducted at the project level.

Activity	Tier 1 (Program)	Tier 2 (Project)
Alternatives	General: <ul style="list-style-type: none">▪ Market Based▪ Growth▪ Service▪ Route▪ Station locations	Refined: <ul style="list-style-type: none">▪ Alignment▪ Service Plans▪ Station locations
Agency Coordination	<ul style="list-style-type: none">▪ Identify key issues early▪ Build consensus	<ul style="list-style-type: none">▪ Established relationship▪ No surprises
Analysis	<ul style="list-style-type: none">▪ Broad▪ GIS-based▪ Relies heavily on readily available information	<ul style="list-style-type: none">▪ Site specific▪ Supports resource agency determinations
Permits	<ul style="list-style-type: none">▪ Identify likely permits and requirements	<ul style="list-style-type: none">▪ Provide information to support permit applications
Environmental Finding	<ul style="list-style-type: none">▪ Results in “Finding” for Preferred Alternative	<ul style="list-style-type: none">▪ Results in “Finding” for specific action related to the Preferred Alternative
Engineering	<ul style="list-style-type: none">▪ Very Conceptual	<ul style="list-style-type: none">▪ More Refined



Resources Analyzed

- Agricultural
- Air Quality
- Climate Change
- Coastal Zones & Saltwater Wetlands
- Cultural Resources & Historical Properties
- Cumulative & Indirect Effects
- Demographics
- Ecology Resources
- Economic Effects and Growth
- Electromagnetic Fields/Interference (EMF/EMI)
- Energy
- Environmental Justice
- Floodplains
- Geologic Resources
- Hazardous Materials
- Land Cover
- Noise & Vibration
- Parklands/Wild & Scenic Rivers
- Safety
- Section 4(f)/6(f)
- Transportation
- Visual & Aesthetic
- Wetlands

Example: Economic Effects

Quantitative and qualitative analysis of the potential economic effects from:

- Near-term construction
- Travel market changes, such as travel time and cost
- Local development
- Labor productivity
- Regional growth
- Fiscal effects



SECTION 106 REVIEW HISTORIC RESOURCES



To consider the potential effects on the historic properties along the NEC, FRA is conducting a review under Section 106 of the National Historic Preservation Act from 1966. This review is concurrent with the NEPA process.

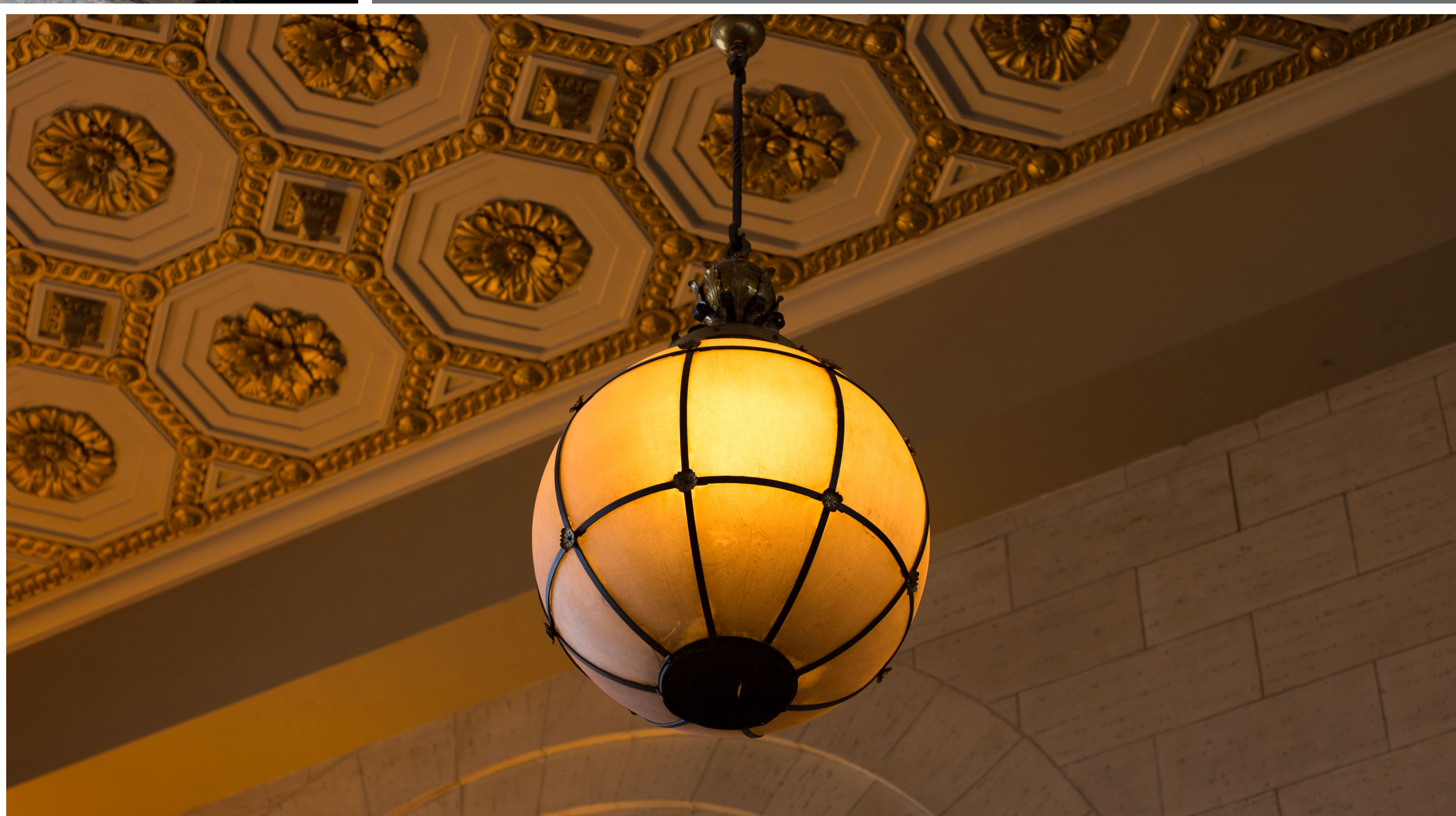


Consultation and Coordination

- State Historic Preservation Offices (SHPOs) along the NEC
- Advisory Council on Historic Preservation and National Conference of SHPOs
- Native American tribal governments
- Identification of Consulting Parties to participate in the process

Phased Approach

- Review the National Register of Historic Places (NRHP) and National Historic Landmarks (NHL) registries
- Identify those resources currently listed on the NRHP/NHL that could be affected by the Tier 1 EIS Alternatives
- Develop a Programmatic Agreement to lay the framework for more detailed analysis, during Tier 2 planning/review



COORDINATION AND OUTREACH

NEC FUTURE is a collaborative effort of FRA and its partner agencies, including:

- Eight NEC states and District of Columbia
- Eight commuter railroad operators
- Amtrak
- Northeast Corridor Infrastructure and Operations Advisory Commission (NEC Commission)
- Federal Transit Administration (FTA)
- State and federal environmental resource and regulatory agencies
- Metropolitan Planning Organizations

The FRA is committed to an open and transparent public involvement process. A variety of methods are used to facilitate meaningful dialogue as the NEC FUTURE program progresses:

- Public meetings, workshops, and webinars
- Briefings for agencies, public officials and organizations
- Website updates and newsletters

Outreach Locations



Outreach and coordination are ongoing throughout the NEC FUTURE process. FRA has held over 200 meetings with stakeholders to date.

Pop-up Train Station Tour

The NEC FUTURE team spoke with riders at 16 NEC stations in 2013. This initiative reached over 12,000 riders.

Union Station, Washington, D.C.



All-Agency Update

Corridor-wide agency meetings March 2014 provided an update for agency scoping participants.

Hartford, CT



Resource Agency Engagement

FRA has engaged resource and regulatory agencies early in the environmental review process with regional coordination meetings on a regular basis.

New York, NY



Scoping Meetings

Public input—including nearly 2,500 distinct comments received during the scoping process in 2012—helped shape the development of NEC FUTURE alternatives.

Philadelphia, PA



Regional Dialogues

Regional Dialogues in December 2012 and April 2013 engaged participants in the alternatives development process.

New Haven, CT



LOOKING FORWARD



Next Steps

- Test and refine the Tier 1 EIS Alternatives
- Evaluate the alternatives in the Tier 1 DEIS
- Circulate the Tier 1 DEIS for public comment



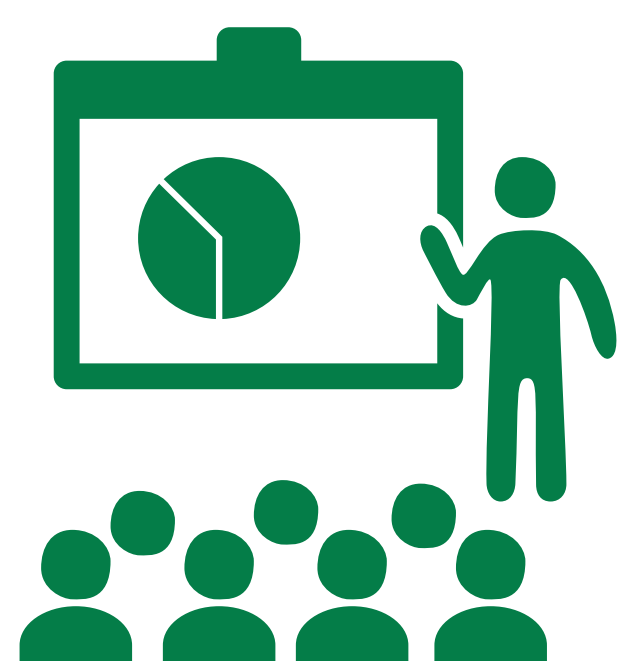
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Come to a public hearing on the
Tier 1 DEIS in late 2015



Submit a comment by
completing the online form



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USDOT, Federal Railroad Administration
One Bowling Green, Suite 429
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