



I-95 Corridor Coalition

Northeast Rail Operations Study (NEROps)

*Phase I Final Report
Executive Summary*



I-95 CORRIDOR
COALITION

June 2007

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Phase I Final Report – Executive Summary

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June 2007

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■ Executive Summary

The I-95 Corridor Coalition has completed the first phase of the Northeast Rail Operations (NEROps) study, which investigated the regional rail transportation network in New York State, New England, and Atlantic Canada. This report identifies the key historical factors and emerging trends that are impacting the efficiency of the system today and the ability of the region's railroads to attract and accommodate additional passengers and freight. Specifically, this phase of the study:

- Describes the various rail stakeholders in the region and how they interact at both the operational and policy levels;
- Describes the trends that have influenced how the rail system in the region has evolved and how it is operated and maintained;
- Identifies and describes key physical, operational, and institutional issues, chokepoints, and constraints that, individually or collectively, impact the efficiency of the rail system in the region; and
- Provides recommendations to the Northeastern states and the I-95 Corridor Coalition for addressing key freight and passenger rail issues.

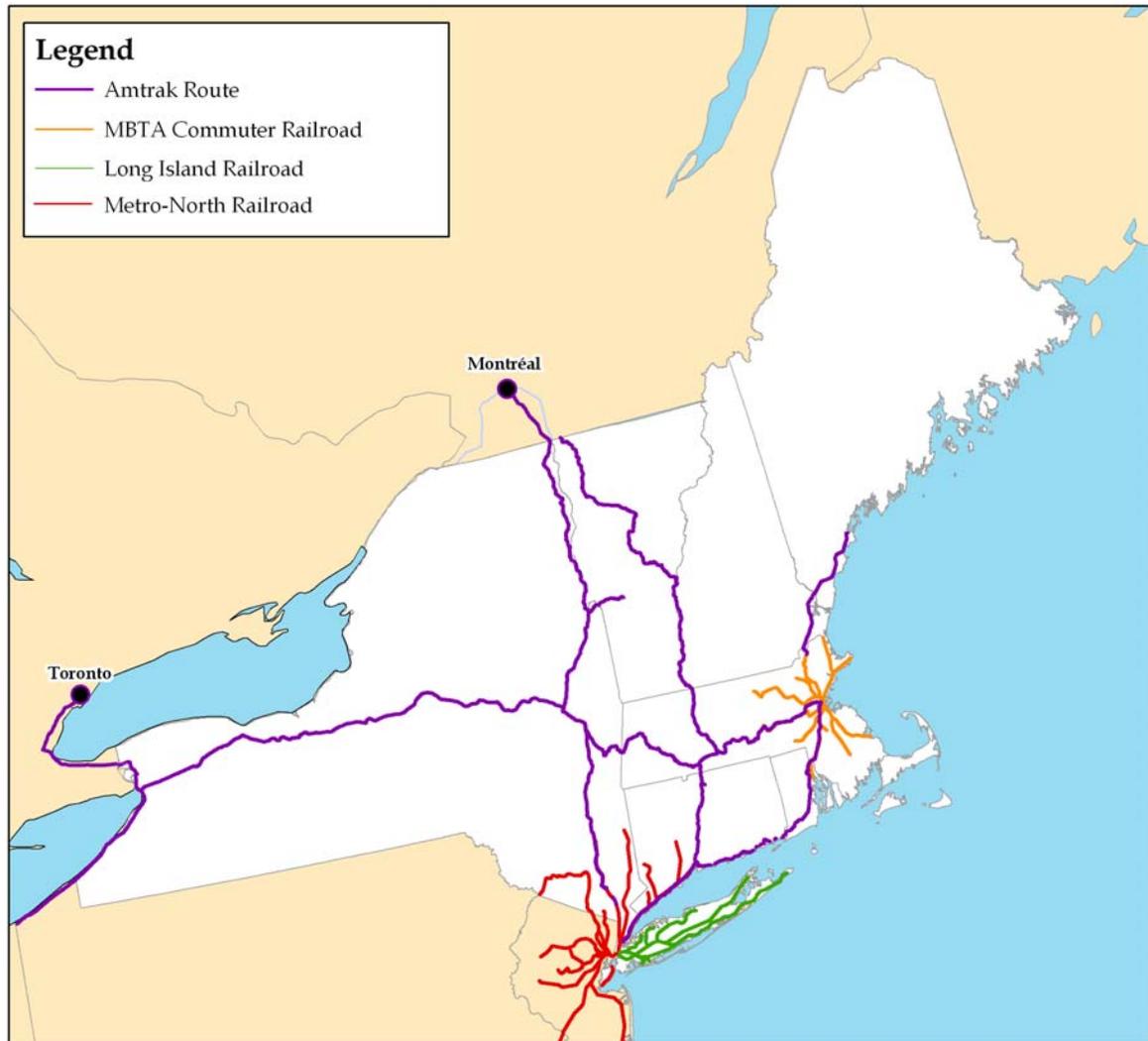
The goal of this study is to lay the groundwork for the development of a regional rail improvement program that could eliminate key rail chokepoints – physical, operational, and institutional – in the region, increase rail service capacity, and relieve congestion on the region's rail, highway, and air systems. The NEROps study is part of a broader effort by the I-95 Corridor Coalition to work with its member states and metropolitan planning organizations (MPO) to address transportation trends and challenges by helping them to develop strategies to manage transportation system capacity more comprehensively, build system-oriented institutional relationships, and develop system-responsive funding and implementation techniques.

Railroads in the Northeast Today

Today, both the passenger and freight railroads are important elements of the overall transportation picture in the Northeast. Gains in efficiency and productivity have allowed the freight railroads to become increasingly competitive with trucks, particularly for commodities such as transportation equipment, paper and wood products, chemicals, food products, and consumer goods. These railroads also provide critical connections between the region's deepwater seaports and inland markets. In addition, passenger railroads – both commuter and intercity – have continued to play an important role in meeting the mobility needs of passengers throughout the region. Figures ES.1 and ES.2 show the region's freight and passenger rail networks, respectively.

Figure ES.1 Northeast Region Freight Rail System



Figure ES.2 Northeast Region Intercity and Commuter Railroads

The present Northeast rail system is typified by the following:

- More so than in most other regions in the United States, freight rail in the Northeast is **heavily reliant on regional and “shortline” railroads**. Figure ES.1 shows the extent of operation of the region’s Class I, regional, and shortline railroads.¹ The dependence on smaller railroads is especially apparent in New England, where CSX is the only large, Class I railroad that operates in the six states. There currently are five regional

¹ Class I railroads are defined as railroads earning adjusted annual operating revenues for three consecutive years of \$250,000,000 or more. Railroads with annual revenues less than \$250,000,000 are classified as either Class II “regional” (\$20,000,000 to \$250,000,000 revenues), or Class III “shortline” (less than \$20,000,000 in revenues). This report uses the terms “Class I,” “regional,” and “shortline” to describe the various rail lines in the Northeast.

and nearly 40 shortline railroads operating in the region. Regional and shortline railroads have infrastructure, operational, institutional, and often financial constraints that may affect overall system efficiency, reliability, and viability in the region.

- The Northeast region includes several urbanized areas with **significant regional and commuter passenger rail activity**. Many of the corridors on which these passenger services operate also serve freight movements and are subject to a variety of operational and institutional agreements among states, Amtrak, the commuter railroads, and the freight railroads.
- A significant amount of **cross-border trade** occurs by rail. The Canadian and American rail networks and operations are highly integrated and the Northeast region is home to several rail border crossings.
- The Northeast region has a **mature transportation system**. The region's rail infrastructure is some of the oldest in the country, in most cases constructed around existing populations and industry. **Some key markets in the region, most notably New York City and Boston, have limited access to modern and intermodal freight rail services**. The population density and land use characteristics of the Northeast also makes it difficult and expensive to add rail capacity to these markets.
- The region has a **broad and diverse set of rail stakeholders**, including seven states, the Class I, regional, and shortline railroads serving the region, Amtrak, MPO, economic development agencies, transit authorities, port authorities, and others. The intercity and commuter railroads in the Northeast region maintain complex and interconnected relationships with each other and the freight railroads in the region.

Passenger and Freight Rail Trends and Implications

Although several historical and evolutionary factors have influenced the structure, operations, and efficiency of the Northeast rail system, rail service in the Northeast also is affected by several current trends and issues. Transportation, domestic and international trade, and demographics are dynamic in nature and are having important implications on the ability of rail to meet freight and passenger mobility needs in the region. Key trends include the following:

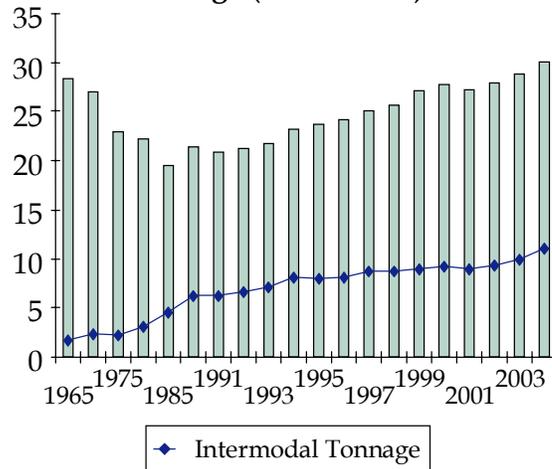
- The **demand for freight and passenger service is growing** and is expected to continue to increase significantly over the next 10 to 15 years (see Figures ES.3 and ES.4), but the region's rail system (as measured by track miles) has shrunk by over 50 percent over the last several decades. Both passenger and freight operations are concentrated on a limited number of corridors in the Northeast which contributes to operational and institutional issues.
- **Freight rail is carrying different types of commodities in response to economic changes**. The composition of freight is shifting from carload bulk shipments like coal and raw materials to low-weight high-value commodities such as components and products of light manufacturing moved in intermodal containers. As overall system

capacity becomes more constrained, it becomes harder for the larger railroads to meet schedules and delivery windows required of intermodal movements. As more Class I railroad capacity is dedicated to time-sensitive intermodal traffic, the ability for shortlines to ensure the reliability of their carload shipments is affected.

- Despite the fact that the rail industry nationally and in the Northeast region is stable, productive, and competitive, **railroads’ financial returns have not been adequate to fully justify needed capital expenditures.** As a result, railroads concentrate their scarce capital on investments that have the highest short-term payback, sometimes at the expense of longer-term needs. Targeted infrastructure investments are not keeping pace with the rising demand for both passenger and freight service in the region and there is limited funding for the types of large-scale capital investments and capacity improvements that would most improve the efficiency and reliability of the system.
- **Regional population and employment growth and distribution patterns have further contributed to the share of trips made by automobiles and trucks.** Many of the most densely populated areas in the Northeast are concentrated around key traffic lanes and freight rail facilities, but both population and employment growth are occurring not in the urban cores, but in suburban and exurban areas. While the use of transit and commuter rail in the Northeast region is higher than the national average – particularly in the urban areas – these population and employment growth and distribution patterns are not amenable to rail travel and have further contributed to growth in the share of trips made by automobiles and trucks. The result will be a worsening congestion on the region’s highway systems.

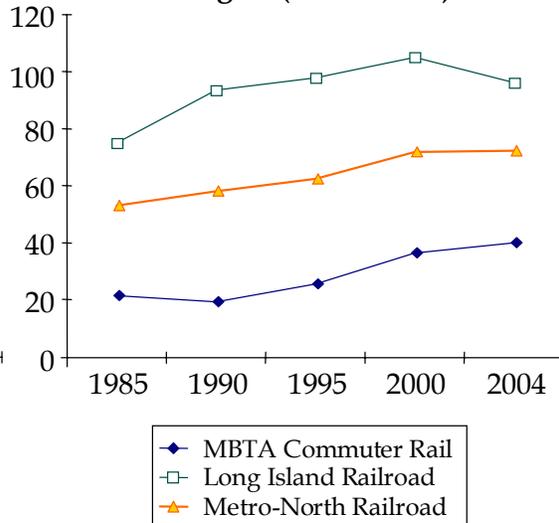
Figure ES.3 Growth in Rail Carload and Intermodal Tonnage
Figure ES.4 Commuter Rail Growth in the Northeast Region

Carload Tonnage (in Millions)



Source: AAR.

Annual Passengers (in Millions)



Source: Individual Commuter Railroads.

Note: The MBTA Commuter Rail data point for 1985 is an estimate based on trends.

Key Issues, Chokepoints, and Constraints Affecting the Northeast Freight and Passenger Rail Systems

Despite the importance of rail to the transportation and economic health of the Northeast, various issues and constraints are impacting the ability of the system to effectively serve current and future freight and passenger needs.

The Northeast rail system is faced with two types of issues:

- **Infrastructure, equipment, or operational issues**, which affect the performance and efficiency of the region's rail system; and
- **Institutional issues**, which affect the ability of states, MPOs, railroads, and other stakeholders to improve the performance of the system.

The region's infrastructure and operations issues can be broken down into four categories:

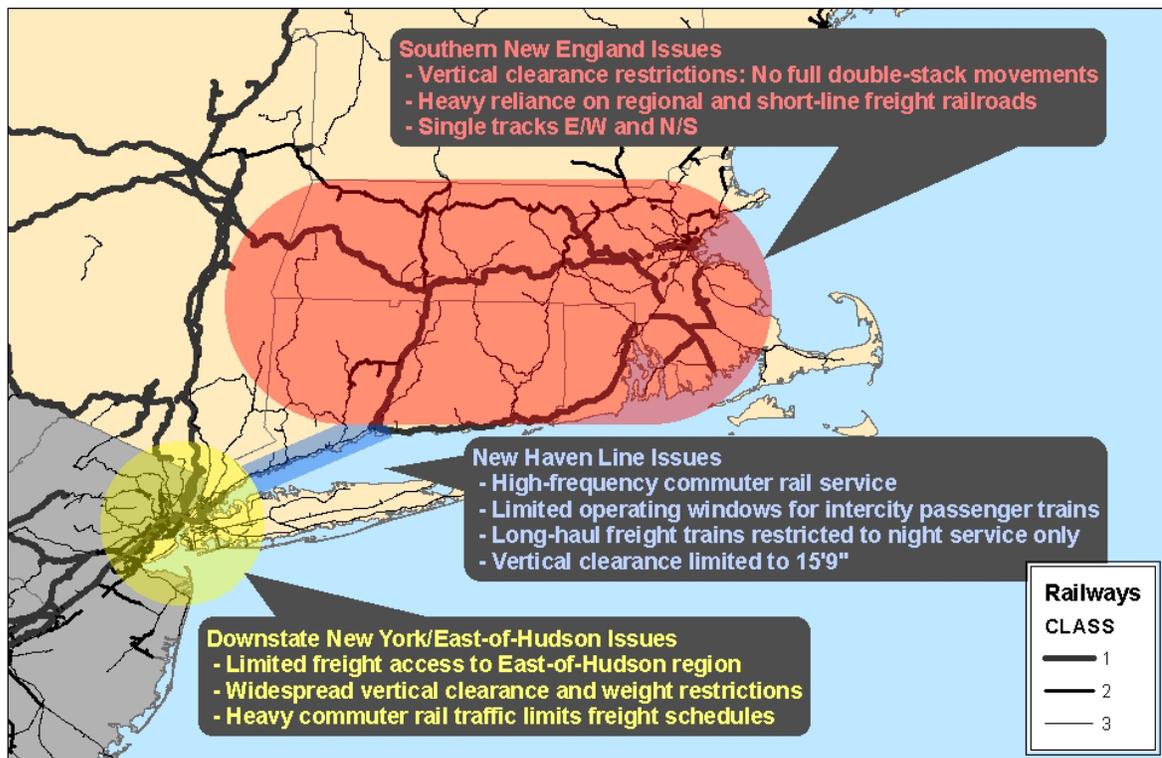
1. **System Capacity Issues** - Overall rail capacity in the Northeast is tight, particularly on the Class I system, for several reasons. First, growth in passenger and freight traffic - and intermodal traffic in particular - is straining the system. Second, the region's yards and terminals are not fully capable of handling increasing volumes of freight traffic. Third, the region's railroads often use outmoded and inadequate information and control systems. Finally, the rail system in the Northeast region suffers from a general lack of sidings, particularly passing sidings that allow trains in opposing directions to pass and also allow faster trains to pass slower ones. System capacity issues result in decreased levels of service and reliability, delays at key yards and facilities which cascade throughout the rail network, and a diminished capability of passenger and freight trains to share infrastructure effectively.
2. **Track Clearance, Structure, and Alignment Issues** - In addition to general capacity concerns, the age of the rail system in the Northeast region, coupled with the social, financial, and environmental constraints to making large-scale improvements, contributes to specific physical chokepoints. These include overhead clearances that restrict movement of double-stack container cars and other equipment, structural deficiencies that prevent the track structure from handling 286,000-pound railcars, the new national standard for railcars, and rail track that is highly serpentine in some areas, forcing trains to reduce speeds.
3. **Yard-Related Issues** - Many of the rail yards in the Northeast were designed and built in the early 20th century and are beginning to face significant capacity issues. Many major rail yards were developed in close proximity to (or in some cases, in the middle of) city and town centers, which makes expansion difficult if not impossible. At the same time, rail yards in urbanized areas are often targets for redevelopment efforts. Removing these assets from the rail system virtually guarantees that the urban areas will be totally dependant on trucking in the future.

4. **Bridge, Tunnel, and Viaduct Issues** – Because so many structures were designed and built in the early to mid-20th century, they may not be sufficient to handle current rail equipment, volumes, and weight. Also, many bridges in the region are located along working waterfronts or active rivers or channels. Consequently, these bridges must sometimes be opened and closed to accommodate maritime traffic. Outdated bridges, tunnels, and viaducts present a challenge to both railroads and their customers, as there is little redundancy within the rail system. Weight capacity constraints or failures of these structures can cause significant circuitry in routing, which can cause the entire rail system to perform inefficiently. The lack of infrastructure, such as the limited rail access across the Hudson River and New York Harbor, also has significant implications for passenger and freight movements in the region.

5. **Equipment Issues** – The shortage of railcars has increased the costs of shipping goods by rail. For a variety of reasons, the Class I railroads have significantly decreased their investment in railcars, particularly in the last 20 years. As a result, the burden of providing railcars has shifted to regional and shortline railroads, car companies, and individual shippers. The lack of railcars in the region makes rail transportation a less viable option than other, more flexible modes.

Figure ES.5 shows, at a summary level, the issues that affect the Northeast rail system.

Figure ES.5 NEROps Region Rail Issues and Bottlenecks



In addition to the infrastructure, equipment, and operational issues described above, a number of institutional challenges, i.e., key policy legal and environmental matters, affect passenger and freight rail service in the Northeast.

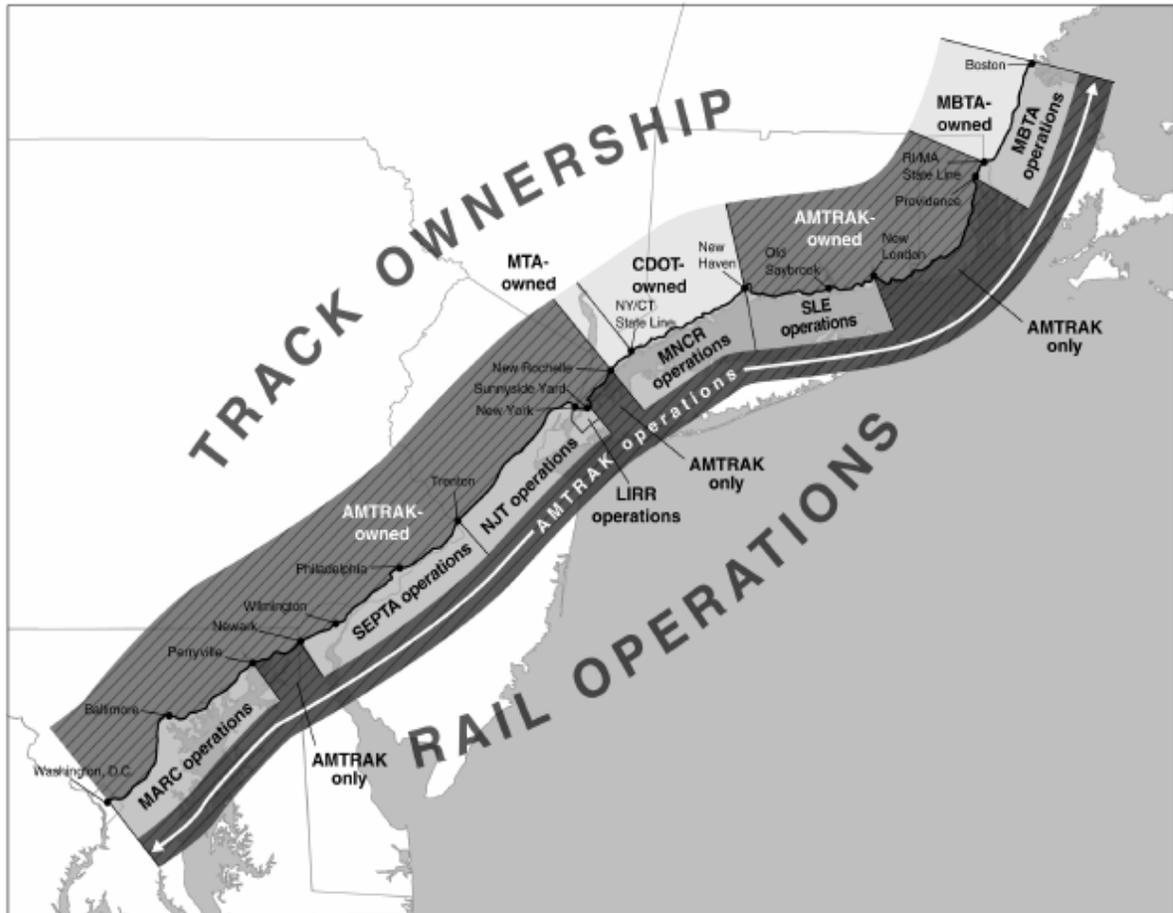
The lack of multijurisdictional rail planning and funding affects the ability of DOTs and MPOs to incorporate freight and freight rail into the traditional transportation planning and programming process. When one state or metropolitan area identifies a rail need that may result in benefits to several other states and/or regions, it is often difficult to determine how costs, risks, and benefits should be shared among the various jurisdictions. It also is difficult to adequately describe the costs and benefits of rail improvement projects and how they accrue to different stakeholders (i.e., public and private). With funding often only available at the state level due to the lack of Federal rail assistance programs, and major needs for maintenance and preservation of the highway system, it is difficult to allocate scarce transportation resources to rail projects.

Railroads and the public sector also have been grappling with the **challenges posed by balancing freight and passenger rail efficiency with new security requirements**. Freight and passenger railroads nationally and in the Northeast region must deal with new security requirements which have impacted the reliability of passenger and freight rail movements.

Emerging rail issues in the Northeast region include the following:

- **The Future of Intercity Passenger Rail and the Northeast Corridor** – In recent years, both the Administration and Congress have developed a number of Amtrak reform proposals and legislation that propose more financial responsibility for intercity rail passenger service by states.
- **Development of High-Speed Rail** – There are two Federally designated high-speed rail corridors in the region along which passenger service currently operates: the Northeast Corridor (shown in Figure ES.6) and the Empire Corridor (Albany to New York City). In addition, a number of high-speed rail feasibility studies have been conducted in recent years for other Federally designated high-speed rail corridors, including one between Albany and the Pennsylvania line and another that would connect Boston to Montreal. Serious consideration of high-speed rail service in the Northeast region will require resolving many institutional, policy, financial, and operational issues among affected states and railroads.

Figure ES.6 NEC Ownership and Operations



Source: GAO Report 06-470, April 2006.

Conclusions and Recommendations

The conclusions and recommendations of the NEROps study are meant to provide a foundation and a process to allow the Northeast states to begin addressing specific systemwide issues and chokepoints that cross jurisdictional, interest, and financial boundaries. Key conclusions include the following:

- The passenger and freight rail systems in the Northeast are generally stable, productive, and are an important part of the transportation mix in the region;
- Existing physical, operational, and institutional issues in the region will not allow the rail system to absorb future freight and passenger growth;

- Regional and shortline railroads are a critical element of freight transportation and distribution in the region, but they are vulnerable due to changing trends; and
- Freight rail issues are often overlooked in the traditional statewide and metropolitan transportation planning and programming process.

Addressing the ability of the Northeast rail system to adequately serve future passenger and freight mobility needs in the region will require a concerted, cooperative effort by the Northeast states, the region's freight and passenger railroads, the Federal government, the I-95 Corridor Coalition, and other regional rail stakeholders.

Recommendations include the following:

- The Northeastern states should work closely with the I-95 Corridor Coalition and other groups as appropriate to **educate regional transportation decision-makers on the importance of rail transportation and investment in the region.**
- Representatives from the Northeast states should **actively participate in regional and national rail planning and policy efforts.** This participation is required to shape the national policy debate regarding the degree to which public sector transportation planning agencies should be involved in planning and funding rail improvements.
- The Northeast states should **ensure that rail issues are more effectively mainstreamed within their existing transportation planning and programming processes.** The I-95 Corridor Coalition can assist in this through identification and sharing of best practices, sponsorship of rail planning forums, peer exchanges, or other strategies.
- The Northeastern states, working with the railroads, the I-95 Corridor Coalition, and other regional stakeholders, should continue to **identify and address key rail choke-points in the region.** A detailed commodity flow and passenger analysis is required to better identify strategic traffic lanes and develop a consensus-based **comprehensive regional rail improvement program.** **Potential multistate financing mechanisms** for projects with multistate benefits also should be identified.
- The Coalition and states should continue work to **better quantify public benefits of rail investments.** This would allow states to better assess tradeoffs of different transportation investments and enhance their ability to develop high-level advocates for conducting rail planning activities and investing in the regional rail system.
- The Northeast states have a clear stake in the future of intercity passenger rail and should work closely with each other and their congressional delegations to **actively participate in developing and refining approaches to address rail passenger issues in the region.** The Administration, Congress, and Amtrak have developed a number of reform proposals and legislation in recent years which could require either significant additional financial responsibilities for the states or service reductions.