Freight Rail White Paper
I-95 Intermodal Leadership Forum

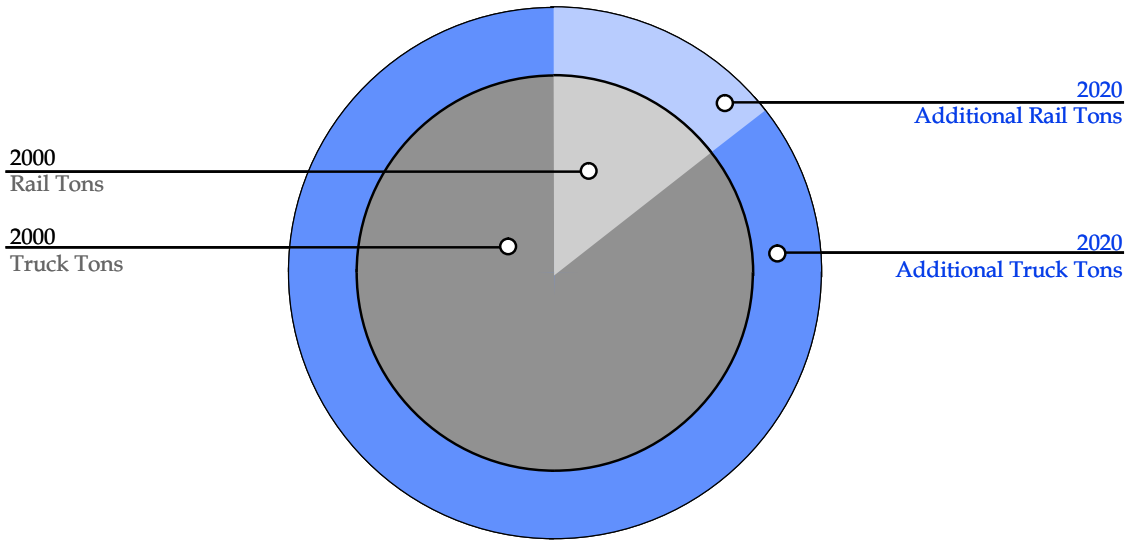
Background

The I-95 Corridor Coalition region's extensive rail network includes a private freight network with four Class I freight railroads (CSX, Norfolk Southern, Canadian National, and Canadian Pacific), and over 100 regional and shortline freight railroads. These freight railroads share trackage with Amtrak and several commuter rail services, including Metro-North, NJ Transit, MBTA, SEPTA, MARC, the VRE, and Tri-Rail, across much of the region.

Given its complexity, the system is remarkably successful, though it is not without significant inefficiencies. The freight railroads move more than 250 million tons of intermodal (containerized) and non-containerized goods into and out of the region and carry an additional 100 million tons through the region. In addition, the Northeast Corridor (NEC) is Amtrak's most profitable service, and the commuter railroads operate up to 250 trains per day over high-volume segments of the network and collectively carry more than 100 million riders per year over their systems. And while the rail freight system carries more east-west than north-south traffic, the freight railroads run up to 27 trains per day on their busiest north-south segments – in many cases threading their way through higher priority intercity and commuter rail passenger traffic.

An efficient freight rail system is a critical component of the region's overall transportation network, particularly for intermodal freight, which often depends on partnerships with trucking companies, seaports, and others in the transportation logistics chain. Railroads have taken responsibility for the long-haul movement of large quantities of intermodal containers and trailers between major hubs, such as seaports and major population centers, while truckers have taken responsibility for the short-haul movement to/from the customer's "front door." Rather than competing for freight traffic, this truck-rail partnership likely will be enhanced in the future as freight movements, particularly intermodal freight shipments through the nation's seaports, continue to rise. Figure 1 shows the relative shares of new freight tonnage that must be accommodated by the nation's highway and freight rail systems between 2000 and 2020. Without improvements to the freight rail system, it is unlikely that the railroads and truck carriers will be able to absorb this growth without significant social, economic, and environmental costs.

Figure 1. Rail and Truck Freight Tonnage, 2000 and 2020



Source: FHWA Freight Analysis Framework

The freight rail system is not only an important element of the region's intermodal freight transportation system, it is also a critical component of the competitiveness of the region's industries, and the strength of individual state economies. Freight rail transportation offers other benefits, as well, including:

- **Increased transportation system capacity.** Rail currently carries approximately 15 percent of the region's domestic freight tonnage, including over 250 million tons of containerized cargo that would otherwise be transported by truck. Improving rail's ability to handle containerized cargo effectively increases the amount of transportation capacity available to other modes, particularly highways.
- **Greater economic development and productivity.** Freight rail provides shippers with cost-effective transportation, especially for heavy and bulky commodities. This is particularly important to rural states in the region, which often transport raw materials, agricultural and forestry products, and other bulky goods.
- **Improved international trade competitiveness.** Rail is crucial to the global competitiveness of regional industries and corporations. Freight rail, in partnership with the trucking industry, provides intermodal transportation, connecting the region's deepwater seaports with inland producers and consumers.
- **Better environmental health and human safety.** Rail is more energy-efficient and generates less air pollution per ton-mile than other modes. Rail is the preferred mode for hazardous materials shipments because of its strong safety record.
- **Improved emergency response.** Rail provides critically needed transportation system redundancy in the event of a national emergency. In an era of heightened national security, freight rail is vital to military mobilization.

Although the region's rail system is a major carrier of both passengers and freight, it is not operating at its full potential. Many segments of the system are capable of handling higher volumes of passenger and freight traffic, but these volumes cannot be accommodated because of critical choke points in the system, aging infrastructure, and other constraints.

Key Issues

There are several issues currently affecting rail freight movement within the I-95 Corridor region. These issues not only affect local freight movements, but as rail is a key component of efficient intermodal transportation between the region's freight gateways and its inland markets, these issues also can impact regional, national, and international freight transportation efficiency.

Overall freight growth/system capacity constraints

Freight movement in the region has increased dramatically over the last two decades. Since 1982, highway travel has increased 80 percent while highway mileage has only increased by two percent. Over the same period, freight-rail ton-miles have risen over 50 percent while railway system mileage actually declined. These limited highway and rail capacity increases, coupled with the large increases in annual truck vehicle miles of travel (VMT) and freight rail ton-miles and the globalization of freight transportation operations, have contributed to increased levels of congestion, particularly at landside access points to marine ports and intermodal terminals. While congestion choke points have a major effect on the efficiency of regional, national, and international freight systems, their impacts are felt locally through highway and railway congestion, noise, and air pollution. Future growth will further strain the region's transportation system, as highway travel is expected to increase by 53 percent by 2020; domestic freight tonnage will increase by about 60 percent; and imports-and-exports will nearly double. With the region's roadways increasingly congested, and the social, economic, and environmental costs of adding new highway capacity prohibitive in many areas, some state departments of transportation (DOT) are asking if expanding rail system capacity might be a cost-effective way of increasing overall transportation capacity.

Aging or obsolete rail infrastructure

The region's rail network was designed in the 19th century to serve east-west traffic and is currently struggling to serve growing volumes of north-south traffic. The network has the potential to carry more freight, but is constricted by several limitations. First, several of the region's rail corridors are not cleared for double-stack operations, preventing shippers from being able to fully utilize the economies of scale offered by rail transportation. Second, much of the region's rail network lacks parallel "passing" tracks, preventing faster trains from passing slower-moving ones, and negatively affecting the travel time

reliability of rail shipments within the region. The lack of modern rail yard and terminal facilities in some areas and the use of outdated communications systems also affects rail shipment efficiency throughout the region. Third, much of the region's rail track contains high degrees of curvature, preventing high-speed operations. Finally, while many of the region's railroads have the ability to safely handle 286,000-pound cars, weight restrictions in some areas prevent the operation of these trains regionwide.

Rail improvement financing

The Mid-Atlantic Rail Operations (MAROps) Study examined the rail network in the five state region consisting of Delaware, Maryland, New Jersey, Pennsylvania, and Virginia and recommended short, medium, and long term rail infrastructure and information-technology improvements with an estimated cost of approximately $6.2 billion. Though the study concluded that it is in the public interest for all levels of government to work cooperatively with the railroads to plan, finance, and deliver these projects, individual states and railroads cannot afford the larger improvements, especially since the costs and benefits are unevenly distributed among the public sector, who would fund a large portion of the improvements, and the private sector, who would derive most of the benefits. While highway-related freight improvement projects usually are eligible for funding under federal and state highway programs, rail improvements to private rail terminals and lines usually are not eligible for public support except indirectly through loan credit-support programs. Despite the obvious link to economic development and jobs, some planning agencies find it is difficult to justify spending money on non-highway projects, projects that are perceived to inordinately benefit the private sector freight community, or projects whose costs are local, but whose benefits accrue regionally or nationally. The MAROps Study explored several existing approaches to financing the rail improvements, but all were found to be of limited value because they are not well suited to the regional scale of the problem.

Passenger/freight rail conflicts

Freight railroads operating in the I-95 Corridor region share trackage with Amtrak and commuter rail services in many areas and, in general, passenger rail operations in these areas typically take precedence over freight operations. This is a particular concern along Amtrak's Northeast Corridor (NEC) and around major metropolitan areas in the I-95 Corridor region, which carry heavy volumes of both freight and passenger trains along the same right-of-way. The MAROps Study identified more than 20 locations within the Mid-Atlantic region where an additional mainline track must be added to provide increased capacity and reduce or eliminate operating conflicts between passenger and freight trains. These conflicts often prevent freight and passenger trains in the region from operating at their peak efficiency.

Access to competitive rail transportation

The I-95 Corridor region is served by four Class I railroads - Norfolk Southern, CSX, Canadian National, and Canadian Pacific. However, not all states have seamless access to Class I rail service. For instance, there is no direct Class I service to and from northern New England, including Maine, New Hampshire, and Vermont. Efficient rail service east of the Hudson River in New York and southwestern Connecticut also is limited, as there is no adequate freight rail connection across the Hudson River south of Selkirk, New York nor across the New York harbor. Although Class I service can be accessed through interline agreements with regional and shortline carriers, shippers in these areas find it difficult to fully take advantage of these services.

Railroad productivity and competitiveness

Since the industry was deregulated in the 1980s, the railroads have relied on consolidation, restructuring, and cost cutting to boost productivity and offer competitive rates and services. Since deregulation, freight productivity has increased, ton-miles handled per railroad employee have nearly quadrupled, rates have fallen, service has improved, and market share has stabilized. However, these improvements have not been sufficient to significantly expand market share and increase revenue. Competition among the remaining Class I railroads has forced continuing rate reductions, with the result that revenues have declined in real terms (accounting for inflation) despite increasing traffic volume. While the industry's return on investment has improved from about four percent in 1980 to around eight percent in 2000, it is still below the cost of capital at 10 percent. Most of the economic benefits of railroad reorganization and productivity improvements have accrued to shippers and the economy in the form of rate cuts, rather than to the railroads and their investors. In this environment, rail will continue to generate substantial public benefits in the future, but may not live up to its full potential.

■ Current Coalition Activities

There are two examples of Coalition-sponsored activities that are designed to address the key issues discussed above and improve the efficiency rail freight movements across the region, including:

- **Mid-Atlantic Rail Operations (MAROps) Study**, a project funded by the I-95 Corridor Coalition, Delaware, Maryland, New Jersey, Pennsylvania, Virginia, Amtrak, CSX Transportation, and Norfolk Southern, which examined the deteriorating performance of the Mid-Atlantic's highway, aviation, and rail systems; identified opportunities to better utilize the region's existing rail assets; formulated a program of systemwide rail investments in all five states; and recommended a public-private partnership to fund and implement the improvements.
- **White Paper Recommending a Regional Approach to Organizing and Financing Rail Improvements,** which builds on the findings and conclusions of the MAROps

Study, but recommends solutions that are applicable to the larger I-95 Corridor Coalition region and other regions of the nation. It reflects the urgent need of state transportation agencies to increase rail system capacity to keep pace with growth and relieve pressure on heavily trafficked and congested highways.

Future Strategies and Recommended Coalition Roles

As the volume of freight movements into, out of, and through the Coalition continues to grow, and as congestion on its highway network continues to worsen, there are opportunities for the Coalition to encourage the more efficient use of the region's rail transportation system and improve the movement of passengers and goods regionwide. Specifically, the Coalition could:

- **Provide a forum for freight rail stakeholders to discuss common issues and concerns and share best practices**. One of the most important roles the I-95 Corridor Coalition plays in addressing regional freight issues is providing opportunities for regional stakeholders to gather and discuss common issues and concerns. The Coalition is one of the only organizations that provides such a forum. As freight movements within the region continue to increase, the importance of the Coalition as a platform to share ideas and best practices among regional freight stakeholders will continue to grow. The MAROps study was an example of how the Coalition can effectively bring together various stakeholders from government and private industry to work collaboratively toward solutions to regional transportation issues and the Coalition should encourage the project participants and MAROps committee to continue their dialog.
- **Expand the MAROps Study to address chokepoints in Northeastern states**. The MAROps Study, the result of a successful partnership between the I-95 Corridor Coalition, five state DOTs, CSX, Norfolk Southern, and Amtrak, examined the rail network in the Mid-Atlantic states and developed a consensus program of 71 rail infrastructure and information-technology improvements to be implemented over 20 years. The Coalition should expand its work to address physical, operational, and informational constraints on the freight rail system in the Northeast states (Maine, New Hampshire, Vermont, New York, Massachusetts, Connecticut, and Rhode Island), in an effort to increase freight-rail and passenger-rail service capacity and relieve congestion on the rail, highway, and air systems regionwide.
- **Focus on freight rail operations**. One area in which the I-95 Corridor Coalition can have a significant impact is in developing programs and initiatives aimed at improving the efficiency of freight rail operations in the region. While much of the freight rail system in the region is in need of significant infrastructure improvements, such improvements are often expensive, politically challenging, and are subject to intensive (and long) planning and programming processes. Operations improvements, on the other hand, often involve the use of technology and are typically less costly and more easily implemented than major infrastructure improvements. There are opportunities for the Coalition to work with states and the

railroads to develop technology-driven programs, strategies, and initiatives designed to improve freight operations in the region, including an advanced traffic information system for rail operations, state-of-the-art train control and related systems that will improve rail system management and productivity, and a network simulation model that could quantify the benefits of rail system improvements.

- **Encourage the development of innovative strategies and public/private partnerships to fund rail improvement projects**. The Coalition could encourage the development of innovative financing strategies by developing white papers, such as the *White Paper Recommending a Regional Approach to Organizing and Financing Rail Improvements* completed as a follow-on to the MAROps study. These and other white papers can serve as important documents to help facilitate policy discussions among regional and national freight stakeholders. In addition, the Coalition should continue to reach out to the railroads in an attempt to forge a regional public-private partnership; evaluate market demand for freight rail services in the region; and identify priorities for network-level freight-rail investments. The MAROps Study, through which the Coalition brought five state DOTs together with Amtrak, CSX, and Norfolk Southern, is a promising start toward enhancing the railroads' participation in future Coalition activities.