

NEW JERSEY STATEWIDE



FREIGHT RAIL STRATEGIC PLAN

Moving New Jersey Forward

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New Jersey Department of Transportation
James S. Simpson, Commissioner

State of New Jersey
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TABLE OF CONTENTS

	<u>PAGE</u>
EXECUTIVE SUMMARY	ES- 1
I. INTRODUCTION	
A. A HISTORY OF GROWTH, DECLINE AND GROWTH	I- 1
B. IMPORTANCE OF MAINTAINING AND SUPPORTING THE FREIGHT RAIL INDUSTRY IN NEW JERSEY	I- 4
C. PLAN PURPOSE AND NEED	I- 6
1. Strategic Freight Rail Planning within the Context of the State Strategic Plan	I- 7
2. Environmental Benefits	I- 8
3. Economic Benefits	I- 9
4. Quality of Life Benefits	I- 10
D. GOALS AND OBJECTIVES	I- 10
E. STRUCTURE AND CONTENT OF THE PLAN	I- 11
II. EXISTING SYSTEM AND RAIL COMMODITY FLOW ANALYSIS	
A. RAIL SUPPLY	II- 1
1. New Jersey Freight Railroads	II- 3
2. New Jersey Passenger Railroads	II- 5
B. CONTEXT	II- 6
C. RAIL DEMAND	II- 9
1. Demographic and Economic Trends	II- 9
2. Passenger and Freight Volume Trends	II- 11
3. Supply Chain Management Trends	II- 12
D. COMMODITY FLOW ANALYSIS	II- 17
1. TRANSEARCH Commodity Flow Data	II- 17
2. Overview	II- 17
3. Directional Analysis	II- 20
4. Analysis by Commodity Type	II- 33
5. Analysis by Rail Trading Partner	II- 45
6. County Analysis	II- 56
III. PLANNED INFRASTRUCTURE IMPROVEMENTS	
A. IMPROVEMENTS BEING PLANNED AND ADVANCED BY OTHERS	III- 1
IV. THE STATEWIDE FREIGHT RAIL STRATEGIC PLAN	
A. Agency and Industry Advisory Group	IV- 1
1. New Jersey State Agencies	IV- 1
2. Class I and Switching Railroads	IV- 2
3. Short Line and Terminal Railroads	IV- 2

B.	SUMMARY OF ISSUES AND RECOMMENDED ACTIONS	IV-	3
1.	High Priority Issues	IV-	3
2.	Moderate Priority Issues	IV-	4
3.	Longer Range, Lower Priority Issues	IV-	5
C.	TIMELINE FOR RECOMMENDED ACTIONS	IV-	17
V.	FUNDING OPPORTUNITIES	V-	1
A.	STATE FUNDING	V-	1
B.	FEDERAL FUNDING	V-	6
C.	KEY FREIGHT RAIL FUNDING ISSUES AND CHALLENGES	V-	10
D.	RAIL FREIGHT FUNDING AND OVERSIGHT MODELS	V-	10
APPENDIX A	ISSUES, PRIORITIZATION AND RECOMMENDED ACTION		
APPENDIX B	OTHER PLANNED IMPROVEMENT MAPS		

LIST OF FIGURES

	<u>PAGE</u>
Figure I.1 Existing Rail Network	I- 3
Figure II.1 New Jersey Rail System	II- 2
Figure II.2 Study Area	II- 8
Figure II.3 New Jersey Population (1900-2030)	II- 10
Figure II.4 Level of Rail Input Required to Produce one Dollar of Output	II- 14
Figure II.5 Mode Share by Weight	II- 18
Figure II.6 Expected Growth of Statewide Rail Flows	II- 19
Figure II.7 Expected Growth of Statewide Rail Flows	II- 19
Figure II.8 Direction of Rail Freight Flows by Weight	II- 21
Figure II.9 Direction of Rail Freight Flows by Value	II- 22
Figure II.10 Terminating Counties for Inbound Rail Freight by Weight, 2007	II- 25
Figure II.11 Terminating Counties for Inbound Rail Freight by Weight, 2035	II- 26
Figure II.12 Originating Counties for Outbound Rail Freight by Weight, 2007	II- 29
Figure II.13 Originating Counties for Outbound Rail Freight by Weight, 2035	II- 30
Figure II.14 Top 10 Rail Commodities by Weight - All Directions, 2007 and 2035	II- 35
Figure II.15 Top 10 Rail Commodities by Weight - Inbound, 2007 and 2035	II- 38
Figure II.16 Top 10 Rail Commodities by Weight - Outbound, 2007 and 2035	II- 41
Figure II.17 Top Rail Commodities by Weight - Intrastate, 2007 and 2035	II- 42
Figure II.18 Top 10 Rail Commodities by Weight - Through, 2007 and 2035	II- 44
Figure II.19 New Jersey Rail Trading Partners by Weight, 2007	II- 48
Figure II.20 New Jersey Rail Trading Partners by Weight, 2035	II- 49
Figure II.21 Top 10 Illinois Rail Commodities by Weight, 2007 and 2035	II- 51
Figure II.22 Top 10 Ohio Rail Commodities by Weight, 2007 and 2035	II- 53
Figure II.23 Top 10 Canada Rail Commodities by Weight, 2007 and 2035	II- 55
Figure II.24 Expected Growth of Hudson County Rail Flows, 2007 and 2035	II- 58
Figure II.25 Top 10 Inbound and Outbound Rail Commodities by Weight, Hudson County, 2007	II- 61
Figure II.26 Expected Growth of Union County Rail Flows, 2007 and 2035	II- 62
Figure II.27 Top 10 Inbound and Outbound Rail Commodities by Weight, Union County, 2007	II- 65
Figure II.28 Expected Growth of Middlesex County Rail Flows, 2007 and 2035	II- 66
Figure II.29 Top 10 Inbound and Outbound Rail Commodities by Weight, Middlesex County, 2007	II- 69
Figure II.30 Expected Growth of Essex County Rail Flows, 2007 and 2035	II- 70
Figure II.31 Top 10 Inbound and Outbound Rail Commodities by Weight	II- 72

LIST OF TABLES

		<u>PAGE</u>
Table II.1	Summary of Freight Operators and Mileage in New Jersey	II- 4
Table II.2	Freight Flows by Mode, 2007 and 2035	II- 18
Table II.3	Rail Tonnage and Value by Direction	II- 21
Table II.4	Destination of Inbound Rail Flows by Weight and Type, 2007 and 2035	II- 24
Table II.5	Origination of Outbound Rail Flows by Weight and Type, 2007 and 2035	II- 28
Table II.6	Top 10 Origin-Destination Pairs for Intrastate Rail Traffic by Weight, 2007 and 2035	II- 31
Table II.7	Top 10 Origin-Destination Pairs for Through Rail Traffic by Weight, 2007 and 2035	II- 32
Table II.8	Major Commodity Groups	II- 33
Table II.9	Top 10 Rail Commodities by Weight - All Directions, 2007	II- 34
Table II.10	Top 10 Rail Commodities by Weight - All Directions, 2035	II- 35
Table II.11	Top 10 Rail Commodities by Weight - Inbound, 2007	II- 36
Table II.12	Top 10 Rail Commodities by Weight - Inbound, 2035	II- 37
Table II.13	Top 10 Rail Commodities by Weight - Outbound, 2007	II- 39
Table II.14	Top 10 Rail Commodities by Weight - Outbound, 2035	II- 40
Table II.15	Top Rail Commodities by Weight - Intrastate, 2007	II- 41
Table II.16	Top Rail Commodities by Weight - Intrastate, 2035	II- 42
Table II.17	Top 10 Rail Commodities by Weight - Through, 2007	II- 43
Table II.18	Top 10 Rail Commodities by Weight - Through, 2035	II- 44
Table II.19	Top 10 Rail Trading Partners by Total Weight, 2007	II- 46
Table II.20	Top 10 Rail Trading Partners by Total Weight, 2035	II- 47
Table II.21	Top 10 Illinois Rail Commodities by Weight, 2007	II- 50
Table II.22	Top 10 Illinois Rail Commodities by Weight, 2035	II- 51
Table II.23	Top 10 Ohio Rail Commodities by Weight, 2007	II- 52
Table II.24	Top 10 Ohio Rail Commodities by Weight, 2035	II- 53
Table II.25	Top 10 Canada Rail Commodities by Weight, 2007	II- 54
Table II.26	Top 10 Canada Rail Commodities by Weight, 2035	II- 55
Table II.27	Sum of Inbound and Outbound Rail Flows, 2007	II- 57
Table II.28	Summary of Hudson County Rail Flows, 2007 and 2035	II- 58
Table II.29	Top 10 Inbound Rail Commodities - Hudson County, 2007 and 2035	II- 59
Table II.30	Top 10 Outbound Rail Commodities - Hudson County, 2007 and 2035	II- 60
Table II.31	Summary of Union County Rail Flows, 2007 and 2035	II- 61
Table II.32	Top 10 Inbound Rail Commodities - Union County, 2007 and 2035	II- 63
Table II.33	Top 10 Outbound Rail Commodities - Union County, 2007 and 2035	II- 64
Table II.34	Summary of Middlesex County Rail Flows, 2007 and 2035	II- 66
Table II.35	Top 10 Inbound Rail Commodities - Middlesex County, 2007 and 2035	II- 67
Table II.36	Top 10 Outbound Rail Commodities - Middlesex County, 2007 and 2035	II- 68
Table II.37	Summary of Essex County Rail Flows, 2007 and 2035	II- 70
Table II.38	Top 10 Inbound Rail Commodities - Essex County, 2007 and 2035	II- 71

Table II.39	Top 10 Outbound Rail Commodities - Essex County, 2007 and 2035	II-	72
Table III.1	Infrastructure Improvements Planned by Others	III-	2
Table IV.1	Plan Summary - Recommended Actions	IV-	6
Table IV.2	Recommended Action Implementation Timeline	IV-	18

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EXECUTIVE SUMMARY

Developing and maintaining an efficient freight rail system is critical to our state’s economic competitiveness, especially as domestic and global trade expands. Our economic vitality requires a strong rail system capable of providing New Jersey ports and businesses with competitive access to local, national and international markets.

Expanding and enhancing our state freight rail network will serve as a catalyst for retaining, attracting and growing New Jersey industry, creating jobs and enhancing quality of life. It will provide new opportunities for businesses and industry to move goods in a cost effective manner and lessen the impact on the state’s highway system. Transporting more goods by rail instead of by truck will also improve New Jersey’s air quality.

FREIGHT IS THE “ECONOMY IN MOTION”

A flexible, efficient freight rail network that meets the ever-changing needs of the logistics industry is vital to serving New Jersey businesses and industries and maintaining New Jersey’s role as the premier commercial gateway for international trade on the Eastern Seaboard. In simple terms, “freight” means

Freight transportation is truly the “Economy in Motion.” New Jersey’s freight rail network is a vital link in a national transportation system that supplies America’s people and industries.

goods in motion and, more fundamentally, an “economy in motion.” New Jersey is the most densely populated state in the nation. As its roadways become more congested and the availability of land for the construction of additional transportation infrastructure shrinks, New Jersey will need to rely even more on its rail system to move millions of people and millions of tons of goods every year. It has

already been projected that the volume of freight moved by rail in New Jersey will increase 50 percent by the year 2035.

Developing and maintaining an efficient freight rail system is critical to the continued economic health of New Jersey and the quality of life enjoyed by its people. The freight railroads employ nearly 1,100 people in New Jersey, and supports the growth and preservation of the nearly one half million jobs the goods movement industry provides its residents. Rail plays a key role in the freight industry due to its ability to transport heavy bulk goods and intermodal containers long distances and for less cost than trucks. While a freight transportation system is shaped by the evolving needs of the people, businesses and industries it serves locally and throughout the country, realizing the maximum value freight rail has to offer does not automatically happen by itself. It requires a vision of future needs and a plan of action to create a system to meet those needs. The ***New Jersey Statewide Strategic Freight Rail Plan*** articulates that vision and is the blueprint for creating the most efficient, effective freight rail system possible.



Containers are stacked and prepared for delivery by rail at the Port of New York & New Jersey

THE FREIGHT RAIL SYSTEM IN NEW JERSEY

New Jersey's freight rail system is located within one of the richest industrial and consumer markets in the world. Hundreds of millions of tons of goods are transported to, from, through and within our state annually. Rail freight volumes have increased significantly over the past decade due to rising global and intermodal trade. Over the last 25 years, intermodal rail traffic has quadrupled. In the last decade, it increased by nearly a third.

New Jersey's nearly nine million residents consume vast quantities of goods that are moved by rail. In terms of dollar value, more imports and exports move through the Port of New York and New Jersey than any other port in the United States, with the sole exception of the Port of Los Angeles. To support the global trade market and the movement of goods regionally and nationally, New Jersey has one of the largest concentrations of distribution centers and warehouses in the United States.

Today, freight railroads move over one million carloads to and from New Jersey annually, transporting nearly 38 million tons of goods valued at over \$55 billion.

Today, the freight railroads move over one million carloads to and from New Jersey annually, transporting nearly 38 million tons of goods valued at over \$55 billion. Major commodities shipped by rail include petrochemicals, plastic pellets, construction materials, food products, raw materials for manufacturers, finished components, and waste/scrap

materials. Intermodal facilities at the Port of New York and New Jersey and ports on the Delaware River facilitate the transfer of containers and goods directly from cargo ships to railcars. Due to the concentration of intermodal rail and maritime ports in the northeastern portion of New Jersey, the counties of Hudson, Union, Middlesex, Essex and Bergen account for the origin or destination of over 78 percent of the goods moved by rail to and from New Jersey.

Nearly 220,000 additional carloads are moved through the state on New Jersey's rail network, transporting another eight million tons of goods valued at more than \$12 billion. This activity is expected to increase by nearly 50 percent by the year 2035. Our quality of life and our economic vitality are dependent upon the ability of New Jersey's freight system to move goods efficiently and cost effectively. Action must be taken today to ensure that New Jersey's freight rail network is ready to handle the demands of tomorrow.

New Jersey's extensive and robust freight rail system is being challenged by ever increasing demand and growth of the customers it serves. Our state has approximately 1,000 miles of rail freight lines serving customers large and small. It is served by shortline, regional and national railroads.

All operate on their own tracks, with many also operating on tracks owned by others through shared use agreements. Each perform a different role and has different needs. The national railroads focus on high volume freight movements, including the



international marine and interstate traffic. High traffic density operations are their major source of revenue and profit.

By contrast, shortline railroads focus on the individual needs of New Jersey-based businesses and industries, which support the state’s economy and provide jobs. Many of their customers are clustered in “freight villages,” industrial parks, logistics centers and other areas ripe for economic growth. However, they are hampered by limited financial resources and their reliance on other railroads to get their cars to their final destination.

To improve profits and lower costs, rail-reliant businesses and industries prefer providers that can accommodate the longer, higher and heavier cars that have become the national standard. Despite limited resources, New Jersey shortlines have made considerable progress in this regard. However, business opportunities are being lost because the a number of the secondary and mainlines on which they depend do not meet the new national weight standard and their owners do not have a sufficient financial incentive to make the upgrade.

Eighteen freight railroads currently operate within the State of New Jersey, including:

- Three Class I Railroads – Norfolk Southern (NS), CSX Transportation (CSXT) and the Canadian Pacific Railway (CP)
- One Class II Regional Railroad – the New York, Susquehanna, and Western Railway (NYS&W)



NYNJ Railroad at the CrossHarbor Rail Float Terminal in Jersey City



Staging of ethanol cars at the Winchester & Western Railroad Yard, BridgetonNJ

- Seven Class II and III Local Railroads, and
- Seven Switching and Terminal Railroads, most notably the Consolidated Rail Corporation (Conrail).

There also are three major passenger rail providers in the State – Amtrak, New Jersey Transit (NJT) and the Southeastern Pennsylvania Transportation Authority (SEPTA).

Together, Class I and Canadian railroads account for over 67 percent of the rail mileage operated in New Jersey, with CSXT and NS operating about 250 and 160 trains daily in New Jersey, respectively.



Conrail on the move in northern New Jersey



NS heading east through WarrenCounty



CSX freight moving south on the River Line

Switching and terminal railroads (inclusive of Conrail) account for nearly 22 percent of the track miles operated in New Jersey.

The overall number of railroads and miles operated in New Jersey remained relatively consistent over the past decade. Total mileage operated by individual railroads remained relatively consistent with some minor exceptions. The New York, Susquehanna, and Western Railway registered an increase of 13 additional route miles (a 17 percent increase) during this interval. Conrail registered a reduction in route miles operated from 429 in 2000 to 419 in 2011.

THE BENEFITS OF FREIGHT RAIL

The considerable benefits of freight rail accrue to New Jersey in three areas:
Economic, Environmental, and Quality of Life.

Economic Benefits - Every year, America's freight railroads save consumers billions of dollars. According to an analysis from the American Association of State Highway and Transportation Officials (AASHTO), it would cost shippers almost \$70 billion more per year if all freight moved by rail were shifted to truck.



America's freight railroads generate nearly \$265 billion in total annual economic activity, sustaining 1.2 million jobs, including more than 175,000 jobs in the freight rail industry itself. According to U.S. Department of Commerce economic models, every dollar spent on investments in our freight railroads — tracks, equipment, locomotives, bridges, etc. — yields \$3 in economic output. In addition, each \$1 billion of rail investment creates more than 17,000 jobs.

Freight railroads directly employ over 1,100 people in New Jersey, providing nearly \$92 million in annual wages and benefits. An additional 8,800 railroad retirees are the recipients of annual railroad retirement benefits of \$157 million. Nationwide, each freight rail job supports 4.5 jobs elsewhere in the economy.

Freight rail service encourages and supports development and economic growth. Transportation cost is a key consideration in many business location decisions. Locations that offer multimodal transportation options that include state of the industry rail infrastructure and access to the national network have a competitive edge over locations that offer deficient or non-existent rail accessibility. Enhancements to the rail service provided to a location supports the retention of industrial activity, encouraging existing businesses to remain within New Jersey as opposed to relocating to adjoining states and taking jobs with them.

Environmental Benefits - Railroads are the most environmentally sound way to move freight. On average, trains are four times more fuel efficient than trucks. They also reduce highway gridlock, lower greenhouse gas emissions, and reduce pollution. Railroads are developing and implementing greener technologies and operating practices to support greater environmental benefits into the future.



Technological advances in the railroad industry have resulted in railroad fuel efficiency increasing by over 100 percent since 1980. In 2010, America's railroads moved a ton of freight an average of 484 miles on one gallon of fuel. It has been estimated that if 10 percent of the long-distance freight that is currently moved by truck were to be moved by rail, fuel savings would exceed one billion gallons per year.

Moving freight by rail instead of truck reduces greenhouse gas emissions by 75 percent. It has been estimated that if 10 percent of long-distance freight currently moved by truck were to be moved by rail, annual greenhouse gas emissions would be reduced by more than 12 million tons. That reduction is equivalent to the reduction that would be achieved by taking 22 million cars off the road.

Quality of Life Benefits – In 2010, congestion on America's highways cost \$1,001 billion in lost time (4.8 billion hours) and resulted in the unnecessary consumption of 1.9 billion gallons of fuel. A typical freight train can carry the equivalent load of 280 or more trucks. Fewer trucks means less congestion and fewer hours of lost time that commuters and everyday drivers spend sitting in traffic. Use of freight rail as opposed to trucks reduces harmful emissions that contribute to poor air quality, allowing everyone to breathe a little easier.



INCREASED FREIGHT RAIL DEMAND – PREPARING TO MEET THE CHALLENGE

Rising fuel prices, increasing highway congestion, an increased focus on environmental stewardship, increasingly sophisticated supply chain management techniques and industry desire for redundancy in their freight distribution systems are all contributing to increased demand for freight rail. But is the freight rail system in New Jersey ready to meet the challenges that lie ahead?

Overall freight demand (all modes) is projected to grow by about 64 percent between 2007 and 2035. Rail freight demand is expected to grow by about 48 percent during the same period. With limited resources to build new capacity, it becomes especially important to effectively manage the existing multimodal transportation infrastructure to accommodate freight growth and select the most beneficial infrastructure projects to fund. Improved management of the existing system capacity and expansion of the system where required will help ease highway and rail network congestion, accommodate projected growth and provide cost-effective options for the transportation of passengers and goods.

While millions of private and public dollars are invested in improvements to New Jersey's freight rail system each year, the needs far outweigh available financial resources. In 2010, applications for funding under the New Jersey Freight Rail Assistance Program totaled more than three times the annual funding allocation of \$10 million. A wide range of freight rail infrastructure improvements are currently being advanced by the public and private sectors throughout the state. Some of these improvements are fully designed and funded for construction, while others are still in the early visioning stage of project development. In the aggregate, the cost for completion of these improvements is estimated to be nearly \$1.5 billion. The needs of the freight rail system must be carefully considered and prioritized to ensure that the maximum benefit is achieved for every improvement dollar invested.

GOALS AND OBJECTIVES OF THE PLAN

The New Jersey Statewide Strategic Freight Rail Plan has been developed to identify the state and efficiency of the existing system, project future demand to be placed upon it, examine infrastructure improvements already in the works, determine what still needs to be done, and prioritize a series of actions to ensure that New Jersey is well served by freight rail.

Our quality of life and our economic vitality are dependent upon the ability of New Jersey's freight system to move goods efficiently and cost effectively. This ***New Jersey Statewide Freight Rail Strategic Plan*** is one of a wide range of activities undertaken by the New Jersey Department of Transportation to advance the following freight movement goals and objectives:

- **Integrated Planning:** To foster increased cooperation and coordination among public agencies and between public agencies and the private sector.
- **Economic Development:** To retain and generate jobs, maintain and increase revenue, and help maintain and enhance the state's competitive position through strategic freight initiatives.
- **Mobility:** To improve access to the national freight system and improve the efficiency of goods movement.
- **Sustainable Investment:** To cultivate and protect freight initiatives which provide lasting returns on public investment.
- **Community and Environment:** To promote freight as a good neighbor and the movement of freight in a socially and environmentally responsible manner.
- **Safety and Security:** To protect people, cargo, and infrastructure.

To fulfill these goals and objectives, the recommendations of the ***New Jersey Statewide Freight Rail Strategic Plan*** focus on supporting enhancements to the freight rail infrastructure, operations and services that will:

- Facilitate the efficient and cost-effective movement of goods to businesses, industries and consumers both within and outside of New Jersey;
- Encourage business and industry retention and growth within New Jersey;
- Support anticipated growth within New Jersey's maritime ports;
- Improve public safety;
- Create jobs, and
- Reduce emission of greenhouse gases and enhance the quality of life within New Jersey.

In return for providing the infrastructure to support freight movement to the rest of the nation, New Jersey is uniquely situated to benefit from the industries that add value to that freight as it moves through the transportation system. With appropriate planning, freight activity can drive economic activity, create jobs, and support broader community quality of life goals.

PRIORITY ACTIONS – “THE PLAN”

Building upon extensive coordination and input from a wide cross section of state agencies, Class I railroads and shortline / terminal railroads, 43 issues were identified that represent varying degrees of impediment to the creation and operation of a flexible, efficient freight rail system to serve New Jersey. These issues range from critical infrastructure improvement needs affecting the operational capacity of the system to issues affecting the integration of freight rail operations into local communities while preserving quality of life for local residents. Based upon close consultation with the freight rail industry, the 12 highest priority recommendations to improve rail freight in the State of New Jersey are:

- Continuation of the NJ Freight Rail Assistance Program;
- Upgrading secondary / light density lines to handle the current industry standard 286,000 lb. (286K) rail cars;
- Upgrading New Jersey's shortlines to handle the current industry standard 286K rail cars;
- Identify and mitigate constraints inhibiting the movement of 286K rail cars on selected passenger lines;
- Capacity and access at Greenville Yard;
- Repair and rehabilitation of the Delair Bridge to ensure continued freight rail access to southern New Jersey;
- Expand capacity of the Lehigh Line (shared with NJ Transit's Raritan Valley Line) from Oak Island Yard to Manville Yard.
- Elimination of tunnel and bridge height and width constraints that restrict the movement of today's larger industry standard rail cars;
- Providing freight rail connectivity between the northern and southern New Jersey;
- Preservation and reactivation of the military rail network;
- Enhancing connectivity between the Class I and the short line railroads, and
- Expanding intermodal yard capacity throughout the State, particularly in northern New Jersey.

Not all issues require the same level of action to affect an improvement. Specific solutions and actions were identified for each issue. These recommended actions are categorized by level of intensity as:

- Compliance with existing and pending regulations and Federal mandates;
- Maintenance of infrastructure and operations in their current serviceable state;
- Improvement of existing infrastructure, programs and practices to eliminate constraints;
- Expansion of existing facilities and practices, and
- Development / Implementation of new infrastructure, programs and practices.

These specific infrastructure improvements and programmatic actions are the foundation of the ***New Jersey Statewide Freight Rail Strategic Plan***.

I. INTRODUCTION

A. A HISTORY OF GROWTH, DECLINE AND GROWTH

Initially developed in the 1830s, the United States rail system expanded rapidly throughout the 1800s and early 1900s. At its peak in the 1920s, the rail system included nearly 380,000 miles of track¹, moving both passengers and freight. As a result of improvements and expansion of highway infrastructure, increased competition from the trucking industry, and increased regulation, the national rail system fell into a deep decline in the decades following World War II, leading to numerous bankruptcies and ultimately the formation of Amtrak and Conrail. The passage of the Staggers Rail Act² in 1980 allowed the railroad industry to consolidate and divest itself of unprofitable lines. Some of these lines were acquired by short lines, which could operate with greater efficiency. Today, the core freight rail network in the United States has been reduced to approximately 172,000 miles of track.

From the outset, the New Jersey rail system focused on the needs of the ports, its many industries, and providing access to New York and Philadelphia for passengers and freight. Nonetheless, the state's system experienced the same pattern of explosive growth and eventual decline. In 1999, Norfolk Southern and CSX acquired Conrail and split the assets between them. A new entity, Conrail Shared Assets, was formed as a terminal railroad to manage operations benefitting both Norfolk Southern and CSX in the state. A detailed history of the rail system can be found in the New Jersey State Rail Plan.

Today, eighteen freight railroads currently operate within the State of New Jersey, including:

- Three Class I Railroads – Norfolk Southern (NS), CSX Transportation (CSXT) and the Canadian Pacific Railway (CP)
- One Class III Regional Railroad – the New York, Susquehanna, and Western Railway (NYS&W)
- Seven Class II and III Local Railroads, and
- Seven Switching and Terminal Railroads, most notably the Consolidated Rail Corporation (Conrail).

¹AASHTO Freight Rail Bottom Line Report, 2003

²The Staggers Rail Act of 1980 is a United States federal law that deregulated the American railroad industry to a significant extent, and replaced the regulatory structure that existed since the 1887 Interstate Commerce Act.

With a reduced but more stable and sustainable rail network in place, rail freight volumes have continued to grow in recent years, driven by advances in freight rail productivity including double-stack cars and more powerful locomotives pulling longer trains. New Jersey refineries are witnessing a surge in petroleum shipments by rail, both inbound and outbound. With the rise in foreign oil prices, domestic production has boomed with the use of new technologies, such as the hydraulic fracturing of shale formations and horizontal drilling. Some production sites, such as the Bakken field in North Dakota, are relying on rail to move product. The rising cost of fuel has served to make the use of rail more economically viable for transporting large volumes of goods over long distances. Increasing congestion on the nation's and New Jersey's highways has also contributed to increased rail volumes. The result of these trends is that rail market share, as a proportion of intercity ton-miles in the United States, has stabilized following a long decline where rail lost over 40 percent of its market share.

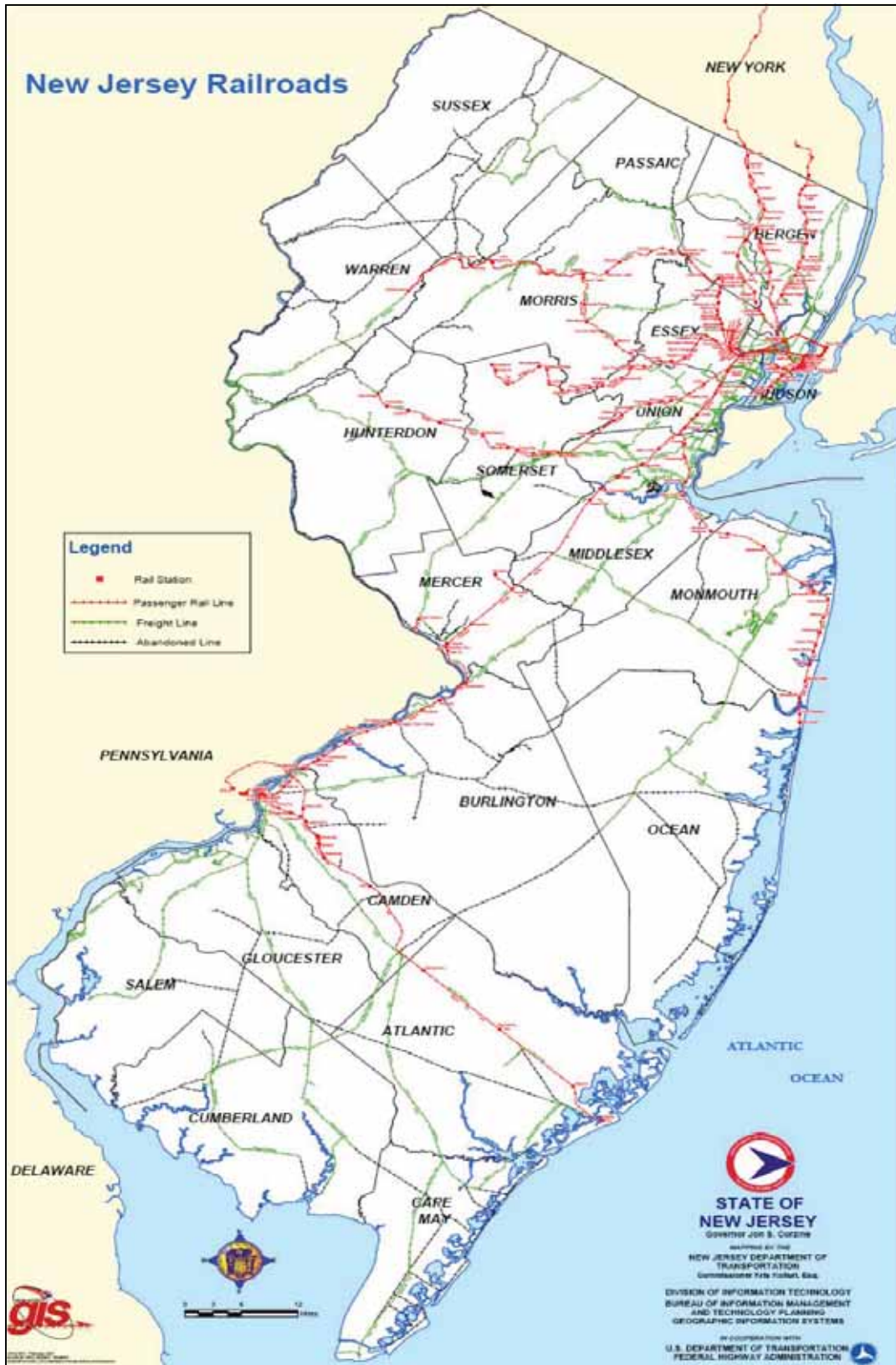
Together, Class I and Canadian railroads account for over 67 percent of the rail mileage operated in New Jersey, with CSXT and NS operating about 250 and 160 trains daily in New Jersey, respectively. Switching and terminal railroads (inclusive of Conrail) account for nearly 22 percent of the track miles operated in New Jersey.

Rail freight volumes increased substantially during the 2000s due in part to rising global trade combined with freight railroad expansion into new markets such as intermodal trade. Intermodal rail traffic has quadrupled over the last 25 years and increased by about a third during the past decade.³ Domestic economic growth during the same period led to increases in consumption commodities such as coal and bulk food products, key rail commodities. Overall freight demand (all modes) is projected to grow by about 64 percent by 2035, with rail freight demand expected to grow by about 48 percent.

There also are three major passenger rail providers in the State impacting the freight system. Amtrak provides inter-city and high speed service and New Jersey Transit (NJT) and the Southeastern Pennsylvania Transportation Authority (SEPTA) which provide commuter service. In some cases the track is owned by the passenger system, and in other cases the track is owned by the freight operators. Additional transit service, which does not impact the freight system is provided by the Port Authority of NY&NY (Port Authority Trans Hudson – PATH); and the Delaware River Port Authority (Port Authority Transit Corporation - PATCO). Figure I.1 displays the New Jersey rail network.

³Association of American Railroads

Figure I.1 Existing Rail Network



Population, economic, and income growth all drive increased freight demand and contribute to congestion on New Jersey's transportation system. With limited resources to build new capacity, it becomes especially important to effectively manage the existing multimodal transportation infrastructure to accommodate freight growth and select the most beneficial infrastructure projects to fund. Improved management of the existing system capacity and expansion of the system where required will help ease highway and rail network congestion, provide cost-effective options for the transportation of passengers and goods and accommodate projected growth in the demand for movement of freight by rail.

B. IMPORTANCE OF MAINTAINING AND SUPPORTING THE FREIGHT RAIL INDUSTRY IN NEW JERSEY

Freight transportation is truly the *"Economy in Motion."* New Jersey's freight rail network is a vital link in the transportation system that supplies America's people and industries.

Freight is the *"Economy in Motion."* A flexible, efficient freight rail network that meets the ever-changing needs of the freight logistics industry is vital to serving New Jersey businesses and industries and maintaining New Jersey's role as the premier

commercial gateway for international trade on the Eastern Seaboard. In simple terms, "freight" means goods in motion and, more fundamentally, the economy in motion. New Jersey is the most densely populated state in the nation. As its roadways become more congested and the availability of land for the construction of additional transportation infrastructure shrinks, New Jersey will need to rely even more on its rail system to move millions of people and millions of tons of goods every year.

Historically, the State of New Jersey was heavily industrialized and served by an extensive port and freight rail network. Over the years, as industries moved out of New Jersey, the demand for rail service to supply local manufacturing operations declined. Miles of freight railroad were simply taken out of service while many more miles of freight rail right of way were sold off and converted to other uses. The remaining freight rail network continues to support movements to and from New Jersey, but it is no longer as capable of supporting movements within the state as it once was.

Developing and maintaining an efficient freight rail system in New Jersey is critical to maintaining economic competitiveness, especially as domestic and global trade continues to expand. Economic vitality requires a strong rail system capable of providing New Jersey ports and businesses with competitive access to local, national and international markets. As the volume of goods moved through the ports continues to grow, the regional roadway network will face tremendous challenges in moving freight. Expanding and enhancing the ability to

move goods by rail will lessen the burden on the roadways and serve as a catalyst for attracting, retaining and growing New Jersey industry and creating jobs.

The public and private sectors spend millions of dollars every year on freight rail infrastructure improvements. However, available financial resources fall well short of the estimated \$1.5 billion needed to fund the projects identified in this plan. New Jersey is not alone in this regard. Many other states face a similar challenge, attempting to resolve the issue of limited funding in a variety of ways with varying degrees of success. Examples of the diverse ways states provide financial aid and encourage private investment include:

Funding Mechanisms

- Revolving loan funds
- State or authority bond issues
- Industrial revenue bonds
- Private activity bonds
- State grants – 100% and local match
- Federal grants (TIGER, US EDA, etc.)
- Congestion Mitigation and Air Quality (CMAQ) funds
- State infrastructure bank
- Federal Railroad Rehabilitation & Improvement Financing (RRIF) loans
- Transportation Infrastructure Finance and Innovation Act (TIFIA) federal credit assistance
- Public/private partnerships
- State tax exemptions (user fees)
- State investment credits

Government Structures

- State Departments of Transportation
- Independent agencies or authorities
- Bipartisan commissions
- Non-profit transportation corporations (T-CORP)

State Revenue Sources

- State budget reallocation (highway to rail)

- Sales tax dedication
- Diesel tax (increase or indexing)
- Gas tax (increase or indexing)
- Truck/trailer sales tax
- Truck tire tax
- Driver’s license surcharge
- Registration fees
- Share of U.S. Customs revenues
- Ton freight charge
- Ton-mile freight charge
- U.S. freight bill
- Special state railroad tax
- Railroad property tax
- Railroad franchise tax

A thorough examination of the revenue sources, financing mechanisms and governance structures employed by other states should be conducted to determine if there are “best practices” or successful models that could be adapted for use in New Jersey.

C. PLAN PURPOSE AND NEED

Rail plays a key role in the freight industry due to its ability to transport heavy bulk goods, as well as containerized goods, long distances for less cost than trucks. While the freight transportation system has been shaped by the evolving needs of the people and businesses served both locally and throughout the country, realizing the maximum value that freight rail has to offer does not automatically happen by itself. It requires a vision of future needs and a plan of action to create a system to meet those needs.

To stretch limited existing resources and achieve the maximum benefit for every public dollar invested, the NJDOT must prioritize the needs of the state freight rail system. Recognizing the importance of maintaining and supporting an efficient freight rail system in New Jersey, the NJDOT undertook development of the *New Jersey Statewide Freight Rail Strategic Plan* to assess the state and efficiency of the existing system; project future freight rail demands; identify infrastructure improvements already in the works; and prioritize a series of improvements and actions to ensure that New Jersey is well served by an efficient and effective freight rail system well into the future.

The ***New Jersey Statewide Strategic Freight Rail Plan*** is a guide for creating the most efficient, effective freight rail system possible. It looks at the existing rail system and the forces that are expected to shape it in the future and applies the knowledge and insight of the Agency and Industry Advisory Group (“AIAG”). This wide cross section of state agencies, Class I railroads and short line / terminal railroads helped to determine what needs to be done to accomplish this end, whether physical, operational or institutional

1. Strategic Freight Rail Planning within the Context of State Planning

While a wide array of regional and statewide multimodal freight planning studies have been undertaken by multiple agencies, this current effort is unique in that it represents an attempt to comprehensively identify the critical issues that affect the freight rail system and industry throughout the state. A range of potential strategies and solutions are identified to address each issue with the intent of assessing the overall performance of the freight rail system and providing a framework for consistently evaluating and prioritizing investments and policy decisions. The goals and objectives of this effort were developed to support the goals and objectives of the State Development and Redevelopment Plan as well as the State Transportation Plan, Transportation Choices 2030.

The State Planning Act contains three key provisions which set the framework for the State Development and Redevelopment Plan:

- encourage development, redevelopment and economic growth in locations that are well situated with respect to present or anticipated public services or facilities and to discourage development where it may impair or destroy natural resources or environmental qualities.
- reduce sprawl
- promote development and redevelopment in a manner consistent with sound planning and where infrastructure can be provided at private expense or with reasonable expenditures of public funds. (*N.J.S.A. 52:18A-196, et seq.*)

Transportation Choices 2030 sets eight goals and policies, focusing on existing transportation infrastructure, smart growth, efficiency, environmental stewardship and a new awareness of freight movement. Rail freight supports the above goals, as it focuses on the existing infrastructure that shaped the state and created the centers in the State Plan. Rail freight is efficient, environmentally sound, and supports the state’s economy.

The ***New Jersey State Strategic Freight Rail Plan*** will play a significant role in supporting and advancing the overall goals and objectives of these state plans by identifying issues and prioritizing actions and investments in the freight rail infrastructure that will support the freight industry in the state, attract industrial and manufacturing development, create jobs and foster economic growth and vitality for new Jersey’s residents and industries.

2. Environmental Benefits

Railroads are the most environmentally sound way to move freight. On average, trains are four times more fuel efficient than trucks. They also reduce highway gridlock, lower greenhouse gas emissions and reduce pollution. Railroads are developing and implementing greener and cleaner technologies and more efficient operating practices that will support greater environmental benefits into the future.

“Railroads are the environmentally-friendly way to move freight, thanks to their unique ability to fight highway gridlock, lower fuel consumption, reduce greenhouse gas emissions, and reduce pollution.”

- Association of American Railroads

Reduced Consumption of Fossil Fuels - According to a recent independent study for the Federal Railroad Administration, on average, railroads are four times more fuel efficient than trucks. Technological advances in the railroad industry have resulted in

In 2010 U.S. freight railroads moved a ton of freight an average of 484 miles per gallon of fuel.

- Texas Transportation Institute

railroad fuel efficiency increasing by over 100 percent since 1980. In 2010, U.S. freight railroads moved a ton of freight an average of 484 miles per gallon of fuel. It has been estimated that if 10 percent of the long-distance freight that is currently moved by truck were to be moved by rail, fuel savings would exceed one billion gallons per year.

Reduced Greenhouse Gas Emissions and Improved Air Quality - Greenhouse gas emissions are directly related to fuel consumption. Since railroads are, on average, four times more fuel efficient than trucks, moving freight by rail instead of truck lowers

“Freight railroads account for just 0.6% of U.S. Greenhouse Gas Emissions.”

- USEPA, *Inventory of US Greenhouse Gas Emissions and Sinks, 1990-2009*

greenhouse gas emissions by 75 percent. Transportation is responsible for 27.3 percent of the greenhouse gas emissions in the United States, generating 1,794 of the 6,633 terra grams (trillion grams) of CO₂ emitted annually. Of this total, The 37.2 terragrams accounted for by freight railroads was just 0.6 percent of total U.S. greenhouse gas emissions from all sources and just 2.1 percent of transportation-related greenhouse gas emissions. It has been estimated that if 10 percent of long-distance freight currently moved by truck were to be moved by rail, annual greenhouse gas emissions would be reduced by more than 12 million tons. That reduction is equivalent to the reduction that would be achieved by taking 22 million cars off the road.

3. Economic Benefits

Freight railroads have invested more than \$480 billion since 1980 to maintain and improve their tracks, bridges, tunnels, locomotives, freight cars and other infrastructure and equipment. Those investments continue to pay dividends to our nation's economy. Every year, America's freight railroads save consumers billions of dollars. According to an analysis from the American Association of State Highway and Transportation Officials (AASHTO), it would cost shippers almost \$70 billion more per year if all freight moved by rail were shifted to truck. America's freight railroads generate nearly \$265 billion in total annual economic activity, sustaining 1.2 million jobs, including more than 175,000 jobs in the freight rail industry itself. According to U.S. Department of Commerce economic models, every dollar spent on investments in our freight railroads — tracks, equipment, locomotives, bridges, etc. — yields \$3 in economic output. In addition, each \$1 billion of rail investment creates more than 17,000 jobs.

“Every dollar spent on investments in our freight railroads yields \$3 in economic output”

- US Department of Commerce

Freight Railroads Save Consumers and Businesses Money - Railroads help their customers control prices, saving shippers, and ultimately consumers, billions of dollars annually. Average U.S. freight rail rates (inflation-adjusted revenue per ton-mile) were 51 percent lower in 2010 than in 1981. Accordingly, shippers can move twice as much freight per dollar today as 30 years ago. This translates to lower consumer product costs.

Freight Railroads Create Jobs – The railroad industry nationwide supports more than 175,000 jobs. In 2010, the average full-time rail industry employee earned wages of \$82,600 – 55 percent higher than the \$53,000 average wage per full-time employee in the United States. In addition to direct employment, freight railroads sustain more than one million additional jobs in industries that provide goods and services to railroads or that are recipients of spending by the employees of railroads and their suppliers. In short, every direct job in freight rail operations sustains another 4.5 jobs elsewhere in the economy, with the freight railroads generating nearly \$265 billion in total economic activity annually including direct, indirect and induced effects.

“The railroad industry nationwide supports more than 175,000 jobs”

- Association of American Railroads

Encourage and Support Development and Economic Growth – Cost is a key consideration in business location decisions, particularly in industries for whom transportation is a major component of total costs. When presented with multiple geographic options for locating a new

or expand an existing business, the cost of transportation can be the deciding factor. Locations offering multimodal transportation options that include state of the industry rail infrastructure and access to the nation network have a competitive edge over locations that offer deficient or non-existent rail accessibility. Even if no significant new business activity is generated due to other constraints, enhancements to the rail service that can be offered to a location often results in business retention and encourages existing businesses to remain within new Jersey as opposed to relocating to adjoining states and taking jobs with them.

4. Quality of Life Benefits

Reduced Roadway Congestion - Railroads help reduce the economic costs of highway congestion. According to the Texas Transportation Institute, in 2010 congestion on America’s highways cost \$1,001 billion in lost time (4.8 billion hours) and resulted in the unnecessary consumption of 1.9 billion gallons of fuel. This estimate does not take into account

In 2010, congestion on America’s highways cost \$1,001 billion in lost time (4.8 billion hours) and resulted in the unnecessary consumption of 1.9 billion gallons of fuel.

- Texas Transportation Institute

additional costs related to other factors like lost productivity or delayed cargo delivery. A typical freight train can carry the equivalent load of 280 or more trucks. Shifting freight from trucks to rail reduces the need to build new or expanded roadways. It also reduces the stress placed on the existing roadway pavement and bridge infrastructure, much of which is already classified as structurally deficient, reducing life-cycle maintenance costs.

D. GOALS AND OBJECTIVES

The ***New Jersey Statewide Freight Rail Strategic Plan*** is one component of a wide range of activities undertaken by the New Jersey Department of Transportation to advance the following freight movement goals:

- **Integrated Planning:** To foster increased cooperation and coordination among public agencies and between public agencies and the private sector.
- **Economic Development:** To retain and generate jobs, maintain and increase revenue, and help maintain and enhance the state’s competitive position through strategic freight initiatives.
- **Mobility:** To improve access to the national freight system and improve the efficiency of goods movement.
- **Sustainable Investment:** To cultivate and protect freight initiatives that provide

lasting returns on public investment.

- **Community and Environment:** To promote freight as a good neighbor and the movement of freight in a socially and environmentally responsible manner.
- **Safety and Security:** To protect people, cargo and infrastructure.

Building upon these broader state freight goals, the primary objective of the ***New Jersey Statewide Freight Rail Strategic Plan*** is to support economic activity in the state by providing a strong infrastructure and operational system that makes rail service available and effective for as many businesses as possible.

In the context of the various state plans, and in recognition of the many benefits that a vibrant freight rail system and industry offers, overarching goals and objectives were established for the ***New Jersey Statewide Freight Rail Strategic Plan***, including:

- Ensure the existing freight rail infrastructure is maintained in a state of good repair.
- Promote preservation of currently out-of-service and at-risk rail rights of way for potential future reactivation.
- Ensure continued operation of critical freight rail corridors and connections to the national network.
- Enhance intermodal connectivity.
- Enhance connectivity between Class I, regional and short line railroads.
- Ensure adequate yard capacity.
- Maintain and expand available mechanisms and programs for funding of improvements.
- Expand system redundancy.
- Reduce congestion and enhance operational efficiency.
- Enhance economic development opportunities.
- Support the retention, attraction and growth of rail-served industries within New Jersey.
- Expand public education and support.
- Reduce emissions and improve the quality of life.

E. STRUCTURE AND CONTENT OF THE PLAN

As opposed to an analytical model approach, this plan was developed from the bottom up, building upon extensive coordination and input from a wide cross section of state agencies, Class I railroads and short line / terminal railroads. These participants on the Agency and

Industry Advisory Group (“AIAG”) provided valuable insights into their current operations and visions for the future, as well as a comprehensive listing of issues and constraints - physical, operational and institutional – that are hindering the achievement of the plan’s vision. These impediments make it difficult to create and operate a flexible and efficient freight rail system, stimulate economic growth and create jobs.

The plan is not intended to represent a list of specific capital projects and policy needs, but rather as a blueprint to guide future efforts in planning and maintaining a flexible, efficient freight rail system. In short, the plan:

- Organizes and focuses New Jersey’s freight rail planning efforts to leverage freight rail in support of economic development.
- Identifies issues affecting the health of the freight rail system serving New Jersey.
- Prioritizes issues in terms of early, mid-term and long-term action needs.
- Identifies a range of actions that can be taken to address specific needs.

The following sections of this report detail the plan development process and a series of prioritized recommended improvements and actions to support the freight rail industry.

II. EXISTING SYSTEM AND RAIL COMMODITY FLOW ANALYSIS

A key element of the plan preparation was the development of an understanding of existing rail infrastructure and freight flows along with insight into the future demand for rail freight. A quantitative commodity flow analysis helps policy-makers and analysts better understand rail freight movements into, out of, within, and through the state by identifying the volumes and types of commodities moved and their origins and destinations. This profile focuses on the two primary measures of freight activity, tonnage, and value. Tonnage is an indicator of the demand that freight movement places on transportation infrastructure while value is an indicator of the economic activity associated with freight. The data were analyzed by direction, (i.e., inbound, outbound, intraregional, and through moves), by commodity and by trading partner for both 2007 base year and 2035 forecast year.

Analysis of the New Jersey rail system, including existing infrastructure, commodities transported, and expected growth in the type and directionality of rail flows helps to better understand the existing and emerging freight industry, and logistics trends that are affecting goods movement into, out of, through and within New Jersey. This knowledge will help policy-makers identify critical rail system bottlenecks, and identify the policies, projects, and strategies that can enhance regional mobility, improve regional competitiveness, and mitigate community and environmental impacts. The findings will support the development of the ***Statewide Freight Rail Strategic Plan*** and support future planning activities within the State.

A. RAIL SUPPLY

From the inception of the nation's rail network in the 1820-1830 era to the post World War I period, rail track miles throughout the country expanded rapidly.¹ Since the 1920s, however, track miles have generally declined throughout the United States, including New Jersey. Much of the recent declines are attributable to the deregulation of the railroad industry as a result of the Staggers Rail Act of 1980, which allowed, among other elements, for rail carriers to discontinue or consolidate unprofitable routes. This consolidation has led to the current "core" freight rail system operated by the Class I railroads, supported by shortline railroads that provide direct connections to customers.

New Jersey has a robust freight rail system, including three Class I railroads, several Class II and III railroads, and a number of shortline, switching and terminal railroads. A variety of passenger rail services are also available including intracity and intraregional services operated by New

¹ AASHTO Freight Rail Bottom Line Report, 2003.

Jersey Transit and long distance interstate services operated by Amtrak. Figure II.1 displays the New Jersey rail network.

Figure II.1 New Jersey Rail System



Source: State of New Jersey

1. NEW JERSEY FREIGHT RAILROADS

Eighteen freight railroads operate within New Jersey including three Class I Railroads - Norfolk Southern (NS), CSX Transportation (CSXT) and the Canadian Pacific Railway²; one Class III Regional Railroad -The New York, Susquehanna, and Western Railway; seven Class II and III Local Railroads, and six Switching and Terminal Railroads.³ Portions of the track these railroads operate on are owned by freight railroads, and portions are owned by passenger railroads. Regardless of ownership, many sections of track are shared with passenger operations. Port Authority Trans-Hudson (PATH) and Port Authority Transit Corporation (PATCO) also provide passenger service, but their systems do not connect with the freight system. There are currently 1,133 freight rail employees in the state, a reduction from over 1,700 in 2003 as reported in the 2007 New Jersey Freight Plan.

The overall number of railroads and miles operated remained relatively consistent between 2003 and 2009 with US Rail Corporation assuming operation of 18 miles of track previously operated by the Southern Railroad Company of New Jersey. (In 2012, operation of the Salem Line reverted to Southern Railroad.) Total mileage operated remained relatively consistent with some minor changes to the Southern New Jersey and Philadelphia area Conrail operations, which were reduced from 429 miles in 2003 to 411 miles in 2009. The New York, Susquehanna and Western Railway registered a marginal increase of 13 additional track miles (about a 17 percent increase) during this interval. Together, Class I and Canadian railroads account for over 67 percent of the rail mileage operated in New Jersey, with CSXT and NS operating about 250 and 160 trains respectively. Switching and terminal railroads (inclusive of Conrail) account for nearly 22 percent of the track miles operated in New Jersey. Table II.1 provides a summary of the freight railroads mileage comparing 2010 data with that reported for 2003 in the New Jersey Freight Plan.

²Canadian-owned line not affiliated with any U.S. rail subsidiary

³ Association of American Railroads, New Jersey Statistics for 2008.

Table II.1 Summary of Freight Operators and Mileage in New Jersey⁴

Class/Type	Railroad Name	Miles Operated in New Jersey	
		2003	2010
Class I and Canadian	CSX Transportation	648	647
	Norfolk Southern Corporation	933	933
	Canadian Pacific Railway	68	68
Class II and Class III (Regional)	The New York, Susquehanna and Western Railway	78	91
Class II and Class III (Local)	Belvidere and Delaware River Railway Company	16	20
	Cape May Seashore Lines	27	27
	Morristown & Erie Railway, Inc.	42	42
	New Jersey Rail Carrier, LLC	0.5	2
	NJ Seashore Lines	0	0 ⁵
	New York and Greenwood Lake Railway	2	2
	SMS Rail Service, Inc.	11	13
	Southern Railroad Company of New Jersey	71	53
	Winchester and Western Railroad	54	54
Switching and Terminal Railroads	Black River and Western Railroad	17	17
	Conrail, Inc.	429	469
	East Jersey Railroad and Terminal Company	2	3
	Hainesport Industrial Railroad	0	1
	New York, New Jersey Rail, LLC ⁶	4	1
	Port Jersey Railroad	5	5
	Raritan Central Railway, LLC	16	17
US Rail Corporation	0	18	
Class Summary	Number of Railroads	Miles Operated in New Jersey	
		(Excluding Trackage Rights)	(Including Trackage Rights)
Class I and Canadian	3	189	1,649
Class II and III (Regional)	1	91	91
Class II and III (Local)	7	201	213
Switching and Terminal	7	527	531
Total	18	983	2457

⁴Source: Association of American Railroads, 2003, 2010⁵ NJ Seashore Lines anticipate future operation over 13 miles⁶Formerly operating as New York Cross Harbor Railroad

2. NEW JERSEY PASSENGER RAILROADS

Four passenger railroads serving New Jersey residents, visitors and businesses, impact the freight system. NJ Transit operates 11 lines throughout the state; Amtrak serves the Northeast Corridor, SEPTA operates in the Philadelphia and Trenton areas. Port Authority Trans-Hudson (PATH) and Port Authority Transit Corporation (PATCO) also provide passenger service, but their systems do not connect with the freight system.

Amtrak

In 2009, Amtrak operated approximately 110 trains a day in New Jersey, including the Acela Express, Regional, and Keystone Trains. Amtrak also operates several long-distance trains that service New Jersey including the Crescent (from New York, through New Jersey to New Orleans), the Cardinal (from New York, through New Jersey to Chicago), the Palmetto (from New York, through New Jersey to Savannah), the Silver Meteor and Silver Star (from New York, through New Jersey to Miami), the Carolinian (from New York, through New Jersey to Charlotte), the Pennsylvanian (from New York, through New Jersey to Pittsburgh), and the Vermonter (from Washington D.C., through New Jersey to St. Albans, Vermont). Amtrak stations in New Jersey experienced over 1.5 million boardings and alightings in 2009 over 600,000 of which occurred at the Newark station – the busiest in New Jersey and the 13th busiest in the National Amtrak system. Amtrak owns the Northeast Corridor track (around 58 miles in New Jersey), on which it operates its trains. Amtrak employed 1,418 New Jersey residents in FY 2009.

New Jersey Transit

New Jersey Transit (NJT) provides regional passenger rail services on 11 commuter lines throughout New Jersey that connect to New York and Philadelphia. In 2009, NJT operated 729 daily revenue trains⁷ during weekdays with about half that number on weekends. There were nearly 300,000 daily unlinked⁸ passenger trips and over 83 million trips in FY 2009. In the last five years, the number of average daily trips has increased by more than 30 percent. Despite the substantial increase in use, the number of daily revenue trains has only increased about 6 percent, resulting in an increase in the number of passengers per train.

The northern routes on the Main and Bergen County Lines and Pascack Valley Line serve Hudson and Bergen counties. The Montclair-Boonton and Morristown Lines serve the counties

⁷Trains carrying paying passengers

⁸ Unlinked passenger trips refer to passengers who board public transit vehicles, even if the boarding is the result of a transfer from another vehicle.

of Essex Morris, and Warren with the Gladstone Branch serving Union and Somerset counties to the west and south of Newark. The Raritan Valley Line serves Somerset and Hunterdon counties to the southwest. The Northeast Corridor Line, North Jersey Coast Line, River Line, and Atlantic City Line service points south and west of New York City, with destinations of Trenton, Philadelphia, and Atlantic City. The North Jersey Coast Line serves passengers in Middlesex and Monmouth counties. The Northeast Corridor Line serves Hudson, Union, Middlesex, and Mercer counties from Newark to Trenton. The River Line continues from Trenton south to the New Jersey border with Pennsylvania and the Atlantic City Line runs from Philadelphia in the State of Pennsylvania to Atlantic City in the southern part of the state through Camden and Atlantic counties. In many parts of the state, NJT trains operate on CSX Transportation and Norfolk Southern tracks.

Southeastern Pennsylvania Transportation Authority (SEPTA)

SEPTA operates commuter rail trains in New Jersey, Pennsylvania and Delaware serving an average of 120,000 passengers per weekday.⁹ Most of this ridership is concentrated in Pennsylvania with New Jersey stations in Trenton and West Trenton and Delaware stations in and around Newark and Wilmington. In 2009, ridership on the West Trenton, Trenton and Wilmington/Newark lines averaged roughly 10,000 per weekday.

Port Authority Trans-Hudson Corporation (PATH)

The Port Authority Trans-Hudson Corporation (PATH), a subsidiary of the Port Authority of New York and New Jersey operates the a heavy rail rapid transit system linking Manhattan and neighboring New Jersey urban communities and suburban commuter railroads. With station stops in Newark, Harrison, Hoboken and Jersey City, PATH presently carries nearly 250,000 passenger trips each weekday. This volume is expected to continue to increase with the anticipated growth in regional residential, commercial, and business development.

B. CONTEXT

Freight, or goods movement, refers to the transportation of goods from one location to another. These goods are shipped over the multimodal transportation network because they are demanded by New Jersey residents, businesses and visitors.

Rail plays a key role in the freight transportation system due to its ability to transport heavy bulk goods, as well as containerized goods, long distances and for less cost than trucks. A variety of factors contribute to the demand for freight rail services nationally and within New

⁹SEPTA Operating Facts, FY 2009

Jersey. Increasing congestion on the highway network and its corresponding negative impact on reliability has encouraged shippers to look to rail as an alternative. The growth of intermodalism, fueled by the use of increasingly sophisticated supply chain management techniques that allow shippers to benefit from both the lower cost of rail transport and the flexibility inherent in truck transportation, contributes to the increased demand for rail freight. Other factors include increasing fuel prices, a focus on environmental considerations, and the desire of shippers to quickly respond to changing demand patterns, congestion levels, and fuel prices by establishing redundancy in their freight distribution systems.

Rising fuel prices have caused shippers to look for less expensive ways to transport goods, sometimes benefitting rail. The public sector's focus on air quality, along with the desire to find ways to reduce the road maintenance and safety costs associated with trucks, highlights the attractiveness of rail transport. Rising levels of international and domestic trade, coupled with the recognition of the freight rail's benefits, ensure that rail will continue to be an important way to move goods throughout the United States and the State of New Jersey.

For over a century, rail has played an important role in the economy of New Jersey. The state's rail system enables passengers and goods to move within the state, to New York and Philadelphia directly and to destinations across the nation. As a heavily urbanized state, and the most densely populated in the union, New Jersey will continue to rely on its rail system to move millions of people and millions of tons of goods every year. The study area is comprised of the 21 counties of the State of New Jersey and is shown in Figure II.2.

Figure II.2 Study Area



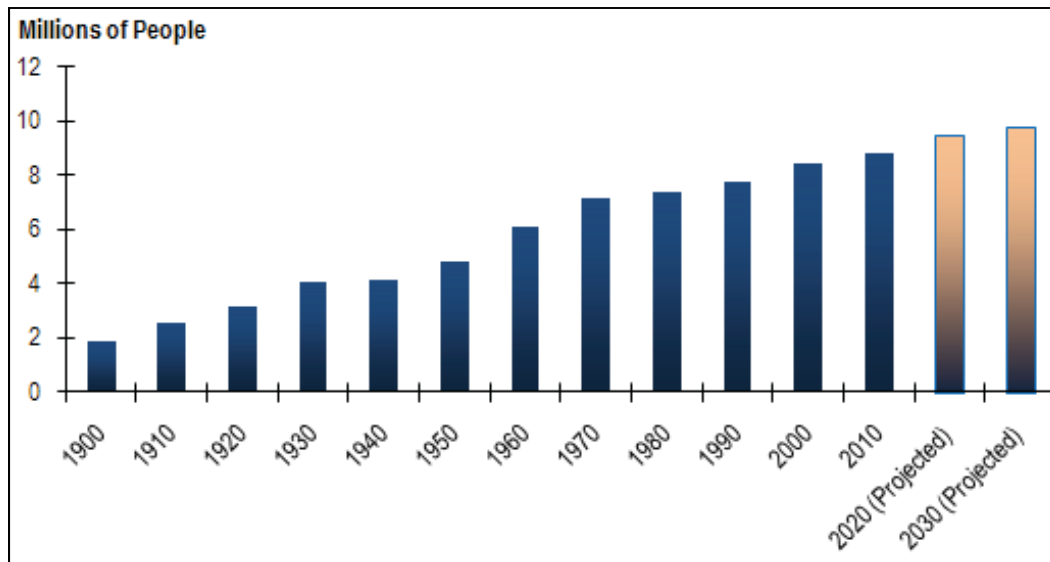
C. RAIL DEMAND

Rail demand is influenced by several factors. The primary driver of freight demand across all modes, including rail, is economic growth. Economic growth, coupled with population growth and the expansion or improvement of rail freight generating facilities (such as ports, intermodal yards, coal-fired power plants, chemical manufacturing facilities, etc.) contribute to increases in freight rail flows. The following sections highlight future demographic, economic, and supply chain management trends that impact rail freight in New Jersey.

1. Demographic and Economic Trends

The state of New Jersey is the most urbanized state in the United States and the only state where each county is designated as urbanized by the U.S. Census Bureau. New Jersey also has the highest population density of any state. The population of New Jersey has increased every decade since its establishment. As population increases, demand for goods and services increase as well, resulting in manufacturing and foreign trade growth. This, in turn, leads to increased demand for freight services to haul raw materials to production facilities and finished products to businesses and consumers. New Jersey is a key producer of raw materials (minerals and agricultural commodities among others), as well as waste materials and recyclables. It is also home to a large array of warehouse and distribution facilities that serve industries, businesses, and residents both in-state and in the greater New York City and Philadelphia markets.

Population - Like many states in the Northeast, historical population growth rates in New Jersey generally outpaced the national average until the 1970s and have lagged behind ever since. Between 1970 and 2000, New Jersey's population grew about 14 percent while the population of the United States as a whole increased nearly 35 percent. According to the U.S. Census, the population of New Jersey is expected to increase another 10-15 percent by 2030. Population growth is an important driver of both freight demand and passenger traffic on the state's roadways and rail facilities. Figure II.3 shows historical and projected population of New Jersey between 1900 and 2030.

Figure II.3 New Jersey Population (1900-2030)

Source: US Census. Note: 2020 and 2030 projections are from 2000 Census data.

Employment - New Jersey has long been an important contributor to the overall U.S. economy. Although employment in the manufacturing sector continues to decline (over 100,000 jobs lost in the sector between 2000 and 2006)¹⁰, the state remains a robust manufacturing hub with over 250,000 manufacturing jobs in 2010. Manufacturing employment in New Jersey is concentrated in chemicals, processed food products, and pharmaceuticals (combined over 40 percent of the total). Although New Jersey is currently experiencing a relatively high unemployment rate due in large part to the recent global recession, for the past decade, unemployment in New Jersey has tracked either at or slightly below the national average.¹¹ The Rutgers Economic Advisory Service expects that the unemployment rate will improve to about 6.5 percent by 2020.¹² A large proportion (nearly 30 percent) of non-farm New Jersey employment is in industries hardest hit by the recent global recession (e.g. retail trade, transportation, construction, and manufacturing). As the recovery continues, the state can expect to benefit from increases in employment in these industries and to experience a corresponding increase in freight demand and associated congestion.

Income - Notwithstanding recent rises in unemployment, New Jersey is historically among the states with the highest median household incomes (second in 2009). High incomes are

¹⁰New Jersey Economic Outlook and Review 2007

¹¹ Source: Bureau of Labor Statistics, 2000-2009

¹² Source: New Jersey Economic Indicators, New Jersey Department of Labor and Workforce Development, November, 2010

correlated with increased consumption of goods, from food to energy, thereby increasing demand for freight across all modes, including rail, resulting in increasing congestion.

Congestion on the Transportation Network - As described above, population, economic, and income growth all drive increased freight demand and contribute to congestion on New Jersey's transportation system. With limited resources to build new capacity, it becomes especially important to select the most beneficial infrastructure projects to fund and to effectively manage the existing multimodal transportation infrastructure to accommodate freight growth. Analysis of the TRANSEARCH data indicates that overall freight demand (all modes) will likely grow by about 64 percent between 2007 and 2035 with rail freight demand expected to grow by about 48 percent during the same period.

Targeted transportation capacity and operational improvements will help congested highway, rail, port and airport infrastructure accommodate projected growth and provide cost-effective options for the transportation of passengers and goods. One example of a major potential capacity improvement is the Cross Harbor project under study by the Port Authority of New York and New Jersey. The concentration of port, rail and air freight facilities needed to sustain the region's economic link to the rest of the world has developed largely to the west of the Hudson region. The only direct connection from this freight hub to the heavily populated region east of the Hudson River is by truck over a limited number of congested crossings. Currently, freight flows between areas east and west of the Hudson River are restricted to a limited number of highway bridges, already congested railroad crossings, and a rail barge. Freight trains from the west and south destined for New York City, Long Island and Connecticut must cross the Hudson River using the Alfred H. Smith Memorial Bridge, located in Selkirk, New York, approximately 140 miles north of New York City. Construction of the Cross Harbor Rail Tunnel would provide a direct freight rail link to New York City and Long Island, offering an alternative to trucks for moving freight across the Hudson River.

2. Passenger and Freight Volume Trends

Passenger Rail - Rail passenger operations have been in place since the dawn of the nation's rail network in 1828. Passenger ridership continued to grow along with the expanding rail network until the early 20th century. Ridership peaked in 1920 at over 47 billion passenger miles.¹³ The rising popularity and market penetration of automobile beginning in the 1920s followed by economic challenges during the Great Depression led to large declines in rail ridership. During

¹³Meyer, John R. and Clinton V. Oster, Jr. Deregulation and the Future of Intercity Passenger Travel. Massachusetts Institute of Technology, 1987.

the war years of the late 1940s, passenger rail ridership experienced a resurgence but continued its long decline after the war and into the 1970s when Amtrak was created by an act of Congress to take over the operations of the nation's passenger rail service from the Class I railroads. Amtrak has been able to achieve gains in passenger rail ridership and continues its effort to maintain its long-distance transportation market share versus private automobiles and air travel. During the last two decades especially, passenger rail ridership growth has been strong. In 2009, many rail transit operators, including Amtrak, set ridership records.

Freight Rail - The freight rail system, initially developed in the 1830s, expanded rapidly in the 1800s and early 1900s with system mileage reaching its peak of about 380,000 miles of track¹⁴ in the 1920s. As a result of improvements and expansion of highway infrastructure, increased competition from the trucking industry, increased regulation, and due in part to the passage of the Staggers Rail Act in 1980, the railroad industry has consolidated and divested itself of lines that were unable to generate enough revenues to cover operating and maintenance costs to the extent that the core rail network today has been reduced to about 172,000 miles. With a more stable sustainable rail network and operational framework in place, rail freight volumes have continued to grow, driven by advances in freight rail productivity including double-stack cars and more powerful locomotives pulling longer trains. The result of these trends is that rail market share, as a proportion of intercity ton-miles in the United States, has stabilized following a long decline where rail lost over 40 percent of its market share. Rail freight volumes increased substantially during the 2000s due in part to rising global trade combined with freight railroad expansion into new markets such as intermodal trade. Intermodal rail traffic has quadrupled over the last 25 years and increased by about a third during the past decade.¹⁵ Domestic economic growth during the same period led to increases in consumption commodities such as coal and bulk food products, key rail commodities.

3. Supply Chain Management Trends

Several factors impact the way shippers use the global multimodal transportation network to manage their inventories of goods on the move and to ensure that the right materials arrive at the right location at the right time. One of these factors is the rise in globalization. This phenomenon has caused supply chains to lengthen, disperse and become more complex as producers look to gain a competitive edge by accessing lower labor costs in locations around the globe. As more goods are produced overseas and imported into the United States, the nation's Ports of Entry, including the many marine terminals in New Jersey, are experiencing

¹⁴AASHTO Freight Rail Bottom Line Report, 2003

¹⁵ AAR

rapid growth in inbound products¹⁶, especially containers. This large inflow of goods must be distributed throughout the nation using roadways, rail lines and waterways.

The large volumes of containerized products arriving at key National Gateways, much of which is destined for locations in the middle of the country or on the opposite coast, provide the economies of scale and haul distances that are well-served by rail-truck intermodal transportation. Manufacturers, shippers and retailers are continually working to reduce supply chain costs by utilizing technology improvements related to tracking shipments in real time (just-in-time) enabling increased inventory management from the moment a product is shipped through point of sale (or in the case of manufacturing, the point of consumption). “Many containers are now packed overseas for delivery direct to the U.S. store to eliminate the cost of repacking for final delivery. Containers are loaded onto containerships in a preplanned, last-on-first-off sequence organized by train and destination city so that the containers move directly to intermodal trains when they arrive at U.S. ports, eliminating delays and missed deliveries.”¹⁷

In their continuing efforts to reduce supply chain costs, shippers are monitoring the performance of all of the elements of the freight network and adjusting their logistics plans accordingly. Maintaining and improving the performance of the freight rail system in New Jersey will ensure that the state keeps or even improves its competitive position relative to other National Gateways.

Rail Intensive Industries - Rail is of particular importance to industries that rely on bulk materials and/or commodities that are not particularly time sensitive. Costs per ton-mile are significantly lower for rail shipments than they are for truck shipments. The AASHTO (American Association of State Highway and Transportation Officials) Freight Rail Bottom Line Report estimated that the absence of a freight rail option would have cost shippers an additional \$69 billion in the year 2000, at prevailing truck shipment rates.¹⁸

Existing Rail Intensive Industries

New Jersey industries that are particularly reliant on rail freight include, among others, power generation, waste disposal, warehousing and distribution, chemical manufacturing and food products manufacturing. These industries require inputs generally shipped by rail, including coal for power generation, food/kindred products for food processing and chemicals for the

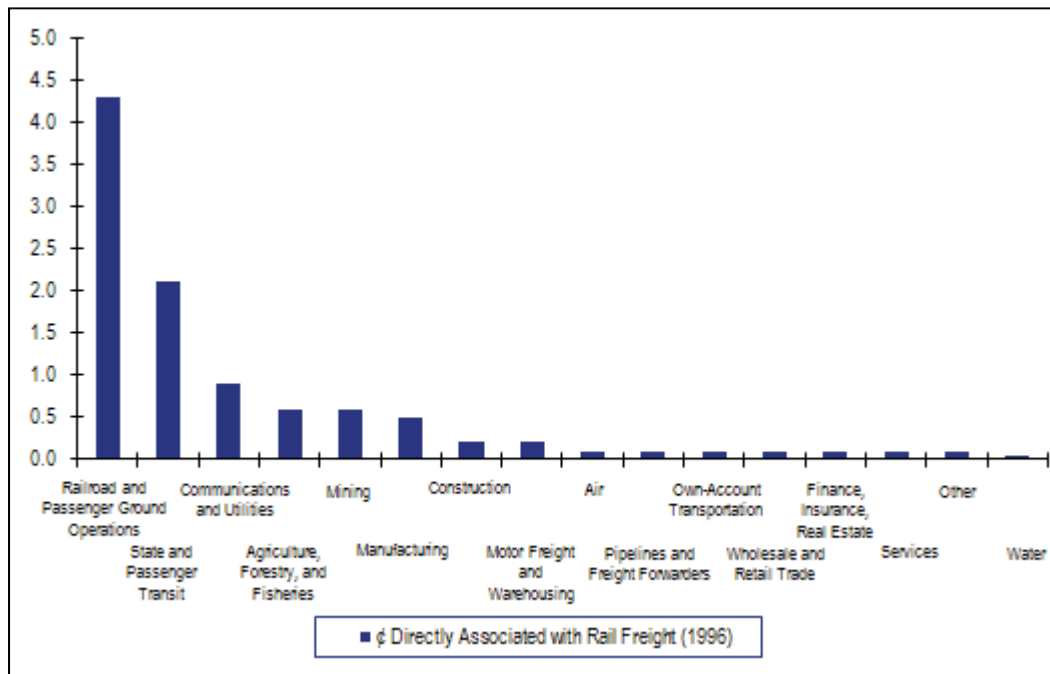
¹⁶ The recent global recession caused a reduction in Port volumes, but the long-term trends suggest that this reduction is a temporary one.

¹⁷Freight Transportation Demand and Logistics Bottom Line Report, 2007

¹⁸AASHTO Freight Rail Bottom Line Report, 2003.

chemical and pharmaceutical industries.¹⁹ Analyses completed in 2000 by the Bureau of Transportation Statistics and the Bureau of Economic Analysis, quantify the relative level of dependence that various industries have for rail transportation. Figure II.4 shows, by industry, the level of rail freight input needed to produce a dollar of output (e.g., 0.6 cents of rail inputs are required for every dollar of agriculture or mining output; while 0.5 cents are required for every dollar of manufacturing output; 0.2 cents for every dollar of construction output, etc.)²⁰

Figure II.4 Level of Rail Input Required to Produce One Dollar of Output
Cents



The analysis indicates that for certain industries rail has a relatively greater influence on the level of output than for other industries. Railroad and passenger ground operations and rail transit operations are heavily supported by rail. Utilities, agriculture, mining and manufacturing are also strongly supported by rail. The industries described above are important to the New Jersey economy, and the state can continue to support these industries by ensuring the health of the state's freight and passenger rail system. Without a rail system that can accommodate continued growth in these industries, it will be more difficult to achieve the same level of economic outputs.

¹⁹ In October 2010, food, chemical, and pharmaceutical manufacturing processes accounted for over 110,000 jobs in New Jersey according to the New Jersey Department of Labor and Workforce Development's *New Jersey Economic Indicators*, November, 2010.

²⁰ Fang, Bing song, et al, U.S. Surface Transportation Satellite Accounts for 1996. Survey of Current Business. May 2000. Accessed 12/20/2010. <http://www.bea.gov/scb/pdf/national/inputout/2000/0500tsa.pdf>.

Future Rail Intensive Industries

The infrastructure already in place to support existing rail-intensive industries can also support the growth of new industries with similar needs. *The rail infrastructure for chemicals is also becoming increasingly important for the carriage of crude petroleum for long distances for its refining into finished petroleum products such as gasoline, diesel and heating oil and the onward shipment of these products to markets.* The inputs for these new industries correlate well to those needed for existing industries. As will be shown in this report, a large proportion of rail freight that arrives in New Jersey originates (or is transferred from western railroads) in the Chicago area, which is also an agricultural products hub. The agricultural products (corn, soybeans, vegetable oil, etc.) originating in the Midwest are key production inputs for the biodiesel and ethanol industries. The existing rail infrastructure linking New Jersey to the Midwest can be used to transport production inputs to these new industries and transport their final products as well. In addition, rail intensive industries such as wind power and clean coal power generation may benefit from existing New Jersey rail infrastructure.

Intermodalism - Intermodal transportation involves the movement of freight in a container or other package that can be easily transferred between one mode of transportation and another (e.g., truck to train) without having to remove the cargo when changing modes. Intermodal trains typically transport shipping containers or truck trailers by flatcar, allowing for simple transitions between truck and sea transport. Intermodal shipping allows shippers to realize the cost benefits of rail transportation while retaining the flexibility of truck transportation. The growth of containerized shipping associated with global trade has increased rail intermodal demand throughout the United States.

Transportation of Bulk Materials - Rail freight is well suited to ship bulk commodities over long distances. The ability of rail locomotives to pull enormous loads enables a consolidation of materials and shipments that are impossible to duplicate with other transportation modes and typically result in lower costs per ton-mile for shippers. Bulk commodities, or commodities that are transported unpackaged in large volumes, are often relatively heavy or bulky, relatively cheap (on a per ton basis compared to manufactured goods) and tend not to have strict delivery schedules. Commodities such as coal or waste products are generally shipped in bulk loads.

Unit Trains

Unit trains are rail trains composed of cars all being shipped to the same origin and destination, often with the same or similar cargo. They play a major role in bulk shipping. By avoiding the need to transload cargo or split and store rail cars en route, these trains offer efficiencies in

time and cost. In New Jersey, many commodities move by way of unit trains, from coal shipments to the transport of waste and scrap products to destinations in the Midwest and the South.

D. COMMODITY FLOW ANALYSIS

1. TRANSEARCH Commodity Flow Data

The TRANSEARCH commodity flow dataset, a commercial product of IHS Global Insight, is the basis of the commodity flow analysis performed for this study. The database combines proprietary data to estimate truck flows, public data for air and water flows, and the Surface Transportation Board (STB) waybill sample data for rail freight flows. The TRANSEARCH dataset study includes commodity information at the Standard Transportation Commodity Code (STCC) 2 level of detail. The dataset provides base year data for 2007 and forecast data through 2035. The data include inbound, outbound, intrastate, and through freight flows for New Jersey on all modes of transportation (truck, rail, water, air) but excluded pipelines.

This commodity flow analysis focuses on statewide and county-level freight rail flows. It presents key findings, an evaluation of tonnage and value of rail flows, directional analysis, identification of major trading partners both within the state and between other states/countries and New Jersey, and reporting of major commodities and their role in the state's rail system.

Although the TRANSEARCH dataset provides useful information on the proportion, type and direction of freight moved by rail within the state, the data does have some deficiencies. The dataset is based on a sampling of freight waybills for loaded trains greater than 8,500 carloads in a given year. This provides a clear picture of large-scale rail enterprises on which the majority of cargo is shipped. However, some cargo hauled on shortline railroads might not be captured by the waybill sample. In addition, the TRANSEARCH data is not linked, meaning that it counts freight that is carried by more than one mode multiple times. For example, if a ton of sand is brought into the state by train and then transported within the state via truck, that same ton of sand will be counted as both rail and truck tonnage. Outside of a few summary results for all modes, the commodity flow analysis in this report is limited to the rail mode.

2. Overview

Freight volumes hauled across New Jersey's transportation system are expected to grow from 715 million tons in 2007 to 1.2 billion tons in 2035, an increase of 64 percent. The truck and air freight modes are projected to grow the fastest, followed by the rail and water modes as shown in Table II.2.

Table II.2 Freight Flows by Mode, 2007 and 2035
Tons and Value

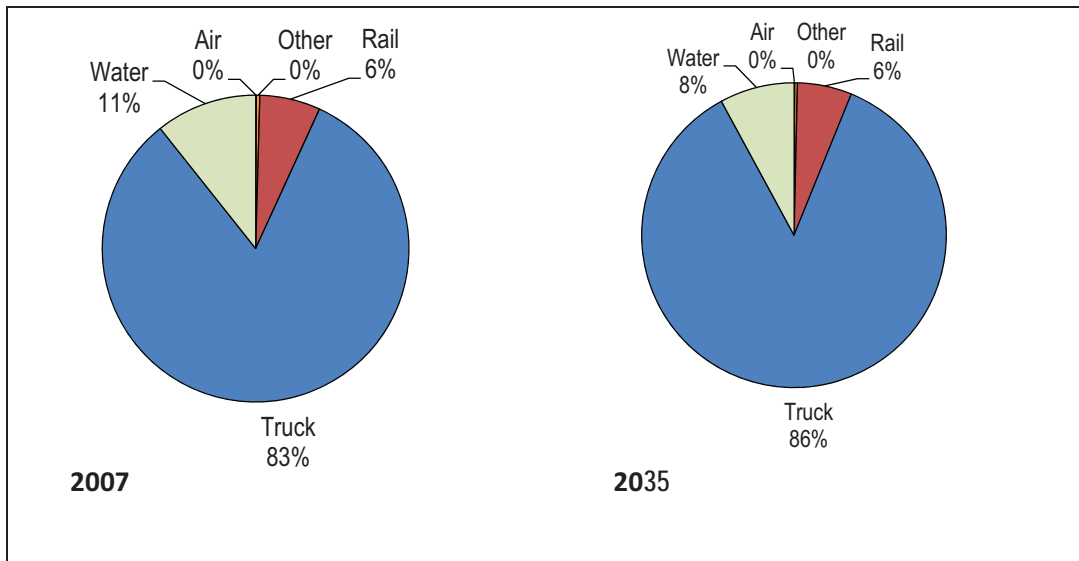
Direction	2007 Tons	2035 Tons	Percent Change	2007 Value (\$000)	2035 Value (\$000)	Percent Change
Truck	589,356,933	1,006,478,084	71%	\$2,409,057,077	\$5,430,284,396	125%
Rail	45,737,542	67,698,651	48%	\$62,267,766	\$98,713,903	59%
Water	76,364,258	92,727,254	21%	\$51,887,948	\$66,942,175	29%
Air	479,810	845,501	76%	\$3,680,778	\$13,778,671	274%
Other	2,668,956	3,253,928	22%	\$950,539	\$1,320,292	39%
Total	714,607,500	1,171,003,418	64%	\$2,527,844,107	\$5,611,039,436	122%

Source: TRANSEARCH, 2007.

Note: Where the mode of transport is unknown or not clearly specified on the customs documents, the shipment is included in the “other” grouping, which is overwhelmingly dominated by pipeline shipments of crude petroleum and natural gas.

Trucks carry the most freight in New Jersey by a large margin, followed by water, rail and air. Rail’s share of total freight in New Jersey (by weight) was 6 percent in 2007 and is projected to remain at about 6 percent in 2035 as shown in Figure II.5 below.

Figure II.5 Mode Share by Weight
2007 and 2035



Weight versus Value

A weight-based commodity flow analysis is a fundamental component of any freight rail study, as the weight of shipped commodities is critical to understanding how freight vehicles utilize the transportation system. Analyzing the value of commodities shipped provides insight into the economic activity associated with freight.

In 2007, over 45 million tons of freight moved over the state’s rail transportation system. By 2035, total rail freight is projected to increase by nearly 50 percent to over 67 million tons. During the same interval, the value of the freight hauled over the rail system is projected to increase from just over \$62 billion to nearly \$99 billion, an increase of 59 percent. These data are displayed graphically on Figures II.6 and II.7.

Figure II.6 **Expected Growth of Statewide Rail Flows**
By Weight

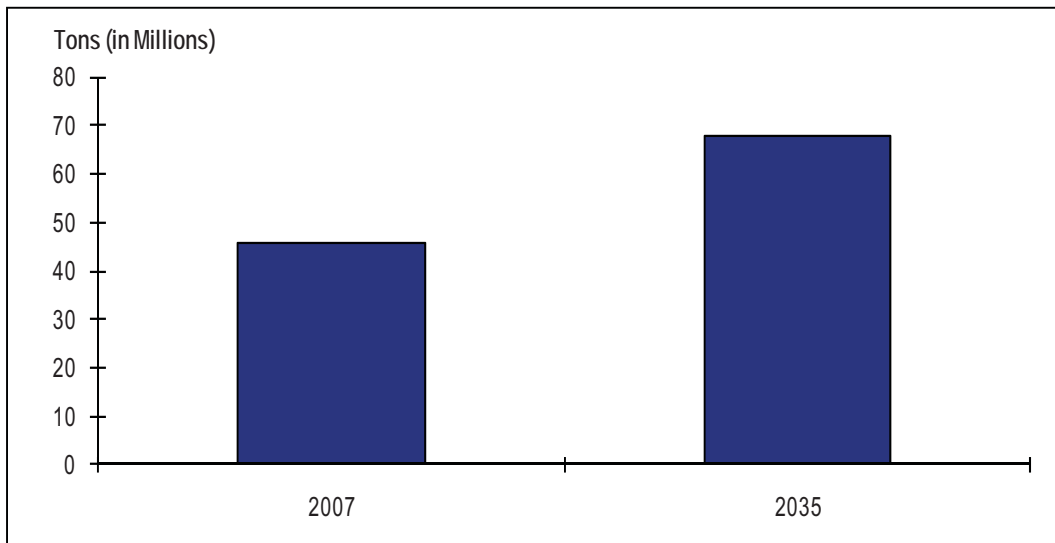
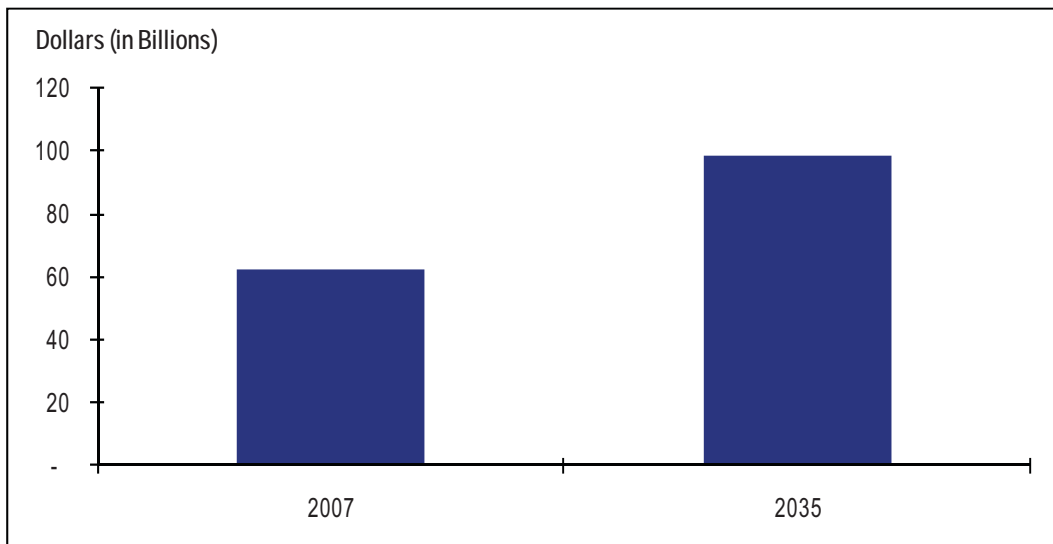


Figure II.7 **Expected Growth of Statewide Rail Flows**
By Value



3. Directional Analysis

Directional analysis describes and compares the magnitude of freight, in terms of both weight and value, moving over the region's transportation infrastructure by *direction*. It also can help reveal the underlying economic structure of the region. Every freight shipment can be categorized as moving in one of four directions, i.e. either inbound, outbound, intrastate or through. Freight flows are assigned a direction according to the following definitions:

- **Inbound freight** moves originate outside of the State and terminate within the state. Inbound freight represents **imports** to New Jersey. Because consumers and businesses must pay for goods received, inbound freight is associated with a corresponding outflow of dollars from the state.
- **Outbound freight** moves originate within the state and terminate outside of the state. Outbound freight represents **exports** from New Jersey and is considered *wealth-generating* freight because it is associated with an inflow of dollars to the state.
- **Intrastate freight** moves originate and terminate within New Jersey. Intrastate freight moves represent the degree to which the state is trading with itself. It is associated with neither imports nor exports, but reflects the level to which the state is supplying the goods it needs (both consumer and production materials) from within its boundaries.
- **Through freight** moves originate outside of New Jersey, traverse the state and terminate outside of New Jersey. Through freight moves, while very important for the national and global economy, do not directly impact the New Jersey economy to a significant degree. However, the movement of through freight does utilize and impact the state's transportation system as a means to reach its final destination.

Since this report is focused primarily on the rail mode, the directional analysis is described for that mode only and indicates the extent to which inbound, outbound, intrastate and through rail freight supports the state's economy and is therefore only a portion of a story that is more fully understood by analysis of all modes.

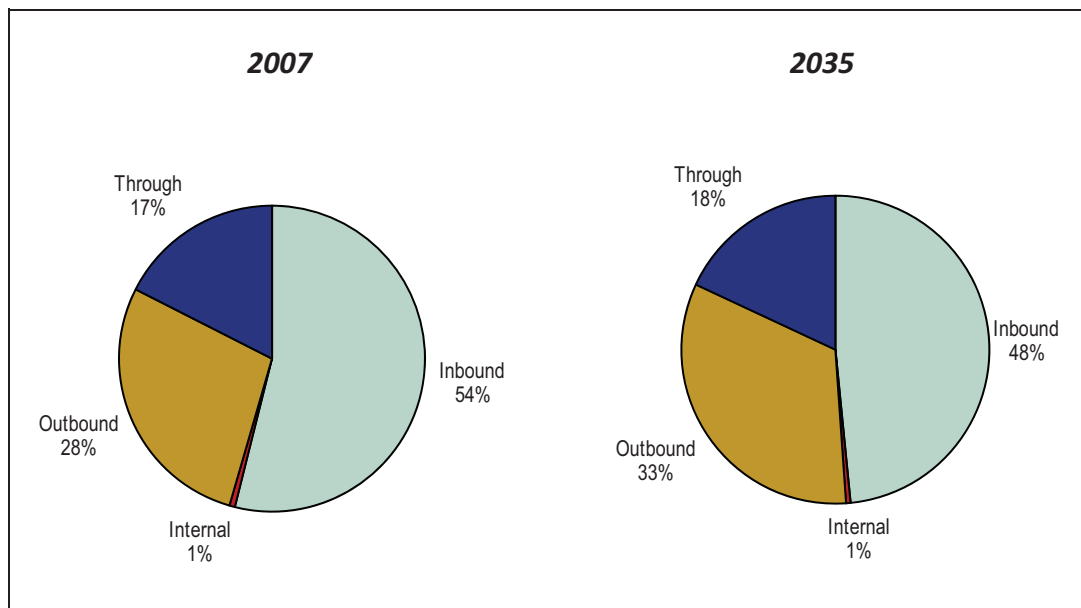
These data are tabulated and displayed graphically in Table II.3 and on Figures II.8 and II.9.

Table II.3 Rail Tonnage and Value by Direction
2007 and 2035

Direction	2007 Tons	2035 Tons	Percent Change	2007 Value (\$000)	2035 Value (\$000)	Percent Change
Inbound	24,657,640	32,781,951	33%	\$35,757,347	\$50,381,400	41%
Outbound	12,807,291	22,377,780	75%	\$19,078,743	\$35,740,773	87%
Internal	262,200	319,393	22%	\$478,203	\$787,611	65%
Through	8,010,411	12,219,528	53%	\$6,953,473	\$11,804,118	70%
Total	45,737,542	67,698,652	48%	\$62,267,766	\$98,713,902	59%

Source: IHS Global Insight, TRANSEARCH data.

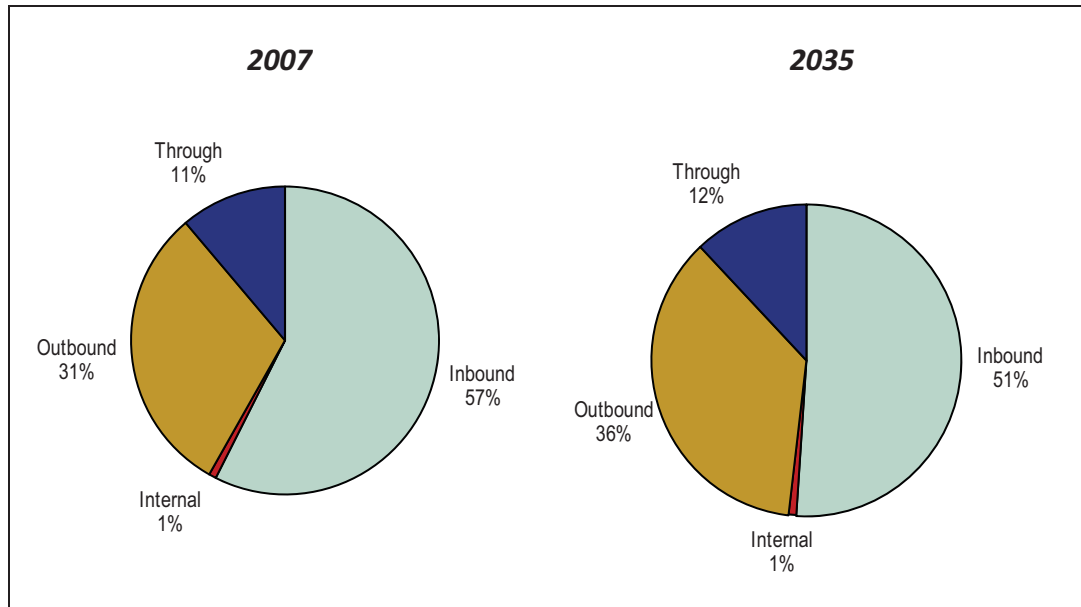
Figure II.8 Direction of Rail Freight Flows by Weight
2007 and 2035



The largest component of rail freight, by weight, is traveling inbound (54 percent of the 2007 total) to New Jersey which indicates that the state is a net importer of rail-shipped goods. Outbound rail freight is the second largest component (28 percent of the 2007 total) and indicates that the state generates significant quantities of rail-shipped goods for export. The third largest component of statewide rail freight is through traffic (17 percent of the 2007 total). Less than 1 percent of rail freight moves have an origin and a destination within New Jersey. Since rail is typically more cost efficient for longer hauls it is not unexpected that there are relatively few intrastate rail moves in a geographically small state like New Jersey.

By 2035, a significant shift in the proportion of inbound and outbound rail freight is projected with the proportion of inbound rail freight declining to 48 percent of the total (from 54 percent in 2007) and the proportion of outbound rail freight growing to 33 percent of the total (from 28 percent in 2007).

Figure II.9 Direction of Rail Freight Flows by Value
2007 and 2035



Value analysis provides insight into the flow of money into and out of the state economy. Inbound value implies an outbound flow of money as consumers and businesses pay for the goods received. Similarly, outbound value implies an inbound flow of money as businesses in the state receive payment for goods or raw materials produced.

The largest component of total rail freight (by value) is traveling inbound (57 percent of the 2007 total) followed by outbound rail freight (31 percent of the 2007 total) which indicates that the state experiences a net outflow of money related to rail freight movement.

In 2007, 11 percent of rail freight flows by value were through moves that did not originate or terminate within the state and less than 1 percent was intrastate moves. The directionality of rail freight flows in New Jersey is expected to shift somewhat by 2035, with a 6 percent reduction in inbound value and a corresponding increase in outbound value. The following sections provide more detail on inbound, outbound, intrastate, and through trips.

Directional Analysis – Inbound Rail Freight

The TRANSEARCH dataset identifies the origins and destinations of rail freight flows at the *county* level in New Jersey. Therefore, it is not possible to identify a particular manufacturing facility, distribution center, port terminal, etc., as the termination point. All inbound freight flows terminating in Middlesex County, for example, will be routed (within TRANSEARCH) to terminate at a centroid within the county. By looking at where the inbound rail freight is going in New Jersey, it is possible to see key geographic patterns.

Terminating Counties for Inbound Rail Freight

Table II.4 provides information on inbound rail freight tonnage by destination county for 2007 and 2035. The table includes carload, intermodal, and other²¹ tonnage. Figures II.10 and II.11 graphically present the distribution, by county, of inbound rail tonnage for 2007 and 2035 respectively. Middlesex County received the greatest proportion of total inbound rail freight in 2007 (over 23 percent of the New Jersey total) followed by Hudson County (over 20 percent) and Union County (13 percent). Inbound intermodal rail freight is concentrated in Hudson and Union counties, which combined account for over 90 percent of total outbound intermodal rail tonnage to the state. Maintaining and improving rail access to key facilities in these counties (including the marine terminals at Port Jersey and Port Newark-Elizabeth) will be important to the vitality of the rail-supported portion of the state economy.

²¹ The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are simply categorized as “other.”

Table II.4 Destination of Inbound Rail Flows by Weight and Type, 2007 and 2035

Jurisdiction	Carload Tons		Percent Growth	Intermodal		Percent Growth	Other(a)		Percent Growth	Carload Tons Total		Percent Growth
	2007	2035		2007	2035		2007	2035		2007	2035	
Middlesex County	5,485,056	4,701,463	-14%	-	-	-	255,058	650,915	155%	5,740,114	5,352,378	-7%
Hudson County	1,868,800	2,990,704	60%	2,897,360	3,473,661	20%	218,489	436,905	100%	4,984,649	6,901,270	38%
Union County	693,056	1,233,187	78%	2,358,840	3,244,632	38%	183,244	401,592	119%	3,235,140	4,879,411	51%
Essex County	2,280,370	3,027,736	33%	324,954	470,032	45%	133,995	292,188	118%	2,739,319	3,789,957	38%
Bergen County	889,360	1,376,119	55%	464,880	561,931	21%	127,184	345,739	172%	1,481,424	2,283,788	54%
Salem County	1,317,576	1,055,398	-20%	-	-	-	14,505	32,859	127%	1,332,081	1,088,257	-18%
Camden County	1,154,017	1,047,422	-9%	-	-	-	44,757	95,314	113%	1,198,774	1,142,736	-5%
Gloucester County	852,424	1,173,656	38%	-	-	-	97,825	184,380	88%	950,249	1,358,035	43%
Cape May County	533,419	809,557	52%	-	-	-	8,480	13,756	62%	541,899	823,313	52%
Somerset County	421,160	2,131,901	406%	-	-	-	40,746	101,305	149%	461,906	2,233,207	383%
Burlington County	407,488	714,061	75%	-	-	-	35,680	70,705	98%	443,168	784,766	77%
Passaic County	324,464	462,206	42%	-	-	-	23,247	56,900	145%	347,711	519,106	49%
Cumberland County	237,788	176,784	-26%	-	-	-	24,050	45,469	89%	261,838	222,253	-15%
Warren County	195,640	284,450	45%	-	-	-	21,636	54,523	152%	217,276	338,972	56%
Atlantic County	129,700	72,828	-44%	-	-	-	20,780	42,245	103%	150,480	115,073	-24%
Sussex County	141,800	161,800	14%	-	-	-	8,553	15,380	80%	150,353	177,180	18%
Morris County	119,160	174,637	47%	-	-	-	30,936	79,314	156%	150,096	253,951	69%
Monmouth County	76,120	100,924	33%	-	-	-	22,871	74,258	225%	98,991	175,182	77%
Mercer County	77,996	142,924	83%	-	-	-	18,044	34,375	91%	96,040	177,300	85%
Ocean County	26,600	25,213	-5%	-	-	-	12,447	25,271	103%	39,047	50,484	29%
Hunterdon County	28,880	98,262	240%	-	-	-	8,206	17,070	108%	37,086	115,333	211%
Total	17,260,874	21,961,232	27%	6,046,034	7,750,256	28%	1,350,733	3,070,463	127%	24,657,641	32,781,952	33%

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.10 Terminating Counties for Inbound Rail Freight by Weight, 2007

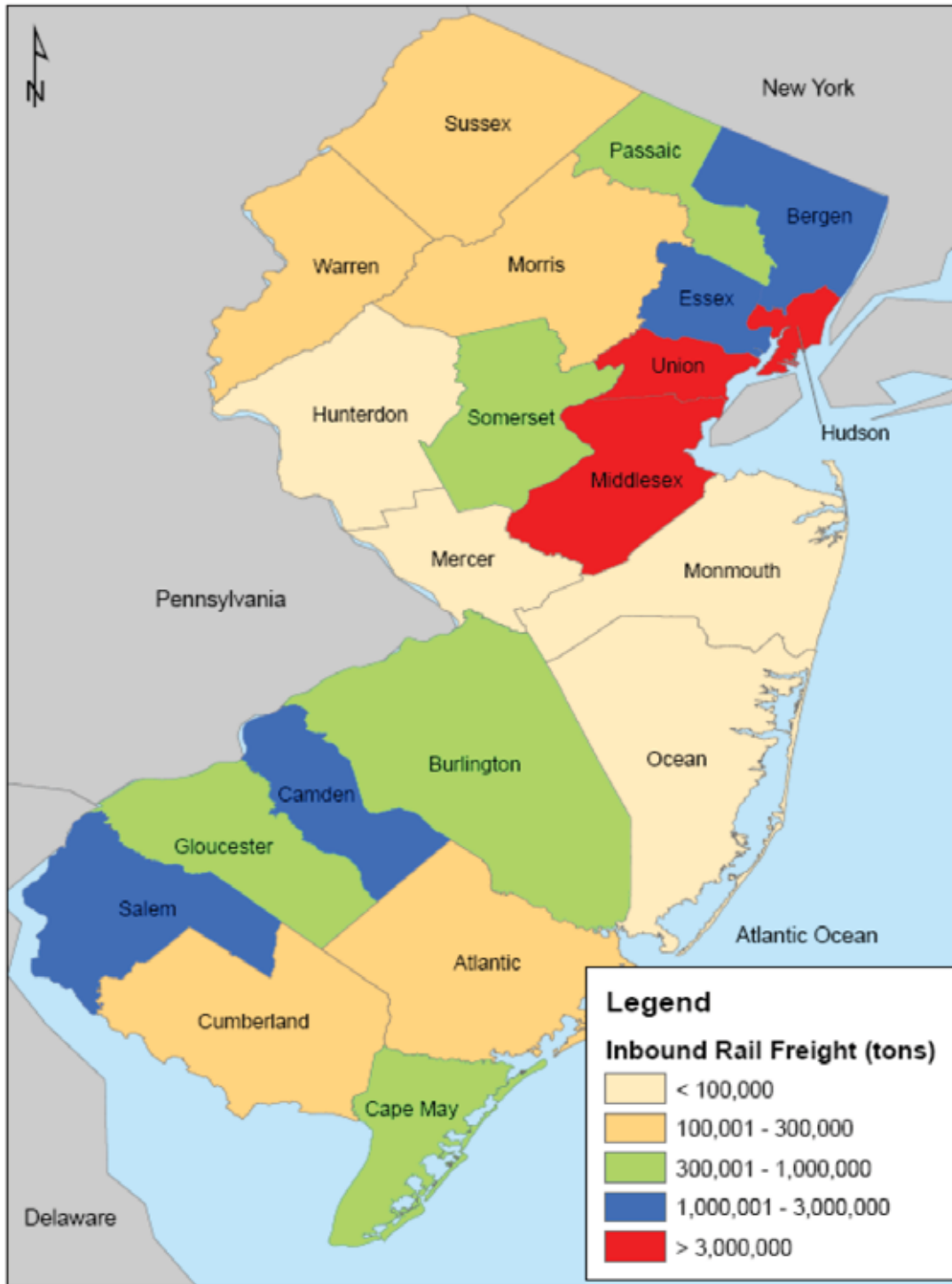
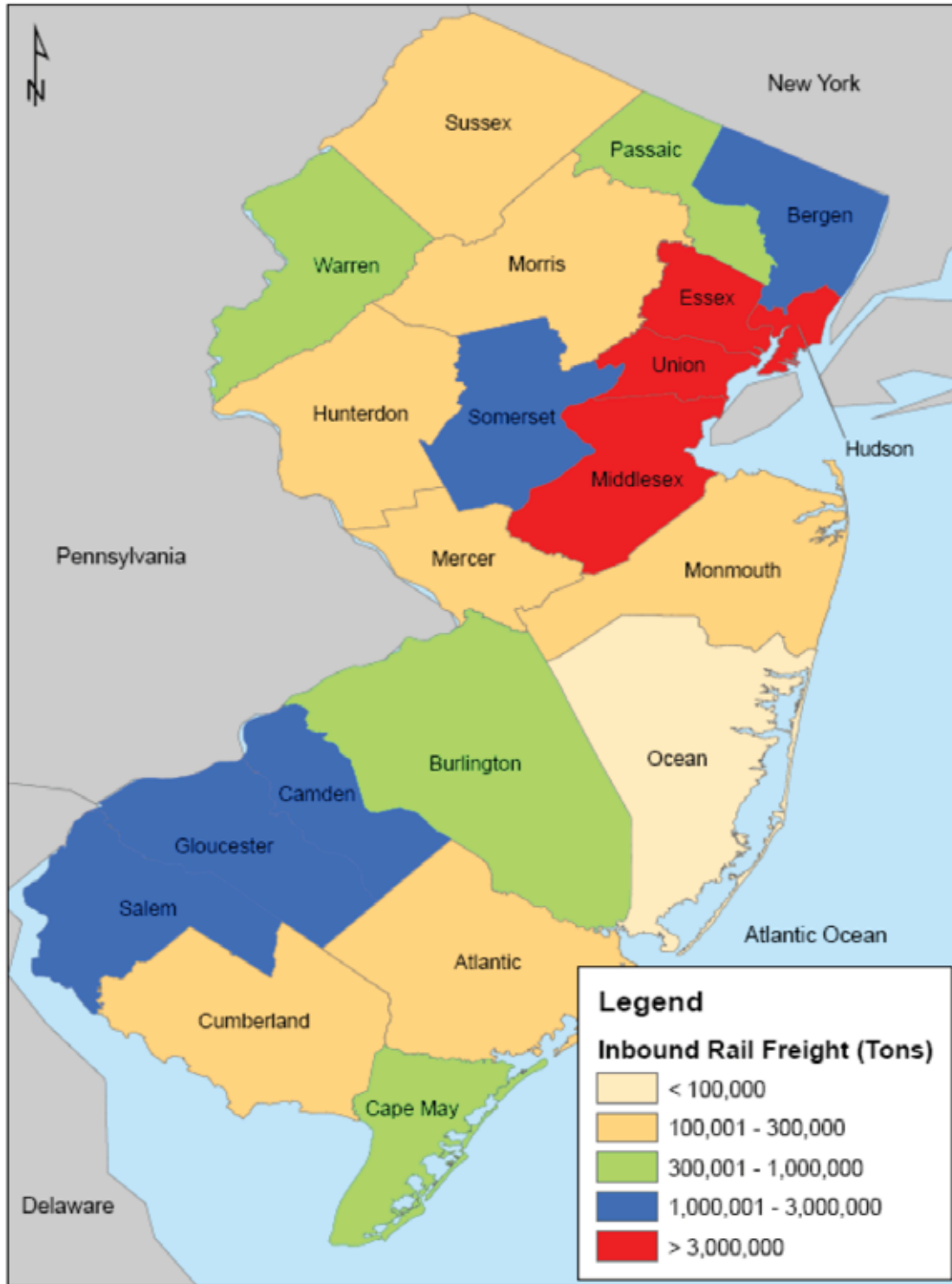


Figure II.11 Terminating Counties for Inbound Rail Freight by Weight, 2035



Directional Analysis – Outbound Rail Freight

It also is important to understand where New Jersey’s outbound rail freight is being generated from – its origination point. As noted in the previous section, the TRANSEARCH dataset identifies the origins and destinations of freight flows at the county level. Therefore, it is not possible to identify a particular manufacturing facility, distribution center, port terminal, etc., as an origination point. All outbound rail freight flows originating in Hudson County, for example, will be routed (within TRANSEARCH) with the origin at a centroid within the county.

Originating Counties for Outbound Rail Freight

Table II.5 provides information on outbound rail freight tonnage by origin county for 2007 and 2035. Figures II.12 and II.13 graphically present the distribution, by county, of outbound rail tonnage for 2007 and 2035 respectively. Hudson County accounted for the greatest proportion of total outbound rail freight in 2007 (over 38 percent of the New Jersey total) followed by Union County (about 26 percent) and Essex County (11 percent). Outbound intermodal rail freight is concentrated in Hudson and Union counties which combined account for over 90 percent of total outbound intermodal rail tonnage from the state. Maintaining and improving rail access to key facilities in these counties (including the marine terminals at Port Jersey and Port Newark-Elizabeth) will be important to the vitality of the rail-supported portion of the state economy.

Table II.5 Origination of Outbound Rail Flows by Weight and Type, 2007 and 2035

Jurisdiction	Carload Tons		Percent Growth	Intermodal		Percent Growth	Other(a)		Percent Growth	Total		Percent Growth
	2007	2035		2007	2035		2007	2035		2007	2035	
Hudson County	1,561,416	4,156,631	166%	3,299,860	5,269,407	60%	72,983	194,865	167%	4,934,259	9,620,903	95%
Union County	931,500	1,944,708	109%	2,168,520	3,630,157	67%	228,825	559,817	145%	3,328,845	6,134,683	84%
Essex County	1,048,540	1,766,913	69%	241,760	342,461	42%	102,442	257,569	151%	1,392,742	2,366,944	70%
Gloucester County	910,855	741,632	-19%	-	-	-	36,891	99,614	170%	947,746	841,247	-11%
Middlesex County	444,600	500,319	13%	-	-	-	105,677	292,552	177%	550,277	792,871	44%
Bergen County	141,120	269,627	91%	334,400	472,731	41%	59,934	141,654	136%	535,454	884,011	65%
Salem County	262,704	296,911	13%	-	-	-	23,958	62,650	161%	286,662	359,561	25%
Camden County	180,668	147,346	-18%	-	-	-	15,320	52,060	240%	195,988	199,406	2%
Cumberland County	153,640	218,970	43%	-	-	-	8,460	26,561	214%	162,100	245,530	51%
Burlington County	132,212	284,913	115%	-	-	-	14,371	45,516	217%	146,583	330,429	125%
Passaic County	88,716	34,956	-61%	-	-	-	32,613	71,997	121%	121,329	106,953	-12%
Mercer County	33,640	45,893	36%	-	-	-	19,220	53,216	177%	52,860	99,109	87%
Somerset County	39,560	105,354	166%	-	-	-	12,988	44,326	241%	52,548	149,680	185%
Warren County	25,424	40,674	60%	-	-	-	8,953	20,196	126%	34,377	60,869	77%
Morris County	4,520	3,472	-23%	-	-	-	24,040	72,142	200%	28,560	75,614	165%
Ocean County	-	-	-	-	-	-	13,357	37,473	181%	13,357	37,473	181%
Hunterdon County	-	-	-	-	-	-	8,993	25,257	181%	8,993	25,257	181%
Monmouth County	-	-	-	-	-	-	7,324	20,995	187%	7,324	20,995	187%
Sussex County	-	-	-	-	-	-	4,147	15,760	280%	4,147	15,760	280%
Atlantic County	-	-	-	-	-	-	2,777	9,304	235%	2,777	9,304	235%
Cape May County	-	-	-	-	-	-	363	1,180	225%	363	1,180	225%
Total	5,959,115	10,558,319	77%	6,044,540	9,714,756	61%	803,636	2,104,704	162%	12,807,291	22,377,779	75%

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.12 Originating Counties for Outbound Rail Freight by Weight, 2007

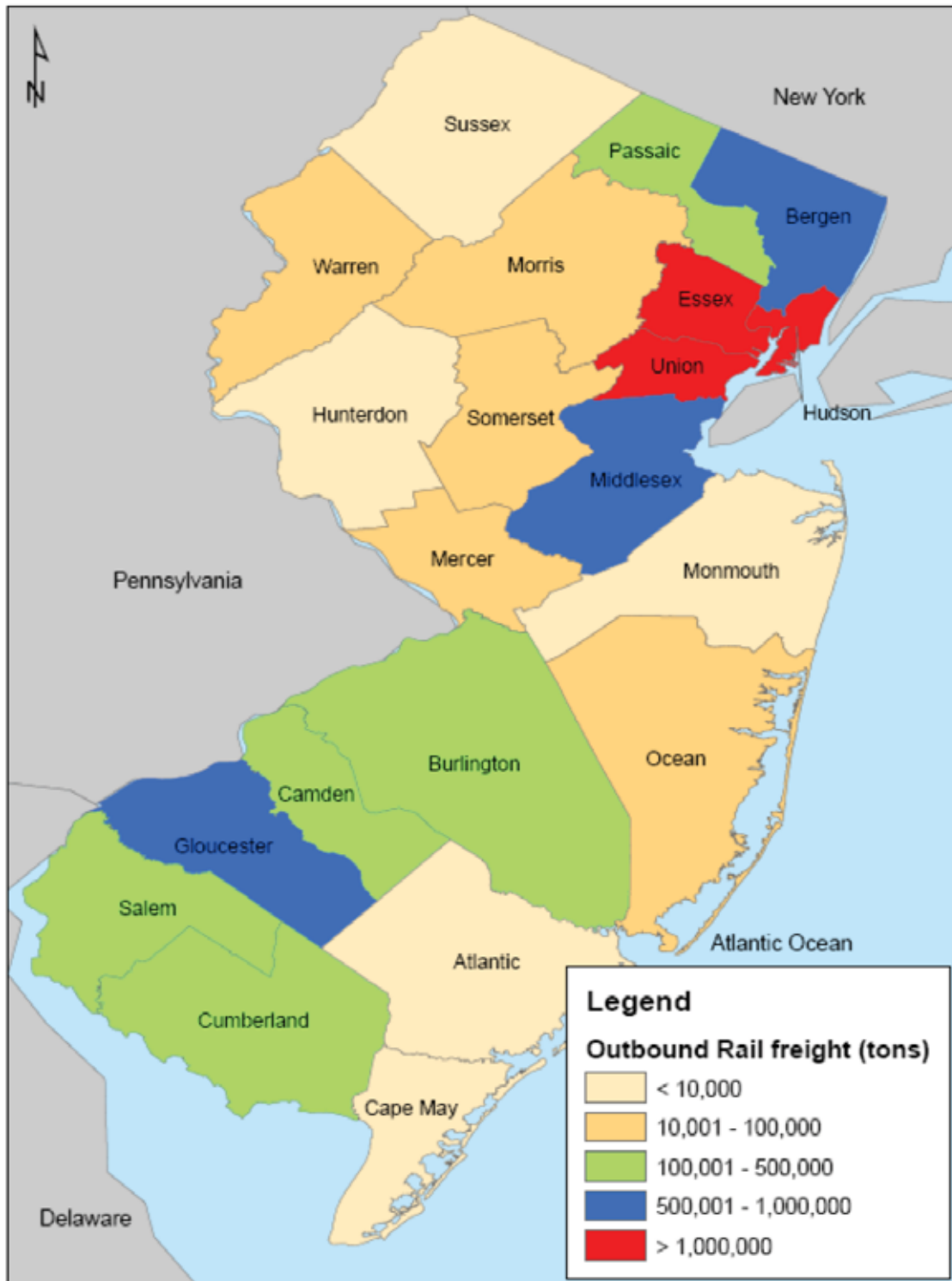
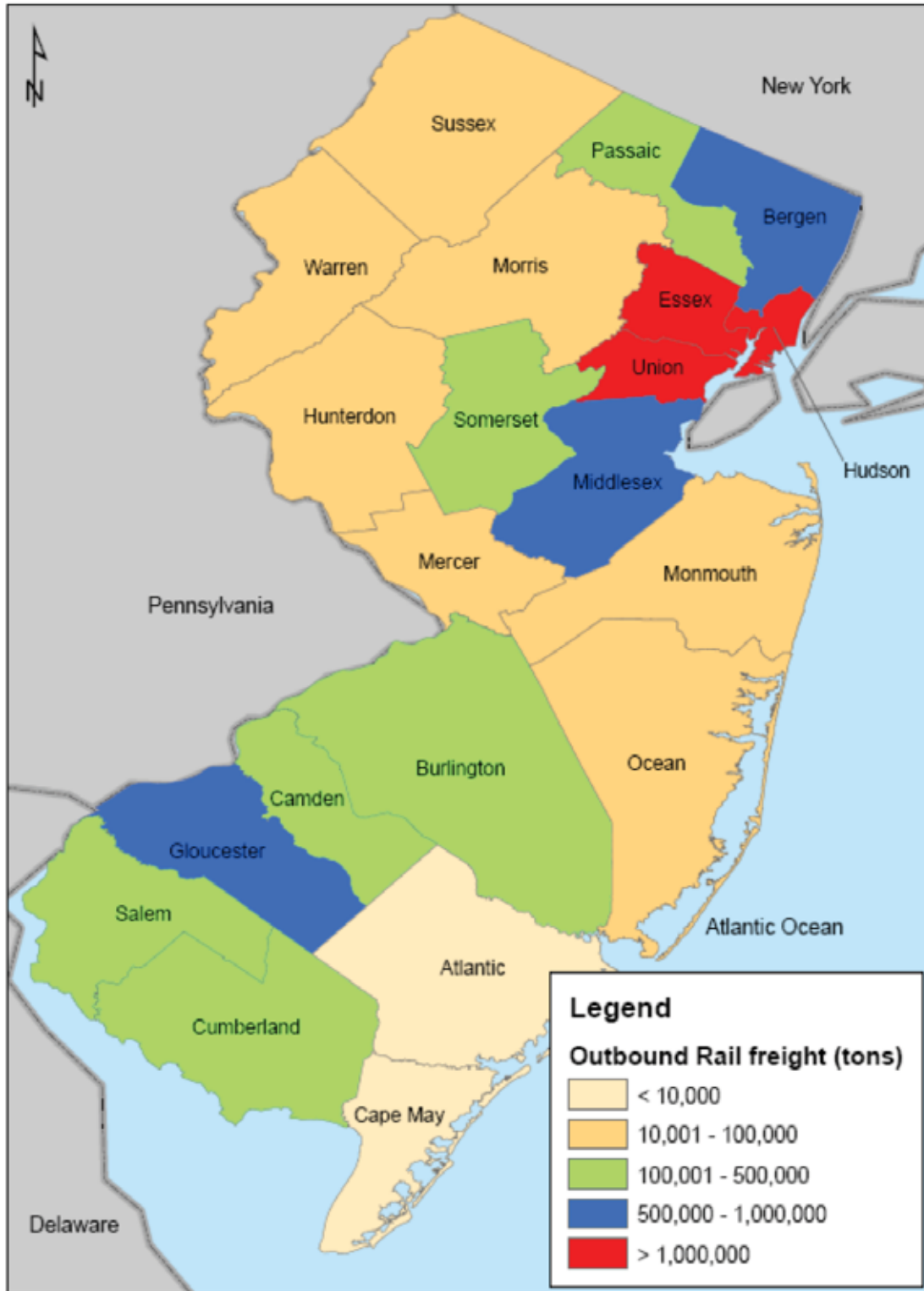


Figure II.13 Originating Counties for Outbound Rail Freight by Weight, 2035



Directional Analysis - Intrastate Rail Freight

To understand more about how intrastate rail freight moves within New Jersey, a ranked list of origin-destination pairs has been developed (see Table II.6 below). The origin-destination pair with the greatest level of intrastate rail freight by weight is Union County to Middlesex County. In 2007, this origin-destination pair accounted for over 24 percent of all intrastate rail tonnage and by 2035 this pair is projected to account for nearly 38 percent of it. The second and third most significant origin-destination pairs are Gloucester County to Cape May County, and Gloucester County to Camden County. Interestingly, Gloucester County is either an origin or a destination for 8 of the top 10 origin-destination county pairs in the state. Table II.6 lists the top 10 origin-destination pairs in 2007 and 2035 by weight.

Table II.6 Top 10 Origin-Destination Pairs for Intrastate Rail Traffic by Weight, 2007 and 2035

Origin	Destination	2007 Tons	2035 Tons	Percent Change 2007-2035
Union County	Middlesex County	63,944	121,178	90%
Gloucester County	Cape May County	40,860	31,106	-24%
Gloucester County	Camden County	23,520	13,313	-43%
Gloucester County	Hudson County	21,400	5,406	-75%
Union County	Gloucester County	20,920	57,244	174%
Gloucester County	Union County	16,960	15,048	-11%
Camden County	Gloucester County	15,440	14,601	-5%
Gloucester County	Gloucester County	11,440	4,554	-60%
Somerset County	Somerset County	9,360	2,491	-73%
Cumberland County	Gloucester County	6,960	7,110	2%
All Others		31,396	47,343	51%
Total		262,200	319,393	22%

Source: IHS Global Insight Inc., TRANSEARCH database

Directional Analysis – Through Rail Freight

In 2007, eight million tons of rail freight, about 17 percent of all rail freight tonnage moved through the state of New Jersey. By 2035, through rail tonnage is projected to grow to over 12 million tons and comprise 18 percent of the total rail tonnage in the state. Table II.7 lists the

top 10 origin-destination pairs for rail freight passing through New Jersey. Rail freight passing through New Jersey from origins and destinations in Pennsylvania tops the list followed by rail freight originating in Illinois and terminating in Pennsylvania, and rail freight originating in New York and terminating in Virginia.

Table II.7 Top 10 Origin-Destination Pairs for Through Rail Traffic by Weight, 2007 and 2035

Origin	Destination	2007 Tons	2035 Tons	Percent Change 2007-2035
Pennsylvania	Pennsylvania	1,003,224	1,738,304	73%
Illinois	Pennsylvania	590,580	793,009	34%
New York	Virginia	572,308	923,042	61%
West Virginia	Pennsylvania	364,690	353,462	-3%
Maryland	New York	302,368	130,110	-57%
Canada	North Carolina	253,800	440,552	74%
Canada	Maryland	251,440	443,664	76%
Canada	Pennsylvania	232,360	340,301	46%
Georgia	Massachusetts	208,732	363,002	74%
Indiana-Pennsylvania	Pennsylvania	208,560	373,945	79%
All Others		4,022,349	6,320,137	57%
Total		8,010,411	12,219,528	53%

Source: IHS Global Insight Inc., TRANSEARCH database

About 98 percent of the Pennsylvania to Pennsylvania through traffic is coal with an origin in western Pennsylvania and a destination in Northampton County, Pennsylvania. Much of this traffic utilizes a section of track within New Jersey between Phillipsburg and Martins Creek.

4. Analysis by Commodity Type

Understanding the types of commodities transported over the state's rail network provides insight into which sectors of the economy are most reliant on rail. The TRANSEARCH database provides commodity information at the two-digit STCC (Standard Transportation Commodity Code) level. A complete list of commodity groups by STCC number is shown in Table II.8 below.

Table II.8 Major Commodity Groups

STCC-2	Commodity Description	STCC-2	Commodity Description
01	Farm Products	32	Clay, Concrete, Glass or Stone Products
08	Forest Products	33	Primary Metal Products
09	Fish or Other Marine Products	34	Fabricated Metal Products
10	Metallic Ores	35	Machinery; Except Electrical
11	Coal	36	Electrical Machinery, Equipment or Supplies
13	Crude Petroleum, Natural Gas or Gasoline	37	Transportation Equipment
14	Nonmetallic Minerals	38	Instruments, Optical Goods, Watches or Clocks
19	Ordnance or Accessories	39	Miscellaneous Manufactured Products
20	Food or Kindred Products	40	Waste or Scrap Materials
21	Tobacco Products	41	Miscellaneous Freight Shipments
22	Textile Mill Products	42	Shipping Containers
23	Apparel	43	Mail
24	Lumber or Wood Products	44	Freight Forwarder Traffic
25	Furniture or Fixtures	45	Shipper Association or Similar Traffic
26	Pulp, Paper or Allied Products	46	Freight All Kinds
27	Printed Matter	47	Small Packaged Freight Shipments
28	Chemicals or Allied Products	48	Hazardous Waste
29	Petroleum or Coal Products	49	Hazardous Materials
30	Rubber or Miscellaneous Plastics Products	50	Bulk Commodity Shipments in Boxcars
31	Leather	99	LTL-General Cargo

Source: IHS Global Insight Inc., TRANSEARCH database

Rail Commodities – All Directions

A summary of the top 10 commodities moving inbound, outbound, intrastate, and through New Jersey via rail in 2007 and 2035 are provided in Tables II.9 and II.10. The top three commodities in both 2007 and 2035 are freight all kinds, chemical products, and waste or scrap materials. Combined they account for 53 percent of total commodities by weight in 2007 and 59 percent in 2035 (see Figure II.14). It should be noted that three of the top 10 commodities (waste or scrap materials, coal and primary metal products) are heavy or bulky and have relatively low value compared to finished or intermediate manufactured goods (freight all kinds, chemicals or allied products, and transportation equipment). Shippers of basic materials, such as coal, tend to be more concerned with minimizing the cost of transportation rather than speed of delivery, while shippers of manufactured goods tend to emphasize travel times and reliability over transportation cost.

Table II.9 Top 10 Rail Commodities by Weight – All Directions, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons^a	Total Tons
Freight All Kinds	46	760	9,298,920	39,955	9,339,635
Chemicals/Allied Products	28	8,141,196	171,680	978,737	9,291,613
Waste/Scrap Materials	40	5,296,080	315,660	16,041	5,627,781
Food/Kindred Products	20	3,137,492	372,480	97,336	3,607,308
Pulp/Paper/Allied Products	26	2,457,880	122,320	280,792	2,860,992
Coal	11	2,798,113	-	1	2,798,114
Petroleum/Coal Products	29	1,799,792	3,080	83,673	1,886,545
Lumber/Wood Products	24	1,730,596	26,120	117,571	1,874,287
Transportation Equipment	37	1,520,638	34,954	44,404	1,599,996
Primary Metal Products	33	1,392,268	7,200	141,442	1,540,910
All Others		2,988,865	1,967,080	354,417	5,310,362
Total		31,263,680	12,319,494	2,154,368	45,737,542

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

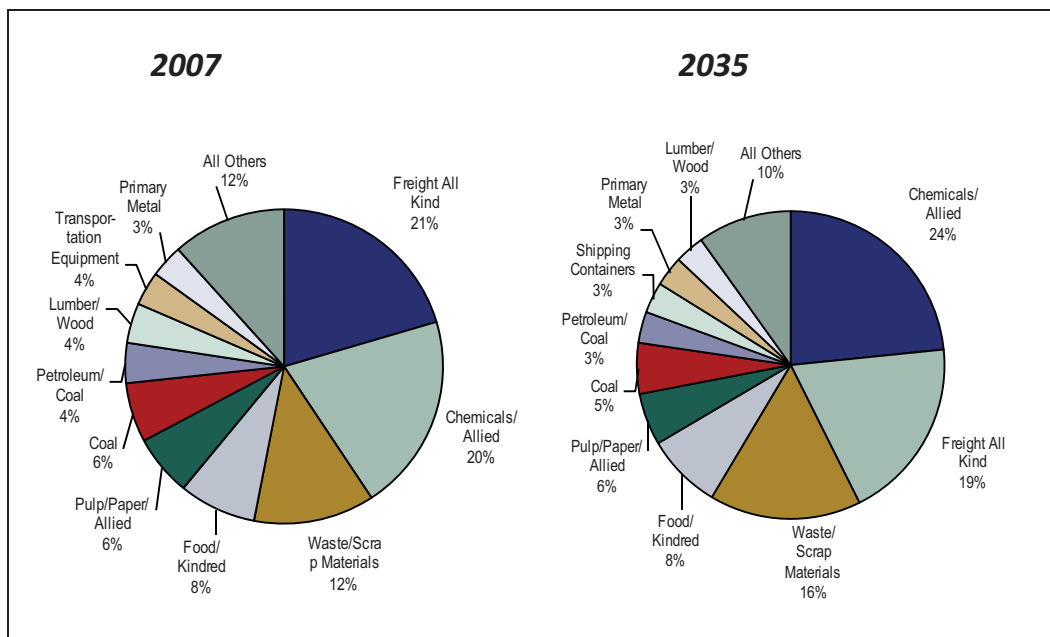
Table II.10 Top 10 Rail Commodities by Weight – All Directions, 2035

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons ^a	Total Tons
Chemicals/Allied Products	28	12,520,781	339,909	2,975,743	15,836,433
Freight All Kinds	46	846	12,947,787	70,372	13,019,005
Waste/Scrap Materials	40	9,898,590	863,635	29,468	10,791,693
Food/Kindred Products	20	4,900,424	306,176	178,368	5,384,968
Pulp/Paper/Allied Products	26	3,081,255	116,033	498,552	3,695,840
Coal	11	3,619,947	-	1	3,619,947
Petroleum/Coal Products	29	2,123,262	4,712	95,622	2,223,596
Shipping Containers	42	21,454	2,167,871	-	2,189,325
Primary Metal Products	33	1,863,779	8,365	272,150	2,144,294
Lumber/Wood Products	24	1,857,472	35,849	210,818	2,104,139
All Others		4,843,797	1,001,617	844,073	6,689,487
Total		44,731,607	17,791,877	5,175,167	67,698,651

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as “other.”

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.14 Top 10 Rail Commodities by Weight – All Directions, 2007 and 2035



Rail Commodities - Inbound

Tables II.11 and II.12 detail the rail freight tonnage inbound to the state in 2007 and 2035. These shipments are regional imports and represent inputs for New Jersey's producers and consumer goods for the state's residents and visitors. Inbound rail freight in 2007 totaled 24.7 million tons. The top inbound commodities are chemicals and allied products (6.5 million tons), freight all kinds (4.8 million tons), and food or kindred products (2.7 million tons). Figure II.15 displays this information graphically.

Table II.11 Top 10 Rail Commodities by Weight – Inbound, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons ^a	Total Tons
Chemicals/Allied Products	28	6,087,568	111,360	394,157	6,593,085
Freight All Kinds	46	-	4,765,760	14,918	4,780,678
Food/Kindred Products	20	2,374,656	246,440	83,511	2,704,607
Pulp/Paper/Allied Products	26	1,281,760	83,960	272,615	1,638,335
Transportation Equipment	37	1,447,042	29,114	38,107	1,514,263
Coal	11	1,445,395	-	-	1,445,395
Lumber/Wood Products	24	965,840	18,080	117,424	1,101,344
Waste/Scrap Materials	40	944,236	63,960	10,063	1,018,259
Nonmetallic Minerals	14	808,905	3,200	21,964	834,069
Petroleum/Coal Products	29	742,924	2,240	76,958	822,122
All Others		1,162,548	721,920	321,014	2,205,482
Total		17,260,874	6,046,034	1,350,732	24,657,640

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

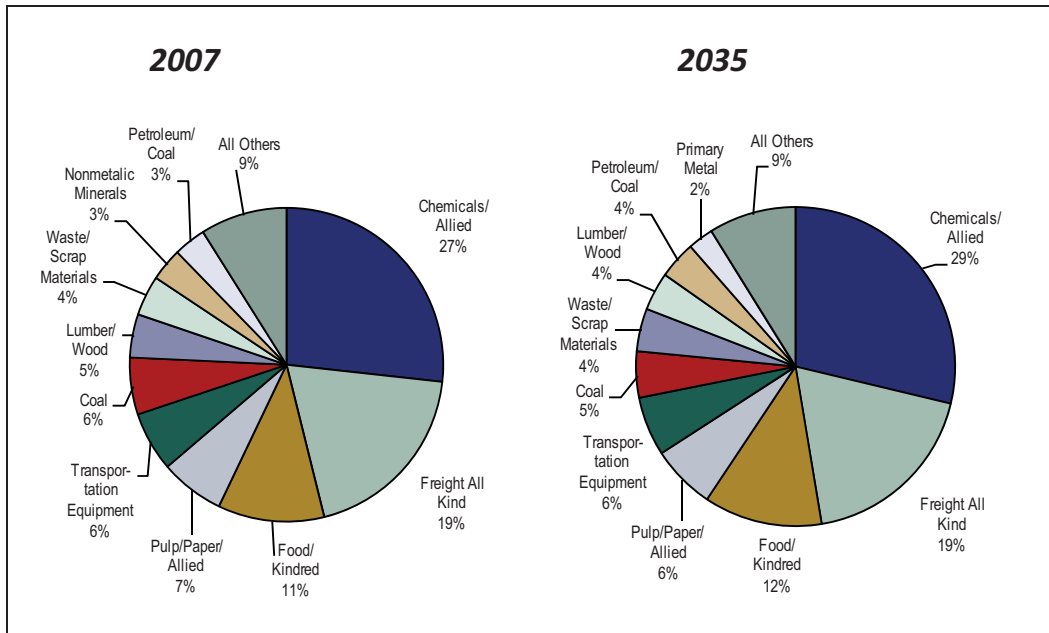
Table II.12 Top 10 Rail Commodities by Weight – Inbound, 2035

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons^a	Total Tons
Chemicals/Allied Products	28	8,004,711	167,860	1,247,835	9,420,406
Freight All Kinds	46	-	6,086,668	26,275	6,112,942
Food/Kindred Products	20	3,577,070	200,242	150,884	3,928,197
Pulp/Paper/Allied Products	26	1,563,608	86,250	478,809	2,128,667
Transportation Equipment	37	1,849,790	38,673	76,943	1,965,406
Coal	11	1,537,642	-	-	1,537,642
Waste/Scrap Materials	40	1,265,414	136,912	18,975	1,421,301
Lumber/Wood Products	24	1,031,579	23,560	210,624	1,265,763
Petroleum/Coal Products	29	1,155,781	3,868	89,890	1,249,540
Primary Metal Products	33	605,174	5,088	240,695	850,957
All Others		1,370,461	1,001,136	529,533	2,901,130
Total		21,961,232	7,750,256	3,070,463	32,781,951

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as “other.”

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.15 Top 10 Rail Commodities by Weight – Inbound, 2007 and 2035



Rail Commodities - Outbound

Tables II.13 and II.14 display the rail freight tonnage outbound from the state in 2007 and 2035. These shipments, totaling 12.8 million tons in 2007, represent New Jersey exports or wealth-generating freight. Ensuring efficient rail transportation for these exported goods is important to producers and, therefore, is critical to the economic competitiveness of the state. The top outbound commodities in 2007 were freight all kinds (4.4 million tons), waste or scrap materials (3.5 million tons) and chemicals or allied products (1.6 million tons). These three commodity groups made up 73 percent (by weight) of all outbound rail tonnage in 2007 and are projected to account for 80 percent of all outbound rail tonnage by 2035. Figure II.16 displays this information graphically.

Table II.13 Top 10 Rail Commodities by Weight – Outbound, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons^a	Total Tons
Freight All Kinds	46		4,371,080	25,037	4,396,117
Waste/Scrap Materials	40	3,234,888	240,900	5,977	3,481,765
Chemicals/Allied Products	28	920,675	55,920	584,580	1,561,175
Shipping Containers	42	1,880	906,480		908,360
Petroleum/Coal Products	29	796,284	840	6,715	803,839
Food/Kindred Products	20	239,928	104,960	13,825	358,713
Primary Metal Products	33	214,304	2,360	17,159	233,823
Nonmetallic Minerals	14	143,000	8,920	45,633	197,553
Farm Products	1	155,956	7,040	236	163,232
Mail	43		110,080	23,536	133,616
All Others		252,200	235,960	80,937	569,097
Total		5,959,115	6,044,540	803,636	12,807,291

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

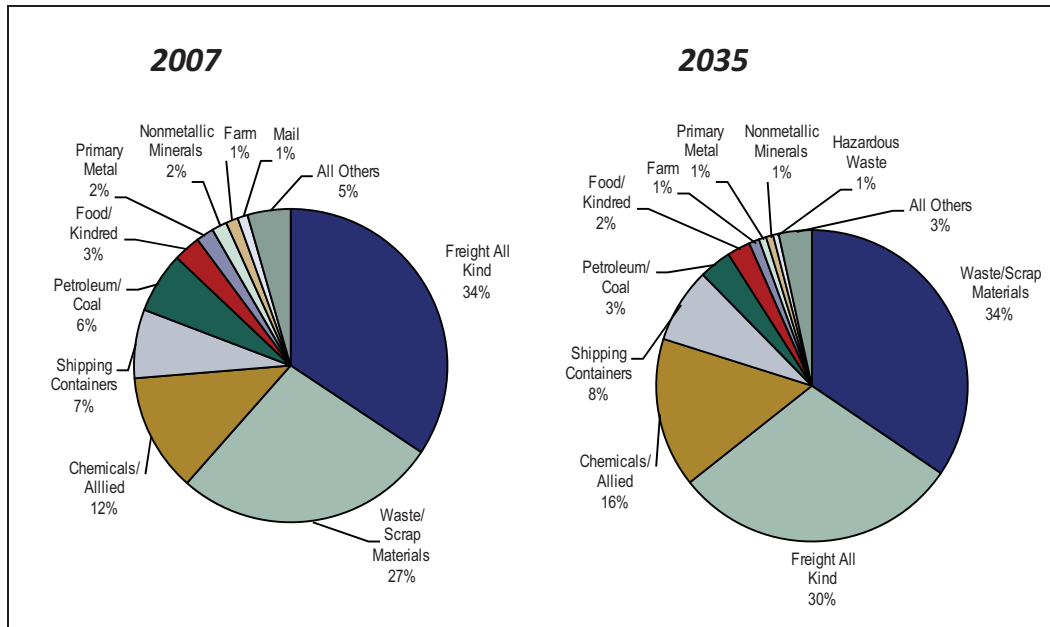
Table II.14 Top 10 Rail Commodities by Weight – Outbound, 2035

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons^a	Total Tons
Waste/Scrap Materials	40	7,001,376	706,933	10,493	7,718,802
Freight All Kinds	46		6,635,423	44,097	6,679,520
Chemicals/Allied Products	28	1,604,873	141,788	1,727,908	3,474,569
Shipping Containers	42	2,456	1,737,163		1,739,619
Petroleum/Coal Products	29	745,889	844	5,732	752,465
Food/Kindred Products	20	413,518	96,700	27,484	537,702
Farm Products	1	223,126	14,492	674	238,292
Primary Metal Products	33	137,133	2,564	31,455	171,152
Nonmetallic Minerals	14	101,039	10,395	55,121	166,556
Hazardous Waste	48	89,388	41,829		131,217
All Others		239,522	326,625	201,740	767,887
Total		10,558,319	9,714,756	2,104,704	22,377,780

Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.16 Top 10 Rail Commodities by Weight – Outbound, 2007 and 2035



Rail Commodities - Intrastate

Tables II.15 and II.16 summarize the level of intrastate rail freight movement in 2007 and 2035. These shipments, totaling just 262 thousand tons, account for less than 1 percent of total rail freight moves in New Jersey, yet they are essential for meeting the demands of local producers - especially in the petroleum and chemical products industries. The top intrastate commodities in 2007 were petroleum and coal products (148 thousand tons), chemicals and allied products (95 thousand tons), and transportation equipment (15 thousand tons). Figure II.17 displays this information graphically.

Table II.15 Top Rail Commodities by Weight – Intrastate, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons	Total Tons
Petroleum/Coal Products	29	148,452			148,452
Chemicals/Allied Products	28	95,424			95,424
Transportation Equipment	37	15,456			15,456
Food/Kindred Products	20	2,868			2,868
Total		262,200			262,200

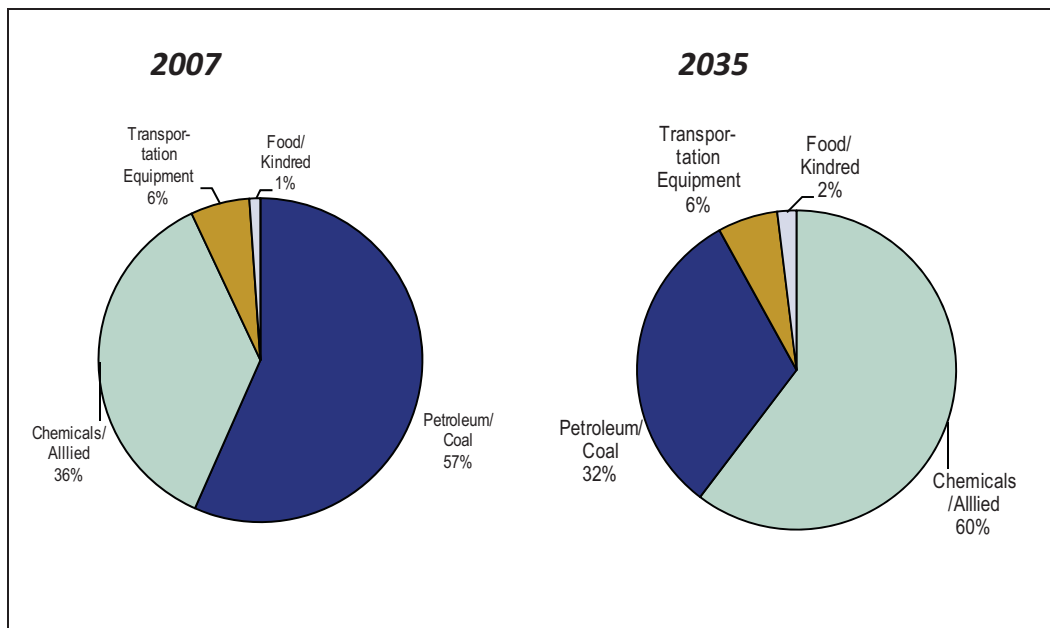
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.16 Top Rail Commodities by Weight – Intrastate, 2035

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tons	Total Tons
Chemicals/Allied Products	28	192,714			192,714
Petroleum/Coal Products	29	101,035			101,035
Transportation Equipment	37	19,440			19,440
Food/Kindred Products	20	6,204			6,204
Total		319,393			319,393

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.17 Top Rail Commodities by Weight – Intrastate, 2007 and 2035



Rail Commodities - Through

Tables II.17 and II.18 summarize the rail freight movement passing through New Jersey in 2007 and 2035. Ensuring efficient rail transportation for these goods is important to the greater regional and national economy of which New Jersey is an integral part. The top through commodities in 2007 were coal (1.4 million tons), pulp, paper, or allied products (1.1 million tons), and waste or scrap materials (1.1 million tons). These three commodity groups made up 45 percent (by weight) of all through rail tonnage in 2007. By 2035 the top through commodity groups are projected to be chemicals or allied products (2.7 million tons), coal (2.1 million tons),

and waste or scrap materials (1.7 million tons). Figure III.18 displays this information graphically.

Table II.17 Top 10 Rail Commodities by Weight – Through, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Total Tons
Coal	11	1,352,718		1,352,718
Pulp/Paper/Allied Products	26	1,140,920	5,960	1,146,880
Waste/Scrap Materials	40	1,116,956	10,800	1,127,756
Chemicals/Allied Products	28	1,037,529	4,400	1,041,929
Lumber/Wood Products	24	711,316		711,316
Primary Metal Products	33	666,832	600	667,432
Food/Kindred Products	20	520,040	21,080	541,120
Farm Products	1	315,912		315,912
Clay/Concrete/Glass/Stone Products	32	293,260		293,260
Metallic Ores	10	240,348		240,348
All Others		385,660	186,080	571,740
Total		7,781,491	228,920	8,010,411

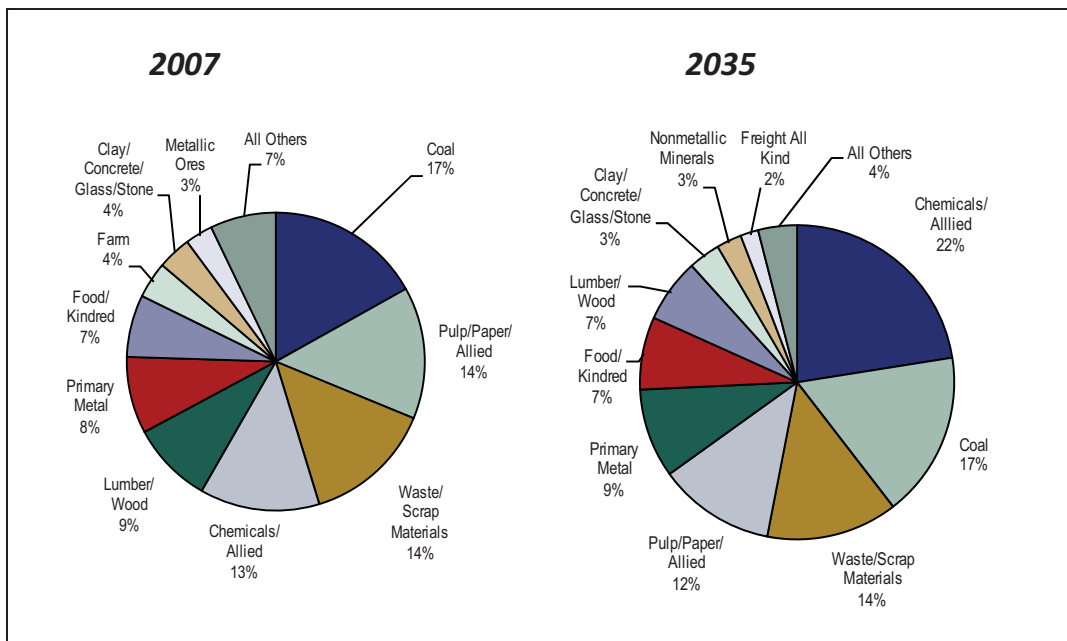
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.18 Top 10 Rail Commodities by Weight – Through, 2035

Commodity	STCC	Carload Tons	Intermodal Tons	Total Tons
Chemicals/Allied Products	28	2,718,483	30,261	2,748,744
Coal	11	2,082,305		2,082,305
Waste/Scrap Materials	40	1,631,801	19,789	1,651,590
Pulp/Paper/Allied Products	26	1,467,604	1,720	1,469,324
Primary Metal Products	33	1,121,472	714	1,122,186
Food/Kindred Products	20	903,631	9,234	912,865
Lumber/Wood Products	24	802,991		802,991
Clay/Concrete/Glass/Stone Products	32	399,400		399,400
Nonmetallic Minerals	14	315,791		315,791
Freight All Kinds	46	846	225,697	226,543
All Others		448,340	39,449	487,789
Total		11,892,663	326,865	12,219,528

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.18 Top 10 Rail Commodities by Weight – Through, 2007 and 2035



5. Analysis by Rail Trading Partner

In addition to the analysis by direction and commodity summarized in the previous sections, it also is important to identify New Jersey's key rail trading partners. Key rail trading partners are identified by combining the inbound and outbound rail freight flows between New Jersey and the trading partner region and highlighting the trading partner regions with the largest combined rail freight flows.

Identifying the New Jersey's major rail trading partners helps planners (and others) understand the state's place in the larger national economic landscape and its roll within the national and global rail freight transportation system. It also can help identify additional potential market opportunities for firms in the region.

Rail Trading Partners

The "trading partners" (places outside of the state of New Jersey) defined within the TRANSEARCH dataset consist of each the rest of the states in the United States, the District of Columbia, and the countries of Canada and Mexico.

Tables II.19 and II.20 list the top rail trading partners for the state of New Jersey by weight in 2007 and 2035. Figures II.19 and II.20 graphically display the level of rail trade, by weight, between New Jersey and its trading partners. The top three trading partners – Illinois,²² Ohio, and Canada – account for about 54 percent of total rail freight flows by weight to and from New Jersey.

²²The TRANSEARCH dataset identifies the origins of rail freight flows that transfer from a western railroad to an eastern railroad in Chicago, as originating in Chicago. Similarly, the destination of rail freight flows that transfer from an eastern railroad to a western railroad in Chicago is identified as terminating in Chicago. This feature of the data overemphasizes to some extent the level of rail trade with Illinois.

Table II.19 Top 10 Rail Trading Partners by Total Weight, 2007

State	Total Tons	Percent of Total	From New Jersey	Percent of Total	To New Jersey	Percent of Total
Illinois	12,950,172	35%	3,708,760	29%	9,241,412	37%
Ohio	3,926,938	10%	2,503,136	20%	1,423,802	6%
Canada	3,224,532	9%	1,031,945	8%	2,192,587	9%
Pennsylvania	2,514,137	7%	399,828	3%	2,114,309	9%
Florida	1,534,676	4%	439,516	3%	1,095,160	4%
Michigan	1,352,056	4%	637,448	5%	714,608	3%
Texas	1,140,160	3%	169,760	1%	970,400	4%
New York	1,124,204	3%	307,080	2%	817,124	3%
Virginia	1,005,616	3%	751,416	6%	254,200	1%
Louisiana	753,480	2%	66,880	1%	686,600	3%
All Others	7,938,960	21%	2,791,522	22%	5,147,438	21%
Total	37,464,931	100%	12,807,291	100%	24,657,640	100%

Source: IHS Global Insight Inc., TRANSEARCH database

Table II.20 Top 10 Rail Trading Partners by Total Weight, 2035

State	Total Tons	Percent of Total	From New Jersey	Percent of Total	To New Jersey	Percent of Total
Illinois	13,706,423	25%	5,448,125	24%	8,258,298	25%
Ohio	7,581,416	14%	5,699,010	25%	1,882,405	6%
Canada	6,462,146	12%	2,303,647	10%	4,158,499	13%
South Carolina	2,661,908	5%	103,465	0%	2,558,443	8%
Florida	2,352,958	4%	601,978	3%	1,750,980	5%
Pennsylvania	2,325,917	4%	478,491	2%	1,847,427	6%
Mexico	2,177,194	4%	1,272,817	6%	904,377	3%
Michigan	1,923,055	3%	874,903	4%	1,048,153	3%
Louisiana	1,823,733	3%	123,901	1%	1,699,832	5%
Virginia	1,821,146	3%	1,349,531	6%	471,615	1%
All Others	12,323,834	22%	4,121,912	18%	8,201,922	25%
Total	55,159,730	100%	22,377,780	100%	32,781,951	100%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.19 New Jersey Rail Trading Partners by Weight, 2007

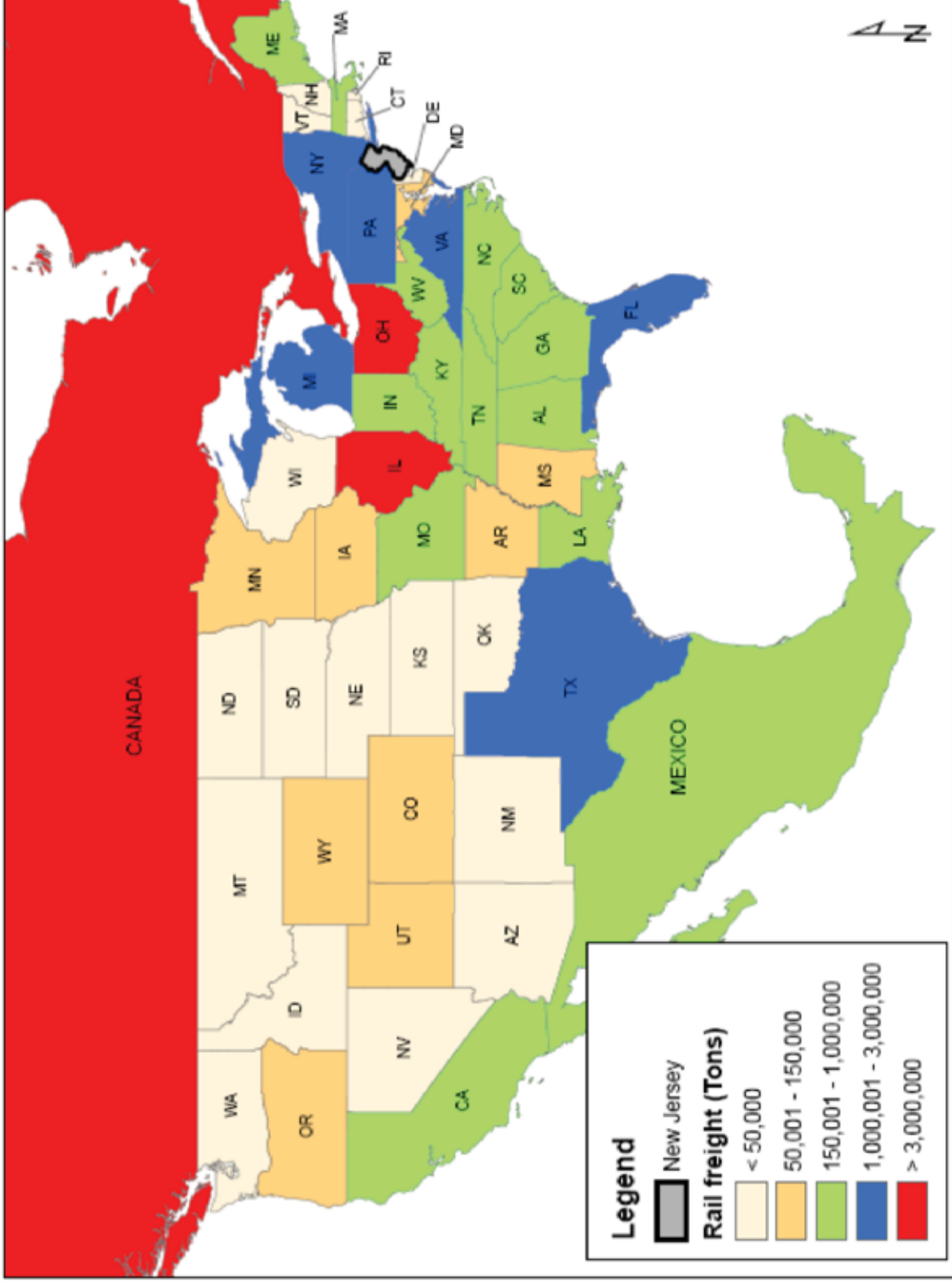
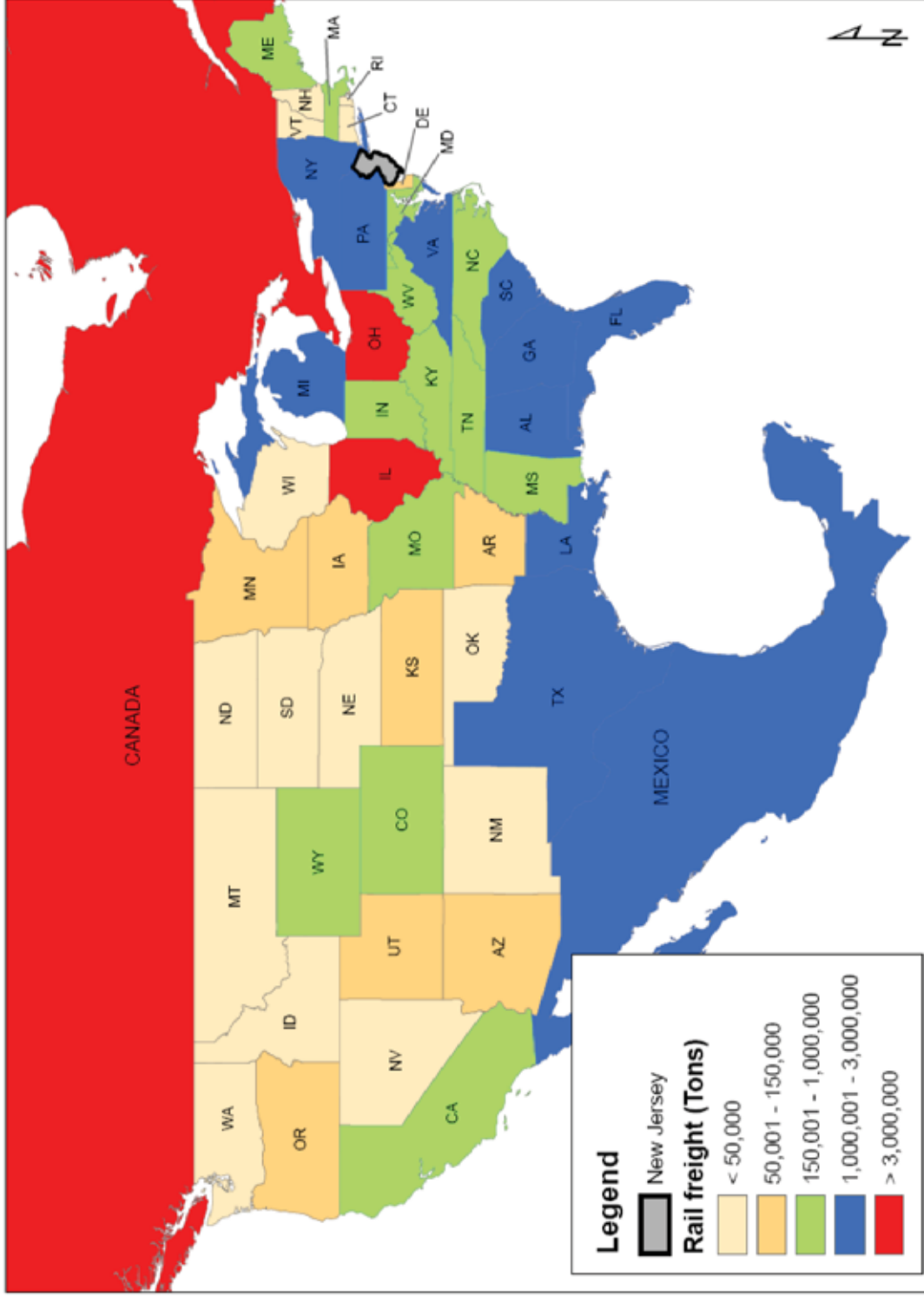


Figure II.20 New Jersey Rail Trading Partners by Weight, 2035



Illinois

The state of Illinois is New Jersey’s largest rail freight trading partner. Illinois is an important interchange point between western and eastern Class I railroads, and TRANSEARCH treats the interchange point as the beginning of a new trip, so much of the “Illinois origin” traffic may actually be from the west coast. In 2007, the top three commodity groups moving to and from Illinois were freight all kinds, chemicals or allied products, and food or kindred products, accounting for just over 48 percent of total rail trade by weight.

Table II.21 Top 10 Illinois Rail Commodities by Weight, 2007

Commodity	STCC2	Carload Tons	Intermodal Tons	Total Tons
Freight All Kinds	46	0	5,475,320	5,475,320
Chemicals/Allied Products	28	3,735,084	70,760	3,805,844
Food/Kindred Products	20	570,776	241,560	812,336
Shipping Containers	42	1,880	733,520	735,400
Lumber/Wood Products	24	694,480	15,200	709,680
Farm Products	1	240,456	85,480	325,936
Transportation Equipment	37	205,062	19,554	224,616
Petroleum/Coal Products	29	163,000	400	163,400
Mail	43	0	104,400	104,400
Waste/Scrap Materials	40	79,720	20,000	99,720
Remaining Commodities		159,240	334,280	493,520
Total		5,849,698	7,100,474	12,950,172

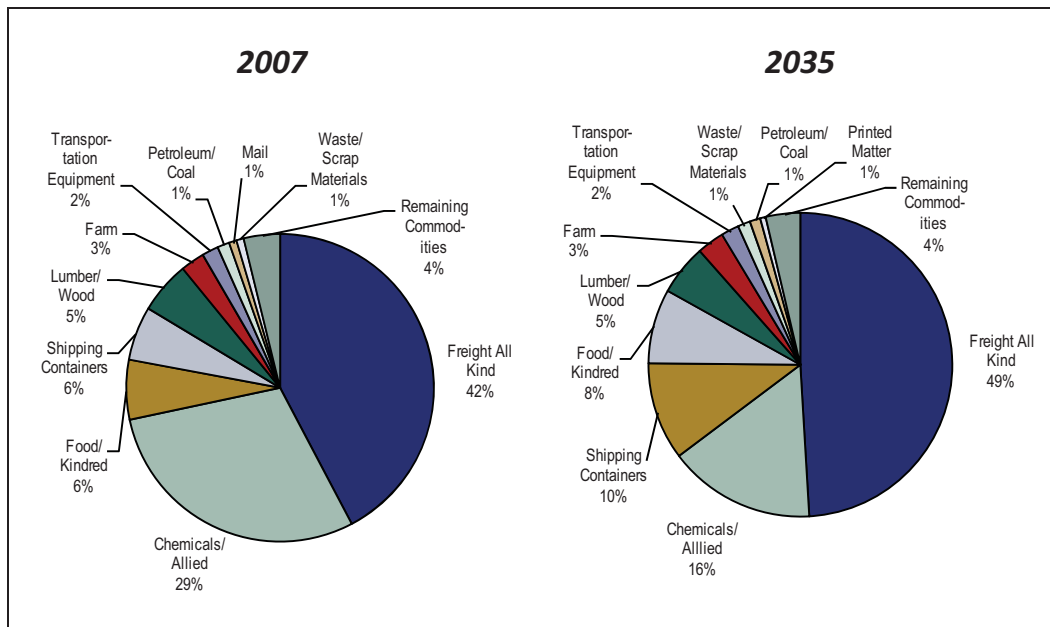
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.22 Top 10 Illinois Rail Commodities by Weight, 2035

Commodity	STCC2	Carload Tons	Intermodal Tons	Total Tons
Freight All Kinds	46	0	6,726,677	6,726,677
Chemicals/Allied Products	28	2,027,713	120,313	2,148,026
Shipping Containers	42	2,456	1,422,995	1,425,451
Food/Kindred Products	20	902,391	185,760	1,088,151
Lumber/Wood Products	24	717,866	19,505	737,371
Farm Products	1	313,521	84,730	398,251
Transportation Equipment	37	232,778	27,599	260,377
Waste/Scrap Materials	40	128,105	54,985	183,090
Petroleum/Coal Products	29	153,565	156	153,721
Printed Matter	27	0	81,332	81,332
Remaining Commodities		130,306	373,671	503,977
Total		4,608,699	9,097,724	13,706,423

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.21 Top 10 Illinois Rail Commodities by Weight, 2007 and 2035



Ohio

The state of Ohio is New Jersey's second largest rail freight trading partner. Tables II.23 and II.24 show the commodity composition of this trade. The composition of the rail trade with Ohio is very different from the rail trade with Illinois (see previous section). In 2007, the top commodity group moved to and from Ohio was waste and scrap materials, accounting for 52 percent of total rail trade by weight, whereas rail trade with Illinois was related to containerized goods (freight all kinds) and chemical products. Figure II.22 displays this information graphically.

Table II.23 Top 10 Ohio Rail Commodities by Weight, 2007

Commodity	STCC2	Carload Tons	Intermodal Tons	Total Tons
Waste/Scrap Materials	40	2,038,704	4,120	2,042,824
Freight All Kinds	46	0	765,000	765,000
Transportation Equipment	37	263,960	720	264,680
Chemicals/Allied Products	28	187,120	32,480	219,600
Food/Kindred Products	20	178,692	880	179,572
Primary Metal Products	33	140,840	1,440	142,280
Shipping Containers	42	0	128,320	128,320
Petroleum/Coal Products	29	88,444	480	88,924
Coal	11	27,258	0	27,258
Clay/Concrete/Glass/Stone Products	32	24,080	0	24,080
Remaining Commodities		16,120	28,280	44,400
Total		2,965,218	961,720	3,926,938

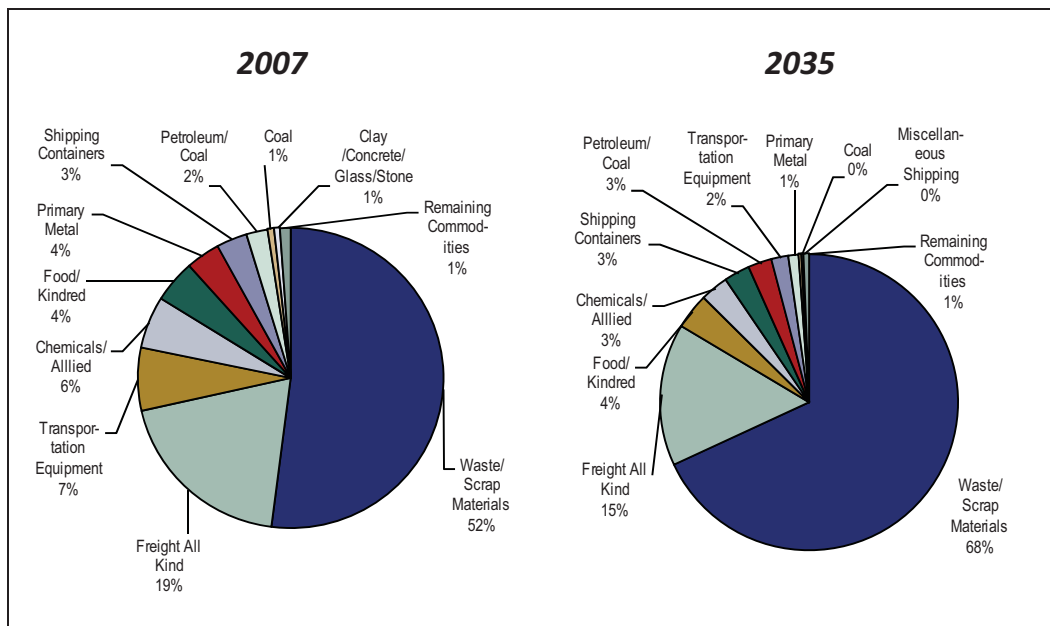
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.24 Top 10 Ohio Rail Commodities by Weight, 2035

Commodity	STCC2	Carload Tons	Intermodal Tons	Total Tons
Waste/Scrap Materials	40	5,145,718	18,521	5,164,239
Freight All Kinds	46	0	1,171,273	1,171,273
Food/Kindred Products	20	292,877	570	293,447
Chemicals/Allied Products	28	196,467	35,751	232,218
Shipping Containers	42	0	212,382	212,382
Petroleum/Coal Products	29	195,951	928	196,879
Transportation Equipment	37	140,224	279	140,503
Primary Metal Products	33	83,558	749	84,306
Coal	11	23,807	0	23,807
Miscellaneous Shipping	41	1,431	15,267	16,698
Remaining Commodities		23,911	21,753	45,665
Total		6,103,944	1,477,472	7,581,416

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.22 Top 10 Ohio Rail Commodities by Weight, 2007 and 2035



Canada

Canada is New Jersey's third largest rail freight trading partner. Tables II.25 and II.26 show the commodity composition of this trade. In 2007, the top three commodity groups moving to and from Canada were chemicals or allied products; pulp, paper or allied products; and freight all kinds, accounting for nearly 64 percent of total rail trade by weight. Figure II.23 displays this information graphically.

Table II.25 Top 10 Canada Rail Commodities by Weight, 2007

Commodity	STCC2	Carload Tons	Intermodal Tons	Other Tons	Total Tons
Chemicals/Allied Products	28	273,440	7,200	702,836	983,476
Pulp/Paper/Allied Products	26	313,280	20,800	252,223	586,303
Freight All Kinds	46	0	492,320	0	492,320
Petroleum/Coal Products	29	182,480	0	81,248	263,728
Lumber/Wood Products	24	72,800	8,520	115,791	197,111
Food/Kindred Products	20	71,520	18,440	78,220	168,180
Primary Metal Products	33	55,480	2,000	84,032	141,512
Textile Mill Products	22	37,680	0	36,175	73,855
Nonmetallic Minerals	14	0	2,800	67,521	70,321
Transportation Equipment	37	50,160	3,600	936	54,696
Remaining Commodities		57,640	55,720	79,671	193,031
Total		1,114,480	611,400	1,498,652	3,224,532

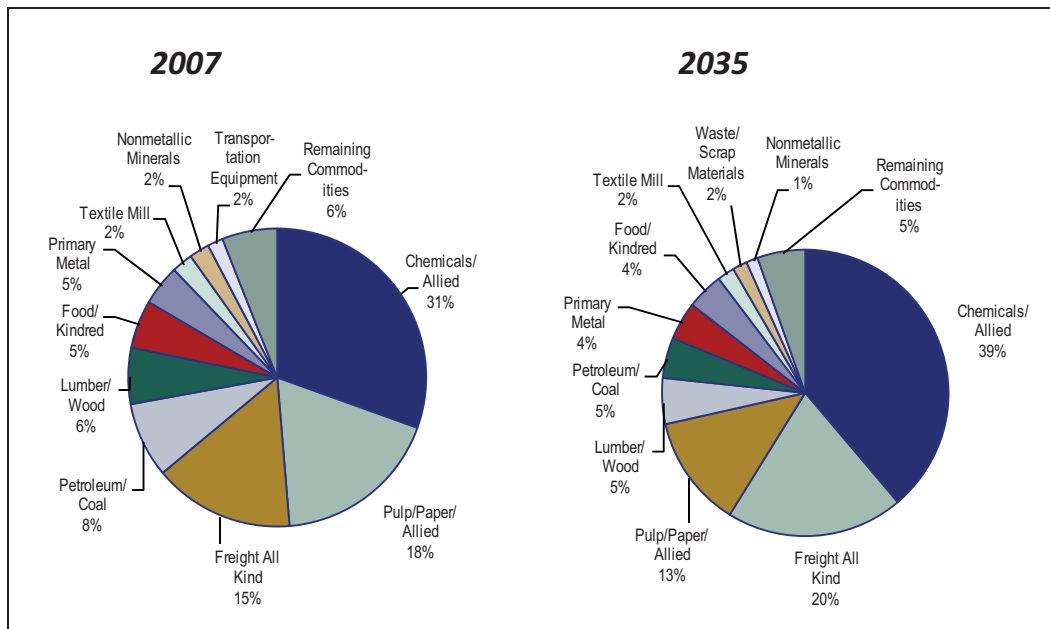
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.26 Top 10 Canada Rail Commodities by Weight, 2035

Commodity	STCC2	Carload Tons	Intermodal Tons	Other Tons	Total Tons
Chemicals/Allied Products	28	822,559	22,117	1,664,233	2,508,909
Freight All Kinds	46	0	1,292,362	0	1,292,362
Pulp/Paper/Allied Products	26	342,527	23,910	452,053	818,490
Lumber/Wood Products	24	113,447	14,408	206,864	334,718
Petroleum/Coal Products	29	202,669	0	93,428	296,097
Primary Metal Products	33	107,490	3,849	165,840	277,179
Food/Kindred Products	20	105,758	22,597	139,500	267,855
Textile Mill Products	22	25,890	0	99,537	125,427
Waste/Scrap Materials	40	52,691	45,328	8,801	106,820
Nonmetallic Minerals	14	0	6,054	79,325	85,378
Remaining Commodities		170,288	63,641	114,983	348,912
Total		1,943,319	1,494,265	3,024,563	6,462,146

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.23 Top 10 Canada Rail Commodities by Weight, 2007 and 2035



Summary

The freight profiles of each New Jersey's three top rail freight trading partners are quite distinct from one another. This is due in large part to the very different markets these trading partners serve. The primary rail-shipped commodity groups traded with Illinois are the freight all kinds (generally representing containerized goods), chemicals or allied products, and food or kindred products. In fact, nearly 55 percent of rail trade with Illinois is intermodal rather than carload, reflecting the large proportion of containerized "freight all kinds." Trade with Ohio is predominantly carload shipments of waste and scrap materials shipped via rail car. Over 75 percent of rail trade with Ohio is carload rather than intermodal. Rail trade with Canada is not dominated by one or two commodities, but consists of a broader assortment of commodity groups, each with a significant share of trade. These consist of chemicals or allied products; pulp, paper or allied products; freight all kinds; petroleum or coal products; lumber or wood products; food or kindred products; and primary metal products.

6. County Analysis

To better understand the rail freight profiles of key counties within New Jersey, county-level freight analyses were developed. This section of the report describes the existing conditions and expected growth in freight tonnage and value for the four New Jersey counties with the largest volumes, by weight, of inbound plus outbound rail freight. These counties are: Hudson, Union, Middlesex and Essex. Table II.27 lists the counties of New Jersey with their respective rail freight volumes as of 2007.

Table II.27 Sum of Inbound and Outbound Rail Flows, 2007

Jurisdiction	Inbound Tons	Outbound Tons	Total Tons	Rank
Atlantic County	150,480	2,777	153,256	17
Bergen County	1,481,424	535,454	2,016,878	5
Burlington County	443,168	146,583	589,751	9
Camden County	1,198,774	195,988	1,394,762	8
Cape May County	541,899	363	542,261	10
Cumberland County	261,838	162,100	423,938	13
Essex County	2,739,319	1,392,742	4,132,061	4
Gloucester County	950,249	947,746	1,897,995	6
Hudson County	4,984,649	4,934,259	9,918,907	1
Hunterdon County	37,086	8,993	46,079	21
Mercer County	96,040	52,860	148,900	18
Middlesex County	5,740,114	550,277	6,290,391	3
Monmouth County	98,991	7,324	106,316	19
Morris County	150,096	28,560	178,656	15
Ocean County	39,047	13,357	52,405	20
Passaic County	347,711	121,329	469,040	12
Salem County	1,332,081	286,662	1,618,743	7
Somerset County	461,906	52,548	514,454	11
Sussex County	150,353	4,147	154,500	16
Union County	3,235,140	3,328,845	6,563,985	2
Warren County	217,276	34,377	251,654	14
Total	24,657,640	12,807,291	37,464,931	

Source: IHS Global Insight Inc., TRANSEARCH database

Hudson County Directional Analysis

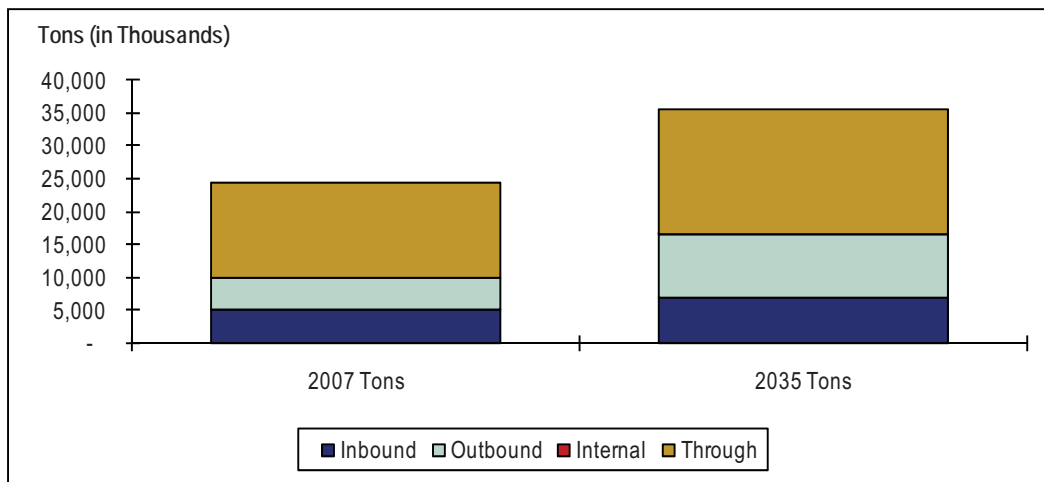
In 2007, 24.3 million tons of rail freight moved into, out of, within, or through Hudson County. Approximately 5.0 million tons (21 percent) traveled inbound, 4.9 million tons (20 percent) traveled outbound, and 14.3 million tons (59 percent) traveled through. By 2035, total rail freight moving across the county is expected to grow to 35.7 million tons, an increase of 47 percent (see Table II.28 and Figure II.24).

Table II.28 Summary of Hudson County Rail Flows, 2007 and 2035
Weight and Value

Direction	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Inbound	4,984,649	6,901,270	38%	\$5,500,334,064	\$7,706,455,077	40%
Outbound	4,934,259	9,620,903	95%	\$6,977,538,049	\$15,435,422,726	121%
Internal	–	19,763	–	\$25,479,960	\$41,638,018	63%
Through	14,333,062	19,147,132	34%	\$31,734,793,375	\$49,137,947,719	55%
Total	24,251,969	35,689,068	47%	\$44,238,145,447	\$72,321,463,540	63%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.24 Expected Growth of Hudson County Rail Flows, 2007 and 2035
By Weight and Direction



Hudson County Rail Commodity Analysis

In 2007, about 5.0 million tons of rail freight moved inbound to and 4.9 million tons moved outbound from Hudson County. Freight all kinds and food or kindred products combined

accounted for nearly 70 percent of all inbound rail flows. Freight all kinds and waste or scrap materials combined accounted for nearly 75 percent of all outbound rail flows. The top ten inbound and outbound Hudson County rail commodities are displayed in Tables II.29 and II.30 and in Figure II.25.

Table II.29 Top 10 Inbound Rail Commodities - Hudson County, 2007 and 2035

Tons and Dollars

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Freight All Kinds	2,353,818	2,826,428	20%	\$1,399,181,846	\$1,935,212,861	38%
Food/Kindred Products	1,134,474	1,684,612	48%	\$1,041,049,487	\$1,556,638,806	50%
Chemicals/Allied Products	335,041	773,869	131%	\$405,177,068	\$1,001,753,861	147%
Transportation Equipment	200,118	323,460	62%	\$1,526,308,294	\$1,711,162,813	12%
Pulp/Paper/Allied Products	192,686	255,549	33%	\$246,956,688	\$275,717,604	12%
Shipping Containers	129,520	184,885	43%	\$0	\$0	–
Waste/Scrap Materials	126,611	225,643	78%	\$36,613,615	\$72,289,606	97%
Farm Products	121,071	145,282	20%	\$89,353,536	\$102,239,187	14%
Petroleum/Coal Products	109,068	125,595	15%	\$63,206,986	\$69,281,367	10%
Lumber/Wood Products	93,482	115,675	24%	\$95,527,914	\$112,734,453	18%
All Others	188,759	240,271	27%	\$596,958,630	\$869,424,517	46%
Total	4,984,649	6,901,270	38%	\$5,500,334,064	\$7,706,455,077	40%

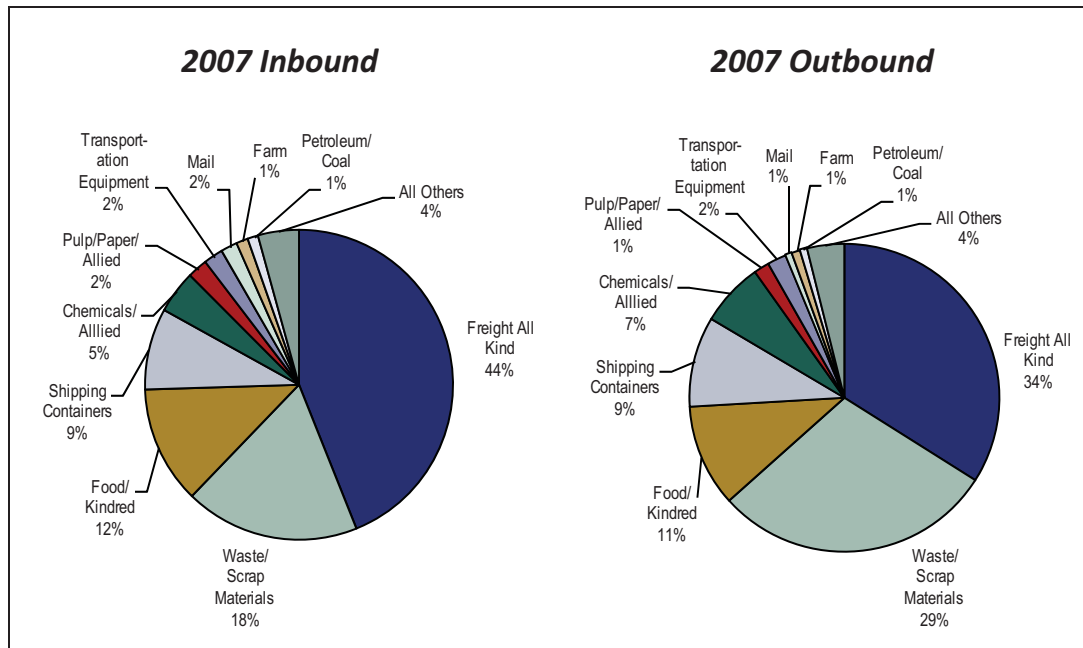
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.30 Top 10 Outbound Rail Commodities - Hudson County, 2007 and 2035*Tons and Dollars*

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Freight All Kind	2,005,858	2,781,984	39%	\$1,626,887,222	\$2,259,129,260	39%
Waste/Scrap Materials	1,682,772	4,642,284	176%	\$3,859,094,821	\$10,700,586,257	177%
Shipping Containers	719,400	1,372,569	91%	\$0	\$0	-
Mail	122,654	76,385	-38%	\$291,725,709	\$181,677,620	-38%
Chemicals/Allied Products	108,525	325,445	200%	\$192,249,704	\$476,854,303	148%
Food/Kindred Products	86,622	78,640	-9%	\$98,827,118	\$103,287,812	5%
Hazardous Waste	56,840	109,103	92%	\$31,453,678	\$60,374,790	92%
Apparel	28,039	50,373	80%	\$412,798,797	\$818,128,649	98%
Miscellaneous Shipping	19,280	37,028	92%	\$49,877,534	\$95,792,732	92%
Rubber/Plastics Products	17,081	29,075	70%	\$62,993,445	\$101,995,905	62%
All Others	87,187	118,017	35%	351,630,021	637,595,398	81%
Total	4,934,259	9,620,903	95%	\$6,977,538,049	\$15,435,422,726	121%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.25 Top 10 Inbound and Outbound Rail Commodities by Weight Hudson County, 2007



Union County Directional Analysis

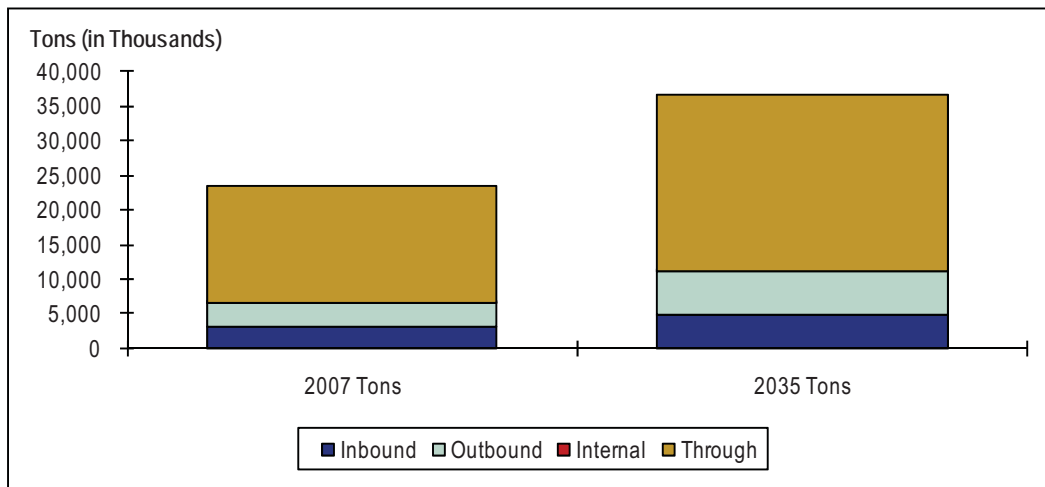
In 2007, 23.5 million tons of rail freight moved into, out of, within, or through Union County. Approximately 3.3 million tons (14 percent) traveled outbound, 3.2 million tons (14 percent) traveled inbound, 0.1 million tons (0.4 percent) traveled from one point within the county to another, and 16.9 million tons (72 percent) traveled through. By 2035, total rail freight moving across the county is expected to grow to 36.6 million tons, an increase of 55 percent (see Table II.31 and Figure II.26).

Table II.31 Summary of Union County Rail Flows, 2007 and 2035
Weight and Value

Direction	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Inbound	3,235,140	4,879,411	51%	\$3,477,108,181	\$6,050,965,914	74%
Outbound	3,328,845	6,134,683	84%	\$5,157,433,592	\$10,232,315,869	98%
Internal	105,504	205,775	95%	\$323,947,889	\$665,396,333	105%
Through	16,888,994	25,394,133	50%	\$32,714,020,950	\$54,803,484,775	68%
Total	23,558,483	36,614,002	55%	\$41,672,510,610	\$71,752,162,891	72%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.26 Expected Growth of Union County Rail Flows, 2007 and 2035
By Weight and Direction



Union County Rail Commodity Analysis

In 2007, about 5.0 million tons of rail freight moved inbound to and 4.9 million tons moved outbound from Union County. Freight all kinds and food or kindred products combined accounted for 58 percent of all inbound rail flows and 56 percent of all outbound rail flows. The top ten inbound and outbound Union County rail commodities are displayed in Tables II.32 and II.33 and in Figure II.27.

Table II.32 Top 10 Inbound Rail Commodities - Union County, 2007 and 2035*Weight and Value*

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Freight All Kinds	1,878,820	2,540,213	35%	\$1,290,206,014	\$1,878,063,072	46%
Chemicals/Allied Products	416,527	854,001	105%	\$602,970,998	\$1,294,892,327	115%
Food/Kindred Products	254,981	330,282	30%	\$232,142,104	\$326,946,097	41%
Pulp/Paper/Allied Products	190,746	239,296	25%	\$260,790,485	\$309,220,529	19%
Petroleum/Coal Products	112,713	214,323	90%	\$60,080,029	\$108,188,792	80%
Waste/Scrap Materials	61,305	127,196	107%	\$20,543,041	\$43,904,453	114%
Primary Metal Products	46,231	117,855	155%	\$139,724,155	\$330,784,905	137%
Shipping Containers	62,120	97,665	57%	\$0	\$0	-
Lumber/Wood Products	38,941	53,399	37%	\$26,867,683	\$33,818,112	26%
Miscellaneous Shipping	23,600	50,406	114%	\$61,422,398	\$131,212,940	114%
All Others	149,155	254,776	71%	\$782,361,273	\$1,593,934,686	104%
Total	3,235,140	4,879,411	51%	\$3,477,108,181	\$6,050,965,914	74%

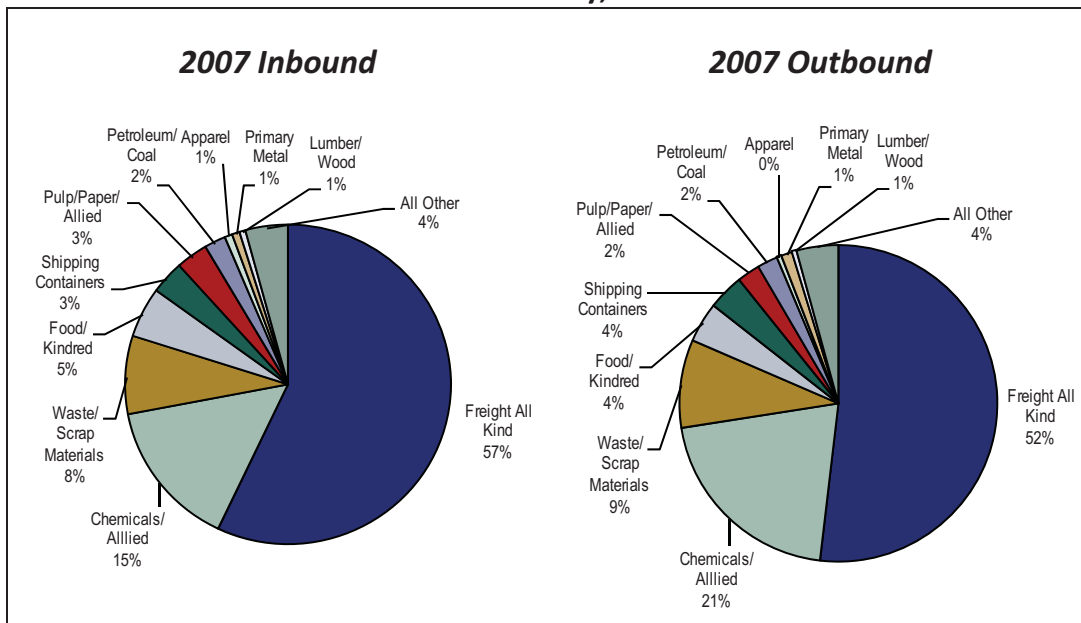
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.33 Top 10 Outbound Rail Commodities - Union County, 2007 and 2035*Weight and Value*

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Freight All Kinds	1,866,077	3,171,392	70%	\$1,624,204,383	\$2,768,106,122	70%
Chemicals/Allied Products	564,797	1,423,143	152%	\$1,574,113,008	\$4,217,614,275	168%
Waste/Scrap Material	458,345	857,898	87%	\$1,021,997,965	\$1,982,884,862	94%
Shipping Containers	157,800	304,693	93%	\$0	\$0	–
Food/Kindred Products	79,230	119,877	51%	\$100,651,328	\$148,931,236	48%
Apparel	28,593	38,829	36%	\$334,370,530	\$477,462,459	43%
Petroleum/Coal Products	27,360	15,770	-42%	\$18,901,540	\$10,856,508	-43%
Nonmetallic Minerals	25,559	43,104	69%	\$1,947,781	\$3,890,648	100%
Pulp/Paper/Allied Products	17,590	17,505	0%	\$44,880,014	\$42,501,771	-5%
Rubber/Plastics Products	13,672	25,068	83%	\$56,861,846	\$98,595,862	73%
All Others	89,823	117,402	31%	379,505,197	481,472,125	27%
Total	3,328,845	6,134,683	84%	\$5,157,433,592	\$10,232,315,869	98%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.27 Top 10 Inbound and Outbound Rail Commodities by Weight Union County, 2007



Middlesex County Directional Analysis

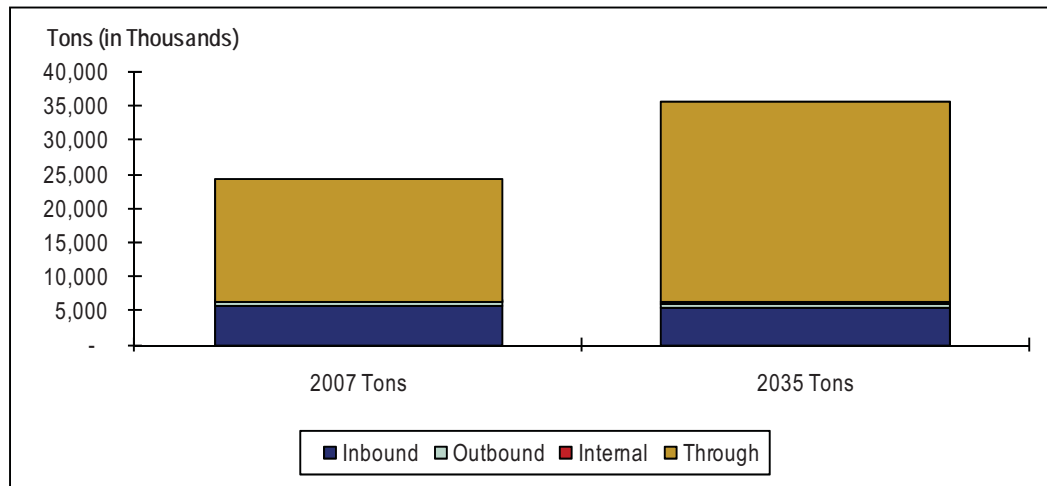
In 2007, 24.2 million tons of rail freight moved into, out of, within, or through Middlesex County. Approximately 5.7 million tons (24 percent) traveled inbound, 0.6 million tons (2 percent) traveled outbound, 0.1 million tons (0.3 percent) traveled from one point within the county to another, and 17.8 million tons (74 percent) traveled through. By 2035, total rail freight moving across the county is expected to grow to 36.7 million tons (driven almost entirely by growth in through freight movements), an increase of 48 percent (see Table II.34 and Figure II.28).

Table II.34 Summary of Middlesex County Rail Flows, 2007 and 2035
Weight and Value

Direction	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Inbound	5,740,114	5,352,378	-7%	\$8,030,909,066	\$8,276,894,939	3%
Outbound	550,277	792,871	44%	\$1,146,378,373	\$1,412,904,116	23%
Internal	77,052	131,373	70%	\$282,080,869	\$492,269,652	75%
Through	17,827,949	29,464,295	65%	\$35,286,653,829	\$55,815,159,623	58%
Total	24,195,392	35,740,918	48%	\$44,746,022,138	\$65,997,228,329	47%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.28 Expected Growth of Middlesex County Rail Flows, 2007 and 2035
By Weight and Direction



Middlesex County Rail Commodity Analysis

In 2007, about 5.7 million tons of rail freight moved inbound to and 0.5 million tons moved outbound from Middlesex County. Chemicals or allied products accounted for 69 percent of all inbound rail flows and 53 percent of all outbound rail flows. The top 10 inbound and outbound Middlesex County rail commodities are displayed in Tables II.35 and II.36 and in Figure II.29.

Table II.35 Top 10 Inbound Rail Commodities - Middlesex County, 2007 and 2035
Weight and Value

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Chemicals/Allied Products	3,987,428	3,262,172	-18%	\$6,165,297,793	\$6,274,175,665	2%
Pulp/Paper/Allied Products	362,725	540,197	49%	\$451,658,883	\$548,932,582	22%
Waste/Scrap Materials	326,532	274,081	-16%	\$176,652,216	\$146,937,276	-17%
Food/Kindred Products	158,600	261,891	65%	\$107,289,828	\$176,460,219	64%
Lumber/Wood Products	251,640	259,162	3%	\$214,295,355	\$212,313,044	-1%
Primary Metal Products	237,160	244,108	3%	\$448,181,997	\$440,218,190	-2%
Clay/Concrete/Glass/Stone	182,493	242,050	33%	\$81,432,689	\$97,191,120	19%
Petroleum/Coal Products	170,401	180,497	6%	\$125,623,966	\$122,609,910	-2%
Rubber/Plastics Products	12,329	36,478	196%	\$14,863,840	\$43,733,980	194%
Textile Mill Products	40,571	33,902	-16%	\$221,210,790	\$153,931,918	-30%
All Others	10,236	17,842	74%	\$24,401,711	\$60,391,037	147%
Total	5,740,114	5,352,378	-7%	\$8,030,909,066	\$8,276,894,939	3%

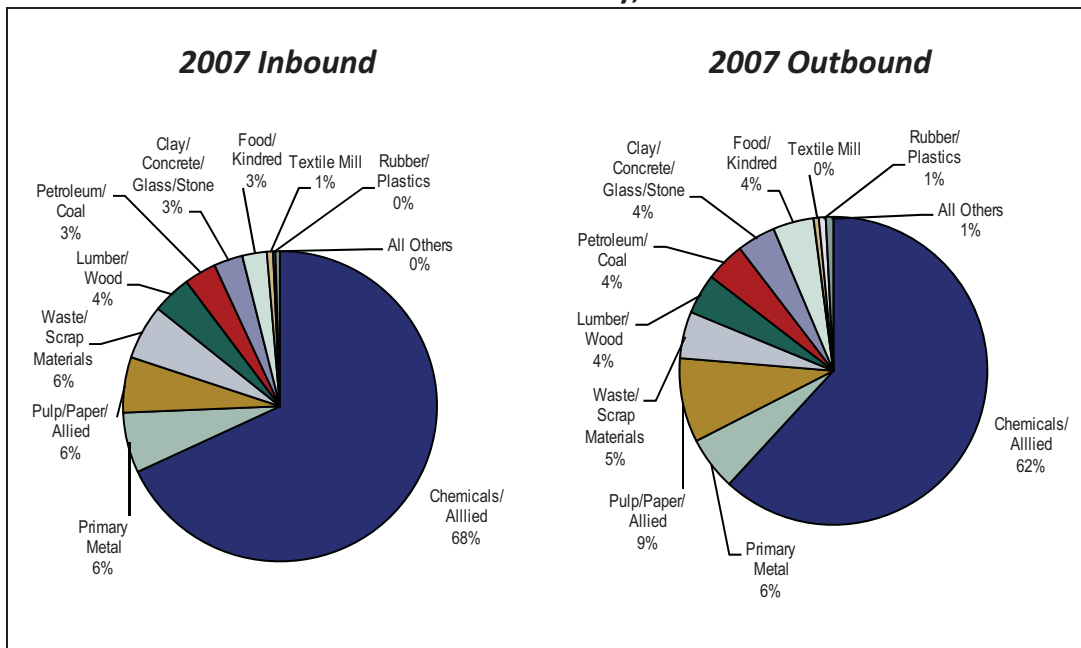
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.36 Top 10 Outbound Rail Commodities - Middlesex County, 2007 and 2035*Weight and Value*

Commodity	2007 Tons	2035 Tons	Percent		2007 Dollars	2035 Dollars	Percent Growth
			Growth				
Chemicals/Allied Products	294,046	538,035	83%		\$731,714,524	\$1,082,254,051	48%
Primary Metal Products	158,118	102,352	-35%		\$343,157,529	\$209,231,883	-39%
Petroleum/Coal Products	39,108	75,484	93%		\$22,527,111	\$49,596,488	120%
Waste/Scrap Materials	31,729	27,598	-13%		\$26,921,082	\$24,598,247	-9%
Nonmetallic Minerals	8,616	10,399	21%		\$366,401	\$430,691	18%
Transportation Equipment	6,464	13,717	112%		\$10,308,449	\$20,677,953	101%
Clay/Concrete/Glass/Stone	4,386	7,339	67%		\$2,380,170	\$4,779,572	101%
Rubber/Plastics Products	2,671	8,299	211%		\$3,573,244	\$11,193,525	213%
Machinery Exc Electrical	1,779	4,475	152%		\$1,331,218	\$3,340,331	151%
Crude Petrol/Natural Gas	1,208	671	-44%		\$1,444,884	\$802,661	-44%
All Others	2,153	4,502	109%		2,653,762	5,998,714	126%
Total	550,277	792,871	44%		\$1,146,378,373	\$1,412,904,116	23%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.29 Top 10 Inbound and Outbound Rail Commodities by Weight Middlesex County, 2007



Essex County Directional Analysis

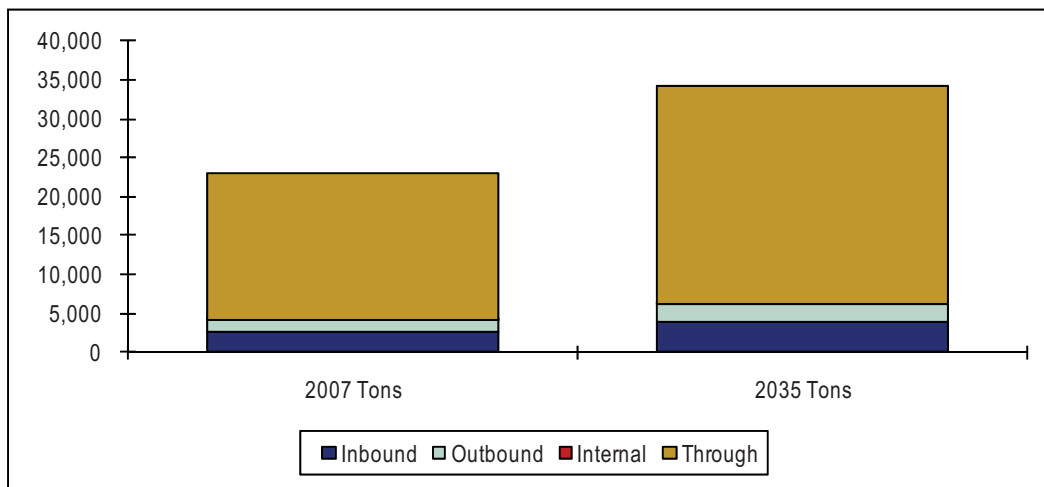
In 2007, 23.0 million tons of rail freight moved into, out of, within, or through Essex County. Approximately 2.7 million tons (12 percent) traveled inbound, 1.4 million tons (6 percent) traveled outbound, 0.007 million tons (0.03 percent) traveled from one point within the county to another, and 18.8 million tons (82 percent) traveled through. By 2035, total rail freight moving across the county is expected to grow to 34.3 million tons, an increase of 50 percent (see Table II.37 and Figure II.30)

Table II.37 Summary of Essex County Rail Flows, 2007 and 2035
Weight and Value

Direction	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Inbound	2,739,319	3,789,957	38%	\$9,027,684,617	\$10,963,567,232	21%
Outbound	1,392,742	2,366,944	70%	\$2,577,427,557	\$4,383,851,044	70%
Internal	7,764	21,101	172%	\$17,314,238	\$48,987,667	183%
Through	18,822,682	28,154,876	50%	\$33,207,231,532	\$52,093,674,374	57%
Total	22,962,507	34,332,877	50%	\$44,829,657,944	\$67,490,080,318	51%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.30 Expected Growth of Essex County Rail Flows, 2007 and 2035
By Weight and Direction



Essex County Rail Commodity Analysis

In 2007, about 2.7 million tons of rail freight moved inbound to and 1.4 million tons moved outbound from Essex County. Transportation equipment; food or kindred products; and pulp, paper or allied products combined accounted for 64 percent of all inbound rail flows. Waste or scrap materials, freight all kinds, and food or kindred products combined accounted for nearly 84 percent of all outbound rail flows. The top ten inbound and outbound Essex County rail commodities are displayed in Tables II.38 and II.39 and in Figure II.31.

Table II.38 Top 10 Inbound Rail Commodities - Essex County, 2007 and 2035
Weight and Value

Commodity	2007 Tons	2035 Tons	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
Transportation Equip.	917,670	1,176,663	28%	\$7,323,063,043	\$8,692,881,627	19%
Food/Kindred Products	443,044	602,299	36%	\$363,619,494	\$487,264,893	34%
Pulp/Paper/Allied Products	401,333	436,936	9%	\$542,468,270	\$558,343,395	3%
Waste/Scrap Materials	291,701	628,305	115%	\$120,137,580	\$258,556,093	115%
Freight All Kinds	236,440	328,322	39%	\$183,297,921	\$279,612,842	53%
Lumber/Wood Products	133,304	149,084	12%	\$122,341,890	\$134,815,542	10%
Chemicals/Allied Products	124,217	154,312	24%	\$160,049,741	\$208,171,269	30%
Shipping Containers	64,200	111,130	73%	\$0	\$0	–
Primary Metal Products	51,058	77,941	53%	\$130,630,061	\$215,002,184	65%
Textile Mill Products	11,379	31,534	177%	\$1,764,304	\$4,889,302	177%
All Others	64,973	93,432	44%	\$80,312,314	\$124,030,085	54%
Total	2,739,319	3,789,957	38%	\$9,027,684,617	\$10,963,567,232	21%

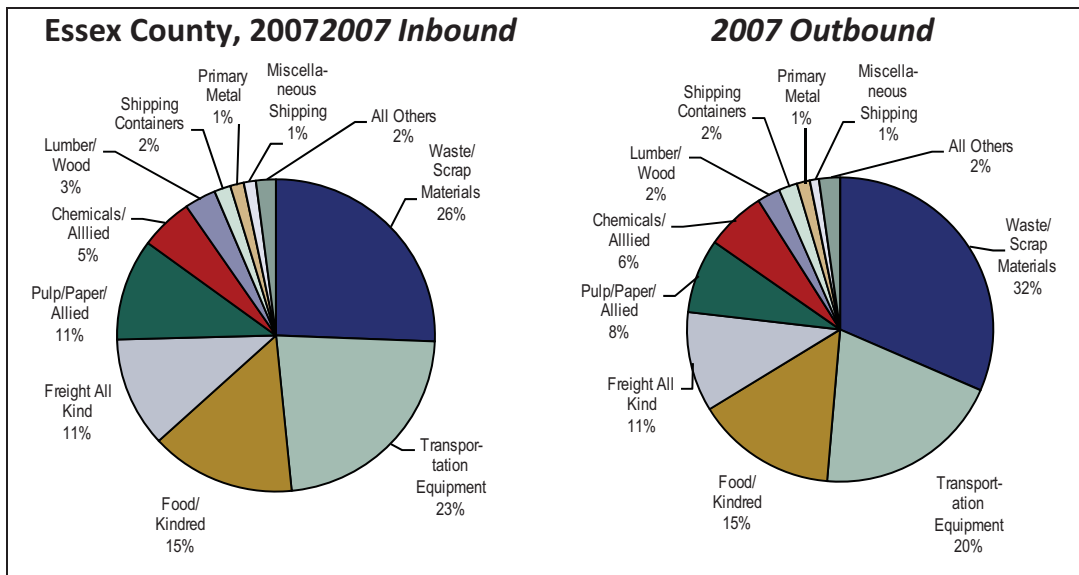
Source: IHS Global Insight Inc., TRANSEARCH database

Table II.39 Top 10 Outbound Rail Commodities - Essex County, 2007 and 2035
Weight and Value

Commodity	2007	2035	Percent Growth	2007 Dollars	2035 Dollars	Percent Growth
	Tons	Tons		2007 Dollars	2035 Dollars	
Waste/Scrap Materials	766,727	1,310,699	71%	\$1,624,524,596	\$2,914,776,097	79%
Freight All Kinds	231,753	321,090	39%	\$188,662,149	\$261,898,710	39%
Food/Kindred Products	170,162	315,895	86%	\$185,397,420	\$344,215,386	86%
Chemicals/Allied Products	98,258	237,118	141%	\$101,746,904	\$195,272,419	92%
Miscellaneous Shipping	43,480	43,815	1%	\$90,545,315	\$72,873,533	-20%
Pulp/Paper/Allied Products	30,610	45,459	49%	\$63,653,737	\$93,408,796	47%
Transportation Equipment	24,416	47,121	93%	\$200,555,890	\$403,616,814	101%
Primary Metal Products	6,249	7,250	16%	\$9,765,039	\$8,495,752	-13%
Shipping Containers	5,200	10,148	95%	\$0	\$0	-
Electrical Mach/Equip/Supp	5,117	3,274	-36%	\$101,085,745	\$54,886,263	-46%
All Others	10,770	25,075	133%	\$11,490,763	\$34,407,275	199%
Total	1,392,742	2,366,944	70%	\$2,577,427,557	\$4,383,851,044	70%

Source: IHS Global Insight Inc., TRANSEARCH database

Figure II.31 Top 10 Inbound and Outbound Rail Commodities by Weight



III. PLANNED INFRASTRUCTURE IMPROVEMENTS

A wide range of rail system infrastructure and operational improvements are currently being advanced by a variety of sponsors including railroad owners/operators, MPOs and the NJDOT. Table III.1 summarizes these individual improvement initiatives. Mapping depicting the location of these planned improvements is presented in Appendix B of this report.

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
1	Belvidere & Delaware River Rwy. Co., Inc.	Belvidere & Delaware River Rwy. Co., Inc.	Three Bridges Advance Track	Readington Twp	Hunterdon	\$225	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
2	County of Salem Short Line	SRNJ	Salem County Short Line track rehabilitation	Pilesgrove Twp, Swedesboro, Logan Twp	Salem, Gloucester	\$1,500	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
3	CR Shared Assets	CR Shared Assets	Bordentown Secondary and Vineland Secondary Track: Create additional yard capacity from DelairBridge to Woodbury.	Multiple	Camden, Gloucester, Cumberland	Unknown	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan
4	CR Shared Assets	CR Shared Assets	Beesley's Point Secondary Track: Continue to weld jointed rail from Bordentown Secondary to Southern Branch, decreasing maintenance.	Multiple	Camden	Unknown	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan
5	CR Shared Assets	CR Shared Assets	Penns Grove Secondary Track: Reconstruct swing bridges at Bridgeport and Paulsboro.	Bridgeport, Paulsboro	Gloucester	\$40,000	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan
6	CR Shared Assets	CR Shared Assets	Robbinsville Industrial Track: Upgrade various aspects of track	Robbinsville	Burlington, Mercer	\$2,500	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
7	CR Shared Assets	CR Shared Assets	Salem Running Track: Upgrade track to support interchange between Conrail and Southern Railroad of New Jersey	Swedesboro, Woodbury	Gloucester	\$7,600	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan
8	CR Shared Assets	CR Shared Assets	Bordertown Secondary from Pavonia Yard to Bordertown: Add second track and improve sidings.	Bordertown, Camden	Burlington, Camden	\$13,000	SNJFTEDA ¹	Unknown	Proposed
9	CR Shared Assets	CR Shared Assets	Penns Grove Secondary: General track improvements from Woodbury to Penns Grove.	Penns Grove	Salem	\$4,300	SNJFTEDA	Unknown	Proposed
10	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	P&H Branch: Add second track to 1.8 mile-long segment, Kearny to Hack.	Kearny	Hudson	\$10,500	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding subject to negotiations

¹Southern New Jersey Freight Transportation and Economic Development Assessment

Table III.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
11	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	Marion Connection: Add second track to 0.5 mile elevated segment ("Hack" - "Marion") where currently only one train at time can move: NS trains to Croxton intermodal and Southern Tier and CSX trains to Northeast and North Bergen and Kearny intermodal facilities.	Jersey City	Hudson	\$20,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding subject to negotiations
12	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	ChemicalCoast Secondary: Double track the line ("Bayway" - "PD") and install TCS on Chemical Coast Secondary (4 miles).	Elizabeth, Carteret	Union, Middlesex	\$10,100	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding subject to negotiations
13	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	Construct Container Terminal Expansion: Acquire Raff property/build yard/expand container terminal.	Newark	Hudson	\$15,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding subject to negotiations
14	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	Waverly: Construct loop track to improve operational efficiency.	Newark	Essex	\$25,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding subject to negotiations

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
15	CR Shared Assets, CSX and NS	CR Shared Assets, CSX and NS	Port Reading Secondary Track: Install TCS, upgrade rail (15.9 miles "CP-Port Reading Jct. - "PD") and extend Durham Siding (1.5 miles).	Manville, Carteret	Somerset, Middlesex	\$10,500	I-95 Corridor Coalition	TBD	Funding subject to negotiations
16	CR Shared Assets, Amtrak, States of PA and NJ	CR Shared Assets, NJ Transit, CSX and NS	Delair Bridge Rehabilitation: Structural improvements to maintain freight operations.	Pennsauken	Camden	\$20,000 to \$30,000	2010 Southern New Jersey Freight Transportation and Economic Development Assessment (SNIJTEDA), and DVRPC Long Range Freight Plan	TIGER Conrail South Jersey Port Corp. Salem County	In Progress
17	CR Shared Assets, CSX, NS and NJ Transit	CR Shared Assets, CSX, NS and NJ Transit	Lehigh Line: Another mainline is needed (6 miles, third main) between "CP-Aldene" and "CP-NK." NJT runs 60 commuter trains between these locations and they conflict with NS, CSX and CR Shared Asset trains.	Cranford, Newark	Union, Essex	\$39,000	I-95 Corridor Coalition	TBD	TBD
18	CR Shared Assets, NS and CSX	CR Shared Assets, NS and CSX	Pavonia Yard: increase capacity.	Camden	Camden	\$5,000	SNIJTEDA	Unknown	Proposed

Table III.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
19	CSX	CSX	West Trenton Line CP Ewing to Manville Yard: Add second main track.	Ewing, Manville	Mercer, Somerset	\$76,500	DVRPC Long Range Freight Plan; I-95 Corridor Coalition	Unknown	Suggested Project in Plan
20	CSX	CSX	Trenton Line: Replace crossover switch at "Trent."	Trenton	Mercer	\$2,500	DVRPC Long Range Freight Plan	RFAP	In Progress
21	CSX	CSX	Trenton Line: Add a secondary main over 20.6 miles of track ("Manville Yard" - "Wing") to increase capacity.	Manville, Ewing	Mercer	\$46,000	I-95 Corridor Coalition	TBD	Suggested Project in Plan
22	CSX and NS	CSX and NS	Port Reading Junction: Reconfigure track at interlocking to improve train flow and increase operational capacity.	Manville	Somerset	\$13,400	Liberty Corridor	Liberty Corridor, NJDOT, CSX, NS	In Progress
23	East Jersey Railroad and Terminal Co.	East Jersey Railroad and Terminal Co.	Shook Track Rehabilitation	Bayonne	Hudson	\$99	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Ineligible for Funding
24	East Jersey Railroad and Terminal Co.	East Jersey Railroad and Terminal Co.	Yard 4 Storage Tracks	Bayonne	Hudson	\$565	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Ineligible for Funding
25	JP Rail, Inc. d/b/a Southern Railroad of N.J.	JP Rail, Inc. d/b/a Southern Railroad of N.J.	Rehabilitate Pleasantville Secondary Track to FRA Class 2 Standards	Egg Harbor Twp	Atlantic	\$1,110	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	funded

Table III.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
26	New Jersey Seashore Lines	New Jersey Seashore Lines	Tie Renewal Project to service an aggregate transload facility	Borough of Lakehurst, Mansfield Twp	Ocean	\$1,653	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Ineligible for Funding
27	The New York, Susquehanna and Western Railway Corp.	The New York, Susquehanna and Western Railway Corp.	Rehabilitate main track between MP 40.0 (Butler, NJ) and MP 50.0 (Stockholm, NJ)	Kinnelon Borough + 4 others	Morris, Passaic, Sussex	\$972	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
28	The New York, Susquehanna and Western Railway Corp.	The New York, Susquehanna and Western Railway Corp.	Rehabilitate main track between MP 63.0 (Sparta, NJ) and MP 73.8 on the Southern Division Main.	Sparta Twp + 3 others	Sussex	\$971	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	completed
29	The New York, Susquehanna and Western Railway Corp.	The New York, Susquehanna and Western Railway Corp.	Rehabilitate main track between MP 73.8 and MP 81.2 in Vernon Township, NJ	Vernon Twp	Sussex	\$798	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Completed
30	The New York, Susquehanna and Western Railway Corp.	The New York, Susquehanna and Western Railway Corp.	Construction of 3,432-foot rail siding between MP 63.71 and MP 64.36 in Sparta, NJ	Sparta Twp	Sussex	\$442	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Completed

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
31	The New York, Susquehanna and Western Railway Corp.	The New York, Susquehanna and Western Railway Corp.	Construct 2,214-foot rail siding between MP 6.85 and MP7.25, North Bergen, NJ	North Bergen	Hudson	\$536	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
32	NJ Transit, CSX, NS, NYS&W	NJ Transit, CSX, NS, NYS&W	69th Street Grade Separation: Grade separate road and rail to improve safety and decrease liability.	North Bergen	Hudson	\$65,000	NJ Transit	NJT	In Progress
33	NS	NS	Lehigh Line: Add second track to improve efficiency, Pattenburg Tunnel – Manville.	Multiple	Hunterdon, Somerset	\$47,400	I-95 Corridor Coalition	TBD	TBD
34	Port Authority of NY & NJ	New York New Jersey Rail LLC	Cross Harbor Freight Movement Project: Rehabilitate and modernize cross harbor rail float connection	Jersey City	Hudson	\$118,000	PANYNJ Press Release	PANYNJ	In Progress
35	Port Jersey Railroad	Port Jersey Railroad	Port Jersey Railroad: Add half-mile of track to eliminate intermediate truck transportation between ship and rail.	Jersey City	Hudson	Unknown	Air quality CMAQ ² Example Projects Website	Intermodal Freight Projects Funded by CMAQunder TEA-21	Funded

²Congestion Mitigation and Air Quality Improvement Program

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
36	SMS Rail Service, Inc.	SMS Rail Service, Inc.	Pureland Upgrade	Logan Twp	Gloucester	\$1,738	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
37	SMS Rail Service, Inc.	SMS Rail Service, Inc.	Valero Project	Paulsboro	Gloucester	\$903	NJDOT FY 11 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program / TIGER	Eligible for Funding
38	South Jersey Port Corporation	CR Shared Assets	Rail improvements at Broadway Terminal, Port of Camden.	Camden	Camden	\$2,800	SNJFTEDA	TIGER Conrail South Jersey Port Corp Salem County NJDOT	
39	South Jersey Port Corporation	SRNJ	Port of Salem: Track improvements from Swedesboro to Port of Salem, dockside rail improvement.	Salem, Swedesboro	Salem	\$21,500	SNJFTEDA	TIGER Conrail South Jersey Port corp Salem County NJDOT	
40	Winchester & Western Railroad	Winchester & Western Railroad	Seashore Branch Runaround track	Millville	Cumberland	\$571	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 1, 2010	NJ Rail Freight Assistance Program	Funded
41	DVRPC	NJDOT-owned	Former CNJ Southern Division: Restore freight service on out-of-service, historic commuter line.	Winslow Junction to Woodmansie	Burlington / Camden	\$130,000	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan

Table III.1.1 Planned Infrastructure Improvements by Others

	Sponsors /Advocates	Railroad(s) Operating and / or Owning Lines at Issue	Project Name / Description Revised	Municipalities	Counties	Cost (x1,000)	Source	Funding	Status
42	286 K Task Force/ Raritan Central RR	Conrail	Restore Raritan Industrial Track:Take freight off the Northeast Corridor	Perth Amboy, Woodbridge, Edison	Middlesex	\$25,000	286K Task Force	Proposed	Proposed
43	286 K Task Force/ NS	NS, NJT	Main and Bergen line improvement to allow 286 K carloads, including HX Bridge	Paterson, Secaucus, East Rutherford	Passaic, Hudson, Bergen	\$8,000	286K Task Force	In development	In development
44	286 K Task Force/ Conrail	Conrail, NJT	River Draw improvement to allow 286K carloads	Perth Amboy, South Amboy	Middlesex	\$10,000	286K Task Force	Proposed	Proposed
45	Port Authority of NY & NJ	CR Shared Assets, NS, CSX	Intermodal Container Transfer Facility (ICTF) to support Global Marine Terminal	Jersey City	Hudson	\$120,000	PANYNJ	PANYNJ	In design
46	Port Authority of NY & NJ	New York New Jersey Rail LLC	Greenville Yard Containerized MSW Barge to Rail Transfer Facility	Jersey City	Hudson	\$50,000	PANYNJ	Public/ Private	Proposed
47	Port Authority of NY & NJ	CR Shared Assets, NS, CSX	ExpressRail Newark Expansion of PNCT	Newark	Essex	\$ 97,000	PANYNJ	PANYNJ	In Progress

IV. THE STATEWIDE FREIGHT RAIL STRATEGIC PLAN

A. AGENCY AND INDUSTRY ADVISORY GROUP

As opposed to an analytical model approach, the plan was developed from the bottom up, building upon extensive coordination and input from a wide cross section of state agencies, Class I railroads and short line / terminal railroads. As members of the Agency and Industry Advisory Group (AIAG), they provided valuable insights into their current operations and visions for the future, as well as a comprehensive listing of issues and constraints - physical, operational and institutional – that hinder their progress and the operation of a flexible and efficient freight rail system. The AIAG also contained representatives of agencies and industries with a direct interest in freight rail operations including:

1. New Jersey State Agencies

- **New Jersey Department of Transportation** was established in 1966 as the nation’s first state transportation agency. The NJDOT establishes transportation policy, operates and maintains New Jersey’s highway and public road system, and supports the state’s rail, freight and intermodal transportation infrastructure.
- **NJ Transit** was established in 1979 and integrated the former NJDOT Rail Division. The NJ Transit Rail Division provides commuter rail service in New Jersey, with most service centered on transportation to and from New York City, Hoboken, and Newark. Freight traffic operates on significant portions of the NJ Transit passenger rail network, and some NJ Transit passenger trains operating on rail lines owned and operated by freight railroads.
- **New Jersey Economic Development Authority** provides a wide range of services to attract businesses to New Jersey and support their retention and growth. It offers businesses financing and real estate development assistance.
- **North Jersey Transportation Planning Authority** is the Metropolitan Planning Organization (MPO) for the 13-county northern New Jersey region. Each urbanized region of the country is required to establish an MPO to qualify for federal transportation funding.
- **Delaware Valley Regional Planning Commission** is the MPO for the Delaware Valley, covering five counties in Pennsylvania and Mercer, Burlington, Gloucester and Camden counties in New Jersey.
- **Port Authority of New York and New Jersey** is a bi-state authority charged with operating and maintaining major transportation infrastructure including bridges, tunnels, airports, seaports, and freight and passenger rail service within a 1,500 square mile area within a 25-mile radius of the Statue of Liberty in New York Harbor.

2. Class I and Switching Railroads

- **CSX Transportation** is an international transportation company offering a variety of rail, container-shipping, intermodal and trucking services to customers in 23 states and two Canadian provinces. It operates over 647 miles of track in New Jersey.
- **Norfolk Southern Railway** is a Class I railroad that services customers in 22 states. It operates over 933 miles of track in New Jersey.
- **Consolidated Rail Corporation** is a terminal and switching railroad jointly owned by CSX and Norfolk Southern and operates over 469 miles of track within New Jersey.

3. Short Line and Terminal Railroads

- **New Jersey Short Line Railroad Association** is an organization that focuses on the concerns of short line railroads and seeks to solve or mitigate problems through collective effort and cooperation.
- **SMS Rail Lines** is a short line railroad based at the Pureland Industrial Park in Bridgeport. It handles all freight car deliveries to businesses located within the industrial park, with additional operations in Paulsboro, New Jersey; Morrisville, Pennsylvania, and Albany, New York.
- **Morristown & Erie Railway** is a short line freight railroad serving customers in Morris and Essex counties in New Jersey and the Mid-Coast region of Maine.
- **Winchester & Western Railroad** is a short line railroad operating several lines in southern New Jersey, connecting to Conrail Shared Assets Operations at Millville and Vineland. It primarily handles quarry products and grain.
- **The New York, Susquehanna & Western Railway** operates over 400 miles of track in New York, New Jersey and Pennsylvania (91 miles within New Jersey) handling a range of commodities such as feed ingredients; lumber and other building materials; construction and demolition debris; chemicals and aggregates; plastics; food and paper products; motor vehicles, and metals.
- **Southern Railroad Company** operates a total of 71 miles of rail in South Jersey on three different/distinct lines - the Salem Branch, the Winslow Industrial Track and the Pleasantville Industrial track.

The AIAG was a valuable resource in the development of the plan, bringing a wide array of perspectives and extensive experience to the process. The participation of the AIAG was instrumental in the:

- Identification of operational and institutional issues affecting their business and the overall operations and efficiency of the freight rail network;
- Prioritization of issues in terms of the geography affected, severity and need for corrective actions, and
- Identification of a range of potential solutions that would be consistent with other state planning documents.

B. SUMMARY OF ISSUES AND RECOMMENDED ACTIONS

In close coordination with the Agency and Industry Advisory Group (AIAG), a broad range of issues that affect the freight rail industry in New Jersey were identified. Each issue (described in detail in Appendix A) was evaluated with respect to its severity to the State of New Jersey and the freight rail industry, and how quickly corrective action needs to be taken. Since AIAG participants represented a range of opinions and perspectives, not surprisingly the order of priority recommended by each participant varied as well. Considering the opinions and input offered by the AIAG, each issue was ranked with respect to the extent recommended actions would support the goals and objectives of this plan. Goals were categorized as either critical or supportive, with the recommended actions being classified as Highly Supportive, Moderately Supportive, Not Applicable or Detrimental to the achievement of each goal.

Specific solutions and actions were identified for each issue. Recommended actions were categorized on the basis of their level of intensity - High Priority, Moderate Priority or Low Priority - and:

- Compliance with existing and pending regulations and federal mandates;
- Maintenance of infrastructure and operations in their current serviceable state;
- Improvement of existing infrastructure, programs and practices to eliminate constraints;
- Expansion of existing facilities and practices, and
- Development / Implementation of new infrastructure, programs and practices.

The following sections discuss each issue; the risks and opportunities it presents to the State of New Jersey; recommended actions; anticipated outcomes, and how it supports the plan's goals and objectives.

1. High Priority Issues

Of the 42 identified issues, 12 were determined to be of critical priority and worthy of immediate action. These high-priority issues include:

- Continuation of the NJ Freight Rail Assistance Program;
- Upgrading secondary / light density lines to handle the current industry standard 286,000 lb. (286K) rail cars;
- Upgrading New Jersey's short lines to handle the current industry standard 286K rail cars;
- Identify and mitigate constraints inhibiting the movement of 286K rail cars on selected passenger lines;
- Capacity and access at Greenville Yard;
- Repair and rehabilitation of the Delair Bridge to ensure continued freight rail access to southern New Jersey;

- Expand capacity of the Lehigh Line (shared with NJ Transit's Raritan Valley Line) from Oak Island Yard to Manville Yard.
- Elimination of tunnel and bridge height and width constraints that restrict the movement of today's larger industry standard rail cars;
- Providing freight rail connectivity between the northern and southern New Jersey port complexes;
- Preservation and reactivation of the military rail network;
- Enhancing connectivity between the Class I and the short line railroads, and
- Expanding intermodal yard capacity, particularly in northern New Jersey.

Impact of Superstorm Sandy

In the fall of 2012, Superstorm Sandy struck the Mid-Atlantic and New England area. The potential record-breaking intensity of the storm, coming a year after Hurricane Irene, led officials to suspend transportation services in advance of the storm's arrival. The Class I freight railroads removed rolling stock from the area, as well as repositioned equipment to accommodate the potential diversion of international maritime cargo from Northeast ports.

The immediate impacts on New Jersey's rail transportation systems were extensive. The impact area was multi-state with significant damage from flooding and high winds. CSX and Norfolk Southern, which sustained limited damage (such as debris on tracks at Port Newark/Elizabeth), were able to restore services within the first week. CSX operated intermodal trains between ports in Virginia and New Jersey to transport diverted ocean containers back to New Jersey. The damage at Greenville Yard, however, was significant with all facilities and one rail car float destroyed. While the potential effect of extreme weather occurrences such as Superstorm Sandy, flooding and the potential for elevation in mean sea level is not addressed in this plan as a specific issue with recommended actions, resiliency to weather related environmental factors should be a consideration in the assessment of any component of the freight rail infrastructure.

2. Moderate Priority Issues

Of the 42 identified issues, 12 were determined to be of a moderate priority with recommended actions to be taken in the near future. These moderate priority issues include:

- Elimination of vertical constraints imposed by catenary systems;
- Preservation of out of service and abandoned rail rights-of-way for potential future reactivation;
- Expansion of the carrying capacity of the Lehigh Line (Manville to Phillipsburg);
- Maintenance of overall line capacity and system/route redundancy;
- improvement of the New York Susquehanna and Western (NYSW) to accommodate both freight and passenger service;
- Maintenance of the 286K standard on the Class I main lines;

- Expansion of the capacity of existing transload yards;
- Creation of new capacity at existing carload yards;
- Expansion of the carrying capacity of the CSX West Trenton Line;
- Expansion of the carrying capacity of the CSX River Line;
- Restructuring the freight rail network and connections in Southern New Jersey, and
- Enhancement of connectivity between short lines.

3. Longer Range, Lower Priority Issues

Of the 42 identified issues, 19 were determined to be of relative low priority. While these are real and pertinent issues, some were determined to have relatively low adverse effects if left unaddressed or are being addressed by the railroads themselves. Others are not expected to exert any significant adverse influence of freight rail operations until well into the future. These issues include:

- Planned new passenger operations;
- Community education;
- High speed rail;
- Temporal separation;
- Shared operations;
- Grade crossings;
- Haulage rights;
- Trackage rights / paper barriers;
- Hazmat storage;
- Passenger platforms (commuter rail);
- Passenger platforms (light rail);
- Freight train speed restrictions;
- Positive Train Control (PTC)
- Noise;
- Emissions;
- Environmental justice;
- Odor
- Adoption of a national rail plan, and
- Trend towards 315K routes.

Potential actions to be taken to address the issues facing the freight rail industry in New Jersey are numerous and varied. In some instances, simply ensuring compliance with federal mandates is required. In others, significant threats to the continued utility and vitality of the freight rail system as a supporter of economic growth require more complicated and capital intensive actions be taken. Table IV.1 summarizes the potential actions identified to address each issue and which action(s) are recommended for advancement. Each issue and recommended action is described in detail in Appendix A.

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
HIGH PRIORITY ISSUES					
NJ Rail Assistance Program		Continue to require host community sign off for capital project support.	<i>Incorporate outreach program to assist community education and coordination of candidate projects.</i>	Expand program funding levels. Consider annual funding levels tied to rail freight volumes.	Develop new program with dedicated funding mechanism.
		Assess the impacts of this requirement on communities and rail operations			
286K Standard on Class I Secondary and Light Density Lines		Inventory and maintain existing capacity.	<i>Identify and prioritize routes to upgrade.</i>	<i>Identify and upgrade additional freight lines and bridges to 286K.</i>	Assess the cost and need for strengthening infrastructure to accommodate 315K in the future on identified lines.
			<i>Upgrade identified priority routes to 286K.</i>		
286K Capacity on Short Lines		Inventory and maintain existing capacity.	<i>Identify and prioritize lines to be upgraded to 286K.</i>	<i>Upgrade identified priority lines to 286K.</i>	Assess the cost of and need for strengthening infrastructure to accommodate 315K in the future on identified lines.
NJ Transit / Amtrak Constraints to 286K Rail Cars		Inventory and maintain existing capacity.	<i>Determine specific improvements needed for 286K operation.</i>	<i>Evaluate and upgrade additional shared operations lines and bridges to 286K as required.</i>	<i>Negotiate and implement operating and cost-sharing agreements to allow 286K freight access to strategic locations along NJ Transit-owned ROW.</i>
		Identify and prioritize routes to upgrade to 286K in support of freight service on these shared lines.	<i>Upgrade identified priority routes to 286.</i>	<i>Seek alternate routes for freight.</i>	
Greenville Yard Capacity and Access Improvements		Maintain existing carfloat and yard operations.	Improve northbound connectivity.	Expand carfloat operations.	Develop expanded cross harbor freight intermodal operations
			<i>Upgrade carfloat operations.</i>	<i>Add intermodal yard.</i>	

¹ Blue shaded boxes denote actions that should be taken immediately or as soon as possible.

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Maintenance of the Del Air Bridge Portal		<p><i>Continued bridge maintenance and rehabilitation of approach spans.</i></p> <p><i>Develop contingency plan for bridge outage.</i></p>	<p><i>Improve height clearances on access routes.</i></p>	<p>Study and identify need for potential new bridge and approach routes as part of identification of redundant and alternative routing options into Southern New Jersey.</p>	<p>Replace bridge and access routes as needed to accommodate industry standard heights (including intermodal) if alternative routes are not feasible.</p>
Increase Capacity on the Lehigh Line (Conrail Oak Island – Manville)			<p>Upgrade and possibly combine and/or eliminate grade crossings.</p> <p><i>Identify potential reliever routes</i></p>	<p><i>Construct a third track from Aldene in Roselle Park to NK (Newark).</i></p>	<p><i>Consider construction of a 4th track from Aldene to NK and separation of freight and passenger ROW.</i></p>
Tunnel and Bridge Vertical Clearances		<p>Inventory and maintain existing clearances.</p>	<p><i>Upgrade clearances to accommodate Plate F rail cars on a priority basis</i></p> <p><i>Identify and prioritize specific locations, lines and routes where clearances should be improved for double-stack service.</i></p>	<p><i>Upgrade clearances on identified priority routes requiring double stack clearance.</i></p>	<p>Upgrade additional routes that could provide alternative routings for double stacks and other high cars should main line routes become fouled.</p>
North/South Connectivity		<p>Maintain corridor/right-of-way options for future movements between North and South.</p>	<p><i>Coordinate improvements to existing route via Pennsylvania with adjacent jurisdictions.</i></p> <p><i>Investigate the feasibility of freight service and connections via alternate routes</i></p>	<p>Investigate the feasibility of reactivation of the former Blue Comet Route for both freight and passenger service.</p>	<p>Identify new movements of goods between North and South New Jersey on new or combinations of new and preserved ROW.</p>

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Reactivation / Preservation of the Military Rail Network	Monitor changes in the existing Military Rail Network.	<i>Inventory and identify facilities currently used as part of deployment and strategic transportation command.</i>	<i>Develop program for acquisition of ROW that may be removed from the Military Rail Network as a result of base closures or other actions.</i>	Provide for additional in state opportunities to supplement and/or replace current strategic transportation shipping and receiving facilities.	<i>Explore reconnection and expansion of trackage on New Jersey's Joint Base (Fort Dix, McGuire, and Lakehurst).</i>
Class I / Short line Connectivity	Ensure all short lines have convenient access to two Class I's as per the merger/breakup of Conrail.	<i>Maintain existing service and operations interchange locations.</i>	Identify and prioritize specific access and interchange concerns of short lines, including Pavonia Yard	<i>Initiate short line/Class I economic development integrated rail freight marketing program.</i>	Integrate new plan with state economic development initiatives.
Expand Intermodal Yard Capacity		Inventory and maintain existing yard capacity and potential for expansion.	<i>Prioritize and initiate service improvement to enhance capacity at existing yards to accommodate growth.</i>	<i>Identify and prioritize locations where capacity should be expanded.</i>	Develop new intermodal yards in Northern, Central and Southern New Jersey based upon anticipated growth in domestic intermodal traffic.
		Maintain operating capacity at current yards.			
MODERATE PRIORITY ISSUES					
Catenary Constraints to Vertical Clearance		Inventory and maintain existing clearances on NJ Transit and Amtrak routes.	<i>Upgrade clearances on identified priority routes to accommodate Plate F.</i>	<i>Identify and prioritize specific lines and routes based on latent demand for double-stack service where clearances should be improved.</i> Investigate the shared operations trackage between Wood Interlocking and Essay for clearance.	Develop new standards for installation of catenaries where freight service currently operates or is anticipated to operate.

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Right of Way Preservation		Inventory at risk rail corridors and monitor for threats to preservation.	Identify strategies and funding sources for long term preservation of current inventory.	Prioritize lines for potential future reactivation/development.	Reserve/preserve identified corridors for future transportation usage.
			Coordinate with NJEDA and other county/local development authorities to support continued operation of rail served customers along at-risk lines.	Identify unique opportunities for right of way preservation including use of highway and utility rights of way that could be utilized as shared corridors.	
Increase Capacity on the Lehigh Line (NS Manville – Phillipsburg)		Maintain optimum double stack clearance.	Upgrade and possibly combine and/or eliminate grade crossings.	Add passing sidings and upgrade signaling.	Restore second track.
		Maintain rail line at current track speeds.		Maintain parallel LV Bridge for potential freight and passenger expansion.	Provide doublestack clearance and second track through the Musconetcong Tunnel.
		Maintain current Delaware River Bridge in state of good repair.			

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Overall Line Capacity / System Redundancy		Inventory, codify and maintain existing line capacity.	<i>Identify and prioritize lines based upon anticipated growth and anticipated future capacity restraints.</i>	<i>Investigate technologies that can be applied to increase capacity on existing freight lines and shared operation lines.</i>	Increase capacity through additional track or new technologies.
NYSW Portal Freight Service		Maintain optimum doublestack clearance.	<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>	<i>Add passing sidings and upgrade signaling as passenger service is instituted.</i>	Add intermodal and/or transload facility to serve northwest NJ and I-287 corridor.
		Maintain rail line at current track speeds.			
286K Standard on Class I Main Lines		<i>Inventory and maintain existing 286K capacity routes.</i>			Assess the cost of, and need for, enhancements to accommodate 315K in the future.
Transload Yard Capacity		Inventory and maintain existing yard capacity and potential for expansion.	<i>Initiate service improvement to enhance capacity at existing yards to accommodate growth.</i>	<i>Incorporate transload facilities within dense clusters of industrial and warehouse development.</i>	Develop new transload yards and facilities as needed to minimize final local delivery by truck.
		Identify and prioritize locations where capacity should be expanded.		<i>Increase capacity at additional locations based on priorities.</i>	
Carload Yard Capacity		<i>Inventory existing yard capacity and potential for expansion.</i>	<i>Address service and capacity issues at identified yards, including Pavonia Yard.</i>	Based upon inventory, selectively expand capacity at existing yards to accommodate anticipated growth, where possible.	Identify and prioritize locations where new carload yards should be constructed.
		<i>Maintain operating capacity at current yards.</i>			

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Increase Capacity on the West Trenton Line		<p>Maintain optimum doublestack clearance.</p> <p>Maintain rail line at current track speeds</p> <p>Maintain current Delaware River Bridge in state of good repair</p>	<p>Upgrade and possibly combine and/or eliminate grade crossings in Somerset County.</p> <p>Implement quiet zone from Rt. 601 crossing to Province Line Rd crossing</p>	<p>Restore 2nd main track and passing sidings consistent with recommendations of the Mid Atlantic Rail Operations Study (MAROps) and upgrade signaling.</p>	<p>Restore second track to accommodate additional freight and potential passenger service.</p>
Increase Capacity on the River Line (CSX)		<p>Maintain rail line at current track speeds.</p>	<p>Upgrade and possibly combine and/or eliminate grade crossings.</p> <p>Implement quiet zones and associated grade crossing improvements</p>	<p>Add passing sidings and upgrade signaling to increase carrying capacity of the route.</p>	<p>Re-lay second track.</p>
Network Restructuring and Rationalization		<p>Evaluate current system as it has evolved and determine adequacy as national rail plan evolves.</p>	<p>Open alternative freight routes to clear availability for passenger service.</p>	<p>Identify opportunities and options for incremental restructuring among private and public sector owners, operators and agencies.</p>	<p>Implement options for incremental restructuring among private and public sector owners to improve rail marketing options.</p>
Short Line / Short Line Connectivity		<p>Maintain current system of connectivity with short lines connecting only to Class I's.</p>	<p>Identify opportunities for short haul interstate movements between short lines.</p>	<p>Identify opportunities for intrastate connectivity for the development of short haul markets.</p>	<p>Develop institutional measures to encourage connectivity between short lines.</p>

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
LOWER PRIORITY ISSUES					
Planned New Passenger Operations			<i>Negotiate a standard framework for cost and liability sharing on shared service lines.</i>		<i>Investigate options for adding new passenger services without significantly degrading freight operations, including but not limited to the Vineland Secondary from Camden to Glassboro, the West Trenton Line, and the NYS&W line in Bergen County.</i>
Community Education			<i>Develop program to educate communities on the value of freight rail.</i>	<i>Expand current FRA programs such as Operation Lifesaver.</i>	Develop additional outreach programs as required to maintain rail as a good neighbor policy.
Noise	Ensure locomotives are compliant with current EPA and FRA regulations.	Continue to address spot improvements in identified areas of concern.	<i>Upgrade to continuously welded rail on selective lines.</i>	<i>Expand use of continuously welded rail.</i>	<i>Encourage incorporation of a rail planning component in county and local land use plans to preserve rail freight corridors while addressing quality of life issues.</i>
		Develop prioritized plan for improvements.	<i>Reduce train idling in selected locations.</i>	<i>Expand use of noise reduction including quiet zones.</i>	
Emissions – Tier II and III	Ensure locomotives used in yard and local service meet appropriate EPA standards.	Maintain current fleet of locomotives for compliance with EPA regulations.	<i>Provide opportunities to utilize additional low emission locomotives in port and yard areas.</i> <i>Implement idle reduction strategies</i>	<i>Expand program of purchasing of low emission locomotives for yard switching and local service in high non-attainment areas.</i>	Monitor new “green” locomotives being tested now for possible road service in the future.

Table IV.1 Plan Summary - Recommended Actions¹

		POTENTIAL SOLUTION SET CATEGORIES			
Issue	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Temporal Separation of Freight and Passenger Trains	Comply with shared right of ways and temporal separation rules and regulations as per FTA and FRA.	<i>Assess demand for rail freight service on lines with temporal separation.</i>	Assess opportunities to expand both freight and passenger service on current lines.	<i>Add additional tracks or implement operational changes to accommodate freight demand increases on lines where temporal separation constrains trade.</i>	Work with federal agencies to modify and or seek exemptions as needed.
		<i>Review temporal separation system currently in use and its effect on freight capacity and use of the line</i>			
Shared Operations	Maintain freight access where it currently exists on shared routes.	<i>Assess demand for rail freight service on lines shared with NJ TRANSIT and Amtrak, including existing practices and costs associated with operations, maintenance, and investment for freight operations.</i>	<i>Establish schedule/ pricing for expanded use of shared lines for freight use, including upgrades to handle higher train speeds.</i>	<i>Identify NJ Transit lines which could handle additional freight traffic that could serve as alternate or redundant routes to alleviate capacity problems in other parts of system.</i>	Identify new corridors where both freight and passenger services could share operations and/or right of way.
		<i>Determine public/private benefit of altering current contract structures.</i>		<i>Evaluate public/private impacts of such changes in use of lines.</i>	
Grade Crossings		Maintain existing grade crossing equipment.	<i>Assess freight rail grade crossings on additional freight lines beyond NJTPA area.</i>	<i>Evaluate grade crossings statewide employing the criteria established by NJTPA assessment.</i>	Develop a program for long-term maintenance, improvement and elimination of grade crossings as freight and passenger traffic expand in key corridors.
			<i>Implement quiet zones in selected locations.</i>		

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Haulage Rights	No STB application required. Negotiated railroad to railroad.		<i>Develop a central system to track the negotiation of haulage rights and investigate incentives to facilitate agreements.</i>	<i>Encourage the use of haulage rights through incentives as an alternative to network restructuring.</i>	Explore ways to reach new markets and to serve current markets more effectively. Example: current CP/CSX haulage agreement between NYC and Montreal.
Trackage Rights / Paper Barriers		<i>Review and inventory trackage rights arrangements on all lines within the state, including NJ Transit, Class Is and Amtrak.</i>	<i>Facilitate discussions with participants to modify existing agreements.</i>		
Environmental Justice	<i>Projects and programs must conform to environmental justice executive (EJ) orders and regulations issued to date at both federal and state level.</i>		<i>Require analysis of benefits to EJ communities (access to jobs, new job opportunities, etc.) that may result from rail infrastructure improvements.</i>		
Odor	New regulations for municipal solid waste (MSW) and construction and demolition (C&D) facilities.	Continue to address spot improvements in identified areas of concern.	<i>Work with local and state agencies to identify potential problem areas for future correction.</i>		<i>Implement new FRA rules relative to MSW and C&D transfer facilities.</i>
Hazmat Storage	Continue to provide inspection of hazmat rail cars and storage per FRA regulations.	Current facilities are adequate and should be maintained at current levels.	<i>Upgrade trackage and improve security in areas used for hazmat storage.</i>	<i>Designate and provide additional storage facilities as close to the final user as possible.</i>	

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Passenger Platforms on Commuter and Light Rail Lines - Constraint to Wide Load Freight		<i>Inventory and maintain existing clearances.</i>	Identify and prioritize routes where clearances could / should be improved to accommodate freight operations.	Upgrade clearances on identified priority routes.	Upgrade additional routes that would provide alternative freight routings should main lines become fouled.
		<i>Where freight activity warrants, ensure that station platform upgrades (to comply with ADA) provide clearance for wider loads.</i>			
Freight Train Speed Restrictions		<i>Work within current freight speed limits set by the FRA and NJ Transit.</i>	<i>Work with NJ Transit to examine benefits, costs and operational impacts of removing restrictions affecting rail freight in current shared operation areas.</i>	Make requisite investments to open up system for increased track speed by rail freight carriers in shared operation area.	Revise as needed in coordination with NJ Transit.
Positive Train Control	Individual rail owners remain responsible for implementation.	Develop and initiate program for sharing costs associated with PTC implementation.	<i>Encourage consensus on system architecture and inter-operability for implementation across all NJ rail systems.</i>	<i>Assess need for statewide funding under the FRA's Railroad Rehabilitation and Improvement Financing (RRIF) Program.</i>	Ensure system inter-operability for routes utilizing multiple systems through a multiple jurisdictions process.
	Seek postponement of federally mandated 2015 implementation date.				
	Monitor developments on the federal level.		Provide matching state funds for implementation of PTC on short lines.		

Table IV.1 Plan Summary - Recommended Actions¹

Issue	POTENTIAL SOLUTION SET CATEGORIES				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
High Speed Rail		<i>Monitor development of national high speed rail network for implications and opportunities for New Jersey.</i>	<i>Maintain ability to implement through ROW reservation /preservation.</i>	Investigate the feasibility of implementing high speed freight rail as a component of high speed passenger rail planning.	Implement new higher and high speed corridors as identified.
			<i>Investigate potential for integrating freight-only track along the Northeast Corridor to preserve freight rail potential.</i>	Develop alternate freight route minimizing use of Northeast Corridor	
Adoption of a National Rail Plan		<i>Monitor National Rail Plan development for implications and opportunities for New Jersey.</i>			
Trend Towards 315K Routes		<i>Monitor rail industry to determine if trend to 315K can be identified and is sustainable.</i>		<i>All future renovations and upgrade to include 315K as identified in cost/benefit analysis of specific routes.</i>	Build in future capacity above 286K as determined by incremental cost analysis and trend towards increased weights evolves.

C. TIMELINE FOR RECOMMENDED ACTIONS

Recommended actions were categorized on the basis of their level of intensity - High Priority, Moderate Priority or Low Priority. Some of the recommended actions are low cost and easily implementable, while others involve considerable coordination between multiple public and private sector parties, extensive design and permitting requirements, or significant capital investment needs. Accordingly, not all of the recommended actions can, or need to be, initiated concurrently or completed in the immediate future. Table IV.2 details the anticipated time horizons for initiation and completion of the recommended actions.

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
HIGH PRIORITY ISSUES					
NJ Rail Assistance Program		<i>Incorporate outreach program to assist community education and coordination of candidate projects.</i>			
286K Standard on Class I Secondary and Light Density Lines		<i>Identify and prioritize routes to upgrade.</i>	<i>Upgrade identified priority routes to 286K.</i>		<i>Identify and upgrade additional freight lines and bridges to 286K.</i>
286K Capacity on Short Lines		<i>Identify and prioritize lines to be upgraded to 286K.</i>	<i>Upgrade identified priority lines to 286K.</i>		
NJ Transit / Amtrak Constraints to 286K Rail Cars	<i>Determine specific improvements needed for 286K operation.</i>	<i>Upgrade identified priority routes to 286.</i>	<i>Seek alternate routes for freight.</i>		
		<i>Negotiate and implement operating and cost-sharing agreements to allow 286K freight access to strategic locations along NJ Transit-owned ROW.</i>	<i>Evaluate and upgrade additional shared operations lines and bridges to 286K as required.</i>		
Greenville Yard Capacity and Access Improvements	<i>Upgrade carfloat operations.</i>	<i>Add intermodal yard.</i>			
Maintenance of the Del Air Bridge Portal	<i>Continued bridge maintenance and rehabilitation of approach spans.</i>	<i>Develop contingency plan for bridge outage.</i>		<i>Improve height clearances on access routes.</i>	

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Increase Capacity on the Lehigh Line (Conrail Oak Island – Manville)		<i>Identify potential reliever routes</i>		<i>Construct a third track from Aldene in Roselle Park to NK (Newark).</i>	<i>Consider construction of a 4th track from Aldene to NK and separation of freight and passenger ROW.</i>
Tunnel and Bridge Vertical Clearances		<i>Upgrade clearances to accommodate Plate F rail cars on a priority basis</i>		<i>Upgrade clearances on identified priority routes requiring double stack clearance.</i>	
		<i>Identify and prioritize specific locations, lines and routes where clearances should be improved for double-stack service</i>			
North/South Connectivity		<i>Coordinate improvements to existing route via Pennsylvania with adjacent jurisdictions.</i>	<i>Investigate the feasibility of freight service and connections via alternate routes.</i>		
Reactivation / Preservation of the Military Rail Network		<i>Inventory and identify facilities currently used as part of deployment and strategic transportation command.</i>	<i>Develop program for acquisition of ROW that may be removed from the Military Rail Network as a result of base closures or other actions.</i>		
		<i>Explore reconnection and expansion of trackage on New Jersey's Joint Base (Fort Dix, McGuire, and Lakehurst).</i>			

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Class I / Short line Connectivity	<i>Maintain existing service and operations interchange locations.</i>	<i>Identify and prioritize specific access and interchange concerns of short lines, including Pavonia Yard.</i>		<i>Initiate short line/Class I economic development integrated rail freight marketing program.</i>	
Expand Intermodal Yard Capacity		<i>Prioritize and initiate service improvement to enhance capacity at existing yards to accommodate growth.</i>	<i>Identify and prioritize locations where capacity should be expanded.</i>		
MODERATE PRIORITY ISSUES					
Catenary Constraints to Vertical Clearance		<i>Upgrade clearances on identified priority routes to accommodate Plate F.</i>	<i>Identify and prioritize specific lines and routes based on latent demand for double-stack service where clearances should be improved.</i>		
Right of Way Preservation		<i>Inventory at risk rail corridors and monitor for threats to preservation.</i>	<i>Coordinate with NJEDA and other county/local development authorities to support continued operation of rail served customers along at-risk lines.</i>		
		<i>Identify strategies and funding sources for long term preservation of current inventory.</i>			
Increase Capacity on the Lehigh Line (NS Manville – Phillipsburg)			<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>	<i>Add passing sidings and upgrade signaling.</i>	
				<i>Maintain parallel LV Bridge for potential freight and passenger expansion.</i>	

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Overall Line Capacity / System Redundancy			<i>Identify and prioritize lines based upon anticipated growth and anticipated future capacity restraints.</i>	<i>Investigate technologies that can be applied to increase capacity on existing freight lines and shared operation lines.</i>	
NYSW Portal Freight Service			<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>	<i>Add passing sidings and upgrade signaling as passenger service is instituted.</i>	
286K Standard on Class I Main Lines	<i>Inventory and maintain existing 286K capacity routes.</i>				
Transload Yard Capacity			<i>Initiate service improvement to enhance capacity at existing yards to accommodate growth.</i> <i>Incorporate transload facilities within dense clusters of industrial and warehouse development.</i>	<i>Increase capacity at additional locations based on priorities.</i>	
Carload Yard Capacity	<i>Maintain operating capacity at current yards.</i>	<i>Inventory existing yard capacity and potential for expansion.</i>	<i>Address service and capacity issues at identified yards, including Pavonia Yard.</i>		

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Increase Capacity on the West Trenton Line	<i>Maintain optimum doublestack clearance.</i>	<i>Upgrade and possibly combine and/or eliminate grade crossings in Somerset County.</i>			<i>Restore 2nd main track and passing sidings consistent with recommendations of the Mid Atlantic Rail Operations Study (MAROps) and upgrade signaling.</i>
	<i>Maintain rail line at current track speeds.</i>	<i>Implement quiet zone from Rt. 601 crossing to Province Line Rd crossing.</i>			
	<i>Maintain current Delaware River Bridge in state of good repair.</i>				
Increase Capacity on the River Line (CSX)		<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>		<i>Add passing sidings and upgrade signaling to increase carrying capacity of the route.</i>	
		<i>Implement quiet zones and associated grade crossing improvements.</i>			
Network Restructuring and Rationalization			<i>Evaluate current system as it has evolved and determine adequacy as national rail plan evolves.</i>	<i>Identify opportunities and options for incremental restructuring among private and public sector owners, operators and agencies.</i>	
			<i>Open alternative freight routes to clear availability for passenger service.</i>		

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Short Line / Short Line Connectivity			<i>Identify opportunities for short haul interstate movements between short lines.</i>	<i>Identify opportunities for intrastate connectivity for the development of short haul markets.</i>	
LOWER PRIORITY ISSUES					
Planned New Passenger Operations			<i>Negotiate a standard framework for cost and liability sharing on shared service lines.</i>		<i>Investigate options for adding new passenger services without significantly degrading freight operations, including but not limited to the Vineland Secondary from Camden to Glassboro, the West Trenton Line, and the NYS&W line in Bergen County.</i>
Community Education		<i>Develop program to educate communities on the value of freight rail.</i>	<i>Expand current FRA programs such as Operation Lifesaver.</i>		
Noise			<i>Upgrade to continuously welded rail on selective lines.</i>	<i>Expand use of continuously welded rail.</i>	<i>Encourage incorporation of a rail planning component in county and local land use plans to preserve rail freight corridors while addressing quality of life issues.</i>
		<i>Reduce train idling in selected locations.</i>	<i>Expand use of noise reduction including quiet zones.</i>		

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Emissions – Tier II and III		<i>Provide opportunities to utilize additional low emission locomotives in port and yard areas.</i>	<i>Expand program of purchasing of low emission locomotives and idle reduction for yard switching and local service in high non-attainment areas.</i>		
		<i>Implement idle reduction strategies</i>			
Temporal Separation of Freight and Passenger Trains		<i>Assess demand for rail freight service on lines with temporal separation.</i>		<i>Add additional tracks or implement operational changes to accommodate freight demand increases on lines where temporal separation constrains trade.</i>	
		<i>Review temporal separation system currently in use and its effect on freight capacity and use of the line</i>			
Shared Operations		<i>Assess demand for rail freight service on lines with shared operations with NJ Transit and Amtrak, including existing practices and costs associated with operations, maintenance and investment for freight operations.</i>	<i>Establish schedule/pricing for expanded use of shared lines for freight use, including upgrades to handle higher train speeds.</i>	<i>Identify NJ Transit lines which could handle additional freight traffic that could serve as alternate or redundant routes to alleviate capacity problems in other parts of system</i>	
		<i>Determine public/private benefit of altering current contract structures.</i>		<i>Evaluate public/private impacts of such changes in use of lines.</i>	

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Grade Crossings			<p><i>Assess freight rail grade crossings on additional freight lines beyond NJTPA area.</i></p> <p><i>Implement quiet zones in selected locations.</i></p>	<p><i>Evaluate grade crossings statewide employing the criteria established by NJTPA assessment.</i></p>	
Haulage Rights			<p><i>Develop a central system to track the negotiation of haulage rights and investigate public incentives to facilitate agreements.</i></p>	<p><i>Encourage the use of haulage rights through incentives as an alternative to network restructuring.</i></p>	
Trackage Rights / Paper Barriers			<p><i>Review and inventory trackage rights arrangements on all lines within the state, including NJ Transit, Class Is and Amtrak.</i></p>	<p><i>Facilitate discussions with participants to modify existing agreements.</i></p>	
Environmental Justice	<p><i>Projects and programs must conform to environmental justice executive (EJ) orders and regulations issued to date at both federal and state level.</i></p>		<p><i>Require analysis of benefits to EJ communities (access to jobs, new job opportunities, etc.) that may result from rail infrastructure improvements.</i></p>		

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
Odor	<i>Implement new FRA rules relative to MSW and C&D transfer facilities.</i>	<i>Work with local and state agencies to identify potential problem areas for future correction.</i>			
Hazmat Storage			<i>Upgrade trackage and improve security in areas used for hazmat storage.</i>		<i>Designate and provide additional storage facilities as close to the final user as possible</i>
Passenger Platforms on Commuter and Light Rail Lines – Constraint to Wide Load Freight		<i>Inventory and maintain existing clearances.</i>	<i>Where freight activity warrants, ensure that station platform upgrades (to comply with ADA) provide clearance for wider loads.</i>		
Freight Train Speed Restrictions	<i>Work within current freight speed limits set by the FRA and NJ Transit.</i>		<i>Work with NJ Transit to examine benefits, costs and operational impacts of removing restrictions affecting rail freight in current shared operation areas.</i>		
Positive Train Control			<i>Encourage consensus on system architecture and inter-operability for implementation across all NJ rail systems.</i>	<i>Assess need for statewide funding under the FRA’s Railroad Rehabilitation and Improvement Financing (RRIF) Program.</i>	

Table IV.2 Recommended Action Implementation Timeline

Issue	RECOMMENDED SOLUTION SET ACTIONS				
	Currently ongoing, complete within 5 years	Initiate and Complete within 5 years	Initiate within 5 years complete in 5-10 years	Initiate and complete in 5-10 years	Completion is beyond 10 year horizon)
High Speed Rail	<i>Monitor development of national high speed rail network for implications and opportunities for New Jersey.</i>	<i>Maintain ability to implement through ROW reservation /preservation.</i>			
		<i>Investigate potential for integrating freight-only track along the Northeast Corridor to preserve freight rail potential.</i>			
Adoption of a National Rail Plan	<i>Monitor National Rail Plan development for implications and opportunities for New Jersey.</i>				
Trend Towards 315K Routes	<i>Monitor rail industry to determine if trend to 315K can be identified and is sustainable.</i>			<i>All future renovations and upgrade to include 315K as identified in cost/benefit analysis of specific routes.</i>	

V. FUNDING OPPORTUNITIES

A. STATE FUNDING

New Jersey's ability to address the capital needs of its freight rail system is constrained. Like most other states, New Jersey's needs far exceed available resources and the gap is growing. How New Jersey deals with this issue will influence its future potential for economic growth.

The only state funding source for rail freight projects is the New Jersey Rail Freight Assistance Program, which is administered by the NJDOT. Historically, it has provided \$10 million a year for grants, funding eight to twelve projects on short line railroads. Three times that amount would have been required to satisfy the number of funding applications the department received in 2010 alone. A single major project, such as the reactivation of out-of-service freight rail line, could cost four times the amount, perhaps more.

The annual appropriation for the grant program is derived from general revenue in the state budget. New Jersey does not have a permanent, dedicated funding source specifically for freight rail projects.

The scope of the New Jersey Freight Rail Assistance Program is limited, when compared to other states, including neighboring Pennsylvania. For instance, the NJDOT grant program cannot be used to construct railroad sidings, which would be an economic incentive for businesses to expand or settle in New Jersey.

New Jersey is one of only seven states that exempt railroads from local property taxes. Railroads in New Jersey are also exempt from the state's Corporation Business Tax. The State of New Jersey collects only two taxes from state railroads:

- **Railroad Franchise Tax**

New Jersey's Railroad Franchise Tax is expected to produce \$5.8 million for the state treasury in FY13. In 1948, the tax rate was set at 10% of net revenue and it has not been adjusted since. The minimum rates are \$100 for railroads having operating revenues less than \$1 million and \$4,000 for those with operating revenues in excess of \$1 million. Revenue is deposited in the general treasury fund. It is not dedicated for rail-related projects.

- **Railroad Property Tax**

New Jersey's Railroad Property Tax, which is collected by the state and imposed on real estate used for railroad purposes – but not actual roadbeds, is anticipated to generate \$4.65 million for the state during the FY13. This tax has not been modified since its enactment in 1948.

Compared to some other states, New Jersey's rail tax rates are low and generate limited revenue. Case in point: one study found that rail taxes in neighboring New York are 26 times as high as New Jersey's, on the basis of tax paid for each mile of track.¹

Other potential sources of revenue for freight rail needs include:

- **Transportation Trust Fund**

Recognizing that a sound, balanced transportation system is vital to the future of the state and is a key factor in its continued economic development, the New Jersey Transportation Trust Fund was created by statute in 1984. Its purpose is to provide a stable and assured method of financing the development and preservation of the state's transportation infrastructure. It receives funds from motor fuel taxes, petroleum products gross receipts taxes, and sales and use taxes.

In addition to public highways and public transportation projects, such as those undertaken by NJ TRANSIT, the Trust Fund may be used for rail freight infrastructure.

Traditionally, the New Jersey Freight Rail Assistance Program receives \$10 million. Given the importance given to rail freight in economic planning, the annual appropriation for grant program could be adjusted. Direct funding of essential, large-scale rail freight projects could also be included as separate line items in the NJDOT's Capital Program.

- **Railroad Property Tax**

New Jersey's Railroad Property Tax rate is less than other states and provides a larger exemption.

In New Jersey, there is a statutory exemption of rail beds – technically known as “main stems” – from the railroad property tax. By law, a main stem cannot exceed 100 feet in width. It encompasses the full embankment or excavated area, including slopes, ditches, retaining walls and foundations – together with all tracks, appurtenances and ballast. Structures located on a main stem are exempt from the property tax, unless they are passenger stations or freight buildings.

Most states use either a "unit" rule or an "individual classification" rule. Under the “unit rule,” all railroad-related property (including rail beds) is appraised as an entirety without reference to the separate value of the various component parts. If a state uses the “individual classification” system, each item of taxable property is inventoried and valued separately.

¹The Public Policy Institute of New York State, *On the Wrong Track*, February 2002.

A majority of states (39) currently uses the “unit” rule or some variation of it. Others, including New York and Virginia, utilize the “individual classification” rule or a variation of it.

- **User Fees**

User fees have been used to fund specific investments in infrastructure, such as the Alameda Corridor and the Shellpot Bridge. “User fees” are imposed on each loaded freight car that moves on the infrastructure.

- **State Infrastructure Bank**

State Infrastructure Banks (SIBs) are revolving funds created by a state using both federal and state transportation dollars. They provide credit assistance through loans, loan guarantees and lines or letters of credit. Some 32 states have created SIBs since they were first allowed by the federal government in 1995. Through 2010, they issued \$7 billion in loans for more than 600 projects, including freight rail. Generally, the maximum loan term is 35 years and interest rates are at or below market rates.

States have also used their infrastructure banks to award grants (using state funds) and to assist public-private partnerships. Some states capitalize their banks by dedicating a small portion of their gas tax or truck registration fees. They can be structured in a variety of ways. Pennsylvania, for example, has separate federal and state SIB accounts for highway, transit, aviation, and rail projects. As of May 2010, Pennsylvania has awarded over 150 loans worth more than \$132 million. South Carolina, on the other hand, uses its SIB only for big projects costing in excess of \$100 million. It has leveraged over \$2 billion in bonds and approved 13 loan agreements worth \$3.3 billion.

There is no change to the SIBs provisions (23 U.S.C. 610) in MAP-21. States with existing federal SIBs may continue to operate but cannot capitalize the SIB with FY 2013 or 2014 highway funding. MAP 21-does not include the authority for States to capitalize a SIB using federal-aid highway funding beyond the expiration of the final SAFETEA-LU extension."

- **Investment Tax Credits**

The American Jobs Creation Act of 2004 provided a federal tax credit for track maintenance expenditures of Class II and Class III short line railroads. The stated intent of the tax credit was to promote short line railroads as an alternative to highways for the movement of goods. The tax credit represented 50 percent of the qualified expenditures, capped at \$3,500 per mile for a railroad’s total rail mileage. In the event a railroad did not have enough income in a given year to use all the ITCs that were available, they were allowed to carry them forward or back to a prior taxable year, or transfer the credit to an entity that can use it.

As a measure of its success, it is estimated short line railroads spent \$365.9 million on maintenance in 2008 and received \$140 million in federal tax credits. The federal tax credit program expired at the end of 2011. Yet their momentum on the state level continues to grow.

Some states have developed ITC programs. Although an ITC program in Massachusetts is not available to railroads, it provides an example of success that could be used for rail investment. An Ernst & Young report (2004) found that:

The ITC is a very effective tax incentive. Massachusetts gains \$7.00 of additional net personal income for each dollar of net costs to the state. This is a significant long-run return in terms of new jobs and higher incomes as a result of the state's investment. Taken together, the ITC added \$314 million to the state's personal income.

The Massachusetts Investment Tax Credit offers a three percent credit for qualifying businesses against their Massachusetts corporate excise tax. The credit is to be used for the purchase and lease of qualified tangible property used in the course of doing business.

In July 2011, Virginia began offering shippers a tax credit for moving shipping containers off the highways and onto barges or railways. Other tax credits are available for shippers that increase the number of their employees or the volume of their shipments through Virginia ports:

- A \$25 per 20-foot equivalent unit (TEU) income tax credit for shippers electing to transfer their containers via barge or rail.
- A \$50 per 20-foot equivalent unit income tax credit for manufacturers and distributors of manufactured goods that increase their port cargo volume by 5 percent in a single year. The 5 percent requirement is waived for a major facility locating in Virginia that will import or export in excess of 25,000 20-foot equivalent units in its first year in the commonwealth.
- A \$3,000 income tax credit for every employee hired by a Virginia shipper that results from increased cargo moving through the port or an income tax credit of 2 percent of the cost of any capital improvement that facilitates increased cargo moving through the port.

Virginia's tax credit program puts its freight (other than water and pipeline) shippers on equal footing with their competitors in North Carolina and South Carolina, where tax credits have been offered to shippers to move freight through state-owned ports for more than three years.

Other states are considering an ITC program. In January 2012, the *Oregon Rail Funding Task Force's Final Report* recommended the creation of a rail investment tax credit. Minnesota's *Comprehensive Statewide Freight and Passenger Rail Plan (2009)* proposed a rail investment tax credit for short lines and Class 1 railroads. It proposed a state income tax credit for rail investments in which 25 percent of annual spending on capacity expansions – track, structures, terminals, yards, signal, and communication systems, and intermodal facilities – can be credited in establishing state tax liability.

- **Public Private Partnerships**

In New Jersey, the Department of Transportation currently has a limited ability to enter into public/private partnerships (P3). The only major rail-related P3 projects involving the NJDOT or NJ TRANSIT stemmed from 1997 legislation that authorized a limited number of these initiatives to test the viability of the concept. The Hudson-Bergen Light Rail Line was the first design-build-operate-maintain (DBOM) project of its kind and was a direct result of the law. In 2002, after the original five-year pilot period expired, the P3 legislation was not renewed.

However, in 2010, the New Jersey Privatization Task Force's final report to Gov. Chris Christie endorsed the enactment of broad-based legislation that would allow both the state and local governments to enter into P3s without requiring state authorization for each individual project. It also recommended that a process be established to entertain unsolicited privatization proposals.

The Commissioner of Transportation has the statutory ability to plan, design, construct, equip, operate, improve and maintain, either directly or by contract with any public or private entity, a railroad, subway, street traction or electric railway, or connecting roadways and facilities for the purpose of carrying freight within the State or between New Jersey and other states.

The Commissioner is also authorized to enter into agreements with public or private entities or consortia for the loan of federal funds appropriated by the NJDOT to finance all or a portion of the costs incurred for the planning, acquisition, engineering, construction, reconstruction, repair, and rehabilitation of a transportation project.

Pending legislation (S510) would authorize the Commissioner of Transportation, in each state fiscal year to select any transportation project from the list of transportation projects for which monies have been appropriated in the annual appropriations act to serve as a public-private partnership project. The "public partner" could be the NJDOT or NJ TRANSIT.

Public-private partnerships projects could encompass the planning, designing, constructing, equipping, operating, financing, and/or maintenance. Projects would be evaluated on the basis of its overall benefit to the state; the qualifications and financial

strength of the private partners and their responsiveness to the public partner's requirements; the total project cost to be incurred by the public partner; the nature of project financing; the revenues to be generated by the project on behalf of and in support of the state, and the impact of any direct or indirect user fees involved in the arrangement.

Any financial participation by the NJDOT or NJ TRANSIT in a public-private partnership project would be subject to legislative appropriation and the availability of funds.

The following are examples of existing P3 arrangements nationwide:

- Alameda Corridor – a \$2 billion 20-mile rail expressway connecting Ports of Los Angeles and Long Beach to rail yards near Los Angeles. Allowed for faster more efficient freight flows;
- Chicago Region Environmental and Transportation Efficiency Program (CREATE) – a partnership between the State of Illinois, City of Chicago, and the freight and passenger railroads. The program will upgrade track connections and expand routes, meaning faster connections and operations. It is estimated the first stage of construction will cost \$330 million, and
- Heartland Corridor – this project is a partnership between the Federal Highway Administration and a private railroad that will raise bridge and tunnel heights to allow double stacking between the East Coast and Chicago.

B. FEDERAL FUNDING

Federally authorized funding sources include:

- **TIGER Discretionary Grant Program**

Through 2012, the U.S. Department of Transportation awarded four series of competitive grants for road, rail, transit and port projects that achieve national objectives. The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant Program, was authorized and implemented pursuant to the American Recovery and Reinvestment Act of 2009. Its goal was to fund infrastructure projects that have a significant impact on the nation, a region or a metropolitan area. The TIGER program was not reauthorized by the new federal transportation funding act, Moving Ahead for Progress in the 21st Century Act (MAP-21).

- **TIFIA Loans**

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance.

TIFIA credit assistance provides improved access to capital markets, flexible repayment terms, and potentially more favorable interest rates than can be found in private capital markets for similar instruments. TIFIA can help advance qualified, large-scale projects that otherwise might be delayed or deferred because of size, complexity, or uncertainty over the timing of revenues. Many surface transportation projects -highway, transit, railroad, intermodal freight, and port access -are eligible for assistance. Each dollar of Federal funds can provide up to \$10 in TIFIA credit assistance and leverage \$30 in transportation infrastructure investment.

The new federal transportation funding act, Moving Ahead for Progress in the 21st Century Act (MAP-21) authorized \$750 million for TIFIA in 2013 and \$1 billion in 2014. MAP-21 clarifies that a program of projects secured by the same revenue stream may be considered an eligible project.

- **Private Activity Bonds**

The Safe Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established a new financial assistance program that provides up to \$15 billion in private activity bonds for transportation infrastructure projects. States and local governments are allowed to issue tax-exempt bonds to finance projects sponsored by the private sector. Eligible projects include privately owned-or-operated highway and rail-truck transfer facilities.

Any surface transportation project that receives Title 23 assistance is qualified to benefit from private activity bonds. Because projects that receive TIFIA credit assistance are Title 23 projects, this means TIFIA projects are also eligible to receive this tax-exempt bonding authority. Together, TIFIA and private activity bonds are substantial incentives for private equity investment in freight projects.

- **Railroad Rehabilitation & Improvement Financing Program (RRIF)**

The Federal Railroad Rehabilitation & Improvement Financing (RRIF) Program was established by the Transportation Equity Act for the 21st Century (TEA-21) and amended by the Safe Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Under this program, the Federal Railroad Administration (FRA) Administrator is authorized to provide direct loans and loan guarantees up to \$35 billion. Up to \$7 billion is reserved for projects benefiting freight railroads other than Class I carriers. RRIF funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops;
- Refinance outstanding debt incurred for the purposes listed above, and
- Develop or establish new intermodal or railroad facilities.

Direct loans can fund up to 100% of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government. Eligible borrowers include railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad and limited option freight shippers who intend to construct a new rail connection.

RRIF loans have been used to repair and upgrade rail track and equipment, build new spur lines and add rail capacity, buy locomotives and rail cars, among other purposes. RRIF loans have included improvements to accommodate 286,000-pound railcars. The RRIF program has been tapped for about \$1 billion with 30 loans issued to-date, ranging from as small as \$56,000 up to \$562 million. The median case loan is \$19.5 million.

Direct loans can be made for up to 100% of the total project cost, for terms up to 35 years and at an interest rate equal to the cost of borrowing for a comparable term based on the current Treasury rate at the time of closing. Loan guarantees can be made for up to 80% of the cost of a loan, for terms up to 25 years, at a rate that USDOT Secretary determines to be reasonable taking into account prevailing interest rates and customary fees incurred under similar obligations in the private capital market. The terms are more favorable than available in the private sector financial market. Repayment of the loan can also be deferred for as long as five years after the loan has been disbursed, although to-date, no RRIF loan recipient has been granted the deferred payment option.

RRIF loan applicants must pay for access to the RRIF funds – a “credit risk premium”—that is intended to offset the cost of borrowing from the government as well as the initial cost for the Federal review of the loan application itself. Short-line railroads, in particular, may lack the liquid capital to pay for the development of the loan application or the cost of capital (through the credit risk premium). Some states have provided financial assistance to loan applicants in the interest of attracting non-state-funded capital investments in railroad infrastructure. A total of 30 projects have been funded via RRIF as of July 2011. However, the application approval process is time consuming. The agency has approved on average only 3 applications a year. This funding option was recommended by Rutgers consultants to fund 286K rail load upgrades in Middlesex County. The NJDOT should determine if it has standing to apply for a loan since the Department is not an operator.

- **Congestion Mitigation and Air Quality Improvement Program**

This program funds transportation projects and programs that improve air quality by reducing transportation-related emissions in non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter. Examples of CMAQ-funded rail projects include the construction of intermodal facilities, rail track rehabilitation, diesel

engine retrofits and idle-reduction projects in rail yards, and new rail sidings. State DOTs and MPOs select and approve projects for funding. The federal matching share for freight-related projects is 80%.

- **Surface Transportation Program**

The Surface Transportation Program is a general grant program available for improvements on any federal-aid highway, bridge, or transit capital project. Eligible rail improvements include lengthening or increasing vertical clearance of bridges, crossing eliminations, and improving intermodal connectors. State DOTs and MPOs select and approve projects for funding. The federal matching share for these funds is 80%.

- **Transportation Enhancement Program**

Funds are available to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. Eligible projects can include the rehabilitation of historic transportation buildings or facilities, and the preservation of abandoned rail corridors. Projects are usually initiated at the local government level. The federal share of project costs is 80%.

- **Railroad Track Maintenance Credit Program**

This program was authorized within the Internal Revenue Code to provide tax credits to qualified entities for an amount equal to 50 percent of qualified railroad maintenance expenditures on railroad tracks owned or leased by Class II or Class III railroads. The maximum credit amount allowed was \$3,500 per mile of track. This program expired at end of 2007. The Emergency Economic Stabilization Act of 2008, however, extended the tax credits through December 31, 2009 and also made qualified railroad track maintenance expenditures made anytime during 2008 eligible for tax credits. Legislation has been introduced to extend the tax credit program for an additional three year period and to increase the credit limitation from \$3500 to \$4500 per mile.

- **Economic Development Administration Funding**

The U.S. Department of Commerce provides EDA grants for projects in economically distressed industrial sites that promote job creation or retention. Eligible projects must be located within EDA-designated redevelopment areas or economic development centers. Eligible rail projects include railroad spurs and sidings. Grant assistance is available for up to 50 percent of the project, although EDA could provide up to 80 percent for projects in severely depressed areas.

- **Community Facility Program**

The U.S. Department of Agriculture's Rural Housing Service's Community Facility Program provides three grant or loan funding mechanisms to fund construction,

enlargement, extension, or improvement of community facilities providing essential services in rural areas and towns with a population of 20,000 or less. Grant assistance is available for up to 75 percent of the project cost. Eligible rail-related community facilities include transportation infrastructure for industrial parks, railroads, and municipal docks.

C. KEY FREIGHT RAIL FUNDING ISSUES AND CHALLENGES

As with passenger rail, the magnitude of necessary freight rail projects far exceeds the financial resources available for this purpose. The New Jersey Freight Rail Assistance Program, administered by the NJDOT, historically provides \$10 million a year for grants, which has generated eight to twelve projects, usually for short line railroads. A single project, such as the reactivation of out-of-service freight rail line, could cost four times that amount, if not more. The annual appropriation for the grant program is derived from general revenue in the state budget. New Jersey does not have a permanent, dedicated funding source solely for freight rail projects.

Unlike other states, including neighboring Pennsylvania, the NJDOT's grant program cannot be used to construct railroad sidings, which would be an economic incentive for business to expand or settle in New Jersey.

The three major Class 1 railroads serving New Jersey – CSX, Conrail and Norfolk Southern – have invested millions of dollars to improve their mainline facilities. But they have been hesitant to expand freight rail service into areas that need it for their continued economic growth, such as Middlesex County, because their primary focus is the movement of goods to and from major ports in North and South Jersey. This is their major source of their revenue and profits. Compounding New Jersey's problem is the absence of a powerful and well-funded "rail freight advocate" at the state level. The Division of Multimodal Services within the NJDOT regulates and oversees freight rail, but its resources are limited and must be shared to meet truck, maritime and general aviation needs as well.

D. RAIL FREIGHT FUNDING AND OVERSIGHT MODELS

New Jersey may want to explore approaches successfully used by other states to finance freight rail projects. Elements can be adopted or adapted to meet New Jersey's specific vision and needs. Some of the more innovative examples include:

- **Ohio**

Ohio created an independent agency to oversee freight rail assistance. The Ohio Rail Development Commission (ORDC) has 15 members, including four non-voting state lawmakers. Seven commissioners are appointed by the Governor and one each by the President of the Ohio Senate and the Speaker of the Ohio House of Representatives. The directors of the Ohio Department of Transportation (ODOT) and the Ohio Department of

Development serve as ex-officio members. The current roster of voting members includes representatives of private industry, Norfolk Southern, a short line railway, and the Port Authority. One voting member is a county engineer. Another represents a labor union, and yet another, the real estate industry.

ORDC has the ability to issue bonds for qualified rail projects. Other funding sources include state general revenue, state special revenue funds consisting of property management fees and loan re-payments and interest from its revolving loan fund, federal highway safety funds allocated from ODOT as well as other applicable federal and state grants. ORDC also coordinates with other state agencies with regard to assistance programs with rail project eligibility. In general, grants are reserved for cases where there is extraordinary need. Loans are provided with flexible interest rates and terms.

ORDC administers four assistance programs -- the Freight Development/Rail Spur Program; Railroad Rehabilitation Program; Rail Line Acquisition Program, and Railroad Grade Crossing Safety Program.

Ohio also offers a Logistics and Distribution Stimulus Program. The state Department of Development, in cooperation with the ODOT and ORDC, established a \$100 million forgivable loan program for transportation, logistics, and infrastructure projects. Eligible projects include road, rail, air and port improvements that expand connectivity to logistics and/or intermodal centers, reduce checkpoints, and freight bottlenecks, and enhance the flow of freight and/or improve access to new markets for Ohio businesses. Most of the funding originally allocated to this program has been distributed.

- **Missouri**

Following the passage of enabling legislation, railways serving the state joined with the Missouri Department of Transportation form a non-profit Transportation Corporation, or T-CORP, that has the authority to issue 20-year industrial revenue bonds and abate taxes. Pre-negotiated contract revenue streams and the temporary deed transfer of certain “public use” railway assets are used as collateral for the bonds. Under the terms of its agreements with freight railroads, T-CORP assumes ownership of the land and responsibility for completing the improvement project until the loans are paid off, at which point the land reverts to the previous owners.

- **Wisconsin**

Wisconsin uses a portion of the state transportation budget and general obligation bonds (\$60 million for the 2009-2011 budget cycles) to fund three rail assistance programs.

The Freight Rail Infrastructure Improvement Program (FRIIP) is a revolving loan program administered by the Wisconsin Department of Transportation (WisDOT). Since 1992, \$79 million in loans have been awarded. FRIIP provides up to 100 percent loans for rail projects that connect an industry to the national railroad system; make improvements to enhance transportation efficiency, safety, and intermodal freight movement; accomplish line rehabilitation; and help further develop the economy. FRIIP loan repayments were expected to fund \$8 million in projects during the 2009-2011 budget cycle. WisDOT issued six FRIIP loans totaling \$6.1 million in 2012.

The Freight Rail Preservation Program (FRPP) provides grants to local units of government, industries and railroads to preserve and rehabilitate essential rail lines. Since 1980, \$80 million in grants have been awarded for rail acquisition and rehabilitation projects. The 2009-2011 biennial budget included \$60 million in bonding authority for the program. The program provides grants to cover up to 100 percent of the cost to acquire rail lines and 80 percent of the cost to rehabilitate or improve them. WisDOT awarded two grants totaling about \$5.9 million in 2012.

The Wisconsin Transportation Economic Assistance Program (TEA) is designed to attract and retain business and create jobs. Since its creation in 1986, about 25 percent of the funds have gone to rail projects. Applications are ranked based on cost per job promised, as well as the local unemployment rate and benefits to regional transportation. Recipients must assure that the number of jobs anticipated from the proposed project will be in place within three years from the date of the project agreement and remain after another four years. Since its inception through December 2009, the program has awarded \$81 million grants that have benefited 323 businesses and created or retained more than 70,000 jobs. TEA grants provide 50 percent funding, ranging from \$30,000 to \$1 million, to eligible communities or private businesses. Funding for the TEA program in the 2009-2011 biennium was \$6.8 million.

- **Iowa**

Freight rail assistance is available from the Iowa Transportation Commission, which is bipartisan and appointed by the Governor. Its Railroad Revolving Loan and Grant Program provides assistance to improve rail facilities that will spur economic development and job growth, and otherwise aid railroads in the preservation and improvement of the rail transportation system. The program offers loans, grants or combinations thereof, but grant funding is limited to 50 percent of the total funds available. In November 2011, the Iowa Transportation Commission approved \$5 million in loans and \$558,000 in grants.

Iowa's Highway-Railroad Grade Crossing Surface Repair Fund covers 60 percent of project costs, with the remainder coming from the railroad (20 percent) and public road jurisdiction (20 percent). Funding stands at approximately \$900,000 per year. The state

also has a Highway Grade Crossing Safety Program that helps railroads pay for up to 75 percent of the maintenance costs of active warning systems installed after 1973.

- **Oregon**

Oregon uses funding from the Federal Railroad Rehabilitation & Improvement Financing (RRIF) Loan Program as leverage to partner with qualified applicants on rail freight projects. The RRIF program is administered by the Federal Railroad Administration (FRA). The FRA Administrator is authorized to provide direct loans and loan guarantees up to \$35 billion. Up to \$7 billion is reserved for projects benefiting freight railroads other than Class I carriers. RRIF funding may be used to:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops;
- Refinance outstanding debt incurred for the purposes listed above, and
- Develop or establish new intermodal or railroad facilities.

Short line railroads can apply to the Ohio Department of Transportation for assistance from the Short Line Credit Premium Account, which is part of Oregon's Transportation Infrastructure Fund.

In January 2012, the Oregon Rail Funding Task Force recommended using current and future railroad property taxes for freight rail improvements.

- **Indiana**

The Indiana Industrial Rail Service Fund (IRSF) provides loans to help upgrade Class II and III freight railroad infrastructure to accommodate new business development. Funding cannot exceed 75 percent of the total cost of the project, but the railroad's contribution may include funds from other state or federal entities. Funding for the program is generated through a small percentage of the state sales tax and the repayment of past IRSF loans. In FY2011, IRSF grants totaling \$1,498,407 were awarded to eight railroads in the state.

Indiana's Railroad Grade Crossing Fund receives an appropriation from the Indiana Motor Vehicle Highway Fund.

The Indiana Economic Development Corporation has an Industrial Development Grant Fund that provides funding to local governments for off-site infrastructure projects associated with an expansion of an existing company or the location of a new facility in the state. Funding must be matched by a combination of local government and company financial support. Eligible uses for these funds include the construction, extension or completion of rail spurs and sidings.

- **Delaware**

Delaware relies on public/private partnerships, railroad user payments, and rail bridge tolls. As part of its Shellpot Bridge Rehabilitation Project, tolls are calculated using electronic tags, which are on all rail cars in North America. The tags are automatically scanned using Automatic Equipment Identification (AEI) scanners to count the cars and locomotives moving over the Shellpot Bridge. Railroads are charged on a per freight car basis. Payments are made to the Delaware Department of Transportation annually based on the number of cars to use the bridge in that year.

- **Maine**

Maine has established numerous public/private funding programs to assist and encourage rail operations and movement of goods by rail in the state.

The Industrial Rail Access Program (IRAP) offers 50/50 matching funds to private businesses that are looking to upgrade sidings, switches and other rail infrastructure. More than \$6.2 million has been invested in IRAP since 1997 (approximately \$500,000 annually). The Maine Department of Transportation's Biennial Capital Work Plan for fiscal years 2010-2011 proposed a \$2 million funding level for this program. A total of \$1 million for this program was included in the FY 2010-2011 bond proposal approved by Maine voters in November 2009.

The Critical Rail Corridors Program (CRCP) is a new program that will provide 50 percent matching funds for priority investments on critical rail corridors. This program will select projects that score the strongest as they relate to public benefit. Public benefits were initially defined as: servicing key manufacturing industries; enhancing freight and passenger rail services on a dual basis; helping to shift the shipment of goods from road to rail; overall net reduction in greenhouse gas emissions; and promoting the use of private or other funds for every state dollar of investment. The state's Biennial Capital Work Plan (2010-2011) proposed a \$16 million funding level for this program.

The Freight Rail Interchange Program (FRIP) provides 50 percent matching funds on capital investment projects for improvements to railroad interchanges/junctions. This program is not noted in the State's Biennial Capital Work Plan, therefore funds are provided under a different program or it is not funded for the next two-year budget cycle.

The Rail Access Initiative Links Program (RAIL) provides 100 pound stick rail to businesses adjacent to rail lines on a 50 percent matching funds basis. This program can also be used to induce new rail service for rail dependent industries as part of Maine's "freight village" concept. Similar to FRIP, the RAIL program is not noted in the State's

Biennial Capital Work Plan, therefore funds are provided under a different program or it is not funded for the next two-year budget cycle.

The Local Rail Freight Assistance Program (LRFA) is a revolving interest free loan program for property owners, adjacent to railroads, who wish to improve access to rail facilities. This program is not noted in the Biennial Capital Work Plan.

The Rail Corridor Protection Program (RCPP) allows the state to partner with railroads, lease or buy rail corridors with the purpose of improving threatened rail corridors.

- **Virginia**

The Virginia Department of Transportation administers the Transportation Partnership Opportunity Fund, which was created in 2005 to encourage economic development through design/build and public/private partnerships. Project funds are awarded by the Governor as grants, revolving loans, or other financial tools and equity contributions to an agency or political subdivision of Virginia or to a private entity or operator that has signed a comprehensive agreement to develop a transportation facility. Individual grants are limited to \$5 million. Loans cannot exceed \$30 million.

Virginia also has a Governor's Opportunity Fund, which is used as a "deal closer" to secure a company location or expansion in the state. The grants are awarded to localities, which must agree to provide a match.

- **California**

While California does not provide financial assistance for freight rail service, the state Department of Transportation and the bipartisan California Transportation Commission support the establishment of a permanent, dedicated funding source. Legislation has been introduced that would require the Ports of Los Angeles, Long Beach, and Oakland to collect a user fee on the owner of container cargo moving through their port at a rate of \$30 per 20-foot equivalent unit or \$60 per 40-foot equivalent unit. The bill would require the fees be used to fund projects for all modes that improve the flow and efficiency of container cargo to and from those ports. It is estimated that \$500 million would be generated annually for these projects, including freight rail.

- **Connecticut**

To encourage private investment, Connecticut exempts railroads from the state's Gross Earnings Tax if they to use the money they save in capital improvements. Most of the tracks over with the freight railroads operate in Connecticut are owned by the state. By law, it can use \$10 million in general obligation bonds to provide grants to freight operators to cover 100 percent of the cost of a project providing it involves state-owned tracks. Privately owned rail lines can get 70 percent grants, but the Department can

waive the 30 percent match if it can be demonstrated that the work will increase rail freight traffic.

- **Florida**

Freight rail projects can be financed through Florida's State Infrastructure Bank (SIB), which administers a revolving loan and credit enhancement program consisting of two separate accounts. Since its establishment, Florida's SIB has provided more than \$1.1 billion in loans, leveraging \$8.3 billion in total project costs.

The Florida Department of Transportation (FDOT) also provides financial assistance for rail projects through the FDOT Work Program. Half of these funds, \$16.43 billion, are received from traditional sources, including fuel tax receipts, vehicle registration, aviation, and rental car fees that are deposited into the state Transportation Trust Fund. Federal contributions – primarily from motor fuel taxes deposited in the federal Highway Trust Fund – typically account for 15 to 20 percent of FDOT Work Program funds. The 2010 Florida Rail System Plan projected that almost \$400 million would be expended on freight rail between FY 2011-2015.

- **Texas**

In 2005, Texas created a Rail Relocation and Improvement Fund to improve freight mobility and relieve traffic congestion. The cost of relocation is shared by the state and the railroads in proportion to the benefit each entity receives. In 2009, the Texas legislature appropriated \$182 million for the fund to cover a two-year budget cycle.

- **Pennsylvania**

The state has two assistance programs, the Rail Freight Assistance Program (RFAP) and the Rail Transportation Assistance Program (RTAP). RFAP grants are awarded on a competitive basis. RTAP assistance is available from the capital budget. The maximum state funding for a RFAP or RTAP project is 70 percent of its total cost. RFAP project funding can not to exceed \$700,000. Funding for the construction portion of a RFAP project cannot exceed \$250,000. The funding limit for a RTAP project is the amount of the individual line item in the capital budget. The RFAP appropriation for 2010 was \$9.5 million. The typical annual RTAP appropriation has been approximately \$30 million.

- **New York**

The state's Rail Service Preservation Program provides \$20 million a year for rail passenger and freight capital projects. There is no local match requirement. In 2005, voters approved the \$2.9 billion Rebuild and Renew New York Transportation Bond Act, which allocates \$27 million each year for rail and port projects. A 10 percent local match is required. New York's higher railroad property tax assessments have enabled the state

to finance (at times in conjunction with local and federal funds) expensive infrastructure improvement projects. Such projects include:

- \$17 million to improve tracks on the Brooklyn waterfront so they can accommodate industry-standard 286,000 pound (286K) gross weight railcars;
- \$15.9 million for 286K improvements to railroad bridges in Queens, and
- \$4 million for rehabilitation of the freight track on the Hell Gate Bridge.

- **New Hampshire**

Legislation that created New Hampshire's Special Railroad Fund provides that income from state-owned rail lines, as well as 25 percent of the revenue received from the state railroad tax, be deposited in a dedicated fund and used for maintenance and repair of state-owned rail lines. This fund is comprised of roughly \$160,000 in annual user fees, paid by the railroads, and lease and other payments of approximately \$90,000 per year paid by other entities using railroad property. These funds have been used to: (1) Purchase ties and other materials for the active state-owned lines; (2) Repair and inspect bridges; (3) Clean ditches, remove brush and spray weeds. The operating railroads are also required to maintain lines at their own expense with total expenditures required based on a percentage of their revenues.

The state also administers a Rail Line Revolving Loan Fund. It was established in 1993 with state bond funds, and additional money was added in 1997. Total funding was \$4 million. Loans through the fund are issued for up to 20 years for capital improvements to short line railroads. A redistribution of repaid loan principal is anticipated in 2012.

- **Oklahoma**

The state has a Railroad Maintenance Revolving Fund. A major revenue source is the Oklahoma Freight Car Tax, an annual 4 percent tax on freight rail car revenues.

States are continuing to look for new ways to improve their freight rail systems. For example, in January 2012, the *Oregon Rail Funding Task Force's Final Report* recommended the creation of a rail investment tax credit. *Minnesota's Comprehensive Statewide Freight and Passenger Rail Plan* (2009) proposed a state income tax credit for 25 percent of the annual amount spent on capacity expansion – track, structures, yards, signal and communication systems, terminals and intermodal facilities. The *Georgia State Rail Plan* (2009) proposed the creation of a Goods Movement Investment Fund that could tap three revenue sources to finance freight rail projects: (1) a diesel fuel tax paid by the railroads; (2) railroad property lease income, and (3) a penny gas tax. The North Carolina State Rail Plan (2009) recommended that the state “re-evaluate the percentage allocation of state transportation funds to rail projects.”

**APPENDIX A - ISSUES, PRIORITIZATION AND
RECOMMENDED ACTIONS**

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APPENDIX A – ISSUES, PRIORITIZATION AND RECOMMENDED ACTIONS

1. INTRODUCTION

As described in Chapter 4, a range of issues that affect the freight rail industry in New Jersey were identified through consultation with the Agency and Industry Advisory Group (AIAG). The AIAG was assembled from a broad cross section of state agencies, Metropolitan Planning Organizations (MPOs), Class I, terminal and short line railroad operators.

The AIAG participants were tasked with ranking each of the identified issues in terms of how critical each issue is to the continued health and vitality of the freight rail industry in New Jersey, and prioritization of the issues for which corrective actions should be taken first. The individual participants represented a range of opinions and perspectives based upon their differing roles in the operation and management of the freight rail system as well as their geographic area of operation. Not surprisingly, the order of priority recommended by each of the group participants varied as well.

Not all issues require the same level of action to affect an improvement. Specific solutions and actions were identified for each issue. These recommended actions are categorized by level of intensity as:

- Compliance with existing and pending regulations and federal mandates;
- Maintenance of infrastructure and operations in their current serviceable state;
- Improvement of existing infrastructure, programs and practices to eliminate constraints;
- Expansion of existing programs and practices, and
- Development/implementation of new infrastructure, programs and practices.

In consultation with the AIAG, the most appropriate solutions were identified for recommendation. These specific infrastructure improvements and programmatic actions are the foundation of the ***New Jersey Statewide Freight Rail Strategic Plan***.

The established purpose of this plan was to support the overall goals and objectives of state planning efforts. A system was devised to assess the extent to which advancing the recommended actions would support the goals and objectives of these efforts. Goals were categorized as either critical or supportive, with the recommended actions being classified as highly supportive, moderately supportive, not applicable or detrimental to the achievement of each goal.

Each issue's level of importance to the state and the freight rail industry as expressed by the AIAG and the level of support for the ***New Jersey Statewide Freight Rail Strategic Plan*** objectives were applied to classify the issues and the recommended actions as high priority, moderate priority or low priority.

The following sections provide a discussion of each issue, the risks and opportunities the issue presents to the State of New Jersey, the recommended actions to be taken, and the anticipated outcome of advancing the recommendations in support of the plan's established goals and objectives.

2. HIGH PRIORITY ISSUES

Of the 42 identified issues, 12 were determined to be of critical priority and worthy of immediate action. These high priority issues include:

- Continuation of the NJ Freight Rail Assistance Program;
- Upgrading secondary/light density lines to handle the current industry standard 286,000 lb. (286K) rail cars;
- Upgrading New Jersey's short lines to handle the current industry standard 286K rail cars;
- Identify and mitigate constraints inhibiting the movement of 286K rail cars on selected passenger lines;
- Capacity and access at Greenville Yard;
- Repair and rehabilitation of the Delair Bridge to ensure continued freight rail access to southern New Jersey;
- Expand capacity of the Lehigh Line (shared with NJ TRANSIT's Raritan Valley Line) from Oak Island Yard to Manville Yard.
- Elimination of tunnel and bridge height and weight constraints that restrict the movement of today's larger industry standard rail cars;
- Providing freight rail connectivity between northern and southern New Jersey port complexes;
- Preservation and reactivation of the military rail network;
- Enhancing connectivity between the Class I and the short line railroads, and
- Expanding intermodal yard capacity, particularly in northern New Jersey.

The risks posed and the opportunities presented by these critical issues, recommended actions and anticipated outcomes are detailed in the following sections.

A. NJ RAIL ASSISTANCE PROGRAM

The New Jersey Department of Transportation (NJDOT) has a vital interest in preserving and improving the rail freight part of its transportation network. The Annual Updates to the State Rail Plan and the NJ Rail Assistance Program promotes economic activity by supporting a strong, multi-modal transportation system that offers safe and effective rail service for as many businesses as possible. The NJDOT has produced annual updates of the ***New Jersey State Rail Plan*** since 1975 and disbursed state funds for eligible rail freight projects since 1983.

This grant program is designed to support and increase rail freight systems and improve their efficiency. It supports the economic viability of short line railroads, provides transportation alternatives for New Jersey businesses and reduces roadway truck traffic. Eligible projects receive state grants covering 50 to 90 percent of a project's total cost, with the balance to be paid by the rail line.

At current levels, project funding available through program cannot keep pace with demand. Traditionally, requests for grants and support far outpace available resources by a wide margin. Preservation and expansion of this program is vital to the continued existence and success of the short line rail industry in New Jersey.

While proposed infrastructure improvements seeking grant assistance may be highly beneficial to the freight rail industry and the state as a whole, local concerns often prevent a project from moving forward. Grant applicants are required to obtain a formal resolution of support from the municipality within which the project is located. Local citizens who would be affected by the project certainly deserve a voice regarding the expenditure of public funds. However, objections to a project may be grounded in misperceptions and / or a lack of communication and coordination between an applicant and the community. To minimize the potential of a truly worthy project being sidetracked by a lack of local support, the NJ Rail Assistance Program should consider including a "mediator" function to facilitate open discussions between the project sponsor and the host community and to identify and resolve concerns.

Risk to New Jersey

- "Last mile" opportunities lost; businesses opt to locate outside of New Jersey and truck their goods to final destinations.
- Short line traffic base losses, putting state investment in infrastructure at risk.
- Impacts traffic base on light density lines, potentially putting them at risk.

Opportunities to Support Freight Rail Industry in New Jersey

- Develop new funding sources and mechanisms.
- Integrate freight rail assistance into the state's overall economic development program.

Recommended Actions

A range of potential responses were identified in coordination with the AIAG. Options ranged from simply continuing the program in its existing form to expanding the program funding and developing a community education support component to address the need. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.1 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
NJ Rail Assistance Program		Continue to require host community sign off for capital project support.	<i>Incorporate outreach program to assist community education and coordinate candidate projects.</i>	Expand program funding levels. Consider annual funding levels tied to rail freight volumes.	Develop new program with dedicated funding mechanism.
		Assess the impacts of this requirement on communities and rail operations.			

Investment Need and Potential Funding Resources

Currently, the NJ Freight Rail Assistance Program receives a \$10 million annual appropriation. At this level, the program is capable of supporting smaller, more localized improvements but not major initiatives. Grant applications far outpace the available funding. This trend is expected to continue, with the disparity between needs and available funds growing ever larger as demand for freight rail service expands.

At a minimum, the program should maintain its current funding level. Additional funding should be secured as demand increases. One option is to tie annual increases in program funding levels to the rate of growth in the volume of freight moved within New Jersey.

Anticipated Outcome of Recommended Action

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. Five of the objectives

(shaded in the following table) were deemed to be critical to the success of the plan. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental for each established objective. Table A.2 summarizes the findings.

Table A.2 Anticipated Outcome – Support for Plan Objectives

Objective	NJ RAIL ASSISTANCE PROGRAM			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair	Y			
Preserve out of service and at-risk rail rights of way	Y			
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities		Y		
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth rail-served industries within New Jersey	Y			
Expand public education and support			Y	

B. 286K STANDARD ON CLASS I SECONDARY AND LIGHT DENSITY LINES

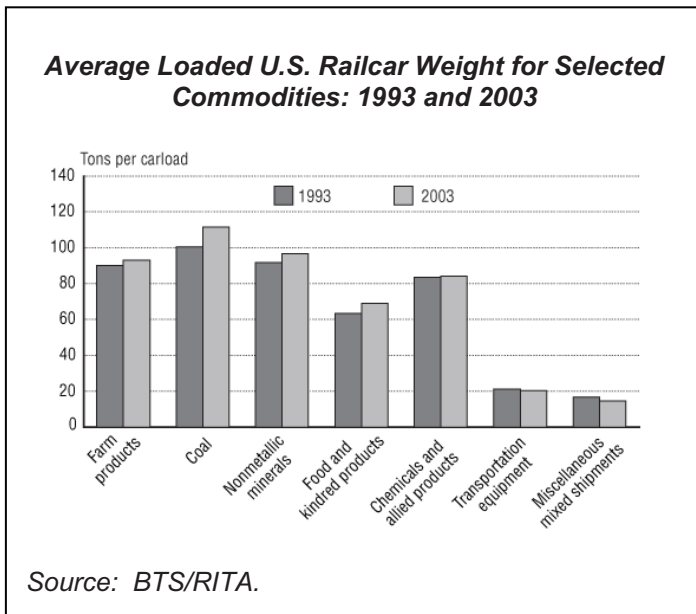
On November 21, 1994, the Association of American Railroads (AAR) issued a new standard (“S-259”) which increased the maximum gross-weight-on-rail (empty weight of the rail freight car plus the weight of the load/lading therein) allowed per car from 263,000 pounds to 286,000 pounds (286K).¹ The 286K standard became effective on January 1, 1995.

The 286K standard encouraged the evolution of larger freight cars, which improved the operating efficiency of railroads and created cost-savings opportunities for rail customers. Cars with larger weight and/or cubic capacities allow railroads to carry the same amount of freight with fewer cars and in fewer shipments. They increased productivity by increasing the amount of freight that can be moved by a railroad *without* increasing the amount of labor required to move it. Open top hopper cars, the standard coal-carrying car, evolved from a capacity of 70 tons to 100 tons to 105 – 110 tons as cubic capacity increased and cars were made lighter.

The common boxcar of 1981 could carry 77; its 2009 counterpart, 110 tons. Larger cars present rail customers with the opportunity to buy and ship in larger quantities per car and possibly place fewer orders, thus lowering shipping and handling costs.

The 286K standard has been recognized by the federal government and referenced in material published by the Federal Railroad Administration (FRA). For example, the standard was referenced in the January 25, 2011 Federal Register (49 CFR Part 179) when the FRA published information related to the operating of railroad tank cars in excess of 263,000 lbs. State departments of transportation throughout the US commonly reference the need to bring their rail freight systems up to the 286K standard in their state rail and freight plans and in federal grant applications.

The industry has also moved quickly to adopt the standard. The average weight per rail car load has increased since the 286K standard was implemented. Discussions with railroad operators and users indicate that industrial sites without 286K access are no longer considered competitive by businesses or industries that require rail service.



¹ Rader and Gagnon, *Maximizing Safety and Weight: a White Paper on 263 K + Tank Cars*, September, 1999 (Available on the Federal Railroad Administration website).

The challenge of achieving the 286K gross-weight-on-rail standard on certain lines in New Jersey has been segmented into four line and ownership types for the purposes of this plan: 1) Amtrak and NJ TRANSIT lines; 2) main lines of Class I freight railroads; 3) secondary and light density lines of Class I freight railroads, and 4) short line freight railroads. The collaboration of NJ TRANSIT, Amtrak, NJDOT and the freight railroads is necessary to determine the true extent of the 286K problem in terms of the:

- Route miles affected;
- Amount of existing rail traffic at risk;
- Amount of economic development activity (in dollars) that has been foregone or is at risk, and
- Number and locations of bridges or structures causing restrictions.

These determinations require a:

- Professional understanding/agreement among NJT, Amtrak and the freight railroads about how to gather engineering data that will allow an objective determination as to a structure's ability to accommodate 286K cars, and a
- Clear understanding (and acceptance) among all stakeholders of the reasoning underlying those restrictions that are based purely upon "policy."

Only after developing a mechanism to achieve an objective understanding of the size of this issue will stakeholders have a reasonable basis upon which to:

- Define the means by which the restrictions can be mitigated or removed;
- Estimate the cost of removal or mitigation, thus identifying the "size of the fix," and
- Conduct cost-benefit analyses of restriction removal or mitigation options as one criterion upon which such projects could be prioritized.

A limited number of other criteria, such as impact upon passenger operations and roadway congestion, should be identified and used in addition to the cost-benefit analyses, in evaluating prospective restriction removal/mitigation projects. Based upon the size of the problem (dollars at risk) and the size of the fix (dollars required), the state would then decide the role it wishes to play in helping to finance removal/mitigation projects.

A majority of the Class I secondary and light density lines are currently capable of accommodating 286K railcars. The exceptions are those portions of freight routes that run on passenger rights-of-way and are subject to weight constraints that prohibit 286K railcars on these segments. These segments may include discrete lengths of running track, a single bridge or be contained within an interlocking through which the freight cars must travel.

Risk to New Jersey

- Existing freight traffic at risk due to rail lines unable to accommodate the most economical rail equipment.
- Higher density, heavy weight commodities must be short loaded (rail cars not loaded to their full capacity) to travel along non-286K capable lines.
- Short loaded cars are considered inefficient by industries and shippers, making businesses served along these freight lines less competitive economically.
- Reduced competitiveness hinders business retention and growth, limiting economic development and job growth.
- Risk of diminished service and eventual abandonment of rail lines as traffic base erodes.

Opportunities to Support Freight Rail Industry in New Jersey

- Opens up a wider range of industrial sites along secondary lines for redevelopment.
- Local economic development opportunities can help stem a dwindling industrial tax base.
- Preserves traffic and service base on light density lines.

Recommended Actions

Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.3 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
286K Standard on Class I Secondary and Light Density Lines		Inventory and maintain existing capacity.	<i>Identify and prioritize routes to upgrade.</i>	<i>Upgrade additional freight lines and bridges to 286K as identified.</i>	Assess the cost and need for strengthening infrastructure to accommodate 315K cars in the future on identified lines
			<i>Upgrade identified priority routes to 286K.</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.4 Anticipated Outcome – Support for Plan Objectives

Objective	THE 286K STANDARD - SECONDARY/ LIGHT DENSITY LINES			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Annual costs for maintenance of 286K capacity on the Class I secondary and light density lines is typically borne by the railroads, with minimal financial participation by the public sector. This is expected to continue into the future.

C. 286K WEIGHT STANDARD ON SHORT LINES

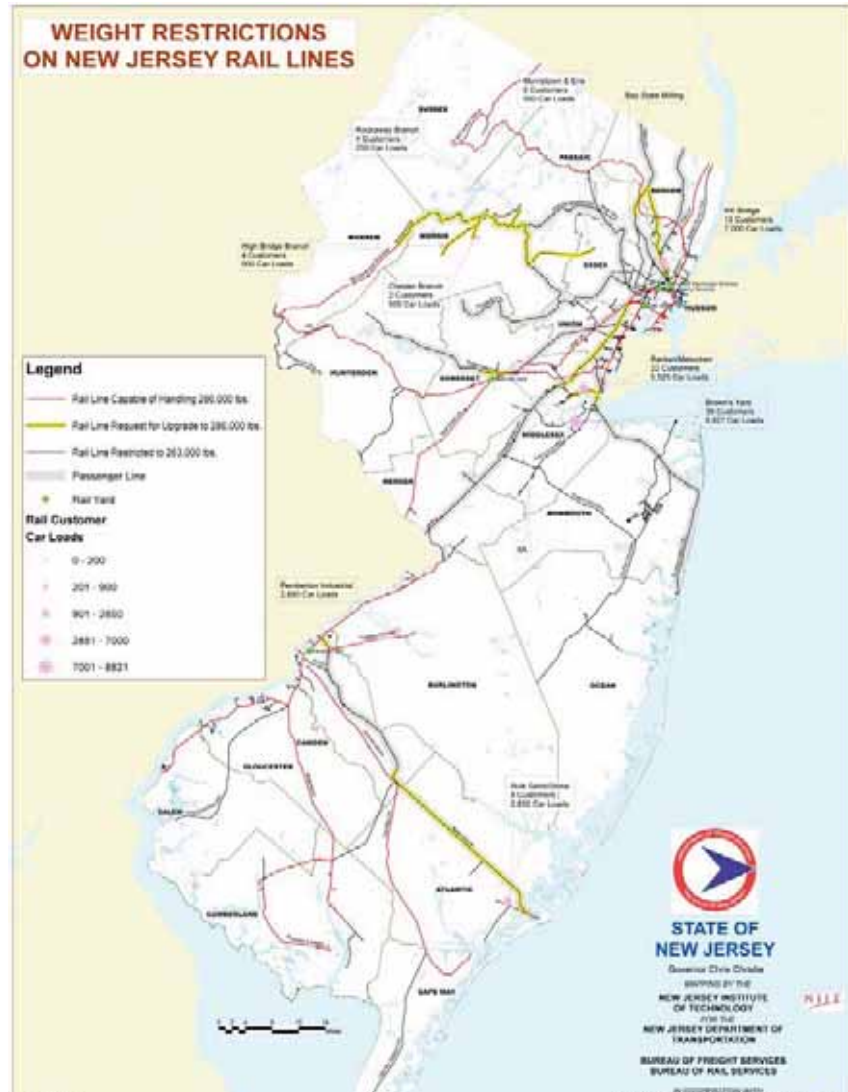
While the Class I Main and Secondary components of the freight rail network are generally capable of accommodating 286K rail cars, gaps exist.

A number of segments restrict the ability of short line and terminal railroads to effectively serve local customers and provide a catalyst for the attraction and growth of industrial activity in these potentially rail served clusters.

Often, the load carrying capacity on a single bridge can restrict an entire line from accommodating industry standard 286K rail cars.

Key lines on the New Jersey rail system that are weight restricted are depicted on Figure A.1.

Figure A.1 Existing Weight Restrictions on New Jersey Rail Lines



Risk to New Jersey

- Existing traffic is placed at risk if to rail line is unable to accommodate the most economical rail equipment.
- Higher density, heavy weight commodities must be short loaded (rail cars not loaded to their full capacity) to travel along non-286K capable lines.
- Short loaded cars represent an economic inefficiency to industry and shippers, making businesses served along these lines less competitive.
- Reduced competitiveness hinders business retention and growth, limiting economic development and job growth.

- Significant loss of traffic base will result as 286K encourages the use of trucks, instead of rail, for transport in highly competitive markets.
- Risk of diminished service and eventual abandonment of rail lines as traffic base erodes.

Opportunities to Support Freight Rail Industry in New Jersey

- Enhances state investment in the rail freight system.
- Stabilizes the traffic base, which tends to experience a decline every year due to changing market conditions unless offset by new rail-freight oriented installations.
- Supports/creates local economic development opportunities.
- Business retention/expansion supports local tax and job base.

Recommended Actions

The issue of 286K railcar capacity on short lines and terminal railroad segments was identified as a matter of critical importance to Class I and short line operators across the state. A range of potential actions was identified to facilitate 286K railcar access, allowing short line and terminal operators to effectively serve industrial clusters. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.5 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
286K Capacity on Short Lines		Inventory and maintain existing capacity.	<i>Identify and prioritize lines to be upgraded to 286.K</i>	<i>Upgrade identified priority lines to 286K.</i>	Assess the cost of and need for strengthening to accommodate 315K cars in the future on identified lines

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.6 Anticipated Outcome – Support for Plan Objectives

Objective	THE 286K STANDARD - SHORTLINES			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Traditionally, the NJ Freight Rail Assistance Program has been the primary funding source for short line railroads trying to achieve 286K capacity. While this is expected to continue into the future, funding of the NJ Freight Rail Assistance Program is typically limited to a \$10 million annual appropriation. Additional funding for the grant program may be required as infrastructure improvement needs are identified. Federal programs, such as the now defunct TIGER discretionary grant program, have been utilized for these types of improvements. Most recently, application under TIGER 2012 was made to fund the rehabilitation and reactivation of a Conrail corridor (the Raritan Industrial Track) to facilitate the movement of 286K railcars.

D. NJ TRANSIT / AMTRAK CONSTRAINTS TO 286K FREIGHT CARS

While exceptions exist, as a general policy the movement of 286K railcars on right-of-way owned and maintained by NJ TRANSIT and Amtrak is not permitted. These restrictions are not necessarily based upon the structural integrity of the infrastructure along the route, but are more often related to the increased maintenance costs that would become the responsibility of the passenger rail operations due to additional wear and tear caused by heavier railcars. In certain circumstances, NJ TRANSIT and Amtrak have permitted the movement of 286K railcars along their infrastructure, usually upon payment of an additional fee by the freight railroads on a per car-mile basis. Resolution of this issue and achieving the ability to operate 286K freight rail on lines owned by NJ TRANSIT and Amtrak will likely require negotiation of operating and maintenance cost sharing agreements to ensure that the additional costs are not borne by the transit agencies.

Risk to New Jersey

- State competing against itself: upgraded passenger infrastructure versus diminishing rail freight options on vast publicly-owned network.
- Existing freight traffic becomes at risk when a rail line is unable to accommodate the most economical rail equipment.
- Higher density, heavy weight commodities must be short loaded (rail cars not loaded to their full capacity) to travel along non-286K capable lines.
- Short loaded cars mean higher costs for industries and shippers, making businesses served along these lines less competitive economically.
- Reduced competitiveness hinders business retention and growth, limiting economic development and job growth.
- Significant loss of the traffic base will result if the absence of 286K service results in the transportation of goods by trucks in highly competitive markets.
- Risk of diminished service and eventual abandonment of rail lines can result as the traffic base erodes.

Opportunities to Support Freight Rail Industry in New Jersey

- Vast network of NJ TRANSIT lines in urban and suburban areas opens up economic development opportunities in primary planning and brownfield areas of the state.
- Leverages state investment in NJ TRANSIT passenger lines.
- Freight Villages can supplement TODs in attracting transit users.

Recommended Actions

The issue of regulatory constraints to the movement of 286K railcars was identified to be of critical importance to all sectors of the AIAG on a statewide basis. A range of potential actions were identified to facilitate 286K railcar access along NJ TRANSIT and Amtrak owned right-of-

way. It is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.7 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
NJ TRANSIT / Amtrak Constraints to 286K Railcars		Inventory and maintain existing capacity.	<i>Determine specific improvements needed for 286K operation.</i>	<i>Evaluate and upgrade additional shared operations lines and bridges to 286K as required.</i>	<i>Negotiate and implement operating and cost-sharing agreements to allow 286K freight access to strategic locations along transit-owned ROW.</i>
		Identify and prioritize routes to upgrade to 286K in support of freight service on these shared lines	<i>Upgrade identified priority routes to 286K.</i>	<i>Seek alternate routes for freight</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.8 Anticipated Outcome – Support for Plan Objectives

Objective	THE 286K STANDARD - NJ TRANSIT / AMTRAK CONSTRAINTS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

On a case-by-case basis, investigation of the structural integrity of the rail lines should be undertaken to verify their physical ability to move 286K railcars safely. This evaluation may be financially supported by the NJ Freight Rail Assistance Program.

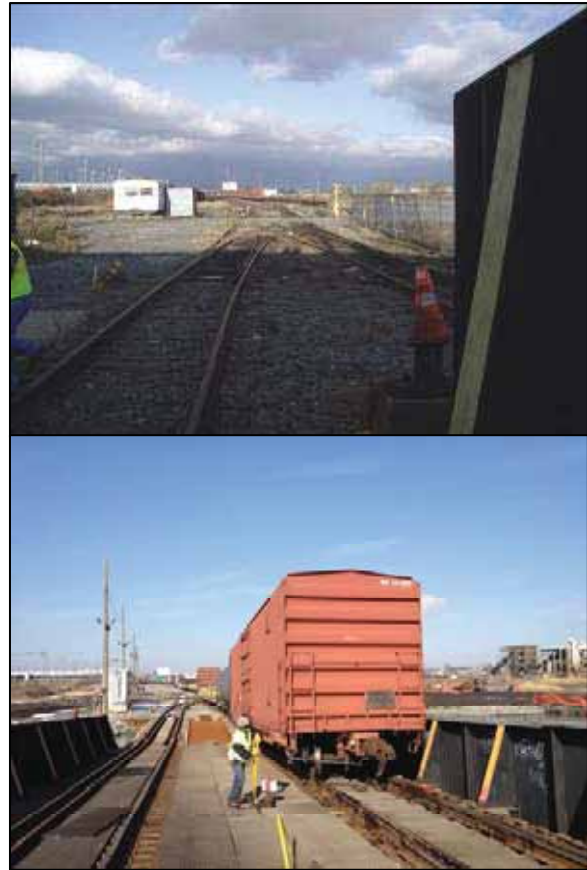
E. CAPACITY AND ACCESS AT GREENVILLE YARD / NYNJ RAILROAD

Greenville Yard is the western terminus of the current railcar float (barge) system, which operates between Jersey City and Bush Terminal on the Brooklyn waterfront. The barge system that moves goods across the New York Harbor has been in existence since before the growth of the national highway system and before the construction of vehicular bridges spanning the Hudson River.

The Cross Harbor rail freight operation at Greenville Yard once encompassed six rail transfer bridges, many rail barges, and very large upland rail support facilities. In the past few decades, however, the operation and various facilities have succumbed to competing private sector funding priorities; an inability to effectively compete with trucking; land development pressures; poor facility management; poorly coordinated transportation public policy, and a severe lack of infrastructure investment. As a result, only one transfer bridge, Bridge #11, was in operation when Hurricane Sandy hit.

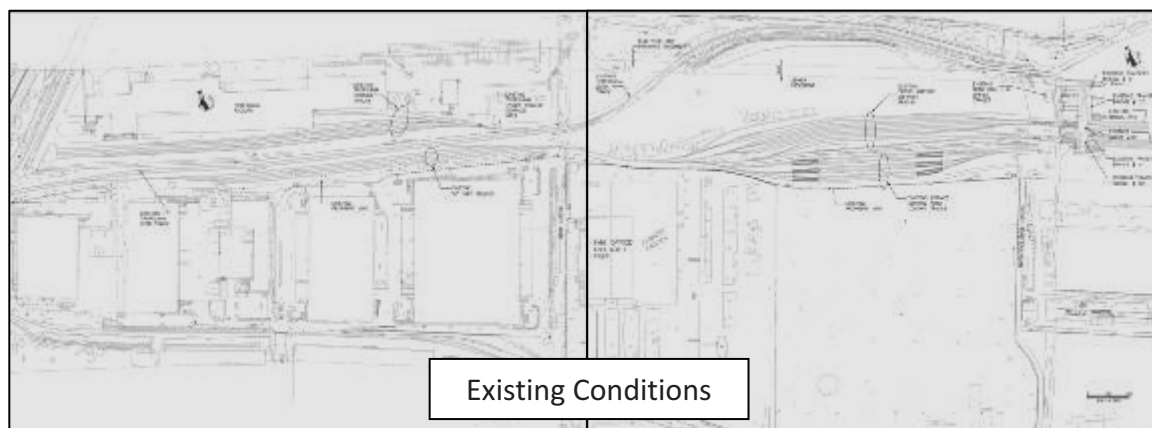
Sandy catastrophically damaged the entire bridge and gantry system, including knocking Bridge #11 out of service. A serious safety hazard and in imminent danger of collapse, the structure was demolished, and a temporary pontoon bridge was installed in the slip of Bridge #11 as a stop-gap measure. Service came back online December 20, 2012. This damage has caused portions of the Cross Harbor Project to be expedited to build a permanent transfer bridge.” Resiliency to weather related environmental factors and extreme weather occurrences such as Superstorm Sandy, flooding and the potential for elevation in mean sea level should be key considerations in the rebuilding of the Greenville Yard.

The operator of the railcar float system is New York New Jersey Rail (NYNJ Rail), a switching and terminal railroad owned by the Port Authority of New York & New Jersey since November 2008. It operates the only car float operation across New York Harbor. Since freight trains are not allowed in Amtrak’s North River Tunnels, and the Poughkeepsie Bridge was closed in 1974, the ferry is the only freight crossing of the Hudson River south of the Alfred H. Smith Memorial Bridge, 140 miles to the north of New York City. The Cross Harbor rail freight operation is the last remaining car float operation in New Jersey.



Ultimately, the Greenville Yard (Figure A.2) will contain four distinct rail transfer sections: an Intermodal Container Transfer Facility to support the Global Terminal operations at the Port Jersey – Port Authority Marine Terminal, a barge-to-rail container transfer facility, and an expanded Cross Harbor Rail Freight Program (CHFP) as well as the existing service for the Tropicana Juice train.

Figure A.2 Greenville Yard – Existing and Proposed Configuration



Under its CHFP, the Authority, with funding from the Federal Highway Administration (FHWA), is redeveloping the Greenville Yard in Jersey City as required to increase the amount of freight moved by rail, thereby reducing the region’s dependence on trucks. The goal of the CHFP is to improve goods movement by rail across New York Harbor. Operation of the yard is expected to add significant traffic to the River Line due primarily to the increase reliance upon the rail network to move containers to and from the expanded Global Marine terminal.

Risk to New Jersey

- Configuration and limited capacity of roadways serving the area represent a constraint to realizing the potential of the Global Marine Terminal / Greenville Yard complex.
- Businesses may locate in, or relocate to, better served intermodal locations if the yard cannot handle required demands.

Opportunities to Support Freight Rail Industry in New Jersey

- Expansion of Port of New York & New Jersey container terminal network in support of port operations and a shift of freight from truck to rail.
- Potential transload of municipal solid waste (MSW) and construction and demolition (C&D) debris from East of Hudson River areas reduces truck trips on trans-Hudson bridge and tunnel crossings and on New Jersey roads.

- Potential reduction in short-haul truck trips on NJ highways by extending long-haul rail trips to yards closer to their East of Hudson destinations”.
- Provides additional intermodal capacity in Northern New Jersey.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. It is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.) The Port Authority of New York & New Jersey is currently advancing several initiatives in conjunction with plans for expanding rail operations at Greenville Yard.*

Table A.9 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Greenville Yard Capacity and Access Improvements		Maintain existing car float and yard operations.	Improve northbound connectivity.	Expand carfloat operations.	Develop expanded cross harbor freight operations
			<i>Upgrade carfloat operations.</i>	<i>Add intermodal yard to location.</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.10 Anticipated Outcome – Support for Plan Objectives

Objective	GREENVILLE YARD/NYNJ RAILROAD			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity	Y			
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity	Y			
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

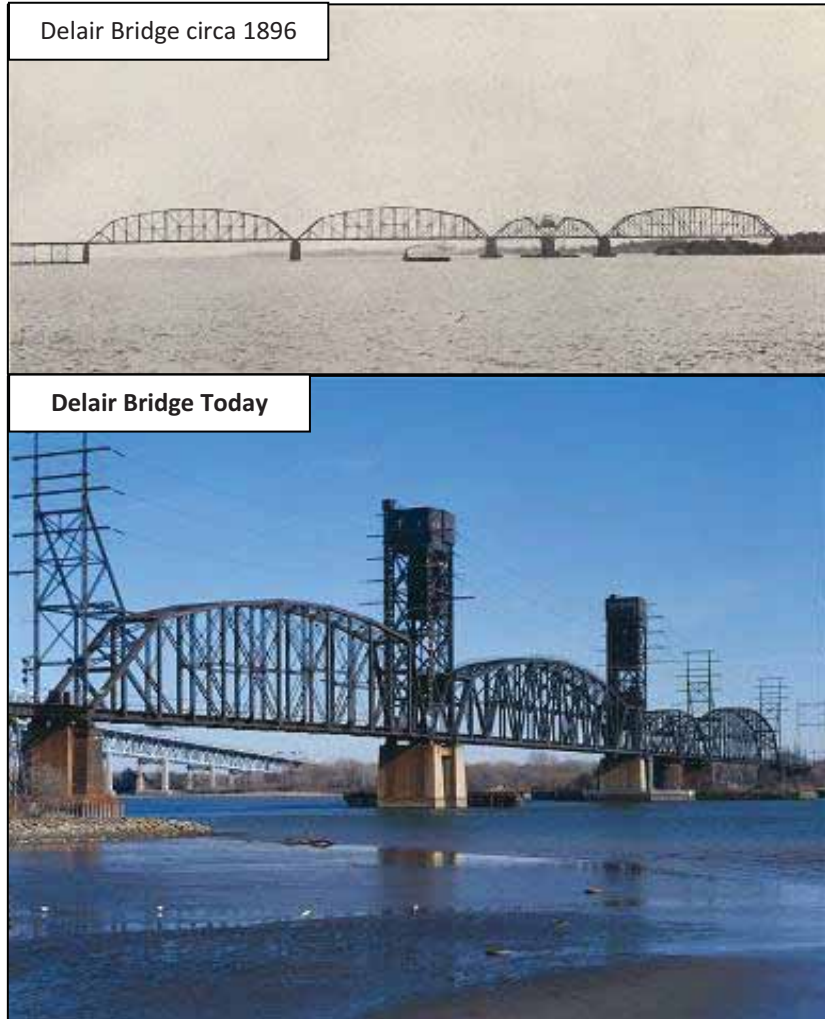
Final design of improvements needed to efficiently operate the expanded facility has not yet been completed.

F. DELAIR BRIDGE REHABILITATION AND REPAIR

The Delair Bridge is a critical link spanning the Delaware River from Philadelphia, PA to Pennsauken and providing the only rail connection in South Jersey for Conrail, CSX, Norfolk Southern and NJ Transit. Loss of use of the Delair Bridge would effectively eliminate freight rail access to southern NJ, and passenger service from Pennsylvania to Atlantic City. It would substantially reduce the attractiveness and utility of the new Pennsauken Transit Center under construction. Elimination of freight access to southern NJ would jeopardize, if not fully eliminate, the viability of the refinery industry in Gloucester County as well as a number of short line railroads and the industries that they serve. While additional rail corridors exist that could conceivably provide connections to southern New Jersey, these potential routes are currently either out of service or have limited freight potential due to passenger service. Therefore, the near-term (within three years) structural and mechanical repairs that the Delair Bridge requires drive its high priority classification.

Fortunately, the significance of the bridge has been recognized. In 2012 South Jersey Port Corporation was awarded a TIGER grant for Enhancing Rail Service to SJPC's Southern NJ Marine Terminals which includes the rehabilitation of the approach spans. Conrail is continuing to monitor conditions and prepare for rehabilitation work.

The bridge is a 66 foot wide, 4,456 foot long open deck bridge consisting of 60 deck girder spans, two fixed truss spans, one swing span (which no longer operates), a vertical lift span, and two tower spans. The bridge was built in 1895, with the exception of the vertical lift and tower spans, which were built in 1961. The bridge is supported by stone piers and abutments. The bridge supports both freight and passenger rail service on two tracks. The southern track is



currently utilized by freight trains only, while the northern track is reserved for use by the NJ TRANSIT Atlantic City Line.

Detailed inspections and structural repairs made between 2001 and 2003 provided for the increase in weight capacity on this structure from 263,000 lbs. to 286,000 lbs., which is vital for the competitiveness of rail freight customers. The 2003 inspection identified the need to monitor conditions of pin retainers, low chord eye bars in the older truss spans, and steel deterioration in the deck girder spans, and recommended development of a repair or replacement plan for these items. Many of the 60 deck girder spans on this bridge were found to have moderate loss of section during inspection. In the following years, these conditions have been monitored by Conrail with a recommendation that that rehabilitation work begin by 2012 to maintain the reliability of this structure for both freight and passenger operation.

Risk to New Jersey

- Loss of Delair Bridge cuts off rail freight and passenger service to/from all of South Jersey.
- Restrictions due to mechanical or structural deterioration would cause loss of business and 286K loadings for both short lines and Conrail in South Jersey.

Opportunities to Support Freight Rail Industry in New Jersey

- Potential rehabilitation and upgrade of bridge and approaches could open up a double-stack option to South Jersey.
- Potential upgrade and maintenance projects could also address the “North/South Connectivity” issue.

Rehabilitation and potential upgrade of the bridge would preserve the viability of freight rail service to southern New Jersey and preserve the jobs in businesses and industries that are dependent upon rail service. While currently there is no identifiable market need for double-stack service across the bridge, elimination of height restrictions could promote additional industrial development in South Jersey in the future.

Recommended Actions

A range of potential actions were identified to address the needs of the Delair Bridge and maintenance of rail access to southern New Jersey. The Delair Bridge was ranked as the number one priority for the southern New Jersey region by all three subgroups of the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes)*

Table A.11 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Maintenance of the Delair Bridge Portal		<p><i>Continue routine maintenance and rehabilitation of approach spans.</i></p> <p><i>Develop contingency plan for bridge outage</i></p>	<p><i>Improve height clearances on access routes.</i></p>	<p>Study and identify need for potential new bridge and approach routes as part of identification of redundant and alternative routing options into southern New Jersey.</p>	<p>Replace bridge and access routes as needed to accommodate industry standard heights (including intermodal) if alternative routes are not feasible.</p>

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.12 Anticipated Outcome – Support for Plan Objectives

Objective	MAINTENANCE OF THE DELAIR BRIDGE PORTAL			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair	Y			
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy	Y			
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The following rehabilitation is required in the 2012-2015 timeframe:

- Replacement of 60 deck girder spans Cost: \$15-20 million
- Repair pin retainers and low chord eye bars Cost: \$6-8 million
- Total Cost: \$21-28 million**

The South Jersey Port Corporation was a recipient of a federal grant under the Transportation Improvements Generating Economic Recovers (TIGER) discretionary grant program. Conrail was a partner in the application for the grant and is utilizing these funds to advance the repair of the structural elements of the approach spans on both the New Jersey and the Pennsylvania sides of the bridge. The TIGER funding and current improvements do not include the main bridge

spans or address the height limitations on the bridge that precludes the movement of doublestack rail cars. It is anticipated that Conrail, in partnership with the South Jersey Port Corporation, will be seeking public funds in the future to advance maintenance and repairs on the main bridge spans and support this critical piece of infrastructure which is of regional significance to both the public and private sector. While the NJ State Rail Assistance Program has been the primary focus in the search for funds, the potential exists to seek future federal grant funds and solicit participation from NJ TRANSIT as the bridge also supports passenger service.

G. LEHIGH LINE (CONRAIL OAK ISLAND YARD – MANVILLE)

The Lehigh Line within New Jersey is operated as part of the Conrail Shared Assets (CRSA) territory and is the primary link between northern New Jersey/New York City ports, metropolitan area markets and the balance of the rail network, providing access to the entire



North American rail network and markets. The configuration and character of the Lehigh Line varies significantly along its length within New Jersey. Between Newark and Cranford, this double track line serves both freight and NJ TRANSIT's Raritan Valley Line passenger trains.

This section of shared passenger and freight service carries up to 100 trains per day and is effectively operating at or near its peak capacity. With anticipated growth in

the volume of containers handled at the ports and an increased reliance in freight rail to move these containers inland, adding capacity to the Lehigh Line is vital to the continued growth in the freight rail industry and the goods movement industry as a whole.

West of Cranford, the Lehigh Line separates from the Raritan Valley Line and runs as a mix of single and double track sections to Bound Brook where it is joined by the Port Reading Secondary. Farther west, the line enters Manville Yard, which represents the end of the CRSA territory. At that point, the Lehigh Line, operated by Norfolk Southern, continues to Phillipsburg, while the West Trenton Line, operated by CSX, splits off and continues to Trenton. This route includes a total of 10 at-grade road crossings east of the Manville yard.

Risk to New Jersey

- Lack of significant excess capacity on this double-stack cleared primary NS and CSX route to the west and south constrains the potential for growth of the NJ/NY ports and other commercial centers.
- Potential for extending NJ TRANSIT passenger service westward into eastern Pennsylvania could further constrain availability of the line for freight movement.
- Use of the Lehigh Line as the connecting route to the emerging Crescent Corridor increases the future importance of this line for the freight industry in New Jersey.

Opportunities to Support Freight Rail Industry in New Jersey

- Potential to provide for increased freight capacity by restoring double track.

- Potential to provide for future passenger service extension into Pennsylvania.
- Important link in the Crescent corridor if additional intermodal facilities are added.

Recommended Actions

A range of potential actions were identified in consultation with the AIAG to address the need for adequate line capacity to accommodate the anticipated growth in the volume of freight moved by rail to, from and through New Jersey. Based in part on input provided by the AIAG, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.13 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Increase Capacity on the Lehigh Line (Conrail Oak Island – Manville)			Upgrade and possibly combine and/or eliminate grade crossings.	<i>Construct a third track from Aldene in Roselle Park to NK (Newark).</i>	<i>Consider construction of a 4th track from Aldene to NK and separation of freight and passenger ROW.</i>
			<i>Identify potential reliever routes</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.14 Anticipated Outcome – Support for Plan Objectives

Objective	LEHIGH LINE (CONRAIL OAK ISLAND – MANVILLE)			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Addition of a third track between Aldene and Newark is expected to cost approximately \$136 million. Planning and preliminary design of this third track is currently being advanced by NJ TRANSIT. Funding for the improvement program is potentially available through the Federal Railroad Rehabilitation and Improvement Financing Authority (RRIF) utilizing a combination of low-interest loans and loan guarantees.

H. TUNNEL AND BRIDGE CLEARANCES

Most Class I mainline routes in New Jersey are capable of accommodating double-stack rail cars. However, there are numerous locations along secondary lines and short lines that are physically unable to handle double-stack railcars because of tunnel and overhead bridge clearances.

Severe physical constraints also restrict the operation of Plate “F” railcars, which are the current standard for non-containerized rail movements and require a vertical clearance of 17 feet, 0 inches.²



East Portal of the Bergen Tunnel

A single vertical constraint can severely restrict the use of an entire rail corridor, limiting a region’s ability to attract rail served businesses. It can even drive existing rail served businesses out of the area. There are many alternative ways to deal with the problem, including:

- Remove the Bridge – Attractive to the railroad but not necessarily the local community.
- Structural Modification – Relocating bracing or the use of lower profile brackets may be possible on some truss structures. This option is relatively low cost and does not impact rail operations or the surrounding community.
- Replace or Elevate Bridge and Highway Approaches – Often results in unacceptable consequences to the roadway profile, adjacent buildings and land use access.
- Lower the Track – Large vertical changes require a lengthy run-out to maintain profiles and acceptable grades. Smaller vertical changes may be appropriate if acceptable drainage can be maintained.
- Re-Route Trains – Develop improvements or connections to other lines to open up alternate routes that avoid the constraints.

² Plate designations refer to the maximum heights, widths and lengths of a railcar. The dimensions are interrelated. For instance, the longer a car is, the more limited its width must be to fit within its clearance class. Plate standards are established by the Association of American Railroads. A railcar’s plate designation is stenciled on its side. Plate “B” is the least operationally restrictive, with a maximum height of 15 feet, 2 inches, and can travel anywhere on the North American rail system. Plate “C” railcars have a maximum height of 15 feet, 6 inches. Most tank cars, covered hoppers, open-top hoppers and gondolas are Plate “C.” Plate “F” is common for modern boxcars. Plate “H” railcars are double-stacks and have a maximum height of 20 feet, 3 inches. Plate “K” is the most restrictive, with a 20 foot, 2 inch height above rail. Plate “K” railcars are used to transport automobiles.

The most appropriate solution achieves a balance between the benefits of enhanced service along the rail corridor and any adverse impacts the improvement would have on the surrounding community and land uses adjacent to the constrained location.

Risk to New Jersey

- Restricts double-stack container trains on key routes, limiting port competitiveness and economic growth.
- Restricts Plate “F” railcars, limiting the growth potential of rail served industrial uses along the corridor.
- Impairs connectivity to emerging national rail corridors.
- Stunts traffic growth in the emerging domestic intermodal market.

Opportunities to Support Freight Rail Industry in New Jersey

- Keeps the state competitive with those being cleared for double-stack and Plate “F” railcars.
- Opens connections to emerging national corridors (i.e. National Gateway; Crescent Corridor).
- Opens up routes for by-pass alternatives, redundancy considerations and access to short lines.

Recommended Actions

The issue of vertical clearance at tunnels and bridges was not identified as a high priority issue by the AIAG. There remain a number of vertical constraints to the movement of double-stack vehicles and Plate “F” railcars throughout the network, typically on lines with older bridges that were constructed at a time when the vertical clearance requirements were substantially lower than today. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.15 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Tunnel and Bridge Clearances		Inventory and maintain existing clearances.	<i>Upgrade clearances to 17' for Plate F rail cars on a priority basis</i>	<i>Upgrade clearances on identified priority routes requiring double stack clearance.</i>	Upgrade additional routes that could provide alternative routings for double stacks and other high cars should main line routes become fouled.
			<i>Identify and prioritize specific locations, lines and routes where clearances should be improved double-stack service (23' 3")</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.16 Anticipated Outcome – Support for Plan Objectives

Objective	TUNNEL AND BRIDGE CLEARANCES			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads	Y			
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth in rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Vertical constraints have been identified on select rail corridors. However, a comprehensive study of the entire rail network has not been undertaken. An understanding of the number, location and type of vertical constraints that exist along the network will be necessary prior to determining the costs associated with developing and implementing improvements.

I. NORTH / SOUTH CONNECTIVITY

As described in the NJDOT's *Southern New Jersey Freight and Logistics Industry Context and Economic Growth Visioning Plan*, without efficient and effective transportation connections, the southern New Jersey region cannot reach its potential. Improvements identified in the plan included roadway enhancements, rehabilitation of the Delair Bridge, and creation of north/south rail connectivity to attract new carload and intermodal rail freight service to the southern New Jersey region.

Today, approximately 11 percent of goods (by weight) moved into southern New Jersey are moved by rail. Perhaps unique to the southern New Jersey region, all rail freight service is carload service. Carload service refers to the movement of products in boxcars, hopper cars, tank cars, and special lumber cars over long distances by rail and then transported directly by rail or shifted to trucks for delivery to customers. The characteristics of these commodities (e.g., bulk, heavy or over-dimensional) make rail the preferred option for long distance movement.

Improving “north/south” connectivity was a key recommendation of the visioning plan. Currently, rail freight connectivity is severely limited between the northern and southern portions of the state, with the main option being to move trains via the Delair Bridge into Pennsylvania and then back into New Jersey. While a physically viable route, the lack of an efficient connection limits movements and options, such as the movement of sand and silica from the region to customers in the northern portion of the state and the potential development of rail shuttle service between the northern port complex and distribution centers in the supply chain Corridor.

Risk to New Jersey

- Limits modal choices and intermodal options in South Jersey.
- Loss of potential new intrastate rail markets (i.e. sand/stone; shuttle service from port to port), reducing ability to utilize rail to reduce congestion and a resulting over reliance on trucks.
- Business development opportunities lost because of a bifurcated rail system.

Opportunities to Support Freight Rail Industry in New Jersey

- Broaden the reach of the Port of NY & NJ via intermodal shuttle service.
- Broaden the reach of the South Jersey Port Complex.
- Divert freight from truck to rail in short haul markets.
- Potential for short line to short line connectivity and developing intrastate and short haul markets (i.e. sand in the north and rock in the south).

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Options ranged from simply continuing compliance with current FRA and other requirements to development and initiation of new programs and capital projects to address the need. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.17 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
North/South Connectivity		Maintain corridor/right-of-way options for future movements between North and South Jersey.	<i>Coordinate improvements to the existing route through Pennsylvania with neighboring jurisdictions</i> <i>Investigate the feasibility of freight service and connections via alternate routes</i>	<i>Investigate the feasibility of reactivating the former Blue Comet Route for freight and passenger service.</i>	Identify new movements of goods between North and South Jersey on new or combinations of new and preserved routes.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.18 Anticipated Outcome – Support for Plan Objectives

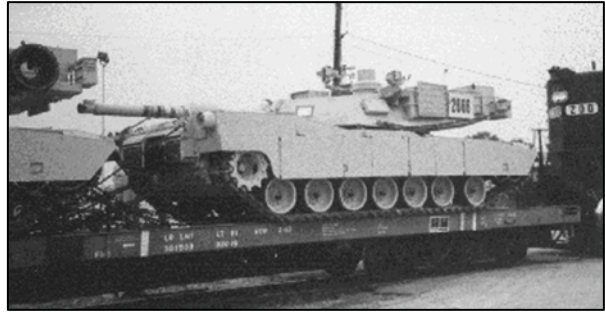
Objective	NORTH/SOUTH CONNECTIVITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair	Y			
Preserve out of service and at-risk rail rights of way	Y			
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The NJDOT conducted a Tier II Screening evaluation the feasibility of reactivation of the Central Railroad of New Jersey, Southern Division - Blue Comet Route. This study estimated a per carload saving of between \$50 and \$100, and a two-day reduction in transport time for shipments between South Jersey and Conrail's Oak Island Yard in Jersey City. The cost for reactivation of this route is estimated to be approximately \$130 million. This cost would require funding from multiple public sector sources including the USDOT, NJDOT, NJ TRANSIT with participation from the private sector railroads and other industry sectors that would realize financial benefits from the reactivation of the route.

J. MILITARY RAIL NETWORK

In response to the poor condition of the rail industry in the mid-1970s, the Railroads for National Defense (RND) Program was initiated in 1976. The critical nature of the rail network to our national defense was highlighted as the US Department of Defense (DOD) experienced on-post derailments that delayed deployment exercises. Realizing the importance of rail infrastructure, the DOD created the RND Program to identify which installations required rail service or which rail lines between installations and ports were important to national defense. The RND Program works to preserve strategic rail mobility by:

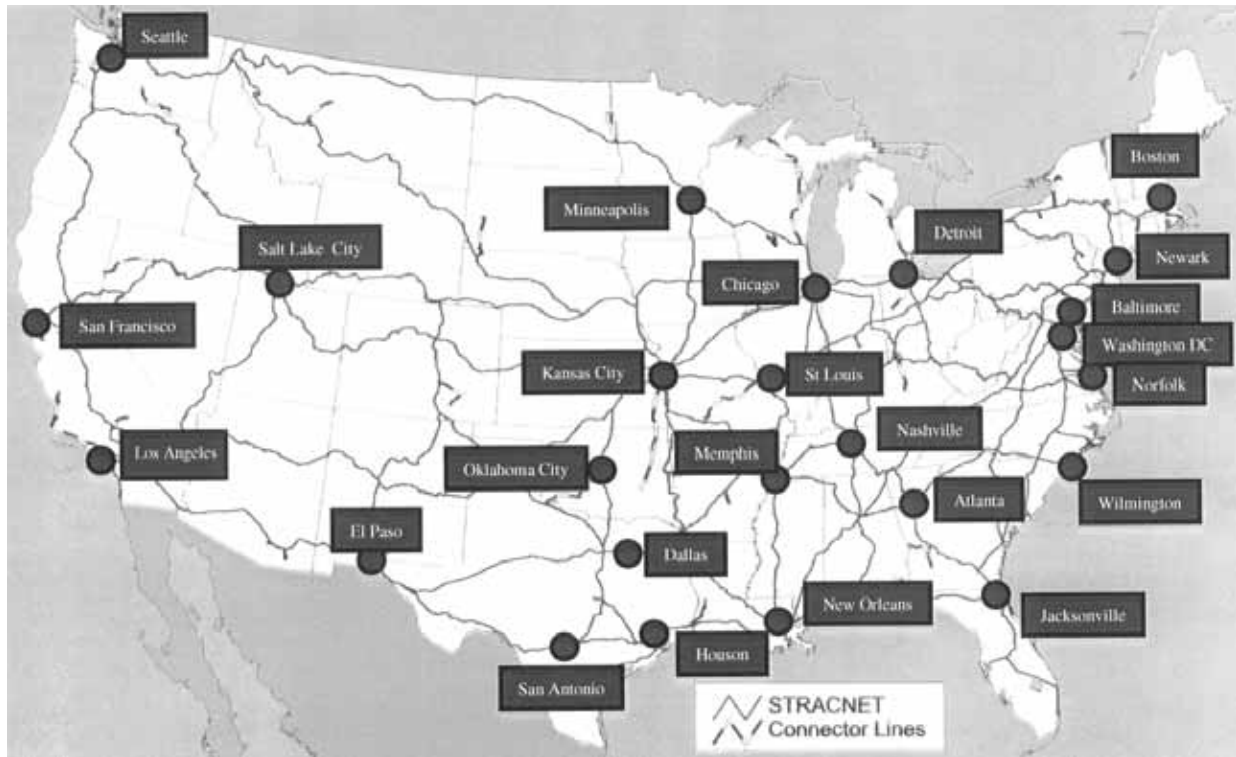


- Identifying DOD requirements for commercial rail service;
- Integrating these requirements into commercial rail planning to support DOD transportation policy, and
- Ensuring strategic rail mobility by protecting required rail infrastructure.

On a periodic basis, as part of the RND Program, the DOD updates, publishes, and coordinates the report on the Strategic Rail Corridor Network (STRACNET) (Figure A.3). Report updates are necessary because of changes in traffic levels and installations, abandonments, and mergers. The report defines DOD requirements for rail service and identifies the commercial rail lines that are important to national defense.

Without a reliable rail infrastructure, the day to day functions of military installations are hampered. Historically, the rail network has served a vital role in deployment of materials and equipment in times of need, most recently during Operations Desert Shield and Desert Storm. The rail network proved to be a crucial link in transporting materials during these deployments.

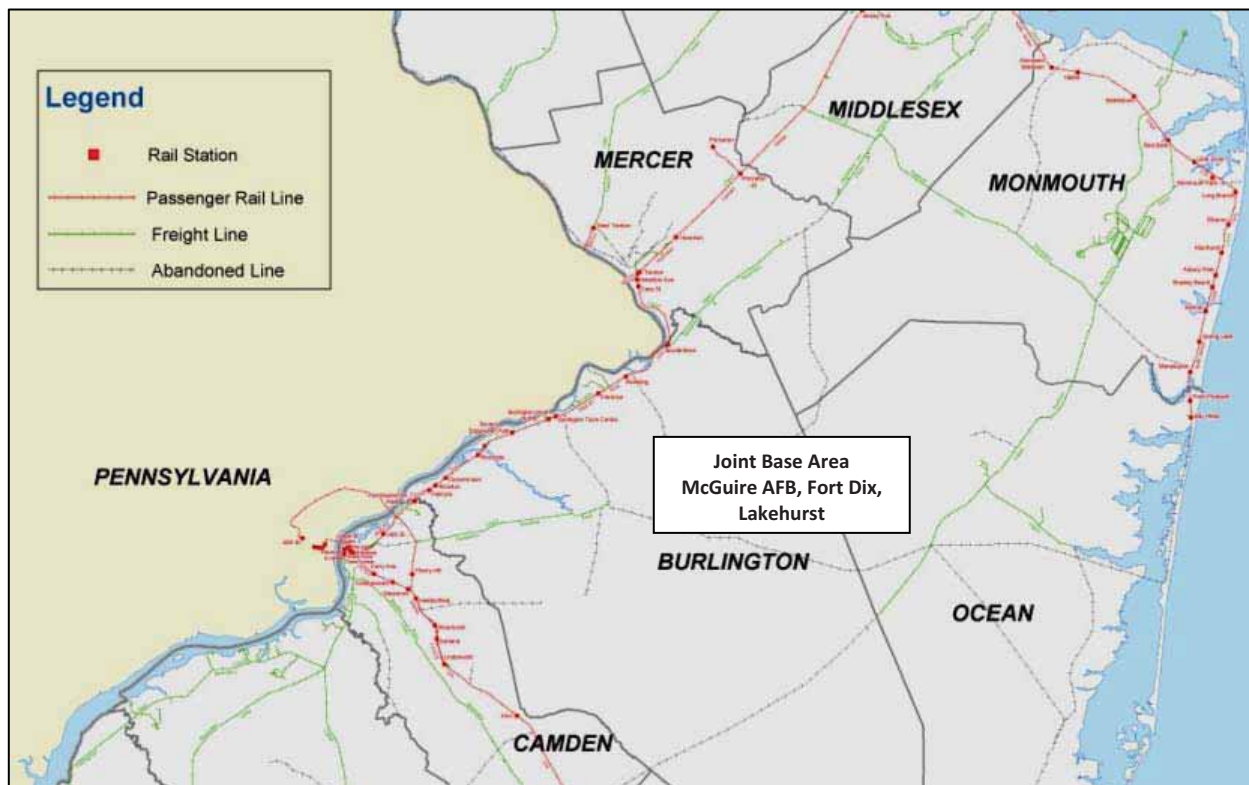
The RND Program analyzes requests for abandonments filed with the Surface Transportation Board (STB). Abandonment is normally approved when traffic and revenue on a line decline to the point that it is not profitable to keep the line in service. Each year, about 200 abandonments are filed, with two or three of these affecting the STRACNET. Over the past several decades, rail abandonments in New Jersey have effectively severed rail access to major DOD installations in the state, most notably Joint Base McGuire-Dix-Lakehurst (JB MDL) in Ocean and Burlington counties. Preservation of rail lines serving the military installations, and recreation of rail access to facilities that have been cut off from the rail network, is critical to maintaining the viability of these DOD facilities and retaining the local employment and economic benefits that these installations represent.

Figure A.3 STRACNET Lines and Connectors Deemed Critical To National Defense

Joint Base McGuire-Dix-Lakehurst, which spans 42,000 acres in Ocean and Burlington counties, is comprised of three formerly separate facilities: McGuire Air Force Base, Fort Dix and the Naval Air Engineering Station Lakehurst (Figure A.4). These facilities were merged in 2009 under the jurisdiction of the United States Air Force 87th Air Base Wing. It was established in accordance with congressional legislation implementing the recommendations of the 2005 Base Realignment and Closure Commission. The legislation ordered the consolidation of the three facilities which were adjoining, but separate military installations, into a single joint base – one of 12 joint bases formed in the United States as a result of the law.

At one time, these facilities were served by rail. Access was provided from the west via the Pemberton Industrial Branch, and from the east via the Southern Secondary. The portions of these lines accessing the Joint Base are currently out of service. Sections of the Pemberton Branch having been converted to trails. Re-establishing rail access to the Joint Base is critical to the facility's ability to operate efficiently and serve national defense needs in times when deployments are required. Failure to re-establish rail access places the future of the facility at risk and threatens the economic value of the Joint Base to New Jersey and the thousands of people who are employed there.

Figure A.4 Joint Base – Burlington and Ocean Counties



Risk to New Jersey

- NJ Joint Base (McGuire-Dix-Lakehurst) is less competitive and vital to the DOD core mission than rail served bases in other areas.
- NJ Joint Base is the largest employer in Burlington and Ocean counties. Potentially, thousands of civilian jobs could be jeopardized if base operations do not efficiently serve the DOD's core mission.

Opportunities to Support Freight Rail Industry in New Jersey

- Additional traffic base for New Jersey rail companies.
- Expanded use of "Super Base" functions, creating additional civilian job opportunities.
- Military Transport Command seeks port facilities where military traffic would not disrupt civilian operations. New Jersey's smaller ports could fill this niche.

Recommended Action

Based in part on input provided by the AIAG participants, and discussions with representatives of the Joint Base, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.19 Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Military Rail Network	Monitor changes to the existing Military Rail Network.	<i>Inventory and identify facilities currently used as part of deployment and strategic transportation command.</i>	<i>Develop program for acquisition of ROW that may be removed from the Military Rail Network as a result of base closures or other actions.</i>	Provide additional in-state opportunities to supplement and/or replace current strategic transportation shipping and receiving facilities.	<i>Explore reconnection and expansion of trackage on New Jersey's Joint Base (McGuire-Dix-Lakehurst).</i>

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.20 Anticipated Outcome – Support for Plan Objectives

Objective	MILITARY RAIL NETWORK			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way	Y			
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities		Y		
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The Joint Base is currently studying the most efficient means of reactivating rail access and service. Funding requirements will be determined by the study. It is anticipated that the US Department of Defense will be the primary source of funding for any actions taken.

K. CLASS I / SHORTLINE CONNECTIVITY

While all short lines operating within New Jersey have the physical ability to connect with at least one Class I railroad and the national network, these connections are sometimes less than optimal. Some connections have physical limitations, such as vertical and horizontal clearance and weight limitations; other connections have operational limitations, including lack of competition and service limitations. These restrictions limit the types of commodities and loads that the short lines can handle and the industries that can be served along their lines. For example, the Raritan Central Railroad serves a number of businesses located primarily within and around that portion of Middlesex County north of the Raritan River. Access to the Class I railroads requires running along approximately 20 miles of Amtrak's Northeast Corridor. The Northeast Corridor is restricted by policy to the movement of 263K railcars. As such, this route does not accommodate the movement of 286K railcars as industry desires.

Ensuring all short line railroads have unfettered access to the Class I network and the ability to move double-stack cars, 286K boxcars and potentially wide loads would make the geographic areas served by these short line railroads more attractive to industrial growth. This attractiveness could be further enhanced through creation of an integrated short line/Class I economic development rail freight marketing program, with oversight and coordination support provided by the New Jersey Economic Development Agency. This program could be structured as a separate component of the state's existing transportation and economic development programs and the activities of group like Choose New Jersey, Inc., an independently funded and operated 501(c) (3) nonprofit corporation created to encourage and nurture economic growth throughout New Jersey. As described on their website www.chosenj.com:

Choose New Jersey, Inc. is one of three interconnected and highly-focused organizations that comprise the New Jersey Partnership for Action, which is the centerpiece of the Christie-Guadagno administration's economic development agenda. Choose New Jersey, Inc.'s role is to position New Jersey as a world-class leader in the competitive global market, thus creating a prosperous and vibrant economy for the state and its citizens. Choose New Jersey, Inc. will champion the state's economic development initiatives and create a surge of national and international awareness that New Jersey is a state that "means business."

Choose New Jersey, Inc.'s Mission:

To encourage and nurture economic growth throughout New Jersey, including a focus on making the state's most distressed cities engines for growth and opportunity. The mission includes implementing a marketing program for the state and development policy recommendations to improve the business environment.

- **POSITION** *New Jersey as a world-class leader in the competitive global market*
- **CHAMPION** *the State's economic development initiatives, build and lead an economic development powerhouse team and establish an overarching message*
- **MARKET** *and create a surge of national and international awareness*
- **DEVELOP** *policy initiatives that capitalize on New Jersey's strengths and help prospects navigate the process*

Risks to New Jersey

- “Last mile” opportunities will be lost. Businesses may opt to locate outside of New Jersey and truck their goods to final destinations.
- Short line traffic base losses will put state investment in infrastructure at risk.
- Traffic bases on light density lines will be impacted, potentially putting them at risk.

Opportunities to Support Freight Rail Industry in New Jersey

- Positions New Jersey for industrial development and growth.
- Short line/Class I partnerships can attract new business development.
- Enhances the return on state investment in rail infrastructure.

Recommended Action

Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.21 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Class I/ Short line Connectivity	Ensure all short lines have convenient access to two Class I railroads as per the agreement regarding the merger/ breakup of Conrail.	<i>Maintain existing service, operations and interchange locations.</i>	<i>Identify and prioritize specific access and interchange concerns of short lines, including Pavonia Yard</i>	<i>Initiate integrated short line/ Class I economic development rail freight marketing program.</i>	Integrate new plan with <i>State Development and Redevelopment Plan</i> and state economic development initiatives.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.22 Anticipated Outcome – Support for Plan Objectives

Objective	CLASS I / SHORT LINE CONNECTIVITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads	Y			
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Many of physical connectivity needs of the short line railroads are addressed by action items associated with other identified issues (i.e. 286K capacity). The need for additional passing sidings and signal upgrades has not advanced beyond the initial concept identification stage. As such, the funding needs for these improvements have not yet been determined.

L. INTERMODAL YARD CAPACITY

At a strategic level, it is important to note that intermodal terminals constitute only one capacity component of the intermodal networks operated by the railroads that serve New Jersey. Rail line capacity and switch yard / storage yard capacity also are key links that provide train access and support operations at the myriad of intermodal terminals within and adjacent to New Jersey. The existence of capacity constraints at any one of these three links will constrain the capacity of any particular rail carrier’s intermodal network. In other words, a rail network’s capacity is only as great (effective) as its weakest link.

Intermodal yards allow cargo, especially containers, to shift between rail and other modes of transportation, usually between rail and truck. In New Jersey, intermodal yards serve both goods coming in at local ports destined for out of state locations and goods arriving at other ports destined for regional markets.

New Jersey is served by 11 intermodal terminals, if the ExpressRail facilities owned and operated by the Port Authority of New York & New Jersey are counted separately, as inventoried below in Table A.23.

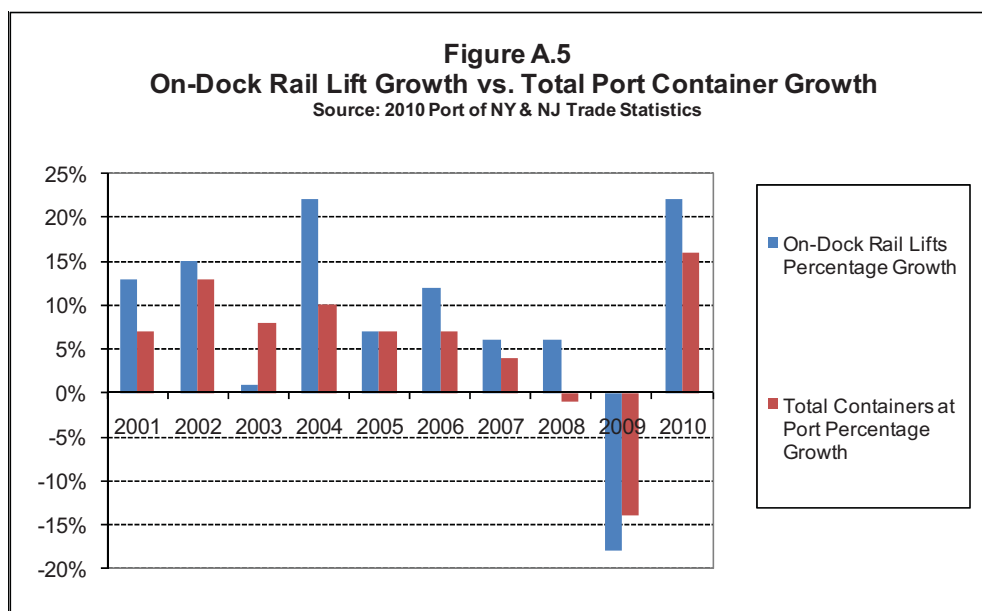
Table A.23 Intermodal Terminals/Yards Serving New Jersey

State	Facility Name	City	Serving Railroad	Approximate NJ Serving Area
NJ	Croxtton	Jersey City	NS	Central, North
NJ	Erail	Elizabeth	NS	Central, North
NJ	ExpressRail Elizabeth (also known as the Elizabeth - Millennium Terminal or Elizabeth Marine Terminal)	Elizabeth	CSX, NS	Central, North
NJ	ExpressRail Newark (also known as the Port Newark Container Terminal or PNCT)	Newark	CSX, NS	Central, North
NJ	Little Ferry	North Bergen	CSX	North
NJ	North Bergen	North Bergen	CSX	North
NJ	South Kearny	Kearny	CSX	North
NY	ExpressRail Staten Island (also known as the New York Container Terminal or NJCT)	Staten Island	CSX, NS	Central, North
PA	Ameriport (also known as South Philadelphia)	Philadelphia	CP, CSX	South
PA	Beth Intermodal	Bethlehem	NS	Central
PA	Morrisville	Morrisville	NS	Central, South

During the AIAG coordination process, much interest was expressed in the Greenville Yard project, part of which will involve construction of the Global Marine Terminal intermodal container transfer facility (ICTF). That project is discussed as a separate issue elsewhere in this report and is mentioned here primarily as a way to highlight that there was little discussion among TAC members about other potential intermodal terminal capacity expansion needs beyond the relatively short time horizon of that project (online during 2014). Some interest was expressed in the creation of an intermodal terminal in southern New Jersey, but this was raised in the context of creating a new intermodal market or an environmentally greener channel by which the port district of northern New Jersey could be connected with southern New Jersey – not as a solution to a capacity constraint.

While the Global Marine Terminal ICTF will serve the international steamship import/export market exclusively, the various domestic lines of intermodal business (LTL and truckload carriers, parcel carriers such as UPS, and domestic container fleet operators such as HUB Group and the UMAX partnership between CSX and Union Pacific Railroad) also warrant consideration. Neither CSX nor NS commented specifically on expected growth in those lines of business (LOBs) at intermodal terminals serving New Jersey. However it is reasonable to expect growth in these LOBs because both railroads have undertaken major corridor initiatives (CSX’s National Gateway and NS’s Crescent Corridor) aimed in part at increasing intermodal traffic to/from New Jersey.

International import/export business at the Port of New York & New Jersey will continue to be a major driver of future rail intermodal traffic in New Jersey if recent trends in on-dock rail lift volumes continue. On-dock rail lifts at Port Authority’s ExpressRail terminals and non-Port Authority terminals grew faster than overall port container volume in seven of the 10 years ending in 2010. In those seven years, terminal on-dock rail lifts grew between two and 12 percent more than overall port container volume, as illustrated on Figure A.5 below.



New Jersey's approach to intermodal terminal capacity should include:

- An evaluation of intermodal terminal capacity within a larger context of the capacities of the rail intermodal networks within New Jersey;
- Use of a planning horizon of at least ten years in any intermodal terminal capacity assessment, and
- A comprehensive analysis of traffic flows of all intermodal lines of business.

In addition, the ***New Jersey State Rail Plan*** should consider the following issues that were raised and rated by the Technical Advisory Committees, the results of which are summarized below:

Risks to New Jersey

- Diminished service to the Port of New York & New Jersey impacts competitiveness.
- Port growth stymied without additional facilities.
- Reduces the potential to cluster industries and businesses around rail facilities (freight villages).
- Loss of major rail freight growth area, particularly in emerging domestic and short haul markets.

Opportunities to Support Freight Rail Industry in New Jersey

- Development of new distribution and warehousing facilities around an intermodal terminal to create critical mass and foster freight villages.
- NS and CSX have identified new domestic growth corridors to host domestic intermodal that may require additional facilities in New Jersey.
- North – South connectivity and connectivity to emerging corridors require looking at new yard facilities.

Recommended Action

Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.24 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Intermodal Yard Capacity		Inventory and maintain existing yard capacity and potential for expansion.	<i>Initiate service improvements to enhance capacity at existing yards to accommodate growth.</i>	<i>Identify and prioritize locations where capacity should be expanded.</i>	Develop new intermodal yards in northern, central and southern New Jersey based upon anticipated growth in domestic intermodal traffic.
		Maintain operating capacity at current yards.			

Investment Need and Potential Funding Resources

The Class I intermodal yards are owned and operated by the Class I railroads. As such, responsibility for maintenance and expansion to ensure adequate capacity and efficient operations has typically fallen to the railroads themselves. Often, major rail infrastructure improvements are funded in part through federal grants, with participation by the railroads. This process is expected to continue into the future, with an increased need for support of the federal grant applications from the state level.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.25 Anticipated Outcome – Support for Plan Objectives

Objective	INTERMODAL YARD CAPACITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity	Y			
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity	Y			
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

3. MODERATE PRIORITY ISSUES

Of the 42 identified issues, 12 were determined to be of a moderate priority with recommended actions to be taken in the near future. These moderate priority issues include:

- Eliminate vertical constraints imposed by catenary systems;
- Preserve out-of-service and abandoned rail rights-of-way for potential future reactivation as an active rail corridor;
- Expand carrying capacity of the Lehigh Line (NS Manville – Phillipsburg);
- Monitor system to ensure maintenance of overall line capacity and system/route redundancy;
- Improve New York Susquehanna and Western (NYSW) Railroad trackage to accommodate both freight and passenger service;
- Maintain the 286K weight standard on the Class I Main Lines;
- Increase transload yard capacity;
- Increase carload yard capacity;
- Expand carrying capacity of the CSX West Trenton Line;
- Expand carrying capacity of the CSX River Line;
- Restructure/rationalize network and connections in southern New Jersey, and
- Enhance connectivity between short lines

The risks posed and the opportunities presented by these moderate priority issues, recommended actions and anticipated outcomes are detailed in the following sections.

A. CATENARY CONSTRAINTS

In addition to physical structures such as overhead bridges, bracing on truss bridges carrying rail lines over other infrastructure and tunnel roofs, catenary lines necessary for the running of passenger trains on electrified routes present a constraint to the movement of double-stack and high-cube freight rail cars. In cases such as the Morristown Line, catenary lines beneath overhead bridges constrain the movement of “Plate F” railcars, effectively restricting the line to “Plate C” railcars, which are below current standards and becoming obsolete. This situation exists in numerous locations where freight and passenger service operate on the same tracks.



Risk to New Jersey

- Virtually eliminates double-stack container trains on electrified routes, limiting this type of traffic to key main line routes in northern New Jersey.

- Restricts movement of Plate “F” boxcars on specific shared routes.
- Height and width constraints on the vast NJ TRANSIT network restrict traffic development on these lines and connecting feeder lines.

Opportunities to Support Freight Rail Industry in New Jersey

- If height restricted areas cannot be improved, alternate routes and new routes may need to be identified to ensure system has bypass and redundancy capability.
- Raising catenary to open up areas for unrestricted freight access will support and enhance economic development options.

Recommended Actions

Catenary constraints exist only when freight operates on passenger lines. Therefore, this issue was only identified as a high priority by the short line railroads operating in the northern New Jersey region. Nonetheless, it is a critical problem in those areas. A range of potential responses to this need were identified in coordination with the AIAG. Options ranged from simply continuing compliance with current FRA regulations and other requirements to development and initiation of new programs and capital projects to address the need. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.26 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Catenary Constraints		Inventory and maintain existing clearances on NJ TRANSIT and Amtrak routes.	Upgrade clearances on identified priority routes for plate F	Identify and prioritize specific lines and routes based on latent demand for double-stack service where clearances should be improved.	Develop new standards for installation of catenary where freight service currently operates or is anticipated to operate.
				Investigate the shared operations trackage between Wood Interlocking and Essay for clearance.	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.27 Anticipated Outcome – Support for Plan Objectives

Objective	CATENARY CONSTRAINTS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads	Y			
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

As with the issue of vertical constraints represented by bridges and tunnels, individual corridors and geographic regions have been the subject of targeted investigations identifying vertical constraints. However, a comprehensive study of vertical constraints on the entire rail network in New Jersey has not been undertaken. An understanding of the number, location and type of vertical constraints that exist along the network will be necessary prior to determining the costs associated with developing and implementing improvements.

B. RIGHT-OF-WAY PRESERVATION

For much of its history, New Jersey was heavily industrialized and served by an extensive port and freight rail network. Over the years, as industries moved out, the demand for rail service to supply local manufacturing operations declined. Investment in, and upgrades to, many of the rail lines serving New Jersey businesses failed to keep pace with the evolving demands of rail served industries. As a consequence, miles of freight railroad were taken out of service, while many more miles of freight rail right-of-way were sold or converted to other uses. The remaining freight rail network continues to support movements to and from New Jersey, but it is no longer as capable of supporting movements within the state as it once was. The ability of the freight rail network to serve future demand in this ever shifting industrial environment will be further hampered if additional sections of freight rail right-of-way are lost to other uses.

Maintaining existing rail system infrastructure in a state of good repair is essential to meeting the future needs of the freight rail industry and the customers it serves. Equally important is the preservation of local rail corridors that are currently inactive, or at risk to become so, for future freight rail use. By the start of the 21st century, over 5,000 miles of inactive railroad right-of-way had been converted to trails for bicyclists and pedestrians nationwide. While reversion clauses typically permit reactivation of the right-of-way for rail use if needs warrant, this reversion is rarely if ever exercised. Once a rail right-of-way is relinquished for other uses, including conversion to bicycle and pedestrian trails, it is forever lost as a potential part of the freight rail network.

A primary objective of this plan is leveraging the freight rail network and industry to stimulate economic growth in New Jersey. Attraction of industrial development, and even retention of existing development, is made more difficult as the often key pieces of the rail network are taken out of service. Concentrated industrial development can be effectively supported by the reactivation and enhancement of rail access that meets current industry standards. System preservation elements of this plan include:

- Preserve active and abandoned railroad ROWs having strong potential for future transportation or other public use, where such preservation is consistent with the goals of the local communities contiguous to the lines.
- In cases where a railroad has demonstrated conclusively that it should be permitted to abandon a railroad line segment, railroad users should be assisted in efforts to meet the competitive challenges posed by the abandonment
- The state should continue purchasing rail corridor ROW with potential for future use.

Currently unprofitable rail lines have an inherent value and are often sold by the Class I and regional railroads with the rail infrastructure intact. Many discrete segments are sold to short line operators who, with lower overhead and operating costs, are able to profitably operate the service. Other lines are sold to local economic development agencies and public transit operators. These lines represent an untapped opportunity for multiple uses.

The state Department of Transportation may purchase or lease railroad lines, any part of a railroad line or any other property owned by a railroad when, in the judgment of the department, such a step is necessary to protect the public interest. This option must be seriously considered and executed as the railroads Class I railroads divest themselves of right-of-way. Before dismantling any track that results in a cessation of rail service upon all or part of a railroad line, or offering any railroad property for sale, or upon the abandonment of service along all or a portion of a railroad line, the department must seriously consider using its right of first refusal to lease or purchase the right-of-way. If the department finds that the economic welfare of the state would be adversely affected by the loss of the line for railroad transportation purposes, the department should purchase the abandoned portion of the line. In making this determination, the department shall consider, among other criteria deemed significant by the department, future economic development activities and opportunities in the area served by the abandoned railroad service.

At-risk rail rights-of-way may be aggregated into two basic categories: currently inactive or out of service rights-of-way, and active rail lines that are currently utilized to serve a single customer. Figures A.6, 7 and 8 depict current inactive and out of service rail right-of-way within New Jersey. A policy should be developed and instated that will give the state the ability to identify and preserve these rights-of-way as they are offered for sale or change of use.

The state should also work with rail operators to identify active lines serving only a single customer. In the event that single active customers were to cease operations, the rail line serving that facility would effectively become inactive. Without an active customer, there is little or no motivation for the rail owner to continue to invest in maintenance and upkeep of the line, placing it at risk for eventual abandonment. A prime example of this condition is the Beesley's Point Generating Station, also called the B.L. England Generating Station, located in Upper Township, Cape May County. The operators of the B. L. England plant have announced the conversion of the plant from coal to natural gas, eliminating the need to ship coal to the facility, which is currently done by rail via the Atlantic City Line and the Beesley Point Secondary Line.

When this currently active customer ceases to utilize rail, the potential exists for the Beesley Point Secondary to be taken out of service. This would effectively sever access to the Cape May Seashore Lines, which is the only rail line serving Cape May County. Taking the Beesley Point Secondary out of service would sever all of Cape May County and portions of Atlantic County from the rest of the New Jersey freight rail network. A program should be implemented in coordination with the New Jersey Economic Development Agency to support the continued operation of single customers along rail lines and to encourage additional rail served development as a mechanism to support continued maintenance and activity on at-risk rail lines.

Risk to New Jersey

- A highly developed state like New Jersey is at a competitive disadvantage compared to other land rich states where new rights-of-way can be more readily created.
- Limits economic development, as needed infrastructure cannot be provided.
- Right-of-way acquisition in highly urbanized state is extremely costly.

Opportunities to Support Freight Rail Industry in New Jersey

- Right-of-way preservation offers potential for new service corridors and resolution of “connectivity” issues.
- Preserved corridors would be in concert with state development and redevelopment plan.
- Preserved corridors offer opportunities to provide system redundancy, increased capacity.

Figure A.6 Currently Inactive or Out of Service Rights-of-Way Northern NJ

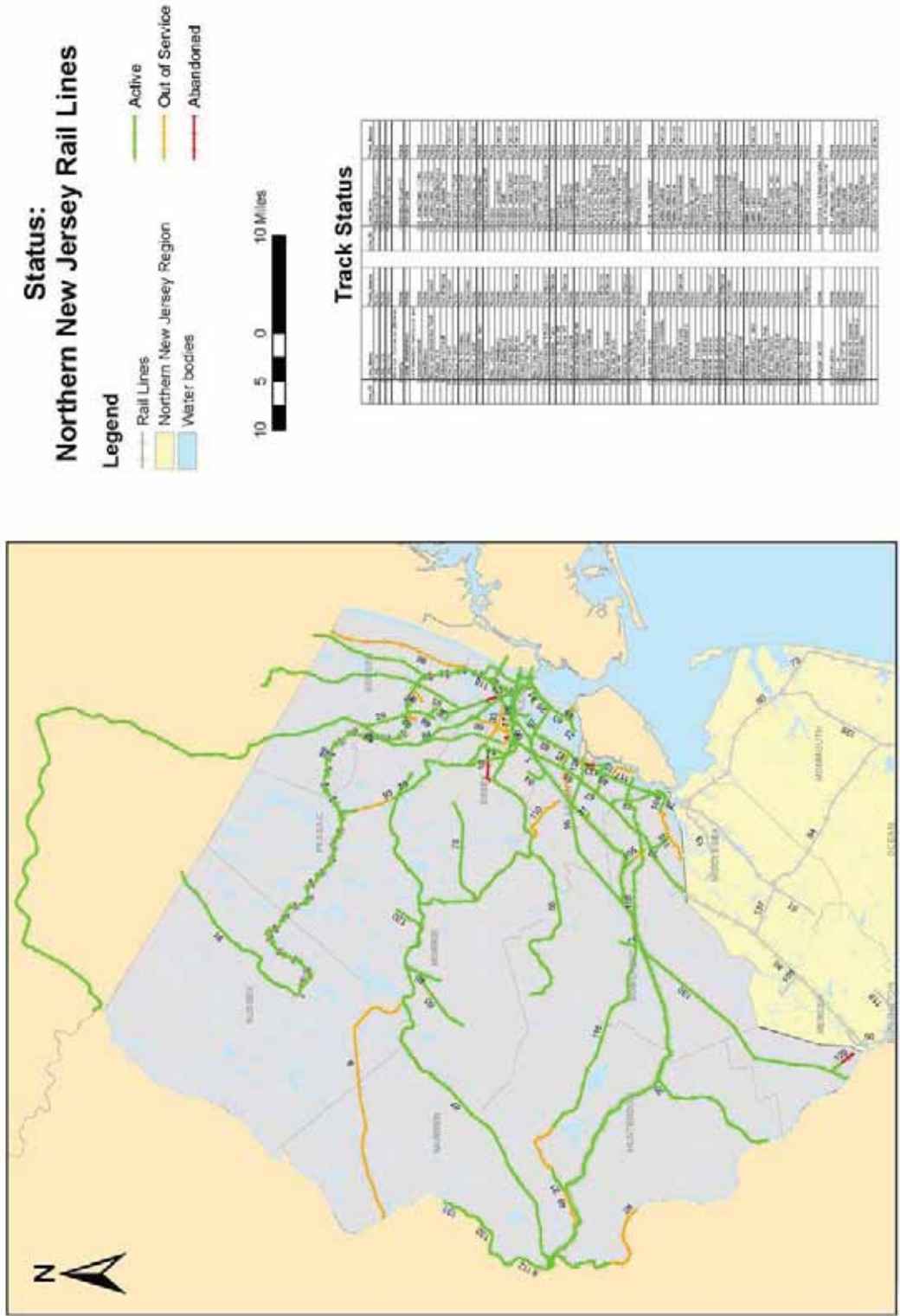


Figure A.7 Currently Inactive or Out of Service Rights-of-Way
Central NJ

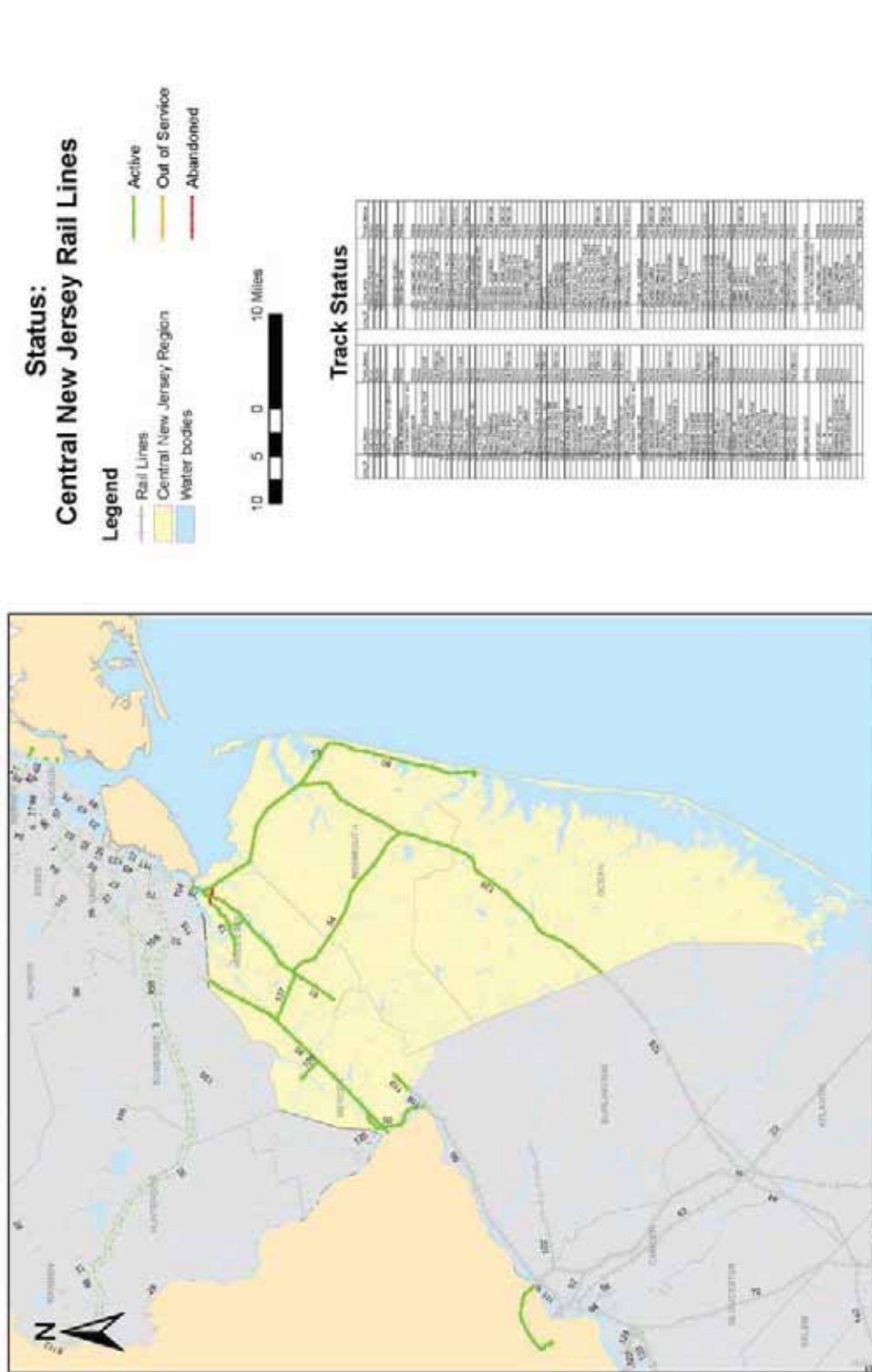
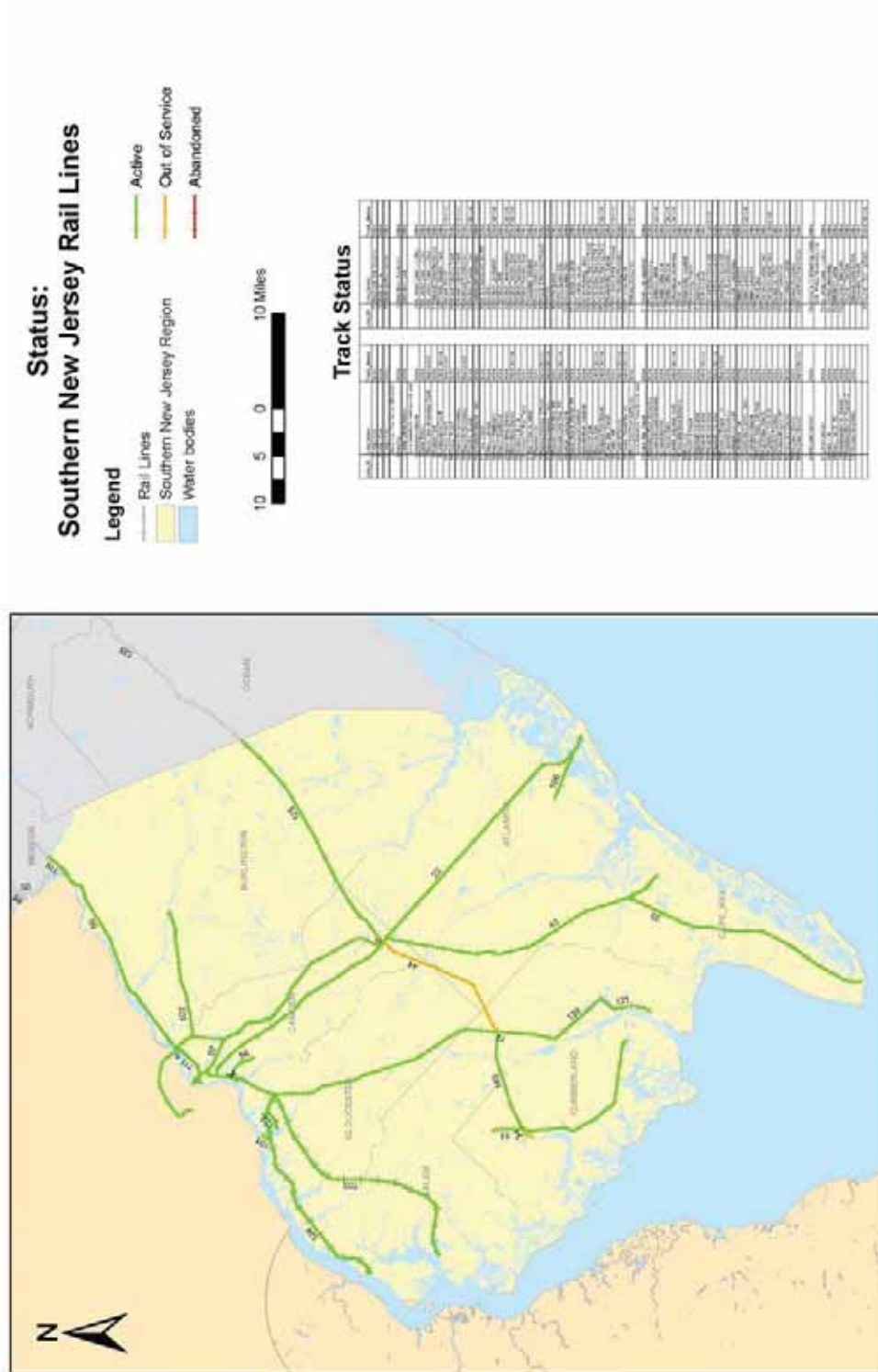


Figure A.8 Currently Inactive or Out of Service Rights-of-Way Southern NJ



Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Options ranged from continuing compliance with current FRA regulations and other requirements to development and initiation of new programs and capital projects to address the need. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.26 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Right-of-Way Preservation		Inventory at-risk rail corridors and monitor for threats to preservation.	Identify strategies and funding sources for long term preservation of current inventory.	Prioritize lines for potential future reactivation/development.	Reserve/preserve identified corridors for future transportation usage.
			Coordinate with NJEDA and other county/local development authorities to support continued operation of rail served customers along at-risk lines.	Identify unique opportunities for right of way preservation including use of highway and utility rights of way that could be utilized as shared corridors.	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.27 Anticipated Outcome – Support for Plan Objectives

Objective	RIGHT OF WAY PRESERVATION			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way	Y			
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources:

The specific lines that will be threatened by sale for other uses or conversion to trails is expected to vary from year to year in the future as industry needs evolve and the critical nature of individual lines increases or diminishes accordingly. While the annual funding needs for preservation are not known at this time, it is important to develop a renewable mechanism for that will allow the state to respond in a timely manner as preservation needs emerge. Supplementing the NJ Freight Rail Assistance program with funds dedicated specifically for right-of-way acquisition should be explored and implemented.

C. LEHIGH LINE (NS MANVILLE – PHILLIPSBURG)

While this section of the Lehigh Line does not currently operate under constrained conditions, the anticipated growth in freight rail moves along the entirety of the Lehigh Line hold the potential to utilize most, if not all, of the available capacity on the corridor.



Growth in the international container traffic transported to and from the northern New Jersey ports, including expansions of the ExpressRail operations and increases in the percentage of containers moved to and from the ports by rail being aggressively advanced by the Port Authority of New York & New Jersey suggest the need to increase the capacity of this section of the Lehigh Line.

The list of projects proposed in Phase II of the Mid-Atlantic Rail Operations Study (MAROps) includes double-tracking of the route in Pennsylvania from Allentown to the Phillipsburg, NJ tunnel as well as double tracking of the route from Phillipsburg to Newark, NJ. These improvements are based upon a projection that specific constrained segments of the Lehigh Line, particularly in the areas of Phillipsburg and Manville, NJ will operate at a level of service F by the year 2035 without improvements to capacity.

Risk to New Jersey

- Loss of primary NS route to the west and south that is double-stack cleared.
- Provides route for extending NJ TRANSIT passenger service into Eastern Pennsylvania.
- Connecting route to the emerging Crescent Corridor.

Opportunities to Support Freight Rail Industry in New Jersey

- Provide for capacity increase by restoration of double track.
- Provide for future passenger service extension into Pennsylvania.
- Important link in the Crescent corridor if additional intermodal facilities are added.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG to address the need to maintain adequate line capacity throughout the system to accommodate the anticipated growth in the volume of freight moved by rail to, from and through New Jersey. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.28 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Lehigh Line (NS Manville – Phillipsburg)		Maintain optimum double stack clearance.	<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>	<i>Add passing sidings and upgrade signaling.</i>	Restore second track.
		Maintain rail line at current track speeds.		<i>Maintain parallel LV Bridge for potential freight and passenger expansion.</i>	Double-stack clearance and second track through the Musconetcong Tunnel. Tunnel is currently single track to accommodate double stack in center of arch.
		Maintain current Delaware River Bridge in state of good repair.			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.29 Anticipated Outcome – Support for Plan Objectives

Objective	LEHIGH LINE (NS MANVILLE – PHILLIPSBURG)			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The MAROps study estimates the cost of improvements from Easton, PA to Manville, NJ including upgrade of the Royce Running Tract to be approximately \$123 million. Funding sources have not been identified for this initiative.

D. LINE CAPACITY / SYSTEM REDUNDANCY

The freight rail network serving the United States was originally created and evolved in large measure to transport large quantities of heavy materials across long distances. While there are certainly local exceptions, longer-distance moves continue to be the primary business of freight rail. The use of trucks for shorter distance, lower volume goods movement has proven to be more cost effective for shippers.

As summarized in Table A.30, of the more than 45 million tons of cargo moved on the rail network within New Jersey in 2007, only 262,000 tons, or less than 0.6 percent, were local moves, or moves that had both an origin and a destination within New Jersey. The vast majority (nearly 82 percent) of the freight moved along New Jersey's freight rail network consisted of railcars that had either an origin or a destination outside of New Jersey. The remaining 17.5 percent of the freight moved across New Jersey's freight rail network were through trips, utilizing the New Jersey infrastructure originating from, and destined to, locations outside of New Jersey. This trend is not expected to change appreciably in the future. Accordingly, maintaining interstate connectivity is vital to the continued health of the freight rail industry in New Jersey. This may be accomplished through expansion of capacity on specific corridors that traverse the state, diversion of traffic to other less active corridors, and implementation of technologies to increase the line carrying capacity of both freight and passenger rail.

Table A.30 Rail Tonnage and Value by Direction

Direction	Tons (x1,000)		Value \$ (x1,000)	
	2007	2035	2007	2035
Inbound	24,658	32,782	\$35,757	\$50,381
Outbound	12,807	22,378	\$19,079	\$35,741
Internal	262	319	\$478	\$788
Through	8,010	12,220	\$6,953	\$11,804
Total	45,738	67,699	\$62,268	\$98,714

Risk to New Jersey

- Conflict between growth in freight and passenger service limits rail potential on overall rail system.
- Shifts businesses to out of state locations with freight trucked into New Jersey.

Opportunities to Support Freight Rail Industry in New Jersey

- System redundancy needed to maintain fluidity and provide back-up service routings.
- Shifting traffic to lower density lines may open up opportunities for growth on main lines and secondary lines. Preserving system capacity.
- Potential to explore reuse of preserved corridors to provide alternatives for growth.
- Application of new technologies (PTC) to create additional capacity.

Recommended Actions

A range of potential actions were identified in consultation with the AIAG to address the need to maintain adequate line capacity throughout the system to accommodate the anticipated growth in the volume of freight moved by rail to, from and through New Jersey. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.31 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Line Capacity / System Redundancy		Inventory, codify and maintain existing line capacity.	<i>Identify and prioritize lines based upon anticipated growth and future capacity restraints.</i>	<i>Investigate technologies that can be applied to increase capacity on existing freight lines and shared operations lines.</i>	Implement new technologies that can be applied to increasing capacity on identified lines with capacity restraints.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.32 Anticipated Outcome – Support for Plan Objectives

Objective	OVERALL LINE CAPACITY / SYSTEM REDUNDANCY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy	Y			
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The magnitude of future capital required to maintain adequate line capacity on the overall freight rail system is subject to further study and identification of specific improvements to be made as freight rail volume grows. The following sections discuss the more critical links that connect the freight rail infrastructure within New Jersey to the national network.

E. THE NEW YORK, SUSQUEHANNA AND WESTERN (NYS&W)

The New York, Susquehanna and Western Railway (NYS&W) is a Class II freight railroad operating over 400 miles of track in New Jersey, New York and Pennsylvania. The route is 286K capable on all sections and is cleared for double-stack railcars, with connections to NS, CSX and CP.

The NYS&W serves a small local customer base as well as overflow and detour traffic generated by CSX and Norfolk Southern.

As part of a 2007 study, NJ TRANSIT developed a concept for a Tri-County Rail Service in Hudson, Bergen and Passaic counties. The plan utilized NYS&W right-of-way between Hawthorne and North Bergen. Separate tracks would be constructed along this section to accommodate new passenger service and existing freight operations. The addition of crossovers would permit operation of either service on either track on an as-needed basis, increasing the operational flexibility of this route. A 1.1 mile section of the route would remain single track due to the costs associated with widening of an existing bridge to accommodate two main tracks. Even with these improvements and addition of the second track, passenger operation would narrow the windows for freight operations, with improvements made to the freight-only portion of the route to insure that the trains would be in position to meet those windows. The NJDOT funded some of these improvements on the section west of Hawthorne, NJ through the NJ Rail Freight Assistance Program as requested by the NYS&W.



Risk to New Jersey

- Single-track line limits capacity, but is cleared along the entire length for 286K and double-stack cars.
- Several at-grade crossings exist within densely populated areas.
- NJ TRANSIT is potentially seeking to initiate passenger service along the NYS&W between Hackensack and Hawthorne.

Opportunities to Support Freight Rail Industry in New Jersey

- Alternative/redundant route into northern New Jersey for intermodal and merchandise freight (double-stack cleared) if additional capacity is needed (River Line overflow).
- Potential for new intermodal and transloading facilities in northwestern part of state to serve congested Interstate 287 and I-80 corridors.
- Potential for passenger service to northwestern area of state.

Recommended Actions

A range of potential actions was identified to address the needs of the NYS&W route and maintain capacity for existing and future freight operations. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.33 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
NYS&W		Maintain optimum double-stack clearance.	<i>Upgrade and possibly combine and/or eliminate grade crossings.</i>	<i>Add passing sidings and upgrade signaling as passenger service is instituted.</i>	Add intermodal and/or transload facility to serve northwest NJ and I-287 corridor.
		Maintain rail line at current track speeds.			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.34 Anticipated Outcome – Support for Plan Objectives

Objective	NEW YORK SUSQUEHANNA AND WESTERN (NYSW)			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy	Y			
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Addition of passing sidings and signal upgrades has not been advanced past the initial concept identification stage. As such, the funding needs for these improvements have not yet been determined.

F. CLASS I MAIN LINES - 286K CAPACITY

Capacity to handle 286K railcars currently exists on all of the primary Class I rail routes serving New Jersey. These routes are expected to receive additional activity in the future as the volume of freight moved to and from New Jersey grows. It is therefore of critical importance to maintain the weight capacity on these routes through routine monitoring of infrastructure conditions.



Risk to New Jersey

- Traffic development opportunities lost. Existing traffic and competitiveness of local businesses/industries are at risk due to rail lines' inability to accommodate the most economical rail equipment.
- Economic development opportunities could shift to other states due to rail infrastructure limitations in New Jersey; freight would be transloaded to trucks in adjoining states for final delivery in New Jersey.
- Hindered rail infrastructure capacity may lead to hampered competitiveness in New Jersey.

Opportunities to Support Freight Rail Industry in New Jersey

- Removes impediment to freight flows to, from, within, and through New Jersey.
- Puts New Jersey on equal footing with neighboring states in its ability to attract rail-based businesses into state.

Recommended Actions

A range of potential actions was identified to address the need to maintain the existing 286K railcar capacity on Class I main routes. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.39 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Class I Main Lines		<i>Inventory and maintain existing 286 capacity routes.</i>			Assess the cost of, and need for, enhancements to accommodate 315K in the future.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.40 Anticipated Outcome – Support for Plan Objectives

Objective	THE 286K STANDARD - CLASS I MAIN LINES			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Annual costs for maintenance of 286K capacity on the Class I mainlines is typically borne by the railroads, with minimal participation in funding by the public sector. This is expected to continue into the future, with the state providing support in the permitting of improvements as required.

G. TRANSLOAD YARD CAPACITY

Transload capability is an intermodal service that involves the transfer of freight between a rail car and truck, waterborne or pipeline transportation on the other.



As with container/trailer intermodal terminal capacity, the availability of transload terminal capacity at a strategic level should be evaluated in the context of

a railroad's overall network, specifically the carload networks that connect New Jersey with the rest of the nation. Rail line capacity and switch yard/storage yard capacity also are key links that provide train access and support operations at the rail transload terminals within and adjacent to New Jersey. The existence of capacity constraints at any one of these three links will constrain the capacity of any particular rail carrier's carload network. In other words, a rail network's capacity is only as great as its weakest link.

Given that it is a component of New Jersey's carload network, access to transload yard capacity on some lines could be constrained by weight and height limitations.

Transloading is accomplished directly between a rail car and other transportation modes, or indirectly via intermediate storage of goods in a tank, silo, warehouse or on the ground. There are hundreds of rail-served transload facilities within the state and nearby locations serving the state's markets. They vary widely in size and scope of commodities handled and services offered. The control and marketing of rail-served transload facilities ranges from railroad owners to railroad-provider partnerships to purely private business operations.

Rail transload facilities are generally dedicated to particular basic commodity groups, such as bulk commodities in dry and liquid form that usually travel in tank cars or covered hopper cars (chemicals, plastics, industrial minerals, corn syrup, etc.); lumber; paper; steel/metals, and products requiring general warehousing. Within the bulk commodities and general warehousing segments, it is common to find differentiation between food grade and non-food grade facilities.

While the above commodities tend to move in single-car or modest, multi-car shipments, the evolution of the ethanol market in New Jersey and surrounding states has created a demand for facilities capable of handling 65 to 100+ car unit trains of inbound ethanol. Domestic oil production by way of hydraulic fracturing of shale formations and horizontal drilling has also boomed, intensifying the demand for, and movement of, unit trains of crude oil.

Coal, which is delivered by a long-established, separate unit train and transload network, is not included within the scope of this discussion. Facilities that handle waste commodities such as

municipal solid waste (MSW) and construction demolition waste (CDW) are also excluded from this discussion because these commodities have such unique handling requirements as to merit a separate discussion.

Transloading brings to carload traffic many of the same cost saving, operational and market benefits as container/trailer intermodal service:

- Rail transload terminals allow trucks to extend the market reach of the national railroad network to industries that are not located adjacent to an active rail line.
- Concentration of traffic from low volume customers bolsters train size and corridor traffic density. Such traffic concentration helps railroads keep unit operating costs (and, therefore, rates) low, while supporting more frequent train service than might be available to customers whose individual facilities might be spread out within a railroad's terminal service area.

Additionally, use of an existing transload facility could help rail customers avoid the cost of installing a rail siding or a costly switch. The presence of commuter and/or intercity passenger trains on an existing rail line increases the signal and train control costs, especially if new switches are required to be capable of functioning under a federally-mandated positive train control (PTC) system. A line hosting passenger trains might also be subject to restrictions on the time of day and frequency with which a freight customer could be served so as to not interfere with passenger train services, which are accorded priority under federal law.

It remains to be seen whether these factors will create new opportunities or limit the formation of new transloading capacity in the future. Locating on freight only lines could eliminate conflicts with passenger trains and lower infrastructure (track and signal) costs. The feasibility of either option at a particular location would be contingent upon successful navigation of a variety of development issues including availability of suitable land, zoning and roadway access.

As New Jersey assembles its ***State Rail Plan***, its approach to transload terminal capacity should include: 1) evaluating transload terminal capacity within a larger context of the capacities of the rail carload networks within New Jersey and 2) resolution of weight and height limitations, as they apply to transload terminal capacity.

The ***State Rail Plan*** should also consider issues that were raised and rated by the AIAG.

Risk to New Jersey

- Loss of ability to serve local, off-line small and medium-size businesses, which constitute the largest employment base in New Jersey.

Opportunity to Support Freight Rail Industry in New Jersey

- Critical to localizing freight delivery to small and medium-sized off-line companies.

Recommended Actions

A range of potential responses to this need was identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.41 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Transload Yard Capacity		Inventory and maintain existing yard capacity and potential for expansion.	<i>Initiate service improvement to enhance capacity at existing yards to accommodate growth.</i>	<i>Incorporate transload facilities within dense clusters of industrial and warehouse development.</i>	Develop new transload yards and facilities as needed to minimize final local delivery by truck.
		Identify and prioritize locations where capacity should be expanded.		<i>Increase capacity at additional locations based on priorities.</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.42 Anticipated Outcome – Support for Plan Objectives

Objective	TRANSLOAD YARD CAPACITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity	Y			
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The major transload yards are owned and operated by the Class I railroads, and as such, responsibility for maintenance and expansion to ensure adequate capacity and efficient operations has typically fallen to the railroads themselves. Often, major rail infrastructure improvements are funded in part through federal grants, with participation by the railroads. This process is expected to continue into the future, with an increased need for support of the federal grant applications from the state level.

H. RAIL YARD CARLOAD CAPACITY

The function and demands placed upon these facilities, some in place for more than 100 years, have changed over the past half century due to shifts in industrial land use patterns and improvements to the state and regional transportation systems that they serve. A number of yards and connections between various railroads have closed or reduced operations as a result of declining boxcar volumes.



Railroads are responding to the changing patterns of warehouse and distribution center locations and operations. Once critical inter-railroad interchanges have been de-emphasized, while others have been improved and expanded. Over the years, industry emphasis has shifted away from large, bulk shippers of natural and manufactured products, limiting the growth of rail customers who rely upon carload yards. In some cases, this has dramatically reduced the number of businesses with shipping needs consistent with freight rail service. Other former carload yards have been converted to intermodal yards in response to growing demand for container transport.

Risk to New Jersey

- Intermodal growth is cannibalizing carload yard space.
- Freight trains are terminated outside of state, creating additional service layers for freight terminating in New Jersey.
- Freight is terminated outside of New Jersey and trucked to final destinations, encouraging business development outside of state.

Opportunities to Support Freight Rail Industry in New Jersey

- Yards now have to be expanded, reactivated, or built to accommodate anticipated growth.
- Yards need to be designed and expanded to reflect new service patterns and customer needs.
- North-south connectivity and connectivity to emerging corridors require looking at new yard facilities.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.43 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Carload Yard Capacity		<i>Inventory existing yard capacity and potential for expansion.</i>	<i>Address service and capacity issues at Pavonia Yard.</i>	Based upon inventory, selectively expand capacity at existing yards to accommodate anticipated growth, where possible.	Identify and prioritize locations where new carload yards should be constructed.
		<i>Maintain operating capacity at current yards.</i>			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.44 Anticipated Outcome – Support for Plan Objectives

Objective	CARLOAD YARD CAPACITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity	Y			
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities	Y			
Support retention, attraction and growth of rail-served industries within New Jersey	Y			
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The major carload yards are principally owned and operated by the Class I railroads, and as such, responsibility for maintenance and expansion to ensure adequate capacity and efficient operations has typically fallen to the railroads themselves. Often, major rail infrastructure improvements are funded in part through federal grants, with participation from the railroads. This process is expected to continue into the future, with an increased need for support of the federal grant applications from the state level.

I. WEST TRENTON LINE

While the West Trenton Line does not currently operate under constrained conditions, the anticipated growth in freight rail moves along the entirety of the Lehigh Line, which interlocks with the West Trenton Line at Port Reading Junction, holds the potential to utilize most, if not all, of the available capacity on the corridor. Growth in the international container traffic transported



to and from the northern New Jersey ports, expansion of ExpressRail operations, and increases in the percentage of containers moved to and from the ports by rail being aggressively advanced by the Port Authority of New York & New Jersey suggest the need to increase the capacity of this line. In addition, NJ TRANSIT is considering adding passenger service on the line. The projects proposed in Phase II of the **Mid-Atlantic Rail Operations Study** (MAROps) include addition of a second main track from Manville Yard to Trenton. These improvements are intended to reduce conflicts between passenger and freight operations and increase capacity for both services.

Risk to New Jersey

- Loss of primary CSX route to the southeast, which is double-stack cleared to Philadelphia.
- Provides route/right-of-way for extending NJ TRANSIT passenger service to West Trenton.

Opportunities to Support Freight Rail Industry in New Jersey

- Provide for capacity increase by restoring of double-track.
- Provide for future passenger service extension to West Trenton.
- Important North-South and New England -Canada link if additional intermodal facilities are added.

Recommended Action

A range of potential actions were identified to address future capacity needs along the West Trenton Line. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.2 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
West Trenton Line		<i>Maintain optimum double stack clearance.</i>	<i>Upgrade and possibly combine and/or eliminate grade crossings in Somerset County.</i>	Restore 2 nd main track to accommodate additional freight consistent with the recommendations of the MAROps study.	Restore and upgrade signaling for potential passenger service.
		<i>Maintain rail line at current track speeds.</i>	<i>Implement quiet zone from crossing of Route 601 to crossing of Province Line Road.</i>		
		<i>Maintain current Delaware River RR Bridge in state of good repair.</i>			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.46 Anticipated Outcome – Support for Plan Objectives

Objective	WEST TRENTON LINE			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

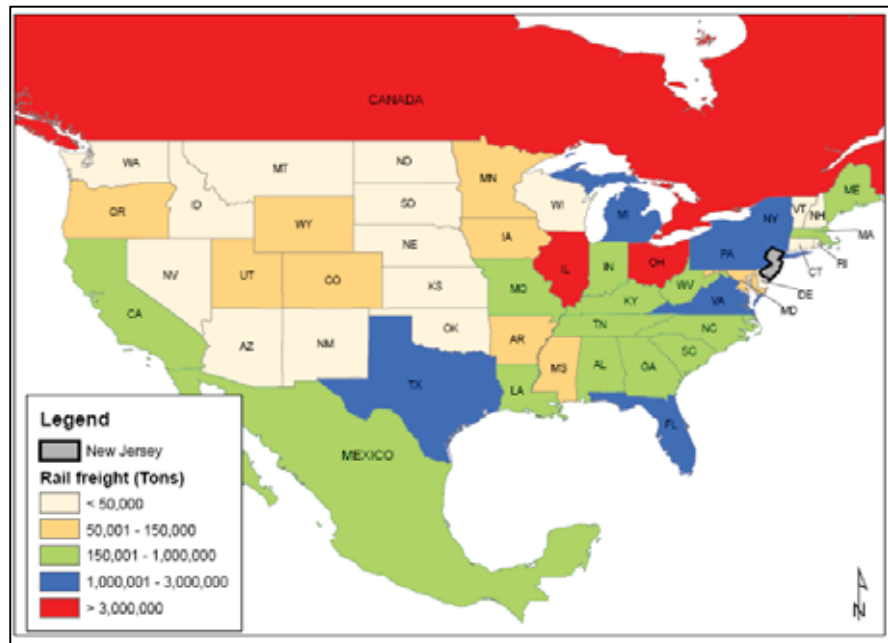
Investment Need and Potential Funding Resources

The MAROps study estimates the cost of improvements of the route from Newark, NJ to Philadelphia, PA to be approximately \$180 million within New Jersey, with an additional investment of approximately \$250 million required within Pennsylvania. Funding sources for this improvement have not been identified.

J. RIVER LINE (CSX)

The River Line is a critical link in the rail corridor connecting the northern New Jersey port complex to Selkirk, NY and beyond to Albany, NY. From there, freight moves west into the national system, and east into New England. The River Line was split into several sections following the 1999 division of Conrail assets between Norfolk Southern Railway and CSX Transportation. The section south of CP 2 at CSX's North Bergen Yard is owned by NJ TRANSIT and operated as part of the Hudson-Bergen Light Rail Line. CSX owns the remainder of the line. At CP 2, the route connects to the Northern Branch, which carries trains that previously traveled along the River Line south of CP 2. The River Subdivision ends in Selkirk, NY with the Port Subdivision continuing towards Albany. This line represents the primary route north for the movement of intermodal and mixed freights, auto carriers, waste, and unit ethanol trains.

A significant volume of the freight trade entering and exiting northern New Jersey (nearly 24 million tons annually equaling over 63 percent of the interstate total by weight) originates in, or is destined to, points in Illinois, New York, Ohio, Pennsylvania and Canada. The River Line is the primary route utilized by CSX to access these high-volume trade regions. By 2035, the volume of freight moved by rail



between New Jersey and these top trade partners is expected to grow by over 30 percent to over 31 million tons annually. This anticipated growth, combined with the already high utilization rate of the River Line strongly suggests the need to maintain and improve the operating efficiency and carrying capacity of this vital route.

Risk to New Jersey

- Primary CSX route between northern New Jersey and Chicago, Eastern Canada, and New England.
- The River Line is single track north of Teaneck, running through densely developed and heavily populated residential areas.
- Limited potential for rail-served industrial development along the corridor due to dense residential land use abutting the route in New Jersey.

- Multiple at-grade crossings exist along the route, several of which are in need of upgrade.

Opportunities to Support Freight Rail Industry in New Jersey

- In the past, the existing right-of-way supported multiple tracks to Dumont, NJ. NJ TRANSIT has explored the potential for passenger service along this route in the past.
- Recently completed heightening of the Bergen Tunnel opened this route to hi-cube and double-stack service.
- Recent agreement with CP Rail on haulage into New York City may open the route up to increased Canadian traffic, alleviating truck traffic along the congested Route 17 corridor.
- Primary route for servicing current traffic and future growth in rail traffic from the Global Marine Terminal and Greenville Yard in Jersey City.

Recommended Actions

A range of potential actions was identified to address the needs of the River Line route and maintain capacity for existing and future freight operations. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.47 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
River Line (CSX)		Maintain rail line at current track speeds.	<i>Upgrade and possibly combine and/or eliminate grade crossings.</i> <i>Implement quiet zones and associated grade crossing improvements.</i>	<i>Add passing sidings and upgrade signaling to increase carrying capacity of the route.</i>	Re-lay second track

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.48 Anticipated Outcome – Support for Plan Objectives

Objective	RIVER LINE			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity		Y		
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Addition of passing sidings and signal upgrades has not advanced past the initial concept identification stage. As such, the funding needs for these improvements have not yet been determined.

K. NETWORK RESTRUCTURING / RATIONALIZATION

Initially developed in the 1830s, the United States freight rail system expanded rapidly in the 1800s and early 1900s with system mileage reaching its peak of about 380,000 miles of track³ in the 1920s. As a result of improvements and expansion of highway infrastructure, increased competition from the trucking industry, increased regulation, and passage of the federal Staggers Railroad Act in 1980, the railroad industry has consolidated and divested itself of lines that were unable to generate enough revenues to cover operating and maintenance costs. Today, the core freight rail network in the United States has been reduced to approximately 172,000 miles of track.

Divestiture of extensive portions of the rail network has resulted in a balkanized system with numerous owners of individual pieces of the overall system. While intended to increase the efficiency and economic viability of the individual railroad operators, this “splitting up” of the rail network has left the overall system with a reduced set of infrastructure, limiting its ability to adapt to and serve the changing demands placed upon it by passenger and freight needs. Operational inefficiencies exist throughout the system hampering the ability to capture the economic value that rail served businesses represent to New Jersey. Rationalization of the system refers to actions such as reinstating former connections and coordinating operations across rail segments with variable ownership so that it functions more as a complete system. Restructuring the entire network to better serve the state’s needs - both freight and passenger - as opposed to serving individual location-specific needs would support industrial growth and the economic health of the freight rail industry, the businesses it serves and the entire state.

Risk to New Jersey

- Rail infrastructure has become too “Balkanized,” negating efficiencies since several carriers/agencies have jurisdiction between end points.
- System that is in place does not reflect current marketing conditions and opportunities, negating growth of rail traffic.

Opportunities to Support Freight Rail Industry in New Jersey

- Potential for restructuring could create more opportunities for short haul rail.
- Infrastructure revisions could create new intermodal opportunities for rail/truck and barge/rail since overall freight movement is trending toward shorter hauls.

Recommended Actions

Potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

³ AASHTO Freight Rail Bottom Line Report, 2003

Table A.49 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Network restructuring / rationalization		<i>Evaluate current system and determine adequacy as national rail plan evolves.</i>	<i>Open alternative freight routes to clear availability for passenger service.</i>	<i>Identify opportunities and options for incremental restructuring among private and public sector owners, operators and agencies.</i>	Implement options for incremental restructuring among private and public sector owners to improve rail-marketing options.

Near Term Rail Network Restructuring Example⁴

The rail network in South Jersey today contains many miles of light-density freight lines. Previous efforts to rationalize this rail network by Conrail have resulted in the abandonment of service on the line between Glassboro and Bridgeton, for example, and the subsequent acquisition of other lines by the NJDOT, NJ TRANSIT and short line railroads. As a result of these transactions, the ownership and operation of the South Jersey rail network is now split among various entities, thereby complicating the development of a comprehensive plan to deal with the declining rail freight traffic on several lines, some of which are already out-of-service or lightly used. To avoid sub-optimal solutions, the following plan has been developed to rationalize and redeploy various elements of the South Jersey rail network and is submitted for inclusion in the ***New Jersey State Rail Plan*** for further consideration by all concerned.

The following rail route comparison shows how freight traffic from the Bridgeton-Vineland-Millville area can be rerouted via Winslow Junction while adding eight miles to the trip. This rerouting releases about 25 miles of railroad between Woodbury and Vineland to facilitate the planned restoration of passenger service between Camden and Glassboro while preserving the remainder of the existing rail right-of-way for the future extension of rail passenger service to Vineland and its vicinity. The elimination of freight service between Woodbury and Glassboro can significantly reduce the cost of rebuilding this line for passenger service and can avoid onerous “temporal separation” of freight and passenger services afterward, similar to the situation on the River Line between Pennsauken and Trenton.

⁴ Rationalization concept as developed by William Sheppard, Atlantic Rail Services, Inc.



Since there are no active freight customers currently receiving rail service between Woodbury and Vineland (“Landis”), the effect of abandoning freight service on this line is therefore inconsequential and could eliminate a number of rail-highway grade crossings in surrounding communities. It should also be noted that most of the freight traffic moving today between Camden and Millville Yard is actually generated by customers located on connecting rail lines that extend south of

Vineland to Bridgeton and beyond. As a result of utilizing Millville Yard to interchange general rail traffic between Conrail and the Winchester and Western Railroad, many rail cars destined to and from points south of Vineland wind up crossing city streets in Vineland and Millville four times on trains that operate at slow (10 MPH) speeds, thereby disrupting vehicular traffic. By rerouting freight trains via Winslow Junction instead, such traffic could move directly to and from Bridgeton, as was done for many years by the Central Railroad of New Jersey, thereby eliminating the 10-mile side-trip to Millville Yard. What traffic remains for Millville or Vineland could then be handled separately using an established track connection at “Landis” in Vineland.

Rerouting rail traffic via Winslow Junction would require rehabilitation of 16.1 miles of track between Vineland and Winslow to Federal Railroad Administration Class 2 Standards so that 286,000 pound shipments may move this way. This work would include the restoration of some track in Vineland that was removed by Conrail in 2011. To facilitate freight train movements between Bridgeton and Camden, a direct track connection at Winslow should be restored along with certain interchange tracks. It should be noted that the rail line between Vineland and Winslow was acquired by the NJDOT following abandonment of service by Conrail in 1985. Following damage due to Hurricane Irene in August, 2011, there are now 10.9 miles of track listed as out-of-service on this line, leaving some communities such as Buena without rail service. This unfortunate development also strands capital investments made previously by the NJDOT to repair rail bridges across Hospitality and Cedar creeks.

The line between Camden and Winslow is ultimately anchored by the B. L. England Electric Generating Station at Beesley’s Point in Palermo. The continued operation of this plant, like many coal-fired generating stations, is very much in doubt due to various environmental regulations, and it currently operates only at certain times of the year. The introduction of overhead traffic from the Bridgeton-Vineland-Millville area to the line that runs between Camden and Winslow will produce important economies of scale, thereby helping to secure freight service not only for customers served today via this line, but also for customers on the line between Winslow and Vineland, portions of which are currently out-of-service. Should rail freight traffic levels continue to decline, however, separate operation of parallel passenger and freight rail lines between Winslow and Pennsauken-Camden by NJ TRANSIT and Conrail,

respectively, should be examined to determine whether freight and passenger services can be consolidated somehow.

While this plan does not specifically address the restoration of rail service to JBMDL (Joint Base McGuire-Dix-Lakehurst), the proposed concentration of rail freight activity at Winslow could help justify reactivation of the so-called “Blue Comet Route” to serve the JBMDL at Lakehurst. Further examination of this route option should also consider potential traffic flows between South and North Jersey originating on the Winchester and Western Railroad and at other locations. This particular recommendation reflects input received from the late Fred Winkler, General Agent of the Winchester and Western Railroad, whose advice was very much appreciated in developing this plan.

It should be noted that this plan does not specifically address other light density lines such as the Salem Running Track between Woodbury and Swedesboro, and other industrial tracks where rail routing alternatives are not readily available.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.50 Anticipated Outcome – Support for Plan Objectives

Objective	NETWORK RESTRUCTURING/RATIONALIZATION			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

A statewide assessment of the need for and rationalization of the state's rail network should be undertaken, with rationalization of the portions of the southern New Jersey network as described above initiated in the near term. Funding required to implement the recommendations of the assessment will be determined as part of the study.

L. SHORT LINE / SHORT LINE CONNECTIVITY



New Jersey's short line railroads operate independent of each other and primarily serve as "last mile" connections between Class I railroads and the final customer. As such, connectivity between the short lines is not an immediately pressing concern. However, enhancing physical and operational connectivity between short lines holds the potential to open new areas to business expansion or new businesses. Short line railroads could potentially serve a useful function in

replacement of truck trips for intra-New Jersey short haul moves between material suppliers and consumers.

Risk to New Jersey

- Loss of short haul opportunities in emerging markets.
- Total reliance on trucks in regional and inter-regional goods movement.
- Diminished short line traffic base, placing state investment in infrastructure at risk.

Opportunities to Support Freight Rail Industry in New Jersey

- Development of short-haul interstate and intra-state markets such as petroleum products and fracture sand for natural gas drilling.
- Potential for short haul markets to be developed within the state localizing benefit of reduced truck traffic.
- Enhances return on state investment in rail infrastructure.

Recommended Actions

Potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.51 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Short Line / Short Line Connectivity		Maintain current system of connectivity with short lines connecting only to Class I railroads.	<i>Identify opportunities for short haul interstate movements between short lines.</i>	<i>Identify opportunities for intra-state connectivity to develop short haul markets.</i>	Develop institutional measures to encourage connectivity between short lines.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.52 Anticipated Outcome – Support for Plan Objectives

Objective	SHORT LINE / SHORT LINE CONNECTIVITY			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Infrastructure needs to support short line to short line connectivity will be identified on an as needed basis as specific markets and rail moves are identified by short line operators. As such, the funding requirement is not determined at this time. The NJ Freight Rail Assistance Program would be the primary source of public funding to supplement private investment to advance these types of actions.

4. LOWER PRIORITY ISSUES

Of the 42 identified issues, 19 were determined to be of relative low priority. While these are real and pertinent issues, some were determined to have relatively low adverse effects if left unaddressed, or they are being addressed by the railroads themselves. Others are not expected to exert any significant adverse effect on freight rail operations until well into the future. These issues include:

- Planned New Passenger Operations
- Community Education
- Noise
- Emissions
- Temporal Separation
- Shared Operations
- Grade Crossings
- Haulage Rights
- Trackage Rights / Paper Barriers
- Environmental Justice
- Odor
- Hazmat Storage
- Passenger Platforms (Commuter Rail)
- Passenger Platforms (Light Rail)
- Freight Train Speed Restrictions
- Positive Train Control (PTC)
- High Speed Rail
- Adoption of a National Rail Plan
- Trend Towards 315K Routes

The risks posed and the opportunities presented by these lower priority issues, recommended actions and anticipated outcomes are detailed in the following sections.

A. PLANNED NEW PASSENGER OPERATIONS

A key consideration in the development and management of an efficient, flexible rail network in New Jersey is the shared use of portions of the network by both passenger and freight rail operators. While these shared corridors maximize the utility of the rail network, they generally function adequately due to coordination between the carriers. Easing conflicts on shared routes has the potential to improve operational efficiency and capacity. Shared use typically involves coordination of complex issues including scheduling, cost sharing and liability. The limited potential to construct new infrastructure, combined with the projected increases in demand for both passenger and freight service make shared use of right-of-way a critical issue requiring close coordination of the competing demands when new or expanded operations are considered.

**Status of Passenger Rail Improvement/Expansion Proposals
On Existing Freight Rail Corridors in New Jersey**

Northern Branch

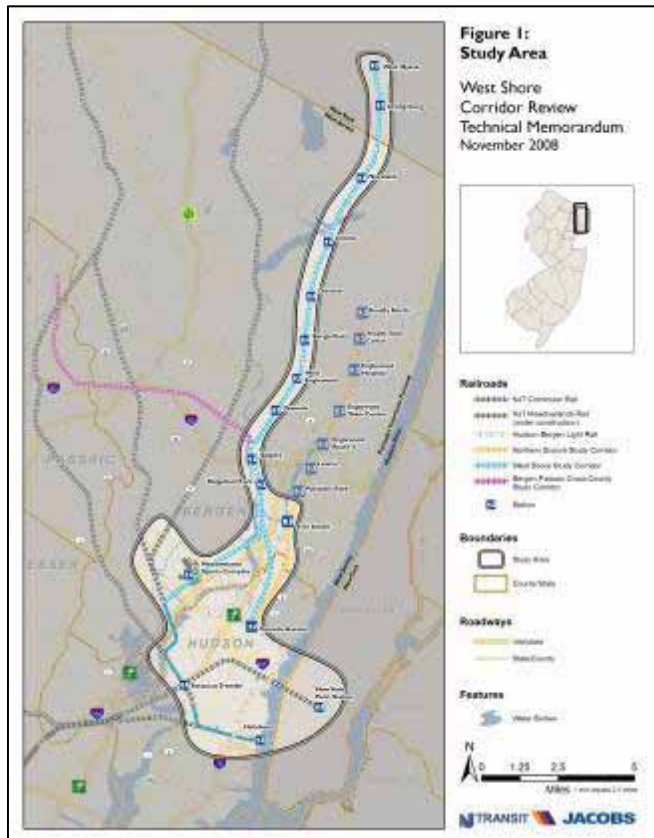
The Northern Branch is a freight rail line owned by CSX Transportation. NJ TRANSIT is exploring passenger rail options in the corridor through the Hudson and Bergen county communities of Tenafly, Englewood, Leonia, Palisades Park, Ridgewood, Fairview and North Bergen.

The corridor has not been served by passenger rail since the discontinuation of service on the Northern Branch and West Shore Lines in the 1950s and 1960s.

Two passenger rail modal options have been considered in the Northern Branch corridor: an extension of the electrified Hudson-Bergen Light Rail (HBLR) Line or operation of diesel multiple unit (DMU) railcars along the corridor.

NJ TRANSIT, in cooperation with the Federal Transit Administration, has commissioned an Environmental Impact Statement for the preferred alternative in the Northern Branch corridor -- a light rail extension to Tenafly.





West Shore

The potential for passenger rail service in the West Shore Corridor was evaluated by NJ TRANSIT in the *West Shore Region Alternatives Analysis* (1999) and in a technical memorandum (2008).

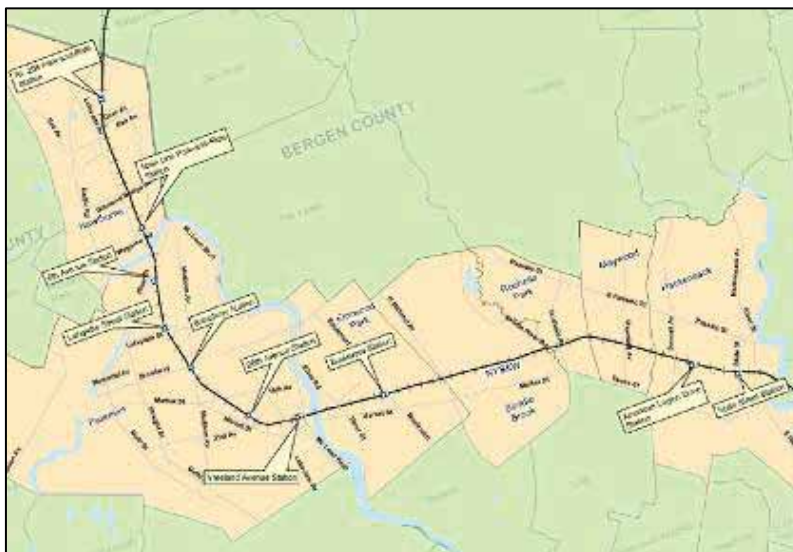
Passenger rail service on the West Shore was discontinued in 1959. Freight growth in the corridor was accelerated by the split of Conrail in 1998. The West Shore Corridor, also known as the River Line, became part of the CSX network, heightening the importance of its emerging role as one of the two major rail freight corridors serving the New York City/Northern New Jersey rail freight market.

The corridor serves as CSX’s prime access route to this market, with more than 30 trains per day. The NJ TRANSIT studies recommended the use of either commuter

rail or diesel multiple units in the 20-mile River Line corridor from northern Hudson County, through the length of Bergen County, and into Rockland County. Passenger rail service in the West Shore Corridor has not advanced beyond the planning stages.

Bergen-Passaic Rail

In 2009, NJ TRANSIT completed an environmental impact study and final engineering for the Passaic-Bergen Passenger Restoration Project. The project would provide passenger rail service utilizing DMU vehicles within an eight mile section of NYS&W-owned and operated freight rail corridor between Route 208 in Hawthorne and River Street in Hackensack. The Passaic-Bergen rail project would serve nine stations. The project is currently on hold.

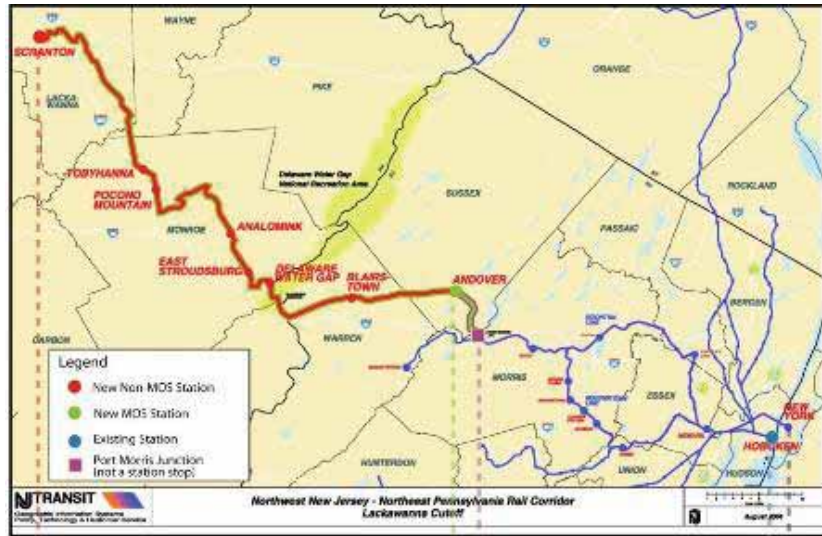


NYS&W Sparta

In the 1990s, NJ TRANSIT performed planning, environmental and engineering studies on the potential extension of Main Line commuter rail service using the NYS&W freight corridor through Passaic, Morris and Sussex counties, terminating in Sparta. Stations were considered in Wyckoff, Oakland, Pompton Lakes, Butler, Newfoundland and Sparta. The proposal has not advanced due to institutional and community issues and a lack of funding.

Lackawanna Cutoff

In 2009, NJ TRANSIT completed the environmental assessment for this project, which would restore passenger rail service on existing freight right-of-way in Pennsylvania, and out-of-service rail right-of-way in New Jersey, between Scranton, PA; Hoboken, NJ and Midtown Manhattan, NY - a distance of 133 miles. An initial project phase, a seven-mile extension to Andover Township is currently being advanced into construction. The initial project phase involves all out of service right-of-way. Therefore, no freight service is involved.



Raritan Valley Line

The NJ TRANSIT *Central New Jersey/Raritan Valley Transit Study* examined commuter bus and commuter rail improvements along the I-78 corridor, including extension of commuter rail service on the Raritan Valley Line beyond its current terminus in High Bridge to Hampton, Bloomsburg, Phillipsburg and potentially into Pennsylvania. One alternative looked at was using former Central Railroad of New Jersey right-of-way. The study was completed in 2011, but funding has not identified to pursue the alternatives evaluated.

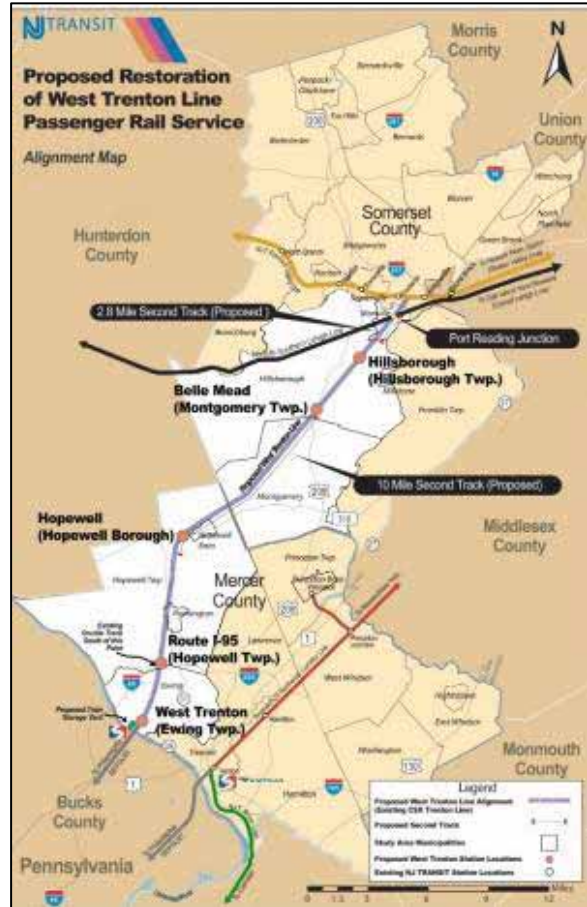


West Trenton Line

The *West Trenton Passenger Rail Service Restoration Study and Draft Environmental Assessment* (2005) sponsored by NJ TRANSIT proposed restoring passenger rail service along 27 miles of the West Trenton Line from a southern terminus of West Trenton Station, located in Ewing Township, Mercer County to a northern terminus at Bridgewater Station in Somerset County.

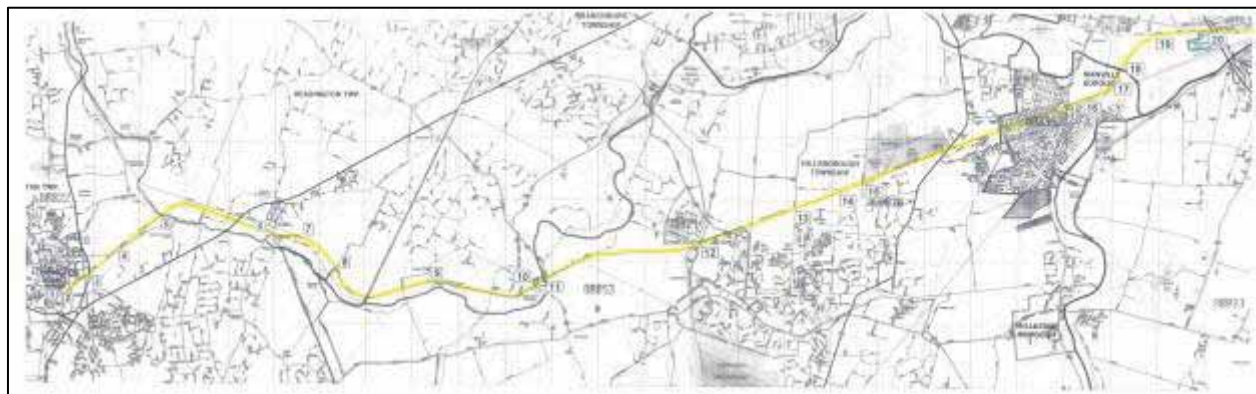
The project would use an in-place right-of-way and track along the West Trenton Line that is currently owned and operated by CSX Transportation for freight service.

Passenger service along this corridor was discontinued in 1982. Subsequently, some track was removed. Today, the corridor is comprised mainly of one to two tracks in a right-of-way that is as wide as four tracks in some areas. The project has not advanced due to a lack of funding.



Flemington

In 2011, NJ TRANSIT began to study the feasibility of a 20-mile extension of Raritan Valley Line (RVL) commuter rail service to Flemington. The study is considering new stations in Manville, Hillsborough, Branchburg (Neshanic) and Flemington. The proposal assumes use of the track and/or right-of-way of the Black River and Western Railroad, Norfolk Southern’s Lehigh Line, and the Reading Connector at Manville to reach the RVL at the former Branch Brook Junction site, just west of Bridgewater Station. The study is still being conducted at this time.



Monmouth-Ocean-Middlesex

The NJ TRANSIT *Monmouth Ocean Middlesex (MOM) Rail Draft Environmental Impact Study* considered nine build alternatives on three different alignments for commuter rail service via North Jersey Coast Line or Northeast Corridor to New York’s Pennsylvania Station. The three alignments studied were:

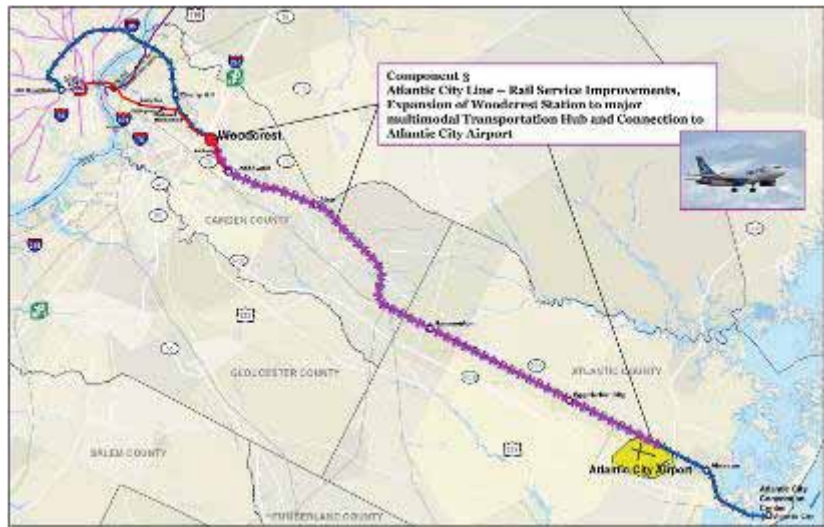
- The Red Bank alternatives, approximately 26-miles in length, using the Conrail-owned Southern Secondary freight line from Manchester Township to Red Bank.
- The Matawan alternatives, approximately 32-miles in length, using the Conrail-owned Southern Secondary and Freehold Secondary freight lines (via new connections at Farmingdale and Freehold Borough).
- The Monmouth Junction alternatives, approximately 38-miles in length, used the Conrail-owned Southern Secondary, Freehold Secondary, and Jamesburg Branch freight lines to Monmouth Junction.



No recommendation has been made and the study is not currently being advanced.

Atlantic City Line

NJ TRANSIT is currently studying the best approaches to improve service on the Atlantic City Line (ACRL), including increased service frequency, identifying infrastructure needs, and determining the impacts of adding stations at Pennsauken, at the PATCO Woodcrest Station, and near Atlantic City Airport. Freight rail service over the ACRL is operated by the Southern Railroad of New Jersey (SRNJ) between Winslow Junction and “Griff”



Interlocking just west of the Atlantic City Station and by Conrail between US Route 130 and “Jordan.” This study is currently on-going; recommendations have not yet been released.

South Jersey Light Rail

Delaware River Port Authority (DRPA) completed a two-year alternatives analysis study in 2009 that recommended passenger rail from Glassboro to Camden.

The preferred option identified by the study is using light rail vehicles similar to the NJ TRANSIT’s River Line. The DRPA is beginning an Environmental Impact Statement for the preferred alternative.

The majority of the alignment would utilize an existing Conrail freight right-of-way.

Risk to New Jersey

- Diminishes development of freight rail services access to key sites.
- Attraction and growth of businesses are potentially limited by passenger operations.
- Loss of industrial job base may not be compensated by Transit Oriented Development (TOD) alone.



Opportunities to Support Freight Rail Industry in New Jersey

- Can be used to facilitate clustering of industries in new Freight Village areas that can be served by both freight and new passenger systems.
- Freight and passenger can both carry the cost while providing public and private benefits to an area.

Recommended Actions

While not viewed as a high priority issue, the specter of increased passenger service along lines that also serve freight demand could significantly reduce or eliminate growth in freight rail movements and in the industries it supports. A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.53 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Planned New Passenger Operations			<i>Negotiate a standard framework for cost and liability sharing on shared service lines.</i>		<i>Investigate options for adding new passenger services without significantly degrading freight operations, including, but not limited to, the Millville Branch from Glassboro, to Camden, the West Trenton Line and the NYS&W in Bergen County.</i>

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.54 Anticipated Outcome – Support for Plan Objectives

Objective	PLANNED NEW PASSENGER OPERATIONS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network	Y			
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The additional investments required to maintain existing freight rail access and the potential for future freight rail growth as passenger services are expanded must be determined on a case-by-case basis. The freight service improvements to the NYS&W that were outlined above are an example of the types of measures that can be implemented to allow passenger and freight service to effectively share a single rail corridor. Funding needs and the potential sources for funding must also be determined on a case-by-case basis.

B. COMMUNITY EDUCATION

While maintaining a flexible and efficient freight rail system is vital to the economic health of state as a whole, freight rail infrastructure rehabilitation and expansion projects can be, and often are, derailed by misperceptions held by the public and local elected officials. Freight rail operations are somewhat protected by the federal Surface Transportation Board as being in the national interest. However, in New Jersey, state funding for local improvements, particularly to infrastructure links owned and operated by short line railroads, can be blocked by a lack of municipal support.



This can inhibit use of the New Jersey Freight Rail Assistance Program for funds to reactivate, rehabilitate or improve local routes and secondary lines. While a request for funding under the New Jersey Freight Rail Assistance Program may have tremendous merit in terms of its support for economic growth, the program requires the support of the host community within which the improvement is to be made prior to the awarding of a grant. Often the successful advancement of a rail infrastructure project is the result of through discussions and negotiations among public agencies, private freight companies, and the affected communities.

Communication is one of the keys to success. Key issues routinely expressed by communities relative to freight operations and facilities include:



- Communication;
- Traffic flow and congestion;
- Safety and security;
- Economic development;
- Air quality;
- Noise and vibrations, and
- Land use and values.

A common understanding of the issues, educating and building awareness, working together and organizing to craft solutions, and continuously checking to see if the solutions remain effective helps ensure that freight transportation facilities and operations can be integrated with community needs and goals.

Educating affected communities and their elected officials holds the potential to minimize the impediments to maintaining a strong freight rail system by eliminating misperceptions and allowing decisions to be made based upon a clear and factual understanding of the issues, options and associated benefits.

With the exception of programs like *Operation Lifesaver*, community education activities have historically been undertaken in a reactive fashion in response to objections voiced by the general public or public officials in response to improvement plans. Development and implementation of a community outreach and education component for each freight rail infrastructure improvement initiative would foster understanding and facilitate the advancement of an improvement that meets the needs of the freight industry in a manner that is sensitive to the needs of the host communities.

Risk to New Jersey

- Freight is often viewed by local communities as an “outsider” adversely impacting their safety and quality of life while offering no benefits.
- NIMBY syndrome drives away opportunities for economic development and tax relief.

Opportunities to Support Freight Rail Industry in New Jersey

- Integration of rail freight into community at large through public education programs.
- *Operation Lifesaver* can be expanded to educate communities that freight can be a good neighbor.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.55 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Community Education			<i>Develop program to educate communities and demonstrate the value of freight rail.</i>	<i>Expand current FRA programs such as Operation Lifesaver</i>	Develop additional outreach programs as required to promote a good neighbor policy.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.56 Anticipated Outcome – Support for Plan Objectives

Objective	COMMUNITY EDUCATION			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support	Y			

Investment Need and Potential Funding Resources

A dedicated and recurring funding source should be created to allow state involvement in the community education process.

C. NOISE

Noise is a form of pollution that can negatively affect quality of life. Sound levels associated with the movement of rail cars are one of the most common concerns raised by communities. Noise is generated not only by the physical operation of a train along a track, but also by train whistles and stationary warning devices such as electronic bells or claxons installed to provide safety at grade crossings of public streets and pedestrian pathways. While whistles warn that a train is approaching, providing a measure of safety, the loud whistles reduce the resident's quality of life, as they interrupt sleep, conversations, and more.



Intensification of development, both in urban and rural environments, can bring the population into closer contact with existing freight rail facilities and currently inactive corridors that may be reactivated in the future, creating new conflicts. New residential development is often less tolerant of train traffic and noise than older, established corridors where residential land uses and active rail service have coexisted for extended periods of time.

Solutions to mitigate train noise at grade crossings may include such actions as closing of the grade crossing and the re-routing of rail freight where alternative routes are available; separating at-grade crossings; creating quiet zones, or modifying train whistles at grade crossings by installing wayside horns. Mitigation of train noise resulting from the running of trains along a corridor may include actions such as installing continuous welded rail or the construction of landscape berms or sound walls. Requirements for sounds walls, berms, and buffer zones can be mandated as part of zoning ordinances or constructed as part of an agreement between a freight facility and the surrounding community.

Risk to New Jersey

- Railroad noise adversely affects the quality of life for residents and occupants of other sensitive land uses.
- Inspires an aversion to increased rail activity in host communities resulting in obstruction of improvements or the implementation of undesirable legislation and regulation.

Opportunities to Support Freight Rail Industry in New Jersey

- Coordination of new or expanded freight rail infrastructure and operation with the municipalities enhances the perception of railroads as the good neighbor.

- Work with communities on reduction and mitigation of noise impacts.

It is recommended that the installation of, or conversion to, continuously welded rail as part of current planned or future improvements be made a requirement for any rail project that utilizes state public funding. These costs would be borne by the rail owner and would only require public funding only if they are included in a New Jersey Freight Rail Assistance Program grant application.

Creation of quiet zones is typically initiated at the request of a host community, with the cost of installation and maintenance borne by the municipality. A dedicated and recurring funding source should be created to help municipalities fund quiet zones or other noise abatement measures.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.57 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Noise	Ensure locomotives are compliant with current EPA and FRA regulations.	Continue spot improvements to address identified areas of concern.	<i>Upgrade to continuously welded rail on selective lines.</i>	<i>Expand use of continuously welded rail.</i>	<i>Encourage incorporation of a rail planning component in county and local land use plans to preserve rail freight corridors while addressing quality of life issues.</i>
		Develop prioritized plan for improvements.	<i>Reduce train idling in selected locations.</i>	<i>Expand use of noise reduction including quiet zones.</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended

actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.58 Anticipated Outcome – Support for Plan Objectives

Objective	NOISE			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support		Y		

Investment Need and Potential Funding Resources

A dedicated and recurring funding source should be created to help municipalities fund quiet zones or other noise abatement measures.

D. EMISSIONS

Of all the major modes used to transport freight, railroads have been shown to be the least impactful on the environment in terms of emissions that are harmful to air quality. With the exception of particulate matter, railroads emit lower levels of pollutants such as nitrogen oxides, volatile organic compounds (VOCs), carbon monoxide and carbon dioxide per ton-mile of freight transported.

Table A.59 Railroad Emissions per Ton-Mile

Rank (1=Most Desirable)	Oxides of Nitrogen	Volatile Organic Compounds	Particulate Matter	Carbon Monoxide	Carbon Dioxide
1	Rail	Rail	Air	Rail	Rail
2	Water	Water	Rail	Water	Water
3	Truck	Air	Water	Air	Truck
4	Air	Truck	Truck	Truck	Air

Source: Envirotrans

Emission standards for locomotives in service in the United States have been adopted by the EPA in two regulatory actions and apply to newly manufactured and remanufactured locomotives.

Tier 0-2 standards: The first emission regulation for railroad locomotives was in December 1997 [63 FR 18997-19084, 16 Apr 1998]. Made effective in the year 2000, these regulations apply to locomotives originally manufactured after 1973, and consist of engine design standards without the use of exhaust treatment technologies.

Tier 3-4 standards: A regulation signed on 14 March 2008 introduced more stringent emission requirements [73 FR 88 25098-25352, 6 May 2008]. Tier 3 standards include additional engine design standards and become effective in 2011. Tier 4 standards require implementation of exhaust treatment technologies and become effective in 2015.

In spite of these lower ton-mile emission rates, railroads emissions are a concern at locations where activity is concentrated, such as rail yards and sidings where locomotives idle for periods of time. While railroad emissions are governed by the EPA, additional measures can be taken to further reduce railroad emission levels. Measures such as localized improvements to the rail network to eliminate or minimize conflicts between movements that result in idling along passing sidings and other areas, and maintaining higher operating speeds will serve to minimize harmful emissions, improve air quality and enhance overall quality of life.

Risk to New Jersey

- Emissions from railroads at point locations (yards and idling areas) are local community concerns.
- Inspires undesirable legislation, regulations and a public aversion to expanding the rail network and operations.

Opportunities to Support Freight Rail Industry in New Jersey

- Preservation of industrial zones that now can be made green by using lower emission rail service.
- Development of a program for purchase of low emission locomotives in critical non-attainment areas.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.60 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Emissions – Tier II and III	Ensure locomotives used in yard and local service meet EPA standards.	Maintain current fleet of locomotives for compliance with EPA regulations	<i>Provide opportunities to utilize additional low emission locomotives in port and yard areas.</i>	<i>Expand program of purchasing of low emission locomotives for yard switching and local service in high non-attainment areas.</i>	Monitor new “green” locomotives undergoing testing for possible road service.
			<i>Implement idle reduction strategies</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.61 Anticipated Outcome – Support for Plan Objectives

Objective	EMISSIONS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The cost of technological improvements for new and remanufactured equipment is traditionally borne by the operating railroads. Regulations put in place by agencies such as the Port Authority of New York & New Jersey encourage and require the railroads to invest in cleaner locomotives as a condition of operating within the port. Reduced emissions from these locomotives benefit not only the port district but all of the areas within which this equipment is operated. The need to subsidize the cost of these equipment enhancements by the state is not envisioned. However, localized network improvements that support higher operating speeds and reduced idling may be the subject of funding participation requests through the New Jersey Freight Rail Assistance Program.

E. TEMPORAL SEPARATION

Temporal separation is defined as operating conventional freight/commuter and transit rail equipment at distinct periods of the day and establishing procedures to ensure strict observation of defined operating windows. Typically, passenger service uses the line during the day when commuter and other passenger demand is greatest, with freight service relegated to overnight or extended off-peak periods when passenger service is not running. While this is an effective way to maintain system safety, it limits the flexibility and potential volume of freight that can be handled on the line.

In general, the FRA does not encourage or support the shared use of freight and passenger service, particularly light rail. However, the FRA has expressed a greater willingness to waive many of its rules and allow temporal separation if the petitioner can demonstrate that its system safety program and state safety oversight program address relevant safety issues. Granting of waivers relies upon alternate safety programs (e.g. Federal Transit Administration’s state oversight program) being in place. FRA policy allows each transit system to be treated individually, with relief granted from 49 CFR Regulations as applicable.

Figure A.9 NJ TRANSIT River Line Shares Track/Corridor with Conrail



Risk to New Jersey

- Constrains capacity of major and secondary freight lines.
- Growth of freights’ shared use with FRA non-compliant passenger (i.e. light rail) equipment constrains capacity of freights to handle more traffic.

Opportunities to Support Freight Rail Industry in New Jersey

- Need to develop different operating and service pattern to preserve competitiveness of rail service on temporal separated lines.
- Cluster industries in freight village areas that can be served by both freight and passenger systems (e.g. Whitehall Development in Burlington County).

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.62 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Temporal Separation of Freight and Passenger Trains	Comply with shared right-of-ways and temporal separation rules and regulations as per FTA and FRA.	<i>Assess demand for rail freight service on lines with temporal separation.</i>	Assess opportunities to expand both freight and passenger service on current lines.	<i>Add tracks or implement operational changes to accommodate freight demand increases on lines where temporal separation constrains trade.</i>	Work with federal agencies to modify and/or seek exemptions as needed.
		<i>Review temporal separation currently in operation and its effect on freight capacity and use of the line.</i>			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.63 Anticipated Outcome – Support for Plan Objectives

Objective	TEMPORAL SEPARATION			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The locations where temporal separation requirements constrain freight activity are expected to evolve over time and freight and passenger demands increase and additional freight lines are utilized for passenger service. As such, funding needs for implementing improvements to

facilitate shared operations without the requirement for temporal separation cannot be determined at this time. Analysis of new transit service along traditionally freight only lines should include consideration of infrastructure expansion/improvement to allow mixed use without temporal separation. Funding requirements will be identified based upon these assessments.

F. SHARED OPERATIONS

A significant portion of the freight rail system operates on corridors that are also utilized for passenger rail service. Figures A.10-12 show shared operations by region. Shared operation creates a number of challenges, including scheduling and dispatch, safety, and the need for suitable switching and signal equipment. A significant potential increase in passenger rail demand will add to these freight railroad capacity challenges.

Shared use of a rail line serves to maximize the value of infrastructure investment. However, shared use often results in complex issues related to maintenance cost and liability. While the shared use of rail corridors in New Jersey has generally been a positive experience, the ability to add or expand freight or passenger service to shared lines cannot be automatically assumed. An evaluation of individual corridors and routes must be conducted in consultation with all owners and operators on the line to ensure everyone's needs are met to the greatest extent possible, and that the appropriate solutions are found to eliminate or minimize constraints.

Scheduling - While freight can generally be moved at any time, passenger service is tied to the demands of the traveling public, with a majority of the demand being commuter-based during the typical work day. As such, freight service on a passenger service owner line is generally relegated to overnight and off-peak periods.

Costs - Much of the controversy surrounding rail sharing centers on determining a payment that is considered fair compensation for the use of the infrastructure. However, adding passenger service on freight lines dramatically increases the cost of new switches and signals for additional customers.

Safety and Liability - When passenger and freight trains share tracks, there is always a risk of a collision, derailment, or damage caused by a shifted load. Also, grade crossing safety becomes more of a concern if rail traffic and train speeds are increased along a corridor with implementation of commuter or high-speed rail passenger services.

Finding solutions to the capacity constraints faced by freight railroads in many dense urban corridors, where public agencies often wish to add passenger service, will require a clear understanding of the often conflicting goals and objectives of the public agency and the private freight railroad. A freight railroad's business is to earn profits by moving freight. A public transit agency's primary goal is to provide efficient, reliable passenger service to their customers. These objectives are often at odds with one another when freight and passenger rail operators share a right-of-way. Typically, the owner of the line will only allow others to utilize the line if:

- They are assured that the operations will remain safe.
- There is no negative impact on the ability of the owner to provide quality service in advancement of their goals.
- There is not an expectation that the owner will be subsidizing the other's operations.
- They will not assume excessive legal liability for the other's use of their infrastructure.

Risk to New Jersey

- Capacity constraint and alternate routings and redundancy options limited.
- Limits economic development opportunities to certain freight only lines.

Opportunities to Support Freight Rail Industry in New Jersey

- Use of passenger lines presents opportunity to create capacity enhancement for freight system and open new geographies for freight rail service.
- Maximizes investment in vast state passenger system.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.64 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Shared Operations	Maintain freight access where it currently exists on shared routes.	<i>Assess demand for rail freight service on lines shared with NJ TRANSIT and Amtrak, including existing practices and costs associated with operations, maintenance, and investment for freight operations.</i>	<i>Establish schedule/pricing for expanded use of shared lines by freight operators, including upgrades to handle higher train speeds.</i>	<i>Identify NJ TRANSIT lines that could handle additional freight traffic and serve as alternate or redundant routes to alleviate capacity problems in other parts of system.</i>	Identify new corridors where both freight and passenger services could share operations and/or right-of-way.
		<i>Determine public/private benefit of altering current contract structures.</i>		<i>Evaluate public/private impacts of such changes in use of lines.</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.65 Anticipated Outcome – Support for Plan Objectives

Objective	SHARED OPERATIONS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

The location and nature of shared operations is expected to evolve over time. As such, funding needs for implementing improvements to facilitate shared operations cannot be determined at this time. However, funding for NJDOT participation in, and support for, routine and regular coordination between the freight and passenger operators is essential for the maintenance and development of a rail infrastructure system that will serve the freight needs without adverse impact to anticipated growth in passenger service.

G. GRADE CROSSINGS

The NJDOT's Railroad Engineering and Safety Unit is responsible for all reviews and programs involving changes and improvements to public rail crossings in New Jersey that are designed in compliance with Federal Railroad Administration (FRA) guidelines. The guidelines require that all grade crossings must be inspected with corrective actions taken to address any identified deficiencies at least once every four years. In addition to overseeing these regular inspections, the unit conducts a diagnostic team review of:



- All changes to railroad at-grade crossings.
- All matters related to quiet zone crossing applications.
- Any local aid project within 1,000 feet of an at-grade crossing on the approach roadway.
- Any project that is within 200 feet and parallel to a railroad.

While the FRA regulations are related primarily to public safety, grade crossings also affect quality of life issues. In 2008, the North Jersey Transportation Planning Authority (NJTPA) completed the ***Freight Rail Grade Crossing Assessment Study***. The study evaluated 65 at-grade freight rail crossings in northern New Jersey along the following rail lines:

- Chemical Coast Secondary
- Port Reading Secondary
- Lehigh Line
- West Trenton Line
- River Line / National Docks

Building upon extensive field investigations at the grade crossings and within the area surrounding the crossings where people live and work, the study created a toolbox that can be used to:

- Identify and quantify safety, mobility and quality of life issues;
- Create a quantitative system for prioritizing issues;
- Develop a matrix of potential solutions that use proven and emerging technologies based on the type and severity of identified issues;
- Identify potential funding sources to implement solutions, and
- Employ a weighted scoring system based on a range of performance measures to select and rank rail crossing improvement projects.

The products of this study are applicable to any grade crossing at any location, regardless of the type or intensity of operations on the rail or the roadway that is crossed. This assessment framework could be applied to grade crossings in other regions of the state beyond the NJTPA region.

Figure A.13 NJ TRANSIT Train at Long Branch Grade Crossing



Risk to New Jersey

- As rail and roadway traffic increases, the potential exists for deterioration of roadway operational levels of service and degradation of quality of life in the adjacent and surrounding area.
- Conflict and accident potential without ongoing and advanced monitoring of crossings.

Opportunities to Support Freight Rail Industry in New Jersey

- Improve public safety through upgrade of crossings.
- Minimize the adverse effects of grade crossing operations on quality of life.
- Framework for a statewide crossing maintenance, improvement and elimination program.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.66 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Grade Crossings		Maintain existing crossing equipment.	<i>Assess freight rail grade crossings on additional freight lines beyond NJTPA area.</i> <i>Implement quiet zones in selected locations.</i>	<i>Evaluate grade crossings statewide employing the criteria established by NJTPA assessment.</i>	Develop a program for long-term maintenance, improvement, and elimination of grade crossings as freight and passenger traffic expand in key corridors.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.67 Anticipated Outcome – Support for Plan Objectives

Objective	GRADE CROSSINGS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities			Y	
Support retention, attraction and growth of rail-served industries within New Jersey			Y	
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Annual capital requirements will be dependent on the nature of the improvements identified for implementation. The FRA's Railroad Rehabilitation & Improvement Financing (RRIF) Program provides direct loans and loan guarantees to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, bridges, yards, buildings and shops. This program may be a viable source for funding of improvements to at-grade crossings.

H. HAULAGE RIGHTS

Interoperability – the ability to move freight cars over the rail network as if it were owned and operated by only one railroad – is a fundamental objective for the rail industry if it is to effectively compete in local as well as long-haul markets. The interoperability challenge is to use the full extent of the freight network in a seamless manner, even though the train operations may be controlled by several different rail carriers.

Figure A.13 Conrail’s Metuchen Yard



While granting of trackage rights allowing one railroad to move cars across right-of-way owned by another are common, giving haulage rights additional flexibility may prove highly beneficial to the efficiency of local operations and support for local businesses that rely upon rail. A recent example of this type of efficiency was the granting of rights by Conrail to the Raritan Central Railroad to pick up their cars at the Metuchen Yard as opposed to awaiting Conrail delivery of their cars to a switching point in Raritan Center. This arrangement saves Conrail money while giving Raritan Central the ability to provide its customers a higher level of service.

As most freight rail lines are privately owned, the state has limited ability to influence to negotiating and granting of haulage rights. In addition to considerations similar to those that affect the shared use of a line for passenger and freight service - scheduling, cost, liability, competition between freight railroads often introduces other factors that are unrelated to operations, but are based on maintaining a competitive advantage.

Risk to New Jersey

- Loss of opportunity to compete in markets since independent carriers may not be able to effectively reach off-line end points without haulage agreements.

Opportunities to Support Freight Rail Industry in New Jersey

- Allows for carriers to put into effect agreements establishing efficient routing and/or interlining without major restructuring.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.68 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Haulage Rights	No STB application required. Negotiated railroad to railroad.		<i>Develop a central system to track the negotiation of haulage rights and offer public incentives to facilitate agreements.</i>	<i>Encourage the use of haulage rights through public incentives as an alternative to network restructuring</i>	Explore implementation to reach new markets and to serve current markets more effectively. Example: current CP/CSX haulage agreement between NYC and Montreal

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.69 Anticipated Outcome – Support for Plan Objectives

Objective	HAULAGE RIGHTS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Negotiation of haulage right agreements typically takes place between the private rail carriers, and as such does not financially involve the State of New Jersey. However, given their importance, the state may want to consider offering public incentives to facilitate agreements.

I. TRACKAGE RIGHTS / PAPER BARRIERS

Rail is a vital gateway for domestic and international trade. It provides critical access to the region's seaports and rail-dependent industries. To be competitive, rail service must be "seamless." It must have access or linkage to trackage owed by other railroads so goods can reach their intended destination without interruption.

Railroads must be able to move their shipments from one rail operator to the next cost effectively and to successfully compete with trucking on an origin/destination basis. Because it is first and foremost a business, rail freight transportation can serve the people of New Jersey only if it continues to make a profit. This requires close cooperation between long-haul Class I railroads and short line railroads that provide local connection services.

Interoperability – the ability to move freight cars over the rail network as if it were owned and operated by only one railroad – is a fundamental objective for the rail industry. It can be achieved only if freight can be moved, even though the train operations may be controlled by several different rail carriers at different points during the journey.

Risk to New Jersey

- System remains "balkanized."
- Short haul and emerging markets will be stymied.
- Discourages new service agreements when too many carriers, agencies and institutions are involved between origin and destination.

Opportunities to Support Freight Rail Industry in New Jersey

- Optimizes use of a segmented rail freight system.
- Case-by-case basis precedents abound whereby trackage rights agreements allow for the development of new services.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.70 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Trackage Rights/ Paper Barriers		<i>Review and inventory trackage rights arrangements on all lines within the state, including NJ TRANSIT, Class I railroads and Amtrak.</i>	<i>Facilitate discussions with participants to make mutually beneficial modifications to existing agreements.</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.71 Anticipated Outcome – Support for Plan Objectives

Objective	TRACKAGE RIGHTS / PAPER BARRIERS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Negotiation of trackage right agreements typically takes place between the individual rail line owners, and as such does not financially involve the State of New Jersey.

J. ENVIRONMENTAL JUSTICE

Executive Order #12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed on February 11, 1994 requires that federal agencies, to the greatest extent allowed by law, administer and implement programs, policies and activities that affect human health or the environment so as to identify and avoid “disproportionately high and adverse” effects on minority and low-income populations.

The policy, known as “environmental justice,” seeks meaningful involvement by the public (including soliciting input from affected minority and low-income populations) to ensure that their communities receive a proportionate distribution of transportation investments. Many environmental justice communities - those with disproportionately high minority and/or low income populations - have freight rail operations within or adjacent to them. Where federal dollars fund even a small portion of an infrastructure improvement, the provisions of Executive Order #12898 are fully applicable.



Infrastructure improvements that receive federal funds are subject to compliance with the National Environmental Policy Act (NEPA). As such, these projects must address environmental justice concerns and ensure that affected communities receive adequate information and understand the impact of a proposed project, that they are given an opportunity to have their concerns heard and thoroughly considered during the project planning process. Projects that do not rely on federal funding may not be subject to environmental justice standards that are as stringent as those required by the federal government.

Risk to New Jersey

- Non-compliance with the letter and intent of Executive Order #12898 places projects in jeopardy.
- Non-compliance negates “freight as a good neighbor” objectives.

Opportunities to Support Freight Rail Industry in New Jersey

- Integration of freight rail infrastructure needs into state, county, and local level master planning supports consideration of, and compliance, with environmental justice requirements.
- Create districts or set asides/rights-of-way for future rail freight activity buffered from populated areas.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.72 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Environmental Justice	<i>Projects and programs to conform must conform to “environmental justice” executive order and regulations issue at both federal and state level.</i>		<i>Require analysis of benefits to EJ communities (access to jobs, new job opportunities, etc.) that may result from rail infrastructure improvements.</i>		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.73 Anticipated Outcome – Support for Plan Objectives

Objective	ENVIRONMENTAL JUSTICE			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support	Y			

Investment Need and Potential Funding Resources

As part of a community involvement requirement for freight rail infrastructure projects, a dedicated and recurring funding source should be created to allow state involvement in the community education process, inclusive of environmental justice considerations.

K. ODORS

Odors emanating from diesel emissions, particularly those related to yard activity or idling of trains along rail sidings, is a frequent concern of people who live, work or play in the area. During normal railroad operations, locomotives sometimes must wait for freight cars to be switched and/or picked up; another train to clear track on which the locomotive is to proceed, or mechanical service. Historically, locomotives have been left idling while they are waiting.

In some cases, there are practical or safety reasons why locomotives need to be left idling. Diesel engines can be difficult to start in extremely cold temperatures, especially larger diesel engines such as those used in locomotives. Also, locomotive engines are typically designed to use water without antifreeze because water is more efficient at cooling the engine. However, the water can freeze in cold weather and crack the engine block. As a result, shutting locomotives off in cold weather has been avoided as much as possible.

Locomotive engines may also need to idle in order to maintain critical functions such as air pressure for the braking and starting systems and battery charge. Maintaining air pressure for braking is especially important since it can directly affect safety. Finally, in some cases, locomotives will idle to supply air-conditioning or heat to its crew and/or passengers in part to comply with regulations and contractual requirements related to working conditions for the crew.

Increased use of rail to transport municipal solid waste has created concerns related to odors emanating from waste containers. As more municipal solid waste (MSW) is transported through New Jersey by rail, this issue is expected to be raised more frequently by those opposed to the movement of MSW through their municipalities.

The federal Environmental Protection Agency (EPA) has been working with the nation's major railroads to implement voluntary efforts to reduce idle emissions beyond the mandated reductions. All of the Class I railroads operating in the United States have joined the EPA's *SmartWay Transport Program*. Each railroad has submitted action plans describing the steps they are taking to significantly reduce carbon dioxide, NO_x, and PM emissions, and to conserve considerable amounts of diesel fuel. These action plans include efforts to reduce idling through a variety of technologies and strategies, including automatic engine stop-start systems, auxiliary power units or diesel-driven heating systems, electrical shorepower connections, and company idle-shutdown policies.

Emission standards and other requirements began reducing idle emissions as early as 2000. However, because it is common for locomotives to remain in service for as long as 50 years, the number of new ultra-low emission locomotives in a railroad's fleet is relatively small. As locomotives reach the end of their serviceable lives and are replaced, emissions will be further reduced. However, it is expected to take several years before these improvements become

significantly effective as the fleet turns over from older locomotives to new less polluting locomotives.

Risk to New Jersey

- Railroad odor adversely affects the quality of life for residents and occupants of other sensitive land uses.
- Inspires an aversion to increased rail activity in host communities resulting in obstruction of improvements or the implementation of undesirable legislation and regulation.

Opportunities to Support Freight Rail Industry in New Jersey

- Work with railroads to implement odor control technologies in compliance with the EPA’s voluntary programs.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.74 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Odor	New regulations for municipal solid waste (MSW) and construction and demolition C&D facilities.	Continue to address spot improvements in identified areas of concern.	<i>Work with local and state agencies to identify potential problematic areas for future correction.</i>		<i>Implement new FRA rules relative to MSW and C&D transfer facilities.</i>

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended

actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.75 Anticipated Outcome – Support for Plan Objectives

Objective	ODOR			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support		Y		

Investment Need and Potential Funding Resources

Funding of odor control measures by the operating railroad should be made a condition of permits and approvals for facility expansions that utilize public funding.

L. HAZMAT STORAGE

The NJDOT administers the Placarded Rail Car Safety Inspection Program through its Bureau of Freight Services to promote the safe transportation of hazardous materials by rail. The program ensures that consignees, shippers, container manufacturers, freight yards, freight forwarders and freight carriers are aware of and follow the federal Hazardous Materials Regulations. For handling rail hazardous material emergencies, the NJDOT's emergency response groups facilitate planning for emergency actions. While it is vital to be prepared to respond in the event of an emergency, it is equally vital to take steps to reduce or eliminate the potential for an emergency in the first place.

Figure A.14 Examples of Hazmat Placards



Growth in petrochemical industries has resulted in a greater volume of hazardous materials being moved across New Jersey rail lines. Chemicals/allied products currently rank second on the list of the top commodities by weight transported by rail in New Jersey. By 2035, chemicals are projected to become the number one commodity by weight (see Chapter 3, Section E.3). Petroleum/coal products rank as the 7th largest commodity by volume, with volumes expected to increase appreciably by 2035.

Extensive regulations are in place to ensure the safe transport of hazardous materials. However, limited space within existing yards has created a shortage of space to store railcars holding hazardous materials. These cars are often stored short term on sidings and along in-service but unutilized spur tracks. These spurs often abut residential and other sensitive land uses, creating a concern for public safety.

Risk to New Jersey

- Local concern regarding non-secured hazmat storage in rail yards and on sidings.
- Inspires undesirable legislation and regulation that could have a secondary effect of impeding industrial growth.

Opportunities to Support Freight Rail Industry in New Jersey

- Increase state hazmat inspection program and provide for expanded and more secure rail storage areas.
- Integrated approach to environmental issues with municipalities.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.76 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Hazmat Storage	Continue to provide inspection of hazmat rail cars and storage per FRA regulations.	Current facilities are adequate and should be maintained at current levels.	<i>Upgrade trackage and improve security in areas used for hazmat storage.</i>	<i>Designate and provide additional storage facilities as close to the final user as possible.</i>	

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.77 Anticipated Outcome – Support for Plan Objectives

Objective	HAZMAT STORAGE			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way		Y		
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life	Y			
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities			Y	
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Annual cost for hazmat storage is typically borne by the railroads, with minimal financial participation by the public sector. This is expected to continue into the future.

M. PASSENGER PLATFORMS (COMMUTER AND LIGHT RAIL)

Numerous passenger station platforms within New Jersey have been, or are being modified to comply with the provisions of the federal Americans with Disabilities Act. These modifications often include construction of high-level platforms. Depending upon the station configuration and the number of tracks passing through the station area, these modifications pose a potential constraint to the movement of oversize (wide) freight cargo on flatcars.



Shared use of a route by light rail and freight is virtually non-existent in New Jersey. The River Line in South Jersey is the major exception. However, potential plans for extending light rail service utilizing lines currently serving freight operations hold the potential to create conflicts to the movement of wide freight loads on flatcars. Consideration should be given in any light rail service expansion project that utilizes a freight line to the differing operational requirements of freight railcars. Provisions should be made to accommodate both services and preserve the potential for the movement of oversize (wide) freight cargo on flatcars.



Risk to New Jersey

- State competing against itself. Upgrades to passenger service and infrastructure can diminish rail freight options on vast network

Opportunities to Support Freight Rail Industry in New Jersey

- Need to work with NJ TRANSIT to keep certain routes clear for freight movement in order to maintain development opportunities, by-pass capabilities, and redundancy.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.78 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Passenger Platforms on Commuter and Light Rail – Constraint to Wide Load Freight		<i>Inventory and maintain existing clearances.</i>	Identify and prioritize routes where clearances could/ should be improved to accommodate freight operations.	Upgrade clearances on identified priority routes.	Upgrade additional routes that would provide alternative freight routings should main lines become fouled.
		<i>Where freight activity warrants station platform upgrades (to comply with ADA rules), provide clearance for wider loads (e.g. movable platform edges).</i>			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.79 Anticipated Outcome – Support for Plan Objectives

Objective	PASSENGER PLATFORMS (COMMUTER RAIL)			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network		Y		
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy		Y		
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

As this issue is recommended to be addressed as a component of passenger station planning in the future, no specific funding is required at this time. However, passenger stations with movable high level platforms that allow wide freight loads will likely require additional design and construction costs, with actual costs identified on a case-by-case basis as locations are identified and advanced.

N. FREIGHT TRAIN SPEED RESTRICTIONS

Rail operating speed limits are regulated by the Federal Railroad Administration. Like speed limits on roadways, they are based on an array of geometric and configuration factors, including track curvature; overall condition of the tracks; type of signalization in place; type and condition of the train, and presence of at-grade crossings of roadways and pedestrian pathways. Individual railroads have the ability to, and often do, establish their own operating speed limits to address local conditions and better manage overall network operations. Lower speeds can also allow the passage of heavier rail cars on sensitive structures.

Table A.82 FRA Operating Speed Limits

Track type	Freight Train	Passenger Train
Excepted ¹	<10 mph (16 km/h)	not allowed
Class 1	10 mph (16 km/h)	15 mph (24 km/h)
Class 2	25 mph (40 km/h)	30 mph (48 km/h)
Class 3	40 mph (64 km/h)	60 mph (97 km/h)
Class 4 ²	60 mph (97 km/h)	80 mph (129 km/h)
Class 5 ³	80 mph (129 km/h)	90 mph (145 km/h)
Class 6	110 mph (177 km/h)	110 mph (177 km/h)
Class 7 ⁴	125 mph (201 km/h)	125 mph (201 km/h)
Class 8 ⁵	160 mph (257 km/h)	160 mph (257 km/h)
Class 9 ⁶	200 mph (322 km/h)	200 mph (322 km/h)

1. Only freight trains are allowed to operate on "Excepted" track, and they may only run at speeds up to 10 mph (16 km/h). Also, no more than five cars loaded with hazardous material may be operated within any consist. Passenger trains (in revenue service) of any type are prohibited.
2. Most mainline track, especially that owned by major railroads is Class 4 track.
3. Class 5 track allow speeds exceeding 60 mph. On parts of the BNSF Railway Chicago-Los Angeles mainline, the old Santa Fe main, ATS equipped passenger trains, such as Amtrak's Southwest Chief, can operate at up to 90 mph (145 km/h). This is gradually being reduced as the train stop system is retired, but freight trains over 60 mph still require Class 5 track.
4. Some of Amtrak's Northeast Corridor has Class 7 trackage.
5. Portions of the Northeast Corridor are the only Class 8 trackage in North America, allowing for 135 mph (217 km/h) and 150 mph (241 km/h) operations.
6. There is currently no Class 9 high-speed rail in the United States.

Federal regulations limit train speed based upon the type of signalization in place. Along dark corridors where block signaling is employed, freight trains are limited to a maximum speed of 49 mph. Trains without an automatic cab signal, automatic train stop or automatic train control system may not exceed 79 mph under any circumstance.

These regulations have been promulgated and revised since 1947 in response to major train collisions. Subsequent to a 2008 head-on collision of a Union Pacific freight train and a Metrolink commuter train near Las Angeles, California on a curved section of single track, regulations were revised to require implementation of positive train control (PTC) nationwide by the year 2015. While the main objective of PTC is increased safety and prevention of collisions, PTC may also result in increased railroad capacity and higher operating speeds on

certain lines. Increased operating speeds will serve to reduce gate closure durations at grade crossings with public roadways and potentially help reduce locomotive emissions.

Risk to New Jersey

- Speed restrictions increase running time and total transportation costs.
- Slower speeds increase the duration of gate closures at grade crossings, increasing roadway delays.

Opportunities to Support Freight Rail Industry in New Jersey

- Increased speeds could marginally increase total capacity on shared lines.
- Increased speeds could improve freight service levels on shared lines and reduce overall shipping costs.
- Increased speeds could assist in reducing overall emissions.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.83 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Freight Train Speed Restrictions		<i>Work within current freight speed limits set by the FRA and NJ TRANSIT.</i>	<i>Work with NJ TRANSIT to examine the benefits, costs and operational impacts of removing rail freight restrictions in current shared operations areas.</i>	Make requisite investments to open up system for increased track speed by rail freight carriers in shared operations area.	Revise in coordination with NJ TRANSIT.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.84 Anticipated Outcome – Support for Plan Objectives

Objective	FREIGHT TRAIN SPEED RESTRICTIONS			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair		Y		
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities			Y	
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

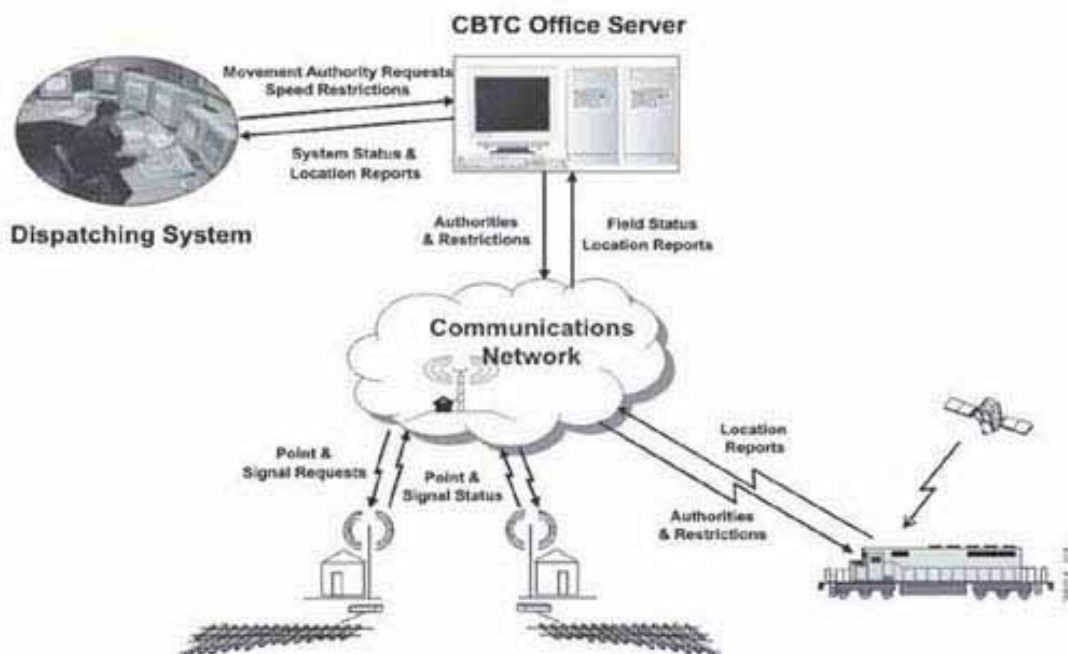
Annual capital requirements will be dependent upon the nature of the improvements identified for implementation. The FRA's Railroad Rehabilitation & Improvement Financing (RRIF) Program provides direct loans and loan guarantees to acquire, improve or rehabilitate intermodal facilities, rail equipment or rail-served facilities, including track; bridges; yards; buildings, and shops. This program may be a viable source for funding of improvements to at-grade crossings.

O. POSITIVE TRAIN CONTROL (PTC)

The federal Rail Safety Improvement Act of 2008 (RSIA) mandates the installation of positive train control (PTC) systems on all active rail lines by the end of 2015. PTC technology is intended to automate control of train operations and minimize the potential for human error in the prevention of train-to-train collisions, derailment due to excessive speed, trains traveling through switches left in an incorrect position, and injuries to persons (most notably authorized maintenance personnel) that could result from the unauthorized incursion by a train.

PTC systems vary widely in complexity and sophistication based on their level of automation and functionality, system architecture; the wayside system upon which they are based (i.e., non-signaled, block signal, cab signal, etc.), and the degree of train control they are capable of assuming.

Generic Structure of a PTC System



The railroad industry is currently pursuing installation and integration of PTC systems as required by the RSIA and are adapting their individual PTC systems to maximize interoperability. National Class I railroads including the BNSF Railway Company (BNSF), Union Pacific Railroad (UP), Norfolk Southern Railway (NS), and CSX Transportation (CSXT) are advancing PTC system interoperability efforts for technologies based on the Electronic Train Management System (ETMS) for rail traffic outside of the Northeast Corridor (NEC). The National Passenger Rail Corporation (Amtrak) is undertaking similar action for rail traffic in the NEC using the Advanced Civil Speed Enforcement System (ACSES).

The Federal Railroad Administration (FRA) is supporting all rail carriers that are statutorily required to install PTC, as well as those doing so voluntarily, through a combination of regulatory reform; project safety oversight; technology development, and financial assistance. The FRA is working to develop a new performance-based regulation to address the statutory requirements of the RSIA and to better support railroads that must install PTC systems. This new regulation is being crafted to ensure system safety and reduce administrative overhead.

Risk to New Jersey

- High implementation costs and unfavorable benefit/cost ratio.
- Places significant financial burden on railroads, particularly short lines, to equip locomotives and maintain additional infrastructure.
- Installation of PTC on freight lines may constrain their ability to handle current traffic volumes or future growth.
- Lack of consistent system architecture across railroad networks and owners could inhibit the movement of some equipment on some lines.
- Currently, there is only one vendor manufacturing equipment.

Opportunities to Support Freight Rail Industry in New Jersey

- Potential to reduce incidents and improve safety by reducing human factors in train control.
- Improves passenger and freight integration on shared lines, and potentially expands freight operating windows.
- If PTC permits faster freight train operating speeds, freight run times may improve, thereby improving capacity and service levels.
- With reduced run times, railroads may realize reduced crew and operating costs.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.85 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Positive Train Control	Individual rail owners remain responsible for implementation.	Develop and initiate program for sharing of costs associated with implementation of PTC.	<i>Encourage consensus on system architecture and interoperability for implementation across all NJ rail systems.</i>	<i>Assess need for statewide funding under the FRA's Railroad Rehabilitation and Improvement Financing (RRIF) Program.</i>	Ensure system interoperability for routes utilizing multiple systems through multiple jurisdictions process.
	Seek postponement of federally mandated 2015 Implementation date.				
	Monitor developments on the federal level.		Provide matching state funds for implementation of PTC on short lines.		

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.86 Anticipated Outcome – Support for Plan Objectives

Objective	POSITIVE TRAIN CONTROL (PTC)			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life		Y		
Enhance connectivity between Class I, regional and short line railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency	Y			
Maintain or enhance economic development opportunities			Y	
Support retention, attraction and growth of rail-served industries within New Jersey			Y	
Expand public education and support			Y	

Investment Need and Potential Funding Resources

Based upon a July 2009 FRA economic analysis of PTC systems, initial installation costs could reach \$5.75 billion nationwide, with annual maintenance costs of approximately \$860 million. The value of annual railroad accident prevention benefits is projected to be approximately \$90 million annually. This assessment does not consider any potential business benefits that would accrue beyond accident prevention.

According to a 2004 FRA study, railroads could gain between \$675 million and \$1.318 billion per year in business benefits through use of PTC. The study contends that if railroads are voluntarily adopting PTC, then they must believe that benefits are likely to be at least as great as those projected in the study. The study further states that the opportunity for such business benefits will not occur for several years, but that when those opportunities do present themselves, railroads will take advantage of them.

However, the railroad industry submitted a study to FRA regulators that maintains the high cost of installing federally mandated crash-avoidance systems will far outweigh any benefits. The study, commissioned by the Association of American Railroads, asserts that the value of business and safety benefits will total \$853 million over 20 years, compared with the government's own estimate of \$9.55 billion.

PTC systems are eligible for funding under the Railroad Rehabilitation and Improvement Financing Program. Yet no railroad has approached the FRA for funding of PTC projects using this program. PL110-432 also authorized the use of railroad safety technology grants to support PTC projects at \$50 million per year from 2009 to 2013. However the funds have not been appropriated and the program is not currently accepting applications.

P. High-Speed Rail

High-speed rail in the United States currently consists of one high-speed rail service. Amtrak's Acela Express runs on the Northeast Corridor (NEC) from Boston to Washington, D.C. Unlike other systems around the world, the Acela shares its tracks with conventional rail, and is thereby limited to an average speed of 68 mph over the route with brief segments permitting speeds of up to 150 mph.



Amtrak is pursuing a plan to replace overhead wires, signals and electric power distribution between New Brunswick and New York to accommodate high-speed trains on the Northeast Corridor. A \$151 billion system-wide improvement plan unveiled by Amtrak in 2012 proposes running trains along the NEC in New Jersey at speeds approaching 220 miles per hour by 2040, thereby reducing the travel time between New York and Philadelphia to 37 minutes.

A federal allocation of \$8 billion for high-speed rail projects as a part of the 2009 stimulus package prompted federal and state planners to consider high-speed rail in 10 other major rail corridors. America's first dedicated high-speed rail infrastructure is likely to be built in California, between Anaheim and San Francisco via Los Angeles and San Jose. Construction was scheduled to begin in 2012 in the Central Valley.

Phase I of the national vision for high speed rail continues to utilize the Northeast Corridor with the potential for upgrades on the route to allow speeds of up to 200 mph. Depending on the configuration of the corridor after the upgrades, the ability to move freight on the Northeast Corridor may be in jeopardy.

Risk to New Jersey

- Loss of capacity for freight movement on Northeast Corridor.
- Loss of industries that rely on rail access via the Northeast Corridor.

Opportunities to Support Freight Rail Industry in New Jersey

- Developing alternate routes into and within the state may open up new corridors for freight development.
- Addition of a freight only track within the Northeast Corridor right-of-way as part of high-speed rail implementation serves to preserve and enhance freight rail service that relies on the corridor.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.87 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
High-Speed Rail		<i>Monitor development of national high speed rail network for implications and opportunities for New Jersey.</i>	<i>Maintain ability to implement through ROW reservation/preservation.</i> <i>Investigate potential for integrating freight-only track along the Northeast Corridor to preserve freight rail potential.</i>	Investigate feasibility of implementing high-speed freight rail as a component of high-speed passenger rail planning. Develop alternate freight route minimizing use of Northeast Corridor	Implement new higher and high speed corridors as need is identified.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established *New Jersey Statewide Freight Rail Strategic Plan* objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.88 Anticipated Outcome – Support for Plan Objectives

Objective	HIGH SPEED RAIL			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

As part of the 2009 federal stimulus package, \$8 billion was allocated for the planning, design and implementation of high-speed rail projects throughout the United States. While intended to support high-speed passenger rail service, the potential exists to utilize this funding source to advance improvements to freight rail infrastructure that would eliminate the need to move freight along the Northeast Corridor, freeing up capacity for passenger service. The actual funding amount needed will be determined as individual projects advance through planning and into preliminary design.

Q. ADOPTION OF A NATIONAL RAIL PLAN

Congress mandated the creation of a National Rail Plan (NRP) with the passage of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA). The Federal Railroad Administration, in its **Preliminary National Rail Plan** submitted to Congress in October 2009, cites two reasons why a National Rail Plan is needed:

- As the nation seeks to rebalance its transportation system, much attention has been focused on rail.
- A National Rail Plan, developed in harmony with the states, can provide direction by developing a common understanding and aligning goals.



Elements of New Jersey's rail network (such as Amtrak's Northeast Corridor, CSX's River Line, Norfolk Southern's Lehigh Line and several NJ TRANSIT commuter lines) will be important corridors in the NRP because they host millions of passengers and millions of ton-

miles of freight every year. They are key to the nation's growth in intermodal traffic by virtue of providing access to the Port of New York & New Jersey.

The NRP is important to the New Jersey freight rail community because PRIIA establishes a significant role for states in channeling federal funding to rail freight and passenger projects through a requirement that states seeking such funds have an approved. PRIIA directs the FRA Administrator, among other tasks, "...to provide assistance to States in developing state rail plans and to develop a long-range NRP consistent with approved State rail plans and the rail needs of the nation⁵..." It is important that the goals of **New Jersey's Statewide Strategic Freight Rail Plan** and the **New Jersey State Rail Plan** are aligned with the rail goals of the U.S. Department of Transportation.

⁵ Passenger Rail Improvement and Investment Act (2008), Section 307(b)(i) as cited at page 1 of the Preliminary National Rail Plan, October 2009.

The USDOT’s vision for “high performance freight rail” in the ***Preliminary National Rail Plan*** has two overarching goals: (1) support the current freight rail market share and growth and (2) develop strategies to attract 50 percent of all shipments 500 miles or greater to intermodal rail.

New Jersey must be cognizant of these and other USDOT’s strategic goals:

- Improve safety;
- Increase economic competitiveness of the United States;
- Foster livable communities, and
- Promote sustainable transportation (environmental sustainability).

New Jersey’s freight rail planning process, and the analyses and reports that flow from it, also can be an important basis of input to the National Rail Plan as the FRA has indicated that it looks forward to receiving input from the states.

Risk to New Jersey

- Loss of competitive funding grants without a well-defined and unified approach to rail freight/passenger planning in the state.
- Lack of a ***State Rail Plan*** that conforms to federal requirements.

Opportunities to Support Freight Rail Industry in New Jersey

- Development of public-private partnerships to implement projects that accomplish state and federal strategic transportation goals.
- Opportunity to supplement state funding.
- Shared passenger and freight lines offer greater opportunity to attract additional federal funding.

Recommended Actions

A range of potential responses to this need were identified in coordination with the AIAG. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.89 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Adoption of a National Rail Plan		<i>Monitor National Rail Plan development for implications and opportunities for New Jersey.</i>			

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.90 Anticipated Outcome – Support for Plan Objectives

Objective	ADOPTION OF A NATIONAL RAIL PLAN			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and short line railroads		Y		
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency		Y		
Maintain or enhance economic development opportunities		Y		
Support retention, attraction and growth of rail-served industries within New Jersey		Y		
Expand public education and support			Y	

Investment Need and Potential Funding Resources

As the details of the National Rail Plan are not fully determined at this time, implications of the plan and the associated investments that would be required to respond to or comply with, the plan are not known at this time. Lobbying for the creating of a federal funding mechanism to implement the action and potential mandates of the National Rail Plan should be undertaken.

R. TREND TOWARDS 315K ROUTES

While 286K capacity has been the prevailing standard since 1994, specific rail routes within the United States have been constructed to accommodate rail cars up to 315K. These upgrades typically involve rail corridors that are carrying high volumes of lower ton-value commodities such as coal. In these circumstances, the marginal benefit of carrying additional weight per rail car multiplied by the long-range volume anticipated to be serviced justified the expense of increasing the weight limitations along the route.



Based upon discussions with the AIAG, this condition is not prevalent in New Jersey. Accordingly, the AIAG placed a low priority on upgrading to the 315K standard.

Risk to New Jersey

- Loss of critical traffic base commodities if national standard increases to 315K and upgrading does not occur in anticipation of new car weights.

Opportunities to Support Freight Rail Industry in New Jersey

- State could be ahead of the curve if upgrades to 315K are incremental in cost and could be accomplished concurrently with upgrades to 286K.

Recommended Action

The issue of 286K railcar capacity on short lines and terminal railroad segments was identified to be of critical importance, with the need to further upgrade the network to 315K railcar capacity deemed to be non-critical in the foreseeable future. However, a range of potential actions were identified in coordination with the AIAG focusing on the desire to monitor changing national and industry trends and effectuate upgrades where the incremental cost warrants. Based in part on input provided by the AIAG participants, it is recommended that the following actions be initiated. *(Priority actions are in shaded boxes.)*

Table A.92 Possible and Recommended Actions

ISSUE	Potential Solution Set Categories				
	Compliance	Maintain	Improve	Expand	Develop / Implement (New)
Trend towards 315K routes		<i>Monitor rail industry to determine if trend to 315K can be identified and is sustainable.</i>		<i>All future renovations and upgrade to include 315K as identified in cost/benefit analysis of specific routes</i>	Build in future capacity above 286K as determined by incremental cost analysis and trend to increased weights evolves.

Anticipated Outcome of Recommended Actions

Recommended actions were assessed to determine their level of support for each of the 13 established ***New Jersey Statewide Freight Rail Strategic Plan*** objectives. The recommended actions were then classified as highly supportive, moderately supportive, neutral or detrimental. The following table summarizes the findings.

Table A.93 Anticipated Outcome – Support for Plan Objectives

Objective	TREND TOWARDS 315K ROUTES			
	Highly Supportive	Moderately Supportive	Not Applicable	Detrimental
Maintain state of good repair			Y	
Preserve out of service and at-risk rail rights of way			Y	
Protect critical corridors and connections to the national network			Y	
Enhance intermodal connectivity			Y	
Improve quality of life			Y	
Enhance connectivity between Class I, regional and shortline railroads			Y	
Ensure adequate yard capacity			Y	
Maintain and expand funding programs and opportunities			Y	
Maintain or expand system redundancy			Y	
Reduce congestion and enhance operational efficiency			Y	
Maintain or enhance economic development opportunities			Y	
Support retention, attraction and growth of rail-served industries within New Jersey			Y	
Expand public education and support			Y	

Investment Need and Potential Funding Resources





Based upon discussions with the AIAG, particularly the Class I railroads, there is no anticipated need to upgrade the network to accommodate 315K railcars in the foreseeable future. Accordingly, there are no immediate funding needs associated with this issue.

**APPENDIX B - OTHER PLANNED IMPROVEMENT
MAPS**

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Planned Improvements In Progress: Northern New Jersey Rail Lines - Port Region

Legend

-  Rail Lines
-  Project In Progress
-  Northern New Jersey Port Region
-  Water bodies







All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
28 Bowers Del River RR	Weld jointed rail	Proposed/Recommended
43 Beesley's Point Secondary	Third Bridge Advance Track	Proposed/Recommended
44 Southern Running Track	Weld jointed rail	Proposed/Recommended
44 Southern Running Track	Window Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ITC	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoof Track Rehab	Proposed/Recommended
49 Constable Hook Industrial	Yard 4 Storage	Proposed/Recommended
57 Greenville Running Track	Construct train rail-slip transload	Proposed/Recommended
72 Vinland Secondary	Propose additional segment to Marion Ct	In Progress
82 Portside Industrial Track	Create additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NY58W	Rehab main track: Kinnelon	Proposed/Recommended
89 NY58W	Rehab main track: Sparta	Proposed/Recommended
89 NY58W	Rehab main track: Sparta 3 others	Proposed/Recommended
89 NY58W	Rehab main track: North Bergen	Proposed/Recommended
89 NY58W	Rehab main track: Separation N.Berg	Proposed/Recommended
89 NY58W	Add second track	Proposed/Recommended
89 NY58W	Rehab main track: North Bergen	Proposed/Recommended
89 NY58W	Rehab main track: Separation N.Berg	Proposed/Recommended
89 NY58W	Add second track	Proposed/Recommended
101 Patuxent Industrial	Value Project	Proposed/Recommended
103 Salem Running Track	Salem County Short Line track rehab	Proposed/Recommended
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Proposed/Recommended
106 Passaicville Industrial	Add second track	Proposed/Recommended
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install ITC	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121 Scotchville Industrial	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purified Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury-PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Add second track	Proposed/Recommended
133 West Trenton Line	CP B'way to Manville Vg. 2nd Main track	Proposed/Recommended
133 West Trenton Line	Increase Capacity at yard	Proposed/Recommended
139 Milville Industrial	Seashore Branch unaround track	Proposed/Recommended

Funded Planned Improvements: Northern New Jersey Rail Lines - Port Region

Legend

-  Rail Lines
-  Project Funded
-  Northern New Jersey Port Region
-  Water bodies







All Planned Improvements

Line, Line Name	Project	Status
2 Unlight Line	Second connecting track	Funded
2 Unlight Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Unlight Line	Double track 1.5 miles	Proposed/Recommended
2 Unlight Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Paterson Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
7 Bordentown Secondary Track	Rehab main track	Proposed/Recommended
28 Bowers Del River RR	Three Bridges Advance Track	Proposed/Recommended
43 Bessley's Point Secondary	Weird jointed rail	Proposed/Recommended
44 Southern Running Track	Winlow Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ITC	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoof Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train rail-slip transfer	In Progress
57 Greenville Running Track	Rehab main track	Proposed/Recommended
72 Vinland Secondary	Create additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NY58W	Rehab main track: Kinnelon	Eligible
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: Sparta 3 others	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N.Berg	Eligible
89 NY58W	Add second track	Funded
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N.Berg	Eligible
89 NY58W	Add second track	Funded
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N.Berg	Eligible
89 NY58W	Add second track	Funded
101 Patuxson Industrial	Value Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
103 Salem Running Track	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
106 Passaicville Industrial	Add second track	Proposed/Recommended
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install ITC	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
112 Passaicville Industrial	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
124 Penns Grove Secondary	General Improvements: Woodbury PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Rehab main track: Trenton	Proposed/Recommended
126 Staten Island RR	Add second track	Proposed/Recommended
133 West Trenton Line	CP B'way to Manville YG 2nd Main track	Proposed/Recommended
133 Patuxson Industrial	Increase Capacity at yard	Proposed/Recommended
139 Milville Industrial	Seashore Branch unaround track	Eligible



Eligible Planned Improvements: Northern New Jersey Rail Lines - Port Region

Legend

-  Rail Lines
-  Project Eligible for Funding
-  Northern New Jersey Port Region
-  Water bodies

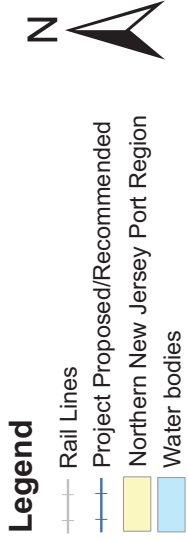


All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Paterson Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
28 Bowers Del River RR	Bridge rehab	Proposed/Recommended
43 Bessley's Point Secondary	Three Bridges Advance Track	Proposed/Recommended
44 Southern Running Track	Weld jointed rail	Proposed/Recommended
44 Southern Running Track	Window Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ITC	In Progress
45 Chemical Coast Secondary	Rehab main track	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoof Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train rail-slip transload	In Progress
72 Vinland Secondary	Rehab main track	Proposed/Recommended
82 Portside Industrial Track	Create additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NY58W	Rehab main track: Kinnelon	Eligible
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: Sparta 3 others	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N. Berg	In Progress
89 NY58W	Add second track	Funded
89 NY58W	Rehab main track	Eligible
89 NY58W	Value Project	Eligible
101 Patuxent Industrial	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
103 Salem Running Track	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
106 Passaicville Industrial	Add second track	Proposed/Recommended
108 Port Heading Secondary	Add connection	Funded
108 Port Heading Secondary	Install ITCs	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121 Scotchville Industrial	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Rehab main track: Trent	Proposed/Recommended
126 Staten Island RR	Add second main	Proposed/Recommended
133 West Trenton Line	CP B'way to Manville Vg. 2nd Main track	Proposed/Recommended
133 Pavonia Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unground track	Eligible



Proposed Planned Improvements: Northern New Jersey Rail Lines - Port Region



All Planned Improvements

Line_No	Line_Name	Project	Status
2	Lehigh Line	Second connecting track	Funded
2	Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6	Delair Branch	Bridge rehab and double track	Proposed/Recommended
7	Boardtown Secondary Track	Create additional yard capacity	Proposed/Recommended
7	Boardtown Secondary Track	Additional track	Proposed/Recommended
28	Beverly Dell River RR	Three Bridges Advance Track	Proposed/Recommended
43	Bessley's Point Secondary	Weird jointed rail	Proposed/Recommended
44	Southern Running Track	Window Branch Restoration	Completed
45	Chemical Coast Secondary	Double track and ITC	In Progress
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
49	Constable Hook Industrial	Shoof Track Rehab	Eligible
49	Constable Hook Industrial	Yard Storage	Eligible
57	Greenville Running Track	Construct train rail-ship transfer	In Progress
72	Vernald Secondary	Proposed additional segment to Marion Ct	Proposed/Recommended
82	Portside Industrial Track	Expressfall System	In Progress
85	Northeast Corridor Line	Construct Container Terminal Expansion	Funded
89	NY58W	Waverly Construct loop track	Funded
89	NY58W	Rehab main track: Kinnelon	Eligible
89	NY58W	Rehab main track: Sparta	Eligible
89	NY58W	Rehab main track: North Bergen	Eligible
89	NY58W	Rehab main track: North Bergen	Eligible
89	NY58W	69th Street Grade Separation N.Berg	In Progress
89	NY58W	add second track	Funded
96	Passaic & Harsimus Branch	Rehab main track: Harsimus Branch	Eligible
101	Patuxent Industrial	Value Project	Eligible
103	Salem Running Track	Salem County Short Line track rehab	Eligible
103	Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106	Passaicville Industrial	Port of Salem Track Improvements	Proposed/Recommended
106	Passaicville Industrial	Rehab main track	Eligible
108	Port Reading Secondary	Add connection	Funded
108	Port Reading Secondary	Install ITC	Funded
111	River Line Passenger	Reconfigure track at interlocking	In Progress
111	River Line Passenger	Imp. at B'way, Terminal, Port of Camden	Proposed/Recommended
124	Penns Grove Industrial	Upgrade	Proposed/Recommended
124	Penns Grove Secondary	Purified Upgrade	Eligible
124	Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126	Staten Island RR	General Improvements: Woodbury PG	In Progress
126	Staten Island RR	Expressfall System	Proposed/Recommended
126	Staten Island RR	Expressfall System	Proposed/Recommended
126	Staten Island RR	Add secondary track	Proposed/Recommended
133	West Trenton Line	CP B'way to Manville Vg. 2nd Main track	Proposed/Recommended
133	Pavonia Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139	Milville Industrial	Seashore Branch unground track	Eligible



Planned Improvements In Progress: Northern New Jersey Rail Lines

Legend

- Rail Lines
- Project In Progress
- Northern New Jersey Region
- Water bodies







All Planned Improvements

Line, Line Name	Project	Status	
2	Second connecting track	Funded	
2	Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6	Delair Branch	Bridge rehab and double track	Proposed/Recommended
7	Riverfront Secondary Track	Create additional yard capacity	Proposed/Recommended
7	Riverfront Secondary Track	Add second track	Proposed/Recommended
20	Bearers Del River RR	Weld jointed rail	Proposed/Recommended
28	Bearers Del River RR	Three Bridges Advance Track	Proposed/Recommended
44	Southern Running Track	Winnlow Branch Restoration	Completed
44	Chemical Coast Secondary	Double track and TCS	In Progress
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
49	Constable Hook Industrial	Shoek Track Rehab	Eligible
49	Constable Hook Industrial	Yard 4 Storage	Eligible
57	Greenville Running Track	Construct trash rail-shlip transfer	In Progress
72	Viola Yard Secondary	Create additional yard capacity	Proposed/Recommended
82	Portside Industrial Track	ExpressRail System	In Progress
85	Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85	Northeast Corridor Line	Waverly Construct loop track	Funded
89	NYCS&W	Rehab main track Kinnelon	Eligible
89	NYCS&W	Rehab main track Sparta	Eligible
89	NYCS&W	Rehab main track North Bergen	Eligible
89	NYCS&W	Rehab main track Separation N.Berg	In Progress
89	NYCS&W	Add second track	Eligible
89	NYCS&W	Valero Project	Eligible
103	Salem Running Track	Salem County Short Line track rehab	Eligible
103	Salem Running Track	Upgrade track to support Conrail	Proposed/Recommended
106	Hamsville Industrial	Rehab main track	Proposed/Recommended
106	Hamsville Industrial	Add second track	Proposed/Recommended
108	Port Reading Secondary	Install TCS	Funded
108	Port Reading Secondary	Reconfigure track at interlocking	In Progress
111	River Line Passenger	Impr. at Bway Terminal, Port of Camden	Proposed/Recommended
124	Penns Grove Secondary	Purified Upgrade	Eligible
124	Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
124	Penns Grove Secondary	General Improvements: Woodbury PG	Proposed/Recommended
126	Staten Island RR	ExpressRail System	In Progress
126	Staten Island RR	Add second main track	Proposed/Recommended
130	West Trenton Line	CP Ewing to Marlville V&Z 2nd Main track	Proposed/Recommended
130	West Trenton Line	Increase Capacity at yard	Proposed/Recommended
139	Pavonia Yard Running Tracks	Shoreline Branch underground track	Eligible
139	Milville Industrial		

Funded Planned Improvements: Northern New Jersey Rail Lines

Legend

-  Rail Lines
-  Project Funded
-  Northern New Jersey Region
-  Water bodies



20 10 0 20 Miles







All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Funded
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2 Lehigh Line	Double track Paterson Tunnel	Proposed/Recommended
6 Delair Branch	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
27 Passaic & Harsimus Branch	Double track	Proposed/Recommended
28 Bowers Del River RR	Three Bridges Advance Track	Eligible
42 Bessley's Point Secondary	Weld jointed rail	Proposed/Recommended
44 Southern Running Track	Wilmington Branch Restoration	Completed
44 Chemical Coast Secondary	Double track and TCS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoek Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct trough rail-shoek transload	In Progress
72 Vineland Secondary	Proposed 1.5 mile segment to Marion Ct	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NYCS&W	Rehab main track Kinnelon	Eligible
89 NYCS&W	Rehab main track Sparta	Eligible
89 NYCS&W	Rehab main track North Bergen	Eligible
89 NYCS&W	Rehab main track Separation N.Berg	In Progress
89 NYCS&W	add second track	Funded
89 NYCS&W	Rehab main track	Eligible
96 Passaic & Harsimus Branch	Valero Project	Eligible
101 Patuxent Industrial	Valero Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Proposed/Recommended
103 Salem Running Track	Upgrade track to support Conrail	Proposed/Recommended
106 Passaic & Harsimus Industrial	Rehab main track	Eligible
106 Passaic & Harsimus Industrial	Rehab main track	Eligible
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install TCS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
121 Scotchville Industrial	Impr. at B'way Terminal, Port of Camden	Proposed/Recommended
121 Scotchville Industrial	Upgrade	Eligible
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
124 Penns Grove Secondary	General Improvements: Woodbury PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Trenton Industrial Track	Add second main track	Proposed/Recommended
126 Trenton Industrial Track	Add second main track	Proposed/Recommended
130 West Trenton Line	CP Ewing to Marlville V&Z 2nd Main track	Proposed/Recommended
130 West Trenton Line	Increase Capacity at yard	Proposed/Recommended
139 Patuxent Industrial	Seashore Branch unground track	Eligible

Eligible Planned Improvements: Northern New Jersey Rail Lines

Legend

-  Rail Lines
-  Project Eligible for Funding
-  Northern New Jersey Region
-  Water bodies



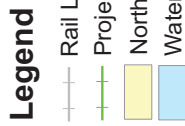
20 10 0 20 Miles



All Planned Improvements

Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Lehigh Line	Bridge rehab and double track	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delaware Branch	Double track Patersonburg Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
23 Passaic & Harsimus Branch	Add second track	Proposed/Recommended
28 Bowers Del. River RR	Three Bridges Advance Track	Proposed/Recommended
48 Beesley's Point Secondary	Weld jointed rail	Proposed/Recommended
44 Southern Running Track		Completed
44	Winlow Branch Restoration	In Progress
44	Double track and TCS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoak Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct track rail-slip transport	In Progress
72 Vineland Secondary	Double track 1.5 mile segment to Marion Ct	Proposed/Recommended
82 Portside Industrial Track	ExpressRail System	Proposed/Recommended
82	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
85 Northeast Corridor Line	Rehab main track: Kinelon	Eligible
85 Northeast Corridor Line	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	69th Street Grade Separation N.Berg	In Progress
89 NY58W	Add second track	Funded
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Value Project	Eligible
89 NY58W	Salem County Short Line track rehab	Proposed/Recommended
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
103 Salem Running Track	Port of Salem Track Improvements	Proposed/Recommended
106 Passaic & Harsimus Industrial	Rehab main track	Eligible
108 Port Reading Secondary	Add connection	Funded
108	Install TCS	Funded
108	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121	Upgrade	Proposed/Recommended
124 Penn's Grove Secondary	Purified Upgrade	Eligible
124 Penn's Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
124 Penn's Grove Secondary	General Improvements: Woodbury-PG	Proposed/Recommended
126 Staten Island RR	ExpressRail System	In Progress
126 Staten Island RR	CP Extension at Trent	Proposed/Recommended
126 Staten Island RR	Add second track	Proposed/Recommended
135 West Trenton Line	CP Extension at Trent	Proposed/Recommended
135	CP Extension at Trent	Proposed/Recommended
135	CP Extension at Trent	Proposed/Recommended
135	CP Extension at Trent	Proposed/Recommended
135	CP Extension at Trent	Proposed/Recommended
135	CP Extension at Trent	Proposed/Recommended
139 Paterson Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Paterson Yard Running Tracks	Seashore Branch unannounced track	Eligible

Planned Improvements In Progress: Central New Jersey Rail Lines



20 10 0 10 20 Miles

All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Funded
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommened
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommened
6 Delair Branch	Bridge rehab and double track	Proposed/Recommened
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommened
7 Bordentown Secondary Track	Add second track	Proposed/Recommened
7 Bordentown Secondary Track	Add second track	Proposed/Recommened
28 Beavertown Del. River RR	Three Bridges Advance Track	Eligible
43 Beasley's Point Secondary	Weld jointed rail	Proposed/Recommened
44 Southern Running Track		Completed
45 Chemical Coast Secondary	Window Branch Restoration	In Progress
45 Chemical Coast Secondary	Double track and ICS	Proposed/Recommened
45 Chemical Coast Secondary	Install double track	Proposed/Recommened
49 Constable Hook Industrial	Shoek Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train oil-ship transload	In Progress
57 Greenville Running Track	Construct train oil-ship transload	In Progress
72 Vinland Secondary	Create additional yard capacity	Proposed/Recommened
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly, Construct loop track	Funded
89 NY58W	Rehab main track, Kinneton	Eligible
89 NY58W	Rehab main track, Sparta	Eligible
89 NY58W	Rehab main track, Sparta - 3 others	Eligible
89 NY58W	Rehab main track, North Bergen	Eligible
89 NY58W	Rehab main track, Separation N. Berg	In Progress
89 NY58W	Add second track	Funded
96 Passaic & Harnimus Branch	Value Project	Eligible
101 Patuxton Industrial	Value Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommened
105 Passaic Industrial	Port of Salem Track Improvements	Proposed/Recommened
105 Passaic Industrial	Rehab main track	Eligible
108 Port Heading Secondary	Add connection	Funded
108 Port Heading Secondary	Install ICS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at Bway, Terminal, Port of Camden	Proposed/Recommened
111 River Line Passenger	Upgrade	Proposed/Recommened
124 Penn's Grove Secondary	Rehab main track	Eligible
124 Penn's Grove Secondary	Rehab main track	Eligible
124 Penn's Grove Secondary	Purified Upgrade	Eligible
124 Penn's Grove Secondary	Reconstruct swing bridges	Proposed/Recommened
126 Salem Island RR	General Improvements - Woodbury PG	Proposed/Recommened
126 Salem Island RR	Expressfall System	In Progress
126 Salem Island RR	Expressfall System	In Progress
136 West Trenton Line	Add second main track	Proposed/Recommened
136 West Trenton Line	Add second main track	Proposed/Recommened
136 West Trenton Line	CP Boring to Marvilles Y&Z Main track	Proposed/Recommened
136 West Trenton Line	Increase Capacity at yard	Proposed/Recommened
139 Patuxton Industrial	Seashore Branch unaround track	Eligible
139 Patuxton Industrial	Seashore Branch unaround track	Eligible



Funded Planned Improvements: Central New Jersey Rail Lines

Legend

- Rail Lines (Grey line with cross-ticks)
- Project Funded (Orange line with cross-ticks)
- Central New Jersey Region (Yellow shaded area)
- Water bodies (Light blue shaded area)







All Planned Improvements

Line Name	Project	Status
2 Unlight Line	Second connecting track	Funded
2 Unlight Line	Add 2nd track to 10.7 mile segment	Funded
2 Unlight Line	Eliminate 1st and 2nd crossing	Proposed/Recommended
2 Unlight Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Patersonburg Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
26 Belvidere Del. River RR	Eliminate 2nd crossing	Proposed/Recommended
43 Beasley's Point Secondary	Three Billies Advance Track	Proposed/Recommended
43 Beasley's Point Secondary	Weird jointed rail	Proposed/Recommended
44 Southern Running Track	Eliminate 3rd crossing	Completed
45 Chemical Coast Secondary	Windrow Branch Restoration	In Progress
45 Chemical Coast Secondary	Double track and ICS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoek Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train oil-ship transfer	In Progress
57 Greenville Running Track	Construct train oil-ship transfer segment to Marion Ct	In Progress
72 Vinland Secondary	Create additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NYC&W	Rehab main track: Kinneton	Eligible
89 NYC&W	Rehab main track: Sparta	Eligible
89 NYC&W	Rehab main track: North Bergen	Eligible
89 NYC&W	Rehab main track: Sparta 3 others	Eligible
89 NYC&W	Rehab main track: Separation N. Ber.	In Progress
89 NYC&W	add second track	Funded
89 NYC&W	add second track	Funded
101 Patuxent Industrial	Value P Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
103 Salem Running Track	Port of Salem Track Improvements	Proposed/Recommended
106 Peasantsville Industrial	Rehab main track	Eligible
108 Port Reading Secondary	Add second track	Funded
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install ICS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121 Scotchville Industrial	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury PG	In Progress
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Expressfall System	Proposed/Recommended
126 Staten Island RR	Add second main	Proposed/Recommended
130 West Trenton Line	CP B'wing to Marlville Vg. 2nd Main track	Proposed/Recommended
135 Pavonia Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unaround track	Eligible

Eligible Planned Improvements: Central New Jersey Rail Lines

Legend

-  Rail Lines
-  Project Eligible for Funding
-  Central New Jersey Region
-  Water bodies



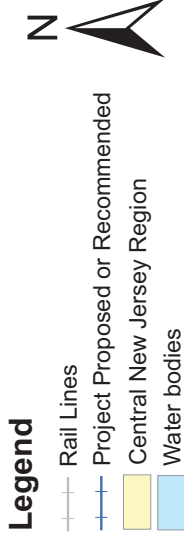
20 10 0 10 20 Miles



All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Paterson Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
28 Bowers Del. River RR	Rehab main track	Proposed/Recommended
43 Beasley's Point Secondary	Three Bridges Advance Track	Eligible
44 Southern Running Track	Weld jointed rail	Proposed/Recommended
45 Chemical Coast Secondary	Window Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ICS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoof Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train oil-ship transfer	In Progress
72 Vinland Secondary	Construct additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Create additional yard capacity	Proposed/Recommended
85 Northeast Corridor Line	Expressfall System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
89 NY58W	Waverly Construct loop track	Funded
89 NY58W	Rehab main track: Kinross	Eligible
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N. Berg	In Progress
89 NY58W	Add second track	Funded
98 Passaic & Harsimus Branch	Rehab main track	Eligible
101 Patuxent Industrial	Value P Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106 Passaicville Industrial	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
106 Passaicville Industrial	Add second track	Proposed/Recommended
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install ICS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
124 Penns Grove Secondary	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purfield Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Rehab main track: Trent	Proposed/Recommended
126 Staten Island RR	Add second main track	Proposed/Recommended
130 West Trenton Line	CP B'wing to Marlville Vg. 2nd Main track	Proposed/Recommended
135 Patuxent Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unaround track	Eligible

Proposed Planned Improvements: Central New Jersey Rail Lines







All Planned Improvements

Line, Line Name	Project	Status
2 Unhigh Line	Second connecting track	Funded
2 Unhigh Line	Add 2nd track to 10.7 mile segment	Funded
2 Unhigh Line	Double track 1.5 miles	Proposed/Recommended
2 Unhigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Patersonburg Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
28 Bowers Del. River RR	Rehab main track	Proposed/Recommended
43 Beasley's Point Secondary	Three Bridges Advance Track	Proposed/Recommended
44 Southern Running Track	Weld jointed rail	Proposed/Recommended
45 Chemical Coast Secondary	Window Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ITCS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shoek Track Rehab	Eligible
49 Constable Hook Industrial	Yard 4 Storage	Eligible
57 Greenville Running Track	Construct train oil-ship transfer	In Progress
72 Vinland Secondary	Construct additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressfall System	Proposed/Recommended
85 Northeast Corridor Line	Construct Container Terminal Expansion	In Progress
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NY58W	Rehab main track: Kinnelon	Funded
89 NY58W	Rehab main track: Sparta	Eligible
89 NY58W	Rehab main track: Sparta 3 others	Eligible
89 NY58W	Rehab main track: North Bergen	Eligible
89 NY58W	Rehab main track: Separation N. Berg	In Progress
89 NY58W	Add second track	Funded
96 Passaic & Harsimus Branch	Rehab main track	Eligible
101 Patuxson Industrial	Value Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106 Passaicville Industrial	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
108 Port Reading Secondary	Add connection	Funded
108 Port Reading Secondary	Install ITCS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
124 Penns Grove Secondary	Upgrade	Proposed/Recommended
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126 Staten Island RR	Expressfall System	In Progress
126 Staten Island RR	Rehab main track at Trent	Proposed/Recommended
130 West Trenton Line	Add second main track	Proposed/Recommended
130 West Trenton Line	CP Ewing to Marlville V&E 2nd Main track	Proposed/Recommended
135 Patuxson Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unaround track	Eligible

Planned Improvements In Progress: Southern New Jersey Rail Lines

Legend

-  Rail Lines
-  Project In Progress
-  Southern New Jersey Region
-  Water bodies







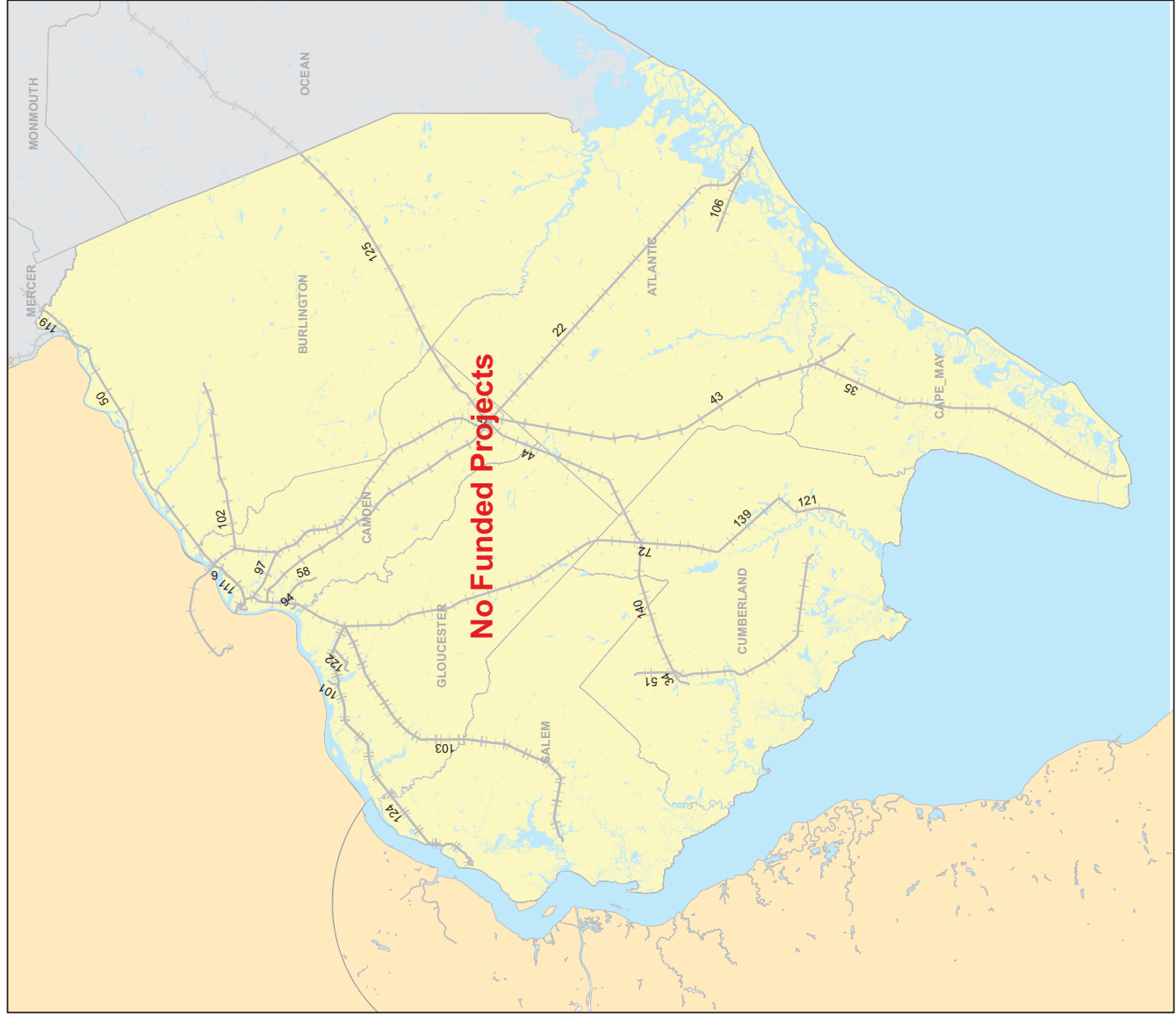
All Planned Improvements

Line_Line_Name	Project	Status
2 Unlgh Line	Second connecting track	Funded
2 Unlgh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2 Unlgh Line	Upgrade track	Proposed/Recommended
2 Unlgh Line	Double track 1.5 miles	Proposed/Recommended
2 Unlgh Line	Double track Patersonburg Tunnel	Proposed/Recommended
6 Delair Branch	Bridge rehab and double track	Proposed/Recommended
7 Berdenstown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Berdenstown Secondary Track	Add second track	Proposed/Recommended
7 Berdenstown Secondary Track	Realign	Proposed/Recommended
28 Bellevue Del River RR	Third Bilgde Advance Track	Proposed/Recommended
48 Beesley's Point Secondary	Weird jointed rail	Proposed/Recommended
44 Southern Running Tracked	Winlow Branch Restoration	Completed
44 Southern Running Tracked	Double track and ICS	In Progress
45 Chemical Coast Secondary	Install doublet track	Proposed/Recommended
45 Chemical Coast Secondary	Shoof track Rehab	Proposed/Recommended
49 Constable Hook Industrial	Yard Storage	Eligible
49 Constable Hook Industrial	Construct train rail-shlip transload	In Progress
57 Greenville Running Track	Create additional yard capacity	In Progress
72 Vinland Secondary	Expressial System	Proposed/Recommended
82 Portside Industrial Track	Construct Container Terminal Expansion	In Progress
85 Northeast Corridor Line	Waverly Construct loop track	Funded
85 Northeast Corridor Line	Rehab main track: Kinnelon	Funded
89 NYCSW	Rehab main track: North Bergen	Eligible
89 NYCSW	Rehab main track: Sparta	Eligible
89 NYCSW	Rehab main track: North Bergen	Eligible
89 NYCSW	69th Street Grade Separation N.Berg	Eligible
89 NYCSW	add second track	Funded
96 Passaic & Harnimus Branch	Rehab main track: North Bergen	Eligible
96 Passaic & Harnimus Branch	Rehab main track: Sparta	Eligible
100 Patuxson Industrial	Valero Project	In Progress
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106 Passaicville Industrial	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
106 Passaicville Industrial	Add connection	Eligible
108 Port Heading Secondary	Install ICS	Funded
108 Port Heading Secondary	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
112 Seabrookville Industrial	Upgrade	Proposed/Recommended
124 Penn's Grove Secondary	Purified Upgrade	Eligible
124 Penn's Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Staten Island RR	General Improvements: Woodbury-PG	Proposed/Recommended
126 Staten Island RR	Expressial System	In Progress
128 Penn's Grove Industrial Track	Rehab main track	Proposed/Recommended
128 Penn's Grove Industrial Track	Add second yard	Proposed/Recommended
130 West Trenton Line	CP Ewing to Marlville YG-2nd Main track	Proposed/Recommended
135 Patuxon Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unround track	Eligible



Funded Planned Improvements: Southern New Jersey Rail Lines

- Legend**
-  Rail Lines
 -  Project Funded
 -  Southern New Jersey Region
 -  Water bodies







All Planned Improvements

Line, Line Name	Project	Status
2 Lehigh Line	Second connecting track	Funded
2 Lehigh Line	Add 2nd track to 10.7 mile segment	Funded
2 Lehigh Line	Upgrade track	Proposed/Recommended
2 Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6 Delair Branch	Double track Patersonburg Tunnel	Proposed/Recommended
7 Bordentown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7 Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7 Bordentown Secondary Track	Add second track	Proposed/Recommended
28 Bowers Del River RR	Bridge rehab	Proposed/Recommended
43 Beesley's Point Secondary	Third Bridge Advance Track	Proposed/Recommended
43 Beesley's Point Secondary	Weird jointed rail	Proposed/Recommended
44 Southern Running Track	Window Branch Restoration	Completed
45 Chemical Coast Secondary	Double track and ICS	In Progress
45 Chemical Coast Secondary	Install double track	Proposed/Recommended
49 Constable Hook Industrial	Shook track Rehab	Eligible
49 Constable Hook Industrial	Yard Storage	Eligible
57 Greenville Running Track	Construct train rail-ship transload	In Progress
72 Vinland Secondary	Proposed 1.5 mile segment to Marion Ct	Proposed/Recommended
72 Vinland Secondary	Create additional yard capacity	Proposed/Recommended
82 Portside Industrial Track	Expressial System	In Progress
85 Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85 Northeast Corridor Line	Waverly Construct loop track	Funded
89 NYCSW	Rehab main track: Kinneton	Eligible
89 NYCSW	Rehab main track: Sparta	Eligible
89 NYCSW	Rehab main track: Sparta 3 others	Eligible
89 NYCSW	Rehab main track: North Bergen	Eligible
89 NYCSW	Rehab main track: Separation N. Berg	Eligible
89 NYCSW	Add second track	Funded
89 NYCSW	Rehab main track	In Progress
98 Passaic & Harsimus Branch	Rehab main track	Eligible
101 Patuxson Industrial	Value Project	Eligible
103 Salem Running Track	Salem County Short Line track rehab	Eligible
103 Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106 Passaicville Industrial	Port of Salem Track Improvements	Proposed/Recommended
106 Passaicville Industrial	Rehab main track	Eligible
106 Passaicville Industrial	Add second track	Eligible
108 Port Heading Secondary	Add connection	Funded
108 Port Heading Secondary	Install ICS	Funded
111 River Line Passenger	Reconfigure track at interlocking	In Progress
111 River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121 Salemville Industrial	Upgrade	Proposed/Recommended
121 Salemville Industrial	Track	Eligible
124 Penns Grove Secondary	Purified Upgrade	Eligible
124 Penns Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126 Salem Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126 Salem Island RR	Expressial System	In Progress
128 Trenton Industrial Track	Rehab main track at Trent	Proposed/Recommended
128 Trenton Industrial Track	Add second track	Proposed/Recommended
130 West Trenton Line	CP Ewing to Marlville Vg. 2nd Main track	Proposed/Recommended
133 Pavoia Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139 Millville Industrial	Seashore Branch unaround track	Eligible

Eligible Planned Improvements: Southern New Jersey Rail Lines

Legend

-  Rail Lines
-  Project Eligible for Funding
-  Southern New Jersey Region
-  Water bodies



20 10 0 10 20 Miles





All Planned Improvements

Line_No	Line_Name	Project	Status
2	Unlight Line	Second connecting track	Funded
2	Unlight Line	Add 2nd track to 10.7 mile segment	Funded
2	Unlight Line	Double track 1.5 miles	Proposed/Recommended
2	Unlight Line	Double track 1.5 miles	Proposed/Recommended
6	Delair Branch	Bridge rehab and double track	Proposed/Recommended
7	Bordentown Secondary Track	Create additional yard capacity	Proposed/Recommended
7	Bordentown Secondary Track	Add second track	Proposed/Recommended
7	Bordentown Secondary Track	Add second track	Proposed/Recommended
28	Beverly's Dell River RR	Three Bridges Advance Track	Eligible
43	Bessley's Point Secondary	Weird jointed rail	Proposed/Recommended
44	Southern Running Track	Window Branch Restoration	Completed
44	Chemical Coast Secondary	Double track and ITC	In Progress
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
49	Constable Hook Industrial	Shook track Rehab	Eligible
49	Constable Hook Industrial	Yard Storage	Eligible
57	Greenville Running Track	Construct train rail-ship transload	In Progress
72	Vinland Secondary	Construct additional yard capacity	Proposed/Recommended
72	Vinland Secondary	Expressial System	Proposed/Recommended
85	Northeast Corridor Line	Construct Container Terminal Expansion	Funded
85	Northeast Corridor Line	Waverly Construct loop track	Funded
89	NY28W	Rehab main track: Kinnelon	Eligible
89	NY28W	Rehab main track: Sparta	Eligible
89	NY28W	Rehab main track: Sparta 3 others	Eligible
89	NY28W	Rehab main track: North Bergen	Eligible
89	NY28W	Rehab main track: Separation N.Berg	Eligible
89	NY28W	Add second track	Funded
89	NY28W	Add second track	Funded
89	NY28W	Add second track	Funded
101	Patuxent Industrial	Value Project	Eligible
103	Salem Running Track	Salem County Short Line track rehab	Eligible
103	Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106	Peasewick Industrial	Rehab main track	Proposed/Recommended
106	Peasewick Industrial	Add second track	Eligible
106	Peasewick Industrial	Add connection	Funded
108	Port Heading Secondary	Install ITC	Funded
108	Port Heading Secondary	Reconfigure track at interlocking	In Progress
111	River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
121	Seaboard Industrial	Upgrade	Proposed/Recommended
121	Seaboard Industrial	Upgrade	Proposed/Recommended
124	Penns. Grove Secondary	Purified Upgrade	Eligible
124	Penns. Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126	Staten Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126	Staten Island RR	Expressial System	In Progress
126	Staten Island RR	Expressial System	In Progress
126	Staten Island RR	Expressial System	In Progress
130	West Trenton Line	CP Ewing to Marlville Vg. 2nd Main track	Proposed/Recommended
135	Pavonia Yard Running Tracks	Increase Capacity at yard	Proposed/Recommended
139	Milville Industrial	Seashore Branch unaround track	Eligible



Proposed Planned Improvements: Southern New Jersey Rail Lines

Legend

-  Rail Lines
-  Project Proposed/Recommended
-  Southern New Jersey Region
-  Water bodies



All Planned Improvements

Line_No	Line_Name	Project	Status
2	Lehigh Line	Second connecting track	Funded
2	Lehigh Line	Add 2nd track to 10.7 mile segment	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
2	Lehigh Line	Double track 1.5 miles	Proposed/Recommended
6	Delair Branch	Double track Paterson Tunnel	Proposed/Recommended
7	Porterstown Secondary Track	Bridge rehab and double track	Proposed/Recommended
7	Porterstown Secondary Track	Create additional yard capacity	Proposed/Recommended
7	Porterstown Secondary Track	Add second track	Proposed/Recommended
7	Porterstown Secondary Track	Rehab main track	Proposed/Recommended
28	Bellevue Dell River RR	Three Belridge Advance Track	Eligible
43	Bessley's Point Secondary	Weird jointed rail	Proposed/Recommended
44	Southern Running Track	Window Branch Restoration	Completed
44	Southern Running Track	Double track and ITC	In Progress
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
45	Chemical Coast Secondary	Install double track	Proposed/Recommended
49	Constable Hook Industrial	Shoof track Rehab	Eligible
49	Constable Hook Industrial	Yard Storage	Eligible
57	Greenville Running Track	Construct train rail-ship transload	In Progress
72	Vineland Secondary	Create additional yard capacity	Proposed/Recommended
72	Vineland Secondary	Express Rail System	Proposed/Recommended
85	Northeast Corridor Line	Construct Container Terminal Expansion	In Progress
85	Northeast Corridor Line	Waverly Construct loop track	Funded
89	NY28W	Rehab main track: Kinnelon	Funded
89	NY28W	Rehab main track: Sparta	Eligible
89	NY28W	Rehab main track: Sparta - 3 others	Eligible
89	NY28W	Rehab main track: North Bergen	Eligible
89	NY28W	Rehab main track: Separation N. Berg	Eligible
89	NY28W	Add second track	Funded
89	NY28W	Value Project	Eligible
103	Salem Running Track	Salem County Short Line track rehab	Eligible
103	Salem Running Track	Upgrade track to support Corral	Proposed/Recommended
106	Peasentville Industrial	Rehab main track	Proposed/Recommended
106	Peasentville Industrial	Add second track	Eligible
106	Peasentville Industrial	Add connection	Funded
108	Port Heading Secondary	Install ITC	Funded
108	Port Heading Secondary	Reconfigure track at interlocking	In Progress
111	River Line Passenger	Impr. at B'way, Terminal, Port of Camden	Proposed/Recommended
112	Seaboardville Industrial	Upgrade	Proposed/Recommended
124	Penns. Grove Secondary	Purified Upgrade	Eligible
124	Penns. Grove Secondary	Reconstruct swing bridges	Proposed/Recommended
126	Salem Island RR	General Improvements: Woodbury PG	Proposed/Recommended
126	Salem Island RR	Express Rail System	In Progress
126	Salem Island RR	Rehab main track at Trent	Proposed/Recommended
139	West Trenton Line	Add second yard	Proposed/Recommended
139	West Trenton Line	CP Ewing to Marlville YG 2nd Main track	Proposed/Recommended
139	West Trenton Line	Increase Capacity at yard	Proposed/Recommended
139	West Trenton Line	Seashore Branch unaround track	Eligible