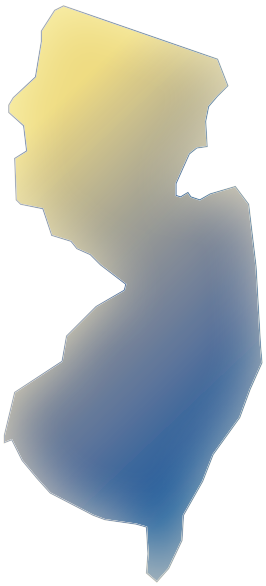
New Jersey State Rail Plan

New Jersey Rail System

Chris Christie, Governor
James S. Simpson, Commissioner, Department of Transportation
James Weinstein, Executive Director, New Jersey Transit

FINAL DRAFT
December 2012



New Jersey State Rail Plan

New Jersey Rail System

Prepared for

NJ TRANSIT
Newark, New Jersey

State of New Jersey
Department of Transportation
Trenton, New Jersey

FINAL DRAFT
December 2012

Foreword

The New Jersey State Rail Plan is a product of over a year of research and study. The Plan was designed both to meet the federal requirements for state rail plans stipulated by the Passenger Rail Investment and Improvement Act of 2008 and to provide a framework for future rail improvements in the state. The plan provides the opportunity to focus on statewide transit and freight planning in New Jersey.

Both the New Jersey Department of Transportation and New Jersey Transit have long been engaged in rail planning, relying heavily on input from a cross-section of stakeholders. In developing the state rail plan, significant input was provided by both agencies. The New Jersey DOT is currently preparing a Freight Rail Strategic Plan for the state identifying the rail needs of the major freight stakeholders. The state rail plan draws heavily from that considerable effort and the Freight Rail Strategic Plan, itself, in profiling the freight system and identifying key issues and initiatives.

In addition to input from the two state agencies responsible for rail transportation, open houses were sponsored by the state's three MPOs. All of New Jersey is represented by an MPO with each having a requirement to produce a Regional Transportation Plan for its jurisdiction. This document complements those plans.

The open houses were located to draw from three regions of the state to provide an opportunity for a broad audience to provide its perspective on rail issues facing the state as input to the plan. Meetings were held in Newark, Trenton, and Vineland.

The rail plan focuses on commuter and intercity passenger rail and freight rail. Light rail systems or urban transit systems such as PATH and PATCO are incorporated in the plan only with respect to their connectivity with the commuter and intercity passenger rail operations. The rail plan follows.

The New Jersey State Rail Plan was developed with the help of many industry professionals, including the State's transportation agencies, the metropolitan planning organizations that oversee transportation planning and funding in New Jersey, and the railroads that serve the state.

Project Management:

- Alan Kearns, NJ TRANSIT, Project Manager, New Jersey State Rail Plan
- Miki Krakauer, NJDOT, Project Manager, New Jersey Freight Rail Strategic Plan

New Jersey State Rail Plan Committee:

- Talvin Davis, NJDOT
- Robert DeSando, NJDOT
- David Dieck, NJ TRANSIT
- Thomas Morgan, NJ TRANSIT
- Robert Parylak, NJ TRANSIT
- Thomas Schulze, NJ TRANSIT
- Andrew Swords, NJDOT

- Paul Truban, NJDOT
- Richard Wisneski, NJ TRANSIT

With guidance from:

- Richard Roberts, Chief Planner, NJ TRANSIT
- David Kuhn, Assistant Commissioner, NJDOT

Special thanks to:

- Delaware Valley Regional Planning Commission
- North Jersey Transportation Planning Authority
- South Jersey Transportation Planning Organization

Table of Contents

[TABLE OF CONTENTS]

Figures

Tables

[TABLE OF CONTENTS]

EXECUTIVE SUMMARY
Rail Transportation and the State of New Jersey

Overview

The New Jersey rail system is an extensive network that dates back to the early nineteenth century. Today it transports people and freight through some of the most densely populated areas in the country. The North American freight railroads are a thriving industry having reversed their fortunes after decades of decline. Three Class I railroads, one Class II railroad and fifteen Class III, or short line, railroads operate in New Jersey. Each is a privately owned and operated company. Two major passenger rail companies also operate in the state; NJ TRANSIT and Amtrak. NJ TRANSIT, a state run agency, provides commuter rail services. NJ TRANSIT serves New York Penn Station and operates into other New York State locations through an agreement with Metro-North. Amtrak, a federal corporation provides intercity passenger rail service connecting New Jersey major metropolitan areas with cities in the northeast and throughout the country.

The Northeast Corridor (NEC), the Amtrak-owned rail line that passes through New Jersey between Trenton and the Hudson River, is the most traveled passenger rail line in the country. In 2011, three quarters of a million passengers traveled the NEC each day. In recent years, with the increase in flight delays and added security, more travelers have turned to Amtrak to travel between Boston, New York and Washington D.C. In part due to the introduction of its high-speed rail service, Acela, Amtrak has seen its share of passenger travel on the NEC jump from 33 percent in 2000 to 75 percent today.

Freight rail is a vital part of the New Jersey economy. New Jersey acts as both a distribution center and a throughway for freight originating or destined for the rest of the country. Some of the main industries in New Jersey that rely on rail freight are waste disposal, power generation, and chemical manufacturing. For these businesses rail has proved more efficient than highway or air transport.

Background and Purpose of the State Rail Plan

In 2008 the federal government passed the Passenger Rail Investment and Improvement Act (PRIIA) (49 USC 22705), making State Rail Plans a key document for both planning and funding purposes. PRIIA stipulates that future federal rail funding will be contingent on a state's having an approved state rail plan that includes the following:

- Inventory of existing rail transportation network
- Statement of the state's objectives related to rail transportation
- General analysis of rail's economic, transportation and environmental impacts
- Long-range investment program for current and future rail freight and passenger services

- Discussion of public funding issues for rail projects and listing of current and potential rail related funding sources
- Discussion of stakeholder identified rail infrastructure issues
- Review of freight and passenger intermodal rail connections and facilities
- Review of publically funded rail projects that enhance rail-related safety
- Performance evaluation for passenger rail services
- Compilation of previous high-speed rail reports and studies and a comprehensive view of the state's high-speed rail corridor(s) when present
- Statement that the state's rail plan complies with PRIIA

To be eligible for any future federal funds a state must demonstrate that it has the legal, financial, and technical capability to execute a project; the state rail plan provides proof of that ability. The New Jersey State Rail Plan has been developed to comply with all PRIIA requirements. Because of the specific requirements of PRIIA, this plan focuses on commuter and intercity passenger rail and freight rail. It does not include light rail transit systems, such as the Hudson-Bergen Light Rail Transit System, the Riverline, or the Newark City Subway, nor does it include rapid transit systems, such as the Port Authority Trans-Hudson (PATH) or the PATCO Speedline systems.

History

The first government charter for a railroad in the United States was issued to the New Jersey Railroad Company in 1815. Fifteen years later a charter was awarded to the Camden and Amboy Rail Road and Transportation Company. The industry quickly expanded and many other railroads were created but the Camden and Amboy Rail Road remained one of the largest and most dominant because of its monopoly on travel between New York City and Philadelphia. During this time, other railroad companies in the region were also growing. Founded in 1846, the Pennsylvania Railroad (PRR) began with service between Harrisburg and Pittsburgh but quickly expanded into the northeast. In 1871, it leased the newly combined Camden and Amboy, and New Jersey Railroad Company for 999 years, effectively gaining control of most of the passenger rail service in the northeast.

In the nineteenth and twentieth centuries, other railroads grew and were successful but none matched the PRR. The biggest hindrance to growth along the Northeast Corridor was the lack of direct rail access to New York City. The PRR began work on two tunnels under the Hudson River in 1902 that was completed in 1910. The tunnels served the new Pennsylvania Station. By 1920, the railroad was running hourly service through New Jersey between New York City and Washington D.C.

Most of the railroads operated both freight and passenger services, with freight service proving to be the more profitable of the two. Because of New Jersey's close proximity to Pennsylvania the principal commodity transported for most of the railroads was coal. The large passenger rail network that existed at the turn of the twentieth century was mostly due to the success of the freight rail industry.

However with the increasing popularity of motor vehicles, both passenger and freight rail began to suffer, particularly in the Northeast and Midwest. Most freight movements in the northeast were over short distances that gave trucks a cost advantage especially with the

development of the interstate highway system. The PRR reported its first of many annual operating losses in 1946. In 1968, it merged with the New York Central Railroad, another struggling railroad company creating the Penn Central Transportation Company.

Increasingly unprofitable passenger services led the railroads to continually petition the government to allow them to cease operating passenger rail service but the Interstate Commerce Commission declined the requests. The freight rail industry also suffered from of regulations that restricted its ability to compete with trucking companies.

The government finally acted after Penn Central filed for bankruptcy in 1970. The National Railroad Passenger Corporation, commonly known as Amtrak, was established in 1971 to relieve the freight railroads of their intercity passenger rail obligations. The now freight-only railroads, particularly in the northeast, continued to suffer financially even without the passenger operations. In 1973, Congress passed the Railroad Revitalization and Reform Act (3R Act). The law created both the United States Railroad Administration, a federal agency to reorganize the five northeast railroads into a single carrier. Conrail, a quasi-private freight rail operator took over operations of the bankrupt rail lines with support from the federal government. Maintenance and responsibility of the Northeast Corridor was assigned to Amtrak but Conrail provided the freight and commuter service.

Providing both passenger and freight rail service continued to be a financial challenge and in 1981 Congress passed the Northeast Rail Services Act of 1981 (NERSA) which removed Conrail's obligation to provide commuter rail service beginning January 1, 1983. Because of that legislation, each state in the Northeast elected to provide separate commuter rail service. NJ TRANSIT Rail Operations took over the commuter service operations in New Jersey. NJ TRANSIT had been formed in 1979 by the New Jersey legislature. The new transportation agencies in each state focused on providing intra-state travel for commuters.

In 1980, Congress finally recognized that regulations were prohibiting the railroads from effectively competing with motor carriers. The Staggers Act was signed into law in 1980, deregulating freight rail commerce. Following that, Conrail and other railroads became profitable with Conrail repaying the federal loans that had kept it solvent for many years until in 1997, it was split up and purchased by CSX and NS.

Rail's Role in NJ Transportation Network

New Jersey freight network is multimodal with air, highway, and water as well as rail transport playing important roles. With the largest port on the northeast at the Port of New York-New Jersey complex, New Jersey has become a staging center for goods coming off the ships. The freight rail system plays a key role in maintaining the dominance of the state's port.

Passenger rail is also just as vital to New Jersey's transportation network. Amtrak operates 110 trains each day with nine intercity services. The services connect New Jersey with locations throughout the country. New Jersey has six Amtrak stations. NJ TRANSIT operates 12 commuter lines. In FY2011, its total ridership was 79.6 million. Automobiles,

however, continue to be the principal mode of travel for many residents of New Jersey. The state has over 39,000 miles of roadway, and only 530 miles of passenger rail.

NJ Freight Rail Profile

Description of NJ Network

Freight railroads are classified into one of four categories:

- Class I railroads are the largest railroads and have annual revenues that exceed $398.7 million annually. The majority of rail based freight movement occurs on Class I rail lines. New Jersey has two principal Class I railroads, Norfolk Southern (NS), CSX Transportation (CSX). A third Class I railroad, the Canadian Pacific Railway, operates by agreement between Phillipsburg and Newark over trackage owned by NS.
- Class II railroads earn revenues between $31.9 million and $398.7 million annually. New Jersey has one Class II railroad, the New York, Susquehanna, and Western Railway.
- Class III railroads (also called short lines) are the smallest railroads. They have annual revenue of less than $31.9 million. New Jersey has seven Class III railroads
- Switching and Terminal railroads are a separate class of Class III railroad. They transfer freight cars among larger railroads or operate within a facility or group of facilities. New Jersey has nine terminal railroads. CSX and NS jointly own Conrail Shared Assets Operations (CSAO), a railroad providing terminal and switching services in North Jersey and South Jersey.

Commodity Mix

The top three rail-transported commodities are freight all kinds (which is predominately containerized cargoes), chemical products, and waste or scrap materials. Combined they accounted for 53 percent of total commodities by weight in 2007. 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. Containerized freight, which spans several commodities, accounted for more than 25 percent of New Jersey's rail traffic in 2007. Freight volumes hauled across New Jersey are expected to grow from 46 million tons in 2007 to 68 million tons in 2035.

New Jersey is principally a terminator of rail freight. In 2007, 53 percent of the state's freight was inbound. Outbound freight represented 27 percent of the state's rail freight in 2007.

NJ Passenger Rail Profile

NJ TRANSIT

NJ TRANSIT is the nation's third largest regional rail service provider. It operates more than 530 route miles and 162 stations spread across a service area of 5,325 square miles. The commuter rail services are operated by NJ TRANSIT Rail Operations. Lines that serve Newark Penn Station and the NEC are part of the Newark Division. They were once part of the PRR. The Hoboken Division includes the lines that connect to the Hoboken Terminal and used to be operated by the Delaware, Lackawanna and Western or Erie Railroad.

Nine of the lines lie solely in New Jersey: Northeast Corridor, North Jersey Coast Line, Raritan Valley Line, Atlantic City Rail Line, Morris & Essex (Morristown) Line, Morris & Essex (Gladstone) Line, Montclair-Boonton Line, Main Line, and the Bergen County Line.

NJ TRANSIT also operates commuter rail service into New York State under contract with Metro-North Railroad, a subsidiary of the Metropolitan Transportation Agency of New York. The two lines are extensions of service that originates in New Jersey; they are the Port Jervis Line and the Pascack Valley Line. NJ TRANSIT has an operating agreement with Metro-North, which maintains the tracks and infrastructure. Metro-North has contracted NJ TRANSIT to operate the trains. The Pascack Valley line runs from Hoboken to Spring Valley, NY. Metro-North owns the entire infrastructure in New York and has contracted NJ TRANSIT to operate the trains on its portion of the line.

SEPTA

SEPTA's regional rail service is centered on transportation around Philadelphia and the city's suburbs. The agency operates thirteen lines, two of which terminate in New Jersey, the Trenton line and the West Trenton line. Both lines run into Center City Philadelphia.

Intercity Rail Services

Intercity rail service in New Jersey is provided by Amtrak. It operates three corridor services on the NEC:

- Acela Express – Premium high speed service operating between Boston and Washington
- Regional – Conventional service operating between Boston and Washington
- Keystone – Conventional service between New York and Harrisburg via Philadelphia

Amtrak also operates eight long distance services through the NEC:

- Carolinian – Operates between Charlotte, NC and New York
- Pennsylvanian – Operates between Pittsburgh and New York
- Vermonter – Operates between St. Albans, VT and Washington
- Cardinal – Operates between Chicago and New York
- Crescent – Operates between New Orleans and New York
- Palmetto – Operates between Savannah and New York

- Silver Meteor – Operates between Miami and New York
- Silver Star – Operates between Miami and New York

All long distance services stop in Newark and Trenton, while some of the regional services make stops at Metropark, Newark Airport, New Brunswick, and Princeton Junction.

The end point on-time performance standard for Acela is 90 percent and in the fourth quarter of 2011, actual performance was 90.2 percent. For the Northeast Corridor standard end point on-time performance is 85 percent, in the fourth quarter of 2011 the actual performance was 89.2 percent for the Keystone service and 85.8 percent for the Regional service. An Acela train is considered on time if it arrives at the end point or intermediate station within ten minutes of its scheduled time. An Amtrak Northeast Corridor train is defined as on time if it arrives at the end point or intermediate station within fifteen minutes of the scheduled time.

There can be many reasons for delays on the Northeast Corridor but in the fourth quarter of 2011, the main causes were:

- Acela trains – commuter train interference followed by other intercity train interference
- Keystone trains – commuter train interference followed by passenger caused delays
- Regional trains – locomotive failures followed by passenger delays

Rail Funding

Rail funding in New Jersey comprises state and federal funding sources. At the state level there are only two taxes collected from the state railroads, the Railroad Franchise Tax and the Railroad Property Tax. Both of these are a result of agreements made in 1948 and have not been significantly altered since. New Jersey does not have a permanent, guaranteed tax revenue source for freight rail initiatives. Tax revenue from freight rail goes into the state's general treasury fund. The only funding source for freight rail initiatives is the New Jersey Rail Freight Assistance Program, which draws funds from the state's Transportation Trust Fund.

At the federal level, there are several sources of funding available to the railroads. They are:

- TIGER Discretionary Grant Program – U.S. Department of Transportation grants for projects that achieve national objectives.
- TIFIA Loans – direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national or regional significance.
- Private Activity Bonds – The Safe Accountable, Flexible, and Efficient Transportation Equity Act established a new financial assistance program that provides up to $15 billion in private activity bonds for transportation infrastructure projects.
- Railroad Rehabilitation & Improvement Financing Program (RRIF) – Under this program the FRA provides direct loan and loan guarantees up to $35 billion. Up to $7 billion is reserved for projects benefiting freight railroads other than Class I carriers.

- Congestion Mitigation and Air Quality Improvement Program – Funds transportation projects that improve air quality by reducing transportation-related emissions. Federal matching share for freight related projects is 80 percent.
- Surface Transportation Program – general grant program for improvements on any federal-aid highway, bridge or transit capital project.
- Transportation Enhancement Program – funding for projects that strengthen the cultural, aesthetic, and environmental aspects of the nation's transportation system.
- Railroad Track Maintenance Credit Program – Program is for maintenance on Class II or Class III freight infrastructure.
- Economic Development Administration Funding – Program is for projects in economically distressed industrial sites that promote job creation or retention.
- 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.

NJ TRANSIT generates funds from passenger fares and other operating revenues. For FY 2011 passenger fares accounted for most of the operating revenues. Other revenue came from a variety of sources including contracted services, rental income, advertising, and leases. Operating expenses consists of employment costs, purchased transportation, utilities, and various other expenses. Labor costs are approximately 53 percent of the annual NJ TRANSIT operating budget. Currently, operating expenses outpace operating revenues so NJ TRANSIT experiences an annual operating deficit. To help offset the cost NJ TRANSIT receives direct operating assistance from the state.

For infrastructure and equipment investment, NJ TRANSIT and NJDOT access the unified Transit Capital Program, which is funded by the New Jersey Transportation Trust Fund (TTF). In past years, the revenues have been split three ways amongst highways, NJ TRANSIT, and local aid. For FY 2012 the TTF funds approximately 46 percent of the Fiscal Year 2012 Transportation Capital Program.

Institutional Structure

In 1966, NJDOT was created by an act of State Legislature; it was the first state transportation agency in the United States. When first established it was responsible for maintaining and operating the State's highways and public road system. With passing of the Transportation Act of 1979, NJ TRANSIT was created. The new agency was established as part of NJDOT with the Commissioner of Transportation sitting on the board. The Transportation Act gave NJ TRANSIT the authority to "Plan, design, construct, equip, operate, improve and maintain, either directly or by contract with any public or private entity, public transportation services." When the Act was first passed, the Agency was only responsible for bus services, but after the President signed legislation authorizing Conrail to transfer commuter rail operations to state agencies, NJ TRANSIT assumed operation of New Jersey's commuter rail services, effective January 1, 1983.

NJDOT continues to oversee freight rail service and today manages the New Jersey Freight Rail Assistance Program. Its freight planning unit creates an annual report that

identifies recipients of this program. The agency also oversees the transportation capital program for the state.

NJ TRANSIT, as one of the nation's largest transit providers, is continually working to improve its service and operations. In 2011, the agency introduced a new performance measurement system called "Scorecard." The system has five components monitored in part through quarterly surveys.

The Northeast Corridor is not only the busiest rail corridor in the country, but in New Jersey it is also a shared corridor among Amtrak, NJ TRANSIT, freight operations, and SEPTA. NJDOT and NJ TRANSIT must coordinate with numerous agencies concerning issues such as safety, operations, funding and capital programs. Amtrak's high-speed rail service has to integrate with commuter rail operations. As the owner, Amtrak is responsible for performing infrastructure maintenance and train dispatching. NJ TRANSIT's operating rights, established through Federal law, allow it to operate over the NEC. NJ TRANSIT compensates Amtrak for maintenance and dispatching services. Separate agreements govern how NJ TRANSIT contributes to investing in NEC capital improvement. Freight railroads share many of the rights of way with NJ TRANSIT so capital costs and trackage rights have to be allocated among the users.

Safety and Security Programs

With a rail system that connects to locations in Canada and Mexico safety is a priority for all agencies and railroad companies. In 2008, responding to a series of tragic events, the Rail Safety Improvement Act was passed; the purpose of the act was to expand regulations and requirements which would be aimed at ensuring both passenger and freight rail were operated safely. The Federal Railroad Administration (FRA) oversees the safety of the nation's rail network but NJ TRANSIT and NJDOT have taken up safety as a major priority. Recently they have formed the New Jersey Safety at Railroad Crossings Leadership Oversight Committee, which was partially in response to several trespassing deaths in 2011. The Committee has already begun implementing changes and recommended the creation of a database that could prioritize locations where improvements and outreach are needed.

Environment

Development of passenger and freight rail leads to a stronger and more sustainable transportation system. Freight rail is not only cost effective but also has much less of an impact on the environment than trucks. Rail transportation produces three quarters less greenhouse gasses than trucking does for the same shipment of freight. The recent development of cleaner locomotives also adds to the environmental benefit of rail. Commuter rail helps take thousands of cars off the road, each of which average higher per passenger mile emissions than commuter trains.

Energy

Rail also provides huge energy savings. Passenger trains are more fuel-efficient than automobiles while freight trains use much less energy than trucks. New technologies,

which can optimize fuel use and reduce locomotive idling time, have helped make freight rail one of the most fuel and energy efficient means to ship goods. Amtrak is working to make its trains more efficient. Acela trains have locomotives that reduce energy consumption by eight percent from other NEC locomotives. It has also begun replacing old diesel locomotives with electric ones, which will not only save energy but also help with on-time performance.

Community

If the rail network were not in place, the highways would be even more congested, with drivers seeking alternative routes on local roads. Passenger and commuter rail also save New Jersey residents money; studies have shown that residents with access to rail systems spend less than residents who only have bus service. Rail and transit development also improves public health.

Economy

Rail transportation has been an important contributor to the New Jersey economy since the first railroad began operations at the start of the nineteenth century. Today it is still a major mode for transporting both raw materials and finished products as well as people. Freight rail reduces the costs of delivering goods saving money for both shippers and consumers. Reductions in congestion save billions of dollars per year in wasted time and fuel. Passenger rail is also a strong economic driver both improving productivity and expanding markets access through enhanced mobility. Freight rail carriers also generate employment that is important to the state's economy.

Future of New Jersey Rail

Challenges

New Jersey's rail system faces many challenges that are unique to the state. Much of the rail network is shared by several different entities both passenger and freight. Improving trans-Hudson mobility between New York City and New Jersey, achieving and maintaining a state of good repair, and complying with unfunded regulatory mandates are added challenges. The demand for more freight and passenger rail service is growing. Demand is also exceeding capacity for both passenger and freight services. Freight routes must also accommodate the larger and heavier freight cars in the modern fleet.

Goals and Objectives

During the development of the State Rail Plan eight goals, each with multiple objectives, were created and used to guide proposed rail development. They are focused on preserving and enhancing the rail system and addressing the challenges.

The following are the goals:

1. Support the State's Strategic Plan
2. Improve Quality of Life for New Jersey Residents
3. Maintain Rail System at State of Good Repair

4. Improve Safety and Security
5. Enhance Mobility
6. Improve Regional Services
7. Expand Modal and Regional Connectivity

Rail improvement initiatives have been identified that address the state's rail needs and meet its goals and objectives

Rail Improvement Programs

New Jersey Transit Improvements

NJ TRANSIT faces growing passenger demand with a system that is operating near or at capacity. Future and current projects will address capacity needs and improve service and operating efficiency. Parts of the rail network still use a signaling system from the predecessor railroads. Today this has reached its limitations as trains continue to operate at faster speeds. To increase speeds, thus adding capacity to the line, trains spacing must be optimized, but the current signaling system cannot do this. Upgrading the old signals will mean the railroad will be able to operate a higher volume of trains at higher speeds.

Other Proposed Initiatives

Other agencies operating along the corridor have also begun to address capacity issues. Amtrak is initiating the Gateway program, which comprises four projects: a new Portal Bridge, Trans-Hudson River tunnels, new track construction, and New York Penn Station Expansion. SEPTA has plans for a yard expansion, which will help address the inadequate storage facilities in Trenton. The new yard will help reduce operating costs and train conflicts at Trenton.

Freight Rail Improvements

Freight rail projects focus heavily on improving line capacity and increasing the ability to accommodate larger freight cars.

Funding Alternatives

In the long-term, there is a large demand for infrastructure improvements. Employing more innovative forms of funding are necessary if these projects are to move forward. New Jersey should avail itself of funding models that have proved successful in other states. Public private partnerships (P3) are increasingly being used to fund large transportation projects in other parts of the country, and are beginning to be used in the northeast.

With its significant freight and passenger rail operations, in many cases overlayed upon each other, and a dense network of rail lines, New Jersey is unique. Its challenges differ from those of other states as the railroads are called upon to meet the needs of the most

concentrated economic and population centers in the country and the largest port on the East Coast.

The New Jersey State rail plan provides a background on the rail system, identifies the challenges, and documents how those challenges are being addressed.

Chapter 1
New Jersey Rail System

Background and Purpose of the Rail Plan

New Jersey has an extensive passenger and freight rail system. Its railroads play an important role in New Jersey moving significant numbers of people and products each day. Its commuter rail system serves the largest metropolitan area in the U.S. The state is located in the center of the most heavily traveled intercity rail corridor in North America. Freight rail, besides delivering goods to consumers and moving products produced in the state, also provides an important connection between foreign markets and markets throughout the U.S. through New Jersey's ports.

The New Jersey State Rail Plan describes the current status of rail transportation in the state and outlines the key objectives that the State plans to support in advancing rail transportation in New Jersey. State rail plans are not a new concept. States have been developing rail plans since the 1970s. However, the purpose and need have changed over time:

- 1970s – Plans focused on federal funding (Local Rail Service Assistance Program) to support rail freight service on lines subject to abandonment. The other focus of these early rail plans was on state-funded Amtrak routes.
- Late 1980s – Early 1990s – Plans focused on funding from a new federal program, Local Rail Freight Assistance Act (LRFA), which continued assistance to improve freight lines with light densities subject to abandonment.
- 1990s – 2008 - Plans focused more on state investments and linking rail to the federal multi-modal planning efforts of the federal surface transportation re-authorization legislation.
- 2008 – Passenger Rail Investment and Improvement Act (PRIIA) – Legislation mandated state rail plans and a National Rail Plan. It also authorized $3.7 billion for high-speed and intercity passenger service, and rail congestion mitigation.
- 2009 – American Recovery and Reinvestment Act (ARRA) – This provided an additional $8.0 billion for high-speed and intercity rail corridors and created the $1.5 billion Transportation Investments Generating Economic Recovery (TIGER) grants program.
- 2010 – Federal Surface Transportation Program appropriated $50 million for state planning studies and an additional $2.5 billion for high-speed rail corridors.
- 2012 – Moving Ahead For Progress in the 21st Century (MAP-21) - Guidance issued by USDOT requires the freight element of state rail plans to be incorporated into future statewide freight plans.

With the passage of PRIIA in 2008, state rail plans took on their current importance. While the primary purpose of the act was to improve passenger rail service in the U.S., it also expanded the focus on rail planning. The act requires each state to have an approved state rail plan as a condition of receiving future rail funding for either passenger or freight improvements. The act, codified as Chapter 227 of Title 49 of U.S. Code, Section 22705 requires each plan to include the following:

- Inventory of the existing rail transportation network
- Statement of the state's objectives related to rail transportation
- General analysis of rail's economic, transportation and environmental impacts
- Long-range investment program for current and future rail freight and passenger services
- Discussion of public financing issues for rail projects and listing of current and potential rail related funding sources.
- Discussion of stakeholder identified rail infrastructure issues.
- Review of freight and passenger intermodal rail connections and facilities.
- Review of publicly funded rail projects that enhance rail-related safety.
- Performance evaluation of passenger rail services
- Compilation of previous high-speed rail reports and studies and a comprehensive review of a state's high-speed rail corridor(s) when present.
- Statement that the state's rail plan complies with PRIIA

To be eligible for any future federal funds, a state must demonstrate that those funds would be employed to support a well thought out rail improvement strategy having demonstrated benefits to a state.

The New Jersey State Rail Plan has been designed to comply with PRIIA. In addition to meeting its requirements, the plan has the following purposes:

- Educates all stakeholders on the role of freight and passenger rail transportation to the economy of New Jersey, the welfare of the state's communities, and its environment
- Synthesizes the perspectives of the public, state of New Jersey government agencies, local governments and planning agencies, shippers, Class I and short line rail carriers, and other stakeholders and interested parties
- Clearly sets forth State policy concerning rail rights-of-way in the State.
- Presents priorities and strategies to enhance the utility of freight and passenger rail service in ways beneficial to the public
- Advances a rail improvement plan that serves as the basis for private sector, federal, state and local funding of rail investments

The New Jersey State Rail Plan has been developed to ensure that the benefits of freight and passenger rail are balanced as New Jersey plans for the future.

North American Freight and Passenger Rail Industry

Freight Rail

The U.S. freight railroads own and operate over 140,000 miles of rail lines. They play an important role in the national economy. Measured in ton-miles, railroads transported 43 percent of freight shipped in 2010. By contrast, trucking accounted for 31 percent of the freight volume with the remainder split among pipelines, barges, and aviation. Railroads move a variety of goods, but are most efficient at moving large volume shipments over long distances. Consequently, railroads transport the preponderance of grain, coal, and chemicals that are shipped. They also have a significant presence in the long distance shipping of containerized freight.

The freight railroads are categorized into three classes based on annual revenues:[1]

Class I railroads are the nation's largest railroads. Each has annual revenues in excess of $398.7 million.[2] The Class I railroads transported more than 1.9 billion tons of freight in 2010 over a 96,000 mile route network. This is equivalent to over 950 million trucks per year.

Currently, there are seven Class I railroads operating in the United States:

- BNSF Railway (BNSF)
- CSX Transportation (CSX)
- Canadian National Railway (CN)

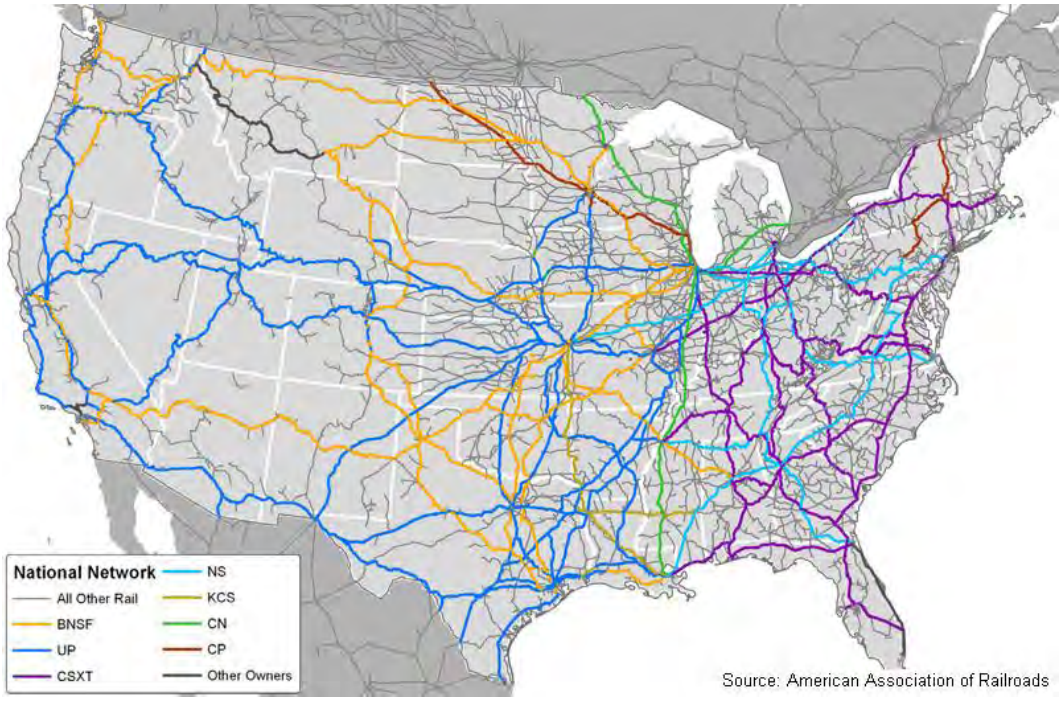


Figure 1-1
U.S. Class I Railroads

[1] The Surface Transportation Board, which regulates railroad industry commerce, establishes the categories.

[2] American Association of Railroads, *Class I Railroad Statistics,* Nov. 2011. Revenue levels defining the STB railroad classes are adjusted for inflation annually. Figures given are for 2011.

- Canadian Pacific (CP)
- Kansas City Southern (KCS)
- Norfolk Southern (NS)
- Union Pacific (UP)

Two of the Class I railroads operate in New Jersey: CSX and NS; CP has trackage rights and limited operations in New Jersey.

Class II railroads, commonly called regional railroads, are smaller than the Class I railroads. They have revenues between $31.9 million and $398.7 million. One of the 12 regional railroads operates in New Jersey- the New York, Susquehanna, and Western.

Class III railroads, or short lines, are the smallest railroads. Short line railroads grew significantly in number after railroad deregulation permitted the larger railroads to sell their unprofitable lines. With short line railroads typically having lower labor costs than the larger railroads, the lines have returned to profitability. Their lower costs permit short lines to play an important role in keeping smaller volume shippers as customers of the railroads. Class III railroads have become so successful, that a number are owned by holding companies.

A subset of the Class III railroads is Switching and Terminal railroads. They transfer freight cars among larger railroads or operate within a facility or group of facilities. New Jersey has six terminal railroads. CSX and NS jointly own Conrail Shared Assets Operations (CSAO), a railroad providing terminal and switching services in North Jersey and South Jersey.

Currently, more than 450 Class III railroads are in operation in the U.S. New Jersey has 16 short line and terminal railroads in operation:[3]

- Belvidere and Delaware River Railway (BDRV)
- Black River and Western Railroad (BRW)
- Cape May Seashore Lines (CMSL)
- Conrail Shared Assets Operations (CSAO)
- East Jersey Railroad and Terminal Company (EJR)
- Hainesport Industrial Railroad (HIRR)
- Morristown and Erie Railway (ME)
- New Jersey Rail Carriers, LLC (NJRC)
- New Jersey Seashore
- New York and Greenwood Lake Railway (NYGL)
- New York New Jersey Rail, LLC (NYNJ)
- Port Jersey Railroad (PJR)
- Raritan Central Railway (RCRY)
- SMS Rail Service, Inc. (SLRS)
- Southern Railroad of New Jersey (SRNJ)
- Winchester and Western Railroad (WW)[4]

[3] American Association of Railroads, *Class I Railroad Statistics*, Nov. 2011.
[4] A map showing the state's short line railroads is found in Figure 2-5

Types of Services

Freight rail services can be characterized as follows:

Unit train service: trains dedicated to carrying a single commodity from one origin point to one destination point. Unit trains are commonly used to transport bulk products such as coal, grain, oil, and gravel among others that are shipped in trainload lot sizes.

Assembled motor vehicle train service: a variation of the unit train, these trains are dedicated to transporting assembled automobiles, trucks, vans and other vehicles from auto assembly plants, or ports in the case of imported cars, to regional distribution centers.

Intermodal train service: another type of product specific dedicated train used to transport containers and truck trailers. These trains move between major terminals where the containers are transferred between trucks and rail cars, or ships and railcars at seaports. Unlike other service types where the railroad picks up or delivers freight cars directly to customers, intermodal shipments involve multiple modes of transportation.

General merchandise train services: a general freight service with trains comprising various freight car types from multiple shippers to multiple receivers. The freight cars include boxcars, tank cars, and open gondola cars among many other types of cars. Freight cars picked up from various shippers are assembled at marshalling yards into trains that move to a subsequent marshalling yard where the trains are disassembled. The individual cars are then delivered to the receivers.

Local train service: trains whose sole purpose is to pick up from and deliver freight cars to local industries, warehouses, distribution centers, and other industries. These trains serve as feeders for the intercity general merchandise trains.

Importance of Intermodal Train Services

The intermodal business segment has become the railroads' growth area. Imported goods moving through the U.S. port system accounted for most of the intermodal growth. Recently, the railroads have experienced an increase in domestic shipments that once moved in trucks. This has been due to investments in infrastructure and technology that has reduced the cost of domestic intermodal rail transportation and improved service. Figure 1-2 shows the recent shift to domestic intermodal.

Commodities Moved by Rail

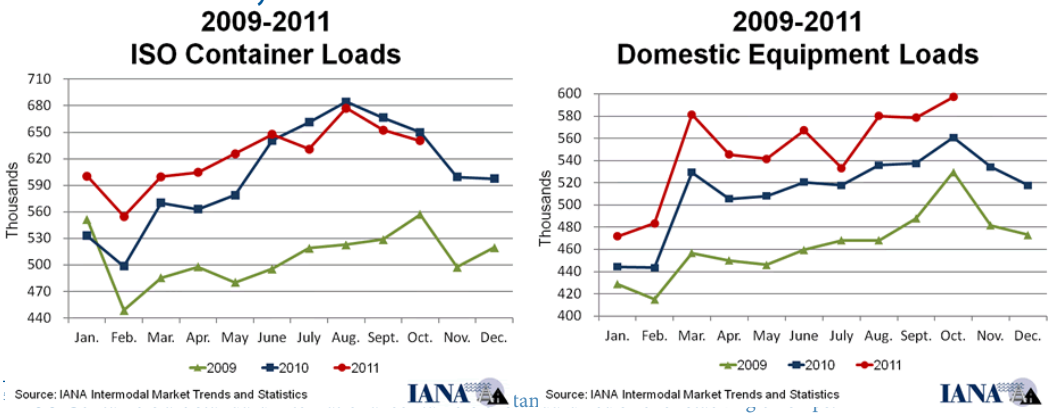
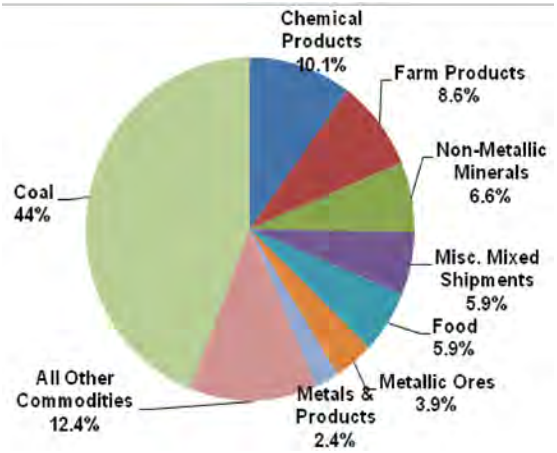


Figure 1-2
Intermodal Traffic Composition

Figure 1-3
U.S. Rail Freight Commodity Mix (tonnage)



Source: Association of American Railroads

Figure 1-3 shows the share of goods moved by Class I railroads in 2010.

It is evident that bulk commodities comprise a significant amount of the railroads' business. The largest volume commodity carried by U.S. railroads is coal accounting for 44 percent the rail tonnage shipped by rail. It is followed by chemicals and farm products, principally grain.

Passenger Rail

Passenger rail service can be broadly categorized as conventional intercity passenger rail service, high-speed intercity passenger rail service, and commuter rail service:[6]

Conventional intercity rail service: mid distance and long distance trains that operate between towns and cities across the country with maximum train speeds of 79 miles per hour on lines owned by the freight railroads. Amtrak is the operator of the system that includes over 30 routes (See Figure 1-4).

High-speed intercity rail service: prevalent in Europe and Asia, where some trains operate in excess of 220 miles per hour. Currently the only high-speed rail service in the U.S. is on the Northeast Corridor (NEC) between Washington and Boston. Most of the NEC is rated at 125 miles per hour with speed limits of up to 150 miles per hour over selected

Figure 1-4
Amtrak Route System

[6] For purposes of the state rail plan, passenger rail operations do not include urban systems such as light rail or trolley.

segments. High-speed rail services require tracks that are separate from the slower freight operations to prevent interference between trains and for safety.

Commuter rail: service normally connecting urban cores with suburban locations. The services are heavily concentrated during the morning and evening journey to work periods when travel is the highest.

High-Speed Rail Expansion

The U.S. Department of Transportation has been working with states to plan, fund, and develop high-speed rail services. This usually requires the construction of new track to ensure segregation from freight rail traffic. Since 1991, the Federal Railroad Administration identified eleven high-speed rail corridors, positioning them for Federal funding. Figure 1-5 shows the corridors.

Figure 1-5
U.S. High-Speed Rail Corridors

History of Railroads in New Jersey

Early History

The state of New Jersey has a long history with railroads. On February 6, 1815, the first railroad charter in the United States was issued to the New Jersey Railroad Company. The intent was to build a line between New Brunswick and Trenton, but the company was never able to complete the line. On February 4, 1830, a charter was awarded to the Camden and Amboy Rail Road and Transportation Company, which began operations of its first line, from Stewarts Point Wharf to Hightstown, on October 1, 1832. A third railroad, the New Jersey Rail Road and Transportation Company, chartered on March 7, 1832, was operated as a parallel line to the already existing lines run by Camden and Amboy Rail Road and Transportation Company. Since railroad travel was so new to the

country rails and locomotives had to be shipped from England, and the first rail cars were pulled by horses. Freight service began on the line in January 1833 and regular locomotive service began in September.

The opening of the Erie Canal in 1825, connecting the Great Lakes to the Atlantic Ocean, cemented the status of New York City as the location of America's premier port. The Canal drove the expansion of the freight industry. The Camden and Amboy gained prominence as the fastest mode of transportation between New York and Philadelphia. As the 19th century progressed, other railroad companies were chartered. However, the Camden and Amboy Railroad possessed a monopoly on rail travel between New York City and Philadelphia. The nineteenth century saw 283 railroad companies started in New Jersey, many of which were consolidated into larger systems.

One example is the Belvidere Delaware Railroad. Founded in March 1836, the company provided access to the coal and iron ore in Pennsylvania. However, by 1855 the railroad had become an all purpose line, carrying passengers to Philadelphia using the Camden and Amboy line. The freight business had also expanded to include produce, lumber, and merchandise. During this time, the Belvidere Delaware Railroad also began acquiring lines, the largest expansion being into Flemington where it assumed operations of the Flemington Railroad. It also operated a short line from Lambertville to Flemington. The line is still in operation today and is run by the Black River and Western Railroad. In 1872, just after it leased the United New Jersey Railroad and Canal Companies, the Pennsylvania Railroad (PRR) began operating Belvidere Delaware Railroad as the Belvidere Division of the United Railroads of New Jersey Grand Division. As the Pennsylvania Railroad (PRR) continued to expand, it eventually purchased the Belvidere Delaware Railroad.

Consolidation of the railroads occurred gradually. A number of New Jersey rail companies had extensive networks before they were purchased by larger railroads. As the smaller rail companies expanded their service they began to compete with the older and larger railroads. Eventually, the profitable smaller companies were all incorporated by the larger railroads to foreclose competition. The Camden and Atlantic Railroad, Belvidere Delaware Railroad, and the Delaware and Bound Brook Railroad, were each large enterprises before they were consolidated into larger railroads.

The PRR began operations in 1846, with service connecting Harrisburg to Pittsburgh, quickly growing into one of the largest companies in the world. The PRR eventually merged with or purchased an interest in over 800 other rail lines and companies. At its peak, it employed 250,000 workers and had a budget larger than the U.S. government. After the Camden and Amboy line merged with New Jersey Rail Road Company in 1867, becoming the United New Jersey Railroad and Canals Company, the PRR leased the combined companies for 999 years, beginning in 1871. With this, the PRR gained control of much of the passenger rail service in the Northeast. In 1885, PRR initiated passenger rail service between New York City and Washington, D.C., via Philadelphia, with additional stops along the route. The service became known as the "Congressional Limited Express." By 1920, there was hourly service between the two cities.

In the southern half of New Jersey, several rail companies provided service from Philadelphia and towns in New Jersey to various locations along the coast. The first to be established was the Camden and Atlantic Railroad. It was given its charter by the state of New Jersey on March 19, 1854. The line was built from Camden to Atlantic City via Berlin, and it was completed in 1854. On February 5, 1853, the West Jersey Railroad (WJ) was granted a charter to build a line from Camden to Cape May. The line was completed in 1863 and the company made plans to build another line from Glassboro to Millville and Cape May. That same year a group of Cape May County investors were granted a charter to build the Cape May & Millville Railroad (CM&M). Construction was completed and two years later, the line was leased to the Western Jersey Railroad. By the middle of the 19th century, the WJ was leasing most of the newly built railroads in southern New Jersey, as well as expanding the network with construction of their own. Most of the expansions were built for access to specific economic generators. For example, the Woodstown and Swedesboro Railroad was built by the WJ in 1883 to serve the agricultural business in Woodstown. Later, in 1887, the WJ built the Maurice River Railroad so they could gain a share of the lucrative Delaware Bay oyster business. The line was 9.76 miles long and it stretched from Manumuskin to the Maurice River.

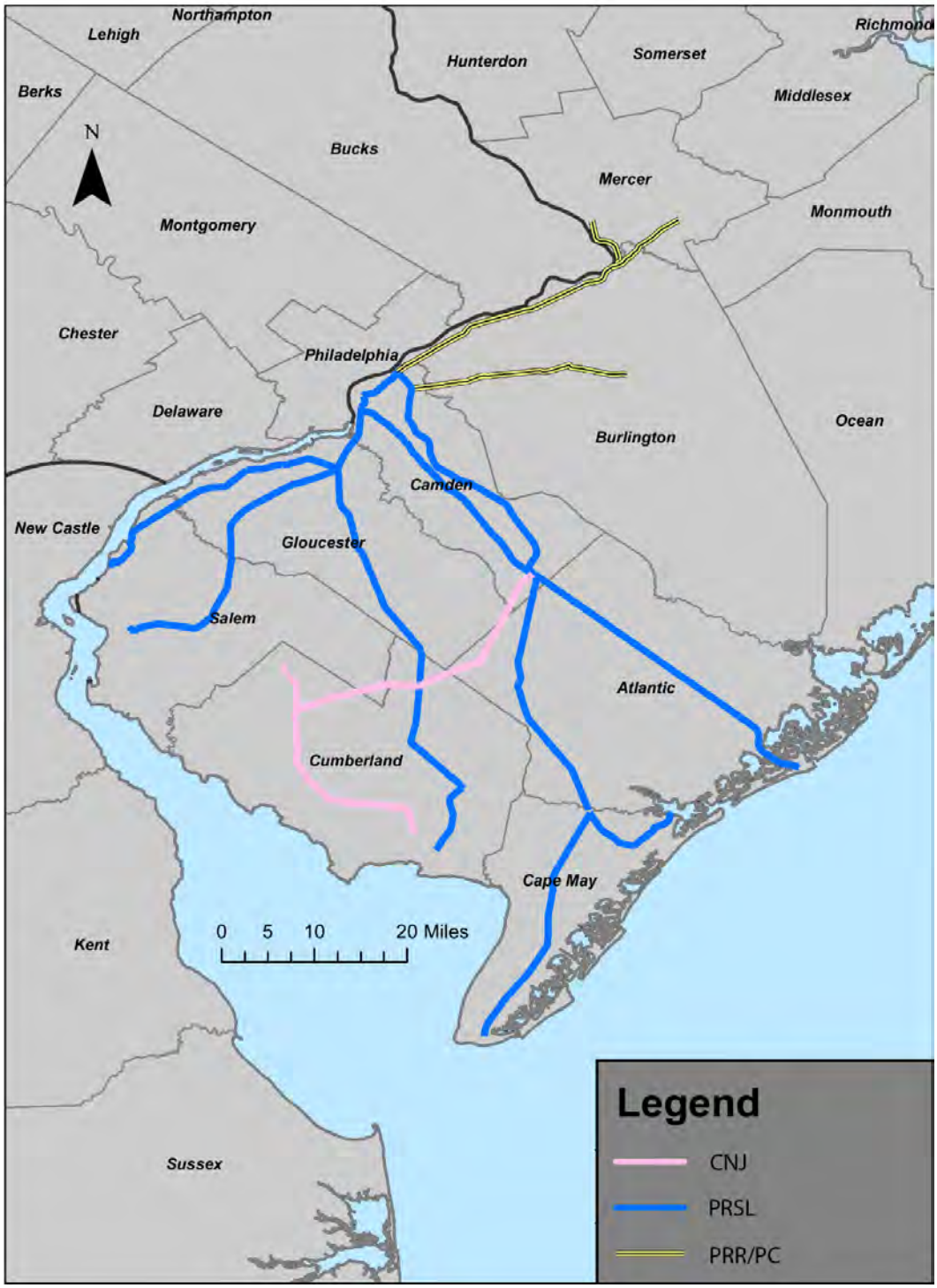
On May 4, 1896, the PRR consolidated all of its railroads and smaller properties in southern New Jersey into the West Jersey and Seashore Railroad (WJ&S). The newly consolidated subsidiary of PRR ran two lines from Camden. The first was the main line to Atlantic City and other shore points (Ocean City, Wildwood, Cape May) using trackage rights on the Atlantic City Railroad line. The second was the Millville line, which accessed Millville via Woodbury. It split at Newfield to Atlantic City. Smaller branch lines also connected to the two main lines. At the end of 1925, the company operated 379 miles of road on 717 miles of track and reported 166 million ton-miles of revenue freight and 332 million passenger-miles.

The Atlantic City Railroad was a Philadelphia and Reading Railway subsidiary that was a direct competitor of WJ&S. Its predecessor railroads were founded later and formed a smaller network. By the end of the 19th century, the railroad operated trains throughout Camden County and to Cape May and Ocean City. At the start of the twentieth century, the Atlantic City Railroad was reincorporated as a merger with other railroads. At the end of 1925, it operated 161 miles of road on 318 miles of track and reported 43 ton-miles of revenue freight and 204 million passenger-miles.

By the 1920s the West Jersey and Seashore Railroad, and the Atlantic City Railroad were the two major railroad companies connecting Camden (and Philadelphia via ferry) to the Southern New Jersey seashore. The development of the highway network and the related growth in the use of motor vehicles affected the profitability of the two railroads. The financial condition of the two carriers deteriorated so significantly, that in 1931 New Jersey's public utility regulators ordered the two parent rail companies to combine the south Jersey subsidiaries into one company, to be known as the Pennsylvania-Reading Seashore Lines (PRSL).

Under the new Consolidation Agreement, the PRR would have two-thirds ownership and the Reading Company would have one-third. By the 1960s, like all other railroads,

Figure 1-6
Southern New Jersey: Railroad Network Rationalization - 1930s



the PRSL was struggling. In April of 1964, it sold a right of way in Camden to the Delaware River Port Authority for $2.1 million for the PATCO rapid transit system known as Speedline. Passengers on the PRSL now had to transfer to PATCO to cross the Betsey Ross Bridge into Philadelphia. At the end of 1970, PRSL operated 314 miles of road with 440 miles of track. It reported 136 million ton-miles of revenue freight and 4.7 million passenger-miles. When both owners of the company went bankrupt, the Consolidated Rail Corporation (Conrail) took over the PRSL on April 1, 1976 as part of a major restructuring of the Northeast rail system.

Major commodities in New Jersey driving the freight industry were manufactured products, coal, food, and goods moving through the ports. The Delaware, Lackawanna, and Western Railroad had become prosperous by transporting coal from Northeastern Pennsylvania to the New Jersey ports. For most of the 19th century, freight service was a larger revenue generator than passenger service.

By the turn of the century, passenger rail service became more lucrative. In 1907, when the new ferry terminal opened in Hoboken, there were over 35,000 daily passengers coming off the commuter trains and transferring to the ferries.

With the growing number of rail commuters in New Jersey, a major issue by the end of the 19th century was the lack of direct rail access to New York City. In 1910, the North River tunnels under the Hudson River were completed, giving the PRR direct access from New Jersey to Manhattan and the newly constructed Penn Station. Between 1928 and 1938, PRR electrified the entire line from Washington, D.C. to New York, providing for faster train speeds. In 1946 the company began experiencing financial problems when, for the first time in company history, it reported a net loss. The financial decline continued. On February 1, 1968, the PRR merged with the New York Central Railroad, similarly suffering financially, in an attempt to remedy the financial condition of both railroads. The combined railroad became the Penn Central Transportation Company. In the following year, the Interstate Commerce Commission ordered the Penn Central to absorb the struggling New Haven Railroad.

The Penn Central merger was intended to be a solution to the problems facing the rail industry in the Northeast. Railroads in other parts of North America could rely on revenue from long distance shipments of commodities like coal, iron, and lumber. Freight rail operations in the Northeast were predominately short distance hauls that were labor intensive. Trucks could move many of the same products over short distances at a far lower cost. The trucking industry had also received a huge boost in 1956 when President Eisenhower signed into law the Federal-Aid Highway Act, which authorized the construction of the Interstate Highway System.

The Northeast railroads had significant passenger rail operations, both intercity and commuter. Although the railroads demonstrated that passenger rail operations were not profitable, and requested to be relieved from providing those services, the Interstate Commerce Commission would not permit the railroads to end passenger rail service.

The nationwide rail freight industry continued to suffer financially because of regulations inhibiting the railroads from competing with trucking companies. It was not until the

passing of the Staggers Rail Act in 1980 deregulating the railroads that the now freight-only railroads were able to reverse the decline that began in the 1940s. Pricing flexibility, the elimination of unprofitable lines and businesses, and the ability to introduce new services without government approval led to the resurgence of the industry.

Although, the track mileage operated by the freight railroads is only half that operated in the early 20th century, they are transporting more traffic than at any time in the past. In 2011, the railroads handled 1.7 trillion ton-miles of freight, more than four times the freight transported in 1920. While deregulation contributed significantly to the traffic growth, the adoption of new technologies, such as double stack container trains, more efficient operations through longer trains and better management, and the increased use of trains carrying single commodities among other contributing factors have also played a role.

Integrated Full Service Carriers Era

Figure 1-7 shows the Class 1 railroads that provided freight and passenger services in the 1950s connecting various parts of the country with their metropolitan New York terminals located in Northern New Jersey. The major railroads in New Jersey were the New York Central, the Erie, the Delaware Lackawanna and Western, the PRR, the Railroad of New Jersey (CNJ), the Lehigh Valley Railroad, and the Reading Railroad. These railroads provided full service to stakeholders located on their privately owned rights-of-way:

Intercity Freight Service: each railroad provided long-haul freight services (carload, intermodal, automotive, mineral and coal unit trains) between New Jersey freight facilities and other locations in the country

Local Freight Service: each railroad picked up and delivered freight cars at New Jersey industries.

Intercity Passenger Service: each major railroad provided scheduled intercity passenger services between stations on their lines. While the separate New Jersey railroads might compete for passengers between, for example, Hoboken or Jersey City and Chicago or Buffalo, within New Jersey each line could claim its own markets from those stations located along its lines.

Journey-to-work commuter services: most of the railroads also provided at least one pair of scheduled trains to transport regular, daily passengers from suburban locations to their places of work in New York City via their terminals, ferries, or the Port Authority Trans-Hudson (PATH). Use of passenger rail for commuting began in earnest in the 1870s.

Separation of Passenger and Freight Rail Services

Until the formation of Amtrak in 1971, railroad companies operated both freight and intercity passenger rail services. The railroads had been losing money for decades on their passenger services and contended that the regulatory requirement to provide passenger rail service significantly affected their profitability. In New Jersey, the major railroads - the CNJ, Erie, Lackawanna, and the PRR each offered passenger services in New Jersey. The

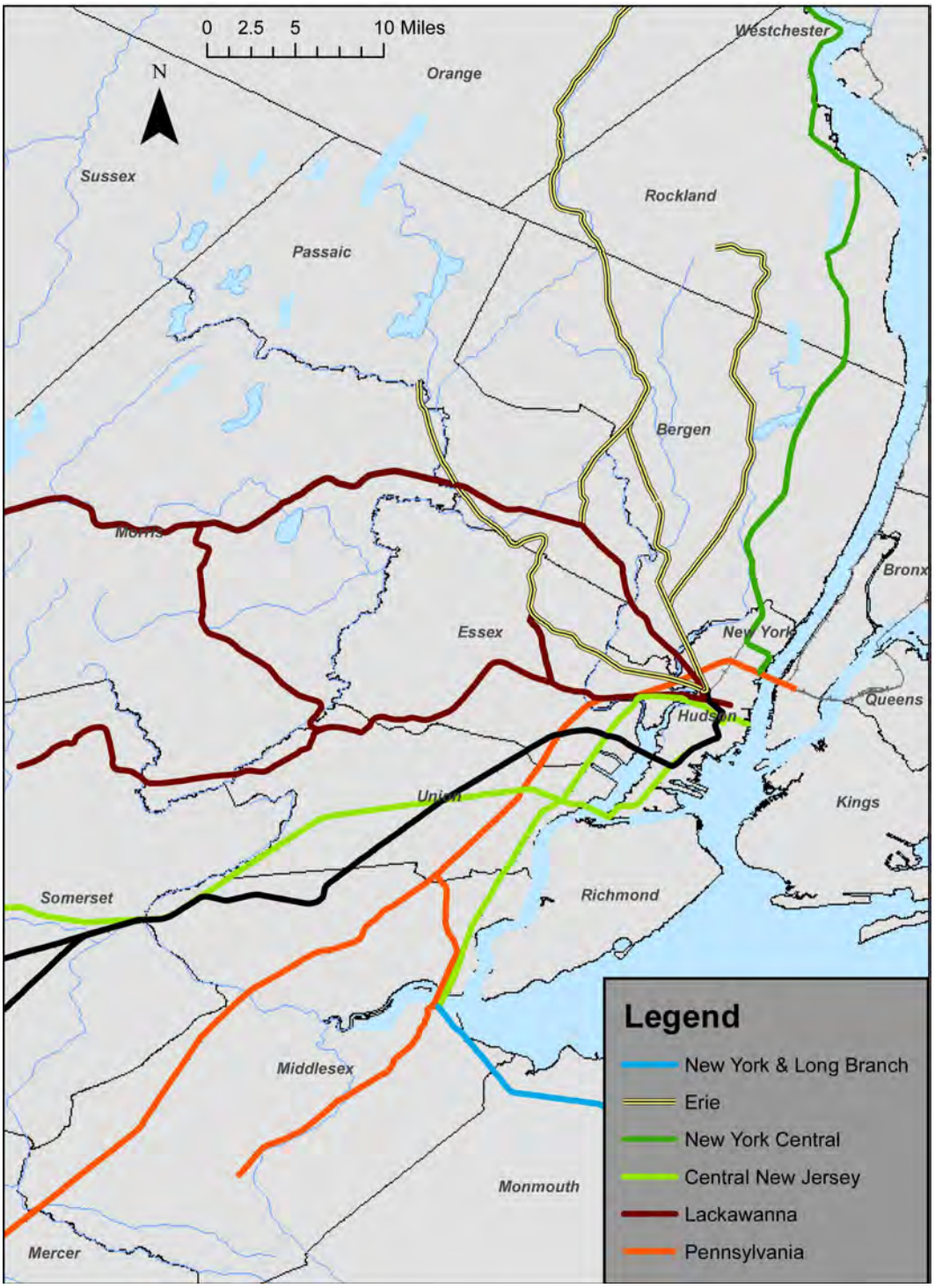


Figure 1-7
Northern New Jersey - Pre Penn Central

CNJ and Erie had their main terminals in Jersey City, the Lackawanna in Hoboken, and the PRR in Newark and Trenton. By the late 1960s, the demand for passenger rail services had diminished significantly.

Even the state's smaller railroads like the New York, Susquehanna and Western Railway[7] (sometimes referred to as the Susie-Q or Susquehanna) operated passenger service. Founded in 1881, it was mainly a freight railroad, but it did operate passenger service. The company had struggled after World War I when President Wilson nationalized all railroads. After the Great Depression and flooding in 1936, the railroad filed for federal reorganization due to bankruptcy in 1937. By the 1950s, the Susquehanna had made a financial comeback but their passenger service continued to lose money. A recession in 1957 forced the railroad to begin liquidating assets and abandon some of their branches. In June 1966, the Susquehanna ran its final passenger train.

Congress created the National Railroad Passenger Corporation, commonly known as Amtrak, both to help the failing railroad industry and to improve a deteriorating intercity passenger rail service. In New Jersey, Amtrak operated intercity passenger rail service only on the NEC only over the Penn Central-owned lines. All other intercity routes were abandoned. The freight railroads only remaining passenger rail obligation was the continuation of their commuter rail services. Over time financial responsibility for the commuter rail operations were assumed by local operating authorities.

Penn Central Bankruptcy Era: The 3R Act and USRA, the Coming of Conrail

In the aftermath of the Penn Central bankruptcy and the formation of Amtrak, Congress enacted the Regional Rail Reform Act (3R Act) in 1973. The new law mandated the creation of the United States Railroad Administration, a Federal agency that was tasked with reorganizing and developing a turnaround plan for the bankrupt Northeastern railroads, five of which had operations in New Jersey, (Penn Central, Lehigh Valley, Erie Lackawanna (EL), Reading, and the CNJ). The key elements were adopted in the Final System Plan:

Penn Central NEC Passenger Train.

1. Creation of Conrail, a quasi-private freight rail operator that assumed the operation of the bankrupt carriers, with support from the Federal government;
2. Assignment of the NEC maintenance and control responsibilities to Amtrak, with Conrail providing freight and commuter service on the lines.
3. Formalizing Conrail as the contract operator of commuter service in New York, Northern New Jersey, and Philadelphia, with the state transportation authorities' reimbursing Conrail's commuter service losses. Figure 1-7 outlines this phase.

[7] Operating in northern New Jersey and New York State.

Figure 1-8
Norther New Jersey Rail System–The Conrail Era

There was also a 900-day option period, during which states were able to buy assets useful for commuter service operations from Amtrak and Conrail. This option was used by NJ TRANSIT to purchase several lines from Conrail and certain commuter-only station facilities on the NEC from Amtrak. Figures 1-8 and 1-9 show the New Jersey rail network

Figure 1-9
Southern New Jersey Rail System - The Conrail Era

after the creation of Conrail.

NERSA and its Aftermath: 1981 to Present

The Reagan administration changed national rail policy by demanding that Conrail become a for-profit private entity. Conrail argued the only road to profitability included divestiture of money-losing commuter rail operations. In response, Congress passed the Northeast Rail Services Act of 1981 (NERSA), which removed Conrail's obligation to provide commuter service effective January 1, 1983 as well as authorized other cost-saving initiatives, such as expedited abandonment of light-density branch lines. The legislation set out two commuter rail service alternatives: (1) establishment of The Northeast Commuter Services Corporation, proposed as a wholly owned subsidiary of Amtrak to which the individual states could opt-in or (2) assumption of both financial and operating responsibilities for commuter rail services by the individual states. By midsummer 1982, each state had elected to provide commuter services, and commuter service employees and assets for each state were transferred from Conrail to new entities: Metro-North Railroad in New York, New Jersey Transit Rail Operations in New Jersey[8], and SEPTA's Regional Rail Division in Philadelphia. Features of the state-supported commuter rail agencies included:

- Service-based rather than infrastructure-based federal policy jurisdiction: federal rail policy for rail rights-of way was housed in two separate DOT departments, the Federal Railroad Administration (FRA) for freight railroads and intercity passenger rail, and the Federal Transit Administration (FTA) for commuter rail. From a federal policy standpoint, commuter rail was lumped together with buses, light rail, and para-transit.
- Commuter rail policies bounded by state borders: as state commuter agencies focused on the intra-state travel needs of their state constituents, opportunities for rational interstate commuter services were largely ignored.

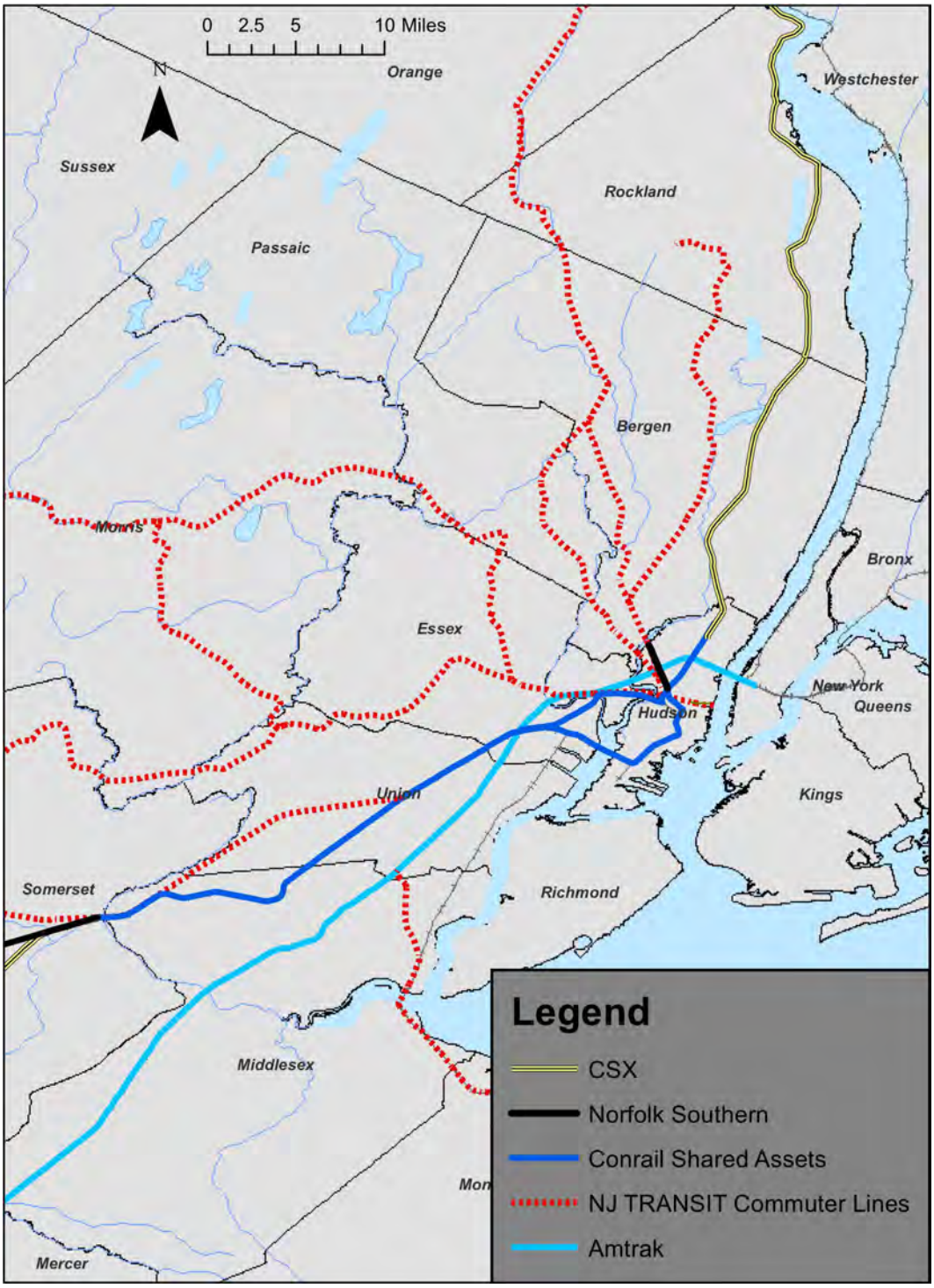
As expected, the effects of the Staggers Act of 1980 and NERSA resulted in Conrail successfully taking itself private with an IPO in 1987 and retirement of all Federal debt. As Conrail became more efficient, its franchise became attractive to other Class I carriers, it became the object of a bidding war in 1997 between CSX and NS that resulted in the split of Conrail's Northeastern routes into three separate parts as shown in Figure 1-10:

1. The former New York Central routes to Buffalo, Cleveland, Indianapolis, St. Louis and the north-south route from Albany to Baltimore are controlled by CSX
2. The east west routes from North Jersey to Chicago via Pittsburgh and Cleveland are controlled by NS
3. Northern New Jersey, Philadelphia and South Jersey, and Detroit terminal areas are operated by Conrail Shared Assets, a wholly owned subsidiary of CSX and NS that performs local service, switching, and terminal operations for its parent owners.

In New Jersey, Conrail's divided assets would become part of CSX and NS. The outcome of this restructuring had a huge effect on the state rail system. Conrail had been the only major Class I freight railroad with direct access to New Jersey. At the time, Conrail affected almost one fifth of the jobs in the state.[9] The lack of rail competition has been

[8] NJ Transit was formed in 1979 by act of New Jersey legislature, as a statewide transit agency.
[9] Ibid, 1.

Figure 1-10
New Jersey Rail System–
Post Conrail



cited as one of the major transportation problems that faced New Jersey because of the detrimental effect it had on the state and the Northeast region's economic health. A report prepared by the North Jersey Transportation Planning Authority concluded the restructuring would be beneficial to New Jersey because "as commodity volume increases, railroad companies will feel pressure to make the appropriate additional investments to

increase capacity."[10] With the largest port in the Northeast and a busy international airport, New Jersey that had become a center for distribution in North America, and these investments would be vital.

Arguably, no other state has been more affected by the seismic operating and policy changes in the railroad industry than New Jersey. In 40 years, the state's rail landscape has transformed from seven separate trunk lines operating all major types of rail services on their private rights-of-way to four primary asset owners (CSX, NS, Amtrak, and NJ TRANSIT) with routes overlaid with shared operations. Each railroad operates its rail lines for its own benefit, only accommodating tenant railroads to the extent required by law or contract. This backdrop of history underscores the vital importance of a State Rail Plan for New Jersey that clearly articulates its objectives for rail transportation, both public and private, how these strategic goals can best be achieved, and what policy initiatives will help meet those objectives.

New Jersey Commuter Rail Operations - Legacy Rail Lines

The 1960s and 1970s were a time of major upheaval in both the passenger and freight rail industry. The 1960s saw the decline of the PRR, once the most successful transportation company in the world. It was during this period that the New Jersey Department of Transportation (NJDOT) was formed. With its creation in 1966, the NJDOT became responsible for not only road and highway maintenance in New Jersey but also addressing passenger and freight rail issues in the state. In the following year, the NJDOT took over the commuter rail operations from the EL and the CNJ. Later the department also assumed responsibility for operating the commuter services of the Penn Central and the PRSL. After Conrail was created, the NJDOT entered into a contract with the company to run and operate the commuter rail service in New Jersey.

In 1979, New Jersey Transit was established by the Public Transportation Act of 1979 to "acquire, operate, and contract for transportation service in the public interest." Originally operating many formerly private bus services, NJ TRANSIT assumed operation of the commuter rail service from Conrail on January 1, 1983. The commuter rail network in New Jersey is a legacy of the former Northeast railroads. NJ TRANSIT, however, has invested billions of dollars in the network to bring the services to meet modern day standards for commuter rail operations.

Penn Central

Penn Central provided commuter rail service between Trenton and Penn Station in New York City on what is today Amtrak's NEC. Penn Central owned the corridor and operated it as the north-south main line. Consequently, the line had significant freight service as well as intercity and commuter passenger rail service. Penn Central also operated trains on the North Jersey Coast Line (NJCL) through its subsidiary, the New York and Long Branch Railroad with the Central New Jersey Railroad.

[10] Ibid, 3.

Erie Lackawanna

The Erie Lackawanna Railway was formed in 1960 through the merger of the Erie Railroad and the Delaware, Lackawanna and Western Railroad (DLW). Its passenger rail network extended from New Jersey to Chicago, Illinois. While the company remained profitable until the late 1960s, business began to suffer due to competition from highway transportation, major storm damage in 1972 from Hurricane Agnes, and impacts resulting from the poor financial condition of other railroads in the region. During that time, it continued to operate commuter rail service into Hoboken Terminal. Many of its commuter lines are still in use, operated by NJ TRANSIT as its Hoboken Division. The specific lines are (1) the Former Erie Railroad lines: the Main Line, Bergen County Line, the Pascack Valley Line and Port Jervis Line controlled by Metro North, and (2) the former DLW lines: the Morristown Line, Gladstone Branch, and the Montclair-Boonton Line. The former Erie lines are exclusively diesel operations, while the former DLW lines, with the exception of the Montclair-Boonton between Great Notch and Denville, and the Morristown Line west of Dover, are electrified with overhead transmission lines. The former EL's Hoboken terminal on the Hudson River has been restored by NJ TRANSIT and is a true multimodal hub featuring commuter rail, bus, ferry, PATH rapid transit, and Hudson Bergen Light Rail service.

Central Railroad of New Jersey

One of the oldest lines operated by NJ TRANSIT was the CNJ. The origins of the line date back to 1831. Through the years, the company built itself by acquiring more than 50 railroad companies. Central Railroad of New Jersey was well known for its Blue Comet train, which ran from Jersey City to Atlantic City from 1929 until 1941. The company had heavy commuter use but also competed with the Lehigh Valley Railroad for hauling coal. Today the former CNJ rail lines are used by NJ TRANSIT's Raritan Valley Line (RVL) and NJCL.

Pennsylvania-Reading Seashore Lines

The PRSL began in 1993, as a combination of the South Jersey assets of the Pennsylvania and Reading railroads. It provided rail service to the South Jersey shore communities from Philadelphia. The PRSL's largest station in New Jersey was Atlantic City. Today the former PRSL line to Atlantic City is operated as NJ TRANSIT's Atlantic City Line. This line was out of service for much of the 1980s but was completely rebuilt by Amtrak and NJ TRANSIT. Amtrak service to Atlantic City was discontinued in 1995.

NJ TRANSIT continues to integrate and expand its network and services into a single system:[11]

- 1980s - Rationalization of the physical plant of with focus on state of good repair
- 1980s - Overhead electrification system on the Morris and Essex Lines was modernized and the NJCL electrification system was extended from South Amboy to Long Branch
- 1989 - Atlantic City Line restarted

[11] Prior to this integration, private companies had already started combing services. In May of 1967, the Central Jersey Railroad implemented the Aldene Plan. This rerouted commuter traffic to Newark Penn Station and Pennsylvania Station using the Lehigh Valley track (connecting at Aldene), which connected with the PRR and allowed the closure of the CNJ Jersey City Terminal.

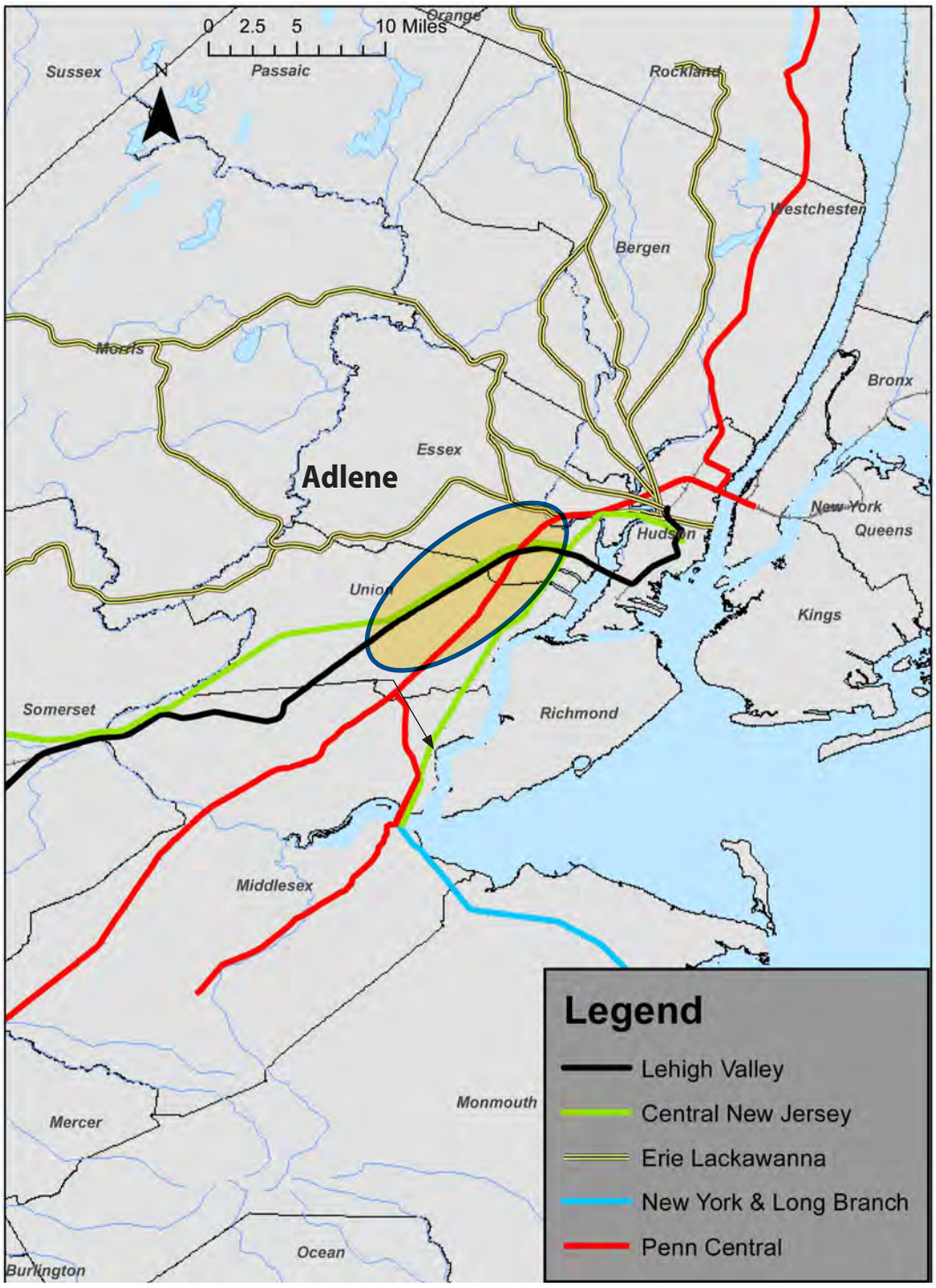


Figure 1-11
New Jersey Rail System–
The Aldene Plan

- 1991 - Waterfront Connection completed linking the Newark Division to Hobokem*
- 1994 - Extension of service to Hackettstown
- 1996 - Kearny Connection completed, permitting operation of the Midtown Direct Service over the Montclair-Boonton, Morristown, and Gladstone lines directly into New York Penn Station (NJ TRANSIT Rail Integration Project)

- 2001 - A new station opened at Newark Liberty International Airport
- 2002 - Montclair Connection completed, Midtown Direct service on the Montclair-Boonton Line begins
- 2003 - Secaucus Junction transfer station opened. This new station connected two major portions of the NJ TRANSIT rail system and allowed passengers on Main Line, Pascack Valley Line, and Bergen County Line trains to transfer to trains headed to midtown Manhattan with much greater ease. (NJ TRANSIT Rail Integration Project)
- 2009 - Meadowlands rail spur and station opened

Role of Railroads in the NJ Transportation Network

This section describes the role that railroads play in New Jersey's land transportation network. It outlines the role of freight rail in transporting products in the state and the role of passenger rail in moving people. It also provides a comparison of rail use and other modes of transportation to highlight the importance of the overall rail network to the state of New Jersey.

The Role of Freight Rail in the New Jersey Transportation Network

The rail industry has had a significant impact on the economic success of New Jersey. The state's railroads played a key role in establishing the dominance of New Jersey as the transportation, shipping and industrial center of the country. Today the Northeast Corridor is the most highly rail travelled corridor in the country. Commuter rail and long distance passenger travel continue to grow.

The New Jersey freight system is multimodal, comprising highway, air, and water transportation as well as rail. In addition, the system includes the connector facilities that make the efficient transfer of freight between modes possible. Table 1-1 describes the New Jersey transportation network.

Railroads in the state provide essential freight services that are strategically connected to other modes. Improving the productivity of the rail transportation system is critical to keeping New Jersey a significant economic force. New Jersey's freight rail system is expected to continue to play a leading role in maintaining the dominance of the state's ports as well as helping to grow the number of industries that use freight rail as their main mode of transportation.

Table 1-1
New Jersey Transportation Infrastructure

Type of Infrastructure	Miles/Number
All Public Roads	39,241 miles
Interstate	420 miles
Freight Railroad Trackage	1,582 miles (2011)
Highway Bridges	6,350
Inland Waterways	360 miles
Public Use Airports	49 (seven certificated for air carrier operations)

Source: U.S. Department of Transportation

New Jersey's location affords it in many ways as the "gateway" to the United States. In the mid -20th century, the Port Authority of New York and New Jersey (PANYNJ) took control of the operations at Port Newark- Elizabeth Marine Terminal. In 1948, there was a shift in the balance between the New York and

New Jersey ports. Historically, ships had come into the New York ports but with the introduction of container ships, which the smaller New York docks could not handle, activity at the New York ports steadily declined. The New Jersey ports were deeper, larger and had more room to expand. With the shrinking coal industry and many companies, using trucks for shipment, the freight rail industry was in the decline, but New Jersey ports offered a new sector that had room to grow. The PANYNJ is undertaking a $600 million rail program to improve access to New Jersey ports. The program provides dedicated rail facilities for each of the port's major container terminals. There are also six inter-regional rail facilities that connect to the ports.

Today New Jersey's economy produces and consumes significant amounts of goods, much of it transported by rail. Table 1-2 shows the modal shares of freight originating and terminating in New Jersey.

Rail transportation plays a major role in shipping products that originate or terminate in the state. Within the state freight distances are too short to make rail a cost effective alternative, thus rail carries only a small fraction of intrastate goods.

New Jersey's railroads form a critical part of the state's multimodal transportation system, and the state's key location emphasizes the importance of the need to work in partnership with its neighboring states relative to future improvements to moving freight within and through the state.

Table 1-2
New Jersey Domestic Freight Mode Shares 2007 (Thousands of Tons)

Mode	Within NJ		From NJ		To NJ	
	Weight	Percent	Weight	Percent	Weight	Percent
Truck	196,170	74.8%	92,351	65.0%	88,636	64.9%
Rail	228	0.1%	11,437	8.0%	19,657	5.6%
Water	18,138	6.9%	14,124	9.9%	11,015	2.2%
Air (include truck-air)	320	0.1%	125	0.0%	97	2.1%
Multiple modes & mail	2,195	0.8%	11,514	8.1%	9,920	20.2%
Pipeline	17,314	6.6%	8,324	5.9%	26,261	3.4%
Other and unknown	1,567	0.6%	4,142	2.9%	1,511	1.6%
No domestic mode	26,358	10.0%	–	0.0%	–	0.0%
	262,290	100.0%	142,018	100.0%	157,097	100.0%

The Role of Inter-City & NEC Passenger Rail as Part of the New Jersey Transportation Network

The NEC is the busiest rail line in country. Amtrak typically operates 110 trains for nine intercity services on the NEC that pass through New Jersey.

This extensive intercity network connects New Jersey to almost all the major cities along the east coast and into the Midwest. In New Jersey alone, there are six stations that Amtrak serves: Newark, Newark International Airport, Metropark, New Brunswick,

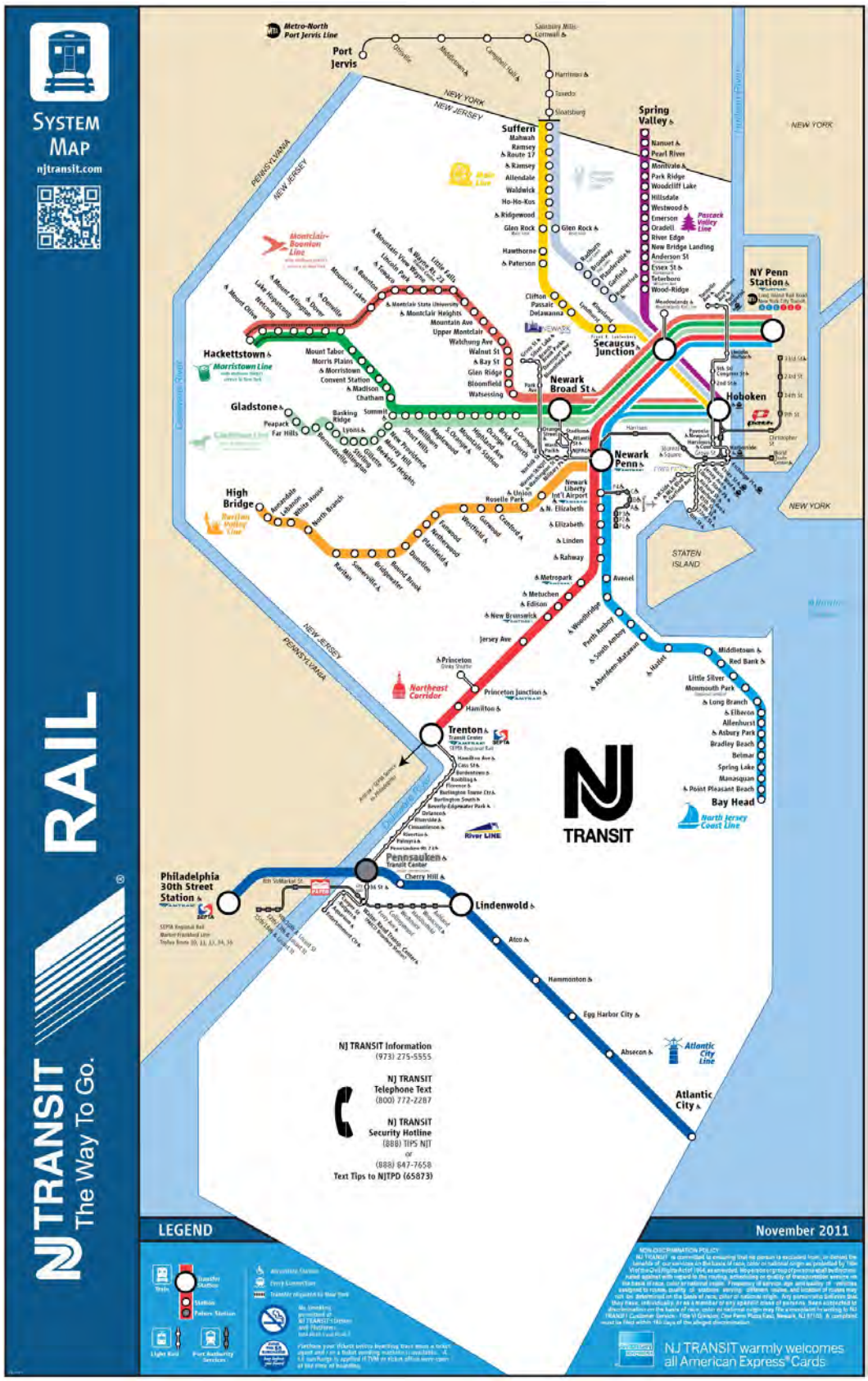


Figure 1-12
New Jersey Transit Rail System

Princeton Junction, and Trenton.[12] In FY 2011, 1.7 million passengers boarded or alighted Amtrak trains at stations in New Jersey.

NJ TRANSIT's commuter rail service complements the Amtrak service. The agency provides rail service on 12 routes shown below and mapped in Figure 1-12:

- Atlantic City Line
- Bergen County Line
- Main Line
- Montclair-Boonton Line
- Morristown Line
- Gladstone Branch
- Meadowlands Line (special event service only)
- North Jersey Coast Line
- Northeast Corridor Line (includes the Princeton Branch)
- Pascack Valley Line
- Raritan Valley Line
- Port Jervis Line[13]

In FY2011, average weekday ridership was 276,459 on 727 trains with 95,420 riders on Saturdays and 75,418 riders on Sundays. Total rail ridership in FY2011 was 79.6 million passengers. New Jersey's passenger rail network includes approximately 500 route miles.

Highway travel, however, is still the principal mode for individual travel. New Jersey has over 39,000 miles of roadways including 431 miles of interstate. Table 1-3 shows the mileage by jurisdiction.

Table 1-3
New Jersey Roadway System

Jurisdiction	Miles of Road
NJDOT	2,329
Authority	420
County	6,449
Municipal	29,408
Park	649
Total	39,255

General Impacts of Rail Transportation

Since the mid-twentieth century, Americans have become increasingly more dependent on automobiles and land use patterns have come to reflect automobile dependent communities. The growth in motor vehicle use has resulted in congestion, high road costs, traffic accidents, inadequate access for non-drivers and negative environmental impacts. As such, cities and states have increasingly begun to turn to public transit improvements. The following sections outline how passenger and freight rail have positive environmental, economic, and community impacts.

Environment

The growth and development of the state's rail network is vital to preserving the environment and building a sustainable transportation system. Rail transportation produces 75 percent fewer greenhouse gases than trucks.[14] If 10 percent of the current freight that is

[12] Amtrack makes limited stops at New Brunswick and Princeton Junction.
[13] Services to Port Jervis are run under a contract with Metro North Railroad.
[14] Association of American Railroads, *Freight Railroads Help Reduce Greenhouse Gas Emissions*, July 2012 www.aar.org/~/media/aar/Background-Papers/Freight-RR-Help-Reduce-Emissions.ashx.

Figure 1-13
U.S. Greenhouse Gas Emissions in 2009 by Economic Sector

U.S. Greenhouse Gas Emissions By Economic Sector: 2009

Economic Sector	Tg CO2 Eq.	% of Total
Electric. generation	2,193.0	33.1%
Residential	360.1	5.4%
Industry	1,322.7	19.9%
Agriculture	490.0	7.4%
Transportation	1,812.4	27.3%
Commercial	409.5	6.2%
U.S. Territories	45.5	0.7%
Total	6,633.2	100.0%

Data are in teragrams of CO2 equivalents.

U.S. Greenhouse Gas Emissions from Transportation: 2009

Economic Sector	Tg CO2 Eq.	% of Transp. Total
Trucking	365.6	20.4%
Freight Railroads	**37.2**	2.1%
Waterborne Freight	13.5	0.8%
Pipelines	35.2	2.0%
Aircraft	127.8	7.1%
Recrational Boats	16.9	0.9%
Passenger Railroads	6.0	0.3%
Cars, Light Trucks, Motorcycles	1,180.6	65.8%
Buses	11.2	0.6%
	1,794.0	100.0%

Source: EPA, *Inventory of U.S Greenhouse Gas Emissions and Sinks: 1990-2009*, Tables ES-7, A-111, and A-112. Totals for "transportation" in the two tables do not match because the table on the left includes emissions from sources considered to be transportation but not considered to be passenger or freight (e.g., lubricants).

Source: Freight Railroads Help Reduce Greenhouse Gas Emissions, Association of American Railroads

shipped by long haul trucks in the U.S. were instead moved by rail, annual greenhouse gas emissions would fall by 12 million tons or more.

The leaders of the seven largest US freight railroads have also taken a public position in support of environmental initiatives. They joined with the U.S. Environmental Protection Agency and become a partner in "SmartWay Transport." This commitment ensures that the freight railroads will continue to work towards improving fuel efficiency and reduce greenhouse gas emissions. In recent years, freight railroads have been improving their operations and technologies to reduce both emissions as well as costs. New rail locomotives, for example, have the most current technologies. Locomotives emit 67 percent less nitrous oxide and 50 percent less particulate matter than they did 10 years ago.

Commuter railroads also contribute to reducing pollution and emissions. CO2 estimates show that on average commuter rail has a 177g of CO2 per passenger mile, while average emissions for a car are 185g per passenger mile.[15] On any given weekday, NJ TRANSIT operates 727 trains transporting on average 276,500 rail passengers and runs 727 trains.[16] By the end of a typical week, the agency has moved almost a million and a half people who are not driving in automobiles, cutting down on energy costs and gasoline consumption. The emission reduction brought about by rail use, improves health and quality of life.

Energy

Rail transportation is much more energy efficient than many other modes of transport. A train uses 70 percent less energy than jet aircraft.[17] Similarly, freight trains are, on average, four times more fuel efficient than trucks.[18] Studies have also shown that urban transit consumes a quarter of the energy that automobiles do per passenger-mile.[19] A study

[15] American Bus Association, *Comparison of Energy Use & CO2 Emissions from Different Transportation Modes*, May 2007, 4.
[16] NJTRANSIT, NJ TRANSIT Facts at a Glance: Fiscal Year 2011, February 2012, pg 1.
[17] www.trainchartering.com/news_environmental.html
[18] Association of American Railroads, *The Environmental Benefits of Moving Freight by Rail*, October 2011, 2.
[19] Victoria Transport Policy Institute, *Rail Transit in America: A Comprehensive Evaluation of Benefits*, January 2012, 32.

completed in 2007 showed that households located within a quarter of a mile of a train station save 512 gallons of fuel annually because of a reduction in driving.[20]

Similarly, freight trains are, on average, four times more fuel efficient than trucks.[21] A train can move one ton of freight 469 miles with a single gallon of fuel as reported by the AAR.[22] Since 1980, fuel efficiency on freight railroads has increased by 106 percent.[23] Also since 1980, the volume of freight shipped by rail has almost doubled, but fuel consumption is at the same level it was 30 years ago. The railroads have achieved this by developing new technologies and streamlining their shipping methods.

Passenger rail locomotives have become very energy efficient. Amtrak has begun using dynamic braking, which involves the electric traction motors in locomotives that in turn provide resistance to the rotating wheel axle. This method of braking and slowing trains down is more fuel-efficient than using power brakes. The Acela Express trains employ regenerative braking technology that returns energy through the overhead catenary system replacing the energy consumed to power the trains.

Just as new technology has helped reduce emissions from locomotives, it has also helped to them become more energy and fuel-efficient. Some of the initiatives the railroads have taken include:

- Using train control systems that consider energy consumption in scheduling and train operating speeds
- Offering employee training and incentive programs to help locomotive engineers develop and implement best practices and improve awareness of fuel-efficient
- Placing locomotives in the center of trains (distributed power) reducing the horsepower needed to move a train
- Using technology that automatically shuts-down engines to reduce idling time

Community

Communities benefit significantly from a well-developed freight and passenger rail system. One of the main benefits of rail transportation is congestion reduction. Continuing growth in traffic can create congestion, noise, pollution, and frustration that reduce a community's quality of life.

Were the extensive New Jersey rail network not in place, the quality of life for most people would be greatly reduced. Freight railroads transport more than 30 million tons of goods in and out of New Jersey. If all the freight moving through the state had to be transported by truck, there would be almost two million more trucks on the state's highways.

Commuters who rely on NJ TRANSIT and other rail lines would otherwise be driving to their work places. The resulting traffic would burden an already overtaxed highway system and could create extensive congestion, gridlock, and delays. By transporting commuters

[20] Victoria Transport Policy Institute, *Rail Transit in America: A Comprehensive Evaluation of Benefits*, January 2012, 32.
[21] Association of American Railroads, The Environmental Benefits of Moving Freight by Rail, October 2011, 2.
[22] Association of American Railroads, *Freight Railroads Help Reduce Greenhouse Gas Emissions*, July 2012 www.aar.org/~/media/aar/Background-Papers/Freight-RR-Help-Reduce-Emissions.ashx.
[23] Association of American Railroads, *Freight Railroads in the United States,* April 2011.

and freeing up highway capacity, rail transportation offers commuters and communities to jobs they may not be able to access otherwise.

Train stations can also act as catalysts for neighborhood improvements, such as urban redevelopment, improved pedestrian conditions or historic preservation. Studies have also shown that transit oriented developments tend to increase local property value because of the improved access to transit.[24] Passenger and commuter rail can also help promote community redevelopment. Oftentimes newer communities are built up, while older neighborhoods are forgotten. Train stations can become the focal point for the rejuvenation of a town as well as help to reduce the volume of traffic through the denser areas of the town.

Access to passenger and commuter rail also reduces the amount spent each year on transportation. On average, a resident of a city served by rail spends $448 less each year on transportation than residents in cities with only bus service.[25] This amount will only increase as oil prices rise.

Rail and transit development has also been shown to improve public health, especially transit-oriented development (TOD). Studies have shown that commuting by rail is less stressful than by car, improving physical and mental health.[26]

Economy

Rail transportation has be a strong contributor to economic growth since its inception. In the U.S., each freight rail job supports 4.5 jobs in other economic sectors and each billion in new rail investment creates more than 17,000 jobs[27]. Transportation is needed to deliver raw materials and finished products to the end users. Freight rail is an integral part of that supply chain. For many industries freight rail has become the less costly and more efficient way to transport products.

Passenger rail service is also an economic driver. Amtrak's addition of higher-speed rail encourages business travel between Boston, New York, Philadelphia, Washington, D.C. and New Jersey. NJ TRANSIT moves commuters throughout the state with nearly 80,000 riders boarding trains for Manhattan each day. Their incomes are spent in New Jersey.

Institutional Structure of State Rail Service Delivery

New Jersey Railroad Legislation

Creation of New Jersey DOT

The NJDOT was created by the Transportation Act of 1966 (Title 27:1A). The newly formed department inherited all powers and functions exercised by the State Highway Commissioner and the existing Division of Railroad Transportation. The 1966 statute authorized NJDOT to:

- Assist in the solution of the problems of all modes of transportation.

[24] Victoria Transport Policy, *Rail Transit in America: A Comprehensive Evaluation of Benefits,* January 2012, 34.
[25] Ibid, 34.
[26] Victoria Transport Policy Institute, *Rail Transit in America: A comprehensive Evaluation of Benefits*, 2012, 38.
[27] Association of American Railroads, *Freight Railroads in the United States*, 2009.

- Promote an efficient, fully integrated and balanced transportation system for the State.
- Prepare and implement comprehensive plans and programs for all modes of transportation development in the State.
- Coordinate the transportation activities of State agencies, State-created public authorities, and other public agencies with transportation responsibilities within the State.

New Jersey State House

The original act and subsequent amendments directed the Commissioner of Transportation to:

- Develop and maintain a comprehensive master plan for all modes of transportation development, with special emphasis on public transportation.
- Develop and promote programs to foster efficient and economical transportation services in the State.
- Prepare plans for the preservation, improvement and expansion of the public transportation system, with special emphasis on the coordination of transit modes and the use of rail rights of way, highways and public streets for public transportation purposes.
- Enter into contracts with the State of New Jersey for the provision and improvement of public transportation services.
- Develop and promote programs for the preservation, improvement, and expansion of freight railroads, with special emphasis on the use of rail rights of way for the purpose of providing rail freight service.

With regard to rail freight service, the Commissioner could:

- 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.
- Acquire by purchase, condemnation, lease, gift or otherwise any land or property that he may determine is reasonably necessary for rail freight service.
- Lease, sell, or dispose of property to any public or private entity to provide or encourage adequate and efficient rail freight service.

The Commissioner may also allow freight rail providers to use state-owned property without cost or at a nominal rental.

Creation of New Jersey Transit

The Transportation Act of 1979 established NJ TRANSIT. Among the provisions of the Act, the following instructs NJ TRANSIT:

- Apply for, accept and expend money from any federal, State, county or municipal agency or instrumentality and from any private source protective agreements.
- Plan, design, construct, equip, operate, improve and maintain, either directly or by contract with any public or private entity, public transportation services, capital equipment and facilities which may be funded under section 3 of the federal Urban Mass Transportation Act of 1964, Pub.L.88-365 (49 U.S.C. s.1602), or any successor or additional federal act having substantially the same or similar purposes or functions.
- The operation of the facilities of the corporation, by the corporation or any public or private entity, may include appropriate and reasonable limitations on competition in order that maximum service may be provided most efficiently to the public.
- Apply for and accept, from appropriate regulatory bodies, authority to operate public transportation services where necessary.
- Purchase, lease as lessee, or otherwise acquire, own, hold, improve, use and otherwise deal in and with real or personal property, or any interest therein, from any public or private entity, wherever situated.
- Lease as lessor, sell or otherwise dispose of on terms which the corporation may prescribe, real and personal property, including tangible or intangible property and consumable goods, or any interest therein, to any public or private entity, in the exercise of its powers and the performance of its duties under this act. In order to provide or encourage adequate and efficient public transportation service, the corporation may lease or otherwise permit the use or occupancy of property without cost or at a nominal rental.
- Establish one or more operating divisions as deemed necessary.
- Set and collect fares and determine levels of service for service provided by the corporation either directly or by contract including, but not limited to, such reduced fare programs as deemed appropriate by the corporation.
- Revenues derived from such service may be collected by the corporation and shall be available to the corporation for use in furtherance of any of the purposes of this act.
- Promote the use of public transportation services, coordinate ticket sales and passenger information and sell, lease or otherwise contract for advertising in or on the equipment or facilities of the corporation.
- Enter into agreements with a public or private entity or consortia thereof to provide for the development of demonstration projects through the use of public-private partnerships.

Role of the New Jersey Department of Transportation

NJDOT has the responsibility "to promote an efficient, fully integrated and balanced transportation system for the State; to prepare and implement comprehensive plans and programs for all modes of transportation development in the State; and to coordinate the transportation activities of State agencies, State-created public authorities, and other public agencies with transportation responsibilities within the State."[28] State law also allows

[28] L.1966, c. 301, s. 1. Amended by L.1972, c.164, s.1.

the department to take a variety of actions regarding rail freight.[29] In addition, the Commissioner of Transportation serves as the Chairman of the Board of NJ TRANSIT.

As a result of its responsibilities, NJDOT prepares the *Long Range Transportation Plan*, the annual *Capital Programming Documents*, and the *Capital Investment and Asset Management Strategies* in close collaboration with NJ TRANSIT. 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 guidelines.[30]

NJDOT's Division of Multimodal Services focuses on freight rail issues. Its Bureau of Freight Services coordinates freight rail planning activities within the context of multimodal freight and the participation of the private rail carriers. The Placarded Rail Car Safety Inspection Program works closely with the Federal Railroad Administration to promote the safe transportation of hazardous materials by rail in compliance with federal regulations. The division also administers the New Jersey Rail Freight Assistance Program, which provides grants annually for rail improvements, primarily for the short line railroads.

The Division of Multimodal Planning and Development concentrates on long-term strategic planning and federal funding opportunities.

Role of NJ TRANSIT

NJ TRANSIT is unique in that it is New Jersey's statewide public transportation corporation and is the nation's third largest transit agency. NJ TRANSIT, a governmental agency, provides the majority of passenger rail travel in the state of New Jersey and operates eleven commuter rail lines serving over 77 million trips annually on its commuter rail network.[31] NJ TRANSIT also operates an extensive bus network serving over 155 million trips annually and light rail lines that serve over 20 million trips annually. NJ TRANSIT owns approximately 982 miles of commuter rail right-of-way.

As part of its continuing efforts to improve its service and operations, New Jersey Transit implemented a performance measurement system in 2011. The system comprises five performance components:

- Customer Experience: customer satisfaction ratings, on-time performance
- Financial Performance: cost reduction, revenue maximization, maximizing revenues, reduced subsidies
- Corporate Accountability: benefit to stakeholders as measured by revenue per hour, ridership, fare stability, DBE/SBE objectives
- Safety and Security: reduced customer and employee injuries, crime reduction
- Employee Excellence: expanded volunteerism

[29] L.1986, c. 56, s.2; amended 1997, c.136, s.11.
[30] NJDOT Rail Safety (www.nj.gov/transportation/freight/rail/safety.shtm)
[31] Moving the Needle: NJ Transit 2011 Annual Report, (www.njtransit.com/pdf/NJTRANSIT_2011_Annual_Report.pdf)

Working Relationships Among Agencies

The NJDOT and NJ Transit coordinate on numerous rail-related functions, including safety; operations on assets shared between freight operations and passenger operations; and funding, finance and capital programming.

Amtrak-NJ Transit Shared Lines

Over 80 percent of NJ TRANSIT's riders touch the Northeast Corridor. Operations on the NEC in New Jersey require close coordination and cooperation between Amtrak and NJ TRANSIT. The business relationship between NJ TRANSIT and Amtrak is governed by a series of contracts addressing:

- Access terms and compensation
- Payment for electric power consumption
- Compensation to Amtrak for its capital costs for state-of-good repair improvements
- Equipment maintenance services performed for NJ TRANSIT by Amtrak at Sunnyside Yard
- Business terms associated with NJT fully-funded infrastructure improvements on the NEC
- Smaller contractual arrangements.

Together, these contracts result in about $100 million per year paid by NJ TRANSIT to Amtrak as mandated by the PRIIA legislation of 2008. NJ TRANSIT and Amtrak are required to reexamine operating, planning, investment, governance and cost-allocation relationships in concert with other states and the FRA, facilitated through the Northeast Corridor Infrastructure and Operations Commission, established through that same law.

Freight Railroads-NJ TRANSIT Shared Lines

NJ TRANSIT and freight railroads share rights of way, in some instances NJ TRANSIT operating over lines owned by the freight railroads, and in other instances, freight railroads operating over NJ TRANSIT owned lines as a condition of receiving the state's approval of the "Conrail Transaction" (the breakup of Conrail, the acquisition of its routes by CSX and NSR, and the establishment of Conrail Shared Assets in 1997), CSX and NSR each agreed to be bound by the existing Trackage Rights Agreement that covered the business relationship between Conrail and NJ TRANSIT. The Agreement is the principal agreement governing shared freight passenger operation in the state. It delineates operating rights, construction of sole benefit or shared facilities, compensation, and liability.

The shared line segments of principal importance are:

- **Conrail Lehigh Line:** This is the 6-mile segment of Conrail Shared Assets Lehigh line between Aldene (Cranford) and NK (Newark). Between them, CSX and Norfolk Southern operate about 40 road freight trains per day most of which originate or terminate in North Jersey terminals, CSX also operates a significant number of through North South trains linking Canada and New England with the Southeast, Conrail operates occasional local trains over to the Irvington Branch, while NJ TRANSIT operates 60 daily commuter trains. This shared segment is the vital

link between the Raritan Valley line riders and NJT's major terminals in Newark, Secaucus, Hoboken, and Penn Station, NY.

- **North Jersey Coast Line-Wood to Essay:** On this busy NJ TRANSIT-owned 2.7 mile segment between Woodbridge and South Amboy, NJ TRANSIT operates 114 daily North Jersey Coast Line trains. Included in this segment is River Draw, NJ TRANSIT's movable bridge spanning the Raritan River. Conrail Shared Assets operates several daily local trains between its Oak Island Yard in Newark and Browns Yard in Sayreville, which feed local switch crews serving industries in Central New Jersey along its Amboy Secondary and Freehold branch lines.
- **Atlantic City Line-Shore to Pemberton:** This five-mile segment contains the approaches and span of the Delair Movable Bridge, connecting Pennsylvania and New Jersey spanning the Delaware River. This two-track route contains one passenger track over which 28 NJT Atlantic City trains operate daily. The other primarily freight track is used by up to ten daily trains connecting Conrail's Pavonia Yard to the CSX and NS systems, as well as unit coal trains to South Jersey power plants.

NJ TRANSIT has several trackage rights agreements with other short lines that operate over NJ TRANSIT –owned lines, including the Morristown and Erie Railroad and the Southern Railroad of New Jersey.

Safety and Security Programs

New Jersey's railroad network is composed of multiple carriers carrying both people and goods to destinations within the state and beyond. Users of New Jersey's rail network include entities that connect to locations across the international borders of Canada and Mexico. Passenger trains originating in New Jersey also serve destinations in New York City. The events of September 11, 2001 led to a wave of security measures aimed at protecting America's transportation systems, both freight and passenger rail, and a 2008 rail tragedy led to the 2008 Rail Safety Improvement Act. The purpose of the Act is to expand regulations and requirements aimed at assuring that the country's freight and passenger trains operate on safe infrastructure.

The Federal Railroad Administration (FRA) is charged with the overall safety of our nation's rail network, and it conducts on-the-ground inspection and enforcement activities throughout the United States, including New Jersey. With the 2008 Rail Safety Improvement Act, FRA was charged with redoubling its mission to promote safety on America's rail network.

New Jersey Safety at Railroad Crossings Leadership Oversight Committee

In addition to FRA activities, improving safety on New Jersey's rail system is also a responsibility shared between NJDOT and NJ TRANSIT. The NJDOT and NJ TRANSIT enlisted numerous internal and external professionals to participate on the New Jersey Safety at Railroad Crossings Leadership Oversight Committee. This effort was charged with

identifying measures to reduce injuries and fatalities at New Jersey railroad crossings. The committee was convened partially in response to rail trespassing deaths in October 2011.

In February 2012, the Committee issued a report, *New Jersey Safety Along Railroads: Short-Term Action Plan* addressing the crossing safety problem, One of the key outcomes is a recommendation to formalize the institutional connection between the NJDOT Railroad Engineering and Safety Unit with NJ TRANSIT's Safety Unit to carry out integrated initiatives. In addition, the Committee recommended the development of a rail safety database to integrate crash statistics, key community facility data, and grade-crossing locations to identify and target priority locations for engineering improvements, enforcement, and educational outreach.[32]

Operation Lifesaver

New Jersey Operation Lifesaver is an education program committed to improving public safety at highway-rail grade crossings and on railroad rights-of-way. It comprises a range of stakeholders: federal, state, and local government agencies, highway safety and transportation organizations, and the nation's railroads. The program endeavors to improve driver and pedestrian behavior at highway-rail grade crossings by educating the public on the dangers at grade crossings.

Current Rail Funding

State Sources

New Jersey does not have a permanent, guaranteed tax revenue source for rail freight initiatives. Tax revenue sources designated by statute for rail freight needs are not constitutionally dedicated and are deposited into the state's general treasury fund. The only state funding source for rail freight projects is the New Jersey Rail Freight Assistant Program, which is drawn from the state's Transportation Trust Fund (TTF). The annual appropriation averages $10 million.

New Jersey is one of only seven states that exempt railroads from local property taxes. One of the seven, Hawaii, does not have any freight railroads and another, Alaska, has only one – and it is state-owned. In the four Northeastern states where railroads severely declined after World War II – Connecticut, Massachusetts, New Jersey, and Pennsylvania – property tax levies on railroads now provide a minimal amount of revenue or in some cases, no revenue. Railroads in New Jersey are also exempt from the Corporation Business Tax.

The State of New Jersey collects only two taxes from state railroads, the result of arrangements made in 1948:

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 percent. The minimum rates are $100 for railroads having operating revenues less than $1 million and $4,000 for those with

[32] NJDOT, New Jersey Safety Along Railroads: Short-Term Action Plan, February 2012, www.state.nj.us/transportation/about/press/2012/020812rs.shtm

operating revenues in excess of $1 million. Revenue is deposited in the general treasury fund. It is not dedicated to 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 – excluding rights of way with trackage, is anticipated to generate $4.65 million for the state during the FY13. The tax is imposed on property owned by railroads and used for any purpose except track. Although the tax is collected from the railroads, the funds are not used for railroad-related projects. The tax rate is $4.75 for each $100 of true value.

Federal Sources

Several sources of funding exist at the federal level:

TIGER Discretionary Grant Program

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. Through 2012, the U.S. Department of Transportation awarded four separate series of competitive grants for road, rail, transit, and port projects that achieve national objectives. Its goal was to fund infrastructure projects that have a significant impact on the nation, a region, or a metropolitan area. Unless reauthorized by Congress, this fund will remain depleted.

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.

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, 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.

Congestion Mitigation and Air Quality Improvement Program

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) 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, 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 percent.

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 percent.

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 percent.

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 that promote job creation or retention in economically distressed industrial sites. 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 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.

Moving Ahead for Progress in the 21st Century (MAP-21)

On July 6, 2012 President Obama signed the Moving Ahead for Progress in the 21st Century bill (MAP-21) into law, authorizing federal funding for transportation projects through 2014. The law does not include a specific section on rail funding. It, however, does have provisions related to rail transportation:

- Maintains dedicated funding for highway grade crossing improvements ($220 million per year).
- Establishes the Projects of National & Regional Significance (PNRS) program, which can include rail projects. Eligible applicants are state DOTs and transit agencies ($500 million for FY13).
- Changes were made to environmental permitting and review laws designed to expedite project delivery.
- Expands and improves the TIFIA program, expanding funding to $750 million in FY13 and $1 billion in FY14, The maximum federal share of project funding is increased from 33 percent to 49 percent.
- Directs the Secretary of Transportation to conduct a truck size and weight study that includes an assessment of the diversion of freight from other surface modes and the impact of that diversion on public safety, the environment, infrastructure costs, fuel efficiency, and transportation costs,

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 was authorized to provide direct loans and loan guarantees up to $35 billion with a $7 billion set aside for Class III railroads. MAP-21 did not renew this program.

Funding – NJ TRANSIT

NJ TRANSIT Operating Revenue

Sources of operating funds for NJ TRANSIT include passenger fares and other operating revenues. For FY 2011, passenger fares accounted for the majority of operating revenue. Other revenue from operations includes contracted services, rental income, advertising, leases, parking, and other contract operations. NJ TRANSIT does not have a dedicated source of revenue for transit operations.[33]

[33] Moving the Needle: NJ Transit 2011 Annual Report, (www.njtransit.com/pdf/NJTRANSIT_2011_Annual_Report.pdf)

NJ TRANSIT Operating Expenses

Operating expenses for NJ TRANSIT consist of employment costs, depreciation, and numerous other expenses including parts, materials, supplies, and various other expenses. Labor costs comprise approximately 53 percent of the annual NJ TRANSIT operating budget. This includes both full-time and part-time union employee wages and overtime, non-union employee salaries, health and welfare expenses, retirements, and other fringe costs.

Other operating expenses include parts, materials and supplies, insurance claims and expenses, fuel and propulsion systems, utilities, purchased transportation, and depreciation.

As is typical for commuter railroad operations, operating expenses outpace operating revenues and NJ TRANSIT experiences an annual operating deficit. NJ TRANSIT receives direct operating assistance from the State of New Jersey as approved by the New Jersey Legislature in the annual state budget. In addition, NJ TRANSIT receives funding from other State and Federal reimbursements to address maintenance costs, county transportation services, leases, capital program implementation, equipment, planning studies, and numerous other reimbursable programs.[34]

Infrastructure and Equipment Investment

NJ TRANSIT and NJDOT prepare a unified Transportation Capital Program for funding by the New Jersey Transportation Trust Fund (TTF), also known as the Special Transportation Fund. The Transportation Trust Fund is supported by revenue equivalent to 10 cents of the motor fuels tax and other similar taxes, fees and contributions for transportation. Transportation Trust Fund revenues are managed by the New Jersey Transportation Trust Fund Authority (TTFA), which has authority to issue bonds to finance the capital programs of both NJ TRANSIT and NJDOT as approved by the Legislature.

Historically, revenues managed by the TTFA are split three ways: Highways, NJ TRANSIT, and local aid. Over the past decade, TTF spending for highways averaged $648 million per year. TTF spending for transit over the same period averaged $638 million per year for the same period. Local aid averaged $190 million per year.[35]

The TTF funds approximately 46 percent of the Fiscal Year 2013 Transportation Capital Program. TTF funds total $1.4 billion of the $3.2 billion Transportation Capital Program. The balance of the funding comes primarily from Federal sources. For FY 2013, NJDOT received $2.1 billion and NJ TRANSIT received $1.1 billion.[36]

NJDOT manages the Rail Freight Assistance Program that provides capital funds to improve rail freight assets in the State. NJDOT evaluates this competitive program to identify projects that will create jobs, expand economic opportunities for railroads, and ultimately strengthen New Jersey's freight rail community.

[34] Ibid
[35] New Jersey Transportation Trust Fund Authority, 2013
[36] New Jersey Department of Transportation, FY 2013 Transportation Capital Program (www.state.nj.us/transportation/capital/tcp12/)

Chapter 2
New Jersey Freight Rail Profile[1]

Description of the New Jersey Freight Rail Network

From the inception of the nation's rail network in the 1820s-1830 to the post World War I period, rail track miles throughout the country expanded rapidly.[2] Since the 1920s, however, the number of rail routes has declined throughout the United States, including those in New Jersey. After the Second World War, railroad route mileage was reduced by 50 percent.[3] While earlier reductions in operations were principally due to insolvencies among the railroads, much of the more recent shrinkage has been attributable to the deregulation of the railroad industry with the passage of the Staggers Act in 1980. Deregulation made it easier for railroads to rationalize their networks, which made it easier for rail carriers to discontinue service on routes for which costs were not fully compensated. The spate of mergers also resulted in redundant lines. From this rationalization the current freight rail system has evolved, consisting of a high freight density core network operated by the Class I railroads supported by short-line railroads serving some of the smaller markets.

New Jersey has a robust freight rail system, including three Class I railroads (including Canadian railroads), several Class II and III railroads, and a number of short-line, switching, and terminal railroads. A variety of passenger rail services is also available in New Jersey including intra-city and intraregional services operated by New Jersey Transit and long-distance interstate services operated by Amtrak. Figure 2-1 displays the ownership of the New Jersey rail network.

The Class I freight railroads provide long-haul services connecting major customers, including seaports. However, the individual needs of many New Jersey businesses and industries are met by short line (Class III) railroads. Many short lines have limited financial resources and in many instances are affected by actions (or inaction) of the larger railroads. Still, these smaller railroads are essential links in the statewide freight rail system and play an important role in the movement of goods in, out, and through New Jersey.

New Jersey Freight Railroads

Twenty freight railroads operate within New Jersey including three Class I Railroads: NS, CSX, and the Canadian Pacific through trackage rights; one Class II Railroad; the New York, Susquehanna, and Western Railway; ten local railroads, and six switching and terminal railroads.[4] There currently are 1,133 freight rail employees in the state, a reduction

[1] Sections 2.1 through 2,7 are extracted from the NJDOT New Jersey Freight Rail Strategic Plan
[2] AASHTO Freight Rail Bottom Line Report, 2003.
[3] CSX/NS Merger Report
[4] Association of American Railroads, New Jersey Statistics for 2008.

from over 1,700 in 2003 as reported in the *2007 New Jersey Freight Plan*.

The overall number of railroads and miles operated remained consistent between 2003 and 2008 with the exception of the southern New Jersey and Philadelphia area Conrail operations, which were excluded by the Association of American Railroads reporting in 2008. The New York, Susquehanna, and Western Railway registered a marginal increase 30 additional track miles (about an 11 percent increase) during this interval. Together, Class II and III railroads account for about 15 percent of the total rail mileage in the state. There was no significant difference in the mileage operated by the Class I railroads. Tables 2-1 and 2-2 provide a summary of the freight railroads operating in New Jersey. Railroads travel over infrastructure they own, and often on infrastructure owned by other railroads pursuant to "trackage rights" agreements made between various railroads. Figures 2-1 through 2-5 illustrate the New Jersey rail network.

Table 2-1
Freight Operators and Mileage in New Jersey

Class/Type	Railroad Name	Miles Operated in New Jersey (2010)
Class I and Canadian	Norfolk Southern	933
	CSX Transportation	648
	Canadian Pacific Railway	68
Class II and Class III	New York, Susquehanna and Western Railway	91
	Belvidere and Delaware River Railway Company	20
	Morristown and Erie Railway, Inc.	42
	New Jersey Rail Carrier, LLC	2
	New York and Greenwood Lake Railway	2
	SMS Rail Service, Inc.	13
	Southern Railroad Company of New Jersey	53
	Winchester and Western Railroad	54
Switching and Terminal Railroads	Black River and Western Railroad	17
	Cape May Seashore Lines	27
	Conrail, Inc.	469
	East Jersey Railroad and Terminal Company	3
	New York, New Jersey Rail, LLC	1
	Port Jersey Railroad	5
	Raritan Central Railway, LLC	17

Source: Railinc, Association of American Railroads, 2010

Table 2-2
Overall Summary of Freight Operators and Mileage in New Jersey

Class Summary	Number of Railroads	Mileage (Excluding Trackage Rights)	Mileage (Including Trackage Rights)
Class I and Canadian	3	189	1,649
Class II and III	8	267	277
Switching and Terminal	9	540	543
Total	20	996	2,469

Source: Railinc.,Association of American Railroads, 2010.

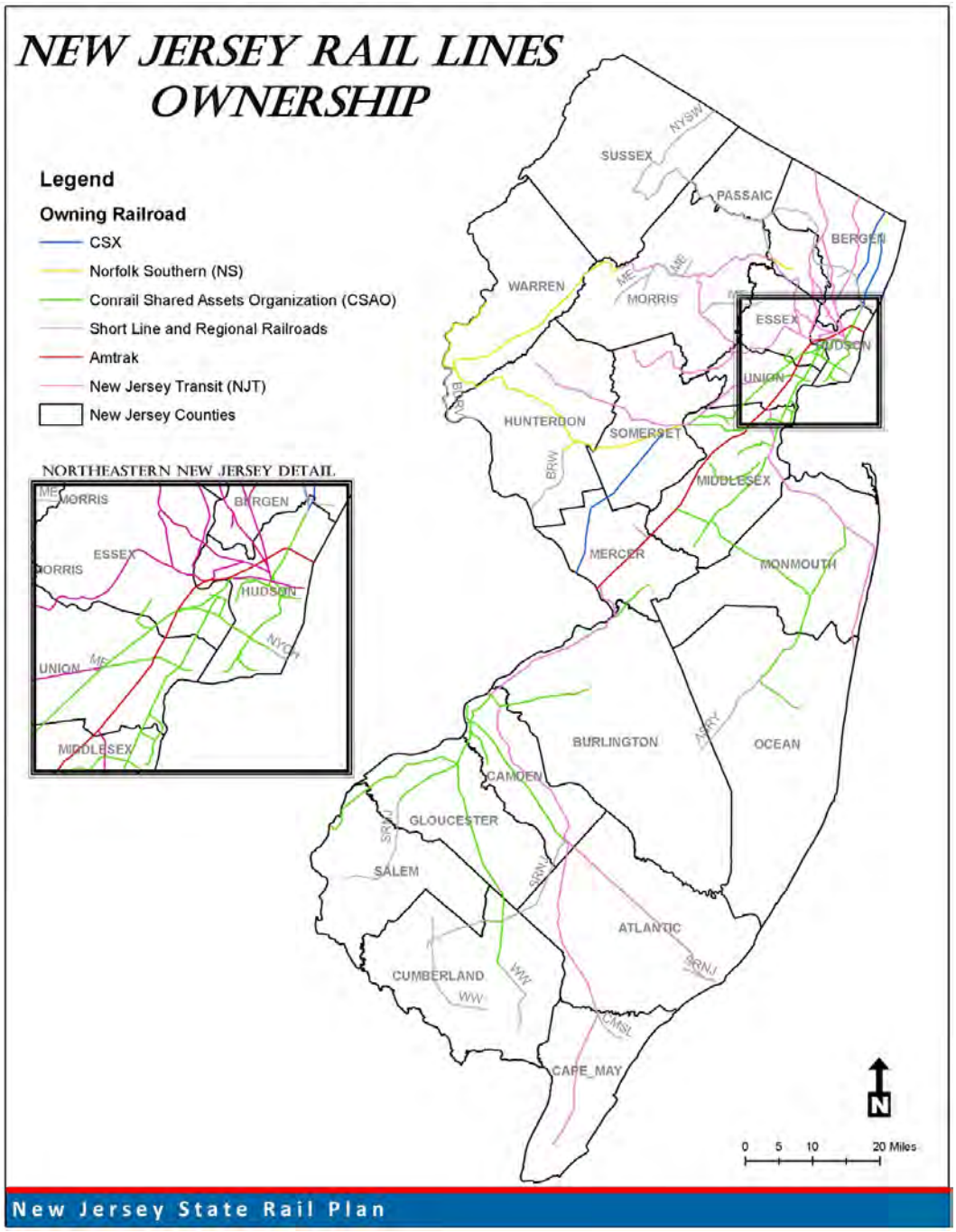
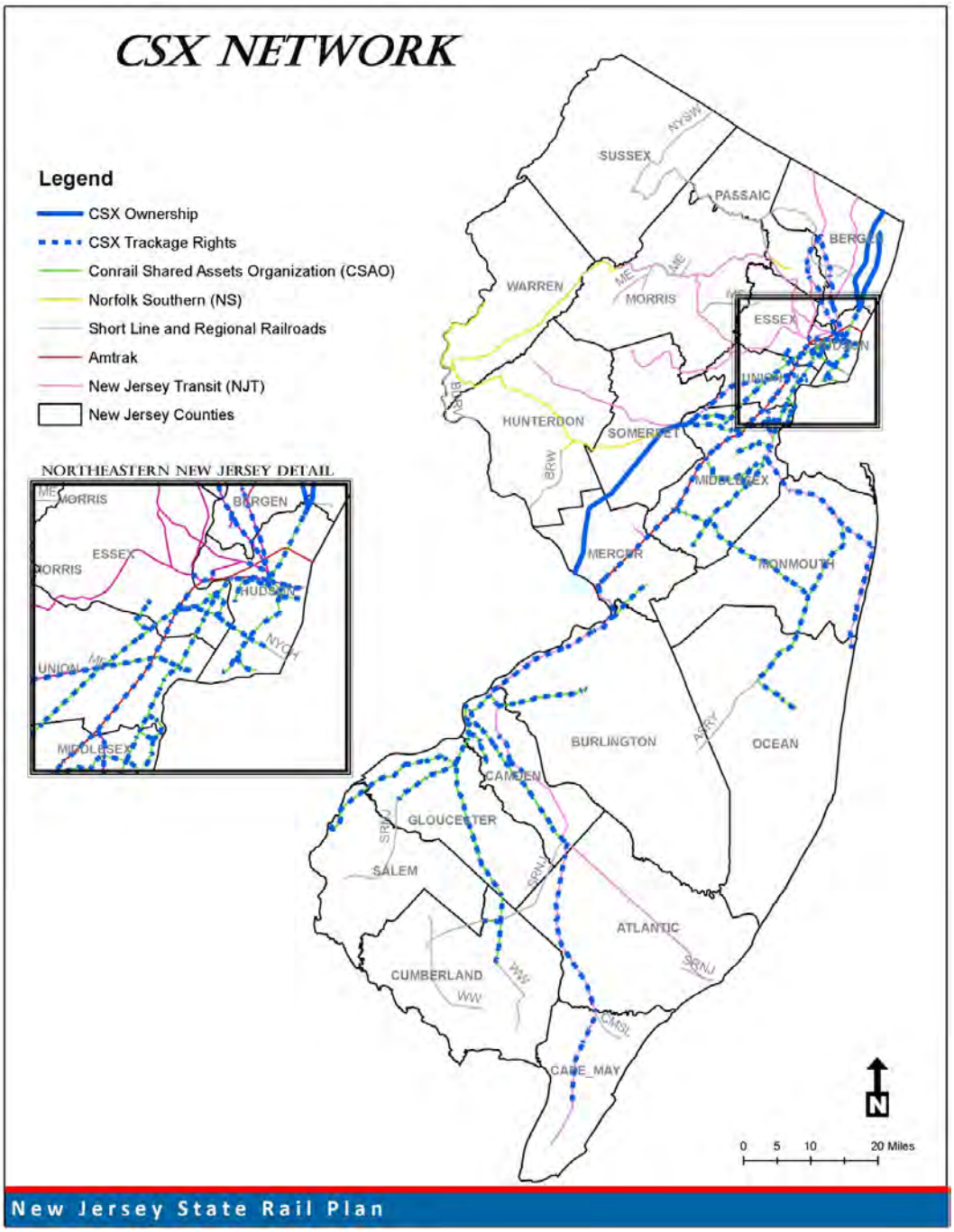


Figure 2-1
New Jersey Rail System Ownership

Figure 2-2
CSX Network



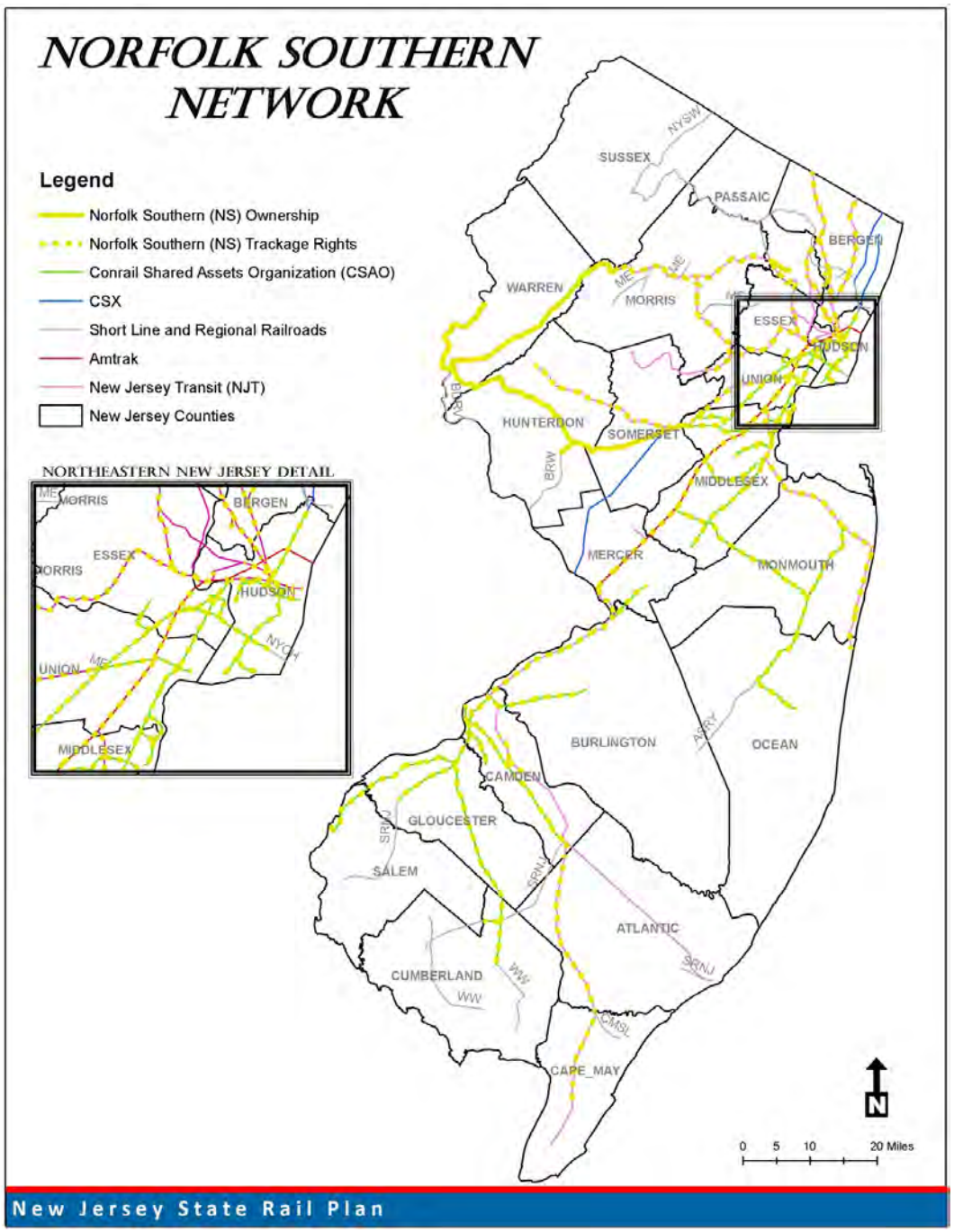
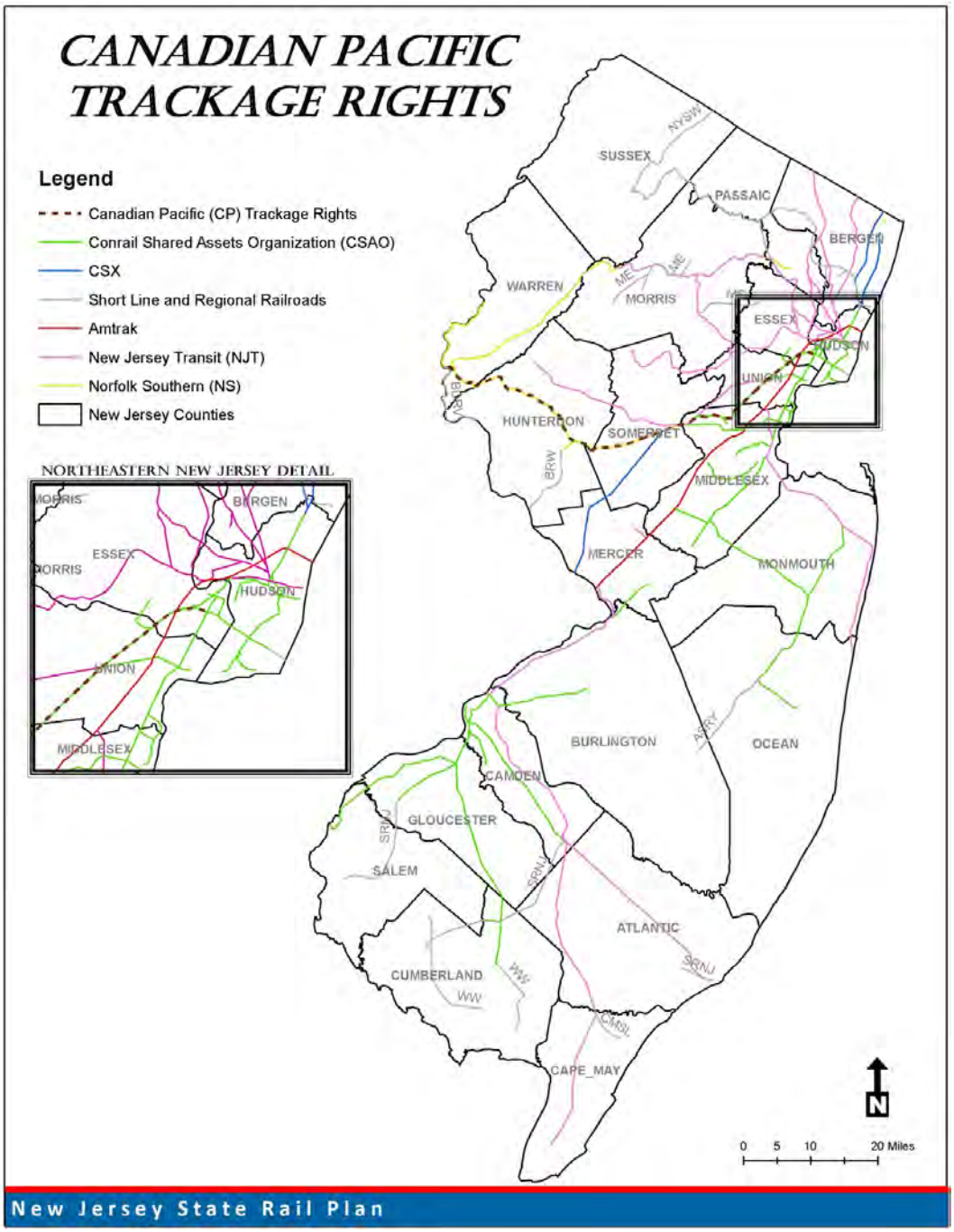


Figure 2-3
Norfolk Southern Network

Figure 2-4
Canadian Pacific Network



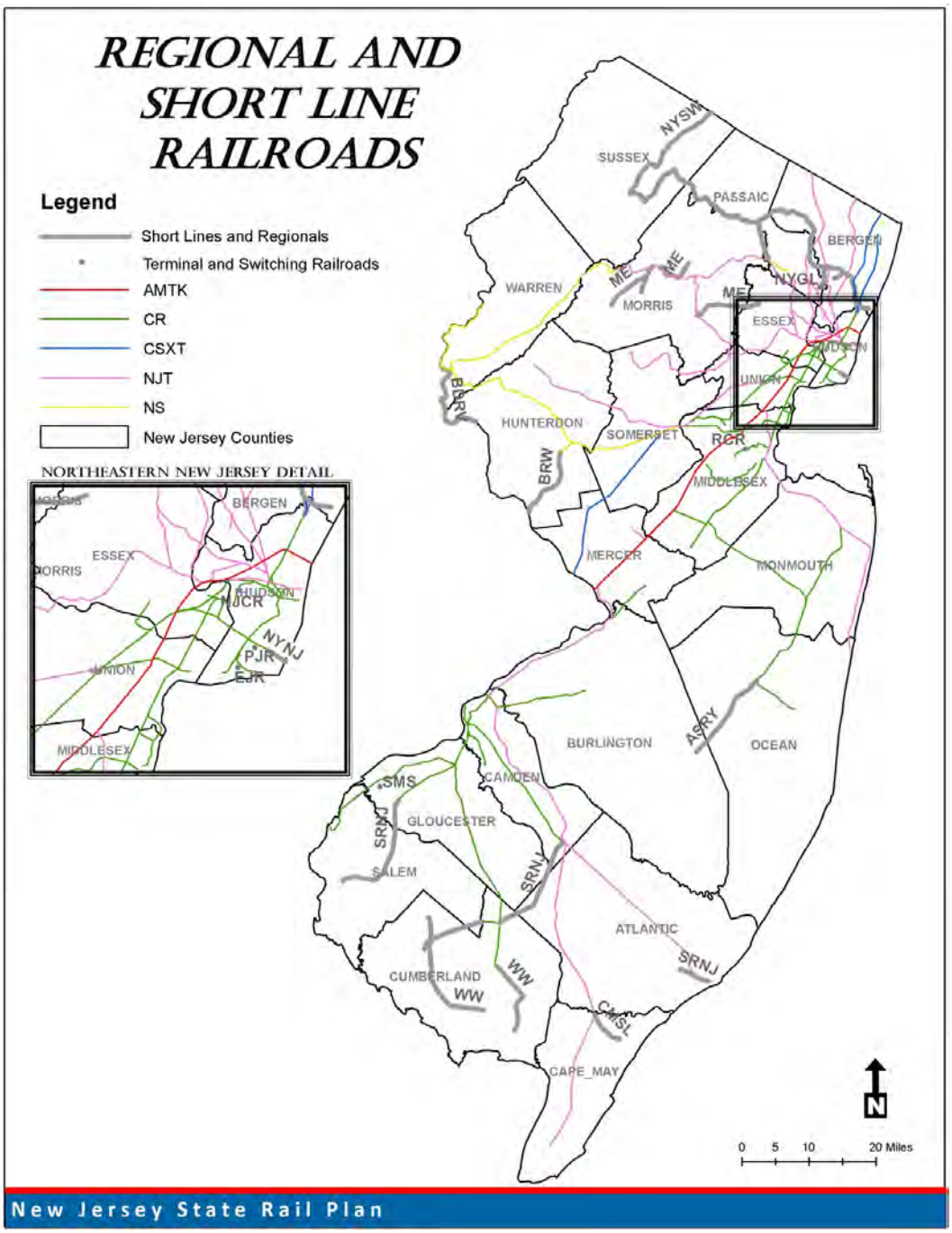


Figure 2-5
Regional and Short Line Network

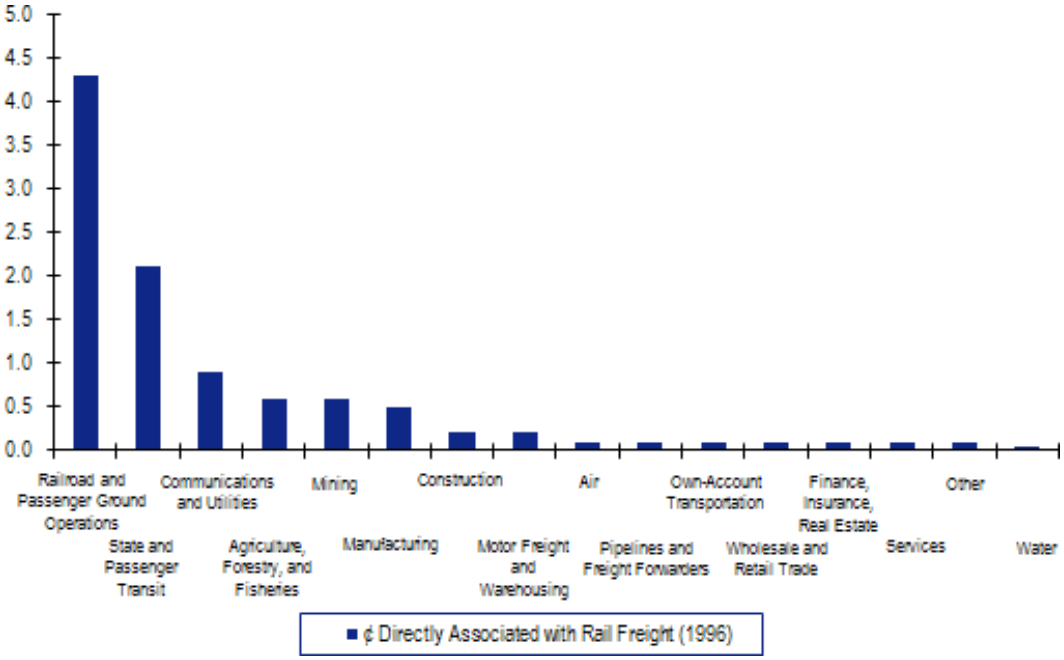
Freight Traffic Profile[5]

Rail transportation is of particular importance to industries that produce or consume bulk materials and/or commodities that are not particularly time sensitive. Cost per ton-mile is 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.[6]

Existing Rail Intensive Industries

New Jersey industries that are particularly reliant on freight rail 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 chemical and pharmaceutical industries.[7] 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 2-6 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.)[8]

Figure 2-6
Level of Rail Input Required for Production of one Dollar of Output (cents)



[5] Extracted and adapted from "New Jersey Freight Rail Strategic Plan" with permission of the NJDOT.
[6] AASHTO Freight Rail Bottom Line Report, 2003.
[7] 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.
[8] Fang, Bingsong, et al., U.S. Surface Transportation Satellite Accounts for 1996. Survey of Current Business. May 2000. Accessed 12/20/2010. www.bea.gov/scb/pdf/national/inputout/2000/0500tsa.pdf.

Rail transportation has a greater influence on the level of output of some industries than others do. Railroad and passenger ground operations and rail transit operations are heavily supported by rail, with utilities, agriculture, mining, and manufacturing, 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.

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 hauling chemicals, petroleum products, and food is similar to that required for the production, refinement, and distribution of biodiesel and ethanol products. The inputs for these new industries correlate well to those needed for existing industries. 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.

Commodity Mix

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 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, and air) but exclude pipelines. The year 2007 was used as it is pre-recession and represents more typical freight movements.

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 that 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 with 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 short-line railroads might not be captured by the waybill sample.

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 2-3.

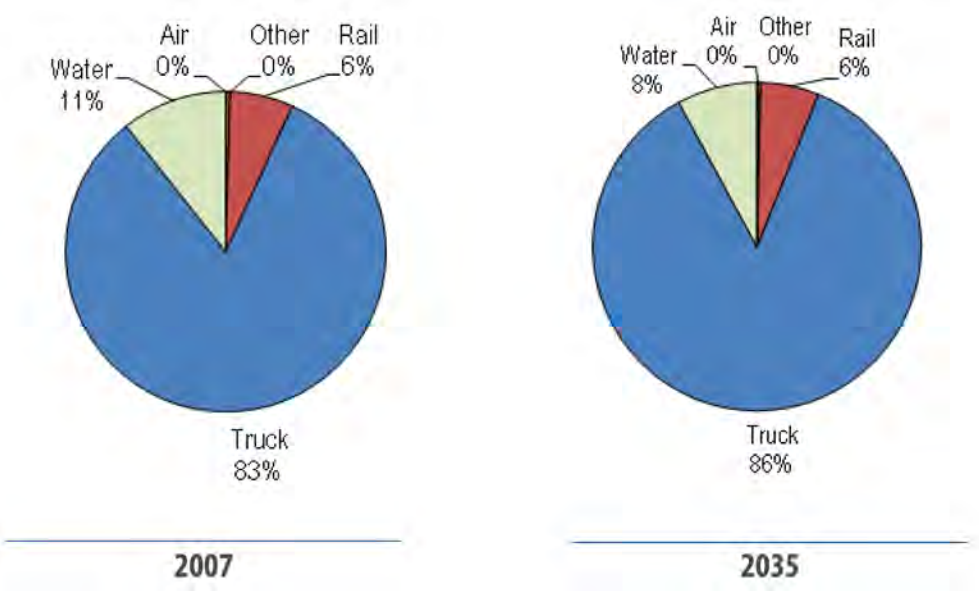
Trucks carry the most freight in New Jersey by a large margin, followed by water, rail, and air. Rail's share of total freight in New Jersey (by weight) was 6 percent in 2007, and is projected to remain at about 6 percent in 2035, as shown in Figure 2-7 below.

Table 2-3
Freight Volume by Mode, 2007 and 2035 Tons and Value

	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.

Figure 2-7
Mode Share by Weight - 2007 and 2035



Weight Versus Value

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. Figures 2-8 and 2-9 graphically display this information.

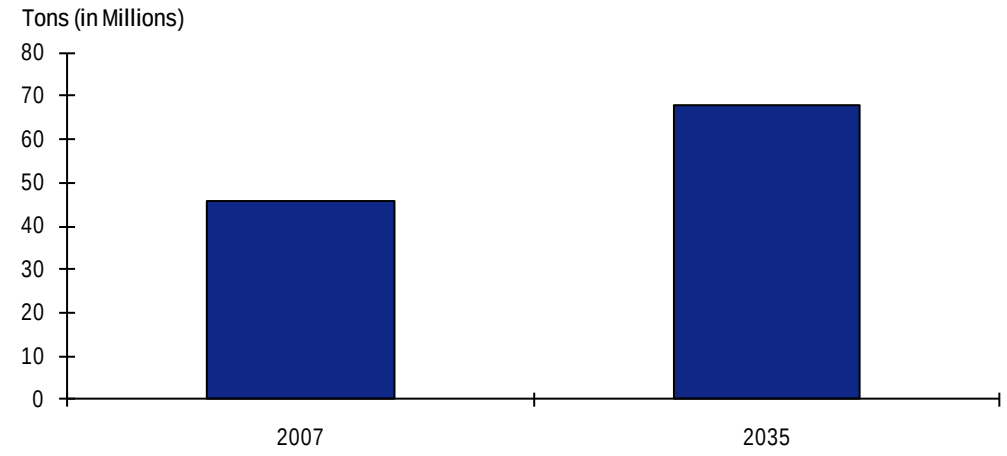


Figure 2-8
Expected Growth of Statewide Rail Flows (by weight)

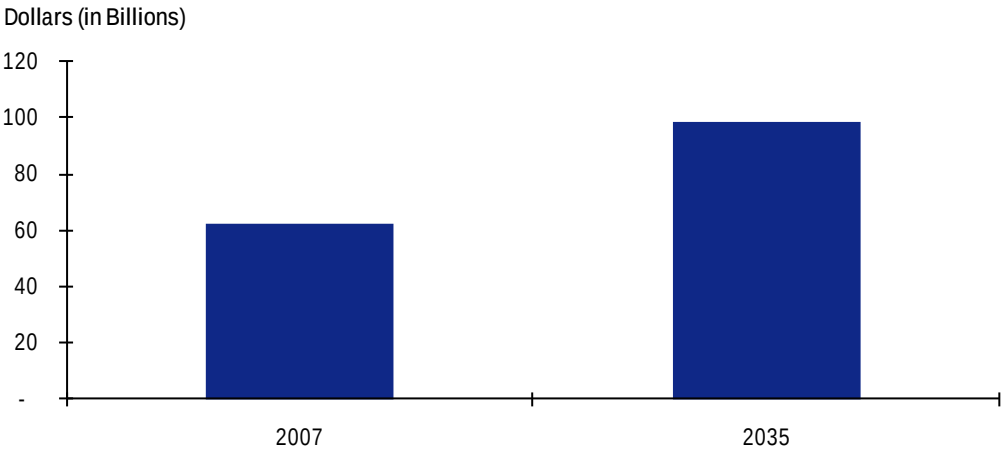


Figure 2-9
Expected Growth of Statewide Rail Flows (by value)

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 affect 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.

Table 2-4 displays rail freight flows by weight, value, and direction in 2007 and in 2035 while Figures 2-10 and 2-11 graphically display the same information.

Table 2-4
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.

Inbound traffic is the largest component of rail freight, by weight, (54 percent of the 2007 total), 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 one 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 to be expected 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

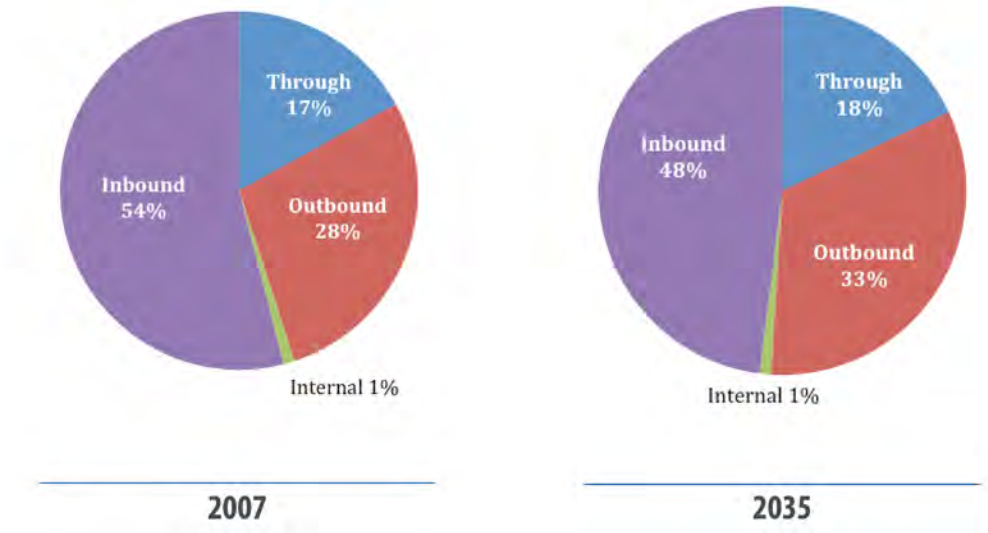


Figure 2-10
Direction of Rail Freight Flows by Weight (2007 and 2035)

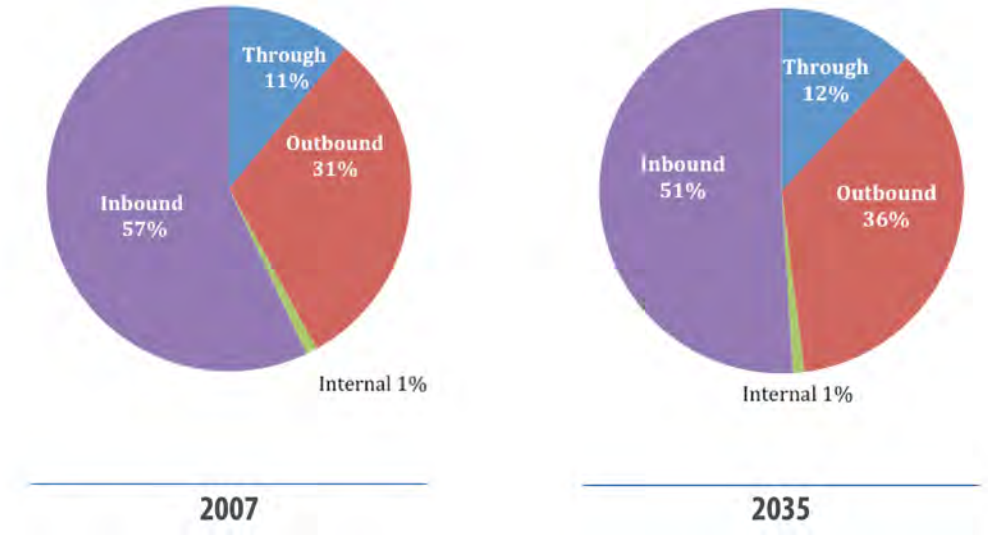


Figure 2-11
Direction of Rail Freight Flows by Value (2007 and 2035)

(from 54 percent in 2007) and the proportion of outbound rail freight growing to 33 percent of the total (from 28 percent in 2007).

Value analysis provides insight into the flow of funds 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.[9]

[9] This should be viewed in a relative sense. TRANSEARCH treats freight bound for the Port of New York New Jersey as inbound to the state, for example, even though it will be loaded onto a vessel for final delivery elsewhere. In addition, goods that have intermediate stopping points are counted as separate freight flows. This means that a shipment that arrives inbound by rail, is trucked to a regional distribution center, stored for a time, then shipped out of state to a customer will be counted three times the TRANSEARCH data; once as an inbound rail shipment, once as an intrastate truck shipment, and once as an outbound truck shipment. Because of the rail focus of this analysis, the two truck flows in the above

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 one percent was intrastate moves. The directionality of rail freight flows in New Jersey is expected to shift somewhat by 2035, with a six 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 2-5 provides information on inbound rail freight tonnage by destination county for 2007 and 2035. The table includes carload, intermodal, and other[10] tonnage. Figures 2-12 and 2-13graphically 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 inbound 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.

Directional Analysis – Outbound Rail Freight

It also is important to understand where New Jersey's outbound rail freight is being generated – 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

example are not considered. Because of this and other features of the data, these value analyses provide a relative and general insight into the flow of money into and out of the New Jersey economy.

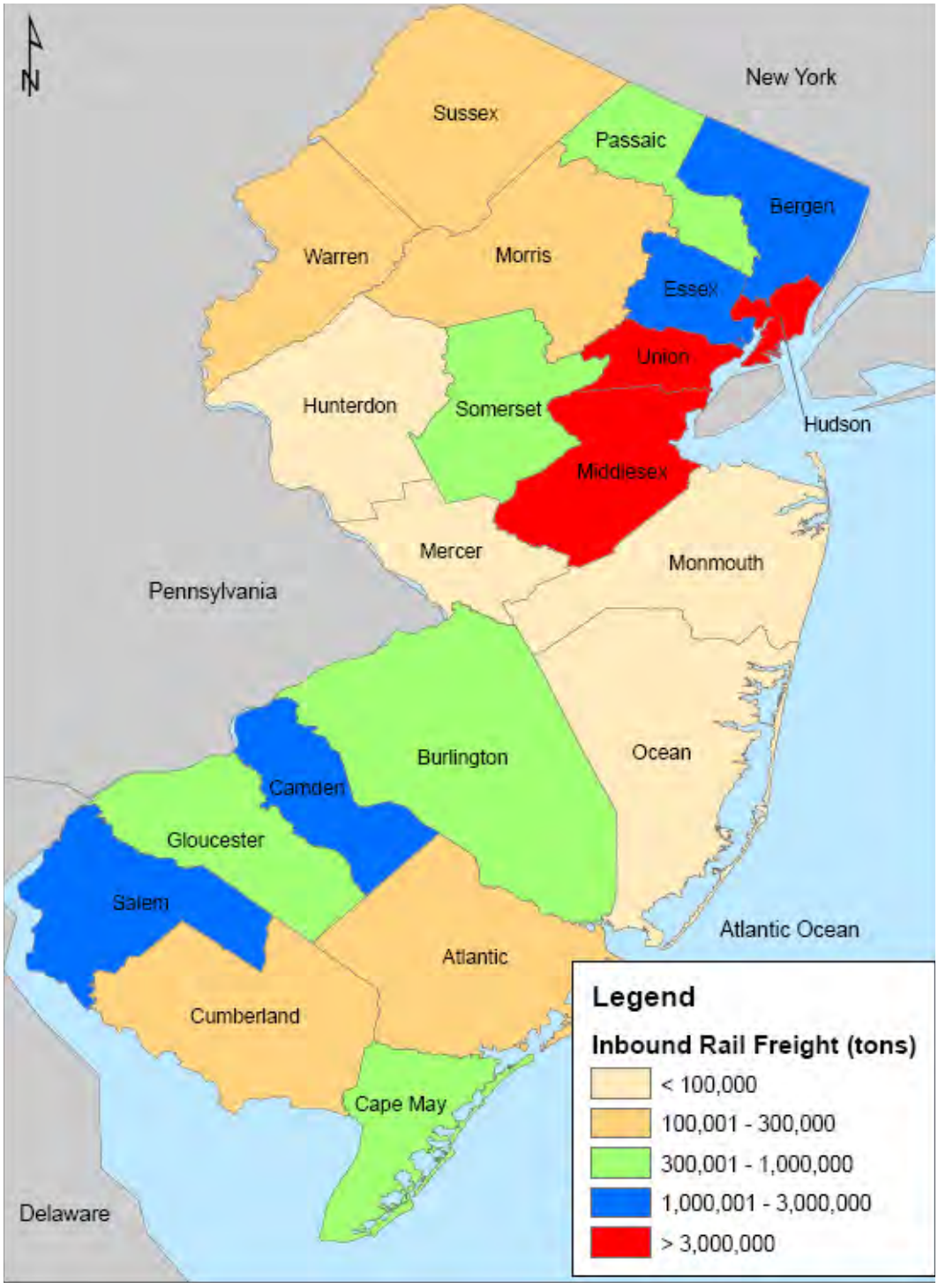
[10] The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are simply categorized as "other."

Table 2-5
Destination of Inbound Rail Flows by Weight and Type, 2007 and 2035

County	Carload Tons (2007)	Carload Tons (2035)	Percent Growth	Intermodal (2007)	Intermodal (2035)	Percent Growth	Other[a] (2007)	Other[a] (2035)	Percent Growth	Total (2007)	Total (2035)	Percent Growth
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%
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%
Hunterdon County	28,880	98,262	240%	–	–	–	8,206	17,070	108%	37,086	115,333	211%
Remaining Counties[b]	168,400	187,013	11%	–	–	–	21,000	40,651	94%	189,400	227,664	20%
Total	**17,260,874**	**21,961,232**	**27%**	**6,046,034**	**7,750,256**	**28%**	**1,350,732**	**3,070,463**	**127%**	**24,657,640**	**32,781,951**	**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."
Note b: Data for the remaining counties was combined to comply with STB confidentiality requirements.
Source: IHS Global Insight Inc., TRANSEARCH database

Figure 2-12
Terminating Counties for Inbound Rail Freight by Weight, 2007



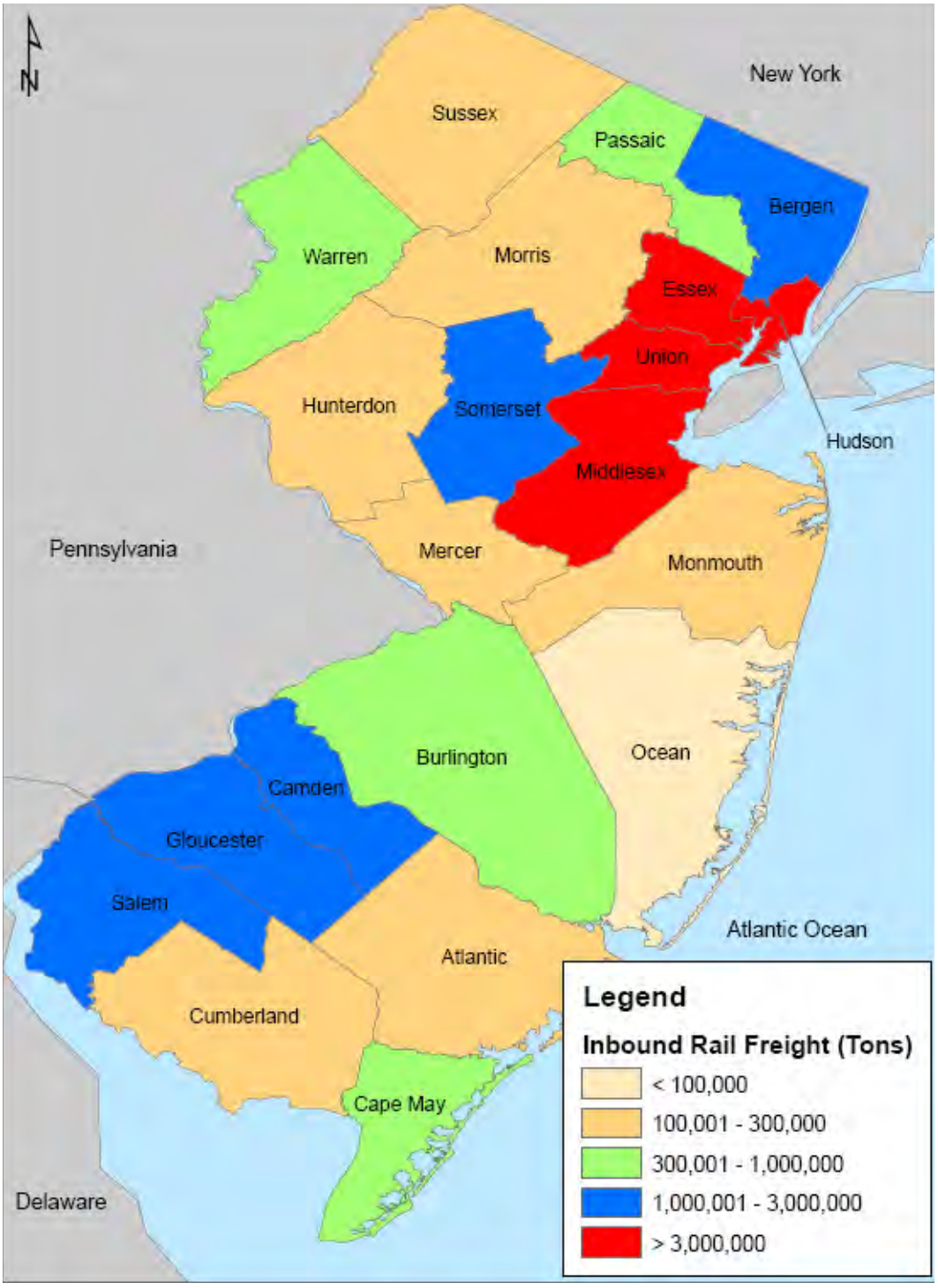


Figure 2-13
Terminating Counties for Inbound Rail Freight by Weight, 2035

within the county.

Originating Counties for Outbound Rail Freight

Table 2-6 provides information on outbound rail freight tonnage by origin county for 2007 and 2035. Figures 2-14 and 2-15 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.

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 2-7 below). The origin-destination pair with the greatest level of intrastate rail freight 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 eight of the top 10 origin-destination county pairs in the state. Table 2-7 shows the top 10 origin-destination pairs in 2007 and 2035 by weight.

Directional Analysis – Through Rail Freight

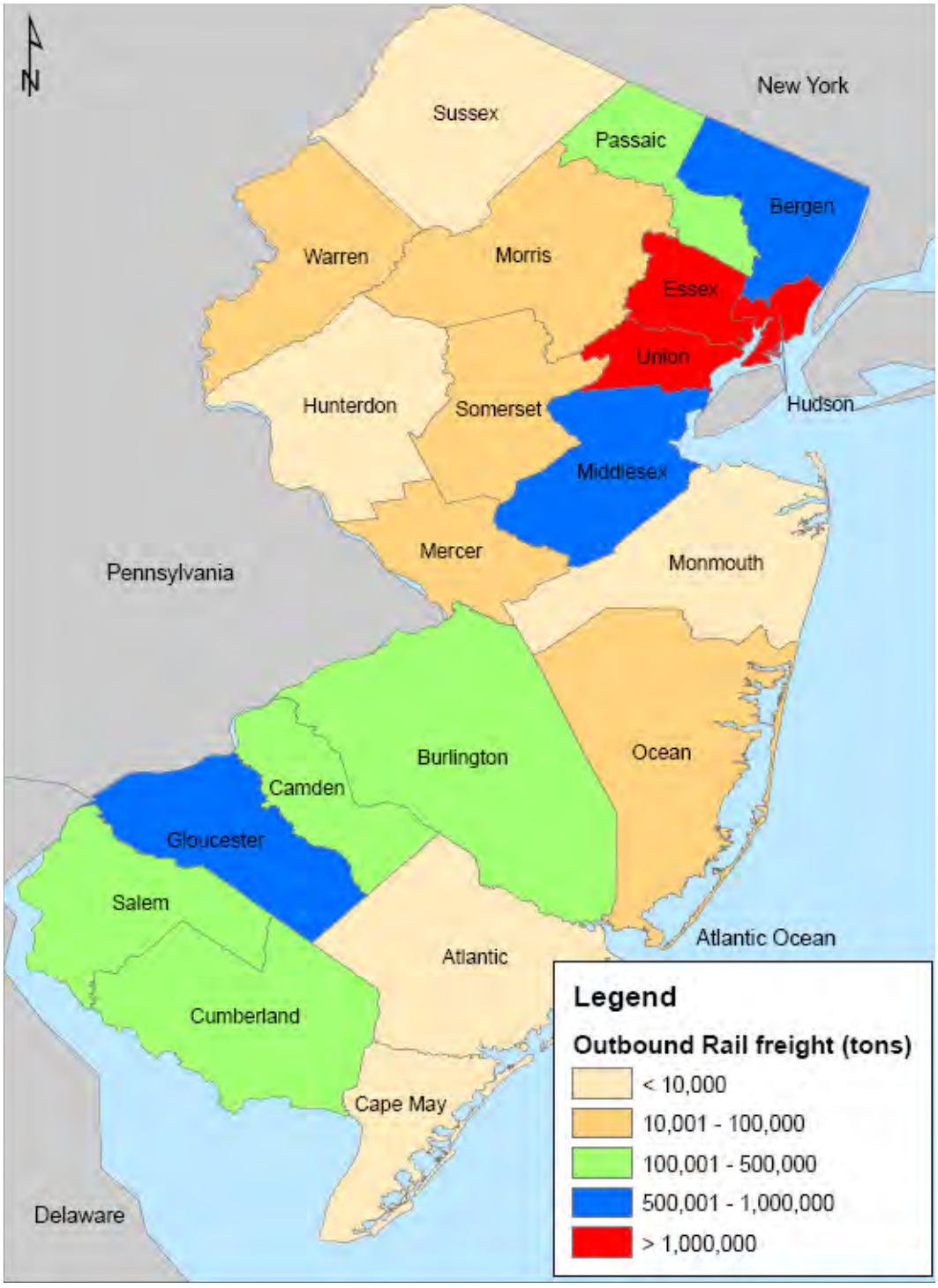
In 2007, 8 million tons of rail freight, about 17 percent of all rail freight tonnage moved through the state of New Jersey. By 2035, through rail tonnage is projected to grow to over 12 million tons and account for 18 percent of the total rail tonnage in the state. Table 2-8 shows the top 10 origin-destination 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 2-6
Origination of Outbound Rail Flows by Weight and Type, 2007 and 2035

Jurisdiction	Carload Tons (2007)	Carload Tons (2035)	Percent Growth	Intermodal (2007)	Intermodal (2035)	Percent Growth	Other[a] (2007)	Other[a] (2035)	Percent Growth	Total (2007)	Total (2035)	Percent Growth
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%
Somerset County	39,560	105,354	166%	–	–	–	12,988	44,326	241%	52,548	149,680	185%
Remaining Counties[b]	152,300	124,995	-18%	–	–	–	84,826	217,551	156%	237,126	342,545	44%
Total	5,959,115	10,558,319	77%	6,044,540	9,714,756	61%	803,636	2,104,704	162%	12,807,291	22,377,780	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."
Note b: Data for the remaining counties was combined to comply with STB confidentiality requirements.
Source: IHS Global Insight Inc., TRANSEARCH database

Figure 2-14
Originating Counties for Outbound Rail Freight by Weight, 2007



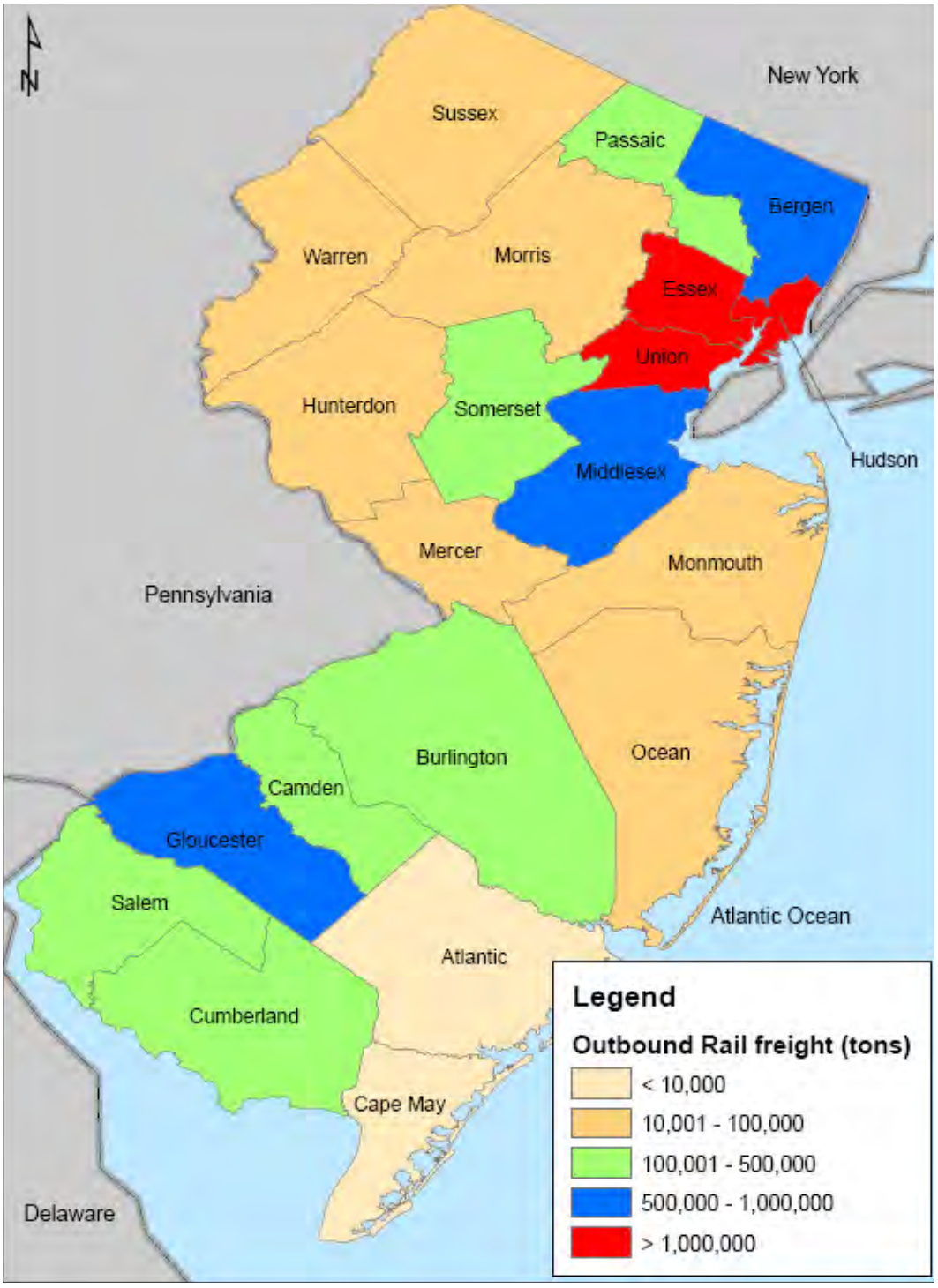


Figure 2-15
Originating Counties for Outbound Rail Freight by Weight, 2035

Table 2-7
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

Table 2-8
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	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

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 transport. 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 2-9.

Intermodal containers and trailers are represented by the commodities, freight forwarder

Table 2-9
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.

traffic, shipper association traffic, freight all kinds, and small packaged freight shipments.

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 2-10 and 2-11. 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 2-16). 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 2-10
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 2-11
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.

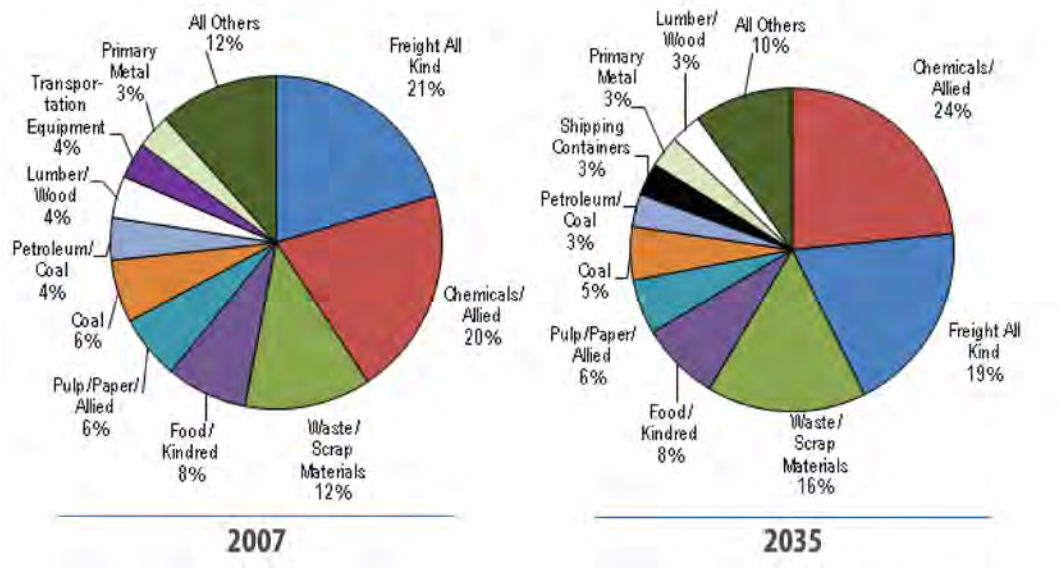


Figure 2-16
Top 10 Rail Commodities by Weight–All Directions, 2007 and 2035

Rail Commodities – Inbound

Tables 2-12 and 2-13 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 of all kinds (4.8 million tons), and food or kindred products (2.7 million tons). Figure 2-17 displays this information graphically.

Table 2-12
Top 10 Rail Commodities by Weight – Inbound, 2007

Commodity	STCC	Carload Tons	Intermodal Tons	Other Tonsa	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

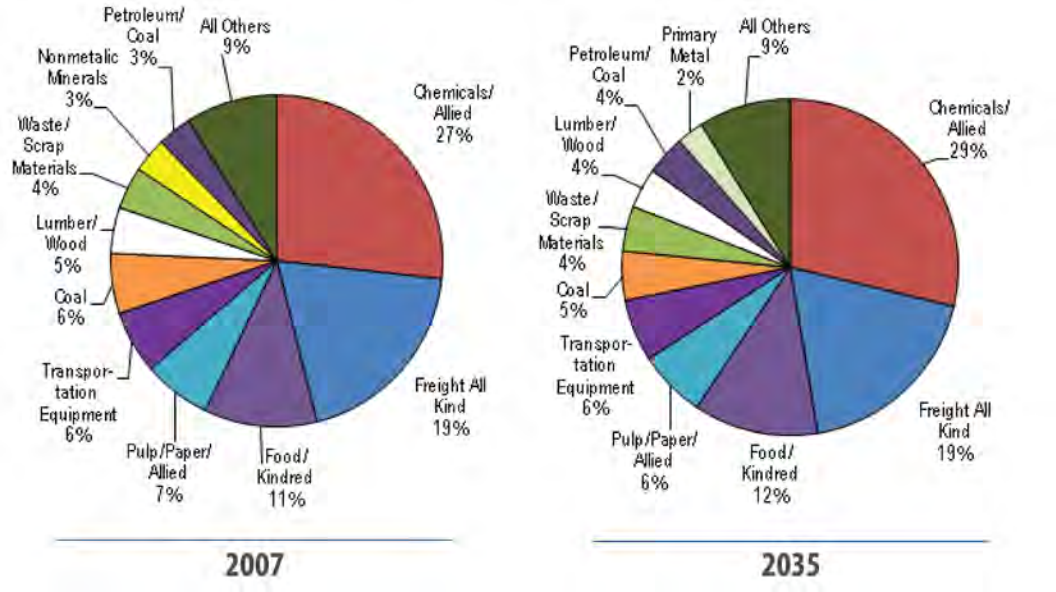
Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."
Source: IHS Global Insight Inc., TRANSEARCH database.

Table 2-13
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 2-17
Top 10 Rail Commodities by Weight–Inbound, 2007 and 2035



Rail Commodities – Outbound

Tables 2-14 and 2-15 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 2-18 displays this information graphically.

Table 2-14
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

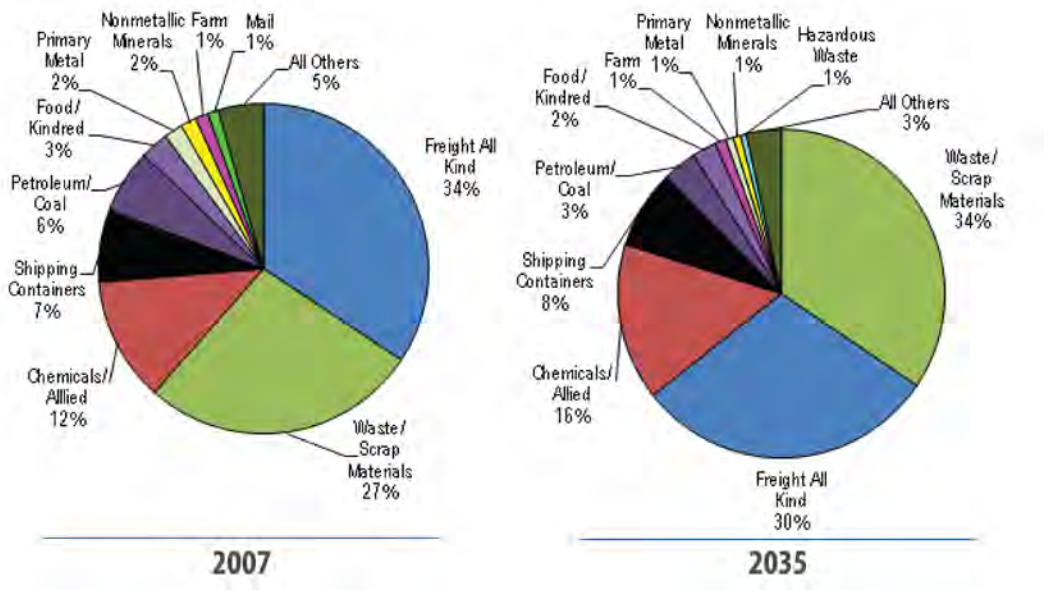
Note a: The TRANSEARCH dataset does not differentiate between carload and intermodal for rail flows originating or terminating in Canada or Mexico. These flows are categorized as "other."
Source: IHS Global Insight Inc., TRANSEARCH database.

Table 2-15
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 2-18
Top 10 Rail Commodities by Weight–Outbound, 2007 and 2035



Rail Commodities – Intrastate

Tables 2-16 and 2-17 summarize the level of intrastate rail freight movement in 2007 and 2035. These shipments, totaling just 262,000 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 (148,000 tons), chemicals and allied products (95,000 tons), and transportation equipment (15,000 tons). Figure

Table 2-16
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 2-17
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.

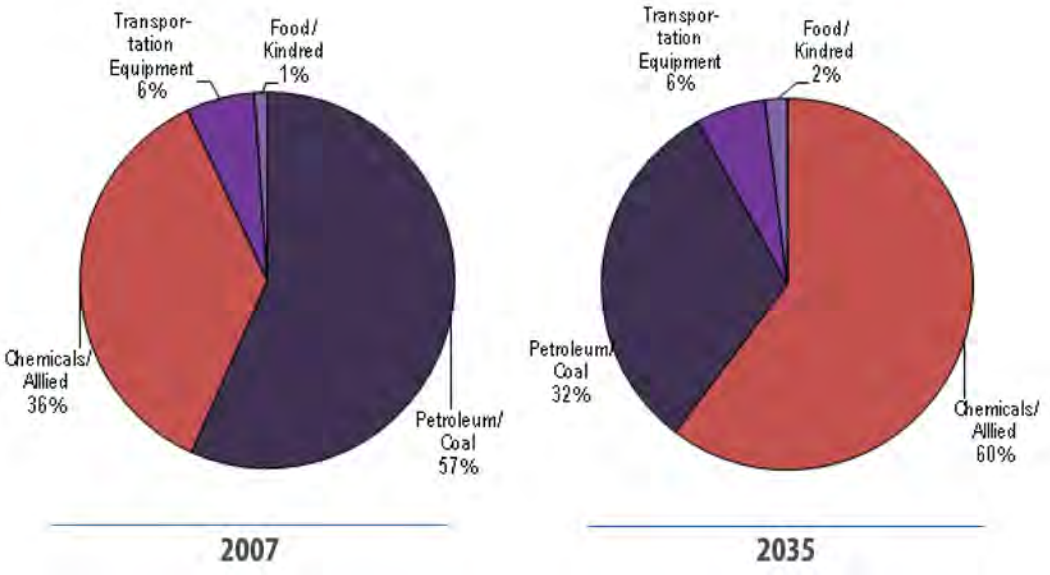


Figure 2-19
Top Rail Commodities by Weight–Intrastate, 2007 and 2035

2-19 displays this information graphically.

Rail Commodities – Through

Tables 2-18 and 2-19 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

Table 2-18
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

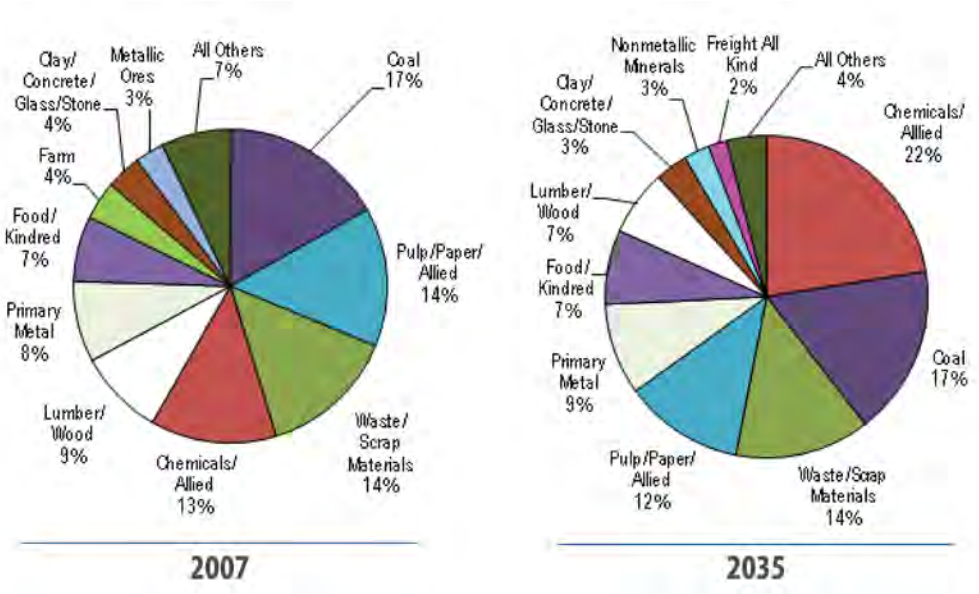
Source: IHS Global Insight Inc., TRANSEARCH database.

Table 2-19
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 2-20
Top 10 Rail Commodities by Weight–Through, 2007 and 2035



2-20 displays this information graphically.

Analysis by Rail Trading Partners

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 2-20 and 2-21 list the top rail trading partners for the state of New Jersey by weight in 2007 and 2035. Figures 2-21 and 2-22 graphically display the level of rail trade, by weight, between New Jersey and its trading partners. The top three trading partners – Illinois[11], Ohio, and Canada – account for about 54 percent of total rail freight flows by weight to and from New Jersey.

Table 2-20
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.

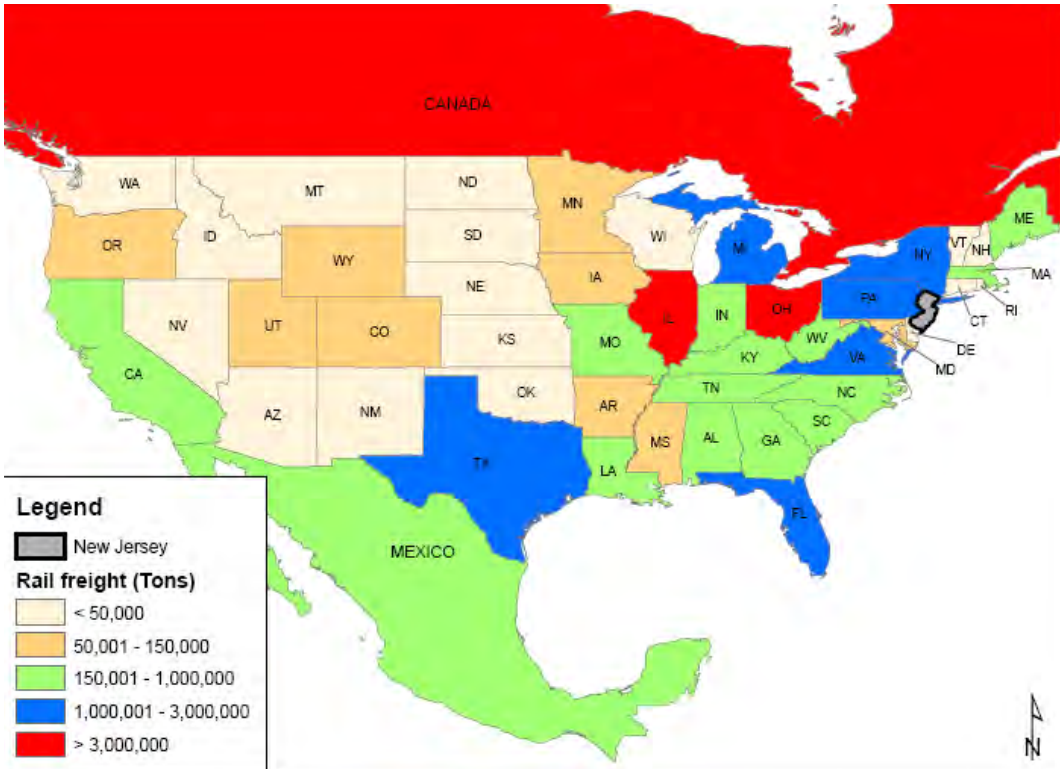
[11] TRANSEARCH dataset identifies the origins of rail freight flows that transfer from a western railroad to an eastern railroad in Chicago, as originating in Chicago. Similarly, the destination of rail freight flows that transfer from an eastern railroad to a western railroad in Chicago is identified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

Table 2-21
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 2-21
New Jersey Rail Trading Partners by Weight, 2007



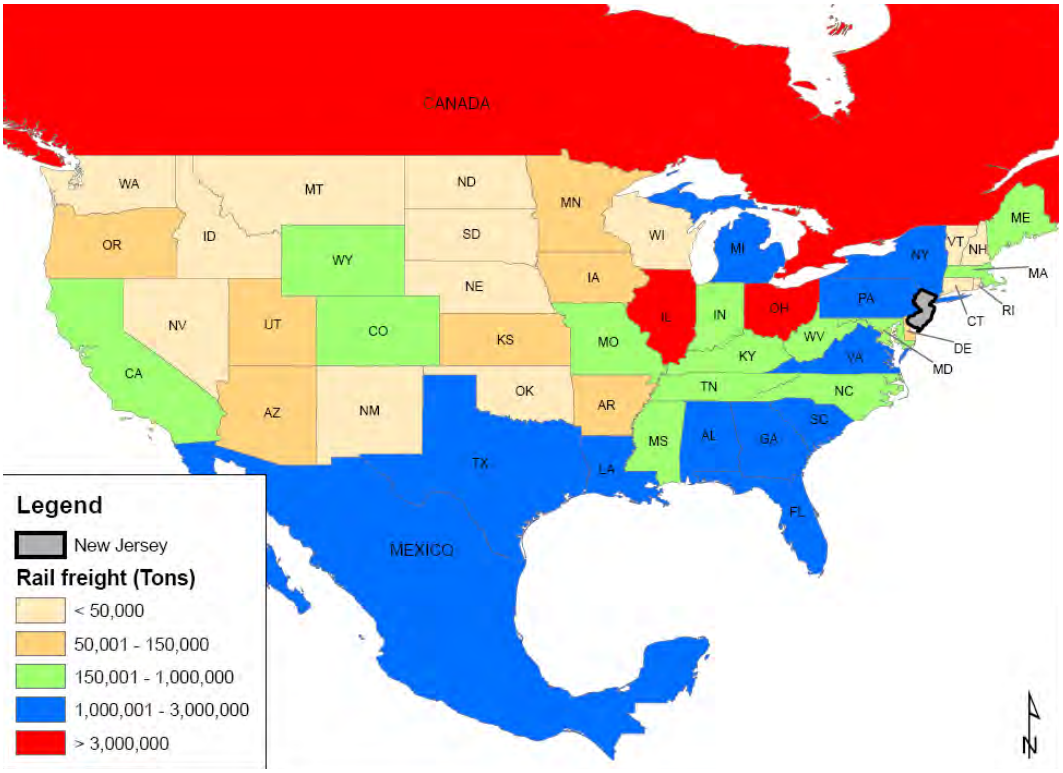


Figure 2-22
New Jersey Rail Trading Partners by Weight, 2035

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 nearly 78 percent of total rail trade by weight.

Table 2-22
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

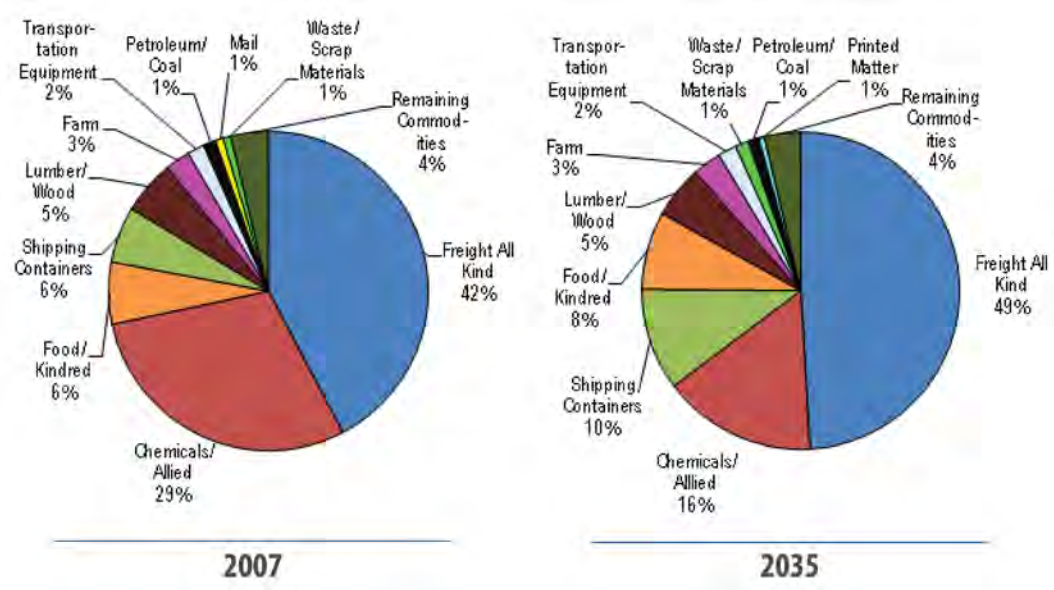
Source: IHS Global Insight Inc., TRANSEARCH database.

Table 2-23
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 2-23
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 2-24 and 2-25 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 2-15 displays this information graphically.

Table 2-24
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

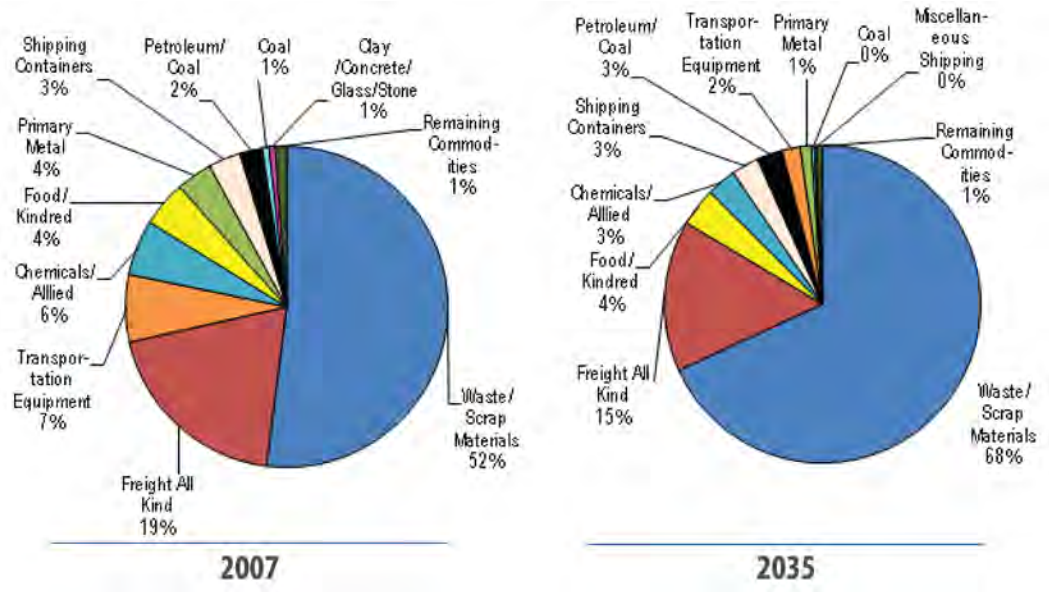
Source: IHS Global Insight Inc., TRANSEARCH database.

Table 2-25
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 2-24
Top 10 Ohio Rail Commodities by Weight, 2007 and 2035



Canada

Canada is New Jersey's third largest rail freight trading partner. Tables 2-26 and 2-27 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

Table 2-26
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.

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.

Table 2-27
Top 10 Canada Rail Commodities by Weight, 2035

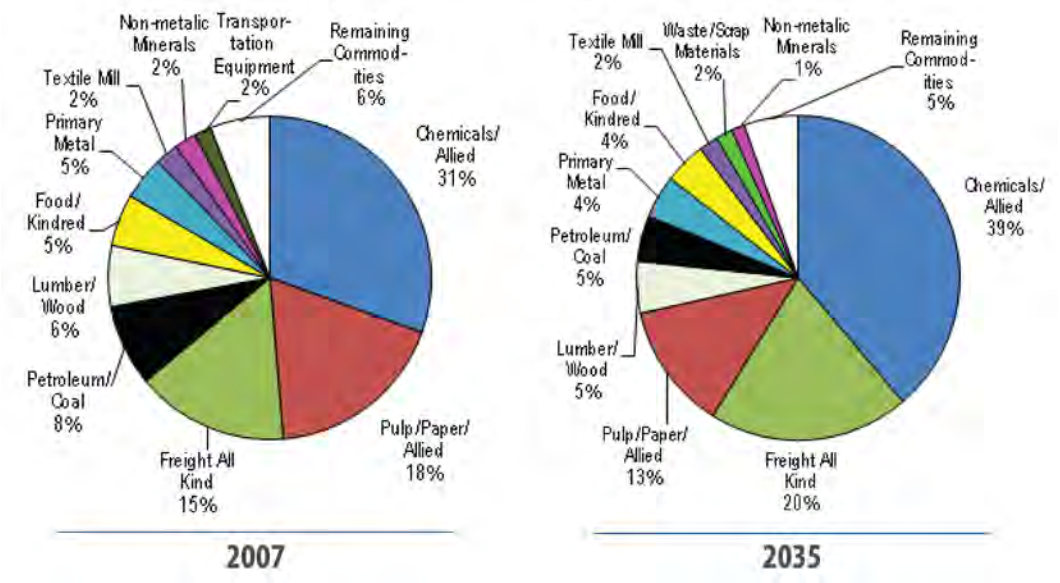


Figure 2-25
Top 10 Canada Rail Commodities by Weight, 2007 and 2035

2-25 displays this information graphically.

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. In fact, 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.

Freight Traffic Trends - Oil By Train

The adoption of hydraulic fracturing ("fracking") by the energy to extract oil and gas has led to an increase in the production and shipment of energy products. Lack of pipelines connecting the energy producing regions with refineries or ports, coupled with the flexibility that railroad transportation provides have resulted in significant shipments of oil by rail. Already, New Jersey refineries are witnessing a surge in petroleum shipments by rail unit train ("rolling pipelines"). The number of trains is expected to increase.

Freight Multimodal Connectivity

New Jersey occupies a vital position within the nation's rail intermodal system. The state is the conduit by which international freight is transported by rail between the Port of New York and New Jersey and the interior of the nation. Northern New Jersey is also a primary logistics hub for containerized rail freight to be distributed throughout the Northeast. All container terminals within New Jersey are located in the northern portion of the state.

Three ports managed by the South Jersey Port Corporation are also located on the Delaware River. The Port of Camden, comprising the Broadway Terminal and the Beckett Street Terminal, has rail and highway connections with the Broadway Produce Terminal capable of handling live produce. The South Jersey Port Corporation also operates the Port of Salem. The Port of Paulsboro is located across the river from the Philadelphia International Airport. Formerly a BP storage site for petroleum and chemicals, the facility is undergoing a renovation to relieve congestion from the ports of Camden.

Generally, two types of containers are handled by rail terminals in New Jersey: domestic and international. Most international containers flow through the Port of New York and New Jersey. Originally, all international containers were brought to or taken from the Port of New York and New Jersey terminals by truck. Those that were to be transported to/from other parts of the U.S. or Canada by rail had to be transferred between the port and nearby truck/rail intermodal terminals by "rubber tire" connection. Trucks drayed containers between the port terminals and nearby intermodal ramps. However, the PANYNJ has embarked upon the $600 million ExpressRail project to bring on-dock capacity at the port. Through this project, containers are transferred directly to rail intermodal facilities within the port terminal areas.

Other international containers handled by the state's truck/rail intermodal terminals do not flow through the PANYNJ terminals but represent "land bridge" movements, whereby containers to/from Asia arrive at West Coast ports, and then are shipped to Northern New

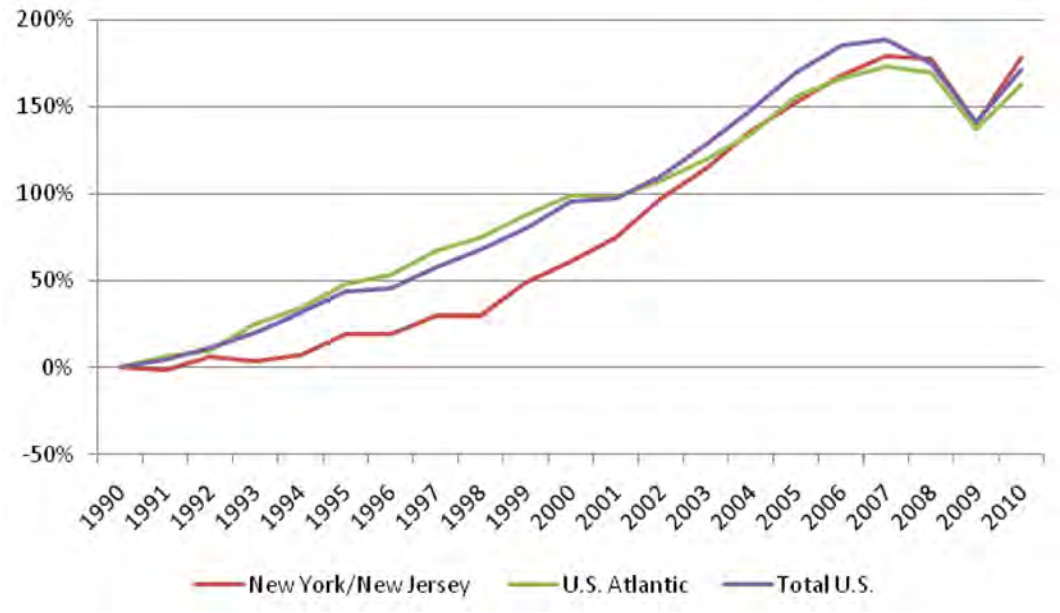


Figure 2-26
Percentage Increase in Port Container Traffic by TEU since 1990

Source: American Association of Port Authorities

Jersey by train. Containers are unloaded and distributed throughout the Northeast.

Finally, New Jersey's truck/rail container terminals also handle domestic containers, which originate or terminate in other parts of the U.S. or Canada. At 53 feet in length, domestic containers are larger than international containers, which typically are either 20 or 40 feet long. In some cases, international cargoes are transferred to domestic containers after arriving at a seaport. Either shipping companies do not wish their international containers to leave the port area or shippers seek to benefit from the higher capacity of domestic containers for their inland moves. In these cases, the higher capacity of the domestic containers outweighs the cost of transferring cargo.

Marine Terminals

The Port of New York and New Jersey is the third largest container port in the nation and by far the largest container port on the East Coast. According to the American Association of Port Authorities (AAPA), the Port of New York and New Jersey handled 5,292,025 twenty-foot equivalent units (TEUs) in 2010. The second largest East Coast port, Savannah, handled 2,825,179 TEUs. The nation's largest container port, the Port of Los Angeles handled 7,831,902 TEUs. Container volumes have increased by 179 percent since

Figure 2-27
Container Terminals of the Port of New York and New Jersey

1990 compared to 163 percent overall for Atlantic U.S. ports, and 172 percent for U.S. ports overall.

Four of the six PANYNJ container terminals are located in New Jersey, including the Port Newark Container Terminal in Newark, the Maher Terminal in Elizabeth, the APM Terminals in Elizabeth, and the Global Marine Terminal in Jersey City.

Currently, rail is used to ship only about 14 percent of containers to or from the Port of New York and New Jersey. Eighty-five percent is shipped by truck. Rail is the dominant mode for shipping goods that originate or terminate more than 400 miles from the port. However, because the area within 400 miles is a very large market, most containers originate or terminate closer than 400 miles, and trucking is used.

One major issue facing the Port of New York and New Jersey is the Bayonne Bridge. This bridge connects Staten Island, NY with Bayonne, NJ. It crosses the channel used by ships accessing the Newark, Elizabeth, and Staten Island Terminals. The U.S. Army Corps of Engineers is completing a project to dredge the Port of New York and New Jersey channel depth to 50 feet. This will enable the port to accommodate a range of post Panamax size vessels. However, depending upon tidal conditions, the underside of the Bayonne Bridge is 151 to 156 above water level. Given the composition of the existing world container ship fleet, 62 percent of the existing TEU capacity would be restricted from visiting the PANYNJ. With the trend toward ever-larger ships, the situation will worsen in the future if not improved. The port authority has committed one billion dollars to raise the air draft of the Bayonne Bridge from 151 feet to 215 feet. The project is currently undergoing the required National Environmental Policy Act (NEPA) review. Construction on the project

Figure 2-28
Bayonne Bridge

Table 2-28
Summary of Rail Intermodal Terminals in New Jersey

Terminal Name	Railroad	Address	Annual Containers	Cities on Train Schedule
ExpressRail Elizabeth	NS, CSX, CP via NS	2380 Tripoli Street Port Elizabeth, NJ 07201	420,000	Buffalo, NY; Chicago, IL; Cincinnati, OH; Cleveland, OH; Columbus, OH; Detroit, MI; East St. Louis, IL; Evansville, IN; Harrisburg, PA; Kansas City, MO; Nashville, TN; Pittsburgh, PA; St. Louis, MO; Worcester, MA; Montreal, PQ; Toronto, ON
ExpressRail Newark	CSX	241 Calcutta Street Port Newark, NJ 07114		Chicago, IL; Cincinnati, OH; Cleveland, OH; Columbus, OH; Detroit, MI; East St. Louis, IL; Evansville, IN; Kansas City, MO; Nashville, TN;
Croxton Intermodal Terminal	NS	125 County Road, Jersey City, NJ 07307	250,000 – 500,000	Atlanta, GA; Chicago, IL; Detroit, MI; Greensboro, NC; Jacksonville, FL; Meridian, MS; Toledo, OH
Erail	NS	322 Third Street, Elizabeth, NJ 07206	100,000 – 250,000	Chicago, IL; Kansas City, MO; Memphis, TN; Pittsburgh, PA; St. Louis, MO
Little Ferry Intermodal Terminal	CSX	2200 83rd Street, North Bergen, NJ 07047-1402	100,00 – 250,000	East St. Louis, IL; Indianapolis, IN (Core network)
North Bergen Intermodal Terminal	CSX	6201 Tonnelle Avenue, North Bergen, NJ 07047-3311	100,00 – 250,000	Charleston, SC; Savannah, GA; Orlando, FL; Miami, FL; Jacksonville, FL
South Kearney Terminal	CSX	700 Old Fish House Road, South Kearny, NJ 07032	250,000 – 500,000	Chicago, IL; Evansville, IN; Louisville, KY; Detroit, MI; Cincinnati, OH; N. Baltimore, OH; Nashville, TN
Landbridge Terminal	NYS&W	2200 Secaucus Road, North Bergen, NJ 07047	Unknown	NA

Source: NS and CSX from Trains magazine

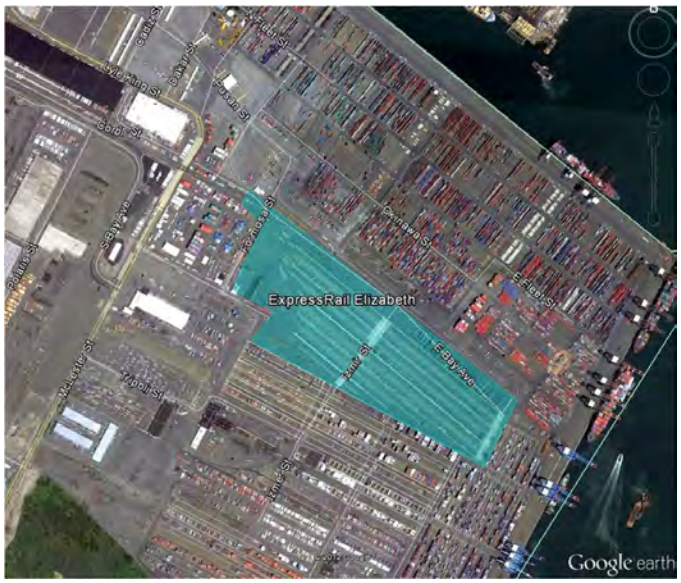
is anticipated to begin in early 2013, pending federal and local environmental reviews.

Rail Intermodal Terminals

Including the ExpressRail facilities, eight intermodal rail ramps or container terminals are located in Northern New Jersey. The ExpressRail facilities are also supported by the Corbin Street Yard. An additional ExpressRail intermodal terminal is located on Staten Island, NY. Collectively, the ExpressRail terminals, including the terminal on Staten Island, New York, handled 422,144 containers in 2011. Collectively, ExpressRail has a capacity of about 1.3 million lifts.

The Port Authority of New York and New Jersey has invested heavily in improvements to the ExpressRail system, adding a new ExpressRail terminal to the Elizabeth terminals in 2004and expanding facilities since then. The Port Authority's Strategic Plan covering 2006 to 2015 called for $143 million in investments in ExpressRail over that period. Due to improvements, rail usage at the port has grown faster than the overall growth in container

Figure 2-29
ExpressRail Elizabeth Footprint



Source: Google 2012

Figure 2-30
ExpressRail Newark Footprint

Source: Google 2012

volume.

Port-Connected Intermodal Facilities

ExpressRail Elizabeth

The ExpressRail Elizabeth Terminal is an on-dock intermodal rail transfer facility located on the Maher Terminal site at Port Elizabeth. The facility is owned by the Port Authority of New York and New Jersey (PANYNJ) and operated by Maher Terminal, Inc. Conrail provides switching service to the facility connecting with NS and CSX. Inbound and outbound international containers are transferred from rail to ship (or ship to rail) at this facility, with no need for truck drayage. Two trains per day in each direction (inbound and outbound) are operated daily, five days per week. Figure 2-29 illustrates the footprint of ExpressRail Elizabeth.

ExpressRail Newark

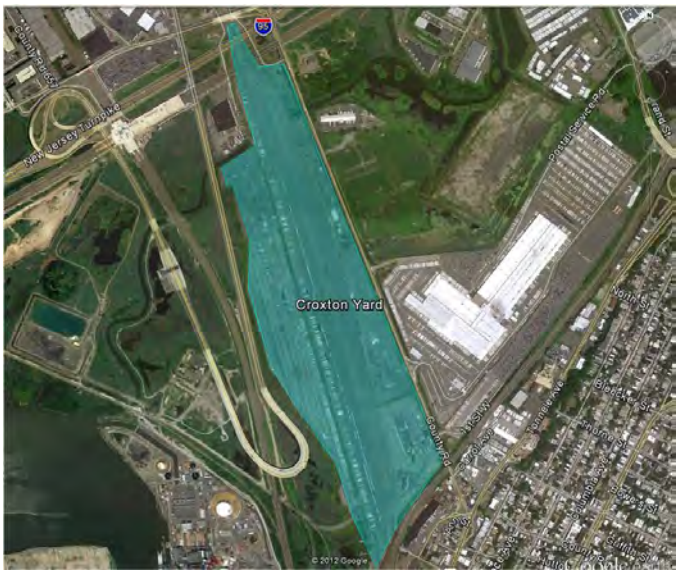
The ExpressRail Newark Terminal is located adjacent to Corbin Street and Port Newark. The facility handles inbound and outbound international containers that are transported through Port Newark. The facility is owned by the Port Authority of New York and New Jersey. Conrail provides switching service with NS and CSX providing connections to inland locations. Inbound containers are drayed to the rail terminal from the marine terminal to the rail terminal using Calcutta Street and the terminal's main gate. The footprint of ExpressRail Newark is illustrated in Figure 2-30.

International and Domestic Intermodal Facilities

Croxton Yard

Croxton Yard, located on 135 acres in the Croxton section of Jersey City and in Secaucus, Hudson County, is an intermodal terminal for trailer-on-flat-car and container trains

and is served by NS. The yard consists of three loading tracks. Croxton has double-stack capability and storage for refrigerated containers on-site. NS offers service to Chicago via Toledo seven days per week and service to Greensboro, NC and Atlanta five days per week. Service to the south runs over the Lehigh Line. Inbound and outbound trucks access Croxton Yard via U.S. Route 1/9 and County Road, or via NJ Turnpike Exit 15X, New County Road and County Road. The footprint of Croxton Yard is shown in Figure 2-31.



Source: Google 2012

Figure 2-31
Croxton Yard Footprint

Doremus Avenue Auto Terminal

Doremus Avenue Auto Terminal is located on 148 acres at 861 Doremus Avenue in Newark, adjacent to the Port Newark marine terminal. The Doremus Avenue Auto Terminal is the largest rail automobile unloading facility in the New York-New Jersey metropolitan region, with capacity for 8,375 vehicles and 174 auto rail car positions. The terminal consists of 10 unloading tracks and 10 holding tracks. The terminal is owned and operated by Conrail Shared Assets. Automobiles are handled between rail and ship or truck. NS and CSX serve the facility using multi-level auto rack cars. Automobiles are dispatched to/from Doremus Avenue Auto Terminal and the vehicle processors at Port Newark via Doremus Avenue. Trucks can access the terminal via NJ Turnpike Exit 14, Interstate 78, or U.S. Routes 1/9 via Port Street and Doremus Avenue, or via NJ Turnpike Exit 15E and Doremus Avenue. The footprint of Doremus Avenue Auto Terminal is shown in Figure 2-32.

Source: Google 2012

Figure 2-32
Doremus Avenue Auto Terminal Footprint

E-Rail

E-Rail is an intermodal terminal owned, operated, and serviced by NS. It is located at 322 Third Street in Elizabeth, Union County, just south of Port Elizabeth. NS offers

Figure 2-33
E-Rail Terminal Footprint

Source: Google 2012

Figure 2-34
Little Ferry Intermodal Terminal Footprint

Source: Google 2012

double-stack international and domestic intermodal container and trailer service. Service is scheduled six days per week, with one outbound and one inbound train handled each day. The yard consists of four tracks in "fair" condition. NS accesses the E-Rail facility via the Chemical Coast Secondary and the Lehigh Line with alternative access via Port Reading Secondary. Trucks access E-Rail via NJ Turnpike Exit 13A and Jersey Gardens Boulevard. NS has cited yard improvement needs and highway congestion as limitations to the efficient use of the terminal. The footprint of E-Rail Terminal is illustrated in Figure 2-33.

Little Ferry Intermodal Terminal

This facility is owned and operated by CSX and serviced by CSX and NYSW. The yard is located on the Bergen County/Hudson County border and is accessed by truck from 83rd Street in North Bergen, Hudson County. Little Ferry is in close proximity to NJ Turnpike Exit 18, and to Exit 17 via West Side Avenue and Paterson Plank Road. By rail, Little Ferry is connected to the CSX River Line and the NYSW route to the Southern Tier Line via Paterson and Sparta. Little Ferry handles mini-landbridge (imports that arrive at West Coast ports and are transported by rail to customers in the eastern United States), domestic intermodal traffic, and some import/export traffic through the Port of New York/New Jersey. Ten trains per week are dispatched from Little Ferry, including: once-daily, five days per week private trailer service to Bedford Park, Illinois; and once-daily five days per week container and private trailer service to Indianapolis and East Saint Louis. The yard consists of four center tracks and is equipped with lift gear and tractors. The facility does not include warehousing capability. Figure 2-34 illustrates the footprint of Little Ferry Intermodal

Terminal.

North Bergen

The North Bergen Terminal is located at 6201 Tonnelle Avenue in North Bergen, Hudson County. The yard is owned and operated by CSX and is used for doublestack and TOFC trains. The yard handles two outbound trains per day, six days per week. One train is dispatched north along the River Line toward Syracuse and Illinois, while the other moves south via the West Trenton Line toward destinations in Florida. Two inbound trains arrive at the terminal every day, one from the north route and one from the south route. There is no warehouse/storage facility at this terminal. There are four tracks within the body of the yard for unloading trucks and/or containers. Trucks access North Bergen Terminal via Tonnelle Avenue (Routes 1/9) and NJ Turnpike Exit 17. The footprint of North Bergen Terminal is illustrated in Figure 2-35.

Source: Google 2012

Figure 2-35
Bergen Intermodal Terminal Footprint

Source: Google 2012

Figure 2-36
Ridgefield Heights Auto Terminal Footprint

Ridgefield Heights Auto Terminal

Ridgefield Heights Auto Terminal is located on Victoria Terrace in Ridgefield, Bergen County. The terminal covers 29 acres, with 60 auto railcar positions and a vehicle capacity of 2,965 vehicles. Ridgefield Heights Auto terminal handles automobiles in auto-rack railcars and is served by both CSX and NS. CSX accesses the terminal via the River Line and NS accesses the terminal via the Northern Branch, National Docks Secondary, and Lehigh Line. Trucks access the terminal from Routes 1/9 via Hendricks Causeway and Victoria Terrace, and from the NJ Turnpike via Exit 18 and Route 46 to Routes 1/9. The footprint

Figure 2-37
South Kearny Terminal Footprint

Source: Google 2012

of the Ridgefield Heights Auto Terminal is illustrated in Figure 2-36.

South Kearny Terminal

South Kearny Terminal is located on 120 acres along Old Fish House Road in Kearny, Hudson County. South Kearny is owned and operated by CSX and handles TOFC and double-stack container service. The yard consists of six working tracks and eight support tracks. South Kearny Terminal receives 12 inbound trains and dispatches 12 outbound trains per day, six days per week. CSX traffic traveling to South Kearny reaches the yard from the River Line via the Northern Branch to Marion Junction and the Passaic and Harsimus Line to the South Kearny Lead Track. From the south and west, CSX traffic reaches South Kearny via the West Trenton Line and Passaic and Harsimus Line. Trucks can reach South Kearny from Route 1/9 Truck to Central Avenue, from Route 7, and from NJ Turnpike Exit 15E to Route 1/9 Truck. The footprint of South Kearny Terminal is illustrated in Figure 2-37.

Major Classification Yards

Oak Island

Figure 2-38
Oak Island Yard Footprint

Source: Google 2012

Covering 500 acres, Oak Island is the largest rail facility in New Jersey. It is primarily a carload classification yard owned by Conrail and serves trains operated by CSX, NS, and CP. In addition, CP operates a small transload terminal on the site. The yard accommodates and handles double-stack intermodal, container on flatcar (COFC), TOFC, auto-rack, and carload equipment. Oak Island consists of two automated humps, 30 classification tracks, 9 departure tracks, and 10 receiving tracks. Oak Island

can hold approximately 1,400 cars and reportedly operates near capacity. CSX accesses Oak Island via the River Line and National Docks Secondary or Northern Branch and Passaic and Harsimus line to reach Oak Island from the north and via the West Trenton Line and Conrail Lehigh Line from the south. NS accesses Oak Island via the Southern Tier Line, NJ TRANSIT Main Line, and National Docks Secondary from the north and via the Lehigh Line from the south and west. Trucks access the facility by using Route 1/9 to Delancy Street and Avenue I. Access to Route 1/9 can be achieved from NJ Turnpike Exit 14 and Interstate 78 Exit 58B. Figure 2-38 illustrates the footprint of Oak Island Yard.

Source: Google 2012

Figure 2-39
Pavonia Yard Footprint

Pavonia Yard

Pavonia Yard is located on about 65 acres in Camden, Camden County. Pavonia Yard serves as the primary classification yard for Conrail's operations in the South Jersey/Philadelphia region. The yard is configured with humps at both ends and a 32-track classification bowl. Inbound traffic arrives via the Delair Bridge and is classified for distribution to local serving yards or customers throughout southern New Jersey. Outbound rail traffic from origins throughout southern New Jersey is transported to Pavonia Yard for classification, blocking, and transport out of the region via the Delair Bridge. The yard is reported to be operating at capacity and expansion is constrained by surrounding development. Because it is a carload classification facility, large volumes of trucks do not travel to or from the yard on a daily basis, however, truck access to the facility can be achieved from Interstate 676 Exit 5A or Route 30 via Federal Street and River Avenue. The footprint of Pavonia Yard is illustrated in Figure 2-39.

Local Serving Yards

Many local serving yards are located along New Jersey's light density and short lines which aid in transloading and the distribution of carloads to local customers. Most consist of fewer than five working tracks. Local serving yards include:

- Bayonne
- Brown's Yard (Old Bridge)
- Burlington
- Greenville (Jersey City)
- Linden
- Manville
- Metuchen

- North Bergen
- Parkview
- Paulsboro
- Port Newark
- Port Reading

Figure 2-40 shows the principal yards in the state

Rail Intermodal Freight Flows

Data from the U.S. Surface Transportation Board Waybill Sample suggests that New Jersey rail intermodal traffic is relatively well balanced between inbound and outbound tonnage. However, forecasts by IHS Global Insight predict that the volume of outbound containers will grow faster than the volume of inbound containers. Likely, this results from an increase in international containers moving from the Port of New York and New Jersey inland by rail.

Table 2-29
2007 and 2035 Tonnage of Intermodal Rail Traffic to and from New Jersey by Direction

Direction	2007	2035	% Change
Inbound	6,046,034	7,750,256	28%
Outbound	6,044,540	9,714,756	61%
Total	12,090,574	17,465,012	44%

Source: U.S. Surface Transportation Board, Global Insight

Table 2-30
2007 and 2035 Tonnage of Intermodal Rail Traffic to and from New Jersey by Trading State

Trading State	2007	2035	% Change
Illinois	7,100,474	9,726,677	37%
Ohio	961,720	1,477,472	54%
Canada	611,400	1,494,265	144%
Other	3,416,980	4,766,598	39%
Total	12,090,574	17,465,012	44%

Source: U.S. Surface Transportation Board, Global Insight

Data from the STB Waybill Sample suggests that Illinois is the dominant origin/destination for containers flowing through the New Jersey intermodal terminals. Chicago, IL serves as a gateway, so many of these containers are likely flowing through Chicago to or from points further west, including West Coast ports. Global Insight predicts that intermodal traffic to/from Chicago will grow more slowly than traffic between New Jersey and other locations, such as Ohio and Canada.

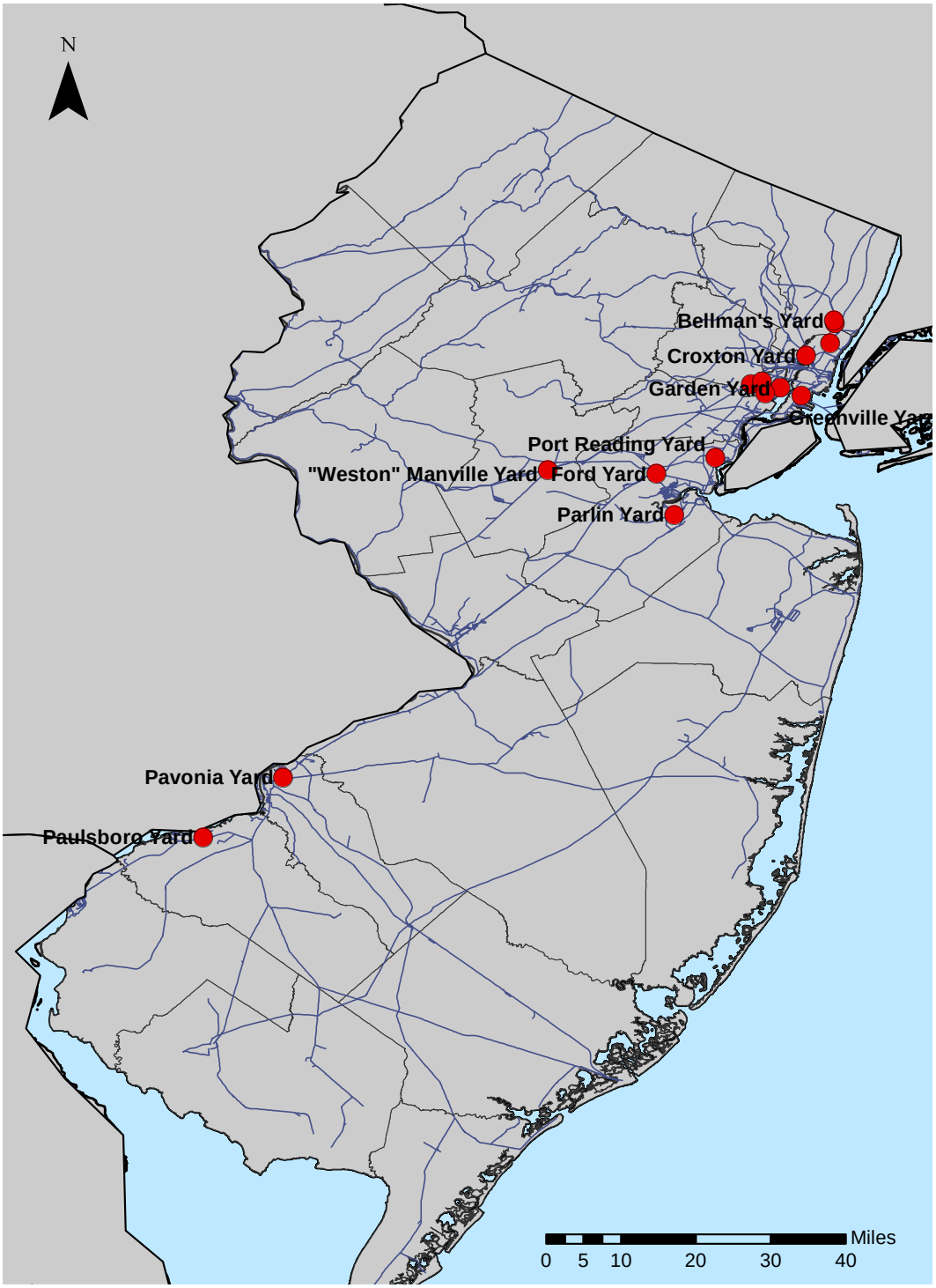
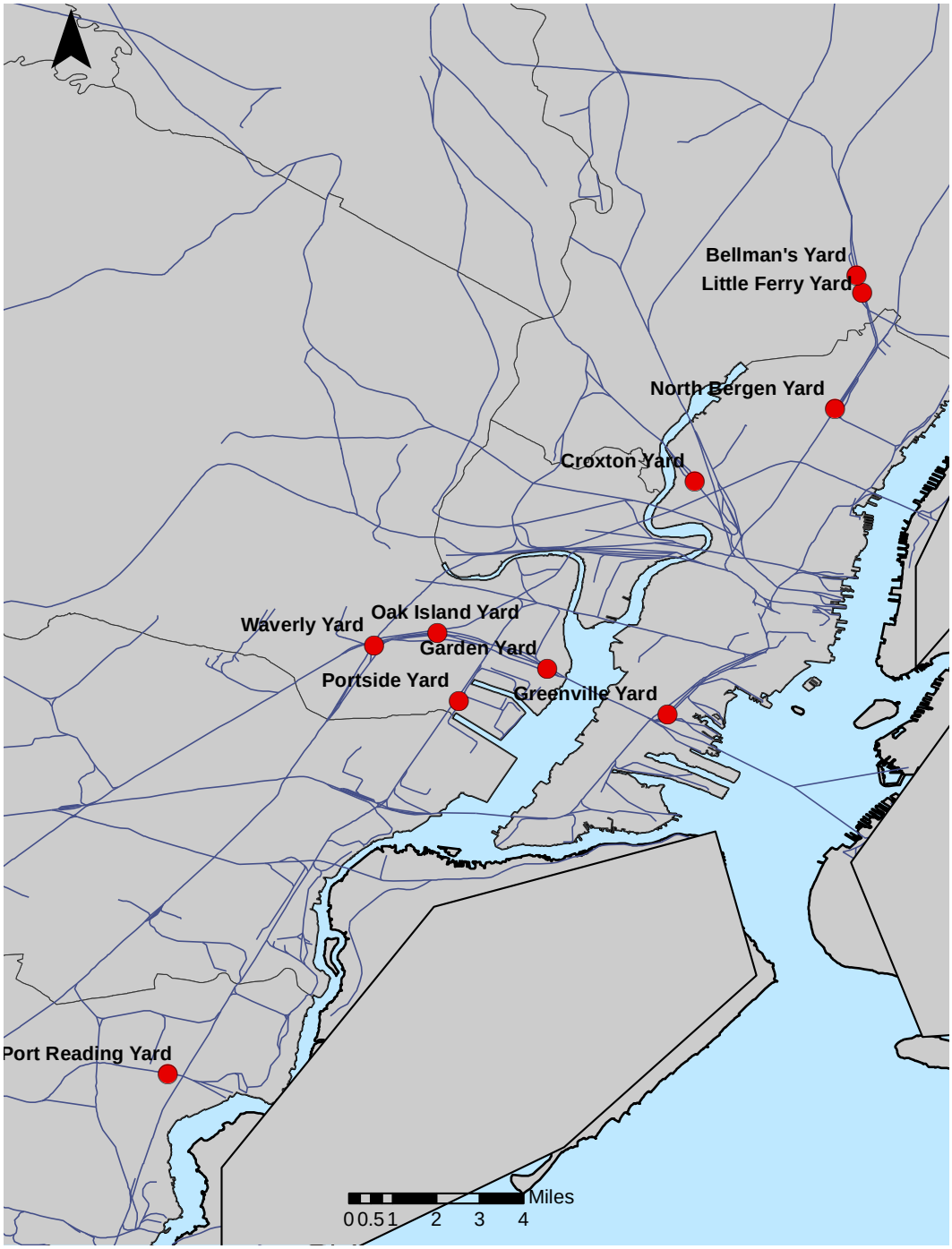


Figure 2-40
New Jersey Freight Classification and Local Serving Yards

Figure 2-41
New Jersey Freight Classification and North Serving Yards



Chapter 3
New Jersey Passenger Rail Profile

Commuter Rail Services - NJ TRANSIT

NJ TRANSIT was the nation's third largest regional rail service provider in 2011, transporting 78,555,100 passengers.[1] It operated more than 11 different lines with over 530 route miles and 162 rail stations spread across an effective service area of 5,325 square miles.

The commuter rail services of NJ TRANSIT are operated by NJ TRANSIT Rail Operations. This regional service provides passenger rail transportation between New Jersey's suburban locations and urban centers and the major employment generators of New York City, Hoboken, Newark, and Philadelphia. NJ TRANSIT also operates rail service from Orange and Rockland counties in New York State under contract to New York State Metropolitan Transportation Authority's (MTA) Metro-North Railroad (MNR).

NJ TRANSIT Rail Operations manages rail services in two divisions:

Newark Division: The lines in this division operate through Newark Penn Station on Amtrak's NEC. They were previously operated by the PRR, CNJ and New York and Long Branch Railroad. Today, these are identified as the NEC (includes Princeton Shuttle "Dinky"), NJCL, and RVL. Also in this division is the Atlantic City Rail Line between Atlantic City and Philadelphia 30th Street station, previously operated by the PRSL.

Hoboken Division: The lines in this division are primarily connect with Hoboken Terminal, and were formerly operated by the DLW or Erie Railroad. Today, these are identified as Morris & Essex Line (includes Morristown line and Gladstone Line), Montclair-Boonton Line, Main Line, Bergen County Line, Port Jervis Line and Pascack Valley line. Since the opening of Kearny Connection in 1996, this division also includes Midtown Direct service trains that are bound for New York City.

Eight of the 11 lines lie solely within New Jersey and are profiled in this section on the following pages. NJ TRANSIT operates two lines that serve both New Jersey and New York, the Port Jervis Line and the Pascack Valley Line. They are operated through a contractual arrangement with Metro North Railroad. For branding and recognition purposes, each line is depicted by a unique color and symbol in NJ TRANSIT's maps and other graphics.

[1] An additional line is operated between Secaucus Junction and Meadowlands for select, high-patronage sports and entertainment events.

Northeast Corridor

The Northeast Corridor rail service of NJ TRANSIT operates between Trenton and New York. Additionally, many weekday trains also operate between Jersey Avenue and New York. With its route through one of the most densely populated areas of United States, the NEC is the most heavily patronized line in NJ TRANSIT's rail system where trains operate at high speeds and in significant volumes. The line is colored red on the current NJ TRANSIT system maps and its symbol is the State House in Trenton.

North Jersey Coast Line

The North Jersey Coast Line rail service of NJ TRANSIT primarily operates between Long Branch and New York as well as connecting shuttles between Bay Head and Long Branch. Some weekday trains operate between South Amboy and New York as well as Bay Head and Hoboken. The NJCL serves many scenic communities of Jersey shore. The NJCL is colored light blue on the current NJ TRANSIT system maps and its symbol is a sailboat.

Raritan Valley Line

The Raritan Valley Line rail service of NJ TRANSIT primarily operates between Raritan and Newark Penn Station as well as limited weekday service between High Bridge and Newark Penn Station. The RVL is colored orange on the current NJ TRANSIT system maps and its symbol is the Statue of Liberty, which was also the logo of the predecessor railroad – the CNJ.

Atlantic City Rail Line

The Atlantic City Rail Line rail service of NJ TRANSIT operates between Atlantic City and Philadelphia's 30th Street Station. The ACRL provides rail service to commuters traveling to Philadelphia (directly or indirectly via PATCO service from Lindenwold) or tourists visiting Atlantic City's seaside spots and casino resorts. ACRL is colored dark blue on the current NJ TRANSIT system maps and its symbol is a lighthouse.

Morris & Essex (Morristown) Line

The Morris & Essex (M&E) Morristown line service operates between Hackettstown/ Lake Hopatcong/ Dover and Hoboken, via Morristown. Additionally, there are trains operating daily between Dover and New York, via Morristown. The line is colored dark green on the current NJ TRANSIT system maps, its symbol is a drum, signifying the Revolutionary War and Continental Army's several encampments during that time in and around Morristown.

Morris & Essex (Gladstone) Line

The Morris & Essex (M&E) Gladstone line service operates between Gladstone and Hoboken on weekdays, and Gladstone and Summit on weekends. Additionally, there are two trains, in each direction, on weekdays that provide service between Gladstone and New York. The line is colored light green on the current NJ TRANSIT system maps and its

symbol is a horse, which signifies Far Hills Races – the steeplechase horserace held annually in Far Hills located on Gladstone rail line.

Montclair-Boonton Line

The Montclair-Boonton Line (MBL) service operates primarily between Montclair State University and New York on weekdays, and Montclair Bay Street and Newark Broad Street on weekends. Additionally, there are some trains on weekdays that provide service between Hackettstown and Hoboken (via Boonton) as well as Montclair State University and Hoboken. The line is colored light brown on the current NJ TRANSIT system maps and its symbol is an eastern goldfinch – the New Jersey State Bird.

Main Line

The Main Line (ML) service operates principally between Suffern/ Waldwick and Hoboken, via Paterson, all days of the week. Additionally, some trains of Port Jervis line (discussed below) serve some Main Line stations. The line is colored yellow on the current NJ TRANSIT system maps and its symbol is a water wheel signifying the Passaic river's Great Falls in Paterson, located on the Main line.

Bergen County Line

The Bergen County Line (BCL) service operates mainly between Waldwick and Hoboken, via Fair Lawn, all days of the week. Additionally, there are a few trains on the Port Jervis line (discussed below) that serve some Bergen County Line stations. The line is colored gray on the current NJ TRANSIT system maps and its symbol is cattail, signifying the line's route through New Jersey meadowlands.

NJ TRANSIT's objective for all lines that currently have weekday service is to make the minimum level of service at least have half-hourly service during peak periods and hourly service during off-peak periods on weekday in the future. Future train volumes on weekends may vary depending on season, time of the day and ridership demand.

The following tables describe the lines (including merges and diverge with other lines), stations, existing train service (operations during weekdays and weekends), ridership (boardings during a typical weekday) and other information for each station of the system.

Table 3-1
Northeast Corridor: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Trenton Transit Center	Trenton	50	53	32	32	4,505	NJ TRANSIT buses: 409, 418, 600, 601, 604, 606, 608, 609, 611, 613, 619	Transfer for SEPTA regional rail trains to 30th Street Station in Philadelphia and River Line light rail trains to Camden
							SEPTA bus: 127	
Hamilton	Hamilton Township	50	53	32	32	4,727	NJ TRANSIT buses: 606, 608	
Princeton	Princeton	36	39	23	24	972	NJ TRANSIT buses: 609	
Princeton Junction	West Windsor	50	53	32	32	6,826*	NJ TRANSIT buses: 600, 612	Transfer for the shuttle - "Dinky" to Princeton
							MCAT: M6	
Jersey Avenue	New Brunswick	12	47	0	2	1,640	MCAT: M4	No weekend service Limited station facility
New Brunswick		57	60	32	32	4,866	NJ TRANSIT buses: 810, 811, 814, 815, 818	
							New Brunswick Community Shuttle	
							Coach USA: Line 100	
							Rutgers Campus Bus	
							MCAT: M1, M4, M5	
							DASH 851, 852, 853	
Edison	Edison	51	52	32	32	3,105	Edison Light Transit Commuter Shuttle	

** Net number of NJ TRANSIT passengers boarding this station directly.*
*** Total number of NJ TRANSIT passengers boarding this station after making a transfer from another train line/branch.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize

Table 3-1
Northeast Corridor: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Metuchen	Metuchen	51	52	32	32	3,791	NJ TRANSIT buses: 810, 813, 819	
Metropark	Woodbridge	53	53	32	32	7,298	NJ TRANSIT buses: 48, 801, 802, 803, 804, 805	
Rahway	Rahway	59	68	45	47	3,060^	NJ TRANSIT buses: 62 Rahway Community Shuttle	North Jersey Coast Line merges/ diverges with Northeast Corridor west of Rahway
Linden	Linden	58	56	45	47	2,019^	NJ TRANSIT buses: 56, 57, 94	
Elizabeth	Elizabeth	59	56	45	47	3,667^	NJ TRANSIT buses: 26, 52, 56, 57, 58, 59, 62, 112	
North Elizabeth		17	34	2	2	466^	NJ TRANSIT buses: 112	Limited Weekend service
Newark Airport	Newark	78	83	56	57	2,926^		Transfer for the AirTrain Newark to Newark Airport
Raritan Valley Line merges/diverges with Northeast Corridor between Newark Airport and Newark Penn Station								
Newark Penn Station	Newark	140	137	74	75	26,581*^	NJ TRANSIT buses: 1,5, 11, 21, 25, 28, 29, 34, 39, 40, 43, 62, 67, 70, 71, 72, 73, 75, 76, 78, 79, 108, 308, 319, 361, 375, go25, go28	Transfer for the Raritan Valley Line, PATH trains and the Newark Light Rail
Hoboken service using Waterfront Connection to Morris & Essex (Morristown) Line merges/ diverges with Northeast Corridor between Newark Penn Station and Secaucus								

** Net number of NJ TRANSIT passengers boarding this station directly.*
*** Total number of NJ TRANSIT passengers boarding this station after making a transfer from another train line/branch.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize

Table 3-1
Northeast Corridor: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Morris & Essex (Morristown) Line, using Kearny Connection, merges/ diverges with Northeast Corridor between Newark Penn Station and Secaucus								
Secaucus Junction (Upper Level)	Secaucus	132	130	79	75	5,448*^, 19,771**^	NJ TRANSIT buses: 2, 78, 124, 129, 329	Transfer for other NJ TRANSIT lines (except the Raritan Valley Line)
Penn Station	New York City	166	164	80	80	77,058^	Amtrak, Long Island Rail Road,	Northern terminus of the line
							NJ TRANSIT: North Jersey Coast Line, Gladstone Line, Montclair-Boonton Line, Morristown Line	
							NYC Subway: 1 2 3 A C E trains	
							NYC Transit buses	

** Net number of NJ TRANSIT passengers boarding this station directly.*
*** Total number of NJ TRANSIT passengers boarding this station after making a transfer from another train line/branch.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize

Table 3-2
North Jersey Coast Line: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Bay Head	Bay Head	18	19	11	11	216		Weekend service between Bay Head and Long Branch only; Transfer at Long Branch for service to Airport, Newark and New York
Point Pleasant Beach	Point Pleasant Beach	18	19	11	11	261	Academy Bus: Shore Points line	
							NJT Bus: 317, 830	
Manasquan	Manasquan	18	19	11	11	212	Academy Bus	
							NJT Bus: 317, 830	
Spring Lake	Spring Lake	18	19	11	11	194	Academy Bus: Shore Points line	
							NJT Bus: 317, 830	
Belmar	Belmar	18	19	11	11	257	Academy Bus	
							NJT Bus: 317, 830	
Bradley Beach	Bradley Beach	18	19	11	11	262	Academy Bus: Shore Points line	
							NJT Bus: 317, 830	
Asbury Park	Asbury Park	18	19	11	11	510	Academy Bus: Shore Points line	
							NJT Bus: 317, 830, 832, 836, 837	
Allenhurst	Allenhurst	18	19	11	11	153	NJT Bus: 837	
Elberon	Long Branch	18	19	11	11	176		
Long Branch		47	48	31	31	1,114*	Academy Bus: Route 36 line	
							NJT Bus: 831, 837	
Monmouth Park	Oceanport	0	0	0	0			Seasonal (Summer) service only

** Net number of NJ TRANSIT passengers boarding this station directly.*

Table 3-2
North Jersey Coast Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Little Silver	Little Silver	34	34	20	20	837		
Red Bank	Red Bank	34	34	20	20	1,277	Academy Bus: Shore Points line	
							NJT Bus: 831, 832, 833, 834, 835	
Middletown	Middletown	34	34	20	20	1,571		
Hazlet	Hazlet	32	34	20	20	873		
Aberdeen-Matawan	Aberdeen	35	36	20	20	2,567	NJT Bus: 135	
South Amboy	South Amboy	39	41	20	20	1,042	NJT Bus: 815, 817	
							MCAT M7	
Perth Amboy	Perth Amboy	32	30	20	20	885	NJT Bus: 48, 116, 813, 815, 817	
Woodbridge	Woodbridge	39	40	20	20	1,688	NJT Bus: 48, 116, 803	
Avenel		8	14	0	0	148		No weekend service
Rahway	Rahway	See Northeast Corridor for details						North Jersey Coast Line merges/ diverges with Northeast Corridor at Rahway

** Net number of NJ TRANSIT passengers boarding this station directly.*

Table 3-3
Raritan Valley Line: Rail Stations

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
High Bridge	High Bridge	7	10	0	0	73		No weekend service between High Bridge and Raritan
Annandale	Clinton	7	10	0	0	78		
Lebanon	Lebanon	7	10	0	0	28		
White House	Readington	7	10	0	0	120		
North Branch	Branchburg	7	10	0	0	80		
Raritan	Raritan	26	26	18	18	622		
Somerville	Somerville	26	26	18	18	651	NJT Bus: 65, 114	
Bridgewater	Bridgewater	24	26	18	18	338		
Bound Brook	Bound Brook	25	26	18	18	620	Somerset County Community shuttle	
Dunellen	Dunellen	25	26	18	18	948	NJT Bus: 59, 65, 66, 113, 114	
Plainfield	Plainfield	24	26	18	18	897	NJT Bus: 59, 65, 66, 113, 114, 819, 822, 986	
Netherwood		24	24	18	18	534	NJT Bus: 113S, 822	
Fanwood	Fanwood	24	24	18	18	966	NJT Bus: 113S	
Westfield	Westfield	25	26	18	18	2,300	NJT Bus: 59, 113	
Garwood	Garwood	9	15	2	2	101	NJT Bus: 59, 113	Limited Weekend service
Cranford	Cranford	25	24	18	18	1,189	NJT Bus: 59, 113	
Roselle Park	Roselle Park	24	24	18	18	864	NJT Bus: 94, 113S	
Union Township	Union Township	24	24	18	18	1,265	NJT Bus: 26, 52	
Raritan Valley Line merges/ diverges with Northeast Corridor between Union Township and Newark Penn Station								
Newark Penn Station	Newark	See Northeast Corridor for details						

Table 3-4
Atlantic City Rail Line: Rail Stations

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Atlantic City	Atlantic City	12	12	12	12	956	NJT Bus: 501, 502, 504, 505, 507, 508, 509, 551, 552, 553, 554, 559	
Abescon	Abescon	12	12	12	12	226	NJT Bus: 554	
Egg Harbor City	Egg Harbor City	12	12	12	12	195	NJT Bus: 554	
Hammonton	Hammonton	12	12	12	12	181	NJT Bus: 554	
Atco	Waterford	12	12	12	12	126		
Lindenwold	Lindenwold	12	12	12	12	461	NJT Bus: 403, 451, 459, 554	Transfer for PATCO trains to Center City Philadelphia
Cherry Hill	Cherry Hill	12	12	12	12	250	NJT Bus: 406, 450	
30th Street	Philadelphia	12	12	12	12	555	Amtrak, SEPTA Regional rail, SEPTA Market-Frankford line trains, SEPTA Trolley lines, SEPTA buses	

Table 3-5

Morris & Essex (Morristown) Line: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Dover	Dover	42	46	20	20	1,154*^	NJ TRANSIT buses: 872, 875, 880	Terminus for trains from/to New York
Denville	Denville	43	47	20	20	508^	NJ TRANSIT buses: 880	Montclair-Boonton Line merges/ diverges with Morris & Essex (Morristown) Line at Denville
Mount Tabor		18	16	9	9	34	NJ TRANSIT buses: 880	
Morris Plains	Morris Plains	38	37	20	20	607	NJ TRANSIT buses: 872, 880	
Morristown	Morristown	38	37	20	20	1,845	NJ TRANSIT buses: 871, 872, 873, 874, 880	
Convent	Morris Township	38	37	20	20	1,147	NJ TRANSIT buses: 873, 878, 879	
Madison	Madison	38	37	20	20	1,505	NJ TRANSIT buses: 873	
Chatham	Chatham	38	37	20	20	1,575	NJ TRANSIT buses: 873	
Summit	Summit	66	61	39	40	3,565*^	NJ TRANSIT buses: 70, 986 Wheels	Morris & Essex (Gladstone) Line merges/ diverges with Morris & Essex (Morristown) Line at Summit
Short Hills	Millburn	46	58	20	20	1,392^	NJ TRANSIT buses: 92, 107	
Millburn		50	58	20	20	1,687^	NJ TRANSIT buses: 70	
Maplewood	Maplewood	48	58	20	20	3,037^		
South Orange	South Orange	51	61	20	20	3,495^	NJ TRANSIT buses: 92, 107	
Mountain Station		27	35	10	11	303^	NJ TRANSIT buses: 92	

** Net number of NJ TRANSIT passengers boarding this station directly.*

^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-5
Morris & Essex (Morristown) Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Highland Avenue	Orange	26	33	11	11	231^	NJ TRANSIT buses: 92	
Orange		43	55	20	20	1,150^	NJ TRANSIT buses: 21, 41 71, 73, 79, 92	
Brick Church		50	58	20	20	1,523^	NJ TRANSIT buses: 21, 71, 73, 79, 94, 97	
East Orange	East Orange	26	34	20	20	298^	NJ TRANSIT buses: 21, 71, 73, 79, 94	
Montclair-Boonton Line merges/ diverges with Morris & Essex (Morristown) Line between East Orange and Newark Broad Street								
Newark Broad Street	Newark	95	105	29	30	2,316*^	NJ TRANSIT buses: 11, 13, 27, 28, 29, 39, 41, 43, 72, 76, 78, 108, go28	Transfer at Newark Broad Street for service to Hoboken on weekends
Morris & Essex (Morristown) Line, using Kearny Connection, merges/ diverges with Northeast Corridor between Newark Broad Street and Hoboken								
Hoboken service using Waterfront Connection from Northeast Corridor merges/ diverges with Morris & Essex (Morristown) Line between Newark Broad Street and Hoboken								
Hoboken	Hoboken	128	135	54	57	16,086^	NJ TRANSIT buses: 22, 22X, 23, 54, 68, 85, 87, 89, 126	Transfer for PATH trains and Hudson-Bergen Light Rail
							New York Waterway	

** Net number of NJ TRANSIT passengers boarding this station directly.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-6
Morris & Essex (Gladstone) Line: Rail Stations

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public Transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Gladstone	Peapack-Gladstone	19	24	19	20	173		Weekend service between Gladstone and Summit only; Transfer at Summit for trains to Newark, New York and Hoboken
Peapack	Peapack-Gladstone	21	24	19	20	49		
Far Hills	Far Hills	21	24	19	20	147		
Bernardsville	Bernardsville	22	25	19	20	186		
Basking Ridge	Bernards Township	22	25	19	20	99		
Lyons		22	25	19	20	435		
Millington	Long Hill Township	22	25	19	20	161		
Stirling		22	25	19	20	97		
Gillette		22	25	19	20	153		
Berkeley Heights	Berkeley Heights	22	25	19	20	504		
Murray Hill	New Providence	23	26	19	20	549	NJ TRANSIT buses: 986	
New Providence		22	26	19	20	563	NJ TRANSIT buses: 986	
Summit	Summit	See Morris & Essex (Morristown) Line for details						Morris & Essex (Gladstone) Line merges/ diverges with Morris & Essex (Morristown) Line at Summit

Table 3-7
Montclair-Boonton Line: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Hackettstown	Hackettstown	7	7	0	0	117^		No weekend service
Mount Olive	Mount Olive	9	10	0	0	28^	Lakeland Bus: Route 46, Route 80	
Netcong	Netcong	9	10	0	0	125^		
Lake Hopatcong	Lake Hopatcong	11	13	0	0	89^		
Mount Arlington	Mount Arlington	11	13	0	0	105^	Lakeland Bus: Route 80	
Dover	Dover	See Morris & Essex (Morristown) Line for details						
Denville	Denville							Montclair-Boonton Line merges/ diverges with Morris & Essex (Morristown) Line at Denville
Mountain Lakes	Mountain Lakes	5	10	0	0	27		No weekend service
Boonton	Boonton	5	10	0	0	75	NJ TRANSIT buses: 871	
Towaco	Montville	5	10	0	0	83	NJ TRANSIT buses: 871	
Lincoln Park	Lincoln Park	5	10	0	0	111	NJ TRANSIT buses: 871	
Mountain View	Wayne	5	10	0	0	168	NJ TRANSIT buses: 871	
Wayne Route 23		5	10	0	0	83	NJ TRANSIT buses: 75, 194, 198, 324, 748	

** Net number of NJ TRANSIT passengers boarding this station directly.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-7

Montclair-Boonton Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)					Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun					
		Inbound	Outbound	Inbound		Outbound			
Little Falls	Little Falls	5		10	0	0	175	NJ TRANSIT buses: 11, 191, 704, 705	
Montclair State University		30		35	0	0	536*		
Montclair Heights	Montclair	27		31	0	0 NJ TRANSIT buses: 28, 191, 705	320	Decamp bus: 66	
Mountain Avenue		21		24	0	0 NJ TRANSIT buses: 28	127	Decamp bus: 66	
Upper Montclair		27		29	0	0 NJ TRANSIT buses: 28	517	Decamp bus: 66	
Watchung Ave		27		30	0	0 NJ TRANSIT buses: 28	721	Decamp bus: 66	
Walnut Street		28		30	0	0	940	Decamp bus: 33G	
Bay Street		30		34	9	10 NJ TRANSIT buses: 11, 28, 29	1,133	Decamp bus: 33G	Weekend service between Bay Street and Hoboken only; Transfer at Newark Broad Street for trains to New York

** Net number of NJ TRANSIT passengers boarding this station directly.*

^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-7
Montclair-Boonton Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Glen Ridge	Glen Ridge	26	28	9	10	1,097	NJ TRANSIT buses: 11, 28, 29	
Bloomfield	Bloomfield	28	31	9	10	1,077	NJ TRANSIT buses: 11, 28, 29, 34, 72, 92, 93, 94, 709, go28	
Watsessing		23	27	9	10	218	NJ TRANSIT buses: 94	
Montclair-Boonton Line merges/ diverges with Morris & Essex (Morristown) Line between East Orange and Newark Broad Street								
Newark Broad Street	Newark	See Morris & Essex (Morristown) Line for details						

** Net number of NJ TRANSIT passengers boarding this station directly.*
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-8
Main Line: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Suffern	Suffern, NY	39	39	20	22	872^	Transport of Rockland buses: 59, 93, Monsey Loop 3, Tappan ZEExpress Short Line buses: 17M/MD/SF	
Mahwah	Mahwah	28	29	18	18	210^		

~ Average weekday boardings are the total of Glen Rock (Main Line) and Glen Rock Boro Hall (Bergen County Line) stations.
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of <u>all</u> lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-8
Main Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Ramsey Route 17	Ramsey	38	34	18	20	757^		
Ramsey Main Street		29	29	18	19	648^		
Allendale	Allendale	26	27	18	18	410^		
Waldwick	Waldwick	42	43	29	30	467^		
Ho-Ho-Kus	Ho-Ho-Kus	41	41	29	30	433^		
Ridgewood	Ridgewood	50	50	31	32	1,457^	NJ TRANSIT buses: 163, 164, 175, 722, 746, 752	Bergen County Line merges/ diverges with Main Line at Ridgewood
Glen Rock Main Line	Glen Rock	24	24	17	15	967~		
Hawthorne	Hawthorne	24	24	17	15	474	NJ TRANSIT buses: 722	
Paterson	Paterson	25	24	17	15	631	NJ TRANSIT buses: 151, 161, 703, 707, 712, 744, 746, 748	
Clifton	Clifton	25	24	17	15	726	NJ TRANSIT buses: 705, 707	
Passaic	Passaic	24	24	17	15	537	NJ TRANSIT buses: 190, 702	
Delawanna	Clifton	24	24	17	15	574	NJ TRANSIT buses: 27, 74, 190	
Lyndhurst	Lyndhurst	24	23	17	15	785		
Kingsland		24	24	17	15	414	NJ TRANSIT buses: 76	
Secaucus Junction (Lower Level)	Secaucus	77	79	44	46	See Northeast Corridor for details		Bergen County Line merges/ diverges with Main Line at Secaucus Junction
Main Line merges/ diverges with Morris & Essex (Morristown) Line between Secaucus Junction and Hoboken								
Hoboken	Hoboken	See Morris & Essex (Morristown) Line for details						

~ Average weekday boardings are the total of Glen Rock (Main Line) and Glen Rock Boro Hall (Bergen County Line) stations.
^ Station designated as part of this particular line. However, the number of daily trains reflects trains of all lines serving that station. Average weekday boardings reflect passengers, at that station, regardless of the train line they patronize.

Table 3-9
Bergen County Line: Rail Stations

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Ridgewood	Ridgewood	See Main Line for details						Bergen County Line merges/ diverges with Main Line at Ridgewood
Glen Rock Boro Hall	Glen Rock	22	23	13	15	967~	NJ TRANSIT buses: 164, 175, 746	
Radburn	Fair Lawn	25	23	13	12	1,413	NJ TRANSIT buses: 145, 171	
Broadway		20	20	13	15	281	NJ TRANSIT buses: 144, 160, 770	
Plauderville	Garfield	20	19	13	15	372	NJ TRANSIT buses: 160, 758	
Garfield		11	15	12	15	209	NJ TRANSIT buses: 160, 161, 702, 707, 709, 758	
Rutherford	Rutherford	22	20	13	15	1,017	NJ TRANSIT buses: 76, 190	
Pascack Valley Line merges/ diverges with Bergen County Line between Rutherford and Secaucus Junction								
Secaucus Junction (Lower Level)	Secaucus	See Main Line for details				See Northeast Corridor for details		Bergen County Line merges/ diverges with Main Line at Secaucus Junction

~ Average weekday boardings are the total of Glen Rock (Main Line) and Glen Rock Boro Hall (Bergen County Line) stations.

Commuter Rail Services - Metro North

NJ TRANSIT also operates commuter rail services under a contract with Metro North. The services are extensions of lines operated in New Jersey:

Port Jervis Line

The Port Jervis Line (PJL) service operates mainly between Port Jervis and Hoboken everyday of the week. Between Ridgewood and Secaucus, some Port Jervis Line trains are routed via Main Line tracks while others are routed via Bergen County Line tracks. NS owns the infrastructure, including tracks, between Suffern and Port Jervis, NY and has leasing agreement to Metro-North Railroad who maintains the infrastructure. Metro-North Railroad has contracted NJ TRANSIT to operate the trains of this line. The line is colored black on the current NJ TRANSIT system maps. The system map of Metro-North Railroad, however, shows it as dark orange color. The line is 95 miles long. The stations are profiled in Table 3-10.

Pascack Valley Line

The Pascack Valley Line (PVL) service operates primarily between Spring Valley, NY and Hoboken all days of the week. Additionally, there are a few trains that operate between New Bridge Landing (River Edge) and Hoboken. NJ TRANSIT owns the infrastructure of this line within the state of New Jersey whereas Metro-North Railroad owns it in the state of New York. Metro-North Railroad has contracted NJ TRANSIT to operate the trains of this line. The line is colored purple on the current NJ TRANSIT system maps and its symbol is a pine tree, signifying the line's route through the northeastern New Jersey's Pascack Valley region. Table 3-11 describes the Pascack Valley Line stations.

Commuter Rail Services - SEPTA

The commuter rail services of Southeastern Pennsylvania Transportation Authority (SEPTA) are operated by the SEPTA Railroad Division. This regional rail service is mostly centered on transportation between Center City Philadelphia and its suburbs. Two of the 13 SEPTA rail lines terminate in the state of New Jersey: The West Trenton line and the Trenton Line. Both of these lines are direct service from Center City to their New Jersey terminus. The Trenton line serves Philadelphia, Bucks County, PA, and Trenton on Amtrak's NEC infrastructure.

Table 3-12 profiles the two SEPTA stations located in New Jersey.

Table 3-10
Port Jervis Line: Rail Stations

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Port Jervis	Port Jervis, NY	12	12	7	7	NA		
Otisville	Mt Hope, NY	12	12	7	7	NA		
Middletown	Scotchtown, NY (Hamlet) in Wallkill, NY (Town)	13	13	7	7	NA		
Campbell Hall	Campbell Hall, NY (Hamlet) in Hamptonburgh, NY (Town)	13	13	7	7	NA		
Salisbury Mills	Cornwall, NY	13	13	7	7	NA		
Harriman	Woodbury, NY	13	13	7	7	NA	Short Line buses: 17M/MD	
Tuxedo	Tuxedo, NY	12	12	7	7	NA	Short Line buses: 17M/MD	
Sloatsburg	Sloatsburg, NY	12	12	7	7	NA	Transport of Rockland buses: 93 Short Line buses: 17M/MD	
Suffern	Suffern, NY	See Main Line for details				See Main Line for details		

Table 3-11
Pascack Valley Line: Rail Stations (continued on next page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Spring Valley	Spring Valley, NY	17	18	12	12	NA	Transport of Rockland buses: 59, 91, 92, 94, Monsey Loop 3, Tappan ZEExpress Rockland coach buses: 11, 45	
Nanuet	Nanuet, NY	17	18	12	12	NA	Transport of Rockland buses: 92 Rockland coach buses: 11	

Table 3-11
Pascack Valley Line: Rail Stations (continued from previous page)

Station	Municipality	NJ TRANSIT trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Pearl River	Pearl River, NY	17	18	12	12	NA	Transport of Rockland buses: 92	
Montvale	Montvale	15	17	9	10	161	Rockland coach buses: 11	
Park Ridge	Park Ridge	15	17	10	10	163	Rockland coach buses: 11	
Woodcliff Lake	Woodcliff Lake	11	14	0	1	112		Limited weekend service
Hillsdale	Hillsdale	15	17	10	10	331	Rockland coach buses: 11	
Westwood	Westwood	15	17	9	10	355	NJ TRANSIT buses: 165 Transport of Rockland buses: 11, 14, 46, 84	
Emerson	Emerson	14	17	9	10	203	NJ TRANSIT buses: 165 Transport of Rockland buses: 11	
Oradell	Oradell	15	17	10	10	311	NJ TRANSIT buses: 165, 762 Transport of Rockland buses: 11	
River Edge	River Edge	15	17	10	10	468	NJ TRANSIT buses: 165, 762 Transport of Rockland buses: 11	
New Bridge Landing		17	18	10	10	441	NJ TRANSIT buses: 165, 762 Transport of Rockland buses: 11	
Anderson Street	Hackensack	16	19	10	10	322	NJ TRANSIT buses: 175, 770	
Essex Street		16	18	10	10	278	NJ TRANSIT buses: 76, 712, 780	
Teterboro	Teterboro	13	16	0	1	90		Limited weekend service
Wood-Ridge	Wood-Ridge	16	18	10	10	275		
Pascack Valley Line merges/ diverges with Bergen County Line between Wood-Ridge and Secaucus Junction								
Secaucus Junction (Lower Level)	Secaucus	See Main Line for details				See Northeast Corridor for details		Bergen County Line merges/ diverges with Main Line at Secaucus Junction

Table 3-12
New Jersey Commuter Rail Ridership

Line	2011 Average Weekday Passenger Boardings
Northeast Corridor (NEC)	49,868
Morris & Essex – Morristown Branch	27,372
Main Line	16,946
Coast Line	14,243
Raritan Valley Line (RVL)	11,674
Montclair Boonton	7,872
Pascack	4,445
Morris & Essex – Gladstone Branch	3,659
Atlantic City	2,950
Total	139,029
Station	**2011 Average Weekday Passenger Boardings**
New York City Penn Station	77,058
Newark Penn Station	26,581
Secaucus Junction	19,771
Hoboken	16,086
Total	125,155

NEC and Intercity Rail Services

Services

The intercity rail service in New Jersey, like rest of the nation, is provided by Amtrak. Due to its distinct geographical location, New Jersey has several Amtrak stations and services – all on the heavily patronized NEC. Amtrak operates approximately 110 NEC trains each day with three services:

- Acela Express - Premium high speed service operating between Boston and Washington
- Regional - Conventional service operating between Boston and Washington
- Keystone - Conventional service between New York and Harrisburg

In addition to the Corridor trains, Amtrak also operates eight long distance services:

- Carolinian - Operates between Charlotte, NC and New York
- Pennsylvanian - Operates between Pittsburgh and New York
- Vermonter - Operates between St. Albans, VT and Washington
- Cardinal - Operates between Chicago and New York
- Crescent - Operates between New Orleans and New York
- Palmetto - Operates between Savannah and New York
- Silver Meteor - Operates between Miami and New York
- Silver Star - Operates between Miami and New York

Each long distance train stops at both Newark and Trenton.

The most active of the New Jersey Amtrak stations is Newark Penn Station. All Amtrak trains, in both directions, stop at Newark Penn Station. The next busiest is Trenton where all trains, except Acela Express service, make a station stop. Metropark station is also heavily used by the office park near the station as well as by communities in central New Jersey because of the station's direct access to Garden State Parkway. Amtrak also serves Newark Airport, New Brunswick, and Princeton Junction on some of its routes.

Table 3-14 is a profile of the Amtrak stations.

Performance

One requirement of the PRIIA legislation is that Amtrak must report its performance each quarter to the FRA. Table 3-15 describes the Amtrak's NEC performance for fourth quarter 2011.

An Acela train is considered on time at the end point if it arrives at the end point terminal or intermediate stations within 10 minutes of its scheduled time. A NEC Regional train is considered on time at the end point if it arrives at the end point terminal or intermediate stations within 15 minutes of its scheduled time.

Amtrak also monitors the causes of delays. In the 4th quarter of 2011, delays were principally attributable to:

- Acela trains - commuter train interference followed by other intercity train interference
- Keystone trains - commuter train interference followed by passenger caused delays
- Regional trains - locomotive failures followed by passenger caused delays

Examining individual trains (by train number), 25 of the 57 Acela trains (44%),, do not meet the end-point standard, while, 13 of the 57 trains (23%), do not meet the standard of 90 percent on time performance for all stations on the route. Twenty-five of the 60 Regional trains (41%) arrived late at end point stations with 21 trains (35%) failing to meet the on time performance standard for all stations. The Keystone service performed better. Ten of 46 trains (22%) were late at destination terminal while only two trains were late at all stations (4%).

Table 3-13
SEPTA Regional Rail (in New Jersey): Rail Stations

Station	Municipality	SEPTA trains (December 2011)				Average Weekday Boardings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Inbound	Outbound	Inbound	Outbound			
Trenton Transit Center (SEPTA Trenton Line)	Trenton	30	30	19	19	1,485	SEPTA bus: 127 NJ TRANSIT buses: 409, 418, 600, 601, 604, 606, 608, 609, 611, 613, 619	Transfer for NJ TRANSIT trains bound for New York and River Line light rail trains to Camden
West Trenton (SEPTA West Trenton Line)	Ewing	27	28	18	18	250	NJ TRANSIT buses: 608	NJ TRANSIT buses: 608

Source: SEPTA 2011 Regional Rail Ridership Census

Table 3-14
Amtrak/ Intercity Rail (in New Jersey)

Station	Municipality	Amtrak trains (December 2011)				Annual Boardings and Alightings (2011)	Other Public transportation	Notes
		Typical Weekday		Typical Sat/Sun				
		Eastbound	Westbound	Eastbound	Westbound			
Trenton Transit Center	Trenton	37	37	29	32	424,068	See New Jersey Transit Northeast Corridor for details	
Princeton Junction	West Windsor	3	3	1	1	39,573		
New Brunswick	New Brunswick	2	1	0	0	6,678		
Metropark	Woodbridge	22	24	26	28	396,902		
Newark Airport		13	9	13	13	120,428		
Newark Penn Station	Newark	53	53	38	41	683,626		

** Net number of Amtrak passengers boarding this station directly.*

Service		End Point On-Time Performance	All Station On-Time Performance
Acela	Standard	90.0%	90.0%
	Actual	90.2%	92.1%
NEC	Standard	85.0%	85.0%
Keystone	Actual	89.2%	95.5%
Regional	Actual	85.8%	86.8%

Table 3-15
Amtrak Northeast Corridor Performance - 4th QTR 2011

Transit Intermodal Facilities

Transit intermodal facilities serve as major transfer points between the commuter rail system and multiple modes of public transportation, including Amtrak, bus, light rail, rapid transit, commercial aviation, and ferry.

- Bus – operated primarily by NJ TRANSIT
- Light Rail Transit - includes the Newark City Subway, Hudson-Bergen Light Rail, and the Riverline – all operated by NJ TRANSIT or under NJ TRANSIT contract
- Rapid Transit – operated by PATH serving Manhattan, Newark, Hoboken and Jersey City, and operated by PATCO (Delaware River Port Authority) serving Philadelphia and Camden and outlying areas
- Commercial Aviation – all major carriers connecting Newark Liberty International Airport
- Ferry – NY Waterway

Table 3-16 profiles the intermodal passenger facilities.

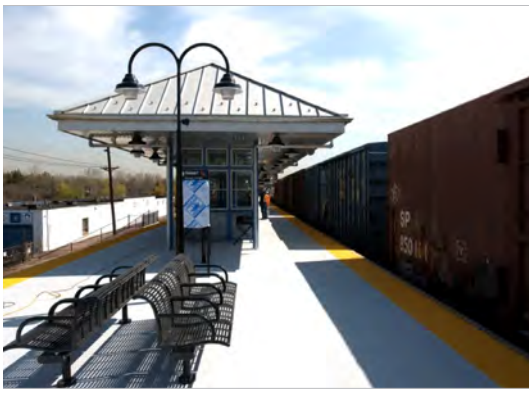
Facility	Municipality	Connecting Modes
30th Street Station	Philadelphia	Commuter rail, intercity rail, bus
Exchange Place	Jersey City	Light rail, bus, ferry, rapid transit
Hoboken Terminal	Hoboken	Commuter rail, light rail, bus, ferry, rapid transit
Lindenwold Station	Lindenwold	Commuter rail, rapid transit, bus
New York Pennsylvania Station	New York City	Commuter rail, subway
Newark Airport	Newark	Commercial aviation, intercity rail
Newark Broad Street Station	Newark	Commuter rail, light rail, bus
Newark Pennsylvania Station	Newark	Light rail, bus, rapid transit, intercity rail
Port Imperial	Weehawken	Light rail, ferry, bus
Secaucus Station	Secaucus	Commuter rail, bus
Trenton Transit Center	Trenton	Light rail, bus, intercity rail
Walter Rand Transportation Center	Camden	Rapid transit, light rail, bus

Table 3-16
Major Commuter Rail Intermodal Transit Facilities

Chapter 4
New Jersey's Rail Challenges

System Wide Challenges

Managing Shared-Use Assets



Union Station at RVL.

New Jersey's passenger and freight rail operations face a number of challenges that in many respects are unique to the state. Multiple passenger rail service providers as well as well as freight railroad operators sharing common corridors in a legacy network introduce a number of issues that need to be addressed. No other state has been more affected by the seismic changes in the railroad industry, both private operations and public policy, than New Jersey. In forty years, the state rail landscape has transformed from seven separate trunk lines operating all major types of rail services on their own rights-of-way, to four primary asset owners (CSX, NS, Amtrak, and NJ TRANSIT) each operating its own rail lines with priority to the specific services it provides. These operators must also accommodate other vital services provided by tenants on their rights-of-way, but only to the extent required by law or contract. As New Jersey is the "end of the line" for the transcontinental trunk lines, it also has a proliferation of short lines, some of which are financially challenged but which are important to connect the trunk lines to many customers.

Effective Risk Management

Superstorm Sandy, which struck New Jersey in late October 2012, demonstrated that rail operations and service are vulnerable to catastrophic weather conditions. The causes of disruptions, however, are not limited to natural phenomenon such as storms, earthquakes, or even high winds as they can include a variety of other significant disturbances to the everyday service and facilities, including, for example, regional power outages. Recovery of the rail transportation system can take time depending on the scope and scale of the impacts. Nevertheless, it is important to recognize that some events will influence longer term planned investments and operations. Hardened assets contingency recovery plans need to be in place to restore normal service and functionality after an incident or event has occurred.

Impact of Superstorm Sandy

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.[3] 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

Restoration of passenger services required draining flooded tunnels, rebuilding of electrical systems, removing hundreds of trees, and inspecting numerous facilities impacted by winds and debris. Coordination among agencies was required to adjust regional systems.

NJ TRANSIT estimated that it sustained $400 million in damage. The Port Authority PATH system was estimated to have incurred $300 million in damage.

Risk Management Challenges

While the longer term impacts of Superstorm Sandy are still being assessed at the time of this publication, several initial implications have become evident. The significant immediate capital required to restore facilities and services after the storm have ramifications on the availability of funding for the longer term capital program. Hundreds of millions of dollars have been spent to date by multiple agencies, with hundreds of millions of additional funds needed to complete restoration of services. For high priority areas that sustained extensive damage or were destroyed such as Greenville Yard the time line for already planned reinvestment will need to be accelerated.

Lessons learned from Sandy include the need to protect the New Jersey Rail System from potential future catastrophic events. NJ TRANSIT estimates that the agency will need $800 million to protect its systems from future disaster. Amtrak requested $276 million for similar purposes including rebuilding the agency's Kearney, NJ electrical substation (which supplies power to the trans-Hudson tunnels and NY Penn Station) on a higher platform and increase the electrical power supplied, as well as protecting the agency's trans-Hudson tunnels from flooding.

Efforts are still underway to determine the sizeable investments required to restore damaged facilities and equipment while making them more resilient to natural or manmade incidents or events.

[3] James Barron, "Sharp Warnings as Hurricane Churns In," *The New York Times*, October 28, 2012.

Key Passenger Rail Challenges

Passenger rail transportation in New Jersey faces critical challenges. The passenger rail stakeholders continue to work together to address the challenges. NJ TRANSIT, Amtrak, FRA, and NJDOT have been collaborating to address existing and future needs of the NEC. New York Penn Station and Newark Penn Station visioning studies are some examples of the collaboration. Longer term, the 2030 Northeast Corridor Infrastructure Master Plan, published in 2010, represents a collective effort to ensure the existence of future capacity in the corridor. These stakeholders are also working closely with the FRA in its examination of future alternatives for the NEC and its connecting corridors, and the preparation of the associated TIER I Environmental Impact Statement.

Addressing passenger rail issues spans the Hudson River. NJ TRANSIT is conducting joint operations planning for New York State with Amtrak, the Long Island Railroad, MNR, and MTA. They are also working together to improve pedestrian flow in New York Penn Station.

There are seven major challenges to the continual improvement of passenger rail services for the residents of New Jersey, as described below: operational fragmentation, trans-Hudson mobility, state of good repair, unfunded regulatory mandates and compliances, addressing the changing locus of economic activity, funding and appropriate investment models, and further exploiting technology.

Operational Fragmentation

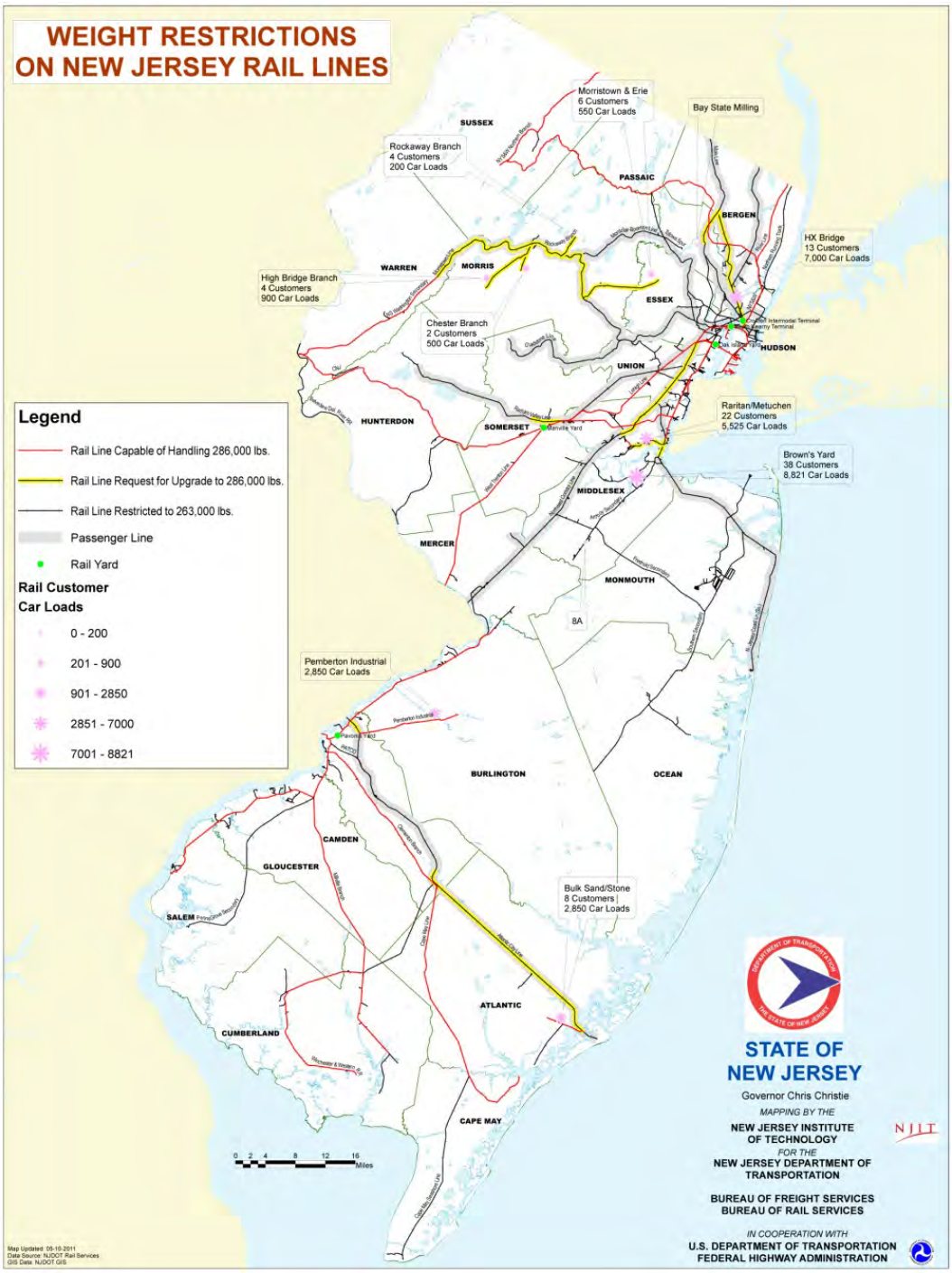
The myriad of operators and infrastructure owners require improved coordination and expanded integrated planning. Although cooperative planning among the parties exists in some form today, the underlying focus of the parties is on individual goals. Current cooperation is significantly oriented towards individual projects, rather than broader institutional changes that could introduce greater efficiencies in New Jersey's rail operations.

Trans-Hudson Mobility

Two single-track tunnels under the Hudson River connect New Jersey and New York. The tunnels are important not only to Northern Jersey and New York, but to the entire eastern seaboard as they also link population centers to the south and north of the metropolitan region on Amtrak's NEC services. During peak periods, up to 25 trains per hour pass through the tunnels in each direction. With tunnels currently operating at capacity during peak hours, expanding services to meet increasing demand is impossible without the risk of significant delay in infrastructure bottlenecks. By about 2035, NJ TRANSIT itself expects its demand for commuter services between New Jersey and Manhattan to double.

Even today without any additional trains, headways between trains are tight to maximize throughput of the tunnels. Whenever an operating breakdown occurs, not only is rail travel in the metropolitan area affected, but potentially travel in the entire NEC as far as Boston and Washington.

Figure 4-1
Existing Weight Restrictions on New Jersey Rail Lines



State of Good Repair

Maintaining New Jersey's passenger rail system to state of good repair standards is essential to providing required services and to contain costs in meeting expanding demand. Areas of focus are:

- Maintaining existing infrastructure to a level that both Amtrak and NJ TRANSIT can continue to provide reliable, cost-effective service
- Maintaining equipment and keeping rolling stock in service for its planned useful life to maximize its benefit
- Introduction of more advanced signaling technology to maximize the capabilities of the existing system to expand capacity and maximize efficiency
- Acquiring new equipment as required to meet ridership growth

Interlocking Facility

Unfunded Regulatory Mandates and Compliances

In response to several fatal passenger train accidents, Congress passed legislation significantly affecting railroad operations. While the actions were intended to improve safety, they have introduced additional operating costs:

- Positive Train Control (PTC) - positive train control is a group of technologies that automatically adjusts train speeds to avoid accidents caused by human error. It is designed to prevent train-to-train collisions, speed-related derailments, unauthorized incursions by trains onto sections of track where maintenance is being performed, and movement of a train through a track switch left in the wrong position. Installation of PTC is expected to cost $225 million.
- Hours of Service Rule Changes - new laws have been passed affecting rest periods for engineers and conductors. The laws will require additional crews because of the increase in rest times. Compliance with these changes will require NJ TRANSIT to increase its labor force to maintain existing service levels.

Addressing the Changing Locus of Economic Activity

The economic geography of New Jersey continues to change. Geographic patterns of employment and residential areas are different from the time the rail lines were constructed. Access to commuter rail service and the services themselves need to accommodate the changing economic geography and demand for rail services.

Conversely, certain areas of the state have lesser growth potential, but commuter rail services are still provided. Public benefits of rail service need to be commensurate with the costs necessary to provide these services.

Funding and Appropriate Investment Models

With the limitations on funding at all levels of government, new sources of monies to support investment and operations need to be identified or developed. An innovative funding framework is required that attracts resources from both the public and private sectors and allocates risks.

There is a need for a new funding model that appropriately reflects return on investment in public facilities. Benefits and risks of investing in particular transportation projects should be evaluated in a rational manner with information about the specific public benefits expected as a result of the investment. In this way the appropriate benefit and risks can be assigned to the right parties and this may lead to more interest in funding transportation projects from the private sector or from new public sector sources.

Further Exploiting Technology

NJ TRANSIT should continue to explore new technologies that will make the management of commuter operations much more efficient:

- Onboard technology for fare collection
- Out of service data
- Equipment tracking

Key Freight Rail Challenges

The *New Jersey Statewide Freight Rail Strategic Plan* identified five critical issues. These are, as described below: weigh limitations, dimensional restrictions on rail movements, chokepoints, terminal capacity, and the need to preserve existing rights-of-way.

Weight Limitations Restricting Use of 286,000 Pound Railcars

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").[4] The 286K standard became effective on January 1, 1995.

The 286K standard is significant because it encouraged the evolution of larger freight cars, which improved the operating efficiency of railroads and created opportunities for rail customers to realize transportation and material handling efficiencies. Cars with larger weight and/or cubic capacities allow railroads to carry the same amount of freight with fewer cars, thus decreasing the cost per each ton.

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 for businesses or industries that require rail service.

[4] Rader and Gagnon, *Maximizing Safety and Weight: A White Paper on 263K+ Tank Cars*, September, 1999 (available on the Federal Railroad Administration website).

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 currently permitted. These restrictions are based upon the increased maintenance costs that would be required by the passenger rail operators due to additional wear and maintenance requirements associated with heavier railcars- wear that does not exist today based on the characteristics of the passenger car fleet or currently allowed freight equipment. Resolution of this issue and achieving the ability to operate 286K freight rail on lines owned by NJ TRANSIT and Amtrak will require discussion and negotiation of operating and maintenance cost sharing agreements to establish an equitable distribution of remedial cost among private freight carriers and public transportation agencies.

Dimensional Restrictions of Tunnels and Bridges

Rail car designs have also evolved to larger dimension railcars, both to transport containers and general freight. While most of the mainline rail routes in New Jersey are capable of accommodating doublestack rail cars, at numerous locations along secondary lines and short lines, tunnels and overhead bridges represent constraints to running larger freight cars. A single vertical constraint can severely restrict the use of an entire rail corridor, limiting a region's ability to attract rail served businesses, and even driving existing rail served businesses out of the area.

System Chokepoints and Connectivity

The *New Jersey Statewide Freight Rail Strategic Plan* highlighted several primary system chokepoints, the Lehigh Main, Greenville Yard, and Delair Bridge, and two major system connectivity issues: Class I-Short line linkages and accommodation of north-south rail flows.

Lehigh Line

The Lehigh Line within New Jersey is NS's primary link between the Northern New Jersey ports, the metropolitan area, and markets throughout North America. Between Newark and Cranford, this double-track line serves both freight and NJ TRANSIT's RVL passenger trains with up to 100 trains operating on this line per day. The line is 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, significant capacity constraints are expected.

Greenville Yard

Greenville Yard, in Jersey City, is a critical node in the rail system. Measuring only 27 acres, it provides local yard service, contains the last remaining car float operation across New York Harbor, and offers barge-to-rail transload service for municipal solid waste. Greenville Yard also serves Global Marine Terminal, which is currently the only facility in New York Harbor that can accommodate Post-Panamax shipping. The Port Authority of New York and New Jersey, the current operator, is redesigning the facility to handle an anticipated increase in traffic. Improvements are needed to ensure the additional increased rail traffic proceeds smoothly into the regional rail system.

Delair Bridge

The Delair Bridge connecting Philadelphia with Pennsauken provides the only rail link between Southern New Jersey and the national rail network. The Delair Bridge also supports NJ TRANSIT service between Philadelphia and Atlantic City.

The 4,500-foot long bridge was built in 1895, with the exception of a vertical lift and tower spans, which were constructed in 1961. It supports both freight and passenger rail service with two tracks, one dedicated to freight train operations and the second to passenger service. Structural upgrades made between 2001 and 2003 permit the crossing of 286,000 lbs. freight cars. Current bridge conditions suggest the need for rehabilitation to maintain the reliability of the structure. Were the Delair Bridge to fall out of service, rail access to Southern New Jersey would be eliminated materially affecting the economy of that part of the state.

The South Jersey Port Corporation was a recipient of a federal Transportation Improvements TIGER grant for repair of the structural elements of the approach spans on both the New Jersey and the Pennsylvania sides of the bridge. The TIGER funded improvements do not include the main bridge spans or correct the height restrictions that prevent the movement of doublestack rail cars.

Short line operating within New Jersey

Class I and Short Line Connectivity

Each of the short lines operating within New Jersey physically connect with the Class I rail network, however, these connections often do not meet current industry standards in terms of vertical and horizontal clearance and weight limitations. In addition, connectivity is hampered at times by passenger operations. The Raritan Central Railroad, for example, requires operating along approximately 20 miles of AMTRAK's NEC to connect with the Class I rail network. The NEC, however, is restricted by policy to the movement of 263,000 pound railcars. As such, this route does not accommodate the movement of 286K railcars as the rail freight industry desires.

North/South Connectivity

Currently, rail freight connectivity is severely limited between the northern and southern portions of the State, with trains from the south routed over the Delair Bridge into Pennsylvania and then back into New Jersey. The lack of a more direct connection limits freight movements between regions of the state.

Terminal Capacity

New Jersey will need to expand the capacity of its intermodal rail terminals to accommodate growth in both domestic and international waterborne container trade, as well as its bulk terminals (including transload and transflow facilities). While the expansion of bulk terminals is expected to be accommodated primarily through railroad investments, expansion of intermodal terminals has been and will likely continue to be a partnership

of the public and private sectors, since many of these terminals are within or adjacent to public facilities such as marine container terminals.

Preservation of Rail Rights of Way

The preservation of rail rights-of-way is a critical statewide goal. New Jersey has approximately 215 miles of rail rights-of-way not currently used for freight or passenger service. With always-present pressures to develop land for other uses, these rights-of-way are endangered resources. Not all of these rights-of-way have potential for future use as active rail lines, but it is critical to identify and prioritize those that do, and to take steps to ensure their preservation for potential commercial use. In addition, homeland security considerations have raised interest in preserving and reactivating the military rail network. Over the past several decades, rail abandonments in New Jersey have effectively severed rail access to major Department of Defense installations in the state, most notably Joint Base McGuire-Dix-Lakehurst 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 Department of Defense facilities and retaining the local employment and economic benefits that these installations represent.

New Jersey Rail System Goals and Objectives

New Jersey's passenger and freight rail system is a critical element of the regional, national, and global multi-modal transportation system. The goals and objectives for New Jersey's rail system have been developed in the context of its role in domestic and internal commerce, and in recognition of the important role rail transportation plays in improving the state's economy and environment. Seven goals of the state's rail transportation system have been identified and used to guide the state rail plan, serving as broad statements of purpose for the rail transportation system. Specific objectives have been developed for each goal to provide targeted and measurable outcomes for rail transportation in the State.

Like many states, New Jersey must address the increasing demand for both passenger and freight rail services in an environment marked by funding uncertainties. The challenge, thus, is to allocate scarce financial resources to their highest and best use maximizing benefits to the public sector, whether directly or indirectly. The goals and objectives reflect the interest of the state in preserving and enhance the rail system, while recognizing the challenges and opportunities that exist in a rapidly changing economy.

Table 4-1
Goals and Objectives
(continued on next page)

Goals	Objectives
1. Support the State's Strategic Plan	• Align State Rail initiatives with State Strategic Plan goals • Support targeted economic growth and development throughout New Jersey and maximize economic benefit of rail rights-of-way • Leverage existing rail rights-of-way to expand their public utility
2. Improve the quality of life for New Jersey Residents	• Improve air quality by increasing use of rail rights of way for passengers and freight in lieu of highways • Reduce dependence on fossil fuels through use of energy-efficient rail services • Provide attractive services that meet the needs of passengers and shippers and that add economic value • Facilitate appropriate stakeholder relationships in support of strategic initiatives - Transit-friendly development - Highway-to rail freight diversion
3. Maintain Rail System at State of Good Repair	• Commit to SOGR of state-owned rights of way commensurate with economic value • Ensure all users of shared rights-of-way are engaged and costs allocated equitably • Modernize the rail system to current standards • Facilitate completion of missing links in system • Support programs of incremental improvements
4. Improve Safety and Security	• Improve grade crossing safety • Protect freight and passenger gateways, rights-of-way, and vital infrastructure from terrorist threat • Enforce safe transport of hazardous materials • Protect rail rights-of-way from trespassers • Educate all stakeholders on rail safety • Introduce cost-effective redundancies to ensure continuing availability of critical services • Provide a safe secure environment for customers, employees and communities served (NJ TRANSIT Scorecard)
5. Enhance Mobility	• Encourage services that cost-effectively increase transportation options and improve beneficial use of rail rights-of-way • Make improvements to increase right-of-way capacity and service reliability and, where possible, reduce costs • Encourage users of shared rights-of-way to make improvements that are responsive to current and future needs of one another's operations • Improve customer communication • Expand passenger services to special events where beneficial • Advance services to constituencies most dependent on them
6. Improve regional services	• Establish regional partnerships to advance rail improvements • Leverage funding sources for regional improvements • Remove barriers to collaborative action • Create innovative approaches to cost sharing • Develop regional education/promotional programs • Develop initiatives to improve shared corridor operations

Table 4-1
Goals and Objectives
(continued from previous page)

Goals	Objectives
7. Expand Multimodal and Geographic Connectivity	• Preserve useful rights of way for potential beneficial uses • Coordinate services between modes • Encourage seamless customer experience between modes by leveraging technology advances • Invest in multimodal facilities and services that are complementary and that provide economic and public benefit • Facilitate completion of missing links in the rail system to enhance operations.

Chapter 5
Rail Improvement Programs

This chapter describes initiatives in the state of New Jersey to address passenger rail challenges and meet the state's rail transportation goals and objectives.

Transportation Planning Process in New Jersey

The rail transportation planning process in New Jersey takes place on several levels, with a focal point at the Metropolitan Planning Organizations (MPOs), which are responsible for planning, requesting, and allocating Federal funding. Three MPOs cover the entire state: North Jersey Transportation Planning Authority (NJTPA), Delaware Valley Regional Planning Commission (DVRPC), and SJTPO (South Jersey Transportation Planning Organization). In addition, the PANYNJ plays a significant planning role, particularly the northern part of the state. NJDOT, PANYNJ, and the railroads, NS, CSX, as well as the terminal and short line railroads also participate in statewide rail planning. Passenger rail planning is primarily the responsibility of NJ TRANSIT, with the participation of the other entities.

New Jersey is the only state in the United States that is covered entirely by MPOs. NJ TRANSIT and NJDOT are members of each of the MPOs and work very closely with all to develop their long-range plans and five year Transportation Improvement Programs (TIP) for all parts of the state. NJ TRANSIT is also a non-voting member of the New York Metropolitan Transportation Planning Council, the MPO for New York City and five of the surrounding New York suburban counties. Each MPO develops its own long range Regional Transportation Plan, which incorporates all freight and passenger transportation modes. NJ TRANSIT works closely with each agency on these plans,

NJ TRANSIT and Amtrak participate in joint planning on NEC issues, including cooperative efforts such as the Gateway Trans-Hudson project, Joint Rail Operations Planning for New York Penn Station, also with LIRR, MNRR and MTA, and the 2030 Northeast Corridor Infrastructure Master Plan. Other planning cooperative efforts include both the New York Penn Station and Newark Penn Station visioning studies, and pedestrian flow studies.

The following sections of this chapter describe the significant current and planned rail improvement projects. Although it is a comprehensive representation of the state's rail programs, it is not intended to be a complete inventory of rail projects.

New Jersey Transit Improvements

NJ TRANSIT, both in conjunction with other passenger rail service providers and by itself, has programs in place to improve passenger rail service in the state. There are also a significant annual investments in all corridors to maintain the passenger rail system in a state of good repair in order to meet customer needs and expectations. In addition, a number of initiatives have surfaced that at some time may present themselves as projects.

Table 5-1 outlines the current or near-term NEC projects, and potential long-term NEC projects. With the exception of the Amtrak's New Jersey High Speed Rail Improvement Program (NJHSRIP) project, the potential projects have not been completely evaluated, and are not scheduled or funded. They are included for future consideration should their

Table 5-1
Northeast Corridor (NEC) Improvement Project
(continued on next page)

Project	Location	Description	Benefit
Outer Zone Improvements–Near-Term			
NJ High Speed Rail Improvement (NJHSRIP) - an Amtrak project with NJ TRANSIT cooperation	Trenton – New Brunswick	Track, signal, catenary and traction power improvements	Increased capacity and speed on the NEC with focus on Acela and next generation high-speed rail service
Outer Zone Improvements–Potential Long-Term			
Morrisville Yard Improvements	Morrisville, PA	Storage and inspection	Improvements related to train access to/from yard with Northeast Corridor
Trenton Station & Interlockings	Trenton	Modifications, crossover/ switch additions adjacent to the station	Increases parallel train movement; aids in increased train capacity and reliability
Middle Zone Improvements–Near-Term			
Midline Loop	North Brunswick	Midline grade separation	Eliminates conflicting train movements
County Yard	New Brunswick	Storage and inspection improvements	Expansion to meet operation needs and fleet growth
Delco Lead / Track 5	New Brunswick and North Brunswick	Additional westbound track for local NJ TRANSIT service	Increases capacity
Middle zone stations	New Brunswick and North Brunswick	Relocated and new stations to utilize increased NEC middle zone capacity	Increases ridership capacity
Platform Improvements	Entire Line	Lengthening to accommodate 12 car trains, compliance with ADA	Increase capacity
Middle Zone Improvements–Potential Long-Term			
County Interlocking to Union Interlocking Improvements	New Brunswick – Rahway	Track, signal, catenary and traction power improvements	Increased reliability and capacity

Table 5-1
Northeast Corridor (NEC) Improvement Project (continued from previous page)

Project	Location	Description	Benefit
Inner Zone Improvements–Near-Term			
Track Expansion	Rahway-Elizabeth, Elizabeth-Newark	Additional track: Union interlocking to Elmira interlocking; additional track: Elmira interlocking to Newark West Dock interlocking	Increase capacity
Newark Airport Interlocking	Newark	Improvements to the Newark Airport interlocking	Increases parallel train movements, which increases reliability and capacity
Hunter Flyover	Newark	Grade separation near the Hunter interlocking	Eliminates conflicting train movements
Portal Bridge Replacement	Newark area	Bridge replacement	Accommodates high speed trains, increases train capacity and reliability
Inner Zone Improvements–Potential Long-Term			
Newark Penn Station Improvements	Newark	Improvements to platform structure and passenger flow	Improves ease of travel for the customer
Track Expansion	Newark area	Additional track between Dock East interlocking and the proposed Portal Bridge	Expansion to meet growth and add capacity
Track Connection	Hoboken	Connecting track for westbound trains from Hoboken/Meadows to merge with the NEC	Eliminates train conflicts; increased capacity
Union and West Dock Interlocking Improvements	Rahway-Newark	Track, signal, catenary and traction power improvements between Union Interlocking and Dock West Interlocking	Increased capacity

benefits merit implementation. Amtrak owns and dispatches the NEC, however, several carriers operate on it.

Descriptions of major projects follow, with preliminary order-of-magnitude costs. These costs are expected to change as engineering progresses on these projects and they are implemented.

NEC Corridor Signal Improvements

Background

The segment of the NEC between Trenton and New York, where trains operate at higher speeds and service frequencies, although owned by Amtrak, is the most heavily used line segment in NJ TRANSIT's rail system. Commuter trains use the outer two of four tracks, Track 1 and Track 4, in eastbound and westbound directions, respectively. Between Midway interlocking, located at Milepost (MP) 41.3, and Newark Penn Station at MP 8.6, the inside two tracks, 2 and 3, are used for express trains. The current train signal system on the NEC between Trenton/Hamilton interlocking, located at MP 55.7, and the North

Elizabeth/Lane interlocking, located at MP 12.3, is an antiquated PRR-era "Wayside-with-Cab" signaling. While this signal system became the "gold-standard" among Automatic Train Control (ATC) technologies immediately upon its implementation, it is reaching its limitations as train volumes and operating speeds increase simultaneously. To support even faster speeds with the current technology, trains operating in the same direction must be spaced at greater distances than with more modern signaling technologies, in effect reducing capacity.

Project Description

Capacity constraints can be eliminated in several ways. One approach is to add tracks. However, this is costly and, in many cases, may not be feasible because of limited right-of-way land availability. Alternatively, modifications to the train control signal system are an effective means to increase capacity and throughput. One applicable signal system improvement is to operate with cab, no wayside signals. Rule 562 as specified by the Northeast Operating Rules Advisory Committee (NORAC) provides for cab signal operations without fixed automatic block signal aspects, referred to as "Cab, No Wayside" signaling. The rule governs the design characteristics and operation of those sections of the railroad.

NJ TRANSIT, in partnership with Amtrak, will embark on a project to improve capacity on NEC between the Hamilton and Lane interlockings through the implementation of cab, no wayside signals. Signal block lengths will also be modified. The modernization of signals will reduce the required spacing of trains and allow them to safely operate more closely together and at higher speeds.

Signaling improvements on the NEC are scheduled for phased implementation between April 2013 and December 2017. NJ TRANSIT is also exploring whether a similar signaling technology could be implemented on other lines that are near or close to capacity: Morris & Essex (Morristown) Line (section between Summit and Meadows Maintenance Complex) and the NJCL (section between Long Branch and Rahway).

Benefits

Depending on the minimum spacing criteria established during the design, the railroad will be able to operate significantly higher volumes of trains without compromising speed or safety.

Estimated Project Cost

$125 Million

NEC Mid Line Loop

Background

The existing NEC infrastructure has reached capacity during peak periods. The expanded morning peak service for trains operating between Jersey Avenue Station in New Brunswick, NJ and New York (NJ TRANSIT's NEC Middle Zone) is crucial to meet the high passenger demands in this area. Capacity, however, is constrained by the very limited "at-grade" train slots or opportunity windows out of Jersey Avenue station for travel

eastbound to Newark and New York. Trains must cross an entire interlocking facility to access the eastbound track (Track 1). The multitude of these "at-grade" train crossing movements severely limits the number of eastbound NEC Middle Zone trains as well as eastbound and westbound Amtrak and other NJ TRANSIT trains on Tracks 2, 3 and 4. As Amtrak initiates the NJHSRIP project, capacity will become even more constrained as both the number of trains and train speeds increase.

Project Description

The Mid Line Loop will eliminate restrictions on crossings of NEC Middle Zone trains. Once built, it would allow trains originating from Jersey Avenue to cross NEC tracks without interfering with train movements on the other tracks. The improvements would speed up operations and provide substantial additional capacity that could be used to increase the number of trains when necessary.

Initial planning for the project has recently begun. Major construction is not expected to begin until 2017.

Benefits

The project will help to alleviate the severe congestion that occurs during the morning and afternoon peak periods.

Estimated Project Cost

To be determined.

NEC Mid Line Yard Expansion

Background

The existing County Yard located at Jersey Avenue has capacity to store only three electric multiple unit (EMU) trainsets: two trains with 12-cars and one train of 10-cars. As a result, NJ TRANSIT has to reposition non-revenue trains from Morrisville Yard in Pennsylvania, and other locations, to Jersey Avenue to meet the morning rush-hour train requirements for the NEC Middle Zone service. In the evening, after the rush hour service is completed, the reverse occurs with trains "dead-headed" back to the Morrisville Yard and other locations for overnight storage. These non-revenue train movements introduce significant costs to the operations. In addition, fees must be paid to Amtrak for track and power usage.

The limited train slots on NEC, in Hudson River tunnels and at Penn Station New York require very effective usage of each slot to maximize passenger carrying capacity. Longer trains, i.e. those with 12-cars, utilize about the same slot as a shorter train, say of 10- or 8-cars. An expanded yard facility at Jersey Avenue will significantly reduce operating costs and allow NJ TRANSIT to increase NEC Middle Zone service reliability.

Project Description

This facility will be expanded to store twelve 12-car trainsets, making optimal use of each available train slot. There will be a service and inspection facility, a crew building, and

light maintenance shops. Heavy maintenance of NJ TRANSIT equipment is performed at the Meadowlands Maintenance Complex.

Benefits

The project will eliminate unnecessary train movements, reducing congestion on the NEC with a reduction in related adverse environmental impacts and substantially optimize passenger carrying capacity with available track capacity. It will also increase asset utilization, providing more opportunities for multiple peak-hour trains moved per equipment set, reducing the fleet requirements otherwise.

Estimated Project Cost

To be determined.

NEC Middle Zone Stations

Background

NEC middle zone improvement projects include the NEC Mid Line Loop, the County Yard Expansion, and track 5, a new five-mile long westbound track that will increase local train capacity and decrease congestion on the westbound NEC tracks. These additions and changes to the existing NEC infrastructure, by providing additional capacity, enable NJT to address two other related station needs. Each of these projects provides benefits to NEC commuters, particularly in the middle zone.

Project Description

Jersey Avenue Station – An existing NEC station relocation and upgrade is proposed. The existing station will be impacted by the other changes to County Yard and NEC tracks, which will trigger the need for new high-level platforms meeting ADA requirements. The existing low-level platforms on the Millstone Branch and NEC track 4 will be replaced with full-length high-level platforms meeting ADA requirements.

North Brunswick Station – A new NEC Mid Line station is being investigated. To accommodate projected future ridership growth on the NEC, locating a new station somewhere between New Brunswick (Jersey Ave) and Princeton Junction has been explored for over a decade. The proposed addition of the Mid-Line Loop tracks intersects with plans for new economic development in North Brunswick making the addition of a new North Brunswick station possible. A new station would be constructed consisting of high-level platforms meeting ADA requirements. The new station would be built in conjunction with a transit-oriented development at the former Johnson and Johnson site in North Brunswick, NJ, and include a parking area dedicated to the station.

Benefits

The new stations will increase parking capacity for commuters, utilizing the expanded capacity available for NJT train service along the NEC made possible by these related railroad improvements, which have independent utility. This total investment also results in more efficient use of the NEC track capacity by NJT passenger trains with fewer required

train movements to reach an existing train storage yard and maintenance facility in Morrisville, Pennsylvania.

Estimated Project Cost

To be determined.

Station Platform Improvements

Background

NJ TRANSIT has an ongoing project to upgrade stations. It includes improving stations, lengthening platforms to accommodate longer trains, as warranted through a careful analysis of existing and projected future ridership, and making many platforms accessible to disabled patrons, as well as more customer-friendly. Longer station platforms reduce station dwell times by eliminating the need for passengers to walk through train cars while boarding or disembarking trains. Station improvements are undertaken on a prioritized basis based on ridership.

Project Description

All station platforms on the NEC will be upgraded to accommodate 12-car trains. On other NJ TRANSIT lines, the plan for platform lengths varies by the needs of that line:

- NJCL stations between Long Branch and Rahway, with the aim gradually to accommodate at least 10-car trains
- Stations between Long Branch and Bay Head, with the goal to accommodate 8-car trains. For RVL stations, the aim is also to handle 8-car trains
- Atlantic City Line stations, with the target is 6-car trains
- Most, if not all, Morris & Essex (Morristown) Line stations to accommodate 10-car trains
- Morris & Essex (Gladstone) Line and Montclair-Boonton Line stations to accommodate up to 8-car trains
- Main, Bergen County, and Pascack Valley Line stations to hold 8-car trains

Estimated Project Cost

A cost estimate has not yet been developed.

Hunter Flyover Project

Raritan Valley Line trains merge with the NEC at the Hunter interlocking, located at NEC milepost 10.5. Expanding morning peak service on the line is critical to meet future passenger growth. Capacity is constrained by the very limited at-grade train slots, or opportunity windows. These trains must cross the entire Hunter interlocking plant to access Track 1 (the outermost track for eastbound service) or operate wrong-rail i.e. eastbound on track that is nominally for westbound service (Track 4). The multitude of these at-grade and wrong-rail train movements severely limits the number of eastbound RVL trains as well as eastbound and westbound Amtrak and other NJ TRANSIT trains on Tracks 4, 3 and 2.

The Hunter Flyover would provide a grade-separated crossing of the RVL trains that currently have to move on the wrong rail, causing congestion. It would allow RVL to cross

NEC tracks without interfering with any trains on Tracks 4, 3 and 2. It would permit trains to operate at faster speeds and provide substantial additional capacity, which could be used to support increased train volumes when required. As the NEC is the busiest route in New Jersey and the Northeast, any projects that alleviate congestion have far-reaching benefits. The project is still in the early planning stages.

Estimated Project Cost

$250 Million.

Northeast Corridor Joint Improvement Projects

This includes projects for improvement of the NEC that are jointly funded by NJ TRANSIT and Amtrak. Projects are generally directed towards state of good repair or capacity increases including upgrades of catenary, signals, and minor structures.

Estimated Funding

Total	$56 Million
NJ TRANSIT share	$28 Million

Other NJ TRANSIT Lines Improvement

Tables 5-2 through 5-8 outline improvement projects on other NJ TRANSIT Lines.

Table 5-2
North Jersey Coastline Improvement Projects

Project	Location	Description	Benefit
Active			
Bidirectional Signaling	Long Branch – Bay Head	Upgrading signal system	Increased movement along the line
Potential			
Yard Improvements	TBD	Expansion of the yard (storage and inspection facilities)	Meet operational needs and fleet growth
Station Platform Improvements	Long Branch – Rahway	Platform extension	Increased capacity; accommodate longer trains between Long Branch and Rahway
Signal Improvements	Long Branch – Rahway	Between Long Branch and Rahway (Union Interlocking)	Higher train speeds increasing capacity
Traction Power Improvements	Entire Line	Substation Upgrades	Meets demand for additional train volume; ensures reliable train operators
Grade Crossing Improvements	Entire Line	Improve grade crossings	Increased movements along the line; improved safety
Draw Bridge Repairs	Entire Line	Bring draw bridges to a state of good repair	Improve the reliability of the bridge and keep them operational for longer

Table 5-3
Raritan Valley Line Improvement Projects

Project	Location	Description	Benefit
Station platform improvements	Entire Line	Platform extensions	Increased capacity and platforms that will comply with ADA requirements
Lehigh Line Improvements	Lehigh Line	Third track, ultimate fourth track, and signal modifications between CP Aldene Interlocking and Hunter Interlocking	Increase capacity by permitting more trains along the line
Yard Improvements	TBD	Expansion of the yard or a new yard	Meet operational needs and fleet growth
Track Addition	Bridgewater – Roselle Park	Between Bridgewater and Roselle Park (CP Aldene Interlocking) Also includes signal improvements	Provide express service Increased speeds will also add to capacity

Table 5-4
Morris & Essex Lines (M&E) Improvement Projects

Project	Location	Description	Benefit
Active			
Summit Station & Parallel Interlockings	Summit	Improve crossover, switch additions, modifications	Increase train capacity and reliability
Potential			
Yard Improvements	TBD	Additional yard tracks	Helps meet operational needs and fleet growth
Station platform improvements	Entire Line	Lengthening platforms to accommodate longer trains and increase ADA compliance	Increased capacity along the line
Third Track & Signal Improvements	Summit – Milburn, Summit – Kearny	Addition of a third track between Summit and Milburn; signal improvements between Summit and Kearny	Operational flexibility, which will increase train capacity
Traction Power Improvements	Entire Line	Improve Traction Power along the line	Help the M&E line to meet needed additional train volume

Table 5-5
Montclair-Boonton Line Improvement Projects

Project	Location	Description	Benefit
Potential			
Yard Improvements	TBD	Additional yard tracks	Helps to meet operational needs and fleet growth
Station improvements	Entire Line	Improvements to ensure optimal use of the station	Provide faster service
Station platform improvements	Entire Line	Lengthening platforms to accommodate longer trains and increase ADA compliance	Increase capacity along the line
Additional Interlockings	Entire Line		Increase capacity along the line
Traction Power Improvements	Entire Line	Increased Traction Power along the line	Meet needed additional train volume
Grade Crossing Improvements	Entire Line	Construction of improved grade crossings along the line	Improve movement along the line

Table 5-6
Main Line (ML) and Bergen County Line (BCL) Improvement Projects

Project	Location	Description	Benefit
Potential			
Overall Infrastructure Improvements	Entire Line	Coordinated with MNR: yards, track additions, signal modifications, capacity expansion and bridges over water crossings	Better shared use
Yard Improvements	TBD	Yard expansion	Meet operational needs and fleet growth
Station Use and Improvement	Entire Line	Improvements at stations where better utilization is needed	Better service to passengers without compromising travel times
Station Platform Improvements	Entire Line	Lengthening platforms to accommodate longer trains and increase ADA compliance	Increase capacity along the line
Interlocking Improvement	Ridgewood	Modifications, crossover and switch additions	Will enable parallel train movement and increase speeds
Third Track	Waldwick – Waldwick Yard	Possible third track and signal improvements between Suffern and Ridgewood	Increases train capacity, operational flexibility and reliability
Hackensack River Bridges Improvements	Hackensack	New and expanded bridges	Extend the life of bridges; ensure faster and more reliable train service
Grade Crossing Improvements	Entire Line	Construction of improved grade crossings along the line	Improve movement along the line

Table 5-7
Pascack Valley Line Improvement Projects

Project	Location	Description	Benefit
Potential			
Overall Infrastructure Improvements	Entire Line	Coordinated with MNR: yards, track additions, signal modifications, capacity expansion and bridges over water crossings	Better shared use
Yard Improvements	TBD	Storage Yard and Inspection Facility expansion	To accommodate fleet growth
Station improvements	Entire Line	Improvements to ensure optimal use of the station	Provide faster service to passengers
Station platform improvements	Entire Line	Lengthening platforms to accommodate longer trains and increase ADA compliance	Increase capacity along the line
Spring Valley to Rutherford Improvements	Spring Valley – Rutherford	Additional passing-sidings and/or 2nd track where possible, signal improvements	Increase train capacity, operational flexibility and reliability
Grade Crossing Improvements	Entire Line	Construction of improved grade crossings along the line	Improve movement along the line

Table 5-8
Atlantic City Rail Line Improvement Projects

Project	Location	Description	Benefit
Potential			
Yard Improvements	TBD	Yard expansion	Helps to meet operational needs and fleet growth
Station improvements	Entire Line	Improvements to ensure optimal use of the station	Provide faster service to passengers
Station platform improvements	Entire Line	Lengthening platforms to accommodate longer trains and increase ADA compliance	Increase capacity along the line
Overall Improvements	Entire Line	Additional passing-sidings, 2nd track where possible, signal improvements	Increase train capacity, operational flexibility and reliability
Passenger & Freight Shared Use	Entire Line	Passenger and Freight improvements along the whole line	Mutual benefit for both passenger and freight lines
Pennsauken Intermodal Facility	Pennsauken	Intermodal station to Allow passengers from River Line light rail service transfer to Atlantic City commuter rail service and bus service	

Other Potential Long-Term Projects

Several long-term initiatives to improve service and expand capacity to meet future increases in demand are under consideration by NJ TRANSIT.

Lehigh Line Capacity Improvement Project

Lehigh Line capacity is such an important issue that it has been identified as a priority project by NJ TRANSIT, NJDOT, the PANYNJ, and the class I railroads operating in New Jersey. It is a critically important freight corridor, as well as an important passenger corridor. Improvements to the Lehigh Line would, in conjunction with the Hunter Flyover improvements on the NEC, greatly increase Raritan Valley Line capacity as well as decrease travel time.

Freight at Union Station.

The Raritan Valley Line (RVL) train service uses Conrail/CSX/NS owned Lehigh Line for the 5.5-miles between CP Aldene and CP NK. This segment is double-track with RVL passenger trains and CSX/NS/Conrail freight trains sharing the line. The Lehigh Line is one of the busiest freight lines in Northeast. More than 40 freight trains and 60 commuter trains operate every day on this line with volumes expected to grow higher as freight demand increases. While a certain level of passenger train service is protected in the Trackage Rights Agreement, there is neither the capacity nor the willingness of the freight railroads to accommodate additional/ increased passenger service. During off-peak periods, freight trains have priority and passenger trains face the possibility of delays. Additionally, this section also has two passenger stations: Union Township and Roselle Park. Any out-of-service problem for a passenger train stopped at either station could significantly affect other passenger trains as well as freight trains.

The Lehigh Line Capacity Improvement project would address many of the passenger and freight capacity issues for this section of railroad. By adding additional tracks for this territory, a substantially higher volume of trains – both passenger and freight – will be able to operate simultaneously. The project would also allow RVL express trains to overtake local trains making stops at Union Township and Roselle Park.

Raritan Valley Line Capacity Improvement

The Raritan Valley Line is a single-track (with passing-sidings) between High Bridge and Raritan stations and double-tracked east of Raritan until the line merges with Lehigh Line at CP Aldene. Several new services being examined, the Philipsburg extension, West Trenton Line service, and Flemington branch service would put significantly more trains on the RVL between Bridgewater and CP Aldene.

To operate "zone-express" service, as on the NEC or Morris & Essex (Morristown) lines, at least one additional track is required that can be used for express trains in the peak period direction. Such an investment would enable the establishment of zone-express service, which would reduce travel time and enhance RVL service.

West Summit Interlocking Project

The existing interlocking located immediately to the west of Summit station has very low speed switches limiting train operations to 15 miles per hour. In addition, two closely located interlockings on either side of the station prevent the station platform from being extended to accommodate newer, longer trains that now consist of nine or ten passenger cars along with the locomotive. The interlockings were built for shorter trains that operated in the past. Thus, longer trains cannot fully berth on station or remain "clear" of both interlockings at the same time. During peak periods, blocking of one or the other interlocking slows train movements because of the speed-restricted switches. In addition, the inability to berth the full length of train results in slower boarding, further impeding the operation. The impact is exacerbated because Summit Station is the most heavily patronized station on the Morris & Essex (Morristown) line with 3,565 passenger boardings on a typical weekday.

The West Summit interlocking improvement project will reposition the interlocking about half a mile farther west of its current location providing a number of benefits. First, it will allow lengthening of station platform at Summit and, thus, the full length of longer trains will be able to berth. Second, the new interlocking will have higher speed switches (45 miles per hour), which will permit faster train operations. The new interlocking will also have an additional pocket track for trains operating between Summit and Hoboken or Summit and New York to "turn" i.e. reverse direction rather than on one of platform tracks as is done today. There is currently no schedule or cost estimate for this project.

Ridgewood Junction Interlocking Project

The existing interlocking located to the south of Ridgewood Junction station has three tracks that expand to four: two each for Bergen County and Main Lines. The Ridgewood Junction station has highest number of trains, among Bergen County and Main Lines, with the daily ridership of 1,457, the highest among any of either line's stations. All trains operating on these lines, as well as the trains of Port Jervis line (many of which run express) use Ridgewood Junction interlocking to change tracks depending upon whether they are traveling via Bergen County or Main Line.

The Ridgewood Junction interlocking improvement project will improve the layout by installing additional crossovers allowing numerous "parallel" train movements that will reduce train-related and signal-related delays, permit routing flexibility, and offer savings in trip times. Providing for improved train movements on all the lines is vital to handling

expected ridership growth. This project is one of many that is being studied to increase capacity but as of yet there is no schedule or cost estimate.

Westbound Waterfront Connection Project

A connection for both eastbound and westbound trains from the NEC to Hoboken Terminal has the potential to increase service at Hoboken Terminal for connections to PATH and ferry service to Manhattan. This could have the effect of increasing NEC capacity and connectivity for NEC, RVL, and NJCL line customers.

Currently, RVL trains are stored during midday periods at Hudson Yard located to the east of PATH's Harrison station. Some RVL trains are also stored at NJ TRANSIT's major maintenance facility, the Meadows Maintenance Complex (MMC) in Kearny, NJ. Some weekday peak period NJCL trains operate between Bay Head and Hoboken, which, when proceeding in a westerly direction, requires crossing the Dock East interlocking at-grade. During evening peak hours, the crossings require very carefully managed train operations to fit the NJCL trains in between other eastbound and westbound trains, severely restricting the number of trains that can be reliably operated today with current volumes, let alone trains to meet future growth.

Any increase in train service on RVL, NEC, or NJCL from MMC/Hoboken is nearly impossible because of the capacity constraints. In addition, a single-track line from NEC towards MMC/Hoboken called "Waterfront Connection" poses another bottleneck for additional service. This line is oriented for eastbound trains and, thus, westbound trains have to operate against the traffic.

Westbound Waterfront Connection is a major infrastructure project to enable the "grade-separated crossing" of the RVL and NJCL trains that currently have to move on the wrong rail, causing congestion. Once built in the vicinity of Hudson interlocking area, it would allow such trains to cross NEC tracks without interference to any simultaneous train movements on tracks 3 and 2. It would speed up the operations and provide substantial additional capacity that could be utilized to increase train volumes whenever necessary. As the NEC is the busiest route in New Jersey, and throughout the Northeast, any projects that alleviate congestion along its tracks have far-reaching benefits. The project is still in the early planning stages. There is no schedule or cost estimate.

Main Line (Waldwick) Third Track Project

NJ TRANSIT's westward Main Line and Bergen County Line tracks merge at Ridgewood Junction interlocking with three tracks between Ridgewood Junction and Waldwick station. Just northwest of Waldwick station to Suffern, the number of tracks reduces to two. Many Bergen County Line trains terminate and change direction at Waldwick using a yard siding track just north of Waldwick station. Currently, this yard siding track is only accessible from the double-track portion of the railroad.

The Waldwick third track project would build a very short section of third track so trains terminating at Waldwick would have direct access to the yard rather than having to merge with the through running track and then diverging into the yard. The project will benefit

express trains that bypass Waldwick on the middle track as well the local trains that terminate at Waldwick by giving them shorter turnaround times without having to wait for the middle track to be clear of any oncoming express train. There is no schedule or cost estimate as the project is still in the early planning stages.

Morris & Essex Line Third Track Project

NJ TRANSIT's Morris & Essex (Morristown) and Morris & Essex (Gladstone) Line eastbound tracks merge at Summit West interlocking. The combined railroad has three tracks at Summit station. Just east of Summit station, the number of tracks reduces to two until Millburn after which the number of tracks increase back to three continuing to Hoboken.

The Morris & Essex third track project is the construction of a third track between Summit and Millburn to reduce the number of train conflicts. The project will benefit express trains that operate on the middle track as well as improve local train operations by providing a clear track with "funneling" of express trains eliminated. The project is still in the early planning stages. There is no schedule or cost estimate.

New Commuter Rail Corridor Initiatives

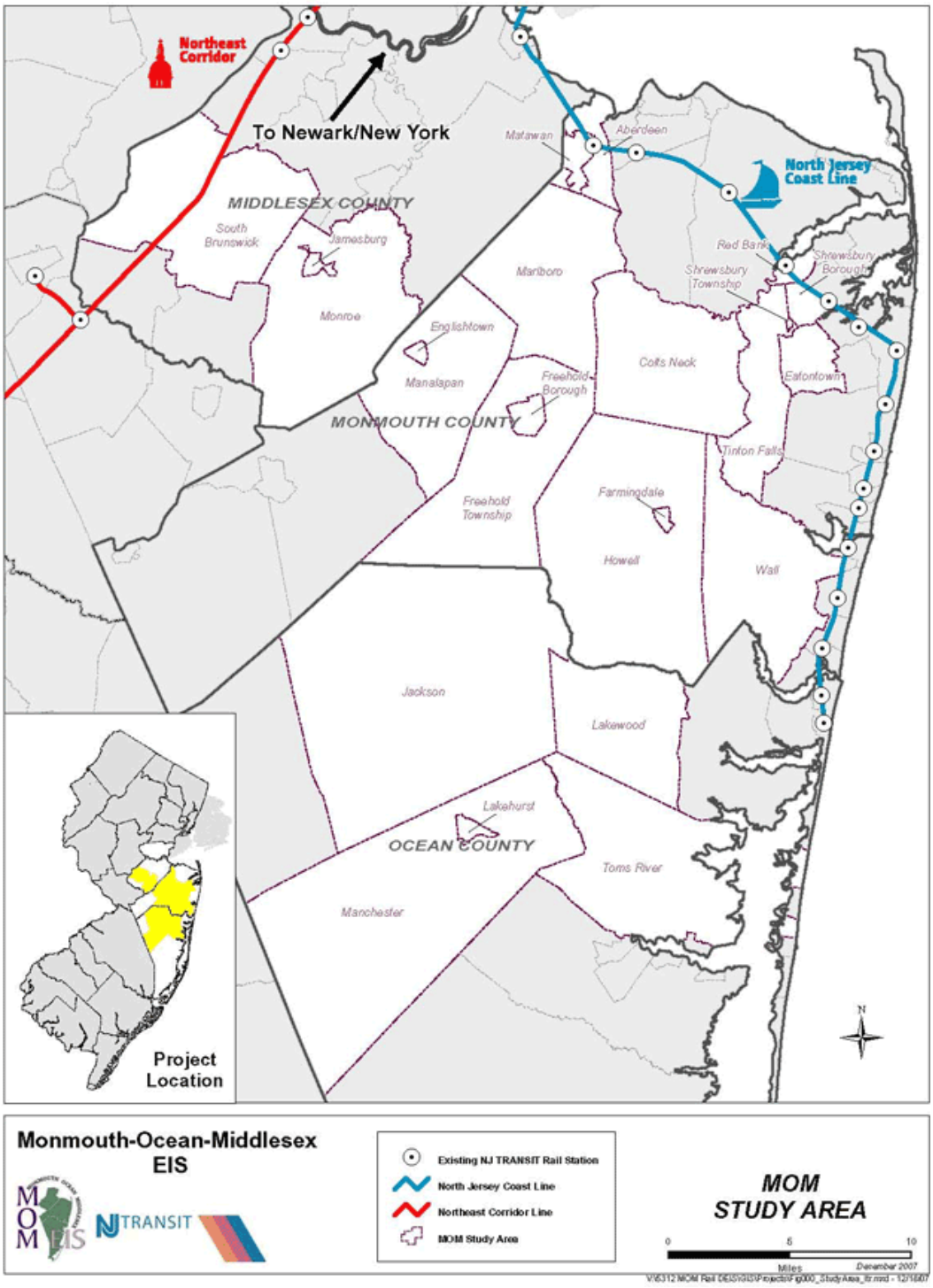
NJ TRANSIT is studying a number of long-range service expansion initiatives on new corridors. These initiatives envision entirely new service on corridors that are not currently served by commuter rail service.

Monmouth – Ocean – Middlesex Corridor

Monmouth, Ocean, and Middlesex counties (MOM) together are a heavily populated area. The primary study area of the project is located approximately 32 to 60 miles south of New York City. The total population of Monmouth, Ocean, and Middlesex counties in 2000 was approximately 2 million. In the past three decades, thousands of people have relocated from the older urban core of the New York-New Jersey metropolitan area to Monmouth, Ocean, and Middlesex counties. Many of these residents continue to work in the urban areas to the north, placing heavy demands on the existing commuter rail and bus services in the tri-county area as well as on the highways. The rail transportation facilities that exist (NEC Line, NJCL) hug the perimeters of the region, leaving a wide area in between without direct rail service. Bus service has evolved, filling the gaps where possible. Nevertheless, the need for a commuter rail alternative through the middle of the study area has long been identified as an issue and is the subject of numerous transportation studies for the Monmouth-Ocean-Middlesex area.

The Monmouth-Ocean-Middlesex Rail Environmental Impact Statement identified nine potential build alternatives for commuter rail service to New York Pennsylvania Station, on three different alignments utilizing either the NJCL or NEC. The use of dual-mode locomotives is proposed to allow one-seat ride service in those alternatives that establish a direct track connection to the existing rail network. Passengers traveling to Lower Manhattan would transfer to the PATH at Newark. The map below shows the three rail service alternatives.

Figure 5-1
MOM Study Area



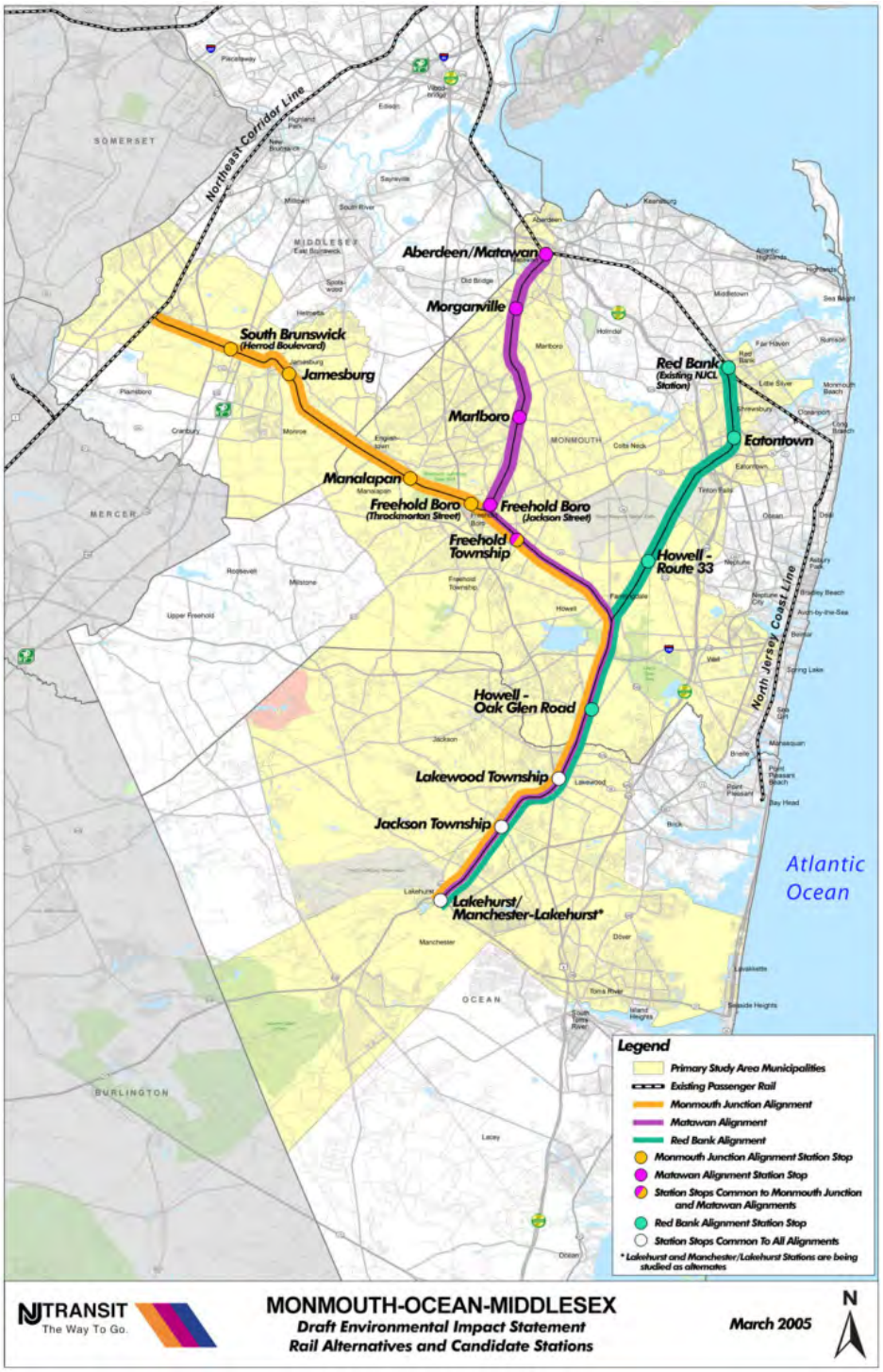


Figure 5-2
MOM Alternatives

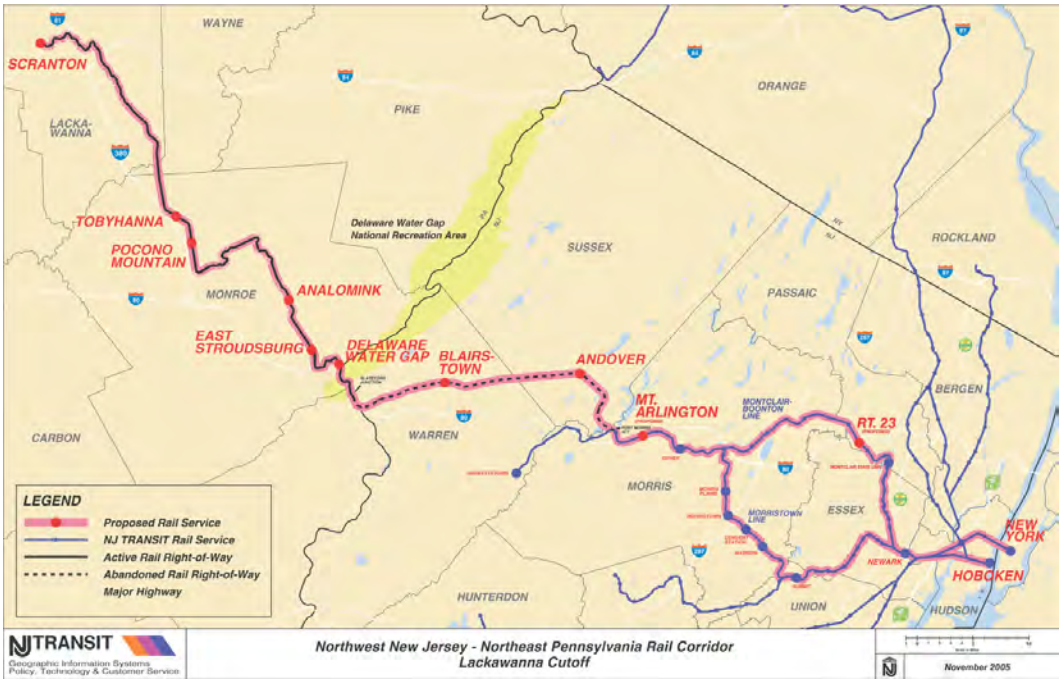
Following the evaluation of the alternatives, NJ TRANSIT Board is expected to select a single alternative to proceed to development of a Draft Environmental Impact Statement (DEIS). This study will conduct the detailed analysis and evaluation of environmental impacts and formal public participation process required by the National Environmental Policy Act (NEPA). This project is in NJ TRANSIT's long-term plan for rail expansion and has no projected date of completion or a cost estimate.

Lackawanna Cutoff

In the early 20th century, the DLW constructed a level-graded route from Roxbury, NJ and across the Delaware River. The connection, the Lackawanna Cutoff, served as a faster, more direct route between existing rail lines in Pennsylvania and New Jersey. The Lackawanna Cutoff includes several unique structural features such as viaducts and massive fill embankments through the deep valleys of this region. In the 1970s, Conrail, the eventual receiver of this property, abandoned the right of way and removed the track. The objective of the Lackawanna Cutoff project would be to reinstitute passenger rail service on the abandoned rail right of way of the Lackawanna Cutoff and over existing freight right of way in Pennsylvania. The reinstituted rail line would provide service from Scranton to Hoboken. Riders could also transfer to Midtown Direct with service to New York Penn Station, by connecting to the existing NJ TRANSIT Montclair-Boonton and Morris & Essex Lines. The State of New Jersey completed the purchase of the Lackawanna Cutoff property in May 2001.

The entire, unfunded project would include complete reconstruction of the line including track and signal improvements to approximately 88 miles of right of way, new stations, parking facilities, a train storage yard, and additional rail rolling stock. It is assumed that NJ TRANSIT would operate the line. Proposed stations would serve Blairstown and Andover in New Jersey and Scranton, Tobyhanna, Pocono Mountain, Analomink, East Stroudsburg, and Delaware Water Gap in Pennsylvania.

Figure 5-3
Lackawanna Cutoff



Only the first phase is fully funded through a combination of Federal Transit Administration (FTA) and state Transportation Trust Funds. The first phase of the project is a 7.3-mile segment from Port Morris Yard to a new passenger station at Andover, NJ. The estimated cost of the first phase to Andover is approximately $37 million. NJ TRANSIT's Board of Directors authorized consultant work for conceptual design, completion of the environmental assessment (EA) and preparation of the documentation required by the Federal Transit Administration for new transit lines.

The main benefit of the project is the provision of passenger rail service from Northwestern New Jersey and Northeastern Pennsylvania to Hoboken and intermediate New Jersey points, with connection to New York City. There are already a large number of Pennsylvania residents who commute into New Jersey for work, and this new route will bring them into the state with greater ease and could help alleviate highway congestion.

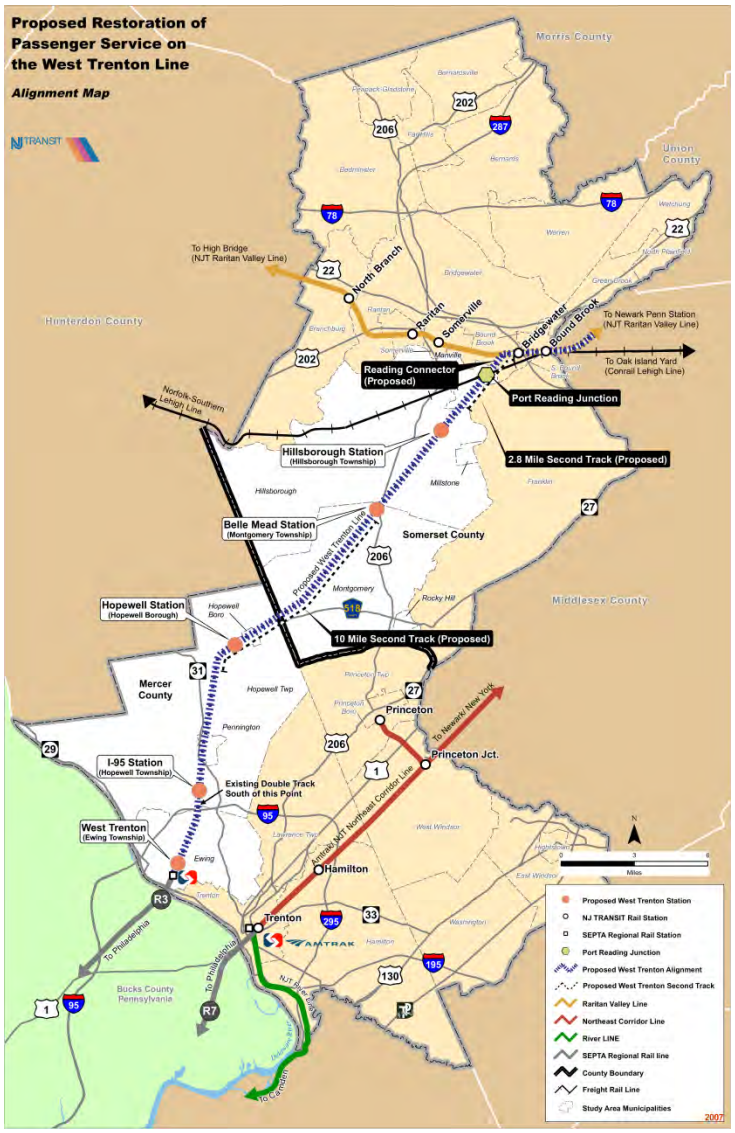


Figure 5-4
West Trenton Line

West Trenton Line

Currently the NEC line is the only service operated by NJ TRANSIT that offers service to the south towards Pennsylvania. The NEC is already operating at capacity and with all forecasts showing growth in the number of riders, NJ TRANSIT needs find a means to alleviate congestion on the NEC line as well as accommodate future growth. The West Trenton Line is being studied as a solution that addresses both.

The project would restore commuter rail service on the CSX owned West Trenton Line, a 27-mile right-of-way running between the existing SEPTA West Trenton Station in Ewing, Mercer County, and NJ TRANSIT's RVL in Bridgewater

Township, Somerset County. The proposed route expansion would provide commuter rail service between Ewing, New Jersey and Newark Penn Station. It would turn south at Bridgewater station and run parallel to the NEC line.

The project would include several components:

- Previously removed track reinstalled within the existing right of way to provide 12.8 miles of new second track
- Signalization improvements along the line
- Restoration of the Port Reading Junction the "at-grade" crossing of the Lehigh Line
- A train storage yard must also be constructed, and additional railroad rolling stock acquired
- Five proposed stations each with parking facilities to be built - West Trenton (Ewing Township), I-95 (Hopewell Township), Hopewell (Hopewell Borough), Belle Mead (Montgomery Township), Hillsborough (Hillsborough Township)

According to a 2007 estimate, the West Trenton Line will cost approximately $219 million. Currently construction of the project is not funded. NJ TRANSIT released the proposed restoration of passenger rail service on the West Trenton Line Draft EA for public comment on November 15, 2007. The public review and comment on the draft EA period of sixty days ended on January 15, 2008. The main benefits of the project would be to provide a new transit option in central New Jersey, relieve parking shortfalls along the Northeast Corridor and RVL, and enable communities to focus transit-oriented development around rail stations, limiting roadway congestion and supporting smart growth.

Flemington Transit Project

The possible service expansion would be over currently used freight rail tracks. The new rail line would divert from the RVL at the Bridgewater station. It would include a stop at a Park & Ride along Route 202 and terminate in Flemington. Operations would be coordinated with the freight railroads so their train service is not impacted or reduced. Bus service would be added on both Route 202 and Route 206. The project is in the planning stages and is part of a longer-term plan for service expansion.

The benefits of the project would be to relieve congestion along the roads and to bring commuters to the urban core with greater ease. It would bring rail to an underserved area of the state and promote economic development. Residents of Hunterdon County have long faced growing congestion along Route 202 and I-78. The nearest NJ TRANSIT service is the RVL, which at the Raritan stop, heads northwest, away from the county. Commuters have limited transit options; many of them take buses into this city. Travel time from Flemington, NJ to the Port Authority Bus Terminal is close to two hours; many residents also drive to work, adding to traffic problems. Bringing rail service to a currently underserved area has significant potential economic benefits.

Other Proposed Passenger Rail Improvement Initiatives

NEC Gateway Program

NEC service to Pennsylvania Station in Manhattan is operating at capacity. Incremental improvements, such as optimization of railroad signal systems and higher capacity rail cars has helped to extend capacity, but ultimately capacity will be severely constrained by the limitation of having only two tunnels from New Jersey to Manhattan, and will be unable to accommodate the expected growth in demand for passenger rail services. The Amtrak Gateway program has the potential to provide the additional capacity needed for growth of trans-Hudson passenger service. After the cancellation of the ARC project, Gateway was launched by Amtrak with participation by NJ TRANSIT and FRA to provide additional capacity on the NEC between Newark and Manhattan.

The Gateway program comprises four linked projects:

- Construction of a new two-track, high level, fixed span bridge crossing the Hackensack River replacing the existing Portal swing bridge
- Construction of two new Trans-Hudson River tunnels
- Construction of two new tracks between Newark Penn Station and the Trans-Hudson tunnels creating a four track main line between the two locations
- Expansion of New York Penn Station

Portal Bridge

A new fixed-span bridge north of the existing Portal Bridge would be constructed. The moveable span of the existing bridge causes significant delays due to bridge openings required to accommodate marine traffic. The replacement of the existing bridge will enhance the capacity and improve the operation of Amtrak and NJ TRANSIT service, improve service reliability, enhance passenger safety and security, minimize conflicts with maritime traffic impacts on the surrounding environment.

Trans-Hudson River Tunnels

Two tunnels will be located to the south of the existing tunnels. They would pass under the palisades and Hudson River connecting to the existing line into New York Penn Station.

New Track Construction

The project would also include the construction of two new running tracks between Newark Penn Station and New York Penn Station connecting the new infrastructure. The additional track would be located adjacent to the existing right of way, creating a four-track main line.

New York Penn Station Expansion

The Penn Station expansion project scope includes the development of new rail terminal facility (Penn Station South), operationally integrated with the existing Penn Station, on

a site between 7th and 8th Avenues and 30th and 31st Streets. It would provide additional track, platforms, and station facilities in Penn Station.

Project Cost: $14.5 Billion

Barracks Yard Expansion and Access for SEPTA

With inadequate storage facilities at Trenton, SEPTA is forced to deadhead trains to provide service to the station. Additionally SEPTA trains that turn at Trenton occupy station platform tracks, making parallel station stops impossible, and adding transit time to PM peak NJ TRANSIT trains. Establishment of a storage yard for SEPTA trains will improve the operations, eliminating terminal congestion at Trenton Station. Reduction of the need to deadhead will reduce operating costs and free up capacity used by the empty repositioning of the trains.

Freight Rail Improvement Programs

Current Projects

The freight railroads have identified several infrastructure projects. These are shown in Table 5-9.

Table 5-9
Freight Infrastructure Projects (continued on next page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Atlantic	Egg Harbor Twp	JP Rail, Inc. d/b/a Southern Railroad of NJ	JP Rail, Inc. d/b/a Southern Railroad of NJ	Rehabilitate Pleasantville Secondary Track to FRA Class 2 Standards	$1,100,184	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program	Funded	NA
Burlington, Camden	Bordentown, Camden	CR Shared Assets	CR Shared Assets	Bordentown Secondary from Pavonia Yard to Bordentown: add second track and sidings.	$13,000,000	SNJFTEDA	Unknown	Proposed	NA
Burlington/ Camden	Winslow Junction to Woodmansie		NJDOT-owned	Former CNJ Southern Division: Restore freight service on out-of-service, historic commuter line	$130,000,000	DVRPC Long Range Plan	Unknown	Suggested in Project Plan	2026-2035
Burlington/ Mercer	Robbinsville	CR Shared Assets	CR Shared Assets	Robbinsville Industrial Track: Upgrade various aspects of track.	$2,500,000	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan	2008-2013
Camden	Camden	CR Shared Assets, NS and CSX	CR Shared Assets, NS and CSX	Pavonia Yard: increase capacity	$5,000,000	SNJFTEDA	Unknown	Proposed	NA
Camden	Camden	South Jersey Port Corporation	CR Shared Assets	Rail Improvements at Broadway Terminal, Port of Camden.	$2,800,000	SNFJTEDA	TIGER Conrail South Jersey Port Corp Salem County		NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Camden	Many	CR Shared Assets	CR Shared Assets	Beesey's Point Secondary Track: Continue to weld jointed rail from Bordentown Secondary to Southern Branch decreasing maintenance.	Unknown	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan	2008-2013
Camden	Pennsauken	CR Shared Assets, Amtrak, States of PA and NJ	CR Shared Assets, NJ TRANSIT, CSX and NS	Delair Bridge Rehabilitation: structural improvements for double stack clearance which will benefit freight operations on passenger tracks	$20,000,000 - $30,000,000		TIGER Conrail South Jersey Port Corp. Salem County	Under Construction	NA
Camden/ Gloucester	Many	CR Shared Assets	CR Shared Assets	Bordentown Secondary and Vineland Secondary Track: create additional yard capacity from Delair Bridge to Woodbury.	Unknown	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan	2014-2025
Cumberland	Millville	Winchester & Western Railroad	Winchester & Western Railroad	Seashore Branch Runaround Track	$570,650	NJDOT FY 2011 Update Report of the NJ State Rail Plan July 1, 2010	NJ Freight Rail Assistance Program	Funded	NA
Gloucester	Bridgeport and Paulsboro	CR Shared Assets	CR Shared Assets	Penns Grove Secondary Track: Reconstruct swing bridges at Bridgeport and Paulsboro.	$40,000,000	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan	2014-2025
Gloucester	Logan Twp	SMS Rail Service, Inc.	SMS Rail Service, Inc.	Pureland Upgrade	$1,737,825	NJDOT FY 2011 Update Report of the NJ State Rail Plan July 1, 2010	NJ Freight Rail Assistance Program	Funded	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Gloucester	Swedesboro and Woodbury	CR Shared Assets	CR Shared Assets	Salem Running Track: Upgrade track to support interchange between Conrail and Southern Railroad of NJ.	$7,600,00	DVRPC Long Range Freight Plan	Unknown	Suggested Project in Plan	2008-2013
Hudson	Bayonne	East Jersey Railroad and Terminal Co.	East Jersey Railroad and Terminal Co.	Short Track Rehabilitation	$99,060	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program		NA
Hudson	Bayonne	East Jersey Railroad and Terminal Co.	East Jersey Railroad and Terminal Co.	Yard 4 Storage Tracks	$564,325	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program		NA
Hudson	Elizabeth, Carteret	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	Chemical Coast Secondary: Double track the line ("Bayway"-"PD") and install TCS on Chemical Coast (4 miles)	$10,100,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding Subject to Negotiations	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Hudson	Hoboken	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	Marion Connection: Add second track to 0.5 mile elevated segment ("Hack"-"Marion") where currently only one train at a time can move: NS trains to Croxton intermodal and Southern Tier and CSX trains to Northeast and North Bergen and Kearny intermodal facilities.	$20,000,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding Subject to Negotiations	NA
Hudson	Jersey City	Port Authority of NY & NJ	New York New Jersey Rail LLC	Greenville Yard and Lift Bridge: track, lift bridge, barge-to-rail, and fender projects; land acquisition	$125,000,000	NJTPA TIP	PANYNJ	Underway	NA
Hudson	Kearny	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	P&H Branch: add second track to 1.8 mile-long segment, "Kearny"-"Hack."	$10,500,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding Subject to Negotiations	NA
Hudson	Newark	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	Waverly: Construct Loop to improve operational efficiency.	$11,100,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding Subject to Negotiations	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Hudson	Newark, NJ	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	Construct Container Terminal Expansion: acquire Raff property/ build yard/expand container terminal.	$15,000,000	I-95 Corridor Coalition	Mid Atlantic Rail Operations Study	Funding Subject to Negotiations	NA
Hudson	North Bergen	New York, Susquehanna and Western Railway Corp.	New York, Susquehanna and Western Railway Corp.	Construct 2,214-foot rail siding between MP 6.85 and MP 7.25 North Bergen, NJ	$532,632	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program	Funded	NA
Hudson	North Bergen	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.	$65,000,000	NJ TRANSIT	NJ TRANSIT Capital Improvements	Underway	NA
Hunterdon	Readington Twp	Belvidere & Delaware River Rwy. Co., Inc.	Belvidere & Delaware River Rwy. Co., Inc.	Three Bridges Advance Track	$225,000	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 2010	NJ Rail Freight Assistance Program	Funded	NA
Mercer	Ewing-Manville	CSX	CSX	CP Ewing to Manville Yard: Add second main track.	$76,500,000	I-95 Corridor Coalition	Unknown	Suggested Project in Plan	2026-2035
Mercer	Trenton	CSX	CSX	Trenton Line: Replace crossover switch at "Trent".	$2,500,000	DVRPC Long Range Plan		Under Construction	2008-2013
Middlesex	Perth Amboy, South Amboy	286 K Task Force/ Conrail	Conrail, NJ TRANSIT	River Draw improvement to allow 286 K carloads	$10,000,000	286K Task Force	Proposed	Proposed	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Middlesex	Perth Amboy, Woodbridge	286 K Task Force/ Raritan Central RR	Conrail	Restore Raritan Industrial Track, take freight off the Northeast Corridor	$25,000,000	286K Task Force	Proposed	Proposed	NA
Morris, Passaic, Sussex	Kinnelon Borough + 4 others	New York, Susquehanna and Western Railway Corp.	New York, Susquehanna and Western Railway Corp.	Rehabilitate main track between MP 40.0 (Butler, NJ) and MP 50.0 (Stockholm, NJ)	$972,258	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program	Funded	NA
Multiple	Multiple	NS	NS	Lehigh Line: Add second track to improve efficiency, Pattenburg Tunnel – Manville.	$47,400,000	I-95 Corridor Coalition	TBD	TBD	NA
Ocean	Borough of Lakehurst; Mansfield Twp.	New Jersey Seashore Lines	New Jersey Seashore Lines	Tie Renewal Project to service an aggregate transload facility	$1,653,000	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program		NA
Passaic, Hudson, Bergen	Paterson, Secaucus, East Rutherford	286 K Task Force/ NS	NS, NJ TRANSIT	Main and Bergen line improvement to allow 286 K carloads, including HX Bridge	$8,000,000	286K Task Force	In development	In development	NA
Salem	Penns Grove	CR Shared Assets	CR Shared Assets	Penns Grove Secondary: General track improvements from Woodbury to Penns Grove.	$4,300,000	SNJFTEDA	Unknown	Proposed	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Salem	Salem, Swedesboro	South Jersey Port Corporation	U.S. Rail of NJ	Port of Salem: track improvements from Swedesboro to Port of Salem, dockside rail improvement.	$21,500,000	SNFJTEDA	TIGER Conrail South Jersey Port Corp Salem County		NA
Salem, Gloucester	Pilesgrove Twp., Swedesboro Logan Tap	County of Salem Short Line	U.S. Rail of NJ	Salem County Short Line track rehabilitation	$1,500,000	NJDOT FY 2011 Update Report of the NJ State Rail Plan, July 2010	NJ Rail Freight Assistance Program	Funded	NA
Somerset	Manville	CSX and NS	CSX and NS	Port Reading Junction: Reconfigure track at interlocking to improve train flow and increase capacity.	$13,400,000	Liberty Corridor	Liberty Corridor, NJDOT, CSX, NS	Under Construction	NA
Somerset, Hudson	Manville, Carteret	CR Shared Assets and CSX and NS	CR Shared Assets and CSX and NS	Port Reading Second Track: Install TCS upgrade rail (15.9 miles "CP"-Port Reading Jct.-"PD") and extend Durham Siding (1.5 miles).	$10,500,000	I-95 Corridor Coalition	TBD	Funding Subject to Negotiations	NA
Sussex	Sparta Twp	New York, Susquehanna and Western Railway Corp.	New York, Susquehanna and Western Railway Corp.	Construction of a 3,432-foot rail siding between MP 63.71 and MP 64.36 in Sparta, NJ	$442,067	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program	Eligible for Funding	NA

Table 5-9
Freight Infrastructure Projects (continued from previous page)

County	Municipality	Sponsor Advocate	Railroad(s) Operating and/or Owning Lines at Issue	Project Name/ Description Revised	Cost	Source	Funding	Status	Time Frame
Sussex	Vernon Twp	New York, Susquehanna and Western Railway Corp.	New York, Susquehanna and Western Railway Corp.	Rehabilitate main track between MP 73.8 and MP 81.2 in Vernon Twp, NJ	$798,357	NJDOT FY 2011 Update Report of the NJ State Rail Plan June 1, 2010	NJ Freight Rail Assistance Program	Eligible for Funding	NA
Union, Hudson	Cranford, Newark	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 Shared Asset trains.	$39,000,000	I-95 Corridor Coalition	TBD	TBD	NA
Unknown	Jersey City	Port Jersey Railroad	Port Jersey Railroad	Port Jersey Railroad: Add half-mile of track to eliminate intermediate truck transportation between rail and ship.	Unknown	Air Quality CMAQ Example Projects Website	Intermodal Freight Projects Funded by Congestion Mitigation and Air Quality Improvement Program Under TEA-21	Funded	NA

Source: New Jersey Freight Rail Strategic Plan; NJDOT

Port Authority of New York and New Jersey Initiatives

The Port Authority has identified several initiatives that would support increased waterborne commerce as well as improved regional goods movement. A number of these projects have also been identified by other stakeholders as important to enhancing rail service.

Greenville Yards Improvements

Identified as a recommended improvement in Table 5-9, The Port Authority envisions that Greenville Yards will be improved to become a fully integrated, multi-modal freight terminal, hosting four discrete activities:

- An improved NYNJR cross-harbor carfloat operation
- An intermodal container transfer facility designed to transfer both export and import containers from the nearby Global Container Terminal from truck to rail
- A containerized municipal solid waste transfer facility, designed to transfer municipal solid waste originating in the City of New York from barge to rail for transport to distant landfills
- A major juice distribution facility operated by Tropicana (an existing rail freight customer located at Greenville

The first three activities will each result in more freight coming into the region being shifted from truck transport to rail, thus reducing traffic congestion, improving highway safety, reducing wear and tear on area roads and river crossings, eliminating significant air emissions associated with diesel exhaust from truck engines, and creating much needed redundancy in the freight system serving East of Hudson.

Port Related Improvements

The Port Authority also supports the following:

- Economic development programs to provide new rail customers financial assistance for required sidings and switches
- Construction of the Southbound Connector from Port Elizabeth ExpressRail to the Chemical Coast Line
- Construction of the Southbound Connector from the Arthur Kill Lift Bridge (SIRR) to the Chemical Coast Line
- Construction of the Northbound Connector at Greenville Yards to the National Docks Secondary
- Other regional rail freight improvements including the $50M NJ Regional Rail Fright Initiative (with NJDOT, CSX, and NS) and the $600M ExpressRail program.
- Rehabilitate the Dock Bridge over the Passaic River – PATH, NJ TRANSIT, and Amtrak all run over this Northeast Corridor Bridge, which is owned by Amtrak.

Several other projects appear in the NJDOT TIP as potential pursuits over the next 10 years;

- Commuter rail extension in Monmouth and Ocean Counties
- Commuter Rail extension to Phillipsburg
- Extension of Cape May Seashore Line north to Hammonton (to Atlantic City Rail Line)
- E-yard expansion
- Improvements on the Atlantic City Rail Line
- Lehigh Third Track Capacity Improvements
- Moynihan Station Penn Station New York Platform extensions
- New Portal Bridge
- Penn Station New York Central Concourse
- Penn Station New York West End Concourse
- Port Morris Improvements
- Rail Spur to the Meadowlands Sports Complex
- Restoration of commuter rail service on the NYS&W west of Hawthorne
- Restoration of commuter rail service on the West Trenton line
- Restoration of commuter rail service to Lackawanna Cutoff
- West Shore--Hoboken to West Haverstraw

Strategic Initiatives

There are several strategic initiatives complementing the infrastructure improvement projects. These initiatives are directed towards meeting the state's rail transportation objectives. Table 5-10 outlines the objectives and strategies

Table 5-10
New Jersey Strategic Rail Initiatives (continued on next page)

Goals	Objectives	Strategies
1. Support the State's Strategic Plan	• Align State Rail initiatives with State Strategic Plan goals • Support economic growth and development throughout New Jersey and maximize economic benefit of rail rights-of-way • Leverage existing rail rights-of-way to expand their public utility	• Advocate for a national rail transportation policy and funding plan • Partner with railroads and others to market the benefits of rail • Collaborate with local, county, and state chambers of commerce, business associations, and economic development agencies to protect businesses and jobs associated with rail • Work with land use agencies to create policies to preserve existing rail-related business and create new opportunities • Educate the public and elected officials on the location of rail lines, including those not currently in use, the importance of preserving these corridors, and their financial benefits • Partner with MPOs and others to showcase "freight as a good neighbor" and provide public outreach on the importance of rail as a transportation mode • Develop "rail as good neighbor" programs with freight railroads
2. Improve the Quality of Life For New Jersey Residents	• Improve air quality by increasing use of rail rights of way for passengers and freight in lieu of highways • Reduce dependence on fossil fuels through use of energy-efficient rail services • Provide attractive services that meet the needs of passengers and shippers and that add economic value • Facilitate appropriate stakeholder relationships in support of strategic initiatives - Transit-friendly development - Highway-to rail freight diversion	• Identify win-win solutions for diverting truck trips to rail • Initiate programs to promote transit friendly development • Support programs that reduce rail transportation reliance on fossil fuels • Support clean diesel technologies

Table 5-10
New Jersey Strategic Rail Initiatives (continued from previous page)

Goals	Objectives	Strategies
3. Maintain Rail System at State of Good Repair	• Commit to SOGR of state-owned rights of way commensurate with economic value • Ensure all users of shared rights-of-way are engaged and costs allocated equitably • Modernize the rail system to current standards • Facilitate completion of missing links in system • Support programs of incremental improvements	• Collaborate with railroads to upgrade rail lines in the state of New Jersey to 286,000-pound car capacity on a priority basis • Coordinate with freight railroads to identify and prioritize corridors that may require 315,000 pound car capacity • Invest public funds in private rail infrastructure where there is a compelling public benefit • Develop a multiyear investment plan to guide program and project development consistent with the State Strategic Plan and the New Jersey State Rail Plan • Evaluate successful models employed by other states to fund freight rail improvements • Promote public-private partnerships to increase investment in New Jersey's rail network. • Introduce cost-effective system redundancies
4. Improve Safety and Security	• Improve grade crossing safety • Protect freight and passenger gateways, rights-of-way, and vital infrastructure from terrorist threat • Enforce safe transport of hazardous materials • Protect rail rights-of-way from trespassers • Educate all stakeholders on rail safety • Introduce cost-effective redundancies to ensure continuing availability of critical services • Provide a safe secure environment for customers, employees and communities served (NJ TRANSIT Scorecard)	• Operation Lifesaver • Implement PTC

Table 5-10
New Jersey Strategic Rail Initiatives (continued from previous page)

Goals	Objectives	Strategies
5. Enhance Mobility	• Encourage services that cost-effectively increase transportation options and improve beneficial use of rail rights-of-way • Make improvements to increase right-of-way capacity and service reliability and, where possible, reduce costs • Encourage users of shared rights-of-way to make improvements that are responsive to current and future needs of one another's operations • Improve customer communication • Expand passenger services to special events where beneficial • Advance services to constituencies most dependent on them	• Support investments that cost-effectively increase travel options • Expand education on rail passenger services • Make improvements to support reliable on time service • Use technology to improve customer communication • Expand passenger services to special events • Selectively advance passenger and freight operational improvements and facilities
6. Improve Regional Services	• Establish regional partnerships to advance rail improvements • Leverage funding sources for regional improvements • Remove barriers to collaborative action • Create innovative approaches to cost sharing • Develop regional education/promotional programs • Develop initiatives to improve shared corridor operations	• Work with counties and municipalities to ensure the transportation element of their comprehensive plans incorporates freight and passenger needs as part of land use recommendations. • Establish regular meetings, not less than twice a year, with the NJDOT, NJ TRANSIT, and freight rail providers to discuss and coordinate policy, planning and funding initiatives.
7. Expand Multimodal and Geographic Connectivity	• Preserve useful rights of way for potential beneficial uses • Coordinate services between modes • Encourage seamless customer experience between modes by leveraging technology advances • Invest in multimodal facilities and services that are complementary and that provide economic and public benefit • Facilitate completion of missing links in the rail system to enhance operations.	• Eliminate on a priority basis vertical and horizontal rail car load clearance restrictions to accommodate today's larger freight cars. • Develop freight intermodal facilities where market demand is identified. • Improve rail access to and within ports, freight terminals, and multimodal freight facilities. • Collaborate with local and regional ports to identify short- and longer-term opportunities and ways to enhance these shipping corridors for mutual benefit.

Rail Planning Studies

Several significant rail planning studies

Rail Freight Capacity and Needs Assessment to Year 2040

NJTPA is conducting a study of the freight rail capacity in the northern New Jersey region. The study evaluates the major rail freight corridors in the NJTPA region, which are CSX River Line, Conrail Northern Branch, P&H Branch, Conrail Lehigh Line, Norfolk Southern Lehigh Line, and CSX West Trenton Line. For each corridor and contiguous segments of the rail network, the study is evaluating current conditions and future operating scenarios to identify required upgrades and improvements.

Cross Harbor Freight Improvement Program

The PANYNJ along with other stakeholders is evaluating alternatives to improve freight mobility in the metropolitan New York - New Jersey region by improving transportation across New York Harbor. A focus of the program is to expand the use of rail and water transportation removing trucks from the congested aging highway network. The program includes 54 counties in New Jersey, New York, Pennsylvania and Connecticut with a focus on the freight corridors in the metropolitan area.

Several previous studies have been conducted to examine possible alternatives to improve freight movement across the Hudson River and New York Harbor including the Cross Harbor Cross Harbor Freight Movement Major Investment Study completed in 2000. Following these studies, a Draft Environmental Impact Statement was published in 2004. The Port Authority of New York and New Jersey has now taken the lead as project.

Specific goals of the program are:

- Reduce the contribution of Cross Harbor trucks trips to congestion along the region's major freight corridors relative to no build conditions
- Provide Cross-Harbor freight shippers, receivers, and carriers with additional, attractive modal options to existing interstate trucking services
- Expand facilities for Cross Harbor goods movement to enhance system resiliency, safety and security, and infrastructure protection
- Improve regional and local environmental quality
- Support development of integrated freight transportation/land use strategies

Four types of alternatives for the enhancement of cross harbor freight service are being evaluated:

No Action: includes planned upgrades to existing infrastructure, such the planned rehabilitation of Greenville Yard, the planed rehabilitation of New York New Jersey Railroad float operations, and current improvements to New York City and Long Island rail lines and rail yards.

Transportation System Management (TSM): TSM Alternatives maximize utilization and efficiency of existing transportation network with relatively low-cost projects to improve

its functional capacity. These alternatives provide additional freight movement capacity beyond the committed projects that are included in the No Action Alternative.

TSM Alternatives could include the repair or upgrade of existing float bridges and scheduling changes that allow both freight traffic and passenger service to utilize the region's rail lines.

Transportation Demand Management (TDM): TDM Alternatives reduce, redistribute or better link the demand to the available capacity. These alternatives measures include:

- Truck congestion pricing incentives
- Passenger vehicle congestion pricing incentives
- Other fees, regulations, or policies similarly affecting transportation behavior and choices

Build Alternatives: Build alternatives include investments such as an expanded railcar float alternative, tunnel alternatives, and a combination railcar float/tunnel alternative.

Alternative modes may include float/ferry, rail tunnel and multimodal tunnel. Potential alternatives become viable for further study when they provide an end-to-end solution, capture a variety of potential freight markets, have logical endpoints, and are mindful of local impacts.

Funding Alternatives

A strong, reliable freight rail system capable of satisfying the needs of its customers is critically important to New Jersey's future economic well-being. The fundamental problem faced by New Jersey, and almost every other state, is that capital needs far outweigh available resources, particularly for rail freight movement. The gap will only widen as the demand for rail services grows.

Rail freight volumes have increased significantly over the past decade with the growth of intermodal trade. Freight railroads move more than million carloads to, from, and within New Jersey every year -- nearly 38 million tons of goods with a value in excess of $55 billion. Intermodal rail traffic has increased four-fold over the past 25 years and increased by nearly a third in the past decade alone. By the year 2035, the volume of freight moved by rail in New Jersey is expected to increase nearly 50 percent.

Millions of private and public dollars are invested in improvements to the state's freight rail system each year. However, it would take more than a billion dollars to address New Jersey's current freight infrastructure needs.

The New Jersey Freight Rail Assistance Program, which is administered by the NJDOT, historically provides $10 million a year for grants. Three times that amount would have been required to satisfy the number of funding applications the department received in 2010 alone. A single 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 Jersy 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.

The three principal railroads serving New Jersey – CSX, Conrail, and NS – have invested millions of dollars to improve their facilities. However, 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. High traffic density operations are their major source of their revenue and profits.

In the sections that follow, funding strategies and governance models used by other states are discussed.

Representative Rail Funding Models

States use diverse approaches to provide financial aid and encourage private investment in freight rail systems. Elements can be adopted or adapted to meet New Jersey's specific vision and needs.

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 cycle) 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.

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 FY 2011, 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; creating an 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 either funds are provided under a different program or it is not funded for the next biennium.

The Rail Access Initiative Links Program (RAIL) provides 100 lb. 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 either funds are provided under a different program or it is not funded for the next biennium.

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 cannot 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 includes 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."

Public Investment Funding

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 annually from the fund. Given the importance assigned to rail freight by the State Strategic Plan, the annual appropriation for grant program could be adjusted. Direct funding of

essential, large-scale rail freight projects could be included as separate line items in the NJDOT's Capital Program.

Railroad Property Tax

New Jersey's rail tax rates are lower than other states. Rail taxes in neighboring New York, for example, are 26 times as high as New Jersey's taxes, based on tax paid for each mile of track.[1] Among states, New York's system and process of railroad property taxation is considered unique. Besides being one of the few states that mostly uses an individual classification rule which generally leads to higher property tax levies imposed on railroads than the unit rule, the state utilizes at least two other distinct provisions - a ceiling value and a bifurcated state/local apportionment process. The result of the state's complex apportionment process has meant that property taxes imposed on railroads are much higher in New York than in most other states.

Most states use 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.

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.

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.

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 (SIB) 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.

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

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.

Private Investment Funding

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 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 – trick, 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. This allows 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 upgrades track connections and expands routes, providing 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 raising bridge and tunnel heights to allow double stacking between the East Coast and Chicago.

Conclusion

The New Jersey State Rail Plan is designed both to meet the requirements of PRIIA and to provide a framework for future railroad development in the state. The plan outlines existing and planned rail improvement initiatives. The economy and the U.S. railroad environment are going through significant changes. Consequently, as important as describing planned projects for the state's railroads, the State Plan also identifies the key challenges and issues facing the state's passenger and freight railroads. New strategies, not yet conceived, may prove to be better solutions in the future. No plan can possibly anticipate all the rail transportation needs and corresponding projects that may arise in the future.

NJ TRANSIT
One Penn Plaza East
Newark, NJ 07105-2246

State of New Jersey
Department of Transportation
PO Box 600
Trenton NJ 08625-0600