

DVRPC

REPORT

Southern New Jersey Freight Rail Study



August 2025



The Delaware Valley Regional Planning

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Executive Summary

A strong freight rail system capable of efficiently and reliably connecting local businesses to ports and global markets is key to ensuring New Jersey and Greater Philadelphia's economic competitiveness. Recognizing rail's importance to the economy and sustainability goals, the State of New Jersey and other organizations have undertaken a variety of studies in the past to identify critical policies and improvements for the state's freight rail system.

Past studies have identified limitations to South Jersey's freight rail system. Limited freight rail access may hinder economic development in the state, such as the advancement of specific port market opportunities and a more robust regional industrial economy. In particular, South Jersey's reliance on a single connection to the national network, the Delair Branch, has been identified as a limiting factor for growth. The Delair Branch is a rail line that uses the Delair Bridge, a 128-year-old movable bridge over the Delaware River, to connect Pavonia Yard in Camden to national network connections in Philadelphia. This configuration constrains South Jersey's access to the national rail network through a single connection, and it prevents direct rail service between southern and northern New Jersey. This makes the Delair Bridge an extremely critical component of the state and regional freight rail transportation system.

To identify where investment in the South Jersey rail network may be needed to expand market opportunities, this report provides an understanding of the demand for capacity enhancements, existing risks to supply chain resiliency, and the benefits that expanded access could have to the region in both Pennsylvania and New Jersey. Specifically, this report:

- identifies existing market activity, trends, and future demand for freight rail-supported economic development in South Jersey;
- evaluates freight rail improvements that address market access to South Jersey; and
- establishes guidance to advance alternative improvements that enhance the market access for South Jersey with identification of key stakeholders and roles.

The geographic area of this study covers Atlantic, Camden, Cape May, Cumberland, Burlington, Gloucester, and Salem counties. This area is contiguous with the New Jersey portion of the Philadelphia region as defined by the U.S. Census Bureau (Philadelphia-Reading-Camden Combined Statistical Area).

Existing Activity and Infrastructure

South Jersey has a long history of manufacturing and industrial activity, and it is ideally located to provide transportation access between major East Coast markets. Today, the share of freight-intensive employment (in the Agriculture, Mining, and Forestry; Construction; Manufacturing; Wholesale Trade; Retail Trade; Transportation and Warehousing; and Utilities sectors) in South Jersey is higher than the state average, and these continue to be important industries for the region.

Rail service in South Jersey is provided by two Class-I railroads, CSX and Norfolk Southern, through Conrail, which interchanges with multiple short line railroads and NJ Transit for local access. There are also nine intermodal connections in the region—five port terminals and four transload facilities—that connect the rail network to the marine and highway systems.

Rail transport is ideal for bulk commodity movements, and in this region the top commodities by tonnage moved are natural sands and aggregates, natural gas and fossil fuel products, agricultural products,

chemicals, wood products, plastics, and other steel and metal products. Many of these products are shipped to and from Pennsylvania, Ohio, Illinois, and New York.

Outreach and Trend Identification

Extensive outreach to rail stakeholders and partners—including rail owners and operators, port terminals, rail-served businesses, non-rail-served businesses, economic development agencies, and other governmental partners—identified several challenges and opportunities for the South Jersey freight rail market.

Some of the existing challenges identified by rail stakeholders include:

- rail car weight and dimension restrictions;
- limited access to the national network;
- rail access expansion and maintenance costs; and
- road congestion serving intermodal businesses.

Opportunities for growth in the rail market identified by stakeholders include:

- available training programs and funding sources for labor development;
- room for expanded rail service on existing rights-of-way;
- the region's attractiveness to new businesses and industries; and
- the potential to divert existing truck traffic to rail.

Driving many of these challenges and opportunities are emerging trends in the rail and industrial markets. The outcome of these trends may determine the timing and level of rail investment needed in the region.

Stakeholders identified the following as potential future trends with an uncertain impact on rail demand:

- industries with freight rail demand currently in the region are in decline, the most prominent of which are the closure of refineries and coal-fired power plants;
- industries growing in the region, like warehouse and distribution activity, have lower demand for freight rail services;
- passenger rail services planning to increase operations on shared track or rights-of-way;
- trucks becoming more competitive;
- alternative fuel engine options emerging for both trucks and rail; and
- the availability of federal infrastructure investment.

Recommendations

Outreach and data analysis showed a degree of uncertainty for the future of industrial development in South Jersey and for the extent to which rail expansion would serve potential futures. However, with or without expansive future growth, rail is a critical component of existing industrial activity in South Jersey. The recommendations in this report are organized into three categories to offer a menu of options for future improvements and planning efforts to support rail in South Jersey while remaining flexible: Preserving Existing Infrastructure, Promoting Volume and Job Growth, and Building Resilience.

Preserving Existing Infrastructure

This category focuses on strategies to maintain the existing rail system used by current businesses. Through ownership and lease changes, these recommendations also include preserving rail access to industrial sites and preserving rail rights-of-way for future use. While the use of rail infrastructure fluctuates over time, once

rail access is removed it is challenging to reinitiate rail use within those rights-of-way. In turn, forfeiting freight access may stifle long-term industrial development or activity and instead could result in industrial sprawl.

South Jersey contains a significant number of rail corridor miles that carry little freight, no freight, or abandoned freight infrastructure. The recommendations in this category are intended to manage underutilized, inactive, or abandoned corridors so that the maximum benefit can be derived from them, currently and in the future:

- preserve underutilized corridors through uses such as rail car storage and excursion trains
- monitor the status of inactive and abandoned corridors

Promoting Volume and Job Growth

Strategies that promote rail volume and job growth in South Jersey would expand rail access, offer opportunities for existing businesses to grow, and encourage new industrial businesses to locate in the region. Investments in freight rail volume growth projects could also bring additional jobs to the region and state. These strategies include the following:

- incorporate considerations for rail-served facilities in ongoing land-use planning
- consider opportunities for additional transload locations with the capability to transfer a variety of cargoes between road and rail vehicles
- remove height restrictions along the Delair Branch

Building Resilience

Recommendations to enhance the resilience of industrial rail infrastructure in South Jersey focus on the creation of an additional connection from South Jersey to the national rail network. A resilient network that offers redundancy is required to encourage sustainable growth in rail traffic, especially for companies that invest in shipping time-sensitive products. While this study did not identify clear, current demand for a second connection, rail is critical for existing businesses, and there is potential for future growth, and therefore this study identifies two strategies that address rail resiliency in the region:

- plan for rail-line closures and limit their impact
- revisit the need for a second connection to the national network

Priority Projects

Several projects were identified as important by multiple stakeholders. These should be considered in future funding opportunities by NJDOT.

- Improvements to Front Street in Camden—Improve vehicle access to and upgrade rail infrastructure where the Bulson Street Industrial Track crosses Front Street and runs along Front Street from Atlantic Avenue to the Balzano Terminal in Camden
- Grade Crossing Study in Gloucester City—Gloucester City has 28 grade crossings on the Vineland Secondary and Grenloch Industrial Tracks. Of these, 24 are on public roads and five do not have signs or signals. All the crossings along the Vineland Secondary in Gloucester City have gates. Rail-grade crossings in this area present an opportunity for both safety improvements in the communities surrounding this infrastructure and increased operating efficiency along the primary rail line for this

region. Further study of these crossings is needed to determine community needs and the most appropriate improvements.

- Vertical Clearance on the Woodstown High Bridge—The Woodstown High Bridge runs under Main Street NJ 45 in Woodstown. Its current height clearance is 18.6 feet, as documented in the Bureau of Transportation Statistics (BTS) National Bridge Inventory and does not allow for auto racks or double stack clearance.
- Rail connection to Heidelberg Materials—Heidelberg Materials in Camden is looking to incorporate rail at their site as a part of their five-year plan. The installation of a new rail switch at this site would directly reduce truck traffic.
- Enhancement of rail facilities around the Port of Salem—As highlighted in the *Port of Salem Freight Rail Intermodal Study*, there are several opportunities for growth at and around the Port of Salem. First, despite the Salem Branch now being up to the current industry standard for track weight capacity, it is currently only used for excursion trains. Rehabilitation of industrial tracks and the restoration of the rail yard in Salem for use as a transload facility could help to expand freight opportunities along the line. Enhancing facilities at the Port of Salem could also open opportunities for intermodal movements from barge to rail.

CHAPTER 1: Introduction

The efficient and reliable movement of goods is essential to our region's economy and quality of life. Due to its efficiency and capacity benefits over truck transportation, freight rail service has the potential to provide public and economic benefits by bolstering local businesses' access to national and global markets while reducing traffic congestion and impacts on the environment.

Study Purpose and Goals

As public sector entities, the Delaware Valley Regional Planning Commission (DVRPC) and the New Jersey Department of Transportation (NJDOT) seek to reduce road congestion and emissions by promoting reliable access to alternatives to highway transportation, such as rail. Freight rail opportunities in South Jersey also can support port market opportunities and a more robust industrial economy. DVRPC and NJDOT embarked on this study to support achievement of these goals in South Jersey, focused on industrial rail infrastructure. Specifically, this study:

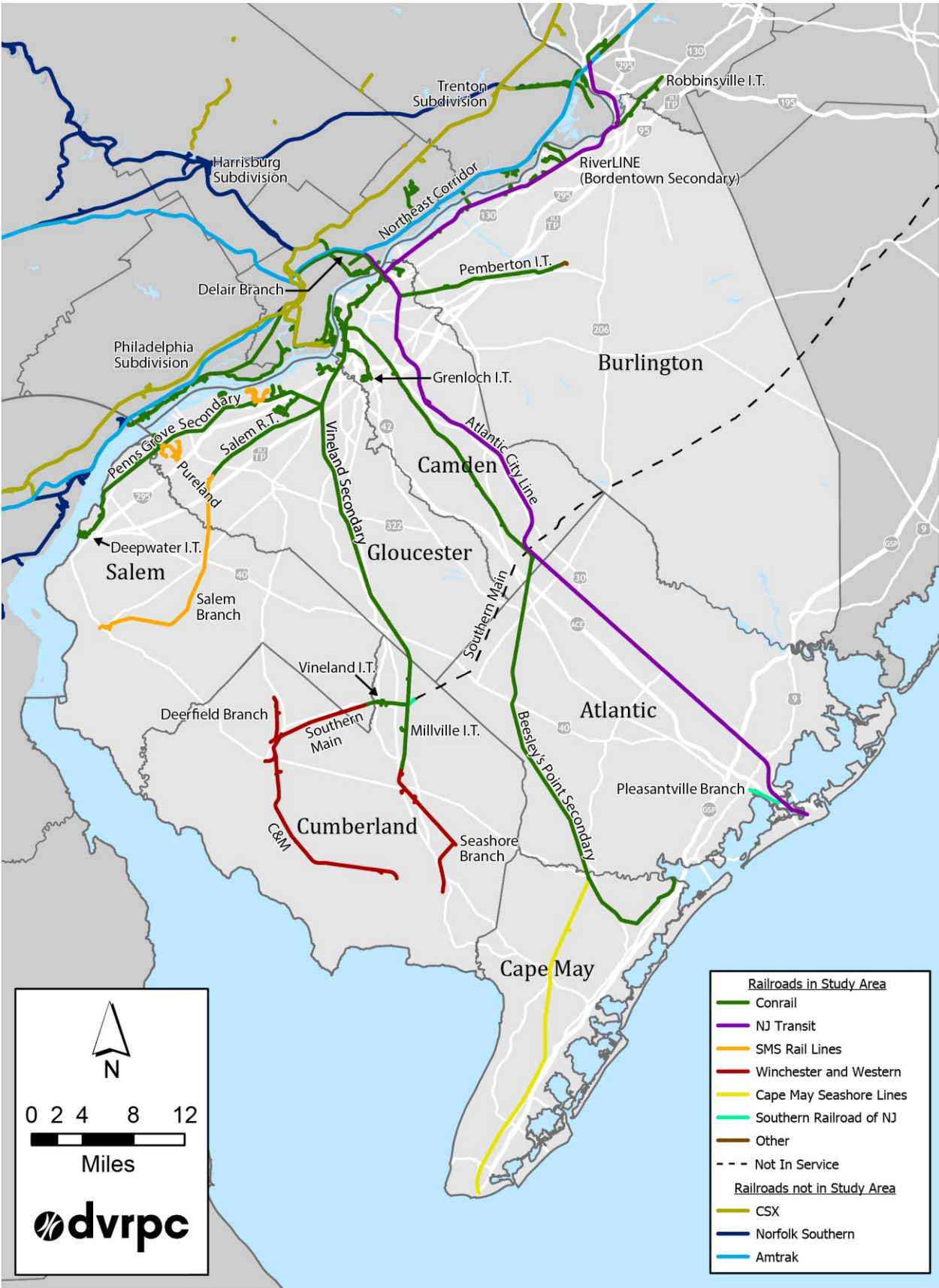
- identifies existing market activity, trends, and future demand for freight rail-supported economic development in South Jersey
- evaluates freight rail improvements that address market access to South Jersey
- establishes guidance to advance alternative improvements that enhance the market access for South Jersey with identification of key stakeholders and roles.

Study Area

This study focuses on the existing freight rail network in South Jersey. This network operates as a peninsula with a single connection to the national freight rail network through the Delair Branch, which crosses the Delaware River between Pennsauken, New Jersey, and Frankford Junction in Philadelphia.

For the purposes of this study, the terms "South Jersey" and "southern New Jersey" are used interchangeably to mean the counties of Atlantic, Camden, Cape May, Cumberland, Burlington, Gloucester, and Salem. This area is contiguous with the New Jersey portion of the Philadelphia region as defined by the U.S. Census Bureau (Philadelphia-Reading-Camden Combined Statistical Area). The study area includes the entirety of the territory covered by the South Jersey Transportation Planning Organization (SJTPA) and three of the four New Jersey counties covered by DVRPC. Mercer County is not included in this study because it is not part of the freight rail network that relies on the Delair Branch connection.

Figure 1 Study Area Rail Network



Project Team

DVRPC worked with the NJDOT Office of Freight Planning (OFP) to conduct research and outreach for this project. A steering committee provided input to DVRPC and NJDOT on existing activity, industry trends, and potential improvements. They also provided feedback on the final recommendations. The committee included representatives from a variety of rail operators, trade groups, and planning organizations:

- Amtrak
- Conrail
- CSX Transportation
- Keystone Railroad Association
- NJ Economic Development Authority
- NJ Railroad Association
- NJ Transit
- Norfolk Southern
- SMS Rail Lines (SMS)
- South Jersey Port Corporation
- South Jersey Transportation Planning Organization
- Southern New Jersey Development Council
- Winchester and Western Railroad

Previous Studies

Various entities, including NJDOT, have undertaken a variety of freight rail studies in the past to identify critical policies and improvements. These studies provide important context and the foundation for this study, including documented constraints and potential opportunities. Key studies are highlighted below.

Freight Moves New Jersey: 2023 Statewide Freight Plan

NJDOT published the current *Statewide Freight Plan* in 2023. The plan covers all modes of freight transportation in New Jersey, including road, rail, marine, air, and pipeline. The plan notes New Jersey's role as a critical nexus for national and international freight and logistics, and it emphasizes the unique logistical challenges and opportunities posed by the wind energy industry.

Identified Challenges

- Many of New Jersey's moveable bridges have reached or are reaching the end of their useful life and are prone to malfunction.
- Much of New Jersey's carload freight rail service relies on trackage rights over lines owned by NJ Transit that can only accommodate up to 263K-lb freight cars.
- New Jersey's densely developed landscape limits the development of new rights-of-way for freight rail, but network resiliency can be improved by expanding storage capacity in yards and allowing freight on passenger rail and vice versa during emergencies by improving connections and capacity at points that limit train movements.
- An analysis of north-south rail traffic found little near-term market utility for the reactivation of the Southern Secondary that formerly hosted the Blue Comet service. However, the advancement of offshore wind power generation suggests the rail connection could have potential utility in the future.

Identified Resources

- Since 2017, the Rail Freight Assistance Program (RFAP), administered by the NJDOT Office of Grants Management, has granted almost \$141 million to rail projects. Many of these funds are used to maintain a state of good repair or upgrade track to accommodate 286K-lb cars.
- Resources from The Federal Highway Administration (FHWA) Rail Highway Crossings Program are administered by NJDOT's Bureau of Structures and Railroad Engineering Services (S&RES). New Jersey's Highway-Railway Grade Crossing State Action Plan was developed to comply with the Fixing America's Surface Transportation (FAST) Act of 2015 and subsequent rulemaking by the Federal Railroad Administration (FRA). The Plan is currently being reviewed by the FRA.

New Jersey State Rail Plan, Draft 2024

Under the Passenger Rail Investment and Improvement Act of 2008, states are required to maintain a rail plan that describes the role of rail in statewide transportation, the state's existing rail system, proposed improvements for passenger and freight rail, and the state's rail investment program. A draft of the most recent New Jersey State Rail Plan was released for public comment in June 2024. The plan underscores that rail is already critical to the movement of people and goods in the state and that demographic and economic forces will likely cause the demand for rail transportation to continue to increase, especially for passengers and intermodal freight. However, the plan also notes that South Jersey's rail network is significantly different from North Jersey's and has comparatively limited congestion, except for the Delair Branch between Philadelphia and Pavonia Yard in Camden.

The plan lists recommendations for projects across the state that would maintain a state of good repair, mitigate congestion, expand capacity, and improve safety at grade crossings, including the following recommendations for South Jersey:

- fund state-of-good repair projects, especially on Class III Railroads such as SMS and Winchester and Western.
- re-establish a connection between North and South Jersey either via the Northeast Corridor and River Line or the former Central Railroad of New Jersey Southern Division between Red Bank and Vineland.
- build a through track at Pavonia Yard.
- install a signaling system on the Penns Grove Secondary south of the Paulsboro Movable Bridge.
- ensure the Glassboro-Camden light-rail line currently proposed to run along Conrail's Vineland Secondary takes steps to ensure the corridor can accommodate growth in freight and passenger traffic

SJTPO Regional Freight Plan, 2024

The South Jersey Transportation Planning Organization (SJTPO) is the metropolitan planning organization (MPO) that serves Atlantic, Cape May, Cumberland, and Salem counties. SJTPO released the Regional Freight Plan Data Collection and Analysis report in 2022 and their Regional Freight Plan in 2024. Key takeaways from the regional freight plan are listed below.

- The SJTPO region has long been a tourist destination and is regarded as the birthplace of the American glass industry. The glass and tourism industries are still present in the region but have seen declines in recent years due to external factors such as globalization and deindustrialization.
- Sand and gravel comprise a large portion of the region's outgoing freight flows.
- The Port of Salem, owned by the South Jersey Port Corporation (SJPC), primarily handles sand and gravel shipments. In July 2021, SJPC received a \$9 million grant from the USDOT Infrastructure for Rebuilding America (INFRA) program for improvements that would expand vessel capacity and intermodal rail connectivity at the Port of Salem. The project includes a bulkhead extension, dredging for a new berth area, and a refurbished multimodal rail connection.
- New Jersey Wind Port, located in Lower Alloways Creek, is under construction as a marshaling port for massive offshore wind components. Currently there is no rail access, but rail at the site could support the port in the future with sub-components that can be shipped by land. The Port of Salem also has the potential to be developed into a supporting port for the wind industry, functioning as a feeder for smaller parts and materials.
- Vineland and Millville have capitalized on their proximity to consumer markets and agricultural areas by developing cold storage facilities to handle fast-freeze produce.

Port of Salem Corridor Freight Rail Intermodal Study, May 2018

This report proposes a program of improvements to upgrade the Port of Salem, the Salem Branch rail line, and the area's roadway network. The study resulted in the identification of recommendations related to commercial activity and economic development:

- complete planned upgrades to the Salem Branch
- upgrade the Salem running track
- preserve and improve regional connectivity
- improve industrial tracks

- consider rehabilitating and reactivating the former Salem rail yard
- consider further extending the Salem Branch along the waterfront

CHAPTER 2: Background

Historic Rail Context

Given its central location in the Northeast Megaregion, the metropolis region spanning from Washington D.C. to New Hampshire and home to one in six Americans, New Jersey has long been a critical nexus in the nation's transportation system. Although it is less densely populated than the northern part of the state, South Jersey has played an outsized role in the history of American railroads. In 1830, the first railroad was built in New Jersey, the Camden and Amboy Railroad (C&A), and it became the fastest means of passenger transportation between Philadelphia and New York City.

In the late 1800s, railroad trackage in South Jersey expanded to provide recreational access to New Jersey's beaches, serving not just vacationers but also industries in Glassboro, Millville, Swedesboro, and Bridgeton, among others. By linking the then-remote inland areas of the state to the nearby cities and ports with fast and affordable transportation, railroads enabled agricultural growth and helped to move large amounts of sand and building materials required by the region's thriving glass and steel industries.

In 1896, the Delair Bridge was opened between Pennsauken, New Jersey, and Frankford Junction in Philadelphia, becoming the first bridge over the Delaware River south of Trenton. By 1918, New Jersey's rail network mileage peaked at 2,352 miles of track. The shift to automobiles in the early 20th century began to reduce the railroad industry's profitability. Many assets in South Jersey were combined over the next few decades, making some lines redundant and subsequently leading to abandonments.

Later, in the 1950s, larger railroads in the Northeast struggled to remain profitable, leading to further decline and bankruptcies. As the railroad industry continued to shrink in the 1970s and 1980s, the federal government began a series of regulatory changes aimed at reversing this trend and maintaining the nation's rail network.

In 1970, the Rail Passenger Service Act created Amtrak to take over most of the unprofitable long-distance passenger services that the private railroads had been obligated to run. This was the beginning of the end of the integrated full-service carrier era in American railroading where the ownership and maintenance of infrastructure and the provision of freight and passenger services were provided by the same company. In 1973, Congress passed the Regional Rail Reform Act (3R Act) that created the Consolidated Rail Corporation (Conrail) to take over the assets, commuter services, and freight operations of several bankrupt carriers in the Northeast and Midwest, including the Penn Central, Reading, PRSL, and Central of New Jersey. The 3R Act also assigned the Northeast Corridor, formerly owned by Penn Central, to Amtrak.

In 1981, the Northeast Rail Services Act relieved Conrail of its obligation to run commuter services. As a result, agencies such as NJ Transit and SEPTA took over commuter rail services in their respective areas. The federal government subsidized Conrail for several years, but after the Staggers Act of 1980 reduced the regulations placed on the industry, Conrail went private in 1987. In 1997, CSX and Norfolk Southern purchased Conrail's assets, splitting them between the two companies. However, in three areas, Conrail's properties were given to a jointly owned company, called the Conrail Shared Assets Organization (CSAO), to prevent either CSX or Norfolk Southern from gaining an unfair advantage over the other. Today, CSAO operates as a switching railroad in South Jersey, North Jersey, and Detroit, allowing each of its parent railroads access to terminals and customers in these areas.

Although there were many consolidations and bankruptcies following World War II, nationwide rail cargo increased steadily following the 1960s. In 1960, 572 billion rail ton-miles (one ton-mile is equal to one ton

transported one mile) were handled¹, and by 2008 rail ton-miles had increased to 1.778 trillion. Since 2008 rail volumes have declined slightly, and in 2022 around 1.533 trillion ton-miles were handled. Rail shipping rates (inflation adjusted) also decreased 40 percent between 1981 and 2002.² Revenue per ton-mile increased by more than one-third between 2002 and 2013 but has declined slightly since. Despite this decline in revenue per ton-mile, railroads have generally become more profitable due to a decline in operating expenses. The ratio of operating expenses to operating revenues (operating ratio) measures the extent to which railroads can cover their operating costs. In 2004, the average Class I operating ratio was 90 percent. By 2022, the industry average operating ratio was 63 percent—indicating increased profitability for the railroad industry as a whole.

Existing Infrastructure

Rail Owners and Operators

South Jersey is effectively a rail peninsula, relying on the Delair Bridge to access the North American rail network. Freight rail customers in South Jersey have access to two Class-I railroads, CSX and Norfolk Southern, through Conrail, which is jointly owned by the two companies. In addition to directly serving customers along its tracks, Conrail also interchanges with several short lines in the area. A summary of operations for key railroads within South Jersey is below.

Conrail owns and operates Pavonia Yard and the Delair Bridge, on which the South Jersey freight rail network depends, and operates multiple lines in South Jersey. These include the Vineland Secondary, the Beesley's Point Secondary, the Penns Grove Secondary, and the Salem Running Track. Conrail also operates a number of industrial tracks including the Bulson Street Industrial Track in Camden, the Grenloch Industrial Track to Bellmawr, the Vineland Industrial Track, the Millville Industrial Track, the Shell Industrial Track, the Pemberton Industrial Track, the Turnpike Industrial Track, and the Robbinsville Industrial Track. Conrail's yards in the area include Burlington Yard, Pavonia Yard, Bulson Street Yard, Woodbury Yard, and Millville Yard. In 2011, Conrail received a \$18.5 million Transportation Investments Generating Economic Recovery (TIGER) grant to replace the spans and the rail on the Delair Bridge. This project brought the rail weight capacity up to the industry standard of 286k-lb. and was part of a larger \$158 million investment to repair the rail line from the Delair Bridge to the Port of Salem. In addition to freight rail service, this bridge carries 12 New Jersey Transit passenger rail trains per day.

Winchester and Western (WW) operates two primary segments of rail lines, both of which connect to Conrail and interchange freight at Millville Yard. One segment, the Southern Main Line, extends from Conrail's Vineland Running Track and proceeds west to Bridgeton where the line splits into multiple branches including the Deerfield Branch and the C&M Branch. Bridgeton is also where the railroad's South Jersey operations are based. The other segment, the Seashore Branch, proceeds southeast from a connection with Conrail's Millville Industrial Track to Maurice River Township. Since the two segments are not directly connected, WW relies on Conrail trackage to serve them.

Cape May Seashore Lines (CMSL) operates two primary line segments. The first is the Cape May Branch, between Tuckahoe and Cape May, although it is currently not in service from Woodbine

¹ Association of American Railroads, "Overview of America's Freight Railroads," October 2018, www.aar.org/wp-content/uploads/2018/05/AAR-Overview-Americas-Freight-Railroads.pdf (accessed January 2025).

² U.S. Bureau of Transportation Statistics.

south to Cape May. The second segment is the Beesley's Point Secondary between Hammonton and Palermo, which CMSL took over operations from Conrail in February of 2022.

SMS Rail Lines operates out of the Pureland Industrial Complex where it serves local customers via its Pureland Industrial Track and has a transload facility. It also operates the Salem Branch from Swedesboro to Salem, including the freight rail connection to the Salem waterfront and the Paulsboro Industrial Track, which interchanges with Conrail's Penns Grove Secondary at SMS's Paulsboro Yard.

Southern Railroad of New Jersey (SRNJ) operates freight service over the NJ TRANSIT Atlantic City Line between Hammonton and Atlantic City, as well as local freight service to Pleasantville from Atlantic City. SRNJ is also the owner of the Southern Main Track between Vineland and Winslow.

NJ Transit (NJT) operates two primary line segments in the region. The first is the River Line on the Bordentown Secondary from the Walter Rand Transportation Center in Camden to the Trenton Transit Center. The second one is the Atlantic City Line from the Northeast Corridor and Delair Bridge to the Atlantic City Rail Terminal.

Capacity Restrictions

Of the lines identified above, all have 286K-lb ton capacity except for some portions of NJ Transit's Atlantic City Line, SRNJ's Southern Main Line, and the Cape May Seashore Line. These weight restrictions can be seen in Figure 2.

Another limitation of many rail lines within New Jersey relates to the available clearance above rails. When New Jersey's rail lines were built, the standard for vertical clearance of railcars was substantially lower than current design guidelines today. The Association of American Railroads designates dimensions of railcars using "plates" or diagrams. Figure 3 displays two relevant standards, Plate F and Plate H.

Multimodal Connections

There are nine multimodal rail connections in the study region. These include five port terminals and four transload facilities, which are illustrated in Figure 4. The port terminals include the following:

- Balzano Marine Terminal, Camden: Service for breakbulk and bulk cargoes that include steel, project cargo, wood products, and cocoa beans, among others.
- Gloucester Marine Terminal, Gloucester City: Service for breakbulk and container cargoes that include refrigerated and dry storage, USDA fruit service, steel, and project cargo.
- Paulsboro Marine Terminal, Paulsboro: Processes imported steel slabs with the capacity for other breakbulk cargo.
- Repauno Port and Rail Terminal, Greenwich Township: Services energy products and bulk cargo with the capacity for roll-on/roll-off and project cargo activity.
- Salem Terminal, Salem: Services sand and gravel, various dry bulk, motor vehicles, and apparel. While all of these are suited to rail shipping, and the Salem track is currently active and has been upgraded to standard weight capacity, the rail connection remains underutilized.

The transload facilities are:

- HGMG Transload
- Harris Camden Terminal (accepts oversized loads)

- SMS Rail Lines in the Pureland Industrial Complex
- Samuel Coraluzzo Bridgeport Butane Yard in the Pureland Industrial Complex

Figure 2 Weight Restricted Rail Lines

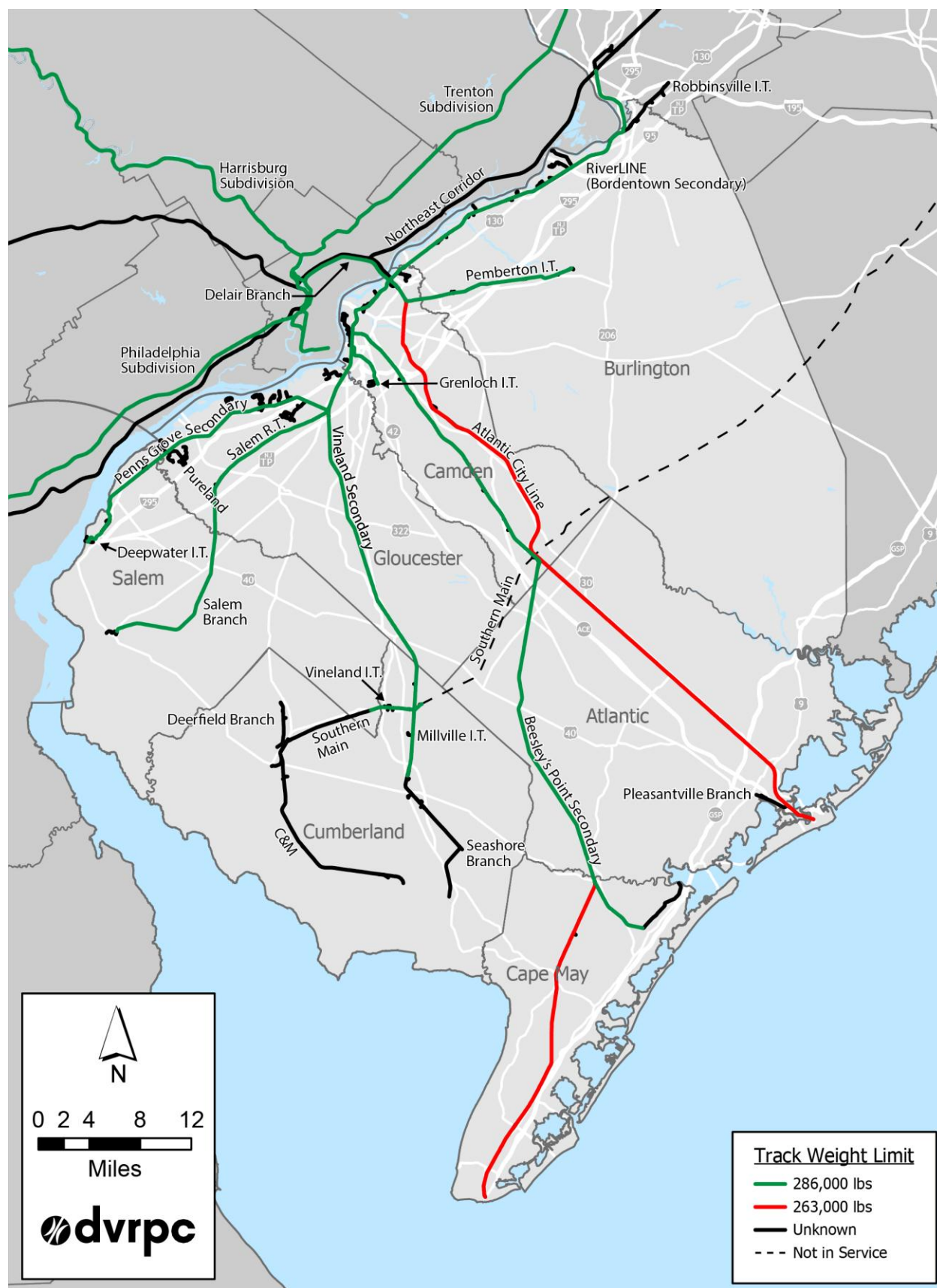
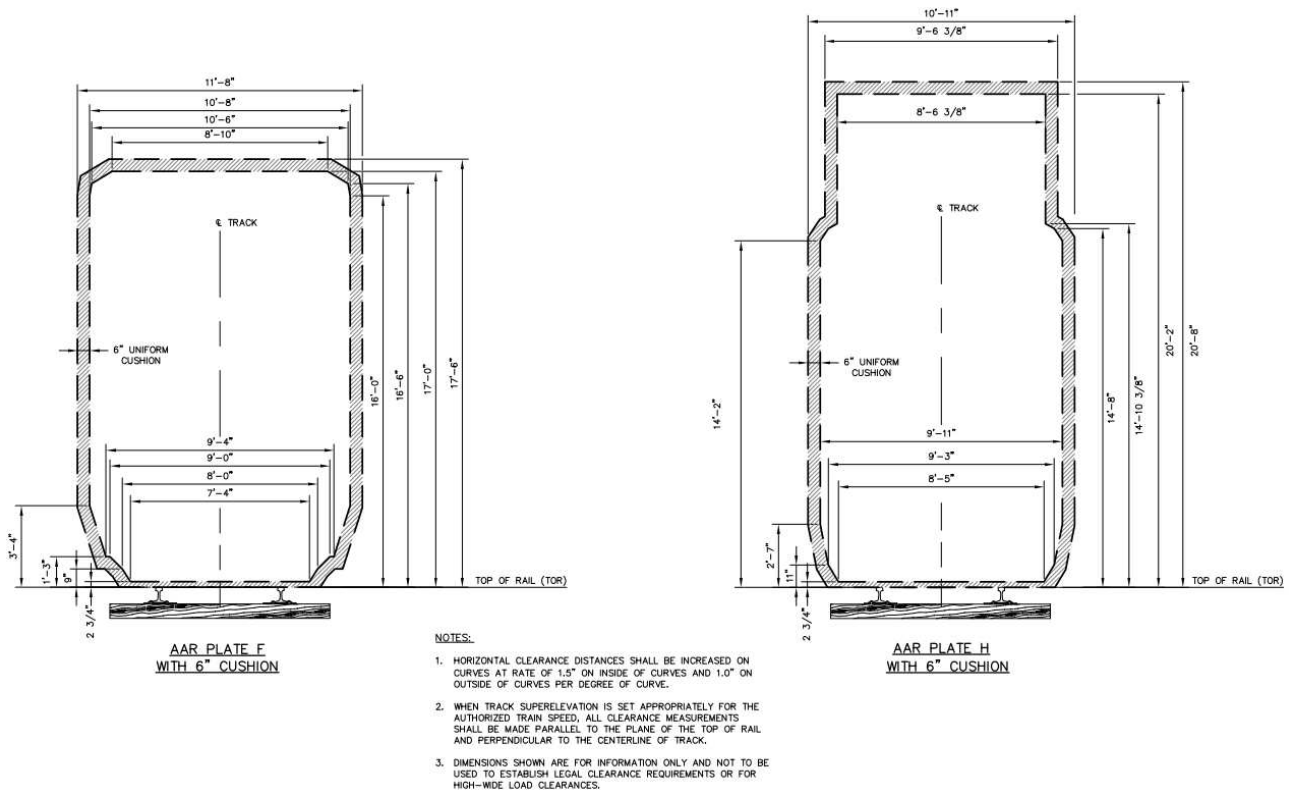
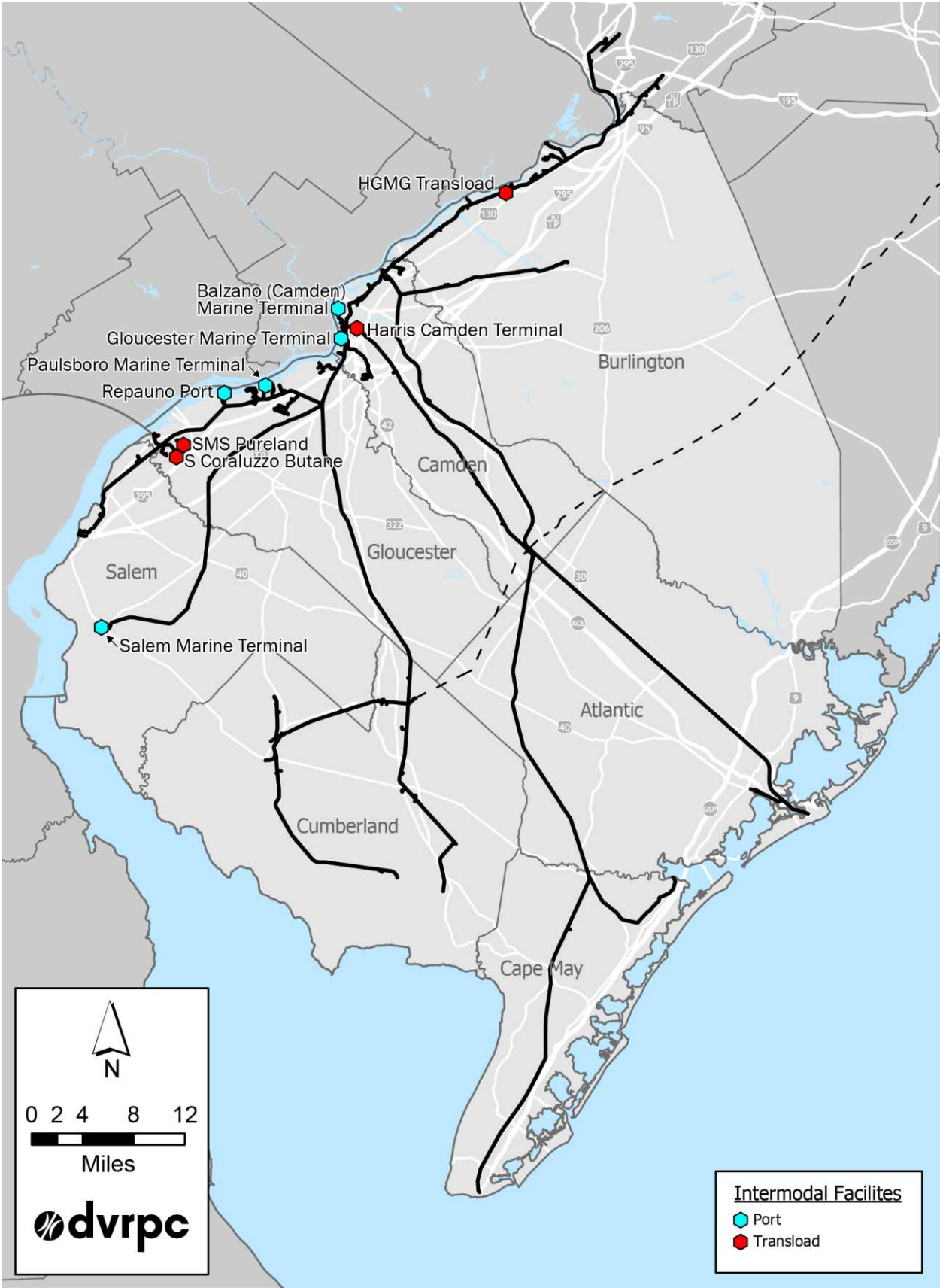


Figure 3 The Association of American Railroads Plate F and Plate H clearance Diagrams



Source: Association of American Railroads,
www.web.archive.org/web/20210224215901/https://my.aar.org/OTLR/Documents/Section%201/Section1AppendixA_20200826.pdf

Figure 4 Intermodal Connections



Economic Context

Manufacturing has traditionally been, and continues to be, one of the rail industry's top users in South Jersey. This includes industries tied to extraction, such as nonmetallic mineral manufacturing and petroleum refining; industries tied to agriculture, including food manufacturing; and manufacturers of industrial products, such as chemical manufacturing. Trends in manufacturing subsectors can be assessed using the U.S. Census Bureau's County Business Patterns (CBP), which provides relatively detailed information on employment and the number of establishments by industry at a county and zip code level.

However, employment is an imperfect predictor of rail markets in manufacturing due to changes in productivity. Because manufacturing has become more automated, a decline in a manufacturing industry's employment does not necessarily mean that it ships less product. Rather, the industry may have become more efficient, shipping the same or more volume of product with less employment. Because industries tend to become more productive over time, a scenario where employment increases suggests that the industry is shipping more and therefore could provide a larger market for rail. As a result, this study documented these employment increases as potential opportunities for continued growth.

As shown in Table 1, manufacturing employment in the South Jersey study area generally declined between 2000 and 2021, and 2021 employment was 40 percent lower than 2000 employment. Although the general trends illustrate a decline in overall employment, some subsectors gained employment. In food manufacturing, employment growth in the region was mostly associated with bakeries and perishable food manufacturing. In beverage manufacturing, the employment increase has been heavily impacted by brewery growth, while growth in the wood product manufacturing sector is a result of increased pallet building and manufactured home building. Although these have historically not been the highest volume rail shippers in South Jersey, each of these industries ship by rail and represent a growth opportunity for rail in the study area.

In 2020, the manufacturing industry contributed \$54 billion to the state gross domestic product (GDP) and accounted for 6.2 percent of all jobs in the state. Several of the largest manufacturing subsectors by employment in New Jersey are also the state's largest rail users, including chemical, food, and fabricated metal manufacturing.

According to the New Jersey Department of Labor, chemical manufacturing is New Jersey's largest manufacturing subsector, accounting for 34 percent of the manufacturing GDP and 19 percent of the state's manufacturing employment in 2020 with 43,770 jobs. Food manufacturing is New Jersey's second largest manufacturing subsector with 15 percent of manufacturing employment or 35,418 jobs in 2020. Fabricated metal products are the fourth largest subsector with nine percent of manufacturing employment or 21,036 jobs in 2020.

The employment and economic impact of these industries has generally declined since 1990 from 14.6 percent of all jobs in the state to 6.2 percent of all jobs in the state. Table 2 shows the share of manufacturing employment for each of the seven counties in the study area. In five of seven South Jersey counties, manufacturing makes up a larger share of private employment than it does at the state level.

Table 1 Change in Manufacturing Employment by Subsector in South Jersey

Sector	2000 Empl.	2021 Empl.	Chg. in Empl.	% Change
Food Manufacturing	7,479	10,106	2,627	35%
Beverage and Tobacco Product Manufacturing	995	1,452	457	46%
Textile Product Mills	590	297	-293	-50%
Apparel Manufacturing	1,845	151	-1,694	-92%
Wood Product Manufacturing	1,059	1,405	346	33%
Paper Manufacturing	2,560	1,481	-1,079	-42%
Printing and Related Support Activities	6,481	2,503	-3,978	-61%
Petroleum and Coal Products Manufacturing	1,354	427	-927	-68%
Chemical Manufacturing	7,094	3,471	-3,623	-51%
Plastics and Rubber Products Manufacturing	4,845	3,034	-1,811	-37%
Nonmetallic Mineral Product Manufacturing	7,681	4,254	-3,427	-45%
Primary Metal Manufacturing	3,177	192	-2,985	-94%
Fabricated Metal Product Manufacturing	5,768	3,251	-2,517	-44%
Machinery Manufacturing	4,525	3,051	-1,474	-33%
Computer and Electronic Product Manufacturing	9,687	4,803	-4,884	-50%
Electrical Equipment, Appliance, and Component Manufacturing	1,105	434	-671	-61%
Transportation Equipment Manufacturing	2,706	2,099	-607	-22%
Furniture and Related Product Manufacturing	1,178	811	-367	-31%
Miscellaneous Manufacturing	3,979	1,703	-2,276	-57%
Total	74,735*	44,912	-29,810	-40%

Source: U.S. Census Bureau's County Business Patterns, 2021

*The total is higher than the values in the table because some industries were not in the CBP survey in 2021 but were in the CBP survey of 2000 and do not appear in this table.

Table 2 County Share of Manufacturing Employment

County	Share of Manufacturing
Atlantic	2.6%
Burlington	9.6%
Camden	8.5%
Cape May	3.2%
Cumberland	17.7
Gloucester	9.1%
Salem	10.6%

Source: 2020 New Jersey Department of Labor

Freight Intensive Employment

This report includes an assessment of the identified freight-dependent sectors the rail network serves within that region:

- Agriculture, Mining, and Forestry
- Construction
- Manufacturing
- Wholesale Trade
- Retail Trade
- Transportation and Warehousing
- Utilities

Table 3 shows the share of employment in these freight-intensive industries for each of the counties in the study area.

Table 3 County Share of Employment that is Freight Intensive

County	Freight Intensive Employment
Atlantic	13.7%
Burlington	25.2%
Camden	20.0%
Cape May	15.5%
Cumberland	36.0%
Gloucester	30.4%
Salem	13.7%

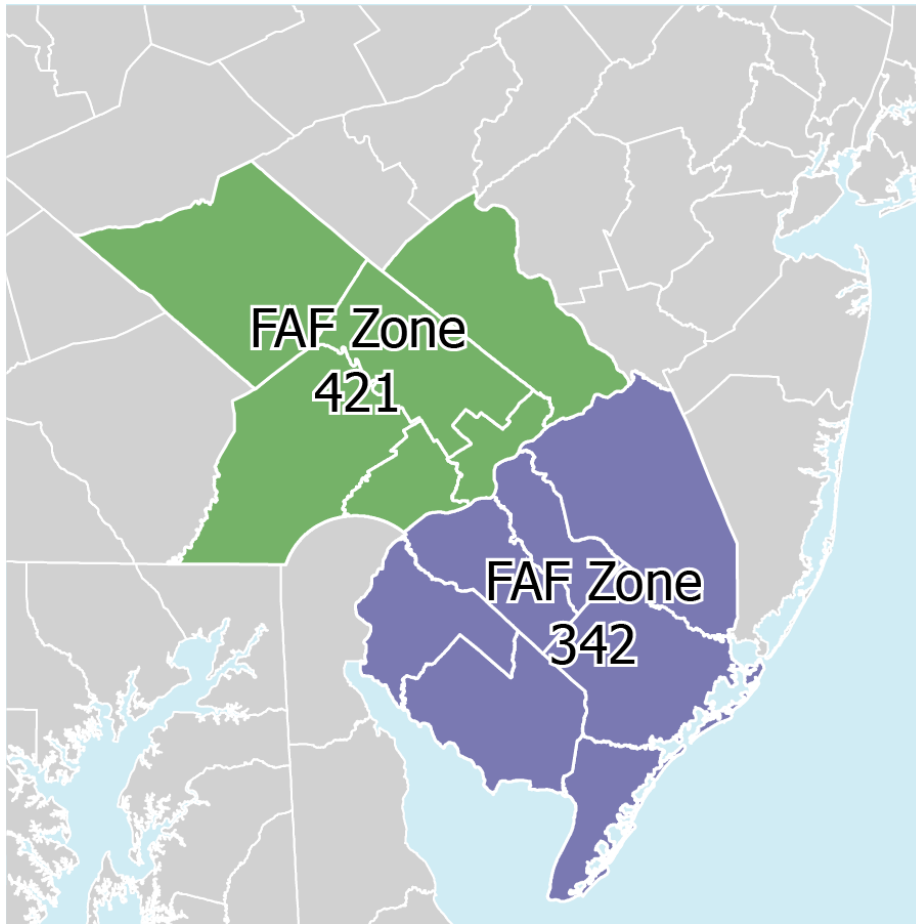
Source: 2021 Census Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES)

Commodity Flow Analysis

The Freight Analysis Framework Version 5 (FAF5) was used to quantify freight movements in and out of South Jersey. FAF5 is a product of BTS and FHWA that compiles commodity and freight movement data from a variety of sources to estimate value and tonnage flows between states or metropolitan areas. FAF5 classifies commodities using Standard Classification of Transported Goods (SCTG) codes at the two-digit level and describes flows by their origin, destination, and mode. Freight traveling by rail and multiple modes were both examined because the multiple modes category includes intermodal rail shipments. Specifically, the FAF's definition of multiple mode shipments includes truck-rail and truck-barge intermodal movements as well as goods sent via the U.S. Mail or a parcel service. The boundaries of this study are coterminous with FAF Region 342-Philadelphia PA-NJ-DE-MD (New Jersey portion) which includes Atlantic, Camden, Cape May, Cumberland, Burlington, Gloucester, and Salem counties.

The quantity of freight movements between the South Jersey and the Pennsylvania portions of the Greater Philadelphia Region were also compared to better understand the balance of commodities movements across the region. The Pennsylvania portion of the Greater Philadelphia region (the Philadelphia-Reading-Camden Combined Statistical Area) is defined by FAF Zone 421. The boundaries of these FAF zones can be seen in Figure 5.

Figure 5 FAF Regions 342 and 421



Source: FAF 5, 2022

Originating Commodities

FAF5 estimates that by weight the commodities with the highest tonnage originating in the study area by rail or multiple modes in 2022 were natural sands, natural gas and other fossil fuel products, other agricultural products, plastics/rubber, nonmetal mineral products (such as glass, cement, ceramic, and gypsum products), waste/scrap, and chemical products. Based on the region's agricultural production, "other agricultural products" shipped by rail likely include soybeans or vegetables. Other originating commodities with significant rail shipments include basic chemicals, fuel oil, and cereal grains. These originating commodities can be seen in Table 4.

For all commodities shipped by rail or multiple modes from the Philadelphia Region, 7.9 million tons originated in Pennsylvania and 4.3 million tons originated in New Jersey. The ratio of total tonnage originating in New Jersey to total tonnage originating in Pennsylvania was 0.55, meaning that the New Jersey portion of the region originated about 55 percent of the total cargo that originated on the Pennsylvania side.

The commodities for which significantly more shipments originate in New Jersey than Pennsylvania are natural sands, cereal grains, fuel oils, textiles/leather, and natural gas/other fossil fuel products. Most commodities are shipped from Pennsylvania in greater quantities than from New Jersey, and the commodities where the discrepancy is largest are gravel, coal, newsprint/paper, meat/seafood, wood products, metallic ores, nonmetallic minerals, animal feed, and crude petroleum.

The Greater Philadelphia region ships commodities to destinations across the country; the destinations tend to vary based on commodities as follows:

- Nearly all rail shipments of other agricultural products from South Jersey are intrastate. In contrast, rail shipments of other agricultural products originating in southeastern Pennsylvania terminate in a variety of locations including California and Florida.
- Shipments of natural sands from South Jersey either stay within the Greater Philadelphia region or go to other areas of Pennsylvania, New York, and West Virginia via multiple modes.
- Rail shipments of natural gas and other fuel products originate from both the Pennsylvania and New Jersey portions of Greater Philadelphia but serve different destinations, with shipments from New Jersey going to Kentucky, California, Tennessee, or moving intrastate, while fuel products shipped from Pennsylvania go to northern New Jersey (the New York region), Canada, Pennsylvania, Louisiana, and Virginia.
- Rail movements of plastics and rubber from South Jersey terminate across North America. This contrasts with southeastern Pennsylvania where most of the plastic and rubber shipped by rail move within the region.

Table 4 Commodities Moving by Rail **Originating** in FAF Region 342 and 421

Originating Commodity	NJ Thousand Tons (FAF Region 342)	PA Thousand Tons (FAF Region 421)	NJ:PA Ratio	Balance
Natural sands	1,745.10	0.65	2695.78	NJ
Natural gas and other fuel products	1,068.11	597.32	1.79	NJ
Other agricultural products	500.01	1,039.86	0.48	PA
Plastics/rubber	312.00	1,428.69	0.22	PA
Nonmetal mineral products	104.28	301.37	0.35	PA
Waste/scrap	99.39	514.47	0.19	PA
Chemical products	63.88	261.36	0.24	PA
Other foodstuffs	61.46	434.15	0.14	PA
Textiles/leather	47.88	40.07	1.19	NJ
Basic chemicals	46.04	197.05	0.23	PA
Base metals	36.96	417.86	0.09	PA
Fuel oils	32.89	14.35	2.29	NJ
Mixed freight	30.84	36.51	0.84	PA
Printed products	30.02	59.96	0.50	PA
Electronics	29.32	82.57	0.36	PA
Miscellaneous manufactured products	26.91	181.94	0.15	PA
Cereal grains	25.26	2.45	10.29	NJ
Motorized vehicles	13.69	66.97	0.20	PA
Pharmaceuticals	11.95	136.77	0.09	PA
Articles-base metal	8.71	49.29	0.18	PA
Machinery	8.12	131.91	0.06	PA
Fertilizers	6.04	8.47	0.71	PA
Other	31.74	1926.88	0.02	PA
Total	4,340.62	7,930.92	0.55	

Source: FAF 5, 2022

Terminating Commodities

FAF estimates for 2022 indicate that the commodities with the highest tonnage terminating in the study area by rail or multiple modes were natural gas and other fossil fuel products, other agricultural products, basic chemicals, wood products, plastics/rubber, newsprint/paper, and other foodstuffs. The category of other foodstuffs includes a variety of processed foodstuffs such as animal and vegetable fats, butter, tea, coffee, spices, sugar, cocoa, sauces, soups, and soft drinks. These originating commodities can be seen in Table 5.

For all commodities shipped by rail or multiple modes to the Greater Philadelphia region, the ratio of tonnage terminating in New Jersey to tonnage terminating in Pennsylvania was 0.34, meaning that the amount of cargo terminated on the Pennsylvania side was about triple the amount on the New Jersey side. This ratio also varies by commodity. Nine commodities had more tonnage terminating in New Jersey than Pennsylvania: other agricultural products, motorized vehicles, chemical products, natural sands, fuel oils, milled grain products, tobacco products, building stone, and live animals/fish. Commodities for which Pennsylvania receives significantly more than New Jersey include crude petroleum, waste/scrap, machinery, meat/seafood, metallic ores, animal feed, cereal grains, coal, and logs.

Commodities that terminate by rail in the Greater Philadelphia Region including shipments from within the region, across the country, and overseas.

- Rail shipments of natural gas and other fuel products to South Jersey include imports from Europe and Asia via northern New Jersey, as well as direct shipments from Canada. Domestic shipments are primarily delivered by pipeline or rail from Houston.
- Most rail shipments of basic chemicals destined for South Jersey originate from either Houston or Wyoming.
- Origins for wood products shipped by rail to South Jersey include Washington, North Carolina, and Georgia. North Carolina and Alabama are the top origins for the Pennsylvania side of the region.
- The top origins for plastics and rubber shipped by rail or multiple modes to South Jersey are Texas, Pennsylvania, and Louisiana. Rail shipments of plastics and rubber in southeastern Pennsylvania are dominated by intraregional flows.

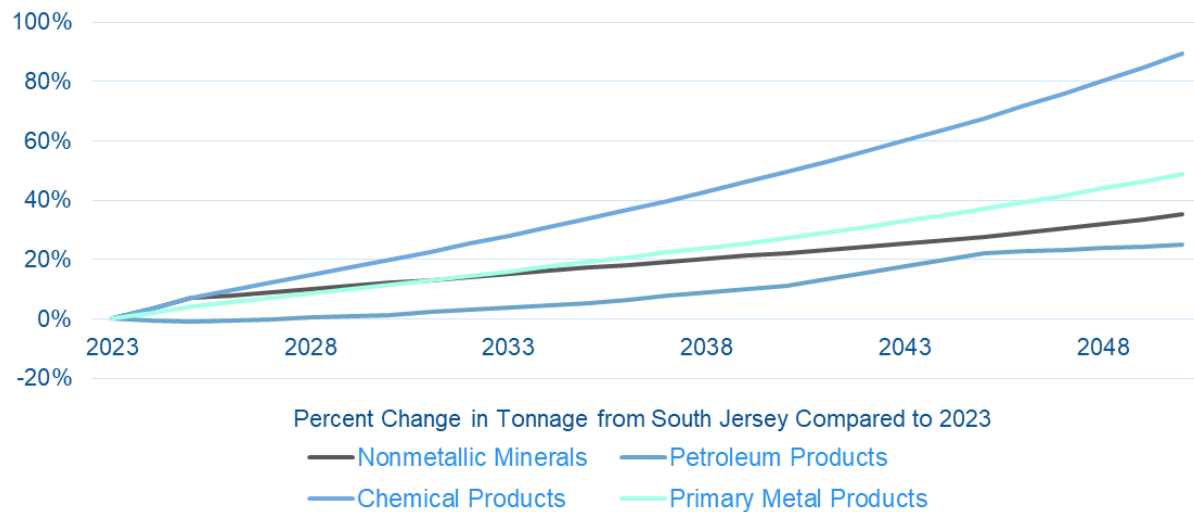
Rail volumes originating and terminating in South Jersey generally fell between 2014 and 2019. The declines were generally attributable to reductions in tonnage terminating in South Jersey. However, as shown in Figure 6 below, the FAF5 database expects rail shipments of the highest volume commodities shipped to or from South Jersey to grow, particularly chemical products.

Table 5 Commodities Moving by Rail **Terminating** in FAF Region 342 and 421

Terminating Commodity	NJ Thousand Tons (FAF Region 342)	PA Thousand Tons (FAF Region 421)	NJ:PA Ratio	Balance
Natural gas and other fuel products	1,016.70	3,018.40	0.34	PA
Other agricultural products	552.60	86.40	6.40	NJ
Basic chemicals	502.40	762.30	0.66	PA
Wood products	268.00	355.70	0.75	PA
Plastics/rubber	262.40	1,004.20	0.26	PA
Newsprint/paper	241.50	630.10	0.38	PA
Other foodstuffs	190.40	256.30	0.74	PA
Motorized vehicles	162.20	144.10	1.13	NJ
Chemical products	162.00	92.70	1.75	NJ
Natural sands	160.80	124.70	1.29	NJ
Nonmetal mineral products	157.00	269.50	0.58	PA
Base metals	127.30	394.70	0.32	PA
Articles-base metal	104.10	145.60	0.71	PA
Gasoline	96.80	389.10	0.25	PA
Fuel oils	87.60	55.90	1.57	NJ
Electronics	74.70	130.70	0.57	PA
Milled grain products	73.10	40.40	1.81	NJ
Miscellaneous manufactured products	62.80	88.50	0.71	PA
Nonmetallic minerals	59.80	89.00	0.67	PA
Waste/scrap	50.40	404.90	0.12	PA
Other	340.3	3354.7	0.10	PA
Total	4,753.00	11,837.80	0.34	

Source: FAF 5, 2022

Figure 6 Tonnage Forecasts for South Jersey



Source: FAF 5, 2022

County-Level Commodities Movement

In addition to an analysis of freight rail flows using the FAF5 database, an assessment was completed using the U.S. Surface Transportation Board (STB) Carload Waybill Sample for 2021. The waybill sample is a stratified sample of terminating waybills for rail carriers terminating 4,500 or more revenue carloads annually. Waybills are shipping documents prepared by railroads that provide details on rail shipments. The STB requires that information from waybills can only be presented in an aggregated format so that specific traffic volumes cannot be attributed to specific shippers.

Originating and Terminating Tonnage by County in South Jersey

The top three counties in South Jersey for originating tonnage are Gloucester County (78 percent of all tonnage originating from South Jersey), Cumberland County (nine percent), and Burlington County (six percent).

- Steel shipments from the Port of Paulsboro are most of the originating rail tonnage from Gloucester County, followed by refined petroleum products, and chemical products. Nearly all the chemical products shipped by rail from Gloucester County are plastic materials, synthetic resins, or elastomers.
- Nonmetallic minerals are most of the rail tonnage that originates from Cumberland County, followed by coal and waste. Nonmetallic minerals shipped from Cumberland County consist primarily of industrial sand.
- Nearly all rail tonnage from Burlington County is waste, with small additional volumes of metal and transportation equipment.

Of the remaining tonnage originating by rail from other counties in South Jersey, chemical products have the highest tonnage followed by plastic materials, synthetic resins, or elastomers from Salem County, metal from Camden County, and waste from Camden or Salem County.

The top three counties in South Jersey for terminating rail tonnage are Gloucester, Salem, and Camden.

- The top three commodities that terminate by rail in Gloucester County are hazardous waste, refined petroleum products, and chemical products.
- The top three commodities terminating by rail in Salem County are coal, hazardous waste, and chemical products.
- The top three commodities that terminate by rail in Camden County are paper, metal, clay, concrete, and glass.

The remaining tonnage terminating by rail in South Jersey (primarily to Burlington County for each commodity) consists of paper shipments, clay, concrete, glass, and chemical products. Most of the chemical tonnage shipped by rail to South Jersey counties excluding Gloucester, Salem, and Camden are plastics, synthetic resins, or elastomers.

Commodities in South Jersey

The top five commodities originating by rail from South Jersey are metal, refined petroleum products, nonmetallic minerals, waste, and chemical products. These five commodities make up 96 percent of all freight rail traffic originating from South Jersey.

The top five commodities that terminate in South Jersey (in order) are hazardous waste; chemical products; paper; coal; and clay, concrete, and glass. These five commodities make up 75 percent of all commodities terminating in South Jersey.

Freight Flows to and from South Jersey by State

The top five originating states for freight tonnage that terminate in South Jersey are Illinois, Pennsylvania, Ohio, West Virginia, and New York. Originating tonnage from these five states comprises 66 percent of all tonnage terminating in South Jersey. Details about commodities shipped from each state are included below in Table 6.

The top five terminating states for freight tonnage that originates in South Jersey are Pennsylvania, Illinois, New York, Ohio, and Indiana. Freight terminating in these five states comprises 81 percent of all tonnage originating in South Jersey. Details about commodities shipped to each state are included below in Table 7.

Table 6 Top Five Originating States for Freight **Terminating** in South Jersey, % of Total

State	% of Total	Top three commodities (% commodity of total tonnage from state terminating in South Jersey)
Illinois	23%	<ul style="list-style-type: none"> • Chemical products - about a third of this tonnage is plastic materials, synthetic resins, or elastomers • Hazardous waste • Food
Pennsylvania	19%	<ul style="list-style-type: none"> • Hazardous waste • Coal • Clay, concrete, and glass
Ohio	12%	<ul style="list-style-type: none"> • Hazardous waste • Coal • Refined petroleum products
West Virginia	7%	<ul style="list-style-type: none"> • Hazardous waste • Coal • Lumber
New York	5%	<ul style="list-style-type: none"> • Hazardous waste • Paper • Chemical products
Other	34%	<ul style="list-style-type: none"> • Paper • Clay, concrete, glass • Chemical products
Total	100%	<ul style="list-style-type: none"> • Hazardous waste • Chemical products • Paper

Source: STB Waybill, 2021

Table 7 Top Five Terminating States for Freight **Originating** from South Jersey, % of Total

State	% of Total	Top three commodities (% commodity of tonnage originating in South Jersey, terminating in state)
Pennsylvania	57%	<ul style="list-style-type: none"> • Metal • Chemical products - all chemical products shipped to Pennsylvania from South Jersey are plastic materials, synthetic resins, or elastomers • Refined petroleum products
Illinois	8%	<ul style="list-style-type: none"> • Refined petroleum products • Chemical products • Hazardous waste
New York	8%	<ul style="list-style-type: none"> • Nonmetallic minerals – all nonmetallic minerals shipped to New York from South Jersey are industrial sand • Refined petroleum products • Chemical products - all chemical products shipped to New York from South Jersey are plastic materials, synthetic resins, or elastomers
Ohio	7%	<ul style="list-style-type: none"> • Waste • Chemical products - all chemical products shipped to Ohio from South Jersey are plastic materials, synthetic resins, or elastomers • Refined petroleum products
Indiana	2%	<ul style="list-style-type: none"> • Refined petroleum products • Waste • Metal
Other	19%	<ul style="list-style-type: none"> • Metal • Refined petroleum products • Chemical products – most but not all chemical products shipped to states other than the top five from South Jersey are plastic materials, synthetic resins, or elastomers
Total	100%	<ul style="list-style-type: none"> • Metal • Refined petroleum products • Nonmetallic minerals – the majority of all nonmetallic minerals shipped from South Jersey to other states is industrial sand

Source: STB Waybill, 2021

Potential Truck to Rail Traffic Diversion

Transearch tracks historic U.S. supply chain freight flows and provides forecasts out 30 years by origin, destination, commodity, and transportation mode. According to the Transearch database for 2018, truck traffic could potentially be diverted to rail if the meets either of the following criteria:

- Travels over 150 miles, is a commodity that is typically shipped by rail, and the movement contains at least 1,000 carloads between one origin and one destination (defined by county in Transearch or state portion of Economic Area as defined by the Bureau of Economic Analysis (BEA)).
- Travels over 50 miles, is a commodity that is typically shipped by rail, and the movement contains at least 3,000 carloads between one origin and one destination. 3,000 carloads is an estimate of weekly unit train operations (e.g., 60 carloads x 52 weeks per year = 3,120 carloads).

Commodity movements in the study area that meet these criteria are listed in Table 8. The analysis indicates that inbound movements of gravel and sand could represent opportunities to divert freight from truck to rail. However, additional information would need to be gathered to more specifically identify the nature of the freight moves and whether rail diversion would really be feasible/desirable.

Table 8 Potential Diversion Loads

Origin (County or BEA Economic Area)	Destination	Average Miles	Commodity	Carloads
Maryland Portion of Philadelphia Economic Area	Cumberland County, NJ	60.5	Gravel or Sand	9,799
Maryland Portion of Philadelphia Economic Area	Gloucester County, NJ	51.4	Gravel or Sand	5,174
North Carolina Portion of Norfolk Economic Area	Cumberland County, NJ	291.3	Gravel or Sand	4,672
Maryland Portion of Philadelphia Economic Area	Burlington County, NJ	64.7	Gravel or Sand	3,799
Suffolk County, NY	Cumberland County, NJ	167.3	Gravel or Sand	1,375

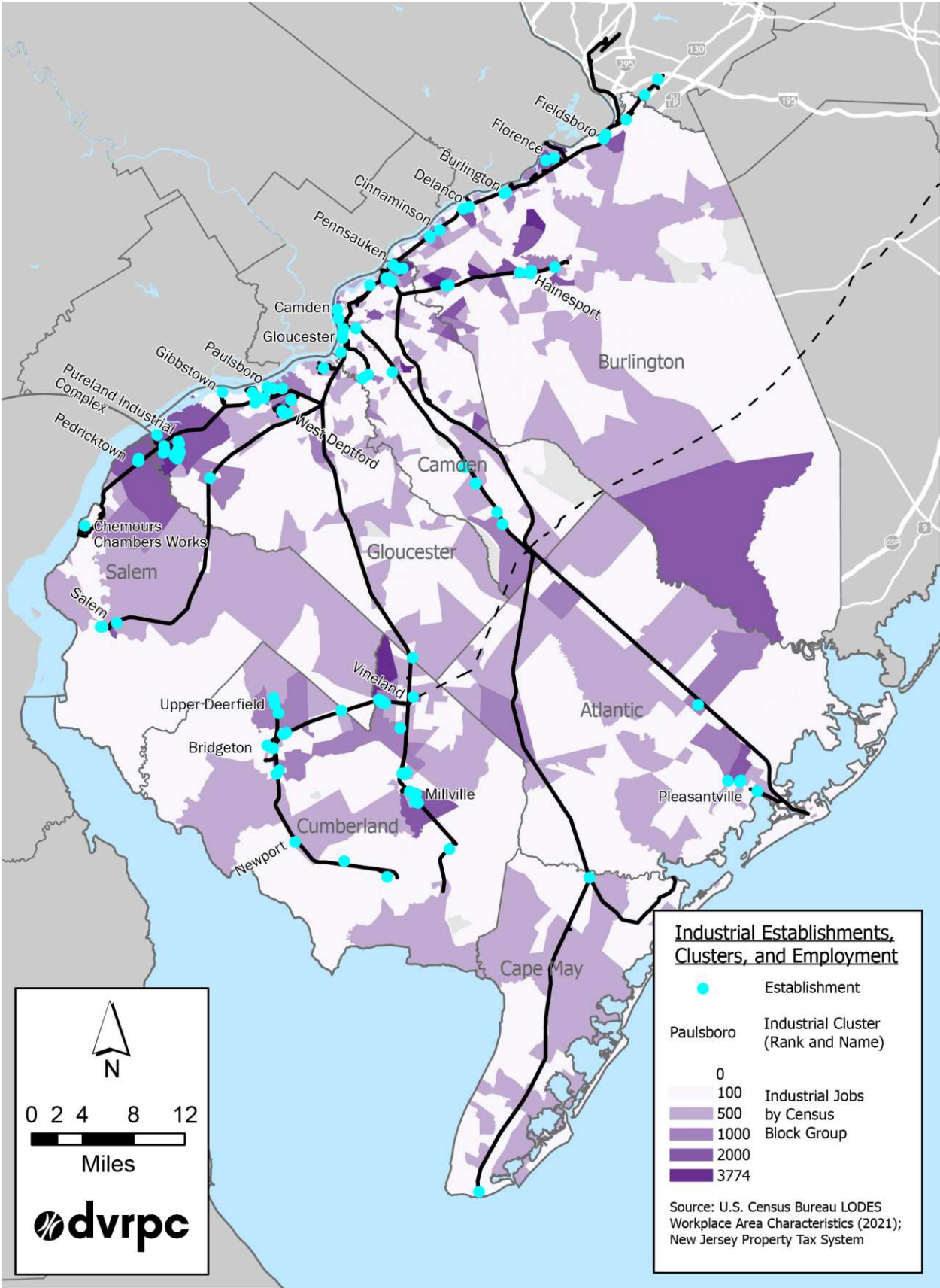
Source: Transearch, 2018

Industrial Development Patterns

Most of the rail shippers in South Jersey are located in industrial clusters along the rail network (as seen in Figure 7) and are able to take advantage of their proximity to transportation infrastructure. This is also reflected in rail activity by tons along the rail lines as seen in Figure 8. The Penns Grove Secondary provides access to many of these clusters along the Delaware River and is the mostly heavily used portion of the South Jersey rail network.

South Jersey's rail-served industrial clusters vary in how they use rail, and what commodities they ship, depending on the nature of the establishments within those clusters. Some are focused on specific commodities with few establishments, but others include a range of shippers shipping or receiving different types of commodities. Table 9 shows the composition of these clusters.

Figure 7 Industrial Development Clusters



Railroad Density

5,000 tons

40,000,000 tons

Source: BTS Carload Waybill Sample, 2019

Table 9 Industrial Development Clusters

Cluster Name	Rail-served Businesses	Commodities
Barrington	International Paper ³	Paper and pulp products
Bellmawr	International Paper, Amoroso's Bakery ⁴	Inbound paper and pulp, food products
Bridgeton	Winchester & Western Railroad, Ardagh Glass, Cumberland Dairy	Glass, food
Burlington	Rimtech Corperation (Chemicals), HGMG Transload ⁵⁶	Primarily inbound chemicals and steel
Camden	Balzano Marine Terminal, Pier 5 Marine Terminal (Cold Terminal), Camden Yards Steel, EMR ⁷	Inbound and outbound steel, inbound food, clay, concrete, glass, stone, waste
Cinnaminson	Domtar	Paper
Delanco	Boise Cascade, Ryan Homes ⁸⁹	Inbound lumber shipments
Deptford	Solvay Specialty Chemicals ¹⁰	Chemicals
Fieldsboro	Stepan ¹¹	Terminating chemicals
Florence	Cowan Logistics, Saddle Creek Logistics Services ¹²	Primarily inbound paper/pulp
Gibbstown	Repauno Port ¹³	Petroleum both inbound and outbound, chemicals
Gloucester	Gloucester Marine Terminal, Builder's First Source ¹⁴	Pulp/paper
Hainesport	Roosevelt Paper, Hainesport Transportation Group, Key Metal Refining, US Supply (HVAC supplier) ¹⁵	Inbound printing paper and outbound waste
Millville	Gerresheimer Glass, Durand Glass Manufacturing, Nipro PharmaPackaging, Aluminum Recycling Enterprises, Homeland Vinyl, Carter Components, Surfside Foods	Glass, scrap, building materials, food
Newport	Heidelberg Materials Aggregates ¹⁶	Sand
Paulsboro	Paulsboro Marine Terminal, PBF Refinery, Coim, ExxonMobile Lube ¹⁷	Outbound steel, crude, chemicals including plastics and resins

³ International Paper. n.d. International Paper Locations. Accessed October 7, 2024. www.internationalpaper.com/locations.

⁴ Amoroso's Baking Company. n.d. Contact Us. Accessed October 7, 2024. www.amorosobaking.com/contact/contact-us.

⁵ HGMG Transload LLC. n.d. About. Accessed October 7, 2024. www.hgmgttransload.com/about.php.

⁶ United States Environmental Protection Agency. n.d. "Facility Detail Report-Rimtech Corperation (ID: 110000320965)." Facility Registry Service. Accessed October 7, 2024. [frs-public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110000320965](https://public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110000320965).

⁷ Stakeholder Outreach

⁸ Boise Cascade. n.d. Locations. Accessed October 7, 2024. www.bc.com/locations/.

⁹ NVR Inc. n.d. "2023 Annual Report (Form 10-K)." Overview. Accessed October 7, 2024. www.nvri.gcs-web.com/.

¹⁰ United States Environmental Protection Agency. n.d. "Facility Detail Report-Solvay Solexis (ID:110013317614)." Facility Registry Service. Accessed October 7, 2024. [frs-public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110013317614](https://public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110013317614).

¹¹ Stepan. n.d. Locations. Accessed October 7, 2024. www.stepan.com/content/stepan-dot-com/en/you-stepan/locations.html.

¹² Saddle Creek Logistics Services. n.d. Saddle Creek Locations. Accessed October 7, 2024. www.scllogistics.com/our-network/locations/.

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¹⁴ Stakeholder Outreach; Builders FirstSource. n.d. Find a Location. Accessed October 7, 2024. www.blr.com/location-finder.

¹⁵ Hainesport Transportation Group. n.d. Homepage. Accessed October 7, 2024. www.thehtg.com/homepage. Roosevelt Paper. n.d. Our Locations. Accessed October 7, 2024. www.rooseveltpaper.com/contact-us/our-locations/. US Supply. n.d. Conviient Locations. Accessed October 7, 2024. www.ussupply.com/convenient-locations.

¹⁶ Heidelberg Materials. n.d. Locations. Accessed October 7, 2024. www.heidelbergmaterials.us/home/locations.

¹⁷ Coim Group. n.d. Locations. Accessed October 7, 2024. www.coimgroup.com/whereweare.htm.

PBF Energy. n.d. Refineries. Accessed October 7, 2024. www.pbfenergy.com/refineries/.

Table 9 Continued Industrial Development Clusters

Cluster Name	Rail-served Businesses	Commodities
Pedricktown	OxyChem/OxyVinyls, Vestolit, Lubrizol ¹⁸	Inbound and outbound chemicals. Companies are all resin/plastic plants
Pennsauken	Dow Chemical, Crystal Clean, Fessenden Hall, Lyons & Sons	Chemicals, building materials
Pleasantville	Universal Supply, Peter Lumber, 84 Lumber, A E Stone	Lumber, aggregates
Pureland	Valtris Specialty Chemicals, Advanced Drainage Systems, Chelton House, Home Depot, S Coraluzzo Bridgeport Butane Yard, Produce Junction, Peirce-Phelps, SMS Rail Lines, Heritage Bag, Mapei, Uptown Bakeries, Central Ink, Visual Communications, Rastelli Food Group, Americhem, Pandrol, Custom Building Products, XPO Logistics ¹⁹	Primarily inbound chemicals, food, chemicals, waste outbound
Upper Deerfield	Perdue AgriBusiness, Seabrook Brothers and Sons, Lassonde Pappas & Co	Food
Vineland	Corning Pharmaceutical Glass, PhilCorr (Cardboard), Safeway Freezer Storage, F&S Fresh Foods, Aunt Kitty's Foods, Giordano's Waste and Recycling Management ²⁰	Inbound nonmetallic mineral paper, food products
Westville	Energy Transfer Eagle Point Terminal ²¹	Inbound crude, chemicals, and petroleum products

United States Environmental Protection Agency. n.d. "Facility Detail Report-ExxonMobil Paulsboro Lube Plant (ID:110013698757)." Facility Registry Service. Accessed October 7, 2024. frs-public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110013698757.

¹⁸ United States Environmental Protection Agency. n.d. "Facility Detail Report-Lubrizol Corp (ID:110000321198)." Facility Registry Service. Accessed October 7, 2024. frs-public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110000321198.

—. n.d. "Facility Detail Report-Oxy Vinyls Pedricktown Facility (ID:110070212279)." Facility Registry Service. Accessed October 7, 2024. frs-public.epa.gov/ords/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070212279. Vestolit. n.d. US Locations. Accessed October 7, 2024. www.vestolit.com/about-us-2/region-sites/us/.

¹⁹ Pureland Industrial Complex. n.d. Pureland Companies. Accessed October 7, 2024. www.pureland.com/pureland-companies/.

²⁰ F&S Fresh Foods. n.d. Accessed October 7, 2024. www.fsfreshfoods.com/.

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Hanover Foods. n.d. Plant Locations. Accessed October 7, 2024. www.hanoverfoods.com/plant-locations/.

Safeway Freezer. n.d. Services. Accessed October 7, 2024. www.safewayfreezer.com/services.

²¹ Energy Transfer. n.d. Operations Map. Accessed October 7, 2024. www.energytransfer.com/operations-map/.

CHAPTER 3: Identified Challenges and Opportunities

Through extensive outreach to rail stakeholders and partners, as documented in Appendix A, the project team identified several challenges and opportunities for the South Jersey freight rail market. Key comments mentioned in this engagement were organized into known challenges and known opportunities and serve as documentation of these conversations.

Challenges

Key challenges for the South Jersey freight rail market include weight and dimension restrictions, network configuration, access and maintenance costs, and road congestion. These challenges do not only impact current operations, but act as a restraint on growth in this market.

Weight and Dimension Restrictions

- Access to the South Jersey freight rail market is limited to 17' 8" clearance, restricting all double stack container cars and tri-level auto cars. The restrictions are governed by bridge clearances on the Pennsylvania side of the Delair Branch. To lift this restriction, the bridge heights would need to be raised or the track lowered. Increasing bridge heights requires PennDOT approval and investment, while lowering the track requires coordination with Amtrak since the National Passenger Rail Corporation's Northeast Corridor tracks are adjacent to the Conrail Delair Branch. Both situations involve partners that would not directly benefit from these investments, making it a challenging proposition to advance.
- In addition to the restrictions to standard plate clearance for rail cars, this area has many bridges that present height and width restrictions for oversized loads. Rail is often more efficient than highway transportation for shipping oversized and overweight cargoes. Although current projects are on hold, offshore wind turbine components could be a consideration for removing dimensional restrictions.
- Limited freight service window is a challenge to expansion of rail-served, industrial development on the River Line. This current limited access window of 11 p.m. to 5 a.m. is not conducive to industrial growth on this line.
- Non-rail users occupy rail-served properties, such as new warehouses in the Pureland Industrial Complex, in Logan Township (Gloucester County).
- Some rail lines are underutilized, such as the Beasley Point Secondary, placing the long-term viability of these lines in jeopardy.

Network Configuration

- South Jersey is essentially a rail peninsula with all freight traffic to the region traveling via Pennsylvania and the Delair Bridge, including traffic from elsewhere in New Jersey. In the past, direct connections between North and South Jersey existed through the Southern Secondary of the Central Railroad of New Jersey, which was notable for hosting the Blue Comet passenger service between New York City and Atlantic City but is currently inactive and unusable between Winslow Junction and Woodmansie. There have been several studies of the potential to restore the Southern Secondary line to active service. Future industry growth, such as the reinvigoration of the offshore wind industry, may drive consideration for additional options for connection to the national network.
- Lack of network resiliency and redundancy potentially impacts all operations that rely on freight rail in South Jersey. Specifically, if access to the national network over the Delair bridge were to be restricted for any reason, there is no secondary rail access, leaving the primary way to move product to be by truck.

- The region is heavily dominated by Conrail ownership. This creates a unique dynamic between the two Class I carriers that serve the area (CSX and NS), because any expansion or industrial development done by one of these companies has the potential to benefit their competitor. The result has limited the incentive to NS and CSX to actively look for new opportunities to expand and invest in the region.

Access and Maintenance Costs

- Building rail access to an industrial site is costly. For example, adding a switch to an existing line can cost approximately \$250,000. From a shipper's perspective, it is challenging to justify an investment in a switch that is not located directly on the shipper's property.
- Parts of the region are poorly served by roads and utilities, which discourages new industrial development. In addition, the challenge of obtaining permits adds a layer of complexity to rail-served industrial development.
- The Penns Grove Secondary Bridgeport Swing Bridge in Logan Township is approaching the end of its useful life. This structure is owned by Conrail, and its long-term viability is unknown.

Road Congestion

- Road congestion in some areas is challenging for truck/rail multimodal connections. Bridge tolls also add to the burden of truck movements leaving the state. On the other hand, road congestion and tolls increase the relative desirability of rail.

Opportunities

Despite these challenges, there are also opportunities that encourage growth such as the availability of support and funding from the State, room for expanded rail service, and the development of new businesses and industries.

Available Support and Funding Sources

- The New Jersey Rail Freight Assistance Program (RFAP) has been praised by rail owners and operators as a great way to get assistance for rail maintenance and expansion, so it is recommended that the State continue to utilize this program to address freight rail needs.
- As a part of the state's wind industry investment, local technical schools provide programs to train workers for jobs in the wind turbine and monopile manufacturing industries. This education structure is already in place, and it can support continued growth and be expanded to other related fields.

Room for Expanded Rail Service

- There is expected growth at the Repauno Terminal coming in 2026. The terminal owner, Delaware River Partners LLC, has already had discussions with Conrail about expanded service and crews to absorb this new activity.
- A rail connection from the Port of Salem to the Wind Port could support future offshore wind development and maintenance by providing another way to access the Lower Alloways Creek area. This could also help move heavier loads since the existing roads in the area are not conducive to heavy truck traffic.

- Heidelberg Materials in Camden currently transloads materials to rail at a facility in Philadelphia. If the facility were directly served by rail and did not have to rely on a truck-based connection, current movements could be made more efficiently while decreasing congestion on some of the region's busiest bridges. More efficient transportation via direct rail service could also open new opportunities for the company.

New businesses and industries

- New Jersey has positioned itself to become a national leader in the wind industry with investment in turbine manufacturing, the Wind Port in Alloways Creek, and related job training. Due to the immense size of offshore wind turbines, much of the manufacturing must occur relatively close to where the turbines will be assembled, making South Jersey a prime location for industry growth with opportunities for movement by rail. While the future of offshore wind projects is unknown due to regulatory changes, the infrastructure to support a future investment is well established.
- The Port of Salem has been a focus area for investment interest with *The Port of Salem Corridor Freight Rail Intermodal Study*, completed by SJTPO in 2018, proposing a program of improvements to upgrade the Port of Salem, the Salem Branch rail line, and the area's roadway network. The study's objective is to provide recommendations to increase commercial activity and related economic development through an assessment of the potential need for and benefits of port, rail, and roadway improvements. Expansion at the Port of Salem could create more opportunities for the movement by rail for products like sand and aggregates.
- There are opportunities for industrial sites south of Woodstown on the Salem Branch.
- The former Anchor Glass site in Salem is of interest due to rail access but needs environmental remediation.
- New business opportunities could emerge if the Delair Secondary is upgraded to Plate H clearance or a new north-south connection to the national network is made with 286K-lb weight capacity and Plate H Clearance.

CHAPTER 4: Emerging Trends

This chapter outlines some of the trends that are likely to shape freight rail in South Jersey in the near future. These trends include declining industries, emerging industries, passenger rail operations, state and federal policies, and an evolving regulatory landscape.

Declining Industries

Coal and Refinery Closures

The last two coal-fired power stations in New Jersey were closed in 2022: the Logan Generating Station in Swedesboro and the B.L. England Generating Station at Beesley's Point. As a result, New Jersey's coal consumption has gone from over 12 million short tons a year in 2001 to less than 725,000 short tons in 2022.²² Approximately 70 percent of coal in the U.S. travels to power plants by rail.²³

Four refineries also closed in New Jersey between 2010 and 2018. This leaves only two current operations: PBF Energy in Paulsboro and Phillips 66 in Linden.²⁴

Emerging Industries

Liquefied Natural Gas (LNG) Transport by Rail

The Pipeline and Hazardous Materials Safety Administration (PHMSA) approved a rarely issued special permit to move liquefied natural gas (LNG) by rail in December 2019. It allows two 100-car trains to transport LNG each day about 200 miles from Bradford County, across the Delaware River, and into South Jersey. The Repauno Site in Gibbstown had proposed exporting liquefied natural gas from its terminal, but a permit extension for Energy Transport Solutions was denied in 2023, leaving the future of LNG movement by rail in the region uncertain.²⁵

Wind Port Development and Supporting Industries

In 2023, New Jersey adopted an accelerated goal to have 100 percent of the electricity sold in the state to come from clean sources of electricity by January 1, 2035, through market mechanisms, paired with support for energy generation standards in New Jersey.²⁶

Although the current regulatory environment is uncertain, a critical part of reaching New Jersey's goal has been the growth of the offshore wind sector. To support this growth, the New Jersey Wind Port is under construction and will be the nation's first purpose-built offshore wind marshaling port, supporting local development but also positioning New Jersey as a hub for the U.S. offshore wind industry. The infrastructure to support possible future investment in wind is well established should it be reinvigorated.

Warehousing and Distribution

Industrial warehouse and distribution space in South Jersey has grown by 50 percent in the past 20 years from around 99 million sq. ft. of space in 2004 to the current inventory in 2024 of 149M sq. ft. of industrial

²² U.S. EIA, Coal Data Browser, New Jersey, Total consumption (short tons), Annual, 2001-22.

²³ American Association of Railroads, "Railroads and Coal," May 2019, www.aar.org/wp-content/uploads/2018/05/AAR-Railroads-Coal.pdf (accessed February 26, 2025).

²⁴ U.S. EIA, Operating Refineries, New Jersey, 1985-2022.

²⁵ Zoë Read, "Gibbstown LNG by Rail Proposal Hits Another Roadblock," *WHYY News*, April 26, 2023, www.whyy.org/articles/gibbstown-lng-rail-proposal-new-jersey-pennsylvania-natural-gas/ (accessed February 26, 2025).

²⁶ State of New Jersey, "Governor Murphy Announces Comprehensive Set of Initiatives to Combat Climate Change and Power the 'Next New Jersey,'" February 15, 2023, www.nj.gov/governor/news/news/562023/20230215b.shtml (accessed February 26, 2025).

space.²⁷ However, many of these newly built warehouses are truck-oriented facilities without provisions for rail connections.

Port Competitiveness

Strategic Location

South Jersey's ports are in a prime location to access a majority of the East Coast market through access to major north-south corridors like I-95 and the New Jersey Turnpike. Terminals in the region are within a few hours' drive of the New York City and Washington, D.C. metropolitan areas and access to over 100 million people within 500 miles. The New Jersey Wind Port is also well positioned to serve as a manufacturing hub and a base of operations for offshore wind projects along the East Coast.

Marine Highway Opportunities

Like many East Coast port areas, the Delaware River port system is part of the M-95 Marine Highway Route.²⁸ These routes serve as extensions of the surface transportation system to relieve landside corridors from traffic congestion, excessive air emissions, and other environmental challenges. They are eligible for funding through the U.S. Marine Highway Grant Program, which offers discretionary funds awarded on a competitive basis to projects that provide alternatives to landside transportation.

Passenger Rail

Regional population growth, increasing traffic congestion, and a growing focus on sustainability all have the potential to increase the demand for passenger rail service in South Jersey. However, South Jersey's preexisting density of people and buildings means there is little room to establish new rail rights-of-way. Instead, some passenger services such as the River Line and the proposal for the 18-mile Glassboro-Camden Line (GCL) rely on corridors shared with freight trains.

Like the GCL proposal, the light-rail vehicles currently used on the River Line are not compliant with federal standards for freight and heavier passenger trains. This means that River Line trains and freight trains are prohibited from using the line at the same time, and Conrail must wait until the passenger service ends for the night to serve customers along the Bordentown Secondary line.

The GCL is proposed to run between Glassboro and Camden in South Jersey in and along the right-of-way of Conrail's Vineland Secondary. It would run on a physically separate track between Camden and Woodbury to allow for passenger operations to run simultaneously with freight trains between Pavonia Yard and the Penns Grove Secondary and use a time-separation system similar to the River Line between Woodbury and Glassboro. The current proposal would also upgrade 46 grade crossings to state and federal standards and provide the option for an additional second freight track for most of the right-of-way.

Policy and Regulation

Truck Weight/Truck Competitiveness

- The Modernizing Operations for Vehicles in Emergencies (MOVE) Act, expands the circumstances under which the federal government could allow a state to waive federal weight limits along interstate highways for loads "that can easily be dismantled or divided" to include not only natural emergencies

²⁷ CoStar, 2024

²⁸ U. S. Department of Transportation, "United States Marine Highway Routes," USDOT Maritime Administration, www.maritime.dot.gov/sites/marad.dot.gov/files/2023-11/U.S.%20Marine%20Highway%20Program%20Routes%20Map_October%202023.pdf (accessed February 26, 2025).

involving weather, disease, wildfires, and other causes, but also if supply chains are “substantially impaired in the state, either in terms of slow overall movement, freight traffic congestion, or otherwise.”²⁹

- Several other proposals aimed at easing truck weight restrictions are also pending in Congress, including a voluntary pilot program that would allow states to increase truck weights on federal interstates from 80,000 pounds to up to 91,000 pounds on six axles and a proposal that would allow weight increases to 88,000 for certain auto haulers.
- A recent study has shown that increasing truck weight from 80,000 to 91,000 pounds will divert 20.4% of U.S. freight rail carload traffic, or 2.6 million freight rail cars, over a 5-year period to roadways. An analysis of intermodal transportation (combination of truck and rail service) indicates that an increase in weight will lead to 1.8 million more truckloads on our highways over the same period.³⁰

Alternative fuels

- Advancements in alternative fuel technologies such as hydrogen fuel cells and rechargeable batteries present opportunities and challenges for both the railroad and trucking industries. The adoption of alternative fuels by railroads has the potential to cut their fuel costs and further improve their cost competitiveness with trucks. However, the growth of zero-emissions trucks could make road transportation more competitive with rail from an environmental perspective. At the same time, the increased vehicle weight associated with battery-electric vehicles could hurt the economic competitiveness of trucks by reducing the amount of cargo they could carry while staying within weight limits
- In 2023, the California Air Resources Board adopted the In-Use Locomotive Regulation. This requires railroads to move to zero-emission locomotives by 2030 in some cases and by 2035 in all cases. If this regulation is advanced by additional states, more expansive and potentially nationwide requirements for zero-emissions locomotives would require a quick industry shift from current equipment. This may be a particularly challenging shift for the South Jersey rail network given the short-line railroads serving the region. Older equipment may operate in states that don't have similar legislation.

IIJA and Infrastructure Investment

The Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL) signed in 2021 increased federal funding for infrastructure investment. The \$1.2 trillion IIJA reauthorizes the nation's surface transportation and drinking water and wastewater legislation and includes an additional \$550 billion in funding for new programs in transportation, energy transmission, resilience, broadband, and others, approximately half of which goes to the U.S. Department of Transportation over a five-year period. This offers opportunities for rail investment through several different grants and financing programs. Chapter Six provides a list of applicable rail funding opportunities.

²⁹ John Gallagher, "Bill Would Give States New Power to Waive Truck Weight Limits," *FreightWaves*, March 11, 2024, www.freightwaves.com/news/bill-gives-states-new-power-to-waive-truck-weight-limits (accessed February 26, 2025).

³⁰ Mark Burton, Appalachian Transportation Institute, *Estimating the Rail-to-Truck Traffic Diversions Attributable to Increased Truck Size and Weight*, (2020), study sponsored by the Coalition Against Bigger Trucks.

CHAPTER 5: Recommendations

Outreach and data analysis showed a degree of uncertainty for the future of industrial development in South Jersey and for the extent to which rail expansion would serve potential futures. However, with or without expansive future growth, rail is a critical component of industrial activity in South Jersey. Certain industries heavily rely on rail to move goods and require maintenance of the existing system to operate. These industries, which include steel, building materials, and aggregates, are also experiencing steady (and in some cases increased) levels of demand locally and nationally, highlighting their importance to the region's supply chain and employment. Given that rail serves many existing businesses, there is also a need to consider network resilience and the ramifications of unplanned disruptions.

The recommendations in this section are organized into three categories that offer a tiered approach to planning for the future of rail in South Jersey:

- preserving existing infrastructure
- promoting rail volume and job growth
- building resiliency

Preserving Existing Infrastructure

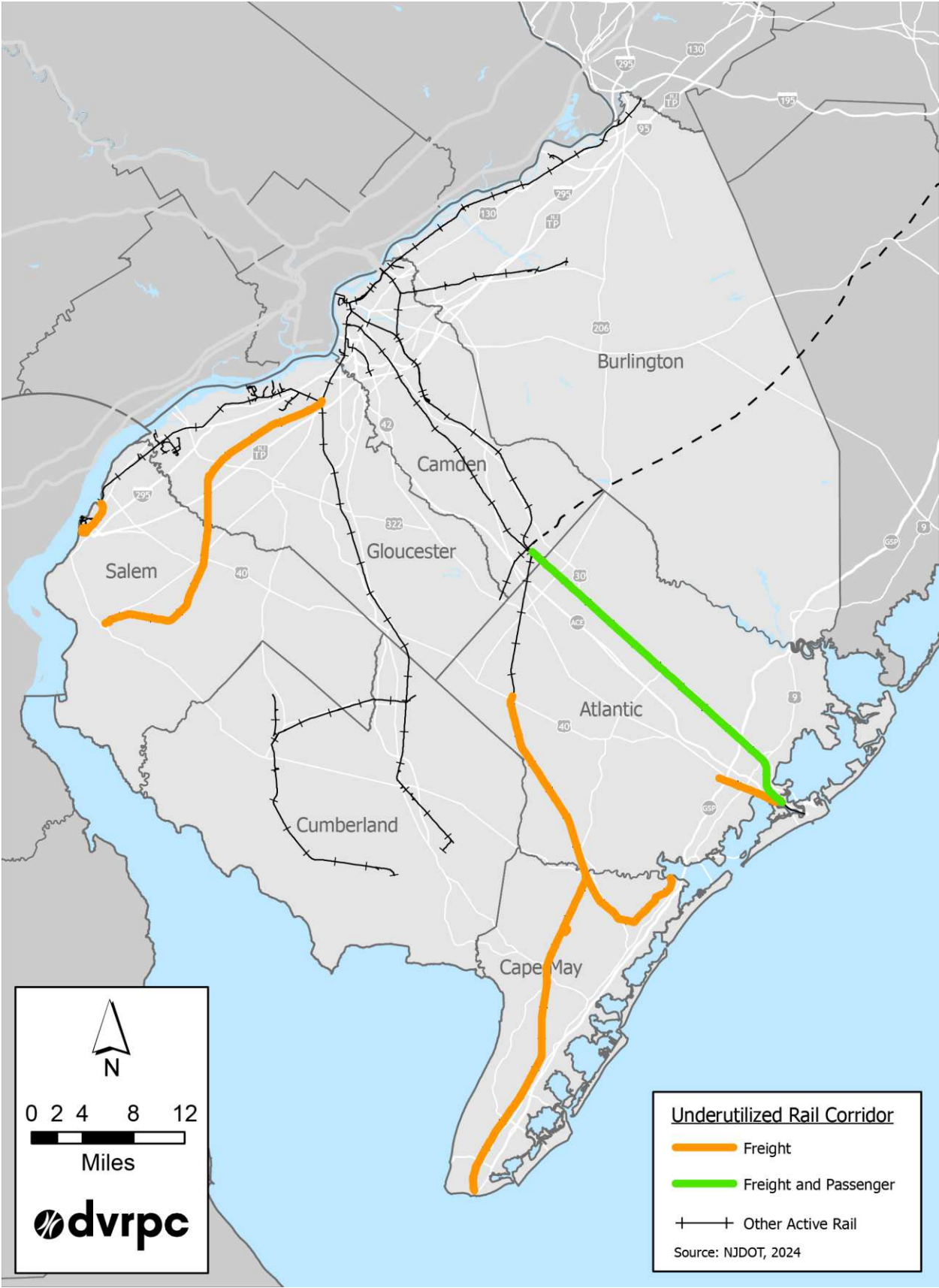
Maintaining the existing rail system used by current businesses requires preserving rail access to industrial sites and rail rights-of-way for future use through ownership and lease changes. While the demand for rail infrastructure fluctuates, it is challenging to reinstate rail use within those rights-of-way once rail access is removed. Forfeiting freight access may stifle long-term industrial development or activity. It may also result in industrial sprawl if there is a resurgence of manufacturing or industrial demand in the region, but existing industrial spaces have lost access and been converted—which would force businesses to look for potential greenfield development.

South Jersey contains a significant number of rail corridor miles that carry little freight, no freight, or are abandoned. An opportunity exists to manage these corridors so that the maximum benefit can be derived from them both now and in the future. The following recommendations are organized by strategies to manage underutilized, inactive, or abandoned corridors.

Underutilized Corridors

In South Jersey there are some rail corridors that are still active, but freight service is relatively infrequent or is not occurring, as shown in Figure 9.

Figure 9 Rail Lines with Infrequent or No Freight Service



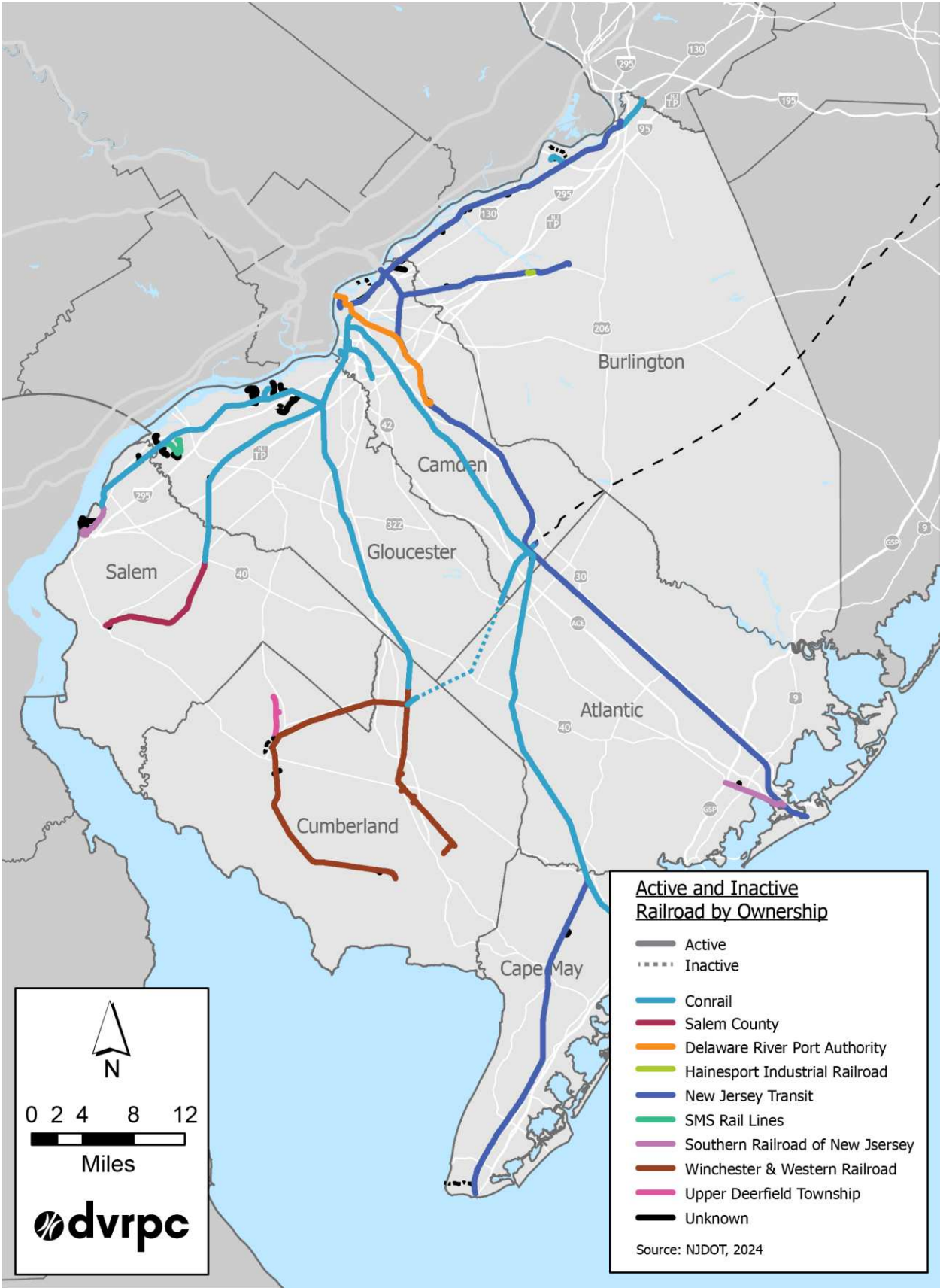
Use of rail corridors for railcar storage and use for excursion trains are strategies that can help preserve corridors with low freight demand. These strategies have already been adopted along certain lines and may be considered for other current or future underutilized corridors.

- **Railcar Storage.** Corridors can be used to store rail cars where their owners do not currently need them in operation. This enables the rail line operator to earn revenue from the corridor and contribute to the corridor upkeep without on-line freight customer revenues.
- **Excursion Trains.** Rail lines that are rated FRA Track Class 1 or better can be used for passenger service. For those that are Class 1 or better, excursion trains can allow operators to earn revenue without freight service. Revenue can be generated through the sale of passenger fares, food, and merchandise, offering a variety of options that contribute to operating and maintenance costs along lines without freight service. Some excursion operators are also able to rely on rail enthusiast volunteers to help with operations.

Both strategies are currently in use by CMSL, which operates passenger excursions and provides railcar storage on the Cape May Seashore Line.

Some underutilized rail lines are owned by the public sector but used by private operators. Figure 10 displays the ownership of both active and inactive rail lines in South Jersey. Where public entities own corridors, they have an opportunity to manage the corridors and work with private operators to ensure that they are used to maximum public benefit, looking for opportunities to grow freight and use of the corridors.

Figure 10 Ownership of Rail Lines in South Jersey



Inactive Corridors

Within South Jersey there are several track segments that are still legally part of the national rail network, but they are inactive and unusable in their current state. The most significant is the Conrail-owned Southern Running Track between Vineland and Cedar Lake. On much of the line, the tracks are gone, and many of the highway/rail crossings have been removed.

While there are no known plans for abandonment, NJDOT should monitor the status of these lines. Per New Jersey Revised Statutes, Section 48:12-125.1, railroads must notify the state, county, and municipality in which any part of a right-of-way proposed for abandonment is located. These entities are then given the opportunity to negotiate the acquisition of the right-of-way and are offered the right of first refusal of any other negotiated purchases.

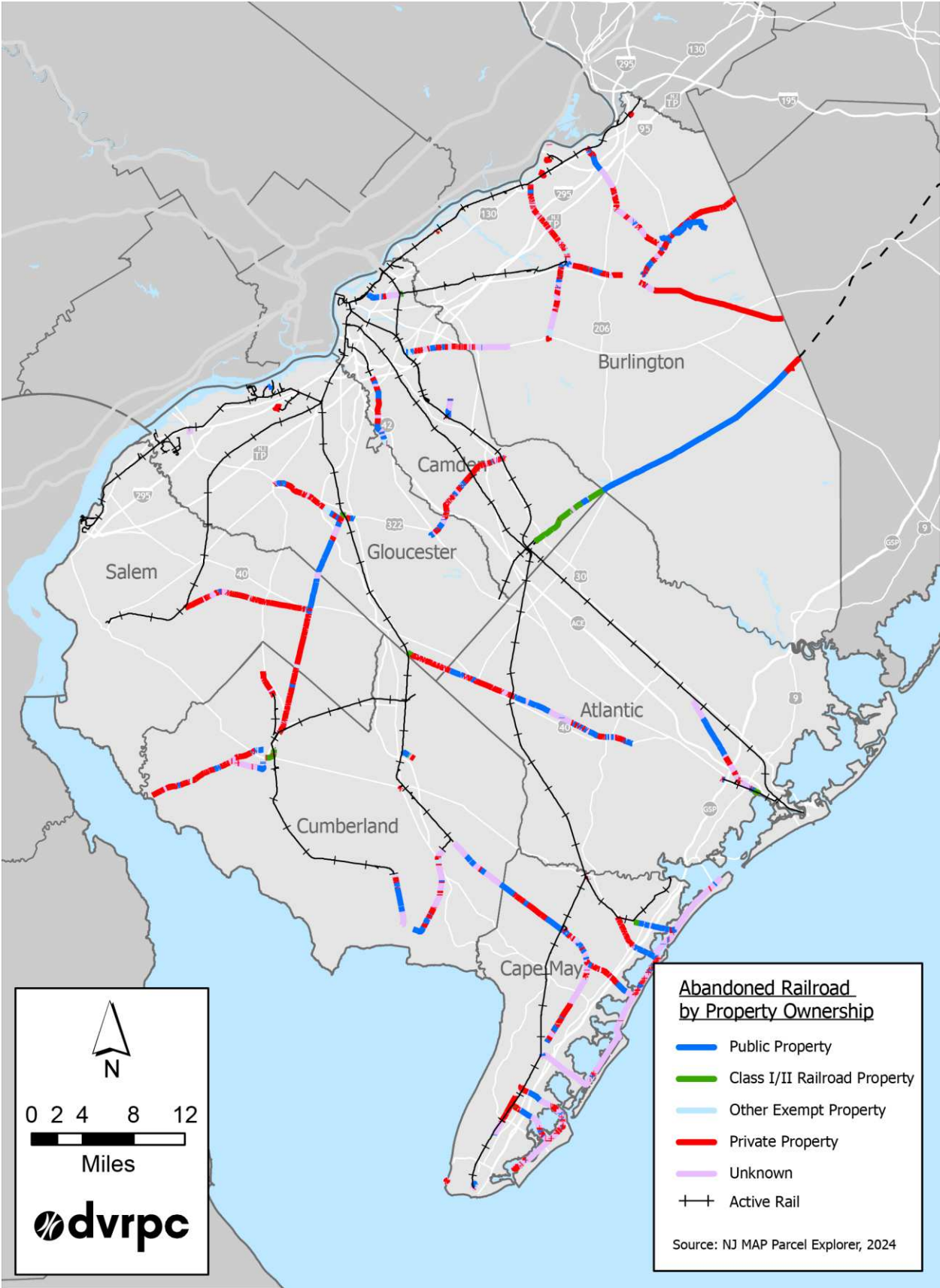
Abandoned Corridors

Once an abandoned rail corridor has been through the STB abandonment procedure, it is no longer legally a part of the U.S. rail network. It is typically more costly to restore a corridor from abandonment compared to a corridor that has been underutilized or inactive. There are two reasons for this. First, to re-open an abandoned corridor, a new operator would need to be relicensed by the U.S. STB, which requires time and resources. This is not necessary to reactivate an inactive corridor. Second, many of the abandoned corridors in South Jersey are no longer contiguous and may have a variety of owners. Generally, while intact rail corridors are intersected by roadways and other transportation corridors, all parcels within the right-of-way are for the benefit of the rail corridor. These agreements would have to be re-established for the collection of parcels along an abandoned corridor for it to be reactivated.

Figure 11 displays the land ownership of parcels in abandoned rail corridors in South Jersey. To the extent that segments of these corridors can be kept intact and not absorbed into neighboring parcels, it would be beneficial to maintain the availability of these limited corridors for any future changes in freight or passenger transportation demand.

Although more investigation may be necessary, Figure 11 suggests that many of the abandoned corridors in South Jersey are no longer intact and would be very difficult to reassemble. However, some corridors may be easier to recover, such as the Southern Secondary that crosses Burlington County from Winslow in Camden County. The South Jersey segments of this corridor are owned by NJ Transit and Clayton Industries (produces sand and gravel). Given the interest in a second connection to the national rail network for capacity or resiliency purposes, this would be a recommended corridor to keep available for future rail activity. Several other segments, based on ownership, would be more feasible than others.

Figure 11 Abandoned Rail Corridors in South Jersey



Promoting Volume and Job Growth

In addition to the preservation of existing corridors to allow for future growth, it is also important to consider strategies that promote rail volume and job growth in South Jersey. This includes strategies that would expand rail access, offer opportunities for existing businesses to grow, and encourage new industrial businesses to locate in the region. Investments in freight rail volume growth projects would likely also bring additional jobs to the region and state.

These strategies include the following:

- incorporate considerations for rail-served facilities in ongoing land use planning
- consider opportunities for additional transload capacity
- remove height restrictions along the Delair Branch

Incorporate Rail in Land Use Planning

During discussions with railroad stakeholders, several issues and opportunities were raised regarding rail-served industrial facilities. These stakeholders shared a desire to preserve access to industrial along rail lines and develop “shovel-ready” industrial sites with utility, rail, and roadway infrastructure in place. However, they also shared that local municipalities sometimes lack a willingness to accept new industrial establishments or there is ambiguous jurisdiction which complicates industrial development.

Rail-Served Industrial Properties

The ability to move goods is critical to the state economy and the quality of life of residents, but rail in particular serves specific sectors that move large quantities of materials. In addition to the difficulty of reviving abandoned corridors, it is also challenging to revert land use back to industrial after it has been changed to a non-industrial use. Planning efforts could document existing facilities or parcels that would be ideal for rail-served uses now or in the future, preserving these spaces to access the existing rail corridors.

This preservation of rail-served properties has two benefits. The first is maintaining rail access that can attract new industrial customers to New Jersey. The second is that preserving properties helps to preserve the overall corridor as existing customers also benefit from facility upkeep and improvements.

Mitigation of Industrial Impacts on Communities

In general, land use regulations are the jurisdiction of local municipalities. State and regional agencies can coordinate among jurisdictions to establish rail-served industrial zones. State funding could help facilitate infrastructure investments for those areas and help to minimize their impact on adjacent land uses.

Shovel-Ready Industrial Sites

Rail is often just one component of a series of infrastructure needs, and many stakeholders mentioned potential opportunities to attract new businesses to the area if there were more shovel-ready industrial properties available. This is an area of interest, but the availability of good utility infrastructure may be leading employers to find sites that are already equipped for their needs. New Jersey can help the region attract industrial employers by assembling industrial sites that have all necessary infrastructure for industrial development, including transportation and utilities.

Expand Transload Facilities

Transload facilities provide shippers that currently lack rail infrastructure the opportunity to ship by rail. Freight is generally shipped short distances by truck to and from a transload facility and longer distances by rail. Transload facilities can be used to ship a wide variety of products and can have a broad range of physical

layouts. The simplest transload facility is a “team track” which is essentially a platform located next to a rail line with truck access.

Transload facilities are most often built with identified “anchor” customers, but can also be built on speculation, assuming the customer base will be developed in the future. Supporting transload facilities represents an opportunity for the public sector to divert freight off highways and onto rail. Generally, the most promising locations for new transload facilities would be those with redirectable truck freight traffic but lacking pre-existing transload terminals. One way to evaluate potential locations for transload facilities is to analyze data of truck freight flows looking for divertible traffic, which is generally 1) long-distance, 2) of commodities that are typically shipped by rail, and 3) of adequate volumes between specific origins and destinations to fill railcars. A previously developed diversion analysis suggests that the highest volumes of divertible truck traffic are sand and gravel shipments destined to Cumberland and Burlington counties. Within each of these counties there is a pre-existing transload facility, although opportunities may still exist to provide shippers with additional options. Another approach to evaluating locations is to assess freight clusters without a nearby transload facility. For example, Pleasantville is not served by a nearby transload facility but contains industrial businesses that could potentially benefit from rail transload. A rigorous analysis of potential locations requires extensive interviewing of prospective customers.

Increase Vertical Clearance on the Delair Secondary

Railcars traveling over the Delair Branch are limited to 17’ 8” in height. This prevents cars that require Plate H clearance, such as double-stack intermodal cars and tri-level auto racks, from accessing South Jersey. Improving clearance to accommodate Plate H cars could enable the development of new businesses and services, especially at ports.

Building Resiliency

The recommendations in this section consider alternatives that offer more than one path of connection to South Jersey from the national rail network. A resilient network that offers redundancy is required to encourage sustainable growth in rail traffic, especially for companies to invest in shipping time sensitive products. While this study did not identify any clear, current demand for a second connection, rail is critical for existing businesses and there is an identified potential for future growth.

As has been seen with bridge and road closures, the loss of a critical transportation link can have unbearable and lasting impacts on local businesses, national supply chains, and surrounding communities. The loss of rail access to South Jersey would require 200,000 trucks annually to replace the current traffic, not to mention any future growth.

The following strategies address rail resiliency in the region.

Plan for rail line closures and limit their impact.

Develop a resiliency plan for the region. Around 5 million tons of freight move over the Delair branch annually.³¹ If this connection is interrupted temporarily or lost permanently, it could lead to an increase in trucks on the local and regional highway network.

Add second connection to the national network

South Jersey is a rail peninsula but is surrounded by two areas with strong connections to the national freight rail network: Philadelphia and North Jersey. In the past, other north-south connections existed, including the Robbinsville Industrial Track, which provided a connection to Hightstown (as the Camden and Amboy Railroad), and further east the Southern Secondary, which connected Winslow Junction to Woodmansie and hosted the Blue Comet passenger service between New York City and Atlantic City. The right-of-way on sections of the Robbinsville Industrial Track no longer exists. The Southern Secondary line, now discontinuous, is inactive and unusable between Winslow Junction and Woodmansie.

There have been several studies of the potential to restore the Southern Secondary line to active service. Future industry growth, such as the reinvigoration of the offshore wind industry, may offer a driving need to consider additional options for connection to the national network.

Priority Projects

A number of projects were identified as important by multiple stakeholders.

- Improvements to Front Street in Camden—Improve vehicle access to and upgrade rail infrastructure where the Bulson Street Industrial Track crosses Front Street and runs along Front Street from Atlantic Avenue to the Balzano Terminal in Camden
- Grade Crossing Study in Gloucester City—Gloucester City has 28 grade crossings on the Vineland Secondary and Grenloch Industrial Tracks. Of these, 24 are on public roads and five do not have signs or signals. All the crossings along the Vineland Secondary in Gloucester City have gates. Rail-grade crossings in this area present an opportunity for both safety improvements in the communities surrounding this infrastructure and increased operating efficiency along the primary rail line for this region. Further study of these crossings is needed to determine community needs and the most appropriate improvements.
- Vertical Clearance on the Woodstown High Bridge—The Woodstown High Bridge runs under Main Street NJ 45 in Woodstown. Its current height clearance is 18.6 feet, as documented in the Bureau of Transportation Statistics (BTS) National Bridge Inventory and does not allow for auto racks or double stack clearance.
- Rail connection to Heidelberg Materials—Heidelberg Materials in Camden is looking to incorporate rail at their site as a part of their five-year plan. The installation of a new rail switch at this site would directly reduce truck traffic.
- Enhancement of rail facilities around the Port of Salem—As highlighted in the *Port of Salem Freight Rail Intermodal Study*, there are several opportunities for growth at and around the Port of Salem. First, despite the Salem Branch now being up to the current industry standard for track weight capacity, it is currently only used for excursion trains. Rehabilitation of industrial tracks and the restoration of the rail yard in Salem for use as a transload facility could help to expand freight opportunities along the line. Enhancing facilities at the Port of Salem could also open opportunities for intermodal movements from barge to rail.

³¹ 2021 Waybill Sample

- Dredging at the Port of Salem--Continued maintenance dredging at the Port of Salem will enable current shipping activity to continue, and any addition dredging depth would allow for larger vessels to load and unload. This recommendation along with upgrades to the Salem Rail Branch would open up opportunities for intermodal movement at the Port of Salem from barge to rail. This recommendation was also included in the Port of Salem Freight Rail Intermodal Study.

State Funding Sources

The following state programs in New Jersey are available for rail projects.

Rail Freight Assistance Program (RFAP)

The purpose of the New Jersey State RFAP is to support an efficient and effective rail freight system in the State of New Jersey through the provision of financial assistance to improve rail freight facilities and infrastructure. Active RFAP projects in South Jersey are listed in Table 10. Eligible projects are those that:

- are significant to port commerce connectivity;
- eliminate rail freight missing links to New Jersey's port facilities;
- upgrade freight rail trackage to a 286k-lb load-carrying capacity; or
- support a safe, efficient, and effective rail freight system in New Jersey.

Deadline: Annual in October

Table 10 Active (2024) RFAP Projects in South Jersey

Sponsor	Project Name	Award
Winchester & Western	Timber Bridge 43.23 Rehabilitation	\$658,869.30
	Rail Replacement Seashore Branch	\$621,135.90
	Concrete Bridge Rehab 45.99	\$810,351.63
	Seashore Rail Replacement Phase II	\$847,786.14
	Millville Transload Facility	\$2,187,580.50
Salem County	FY2018 Salem County Railroad Rehabilitation Program	\$6,014,192.49
	FY2022 Railroad Improvements	\$2,500,000.00
	FY2023 RFAP Salem Rail Yard Rehabilitation	\$2,459,700.00
	FY2024 RFAP Fenwick Rail Bridge Replacement	\$2,589,984.00
	Cape May Branch - Phase I	\$2,488,927.50
South Jersey Port Corporation	Balzano Marine Terminal Rail Improvements	\$6,010,650.00
	Rail Integration Project	\$974,928.75
SMS Rail Lines	Pureland Transload Expansion & Track Rehab	\$1,563,300.00
Delaware River Partners LLC	Delaware River Freight Rail Capacity Expansion Project - Phase 1	\$4,500,000.00
Total		\$34,227,406.21

Source: NJDOT Office of Grants Management, 2024

Local Freight Impact Fund

The Local Freight Impact Fund (LFIF) is a competitive grant program. Projects submitted for consideration must meet the following eligibility criteria:

- Projects must be within the jurisdictional limits of the applicant's municipality and/or county unless filed jointly with an adjacent municipality and/or county.
- Applicants must demonstrate that the project will provide access to a Port, Warehouse/Distribution Center, or any other Freight Node by providing a narrative and a map supporting the request.
- Projects must have as a minimum 10% large truck volume within the project limits. A traffic study must be submitted to support this information.

Applicants of eligible projects can select from five project categories:

- Pavement Preservation: to improve pavement conditions in support of freight travel on municipal/county transportation infrastructure.
- Truck Safety and Mobility: to improve large truck access, routing, and mobility along the municipal/county roadway system.

- Bridge Preservation: to improve bridge ratings/conditions in support of freight travel on municipal/county transportation infrastructure.
- New Construction: to promote new construction in support of freight travel on municipal/county transportation infrastructure.
- Pedestrian Safety: to improve pedestrian safety and access on the local/county roadway system.

Deadline: Annual in December

Federal Funding Programs

CRP

The IIJA established the Carbon Reduction Program (CRP) to provide funds for projects designed to reduce transportation emissions from on-road highway sources.

Congestion Mitigation and Air Quality Improvement (CMAQ)

The Congestion Mitigation and Air Quality (CMAQ) program provides a flexible funding source to state and local governments for transportation projects and programs to meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality, particularly in areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas), and for former nonattainment areas that are now in compliance (so-called “maintenance” areas). The federal matching share for these funds is 80 percent. Currently, 16 New Jersey counties are nonattainment or maintenance areas eligible to receive CMAQ funding for projects that reduce vehicular emissions, including rail projects.

Economic Development Administration Grants

The U.S. Economic Development Administration (EDA) grant and loan assistance programs support local organizations with economic development, focusing on economically distressed communities. These funds can be used for rail projects. In 2016, \$3.42 million of EDA Public Works funds were used to support the installation of a short line railroad extension and expansion of yard to support an industrial site in Rochelle.³²

Federal Transit Administration Capital Investment Grants

New fixed guideways or extensions of existing guideways for public transportation, projects that improve the capacity of fixed guideways, and projects shared between public transportation and intercity rail. The IIJA included \$1.6 billion per year in advanced appropriations for this program and \$3 billion per year subject to annual appropriations FY2022 – FY2026.

Railroad Crossing Elimination Grant Program

This program was made available through the IIJA and provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods.

Railway-Highway Crossing (Section 130) Program

Highway Safety Improvement Program, administered by DOT, includes the federal Railway-Highway Crossing (Section 130) Program, the goal of which is to eliminate hazards at railway-highway crossings. In fiscal year

³² The White House, "Building a Better America: A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners," www.cdn.dvrpc.org/sites/default/files/2022-02/BUILDING%20A%20BETTER%20AMERICA_FINAL.pdf (accessed February 26, 2025).

2021, New Jersey received \$11.4 million for the Section 130 Program. Funding is split 60 percent for crossings on local roads, and 40 percent for crossings on state roads.

Other Federal Discretionary Grant Programs

The IIJA includes \$66 billion in new funding for rail between federal fiscal year 2022 and 2026. This is a significant increase over previous federal funding levels. Relevant USDOT discretionary grant programs are summarized in Table 11.

Table 11 Federal Discretionary Grant Programs

Program	Funding Type	Average Award Size	Eligible Modes	Eligible Projects	Eligible Applicants
Consolidated Rail Infrastructure and Safety Improvements Program (CRISI)	FRA Discretionary Grant Program	\$8M in FY2021	Rail	Passenger and freight capital projects, workforce development, studies	Public agencies, Class II or III railroads, Universities, rail labor
Railroad Crossing Elimination Program	FRA Discretionary Grant Program	New Program	Road/rail crossings	Grade separation or closures, track relocation, other safety improvements. Construction, planning, environmental, and design are eligible	Public agencies
Rebuilding American Infrastructure with Sustainability and Equity (RAISE)	USDOT Multimodal Discretionary Grant Program	\$13M in FY2022	All surface modes	Capital and planning projects	Public agencies
Infrastructure for Rebuilding America (INFRA)	USDOT Multimodal Discretionary Grant Program	\$38M in FY2021, 85% is reserved for projects \$100M+	All freight modes	Freight projects	Public agencies
National Infrastructure Project Assistance Program (MEGA)	USDOT Multimodal Discretionary Grant Program	New Program, projects must be \$100M+, half of funding reserved for projects \$500M+	All freight modes	Large, complex capital projects that would otherwise be difficult to fund.	Public agencies

Federal Financing Programs

The USDOT offers several debt and credit assistance tools that may support passenger and freight rail projects, of which the following are the most relevant.

Railroad Rehabilitation & Improvement Financing

The FRA's Railroad Rehabilitation and Improvement Financing (RRIF) program provides direct loans and loan guarantees to finance development of railroad infrastructure. The program is capitalized up to \$35 billion, with \$7 billion reserved for projects benefiting Class II and Class III railroads. The RRIF program is currently undersubscribed, with only \$5.7 billion in outstanding loans. Of these, \$2.5 billion represents loans to Amtrak, another \$2.0 billion loans to transit and local government agencies, with most of the remainder representing loans to Class II and III railroads. Potential borrowers have identified the long approval period (averaging 9 months just to approve the application as complete) and costs of application as reasons for the program's underutilization.

Railroad Rehabilitation & Improvement Financing Program (RRIF) Express

The RRIF Express program is particularly designed for Class II and Class III railroads as the only eligible applicants (including joint ventures that include one Class II and Class III railroad entity as eligible applicant). RRIF Express aims to reduce the time and costs associated with securing loans to modernize aging freight rail infrastructure. Offering low-cost financing (2.25 percent) and expedited processing times, the program allows borrowers with a well-documented financial history and readily identified revenue streams to finance projects. Eligible projects include track improvement, bridge rehabilitation, acquisition of rolling stock, planning and design, and refinancing non-federal debt.

Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance in the form of direct loans, loan guarantees, and standby lines of credit (rather than grants) to projects of national or regional significance. Under the TIFIA requirements, state governments, state infrastructure banks, special authorities, local governments, and even private parties can request minimum assistance of \$50 million for all projects (\$10 million for rural projects). TIFIA assistance is limited to 33 percent of total project costs and requires a dedicated repayment source pledged to secure the debt financing.

CHAPTER 6: Conclusion

This study, using a combination of data analysis and stakeholder outreach, documents the infrastructure and services that comprise South Jersey's existing freight rail system as well as trends that may affect its future. This study also identifies opportunities and limiting factors for expanding rail traffic and makes recommendations for projects that maintain, grow, and build resiliency for rail in the study area.

These recommendations are categorized into three tiers. The first tier highlights the need for rail service and corridors to be maintained. This is important as significant portions of South Jersey's rail network are underutilized or unusable in their current state, rail rights-of-way difficult to restore once they are lost, and the loss of rail corridors could impede efforts to build resiliency and stifle transportation opportunities for decades to come. The second tier includes recommendations to promote the use of rail and industrial development. Finally, the third tier discusses way to improve the resiliency of South Jersey's freight rail system

In addition to the recommendations, the study highlights priority projects and locations that the rail operators and potential customers within the study area identified for investment. These priority projects seek to address capacity, clearance, and crossing needs that impact freight rail existing operations and growth, as well as the need for intermodal investments (highway or waterborne) at the Port of Camden and Port of Salem. Ultimately, collaboration between freight rail or facility operators, MPO staff, and state agencies (including NJDOT or NJ Transit) is critical to identify ownership (primary or secondary) of future programmatic or infrastructure investments.

Investments and policies that support an efficient multimodal freight network lay the groundwork for a region that is more economically competitive, while preserving community and environmental resources in South Jersey, a region that remains more dependent on freight-intensive industries for its employment and economy than other parts of the state. For the nearly two centuries that it has existed in South Jersey, rail transportation has been, and continues to be a transformative force in the area, with the potential to support economic development, job growth, and environmental sustainability in the region.

APPENDIX A: Stakeholder Outreach

The project team conducted outreach to regional rail stakeholders to better understand current rail activity, challenges, and future opportunities. To best reach a wide variety of partners, this engagement was done in multiple forms:

- Steering committee meetings
- New Jersey Railroad Association (NJRRRA) visit
- In-person tours and interviews
- Virtual meetings

Outreach goals:

- Inform relevant stakeholders of the ongoing study
- Collect information on local or national rail freight trends
- Collect information on challenges and opportunities for rail freight in South Jersey
- Receive feedback on proposed recommendations that address market access to South Jersey

Outreach Topics

The following questions were used in all the interviews and steering committee outreach collection.

Barriers and Risks

- What are the largest barriers to using freight rail more in South Jersey?
- How are your current operations or future plans impacted by land use regulation and community issues?
- If someone wanted to build a rail-served industrial site, is land available?
- Are there examples of conflicts with adjoining land uses?
- What existing rail markets are at risk and why?

Location Identification

- Are there any safety issues we should be aware of, crossings? Hazmat issues?
- Are there any locations where rail hinders economic development? (examples: low overpasses, need for quiet zones)
- Is rail corridor preservation an issue? Are any corridors threatened with abandonment?

Strengths and Opportunities

- What commodities, markets could be opportunities for rail in South Jersey?
- Do you foresee there being a need for Plate H access to South Jersey (i.e., auto racks, hi cube intermodal)?

Organization Specific

- How can this study benefit you and your organization?
- Are there any barriers to applying for grant programs?

Steering Committee Meetings

Steering Committee meetings connected the project team with key stakeholders that understand the local, regional, and national rail systems to inform and guide the study.

Meeting #1 (October 11, 2023)

Key stakeholders gathered at this meeting and were informed of the study goals and plans, shared their feedback on the scope, and provided input on key freight rail trends and issues in South Jersey.

Meeting #2 (January 28, 2025)

This meeting was held to share the outreach results with key stakeholders and share draft recommendations for input.

NJRRRA Visit

The Outreach Team presented at the December 15th, 2023 meeting of the NJRRRA. The goal of this presentation was to inform key rail stakeholders of the study goals and plans, receive feedback on the scope, and receive input on key freight rail trends and issues in South Jersey.

Date: December 15th, 2023

Stakeholder Meetings

One-on-one in-person and virtual meetings were used to solicit direct feedback from stakeholders that wanted to provide additional information on their use or interest in freight rail in South Jersey.

Timeline: January 2024–May 2024

The following stakeholders participated in one-on-one meetings:

- Conrail
- South Jersey Port Corporation (SJPC)
- SMS Rail
- South Jersey Transportation Planning Organization (SJTPO)
- New Jersey Economic Development Authority (NJEDA)
- Southern New Jersey Development Council (SNJDC)
- EEW Group
- Heidelberg Materials
- Vulcan Materials
- Repauno Port and Rail
- Winchester and Western
- Delaware River Port Authority (DRPA)/Glassboro-Camden Line (GCL)

Southern New Jersey Freight Rail Study

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Key Words:

South Jersey, Freight Rail, Industrial Development, Market Study

Abstract:

A strong freight rail system capable of efficiently and reliably connecting local businesses to ports and global markets is key to ensuring New Jersey and Greater Philadelphia's economic competitiveness. Past studies have identified limitations of South Jersey's freight rail system that may hinder the advancement of specific port market opportunities and a more robust regional industrial economy. In particular, South Jersey's reliance on a single connection to the national network, the Delair Branch, has been identified as a limiting factor for growth. To better evaluate where investment into the South Jersey rail network may be needed to expand market opportunities, the purpose of this report is to better understand the demand for capacity enhancements, existing risks to supply chain resiliency, and the benefits that expanded access could have to the region in both Pennsylvania and New Jersey.

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