South Jersey
Freight Transportation & Economic Development Assessment

TECHNICAL APPENDIX

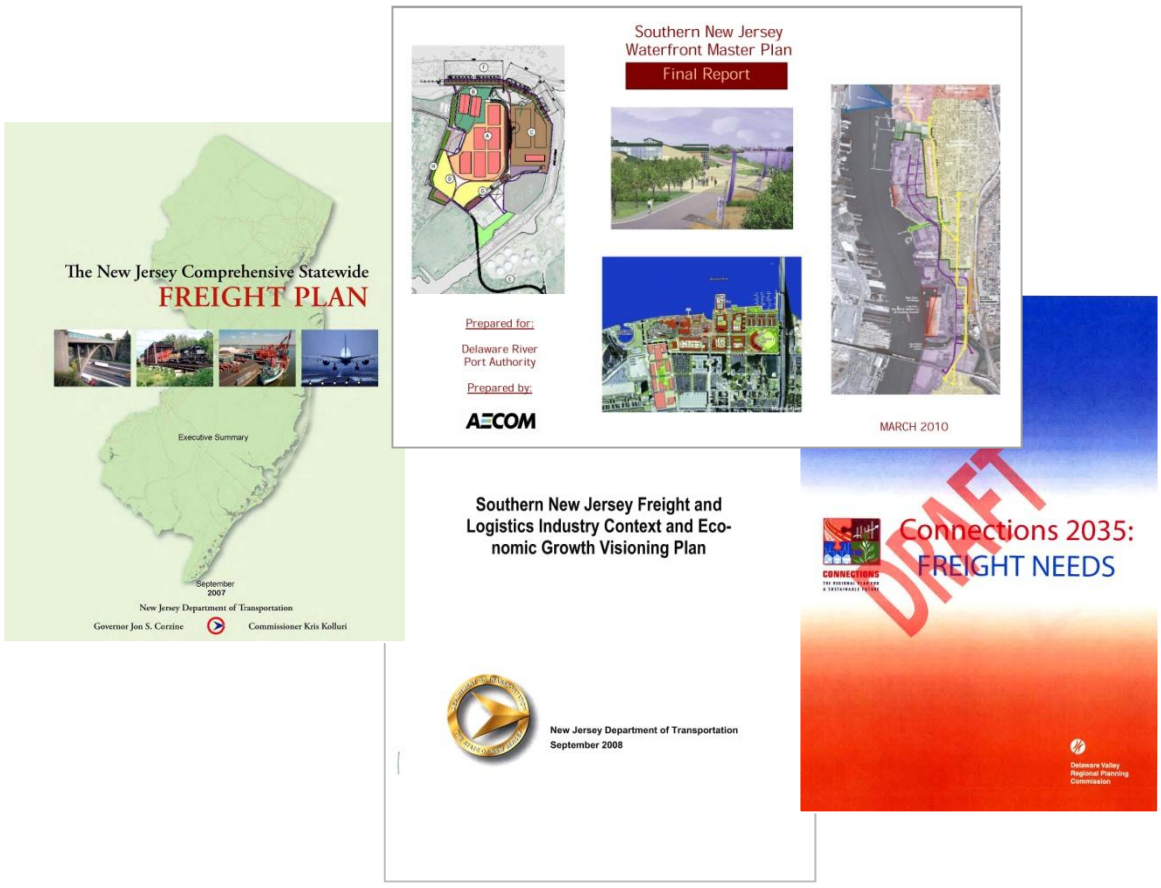
December 2010

Prepared by Parsons Brinckerhoff for the
New Jersey Department of Transportation

STUDY BACKGROUND

In 2005, the New Jersey Department of Transportation (NJDOT) completed the *Comprehensive Statewide Freight Plan*, which examined all modes of freight transportation from a systems perspective. The plan identified the South Jersey Port area as a critical freight node for New Jersey. With the continued growth of freight activities in southern New Jersey, a more focused assessment of freight transport and logistics in the South Jersey region is essential.

Following release of the Comprehensive Statewide Freight Plan, the NJDOT worked with key stakeholders in the South Jersey Region to develop the *Southern New Jersey Freight and Logistics Industry Context and Economic Growth Visioning Plan* in September 2008. The Visioning Plan developed a set of guiding principles and a high altitude road map to accommodate, support, and grow the freight and logistics industry in the region while enhancing the relationship with and connectivity to the northern New Jersey port complex. The Visioning Plan also identified the regional context, set the direction, and highlighted key issues for further action.



To this end, the Department has commissioned a consultant team led by Parsons Brinckerhoff (PB) to conduct the South Jersey Freight Transportation & Economic Development Assessment. This work will build off existing plans and studies by the NJDOT, the Delaware River Port Authority (DRPA), the Delaware Valley Regional Planning Commission (DVRPC), and the South Jersey Port Corporation (SJPC). It is a more focused assessment of freight transport and logistics in the South Jersey region; develops a vision for the logistics industry; and identifies opportunities to maintain, improve, and expand South Jersey's freight and logistics industry.

This report include the following chapters

1. Regional Context
2. Industry Value and Commodity Flows
3. Issues, Needs, Opportunities, and Constraints
4. Implementation Blueprint
5. Transportation System Improvements

The project consulting team was comprised of

- PB Americas, Inc.;
- AECOM;
- A. Strauss Wieder, Inc.;
- Cambridge Systematics Inc.;
- Jacobs Engineering; and
- Stokes Advertising.

The NJDOT also commissioned agency and academic experts to advise and review the plan. These stakeholders were:

- Thomas Wakeman, Stevens Institute of Technology;
- Ted Dahlburg, Delaware Valley Regional Planning Commission;
- Marlin Peterson, Gloucester County Improvement Authority/South Jersey Port Corporation;
- Bill Schiavi, South Jersey Transportation Planning Organization;
- Kevin Ziemer, Delaware River Port Authority; and
- Otis Jones, New Jersey Economic Development Authority.

CHAPTER ONE: REGIONAL CONTEXT

1.1. INTRODUCTION

Chapter One presents the context for goods movement and the logistics industry in southern New Jersey. This includes an overview of the region and the current status and importance of goods movement to the regional economy. A vital source of information was the collection of data through a series of stakeholder discussions, meetings, and field visits to examine critical elements and key issues facing the region today. Industry trends, challenges, and constraints to expanding in the future, including infrastructure needs, were gathered for use in developing the logistics industry context and for use in subsequent tasks of this study.

1.2. THE SOUTHERN NEW JERSEY REGIONAL CONTEXT

The southern New Jersey region is a seven-county area that includes Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, and Salem Counties. This section outlines the makeup of the southern New Jersey region and its natural and built assets which make it an advantageous location for the goods movement industry. This section profiles:

- The region's population and industry;
- The current movement of goods and key industries; and
- The key freight transportation system elements in the region.

1.2.1. Population and Industry

According to 2008 Census estimates, approximately 1.8 million people reside in the southern New Jersey region, representing about 21 percent of the State's population. As shown in Table 1-1, the majority of these individuals reside in the western portion of the region in Burlington, Camden, and Gloucester Counties. To the east, Atlantic County, which includes Atlantic City, has over a quarter of a million residents. Atlantic City, Camden, and Vineland are the leading dense urban areas.

Table 1-1:
2000 and Estimated Current Population in the Southern New Jersey Region

	2000 Census	2008 Pop Estimate
Atlantic County	252,552	269,970
Burlington County	423,394	446,220
Camden County	508,932	517,287
Cape May County	102,326	96,328
Cumberland County	146,438	155,407
Gloucester County	254,673	285,528
Salem County	64,285	65,910
Total South Jersey	**1,752,600**	**1,836,650**
Total NJ	8,414,350	8,653,126
% of Total NJ	20.83%	21.23%

Source: New Jersey Department of Labor and Workforce Development, U.S. Census Bureau

The region has a diverse economy, including agricultural and seafood production, mining, manufacturing, wholesale, and service businesses. The 2004 data indicate that businesses in southern New Jersey employ approximately 812,000 workers, primarily in the provision of services (Table 1-2). Note that these employment data do not include agricultural and self-employed workers.

According to New Jersey Department of Labor and Workforce Development projections, growth areas include construction, wholesale and retail trade, transportation and public warehousing, finance, professional and technical services, health care, arts and entertainment, and accommodations and food services. Manufacturing activities are anticipated to continue to decline, following state and national trends.

Table 1-2:
Employment in the Southern New Jersey Region for 2004 and Projected for 2014

	Employment 2004	Employment 2014
Goods-Producing	**104,750**	**98,800**
Mining	400	450
Construction	38,950	42,700
Manufacturing	65,350	55,800
Services-Providing	**707,250**	**800,050**
Wholesale Trade	38,800	45,750
Retail Trade	104,750	116,600
Transportation and Warehousing	23,750	25,700
Utilities	4,700	4,650
Information	10,650	9,850
Finance and Insurance	33,550	37,200
Real Estate and Rental and Leasing	11,450	12,400
Professional, Scientific, and Technical Services	37,050	41,700
Management of Companies and Enterprises	6,400	7,000
Administrative Sup. & Waste Mgmt and Remediation	43,700	56,200
Educational Services	11,650	13,300
Health Care and Social Assistance	98,100	124,600
Arts, Entertainment, and Recreation	10,500	13,350
Accommodation and Food Services	102,250	112,800
Other Services (Except Government)	30,200	35,600
Government	**139,800**	**143,200**
Federal Government	14,500	13,200
State Government	26,650	27,200
Local Government	98,650	102,750
Total Employment, All Jobs*	**812,000**	**898,850**

Notes: * ***Does not include self-employed individuals, farms***, *etc.*
Employment data are rounded to the nearest fifty.

Source: NJ Department of Labor and Workforce Development, Labor Market and Demographic Research and Occupational and Demographic Research, February 2007

1.2.2. Key Freight Transportation System Elements

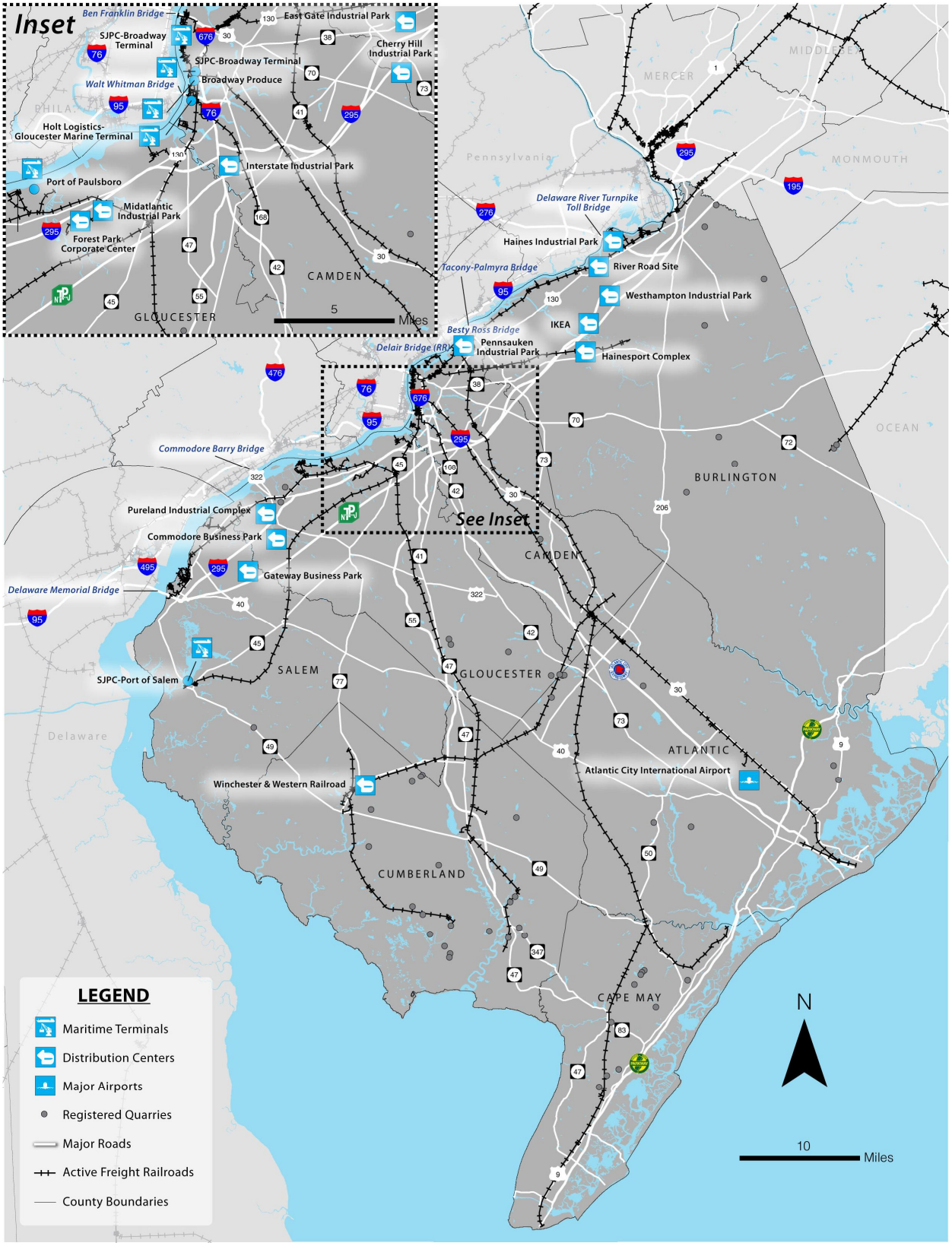
The key elements of the freight transportation system in the southern New Jersey region include extensive road and rail systems, along with several significant maritime terminals and distribution center complexes. Without a major airport in the region, air cargo primarily move through Philadelphia International Airport (which is a United Parcel Service (UPS) hub), Newark Liberty International Airport (which is a Federal Express (FedEx) hub), and John F. Kennedy International Airport (primarily for international shipments). A map depicting elements of the logistics system in the region is provided in Figure 1-3.

Roadways

All three major toll roads within New Jersey traverse the southern region of the state. The **New Jersey Turnpike** (NJTP) runs through four counties (Salem, Gloucester, Camden, and Burlington), and it is the primary limited-access highway between New York and points south, connecting to Delaware via Interstate 295 and the Delaware Memorial Bridge. The **Atlantic City Expressway** (ACE) serves as the only limited-access highway between N.J. Route 42 (connecting to Philadelphia) and points east to Atlantic City. The **Garden State Parkway** (GSP) is the primary limited-access highway between New York and Shore points, and it provides at least four travel lanes throughout southern New Jersey. While the GSP does provide access from Cape May, Atlantic, Ocean and Monmouth Counties to the north for 106 miles, northbound commercial truck vehicles must exit the highway at Exit 105, which limits the use of the GSP for truck traffic destined for the New York metropolitan area and beyond. A map depicting major roadways and bridges in the region is provided in Figure 1-4.

Three major Interstate routes provide key links between major port facilities and distribution centers within South Jersey. Further, these routes are the major links for goods moving out of New Jersey into Pennsylvania and Delaware. **Interstate 76** links I-295 to Philadelphia via the Walt Whitman Bridge, and it provides a connection to I-676 and local areas in Camden. **Interstate 676** provides a limited access route to the City of Camden and its industrial and port sites and it ultimately provides a connection to Philadelphia via the Benjamin Franklin Bridge. I-676 Exit 3 at Morgan Boulevard/Broadway is the primary access point to the port facilities within Camden and Gloucester City. **Interstate 295** provides a limited access north/south freeway that largely parallels the NJTP within South Jersey, providing an alternative and toll-free route for vehicles heading northbound/southbound. I-295 provides the only direct roadway connection between New Jersey and Delaware, via the Delaware Memorial Bridge, and numerous connections to local roadways that link it to the Delaware River waterfront throughout South Jersey. I-295 has also emerged as a hub for distribution centers, in part due to favorable land and highway accessibility.

Figure 1-3: Key Elements of the Southern New Jersey Region's Logistics System



A key part of South Jersey's highway network is its U.S. highways, which provide connections between numerous freight nodes and the major limited access routes. **U.S. Route 30** provides linkages to several major routes within South Jersey, including the GSP, I-676, I-295, and numerous U.S. and N.J. routes. **U.S. Route 40** provides east/west access between Atlantic City and the Delaware Memorial Bridge, where it runs concurrent with I-295. It provides links to several major routes in southern New Jersey, including N.J. Route 55. **U.S. Route 130** provides north/south local access that largely parallels I-295 and the NJTP within South Jersey. U.S. Route 130 is significant in that it provides a link to every Delaware River highway crossing in South Jersey. Further, U.S. Route 130 provides access to numerous major industrial sites within South Jersey, including the Forest Park Corporate Center, Midatlantic Industrial Park, Pennsauken Industrial Park, and Haines Industrial Park. Within South Jersey, **U.S. Route 206** provides north/south access through central Burlington County into Atlantic County. It provides a direct northerly route from U.S. Route 30 to the NJTP and also intersects with N.J. Routes 38 and 70. In northern Burlington County, it intersects with the NJTP, I-295, and U.S. Route 130, providing a key link between three major north/south highways. **U.S. Route 322** traverses two counties (Gloucester and Atlantic) within South Jersey and provides east/west access between Atlantic City and the Commodore Barry Bridge into Pennsylvania. U.S. 322 provides connections to several major toll, interstate, U.S., and N.J. routes within South Jersey as it largely parallels the ACE, providing an alternative and toll-free route for vehicles travelling eastbound/westbound.

In addition to its U.S. routes, South Jersey has a large network of state routes that provide further opportunities for freight circulation and connections to other major highways. The state roadway network in South Jersey includes two limited access highways (N.J. Routes 55 and 90) that are key links for freight circulation within the region. **N.J. Route 55** is a limited access expressway that provides a link between Camden County and Millville, NJ in Cumberland County. It also serves as a major link between Vineland and Millville to points south in Cape May County via N.J. Route 47. **N.J. Route 90** is an expressway that links U.S. Route 130 and N.J. Route 73 in Camden County with the Betsy Ross Bridge into Pennsylvania. **N.J. Route 42** is predominantly a limited access expressway within Camden and Gloucester Counties, and is an integral link between I-295 and the ACE. It also connects I-295 and N.J. Route 55, which links the cities of Millville and Vineland, to the Philadelphia metropolitan area. **N.J. Route 47** provides local access throughout Gloucester, Salem, and Cumberland Counties parallel to N.J. Route 55. South of its intersection with the southern terminus of N.J. Route 55, it (along with N.J. Route 347) provides the primary route into Cape May County and many shore points. **N.J. Route 49** traverses Salem, Cumberland, and Cape May Counties and serves as the primary link between I-295/NJTP and the Port of Salem, and continues through Bridgeton and Millville before terminating in Cape May County. Other important state routes within South Jersey include **N.J. Route 38**, **N.J. Route 44**, **N.J. Route 45**, **N.J. Route 68**, **N.J. Route 70**, **N.J. Route 73**, and **N.J. Route 168**.

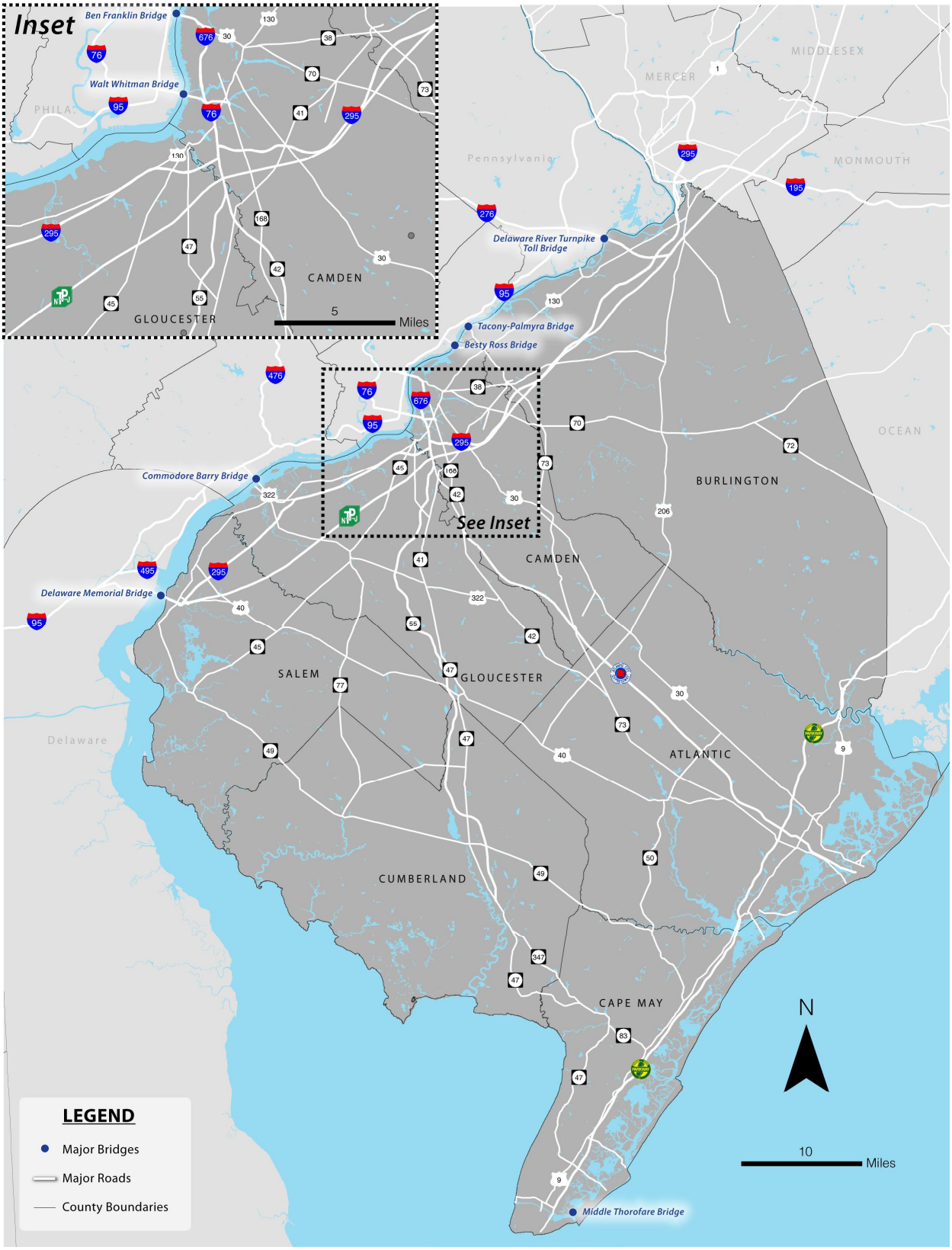
South Jersey also has an extensive network of 500 and 600-level county routes. Of these, **County Route 541** through western Burlington County serves as the most significant county route in the region, providing a critical link between U.S Route 130, I-295, and the NJTP.

Eight major roadway bridges link South Jersey with Pennsylvania and Delaware. Seven bridges link New Jersey with Pennsylvania, while the Delaware Memorial Bridge links New Jersey with

Delaware (via I-295/U.S. Route 40). The seven roadway bridge crossings that link New Jersey with Pennsylvania include:

- Commodore Barry Bridge (via U.S. Route 322/County Route 536)
- Walt Whitman Bridge (via I-76)
- Benjamin Franklin Bridge (via I-676/U.S. Route 30)
- Betsy Ross Bridge (via N.J. Route 90)
- Tacony-Palmyra Bridge (via N.J. Route 73)
- Burlington-Bristol Bridge (via N.J. Route 413)
- Delaware River-Turnpike Toll Bridge (via I-276/I-95)

Figure 1-4: Major Roadways and Bridges and Southern New Jersey



Rail Freight

The southern New Jersey region is part of the Philadelphia-South Jersey Conrail Shared Assets Area. The Shared Assets Area was one of three created in 1999 to provide equal access to both CSX and Norfolk Southern Railroad (NS) when Conrail was acquired by these two national railroads (the other two shared asset areas are located in northern New Jersey and in Detroit). As a result of the acquisition, Conrail became the terminal and switching agent for CSX and NS in these three areas.

Pavonia Yard is the hub of Conrail's operations in southern New Jersey. [1] As noted on Conrail's website, the railroad provides local freight service on virtually all rail lines south of Trenton and provides connections with the short lines serving the remainder of the region. The Delair Lift Bridge, which provides the only rail crossing of the Delaware River south of Trenton, is a critical connection for Conrail's service to and from the region. Through Conrail, the Canadian Pacific Railroad (CP), third national or Class I railroad can also be accessed. The region's rail freight lines are depicted in Figure 1-5.

Short line railroad operators in Southern New Jersey include:

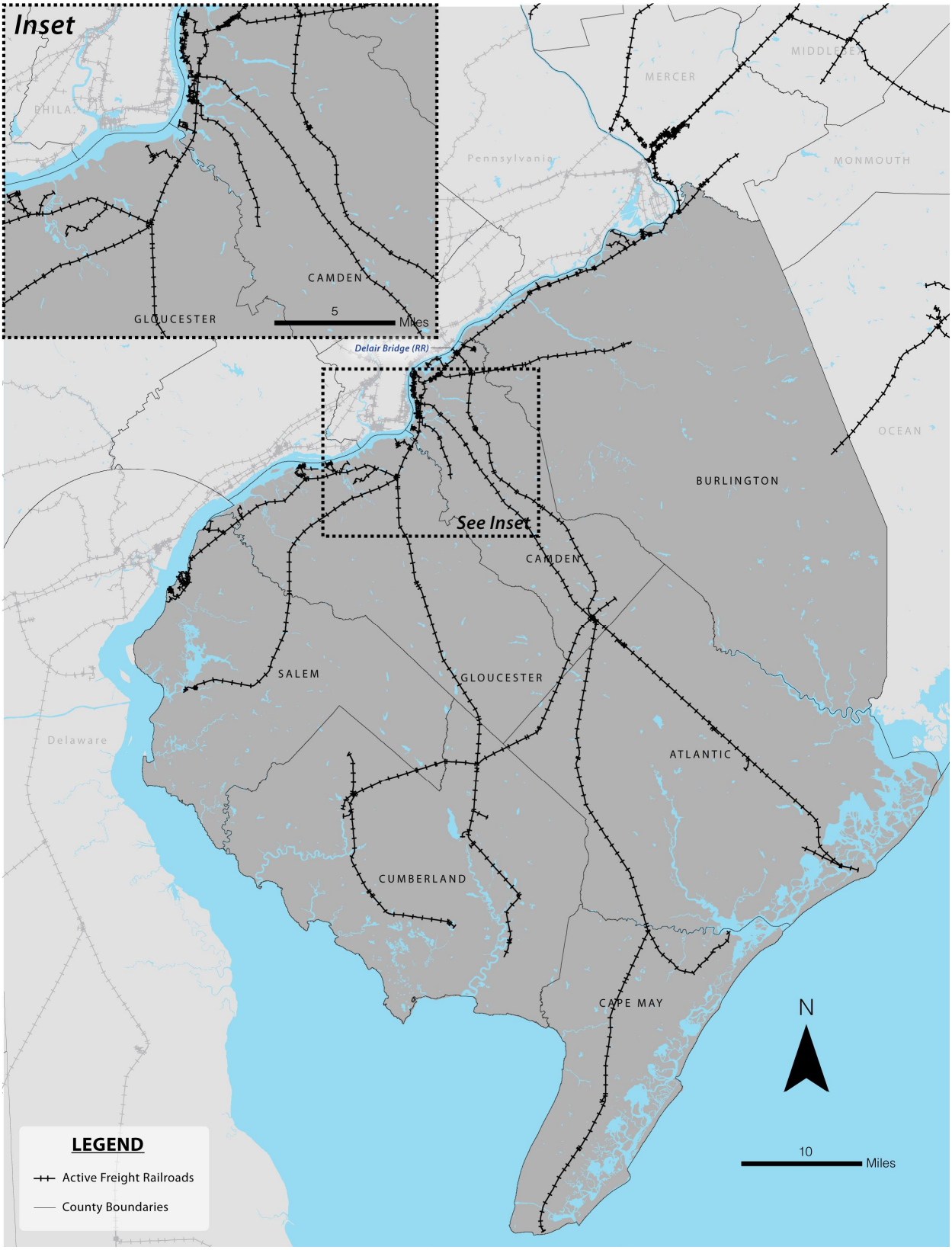
- Cape May Seashore Lines (Cape May County)
- SMS Railway (Gloucester County)
- Southern Railroad Company of New Jersey (Atlantic, Cumberland, Gloucester and Salem Counties)
- **US Rail** Corporation of New Jersey (Salem County)
- Winchester and Western Railroad (Cumberland County)

Within the southern New Jersey region, all of the rail freight service provided is carload service.

Carload service refers to the movement of products in boxcars, hopper cars, tank cars, and special lumber cars over a long distance by rail which are then either transported directly by rail or shifted to truck for delivery to customers (See Figure 1-7 for examples). The characteristics of these commodities (e.g., bulk, heavy or over-dimensional) make rail the preferred option for long distance movement.

[1] http://www.conrail.com/freight.htm

Figure 1-5: Rail Freight Lines in the Southern New Jersey Region



Maritime Terminals

The maritime terminal assets of the southern New Jersey region are primarily located along the Delaware River in the western portion of the study area. These facilities handle the international and domestic movement of waterborne products. As previously noted, the region also has several commercial fishing ports, including Cape May/Wildwood, which was the fourth largest fishing port in the nation based on value of catch in 2008. Fishing ports are located on the southern portions of Delaware Bay and along the Atlantic shore.

The maritime terminals along the Delaware River include facilities operated by the South Jersey Port Corporation (SJPC), Holt Logistics, and private terminals (including the Sunoco and Valero petroleum facilities). In addition, the South Jersey Port Corporation is developing a new maritime terminal in Paulsboro. The maritime terminals are shown in Figure 1-6.

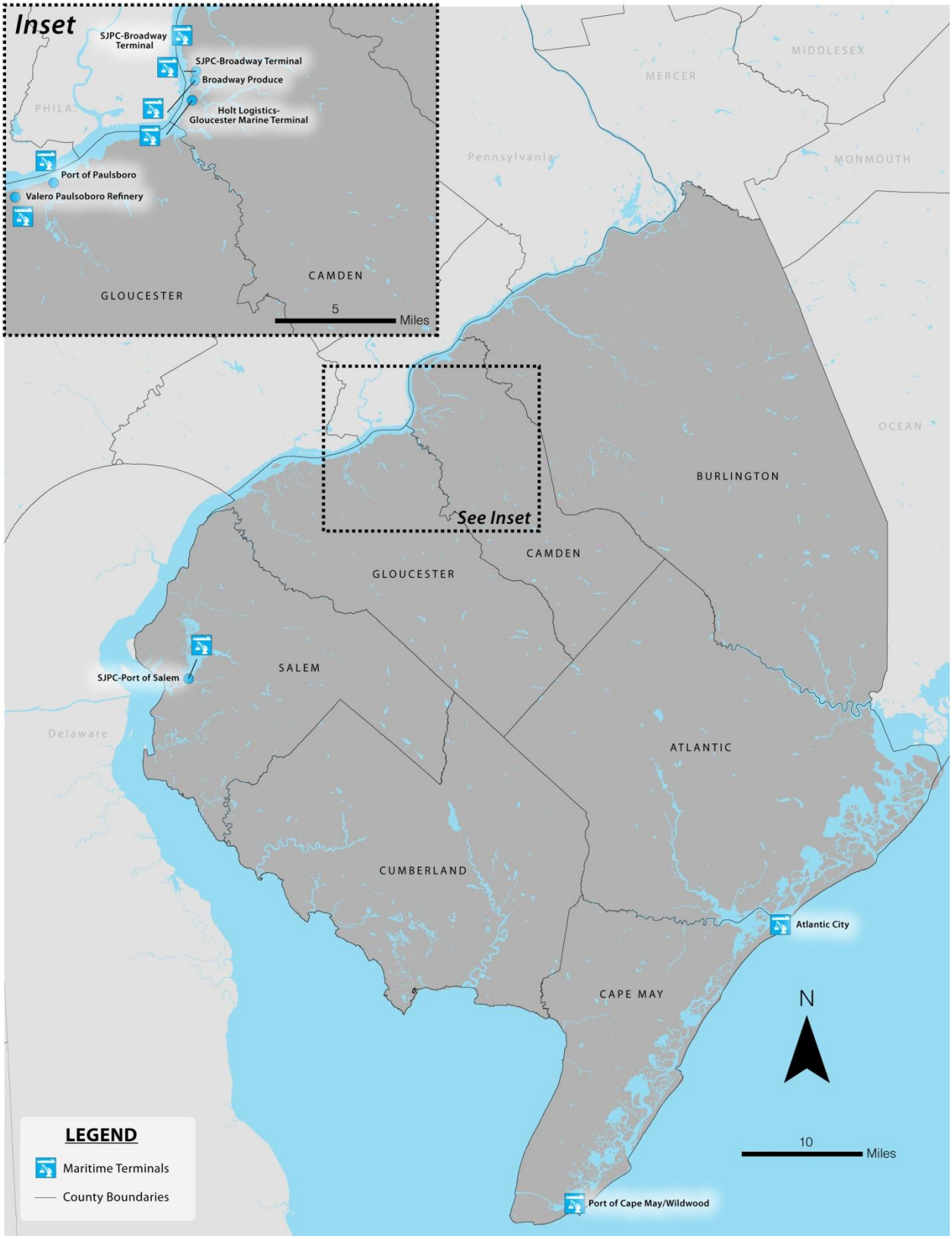
The SJPC facilities primarily focus on the movement of *breakbulk* and *bulk* commodities, such as lumber, steel and cocoa beans through four terminals:[2]

- The **Beckett Street Terminal** is a 125- acre complex located in Camden that handles wood products, steel products, cocoa beans, containers, iron ore, furnace slag, scrap metal, and project/over-dimensional cargo movements.
- The **Broadway Terminal** is a 180-acre complex also located in Camden that handles petroleum coke, furnace slag, dolomite, other dry bulk items, steel products, wood products, minerals, cocoa beans, and fresh fruit. The facility can also handle containerized cargo.
- The **Broadway Produce Terminal** is a 26-acre center located in Camden that is operated exclusively by and for Del Monte. The facility handles bananas, pineapples, and other perishables.
- The **Port of Salem** is a 22-acre complex located west of downtown Salem that includes both SJPC and private terminal related operations. The Port of Salem currently handles aggregate (e.g. sand), clothing apparel, fishing apparel, motor vehicles, food products, and consumer goods.

All of these terminals have truck access and rail access via Conrail.

[2] Information from the South Jersey Port Corporation website.

Figure 1-6: Maritime Terminals in the Southern New Jersey Region



SJPC is currently designing a 150-acre marine terminal in Paulsboro, located in Gloucester County. Construction began in the fall of 2009. The characteristics of the new terminal area include:[3]

- 3,000 linear feet of deep draft berth capacity, resulting in three new berths
- One 500-linear foot barge berth
- Integrated on-dock rail
- Adjacent transit shed storage
- High speed, enclosed dry bulk conveyance system

Field visits and executive dialogues also indicated that businesses in the southern New Jersey region extensively use the Port of New York and New Jersey (PONYNJ). The PONYNJ, according to the executive dialogues, is used because of the number of overseas locations that can be accessed, the frequency of vessel calls, and access to containerized cargo facilities available at this port. The PONYNJ is the largest port on the East Coast and continues to grow.

Distribution Centers

Distribution centers (DCs) and warehouses are defined as structures that are primarily used for the receipt, temporary storage, possible modification/customization, and distribution of goods that are en route from production sites to locations where they will be consumed. Warehouses and DCs are often sites where value is added to the products moving through them. Examples of value-added activities include final assembly and customization of products and preparing products for the sales floor (including packaging and tagging). Warehousing and DC operations vary considerably in size, ranging from a few thousand square feet to buildings that are over one million square feet. These facilities may also contain temperature-controlled space, which is essential for maintaining perishable food. DCs and warehouses may handle local distribution, distribute to a multi-state area, distribute goods throughout North America and/or export products. These facilities may receive products from domestic and overseas sources.

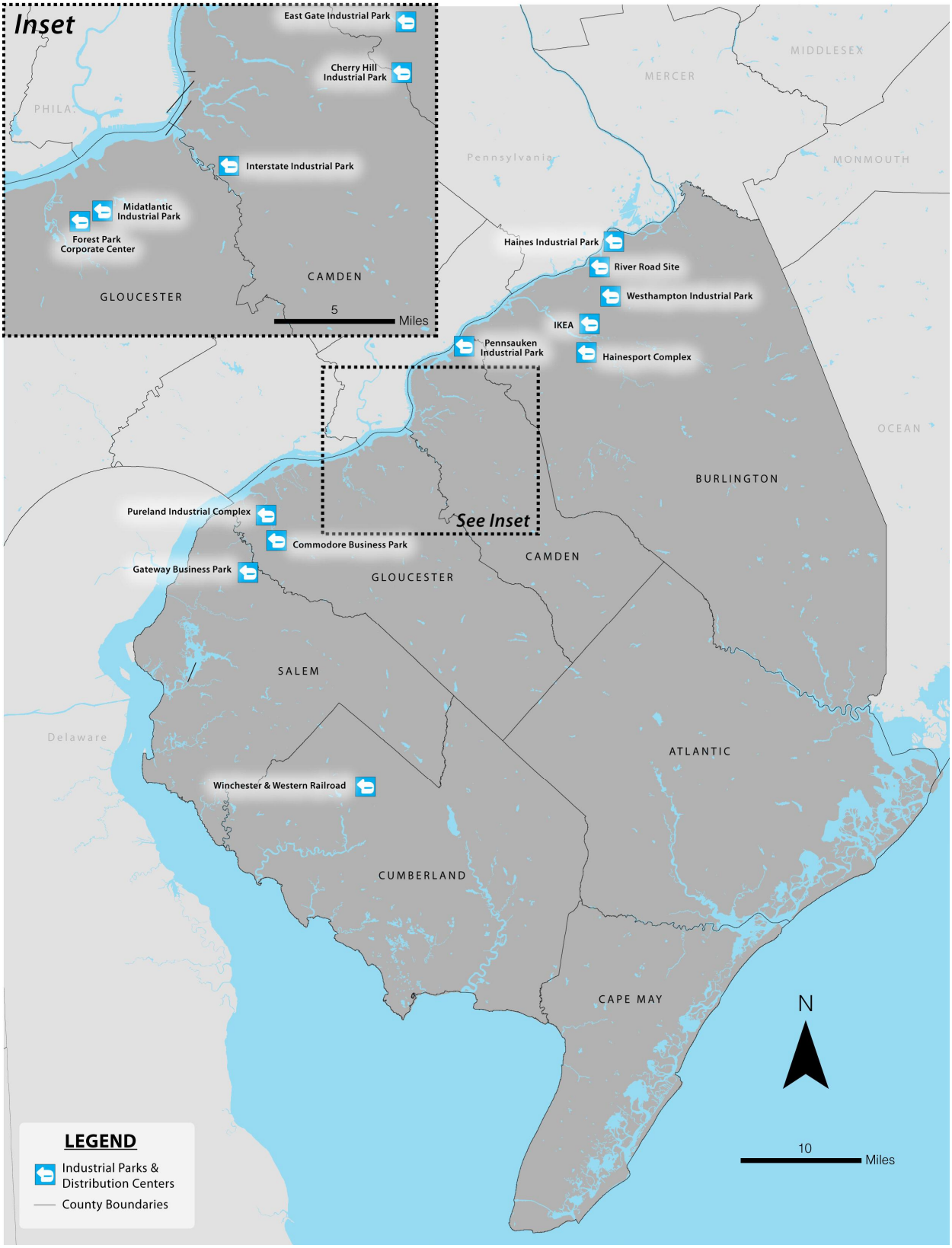
A significant number of DC and warehouse operations exist in the southern New Jersey region, primarily along the New Jersey Turnpike/Interstate 295 and U.S. Route 130 Corridor, within the area's "Supply Chain Corridor" (Figure 1-7). Some of the largest include the following:

- The Pureland Industrial Complex – A key 300 acre distribution site on the I-295 spine, located adjacent to Interchange 10 in Logan Township, Gloucester County with 15 million square feet of developed space
- The Commodore Business Park – Located less than two miles from Interchange 11 on I-295 in Swedesboro, Gloucester County, with 1.5 million square feet of developed space on 400 acres

[3] South Jersey Port Corporation brochure, *Paulsboro Marine Terminal – A Flexible Omni-Port Opening in 2010*.

- The Haines Industrial Park located off Route 130 in Burlington and Florence Townships, Burlington County, with 750 acres and about 4 million square feet of developed space.

Figure 1-7: Major Industrial Parks in Southern New Jersey in the Supply Chain Corridor



1.3. KEY ISSUES FACING THE REGION

To initially identify the issues facing the region, field visits and stakeholder meetings were conducted by the project team and NJDOT as follows:

- Salem and Gloucester Counties - May 8, 2009
- Gloucester, Camden, and Burlington Counties - May 15, 2009
- Cumberland County - July 28, 2009
- Purdue Agribusiness – November 9, 2009

The stakeholder outreach indicated that each business cluster active in the study area faces unique issues and constraints, and that those issues vary both with location and mode. It was recommended that the study's focus and proposed improvements be location, mode, and industry-specific, rather than a general program that is applicable across the region (although some common elements will also warrant regional actions).

The following sections summarize the key issues and constraints identified during the outreach process for the overall region as well as for specific counties and facilities.

The South Jersey Region

Overall, general themes emerged in terms of the region's strengths and assets. The region is home to an available and skilled labor pool, has proximity to the largest consumer market in the United States, has access to a multi-modal supply chain corridor, and has abundant natural resources. Combined with key infrastructure investments, these strengths and assets need to be leveraged to support economic growth in the region.

Key industrial clusters include legacy industries in the region like oil refineries, the chemical industry, and glass products, in addition to those industries located here because of the region's natural resources such as construction aggregates, agricultural and food products, and seafood. Some industries in the region require improved highway access, while others would more greatly benefit from improved rail infrastructure. The primary access issues are rail capacity, rail infrastructure conditions, rail connections to the north, and "last mile/first mile" roadway connections. Additional infrastructure issues relate to the age and condition of the existing maritime facilities on the Delaware River and the need to support new port facilities under construction.

Roadways

As noted in the previous sections, agriculture is a major industry in southern New Jersey. Many New Jersey agricultural products are consumed within the state. The nature of the growing season results in highly seasonal peak demand. Typical southern New Jersey food products, including produce and seafood, are perishable. As such, these products usually move by truck rather than by rail; therefore, accommodating truck movements is critical for this industry.

Additionally, the processing of foods, i.e. bagged lettuce and other vegetables, is a growth industry for the region that requires good highway access (i.e. I-295). The processing of fresh foods close to large markets opens opportunities for New Jersey sites with good highway access.

A small number of limited access highways provide access to southern New Jersey. These include I-295, the NJ Turnpike, the Atlantic City Expressway, the Garden State Parkway, and NJ

Route 55, which terminates in Cumberland County, south of Vineland. In general, communities and facilities (i.e. maritime ports, airports, industrial parks) that do not have direct access to one of these roadways are severely hampered due to increased travel time and cost resulting from the need to use local connections. These inefficiencies limit the ability of much of the region to compete effectively. This is particularly true of Salem and Cape May Counties, much of Cumberland, and portions of Gloucester County, which lack direct access to the NJ Turnpike/I-295 corridor.

Additionally, the "last mile/first mile" connections between the major highways and the ports and maritime terminals are in need of improvements to serve increased demand and to separate truck traffic from neighborhood traffic.

Rail

Southern New Jersey is a significant supplier of aggregate and the cost of shipping is a strong factor in competitiveness for the aggregate business. Aggregate is a good candidate for increased use of rail transport, but is hampered by rail infrastructure conditions, limited north/south connectivity, and weight limits. Many of the other industries within the region are not as practical for rail freight to capture a large share of their movements due to the nature of the products (such as produce); however, rail does handle some perishable agricultural products from the region.

The size and shape of the southern New Jersey region hampers the effectiveness of rail freight between southern New Jersey and the rest of the state and points west and south. The region's peninsular shape and river border with Delaware and Pennsylvania confine interstate movement to a limited number of bridge crossings. Direct rail connections between North and South Jersey are limited and slow, hampering the viability of rail as a significant mover of freight. The Delair Lift Bridge provides the only rail freight crossing of the Delaware River south of Trenton. Additionally, all rail freight to and from South Jersey must go through Pavonia Yard in Camden.

The rail weight ratings are another significant issue for freight movement in New Jersey and especially in southern New Jersey. Much of the state's rail infrastructure is rated lower (286,000 lbs) than the weight standard used for most interstate, long distance rail freight (315,000 lbs).

As the southern New Jersey region develops there will likely be increased numbers of distribution centers, expanded ports and terminals, as well as more residential and commercial uses, especially in areas with planned expansions for passenger rail. Consideration must be given to providing the needed buffer between industrial and residential uses, including along the region's roadways.

Ports

Maritime terminals along the Delaware River include facilities operated by the South Jersey Port Corporation (SJPC), Holt Logistics, and private terminals (including the Sunoco and Valero petroleum facilities). The region also has several commercial fishing ports, including Cape May/Wildwood, which was the fourth largest fishing port in the nation in 2008, based on the value of catch.

The SJPC facilities primarily focus on the movement of breakbulk and bulk commodities, such as lumber, steel and cocoa beans through three Camden facilities: the Beckett Street Terminal, Broadway Terminal, and Broadway Produce Terminal, and the Port of Salem. Salem provides a unique shallow draft port that serves a niche market (see below). The Camden facilities have truck access and rail access via Conrail.

Many of these facilities are aging and antiquated. Camden's terminals have numerous deficiencies and impacts to the surrounding communities are significant due to lack of buffers and highway access that traverses residential neighborhoods. Rail access to the Port of Salem is virtually unusable.

SJPC is currently developing a 150-acre deep water marine terminal in Paulsboro, located in Gloucester County. Construction began in the fall of 2009. Scheduled to be completed in phases, the Paulsboro Marine terminal will feature new wharf area and ship berths, warehouse space, roadway access, and rail infrastructure. The terminal is being designed to integrate industrial space with processing and distribution space, and provide true intermodal capability.

Holt Logistics operates the Gloucester Marine Terminal in Gloucester City, NJ, just south of Camden. The terminal is situated on 150 acres with the largest refrigerated capacity of any terminal in the United States with access to the region's key highways.

1.3.1. Summary by County

1.3.1.1. Salem County and the Port of Salem

The Port of Salem, which operates under contract with SJPC, is a shallow-draft port that includes the aggregate operation and a bulk cargo facility that handles cargoes such as wearing apparel, fishing apparel, motor vehicles, food products, and consumer goods. Mannington Mills and Anchor Glass, large employers in the County, are located proximate to the Port, as is the South Jersey Farmers Exchange. Despite rail, road, and marine limitations, the primary issue for the Port of Salem, as well as the County of Salem as a whole, is sustainable economic development.

Significant improvements to the rail line serving the Port of Salem are needed in order to make it a more time and cost effective mode of transportation. More modal choices would contribute to greater success of both the Port and the vitality and economic development of local businesses, including Mannington Mills, Anchor Glass, and attract other new businesses to the area. The existing rail line at the Port of Salem is currently in very poor condition; travel speeds are very

slow, derailments are frequent, and some sections are unusable. Improvements to the rail line would advance rail/barge/small vessel bulk product movements and industry development, as well as potentially handle additional traffic for the major industrial customers in the area.

It is anticipated that $8-to-$10 million in additional funding would be needed to improve the rail line to provide effective access to the Port of Salem. Salem County, which owns 18 miles of the rail line, recently received $1 million from the federal government to improve the rail line.

N.J. Route 49, the main access route to the area, has limited use as a major truck route, as some geometric constraints and intersection deficiencies hamper truck movements.

Customers have stated that the Port of Salem could benefit from having a deeper draft, which is currently 16 feet. In 2010, a private sector service provider began a marine highway service between Salem and Tremley Point in Linden to move aggregate product. This movement addresses a critical missing link in New Jersey's multi-modal freight system and links a supplier to a key market in an environmentally sustainable manner. The Grasselli facility at Tremley Point is the northern terminus for the new aggregate barge service from the Port of Salem. Other short sea shipping opportunities are being explored by NJDOT as part of the NJ Marine Highway Initiative.

The Matrix Gateway Business Park in Oldmans, Salem County is a relatively new development with good access to adjacent I-295 Interchange 7. The site includes a specialty glass company, a major food cold storage/ distribution operation, and several Class A distribution buildings that are in the process of being rented. This region is able to provide the available and appropriate skilled labor force for this development.

This project was developed through a partnership involving the County, the utility company (power, water, and sewer had to be brought to the site), and Matrix Development. The County envisions encouraging similar development along the I-295 spine, linking with similar development along I-295 in neighboring Gloucester County. Maryland sites are considered the major out-of-state competitors to this location.

1.3.1.2. Gloucester County

Gloucester County has significant highway and maritime assets and many acres of land available for industrial redevelopment. As it already features a strong existing logistics sector, Gloucester County is developing a more selective focus and is seeking infrastructure improvements to support further expansion. The County has "legacy industries" along the Delaware River that are involved in chemical processing and include Valero, Citgo, and Sunoco. These businesses are major employers in the area.

Gloucester County is pursuing new jobs that are more "career oriented," offering growth potential for a higher skilled labor force. This includes the development of a new marine terminal in Paulsboro and development around Rowan University in Glassboro.

Additionally, the County is encouraging the development of industrial clusters along the I-295 spine. The industrial clusters include value added manufacturing, distribution centers, and alternative energy companies. Two types of distribution centers are being developed. These are fulfillment centers, such as the drugstore.com distribution center in Pureland, and major import centers where value added activities occur.

Major distribution centers in Gloucester County along the I-295 spine include:

- The Pureland Industrial Complex – A key distribution site on the I-295 spine, located adjacent to Interchange 10.
- The Commodore Business Park – Located less than two miles from Interchange 11, it has developed 1.5 million square feet of space. The property does not have rail service.
- Phase II of Pureland is the LogistiCenter at Logan. Located at Center Square and Harrisonville Roads in Gloucester County in Logan Township, New Jersey. The LogistiCenter is a 1,000 acre, the master-planned logistics center. The site is served by Class 1 railroads via SMS Rail Lines.
- The Forest Park Corporate Center – Located at Interchange 19, has a TA truck stop available at nearby Interchange 18. The adjacent sites are forested. There is rail into the site, but the rail line is currently not served.
- The MidAtlantic Industrial Park – Located at Interchange 20. The park is a combination of older, smaller industrial buildings and some very modern buildings. Many of the older buildings are noted as available.
- Crown Point – A smaller development located about 1.5-to-two miles from Interchange 19. The site is located very close to the Port of Paulsboro site. There are wetlands across the street from the development.

Business focuses include food manufacturing and distribution, distribution centers, and pharmaceuticals. The County is following the path of development in the Philadelphia area, which is across the river from Gloucester. The market served is two-fold – one within a "two-hour" driving radius, which ranges from Washington, DC to New York City, and the other a larger multi-state, east of the Mississippi River market.

Manufacturing is also being pursued. ADS pipe was noted as a successful example of attracting manufacturing to the area, particularly companies that need rail service.

The Lehigh Valley area of Pennsylvania is considered the major competitor to Gloucester County. The Commonwealth of Pennsylvania has a very aggressive economic development

program with significant incentives being offered to prospective companies. Labor, which can be a major consideration in industrial site selection, was noted as being readily available in Gloucester County. Additionally, Gloucester County offers tax abatements for prospective companies to attract them. However, businesses indicate that New Jersey's current tax structure, fees (including COAH), and the overall cost of living, make the state a high cost location.

Lehigh Valley has more access to northern destinations and has direct access to the Norfolk Southern Railroad. In Gloucester County, the SMS Rail Line has twice a day service, seven days a week. Additional rail freight service exists along the Delaware River serving the refineries. Gloucester County has access to two major Class I railroads – CSX and Norfolk Southern. Deepening of the shipping channels in the Delaware River to 45 feet would improve access to these legacy refinery industries.

The County is developing new marine terminals in Paulsboro. The 190 acre site is being developed by the South Jersey Port Corporation as a breakbulk terminal. SJPC is meeting with private terminal operators to develop and operate the site. Container import activity is not envisioned for the site. Further expansion and development of the Port of Paulsboro will require a roadway improvement to separate the traffic related to the marine terminal from the surrounding residential community.

Truck access is a concern for expansion of the industries in the region. Expanding Interchange 10 on I-295 to accommodate additional traffic and growth at Pureland may be necessary. Geometric and/or capacity constraints were noted on U.S. Route 322 as it approaches N.J. Route 55 and along N.J. Route 55 to provide access into Cumberland County. The Commodore Barry Bridge currently exits into Gloucester County onto a single-lane road, which is a constraint to growth in the region.

Additionally, minimal transit options exist for workers to access the industrial parks; however, it was noted that bus service exists to Pureland.

Millville and Woodbine airports have limitations as freight hubs. Each has runways that do not meet minimum requirements for heavy freight (10,000 feet). Millville Airport's runways are 5,000 and 6,000 feet long; while Woodbine Airport's runways are 3,300 and 3,100 feet long. Extensions of runways usually have significant environmental, cost, and operational considerations; runway clear zone issues may also be a consideration. Further, both lack direct highway access.

1.3.1.3. South Jersey Port Corporation (SJPC) – Port of Camden, Port of Paulsboro, and Camden County

The SJPC was formed in 1968 with the Beckett Street Terminal as the original port. The Broadway terminal was originally a ship building yard and retains many of the original structures; however, the site has been retrofitted as a terminal, along with about one million square feet of warehouse space. Major products moved through the port include fruit (Del Monte), cement, steel, scrap, and cocoa beans. The exports are largely bulk (scrap) and steel items. Del Monte and St. Lawrence Cement are major tenants. Del Monte moves about half a million tons annually and has expanded. St. Lawrence Cement moves between three-quarters and one million tons annually and has made $55 million in investments to their facility.

SJPC noted that planned improvements for Beckett, Broadway, and Holt Terminals include repairing and replacement of piers, deepening of channels, extension of cranes, and a new mobile crane. Among the major proposed port improvement projects are restoring Berth #1 at Beckett Street and rebuilding Pier #1 at the Broadway Terminal. Beckett Street is the key terminal in need of improvements to encourage the expansion of jobs.

Most Beckett and Broadway warehouse buildings are old factory buildings not designed for their current use. Modernization would dramatically improve efficiencies and capacity, while allowing for reconfiguration to facilitate intra-terminal cargo movements. Additionally, the Broadway breakbulk terminal needs improvements to the bulkhead and to the platform. Gantry rail should be extended onto this terminal to modernize loading/unloading operations.

The Port of Camden is attempting to pursue several new markets, including winter steel, grain out/steel in backhaul when the Great Lakes are not navigable due to weather, consolidated scrap markets for shipments into the interior mills, and a global recycling terminal.

The Delaware River main shipping channel is limited to a depth of 41 feet. Modern cargo vessels require channels of 45 to 50 feet. Further deepening of the Delaware River main channel will provide deeper drafts to facilitate the use of larger ships, increasing cargo traffic through improved efficiencies of the shipping lines. Maintenance dredging is essential to maintain Delaware River access for maritime freight movement. Dredged material management alternatives must be developed in order to ensure that maintenance dredging occurs and to keep the cost of dredging down.

Highway access (between the Port of Camden and I-676, new infrastructure to support growth at the Port of Paulsboro) and infrastructure constraints at the Pavonia Yards (encroaching development, capacity limitations) are critical to future port expansion. During the mid 2000s, the SJPC reported that ships had to be turned away because tonnage exceeded capacity at times. The economic slowdown has removed this as a problem for now. Needed improvements to capacity and dock-side efficiency can and should be undertaken to allow for growth once the economy improves.

The surrounding community in the City of Camden has significant concerns regarding the truck traffic in the area. SJPC would like to develop a “buffer zone” between the maritime terminals and adjacent communities to address the situation. The Port must address concerns of the nearby

neighborhoods, such as truck traffic, particularly at the Beckett Street Terminal. There is a need to improve roadway access and connectivity in several areas. Suggested key locations include:

- Provide a local connector roadway to replace Broadway Avenue as a non-port roadway
- Connect the Beckett Street, Broadway, and Gloucester Terminal areas
- Provide I-676 Interchange safety improvements
- New I-676 interchange / ramp directly connecting the Port of Camden – There is a significant need for a dedicated truck route to/from I-676 to provide service to the Port of Camden and limit intrusion on surrounding neighborhoods
- Improved gate access and queuing lanes would improve security as well as reduce congestion
- The roadways within the Broadway Terminal require significant repaving, as does the access road from I-676.
- Separate roadway access to the proposed Port of Paulsboro is needed to avoid heavy truck traffic through a residential area
- Route 44 and several interchanges with I-295 (including 19, 20, 21 and 22) would likely be negatively impacted by increases in truck traffic to and from Paulsboro

The Conrail Pavonia Rail Yard in Camden serves all of the southern New Jersey freight lines, including Burlington County. Pavonia Yard is at capacity and any expansion in operations would require both new facilities and more staffing.

It was noted that rail needs to play a larger role if the Port of Camden is to expand. Trackage within the Port of Camden serving both the Broadway and Beckett Terminals needs upgrading to serve its present client base. Plans for capturing more breakbulk and bulk cargo will likely require additional storage and warehousing space that will need reconfiguring of rail trackage if the port is to serve a larger region, including inland distribution points. NJDOT has provided $2.3 million in matched funds to make improvements to the Broadway Terminal trackage. Rail access includes a spur that serves the Broadway Terminal, along with a small yard within the terminal. Additionally, Holt has added some switching space and the Port of Paulsboro will include a small switching yard.

Rail service is also considered an issue, with participants indicating that Conrail has operational constraints that impact timely performance. Currently, insufficient height and weight limits exist along the rail right-of-way to permit the movement of doublestack container trains. However, container traffic is not currently envisioned for the maritime terminals. It was noted that terminals on the Philadelphia side of the Delaware River already handle containerized cargo.

There are few areas for car storage to support expansion of rail service. Much of the former Beckett Street Yard is occupied by a cement importing facility with only a few storage tracks remaining. Additional yard storage tracks will be needed to support an expanded operation and the use of rail service to reach inland markets.

The proposed Glassboro-Camden passenger rail line would have to share right-of-way with the

Conrail Line (Vineland Secondary). If this proposed passenger service uses a light rail diesel powered passenger vehicle, a temporal separation agreement and /or rail line separation will be required to meet Federal Railroad Administration (FRA) requirements for light and heavy rail operating in or on the same right-of-way. Service on the following freight lines would be impacted by this increased passenger service:

- The Vineland Secondary continues south to Woodbury Junction, where it meets the Salem Running Track (line to Swedesboro and Port Salem) and the Penns Grove Secondary (line serving the chemical and refining facilities, Pureland Industrial Park, and future port facilities at Paulsboro). Freight trains serving these lines would need to travel in the proposed corridor from Pavonia Yard to Woodbury Junction.
- Freight service south of Woodbury Junction to Glassboro, Millville, and service to the Winchester & Western and the remaining freight lines, such as the Millville industrial track.

If plans for port expansion at Paulsboro proceed along with additional facilities at the Repauno and Deepwater sites along the Delaware River, consideration needs to be given to have rail service provided by a contract carrier. Sufficient space would need to be provided for storage and make up of trains that would be handed over to Conrail at a designated interchange point or yard. Such an arrangement should be considered early on and built into improvement plans as they proceed.

1.3.1.4. Cumberland County

Current demand for freight movement in Cumberland County is limited, largely due to the fact that the County is remote from key interstate bridges and the I-295/New Jersey Turnpike corridor. Cumberland County also has relatively poor roadway access and lacks a limited access roadway network. For north/south travel in Cumberland County, there is one four-lane limited access freeway, N.J. Route 55, passing through Millville and Vineland, the largest cities in Cumberland County. The N.J. Route 55 expressway terminates at N.J. Route 47 south of Millville. N.J. Route 47 runs mostly parallel to N.J. Route 55 as a two to four lane principal arterial until the two run coincident and then split into N.J. Route 47 and N.J. Route 347. From there, N.J. Route 47 continues into Cape May County, providing access to the Shore communities. N.J. Route 77 continues south from Salem County to Bridgeton in Cumberland County. Smaller county roads such as County Route 555, which runs through Millville and Vineland, and County Route 553, which runs through Bridgeton, also service north/south traffic. East/west travel in Cumberland County is serviced by N.J. Route 49, a two to four lane minor arterial that connects eastern New Jersey with the Delaware Memorial Bridge via Cumberland County.

The Port of Bridgeton, currently not in operation, has a depth of 17 feet and used to support barge traffic containing bulk cargoes such as gravel, lumber, and oil. Truck access is provided by N.J. Route 49. The SJPC hopes to find a new tenant for the port. In the past there was a barge service at Leesburg and space exists at Dorchester for a barge/rail connection. Port space could also be used in the development of wind energy by bringing in components for the turbines via barge and rail. Fisherman's Energy Corporation is working on developing offshore wind projects. However, the Maurice River is notoriously difficult to navigate and has issues

associated with sediment contamination that would make development of a modern port facility particularly challenging.

An important legacy industry of Cumberland County is the glass industry. The glass industry employs approximately 3,000 workers in tableware, pharmaceutical, and other glass production. Cumberland County has the skilled labor and local suppliers to support the glass industry and potentially the emerging solar industry. Aggregates, especially sand, are also an important industry.

Agricultural crops and agricultural products such as fertilizer and seed, as well as flowers, bushes, trees, and shrubs are an important sector of Cumberland County's economy. Many commodities are perishable agricultural products which often must move by truck and the nature of the growing season results in highly seasonal peak demand. New Jersey farmers produce more than 13 million bushels of barley, corn, soybeans and wheat annually. Perdue Agribusiness handles over 38% of this through its two grain facilities in Bordentown and Bridgeton. The grain is moved by both truck and rail, but there may be opportunities to move it by barge. Winchester and Western Railroad (W&W) is a short line railroad that serves Cumberland County and handles approximately 7,000 carloads a year. It has 28 customers, including three new businesses added in the last four years. Emerging markets include "frac sand." Cumberland County's sand mines currently provide the high-quality sand needed for this process. The recent discovery of major natural gas deposits in shale in northern Pennsylvania presents a significant business opportunity for shipping "frac sand" by rail, which is a critical material used in the extraction process. Cement sand is also hauled on the W&W, as well as liquid petroleum gas, which is distributed in the region from a transload facility in Bridgeton. Perdue has its own private fleet of rail cars to accommodate its grain rail shipments from Cumberland County. Unit grain trains are assembled on the W&W and forwarded to terminals in Norfolk, VA.

Cumberland County has several distribution centers in Vineland, Millville, and Bridgeton, some of which are served by rail. For example, the South Millville Industrial Park is served by the W&W and Conrail. The Millville Airport Industrial Park is adjacent to the Millville Airport; however, the airport runway length is a constraint to air freight movements – the longest runway is 6,000 feet. The Cumberland Economic Development Corporation is promoting a new regional business park that would be located north of Bridgeton in Upper Deerfield along N.J. Route 77 and a spur of the W&W.

Improvements to N.J. Route 55 have had a checkered history. The largest overall issue is whether or not to extend the four-lane freeway from its current terminus at N.J. Route 47 to Cape May County. Other concerns relate to the need to improve or add access to N.J. Route 55. One possibility is a new interchange in the area of the South Millville Industrial Park, while another is a new connecting road between Bridgeton and N.J. Route 55.

The following is the status of potential improvement projects for N.J. Route 55:

- In April 2009, the Governor announced that NJDOT would provide funding for major improvements at the interchange of N.J. Route 55 and N.J. Route 49 (Exit 24), including the intersection of N.J. Route 49 & Wade Boulevard, which leads to the south Millville industrial area.
- State and local officials are pursuing federal funding to improve the intersection of N.J. Route 55 and N.J. Route 47, which currently is a signal-controlled, at-grade, intersection.
- The South Jersey Transportation Authority (SJTA) recently announced that it is assuming a new role in leading further study of the possibly of extending N.J. Route 55.

A completed and enhanced Route 55 could reinforce this corridor as a major north-south artery supporting substantial new development in Cumberland.

1.3.1.5. Burlington County

Burlington County benefits from significant highway access, including the New Jersey Turnpike, I-295, U.S. Route 206, N.J. Routes 38 and 73, and County Route 541. Partial interchanges with key state highways – N.J. Route 38 at I-295 for example, constrain goods movement. The proximity of developable lands to I-295, in particular, is beneficial to large warehousing operations.

The Haines Industrial Park extends down to the Delaware River with about 4 million square feet of developed space and the potential for about another 4 million. It includes a riverfront area of about 30 acres for a possible port facility. Major tenants include the Christmas Tree Shops, International Paper, Sports Authority, Ocean Spray, BJs Wholesale Club, Home Depot Supply, and National Freight Systems. The Christmas Tree Shops' building is 80 feet tall and provides 720,000 square feet of space. The International Paper distribution center is serviced by rail. BJs occupies 633,000 square feet, has 700 trailer parking spots, and a 1,100 foot long cross dock operation. BJ's receives over 400 trailers daily.

The Hercules site in Hainesport has been approved for 1.7 million square feet of space. CVS owns the site and selected the location based on roadway access (N.J. Route 38 to I-295 South and County Route 541 to the NJ Turnpike and I-295 North). IKEA considered expanding their 2 million square foot building in Westhampton to be 105 feet tall and 4 million square feet. However, there was community resistance, prompting IKEA to expand in Maryland instead.

The eastern portion of Burlington County is dominated by the Pinelands and subject to development regulation under the Pinelands Commission. Developers interested in the I-295 corridor have encountered other barriers, including local opposition, NJDEP regulations, and water and sewer limitations.

The Bordentown Secondary is a single track line which is owned by NJ TRANSIT. Heavy rail freight and light rail passenger share the trackage. Currently, heavy rail and light rail (as diesel multiple unit light rail passenger vehicles as operated on the NJ TRANSIT River Line) cannot

operate on or in the same track space due to temporal separation requirements of the FRA. Thus, rail freight is consigned to late night to pre-commuter rush hours for service, limiting the ability to provide round the clock switching services. Burlington County Economic Development would like to see another track added to the Bordentown Secondary so that freight can operate beyond the current time restraints. If rail served industry is to be promoted along the Bordentown Secondary and the Pemberton Branch, additional yard and storage space will also likely be needed.

Adequate and efficient access between industrial parks and I-295 is a critical issue. Interchange 52 of I-295 (Florence/Columbus Road) requires improvements due to the interchange size and geometry, which is not adequate to handle the large volume of existing and future truck traffic. Southwest of Burlington County, the I-295/N.J. Route 42 interchange has several deficiencies in that it does not provide a direct connection for I-295 through traffic and it does not allow I-295 south traffic to access N.J. Route 42 East. As a result, it suffers from severe congestion due to heavy weaving movements required by the interchange configuration. Roadway improvements are also needed at the N.J Route 42/U.S. Route 130 interchange.

Additionally, as the new Joint Base McGuire-Dix-Lakehurst expands, it is expected that truck traffic will grow. To facilitate freight movements, roadway improvements may be needed along U.S. Route 206 and N.J. Route 68, especially between these routes and the NJ Turnpike.

The River Line light rail system, along with Burlington County transit vans (Burlink), are used by a substantial number of workers at the Haines Industrial Park. A NJ TRANSIT bus route also extends through the complex.

1.3.1.6. Cape May County

Cape May is the third largest commercial fishing port in the Northeast and the largest and most diversified commercial fishing port in New Jersey. Additionally, Atlantic City is a strong regional fishery. An executive dialogue held with industry representatives identified that seafood processed in New Jersey is distributed throughout the U.S. and exported overseas. The seafood is transported via truck and ship. The air draft of the Middle Thorofare Bridge and the narrow width of the navigation channel of Middle Thorofare at Ocean Drive restrict vessel size, limiting efficient movement of fishing vessels and limiting potential growth of the fishing industry. Additionally, while the GSP allows trucks on the southern end, truck restrictions for truck travel beyond exit 105 in Monmouth County increase time and costs for shipping goods to northern markets. For east/west movements, no limited access highways traverse southern New Jersey below the Atlantic City Expressway. Highway improvements that may provide some potential benefit to the time and cost of transporting fish products to markets to the west and south include extending N.J. Route 55 and improving east/west access, particularly along the U.S. Route 40 corridor.

CHAPTER TWO: INDUSTRY VALUE AND COMMODITY FLOWS

2.1. INTRODUCTION

Chapter Two examines key elements of freight transportation in southern New Jersey, including both the value of the goods movement sector, key industries to the region, and commodity flows.

2.2. INDUSTRY VALUE

The analysis of "value" key industries in the region includes a broad spectrum of transportation, real estate, natural resource extraction, raw materials processing, value-added services, and industries that leverage the region's natural and locational assets. These include distribution centers; ports on the Atlantic Ocean, Delaware River, and Delaware Bay; oil refineries and chemical plants; glass products; construction aggregates and sand (silica); agriculture; food processing; and seafood.

The range of value estimates presented in this section includes number of jobs, dollar value of goods produced and processed, square footage of facilities, and tonnage of goods produced and shipped.

Distribution Centers

- Estimated 50 million SF in business and industrial parks along the I-295 corridor
- Estimated 50,000 direct jobs

Delaware River Ports

- Camden – 2.8 million tons per year; 1,100 jobs
- Gloucester City – 4.1 million tons per year
- Port of Salem – 170, 000 tons per year

Oil Refineries and Chemical Plants

- Paulsboro/Valero – 500+ jobs
- DuPont Salem County – 1,250 jobs
- Chambers Works – 750 jobs

Glass Products

- Estimated 3,00 jobs among leading firms in the region

Construction Aggregates

- Sand, gravel, crushed rock from Cumberland, Cape May, Gloucester, et al.
- Industrial Sand (silica) Primarily lower Cumberland County
- Use for glass mfg. and shipped to PA – for use as "frac sand" for shale gas extraction
- Estimated production – $160 million per year

Agriculture

- Estimated market value of all products sold – $580 million per year

Seafood Industry

- Estimated Market value of all products sold – $600 million per year

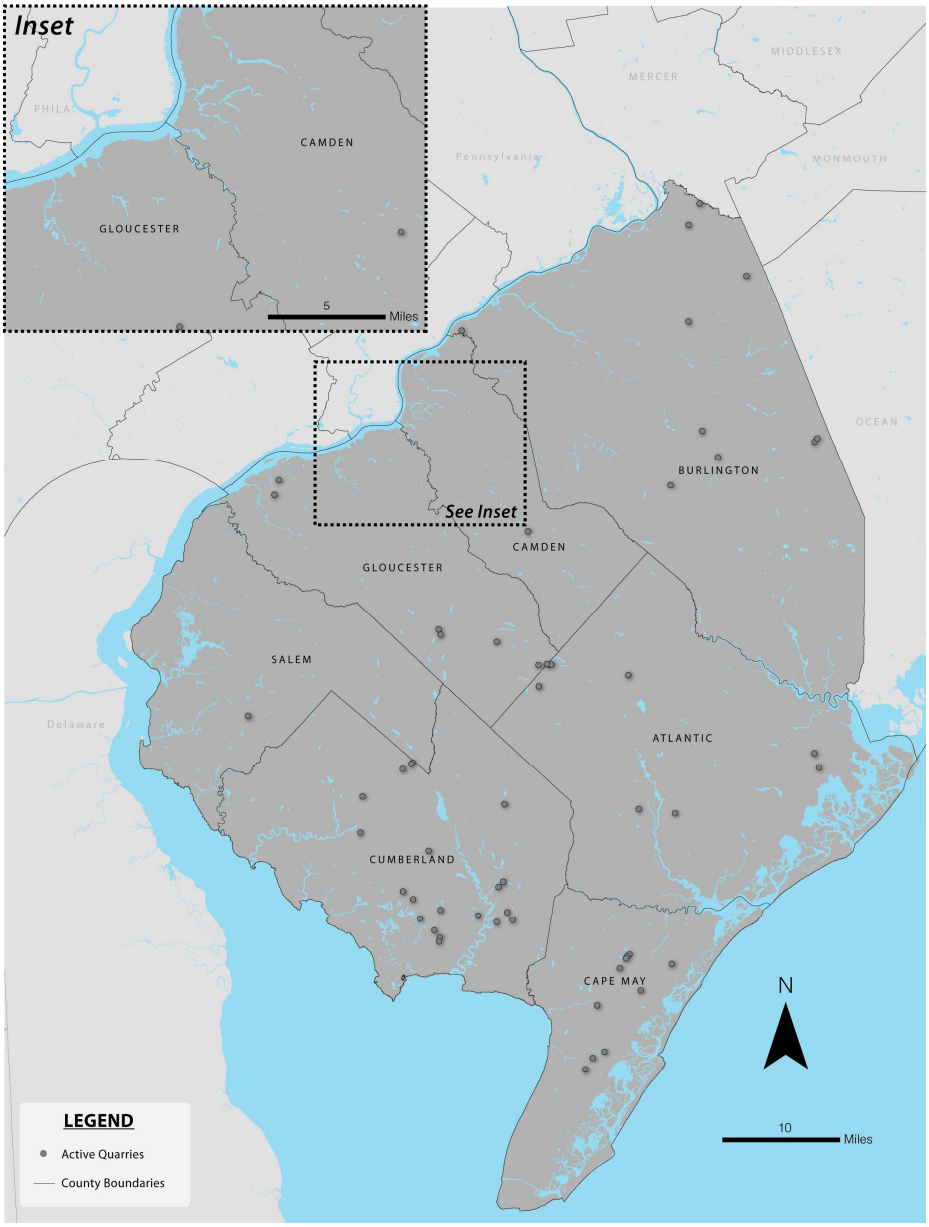
2.2.1. Key Industry Highlights

Highlights of three key industries in the southern New Jersey Region: agriculture, seafood, and mining, are described on the following pages.

Mining

The New Jersey Department of Environmental Protection indicates that sand, gravel, and rock mining are significant industries in the state, with an annual production of nearly 20 million tons valued at $100 million.[4] Cumberland and Cape May Counties, as shown in Figure 2-1, have a sizeable concentration of active quarries. Additional mining operations exist throughout the region. About 400 workers are employed in the industry in southern New Jersey, and that number is expected to increase. An executive dialogue with industry members indicated that sand and silica from the region is of high quality and highly desired by a range of customers.

Figure 2-1: Active Quarries in Southern New Jersey



[4] http://www.state.nj.us/dep/njgs/geodata/dgs05-1.htm#image

Agriculture

With public and business interest in the local sourcing of agricultural products increasing, the considerable presence of this activity in southern New Jersey is significant. Although New Jersey has the highest population density in the United States, the state still has over 730,000 acres of farmland as of 2007. However, this shows a decline of nearly nine percent from approximately 800,000 acres in 2002.[5] Four of the five leading New Jersey counties in terms of agricultural sales are located in southern New Jersey – Atlantic, Burlington, Cumberland, and Salem Counties.[6] In 2008, New Jersey ranked second in the nation in the production of blueberries (29,500 tons valued at $82 million) and peaches (34,000 tons valued at $23.9 million); and third in the nation in cranberry (25,600 tons valued at $26.5 million), bell pepper (55,800 tons valued at $33.9 million), and spinach production (14,000 tons valued at $10.4 million).[7]

Seafood

The southern New Jersey region has an active seafood industry. In 2007, Cape May–Wildwood (in Cape May County) ranked third among northeastern commercial fishing ports in terms of volume, bringing in 68.4 million pounds of seafood. In 2008 it ranked fourth in the nation in terms of dollar value of catch, with $73.7 million worth of seafood.[8] Atlantic City ranks fourth among northeastern ports in terms of volume, with 40.7 million pounds of seafood, and fourth in the northeast in terms of value with $27.5 million. An executive dialogue held with industry representatives identified that seafood processed in New Jersey is distributed throughout the US and exported overseas.

2.2.2. South Jersey Ports Freight Movements

Tonnage through the SJPC terminals increased 80 percent between 2000 and 2007, particularly in terms of bulk movements (such as cocoa beans) and exports (Table 2-1). Over this same period, containerized cargo tonnage has doubled.

Holt Logistics operates the Gloucester Marine Terminal, which handles containerized cargo, steel, perishables (such as fresh fruit and frozen meat), forest products, and project/heavy lift shipments on 150 acres in Gloucester City.

Table 2-1: Trends in Cargo Movements through South Jersey Port Corporation Terminals (in tons)

Year	*Imports*	*Exports*	*Total*	*Container Tonnage*	*Breakbulk Tonnage*	*Bulk Tonnage*
2000	1,916,783	37,241	1,954,024	146,030	1,581,947	226,047
2001	1,960,691	387,890	2,348,581	162,752	1,285,127	900,701
2002	1,835,775	543,197	2,378,971	138,717	1,341,128	899,126
2003	2,238,682	850,262	3,088,944	122,780	1,415,284	1,550,880
2004	2,664,678	768,358	3,433,036	145,206	1,657,103	1,630,727

[5] United States Department of Agriculture (USDA), Farmland Information Center
[6] United States Department of Agriculture (USDA), 2007 Agricultural Census.
[7] USDA National Agricultural Statistics Service
[8] National Oceanic and Atmospheric Administration - Fisheries

2005	2,560,647	994,905	3,555,552	305,337	1,367,878	1,882,337
2006	2,857,040	1,024,266	3,881,306	298,209	1,682,860	1,900,237
2007	2,295,459	1,206,665	3,505,124	313,865	1,237,544	1,953,715
2008	1,775,847	1,074,695	2,850,542	301,048	901,362	1,648,152

Source: South Jersey Port Corporation Annual Reports

Field visits and executive dialogues also indicated that businesses in the southern New Jersey region extensively use the Port of New York and New Jersey (PONYNJ). The PONYNJ, according to the executive dialogues, is used because of the number of overseas locations that can be accessed and the frequency of vessel calls. The PONYNJ is the largest port on the East Coast and continues to grow (Table 2-2).

Table 2-2: Cargo Volume Trends at the Port of New York and New Jersey (in metric tons)

Year	*Imports*	*Exports*	*Total*	*TEUs*
2000	58,290,713	6,506,561	64,797,274	3,080,746
2001	65,276,313	8,273,516	73,549,829	3,316,276
2002	59,933,907	10,180,216	70,114,123	3,749,014
2003	68,879,750	9,585,791	78,465,541	4,067,811
2004	70,340,708	10,303,283	80,643,991	4,478,480
2005	73,686,157	11,067,866	84,754,023	4,785,318
2006	71,294,314	14,868,248	86,162,562	5,092,806
2007	69,161,000	18,070,000	87,231,000	5,299,105
2008	67,387,000	21,520,000	88,907,000	5,265,053

TEUs are 20 foot equivalent unit containers. A 40 foot container is two TEUs.
Source: Port Authority of New York and New Jersey

In 2008, traffic at the Port of New York and New Jersey reflected changing economic conditions. With the overall tonnage increased, the increase was solely in export traffic, which grew from 18.1 million tons in 2007 to over 21.5 million tons in 2008. Import volumes decreased, reflective of the economic conditions and reduced traffic that began late in 2008. The number of containers declined slightly, bolstered by the increased use of all-water routes for cargo movement between Asia and the US East Coast.

2.2.3. The Distribution Supply Chain

While older industrial buildings have either been torn down or converted to other uses, over 49 million square feet of industrial space currently exists in Burlington, Camden, and Gloucester Counties alone (Table 2-3). In addition, Matrix, a leading industrial developer, is advancing its 284 acre Gateway Business Park in Salem County, which can accommodate up to 3.6 million square feet of industrial buildings.[9] The park is located near Exit 7 of Interstate 295. Current tenants include National Freight Systems, in a building exceeding one million square feet, and Garden State Freezer, in a 276,000 square foot building.

[9] www.matrixcompanies.com

Table 2-3: Industrial Space Trends in Southern New Jersey
(Industrial inventory in square feet)

Quarter	*Burlington County*	*Camden County*	*Gloucester County*	*Total*
4Q05	19,370,464	17,428,956	14,885,390	51,684,810
4Q06	20,130,464	17,694,156	14,845,390	52,670,010
4Q07	19,761,838	15,192,176	14,454,831	49,408,845
1Q09	20,659,160	15,964,378	15,165,537	51,789,075

Source: CB Richard Ellis

The substantial and active industrial parks in the region include the Pureland Industrial Complex in Gloucester County and the Haines Industrial Center in Burlington County. The Pureland Industrial Complex covers about 3,000 acres, making the complex the largest industrial park east of the Mississippi River. Pureland has 15.5 million square feet of industrial space. The Complex has over 150 tenants including Home Depot, Becton & Dickenson, Produce Junction, US Foods, Albert's Organics, and Mitsubishi Motors (Figure 2-2). SMS Railway provides rail freight service within the complex. The rail-served Home Depot DC distributes to 70 stores in a multi-state area. Several food companies in the complex export their products overseas.

The Haines Industrial Center covers 700 acres and is within one mile of the U.S. Route 130 interchange with the New Jersey/Pennsylvania Turnpike connector. The Center is rail served via Conrail's River Line (Bordentown secondary) and also is situated on New Jersey Transit's River Line light rail system. Current tenants at the Center include Bed, Bath and Beyond's 720,000 square foot DC for its Christmas Tree Shops chain, Sports Authority with 400,000 square feet, BJs Wholesale Club with 600,000 square feet, National Freight Systems with 500,000 square feet, International Paper (which is rail served), and Ocean Spray.

Figure 2-2: Major Industrial Parks in Southern New Jersey

Mitsubishi Facility at the Pureland Industrial Park

BJ's Wholesale Club Distribution Center at the Haines Industrial Center

Asking lease rates for industrial buildings in the southern New Jersey region tend to be lower than in the northern and central areas of the state (Table 2-4). The asking lease rates are also competitive with the rates asked in the Lehigh Valley area of Pennsylvania.

Table 2-4: Asking Lease Rate Comparisons
(Asking Lease Rate per Square Foot)

Location	4Q07	1Q09	2Q09
Burlington County	$ 4.25	$ 3.90	$ 3.85
Camden County	$ 3.88	$ 3.89	$ 3.84
Gloucester County	$ 4.24	$ 4.08	$ 3.94
NJ NJT Exit 8A Area	$ 5.11	$ 4.61	$ 4.51
I-287/NJT Exit 10 Area	$ 4.68	$ 5.53	$ 5.52
NJ Meadowlands	$ 6.28	$ 6.65	$ 6.71
Lehigh/Northampton, PA	$ 4.29	$ 4.38	$ 4.39

Source: CB Richard Ellis

The competitiveness of industrial space in the southern New Jersey region has increased in 2009, particularly in comparison with the Lehigh Valley area in Pennsylvania. While property owners in the Lehigh Valley area appear to be trying to maintain the same asking lease rate, asking lease rates in Burlington, Camden, and Gloucester Counties have decreased since the end of 2007. However, the Interchange 8A area in Middlesex County, the leading hub of distribution centers in New Jersey, also saw decreases in asking lease rates, reflecting the significant increase in available space, which rose to nearly 18 percent in the second quarter in 2009. Overall, availability rates in the second quarter of 2009 within this region are generally over 15%, which is compatible with Lehigh Valley at 17% and the Mercer County and Exit 8A area, which is nearly 20%.

2.3. COMMODITY FLOWS

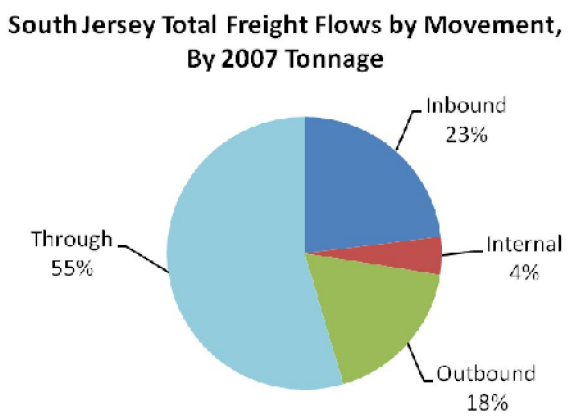
2.3.1. Quantity of Goods Moving

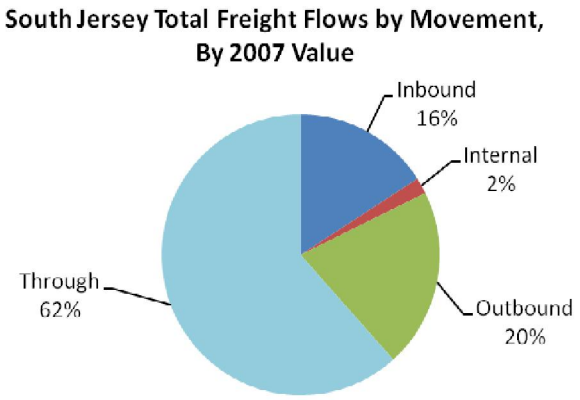
Home to 1.8 million people, major maritime ports, large distribution centers, and several substantial industries, South Jersey generates a significant amount of goods movement. Additionally, its geographic location within the Nation, linking the major population centers of greater New York City, Philadelphia, and Washington, D.C., results in a high volume of "through traffic" – goods movement that both originates and terminates outside of southern New Jersey but utilizes its transportation infrastructure.

In 2007, a total of 207 million tons of freight, valued at $696 billion, moved into, out of, within, and through southern New Jersey (Figures 2-3, 2-4, 2-5, and 2-6). Within the context of the study area, this equates to approximately 226,000 pounds per southern New Jersey resident, or 619 pounds per person per day. Through traffic makes up the majority of goods movement in southern New Jersey, accounting for 55% of the goods movement by tonnage. This high volume of through traffic illustrates the importance of the supply chain corridor to southern New Jersey's economy and the region's broader, interregional significance. The region also has a strong consumer base, with 23% of the total tonnage moving inbound to southern New Jersey. Nearly one fifth of the freight tonnage is outbound from the region, reflective of the region's strong

local industries and major distribution centers. Internal goods movement within the region accounts for about 4% of the total flow, representing the movement of goods from local industries to local warehouses or local retailers and consumers. The direction of goods movement is similar when analyzed by both tonnage and value.

Figure 2-3: Summary of South Jersey Freight Flows, by Direction





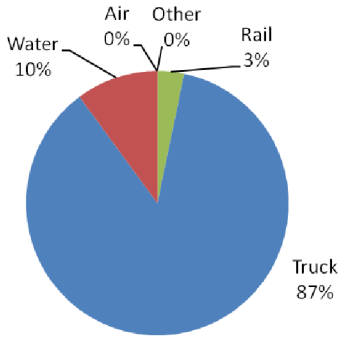
Direction	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
Inbound	47,843,007	$ 110,756	43.39%	102.09%
Internal	9,305,986	$ 12,866	20.02%	47.09%
Outbound	37,134,468	$ 143,335	24.80%	52.46%
Through	113,198,302	$ 429,106	75.14%	185.51%
Total	**207,481,764**	**$ 696,083**	**56.34%**	**142.28%**

Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

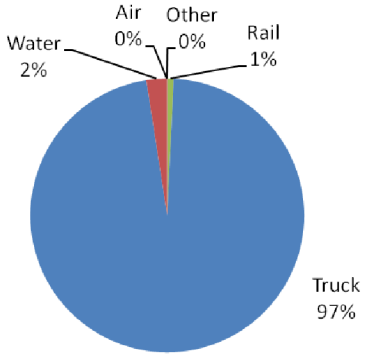
An analysis of the modal breakdown of goods movement in the region reveals the overwhelming importance of trucks for freight transport in southern New Jersey (Figure 2-4, 2-5, and 2-6). Trucks account for nearly 90% of all freight moved by tonnage and 97% by value. This data again emphasizes the significance of the supply chain corridor through the region. South Jersey's marine terminals generally handle the remainder of freight traffic, with rail playing a marginal role in the region. When through traffic is discounted, truck traffic remains the dominate mode, but the importance of the marine terminals is highlighted, as they process about 19% of the region's inbound flow and 18% of the outbound flow. Rail also is a larger player in terms of inbound and outbound flows, handling 10% of inbound freight and 5% of outbound freight. The vast majority of the remainder of goods is transported by truck.

Figure 2-4: Summary of South Jersey Freight Flows, by Mode

Total South Jersey Freight Flows by Mode, by 2007 Tonnage, (inbound, outbound, internal, through)



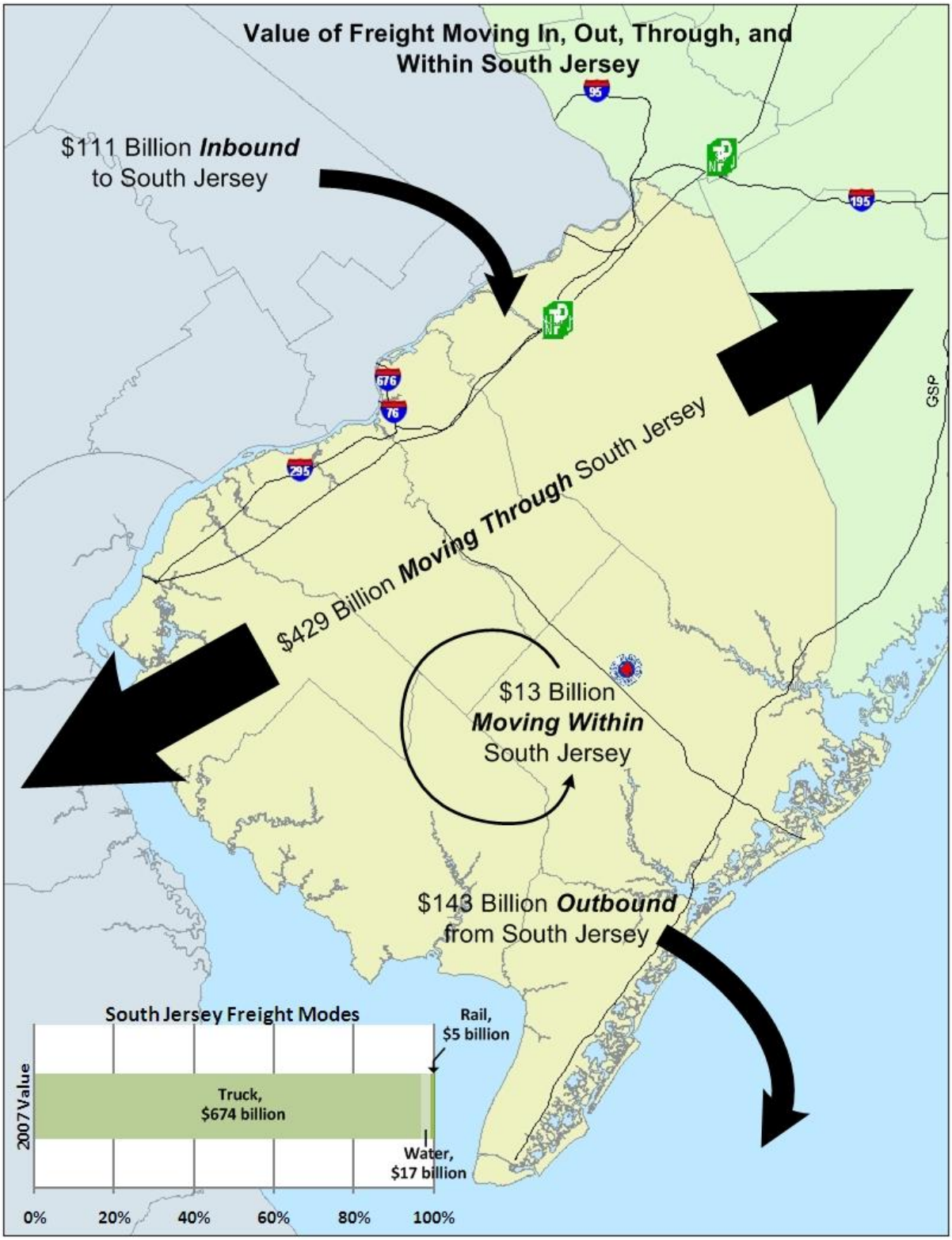
Total South Jersey Freight Flows by Mode, by 2007 Value, (inbound, outbound, internal, through)



Mode	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
Air	246	$ 9.489	95.63%	186.02%
Other	4,602	$ 0.428	63.99%	117.98%
Rail	6,788,386	$ 5,190.047	13.55%	33.64%
Truck	179,700,437	$ 673,807.146	62.02%	146.15%
Water	20,988,093	$ 17,076.307	21.56%	22.49%
Total	**207,481,764**	**$ 696,083.416**	**56.34%**	**142.28%**

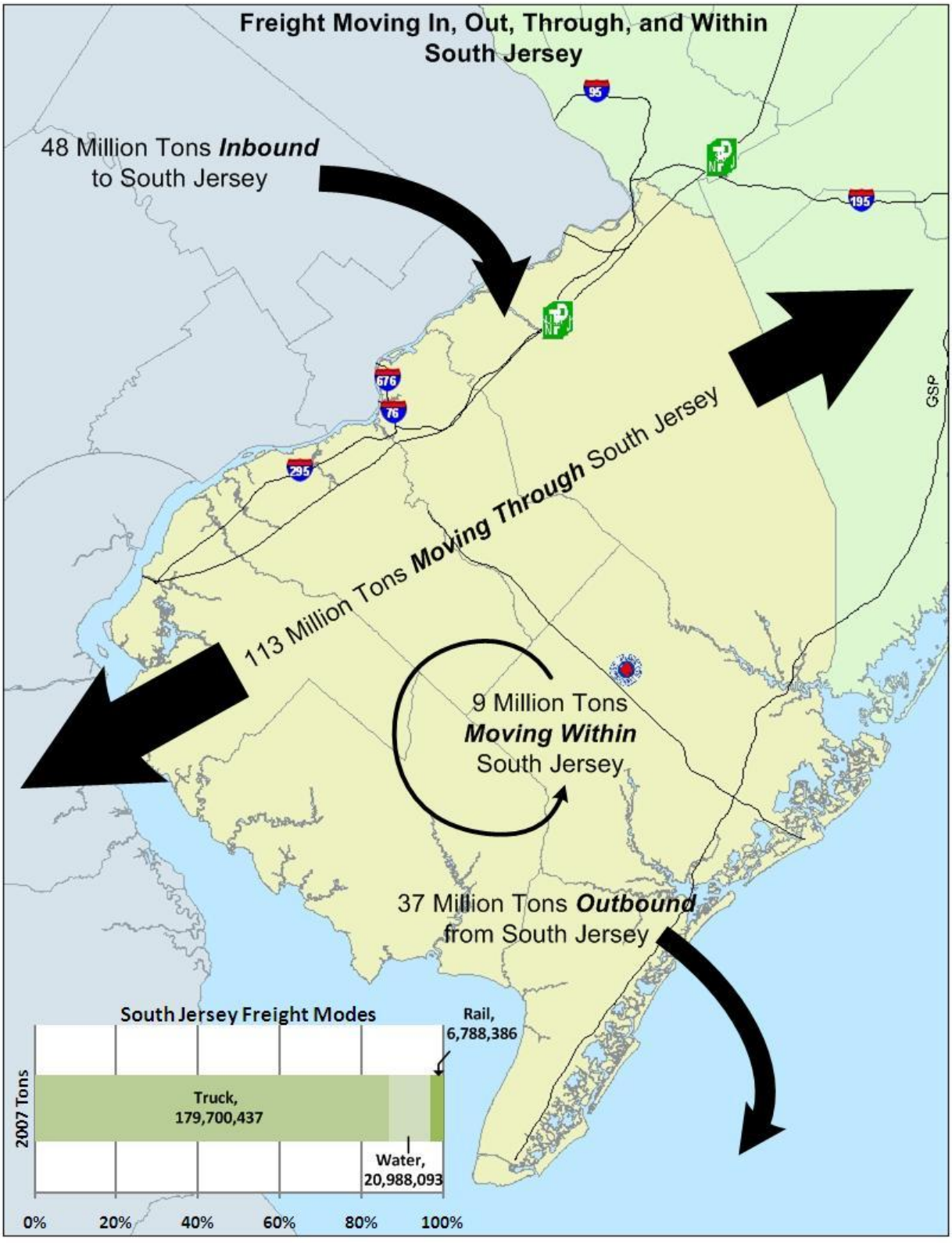
Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Figure 2-5: Illustration of South Jersey Freight Flows, by Value



Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Figure 2-6: Illustration of South Jersey Freight Flows, by Tonnage



Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

2.3.2. Types of Goods Moving

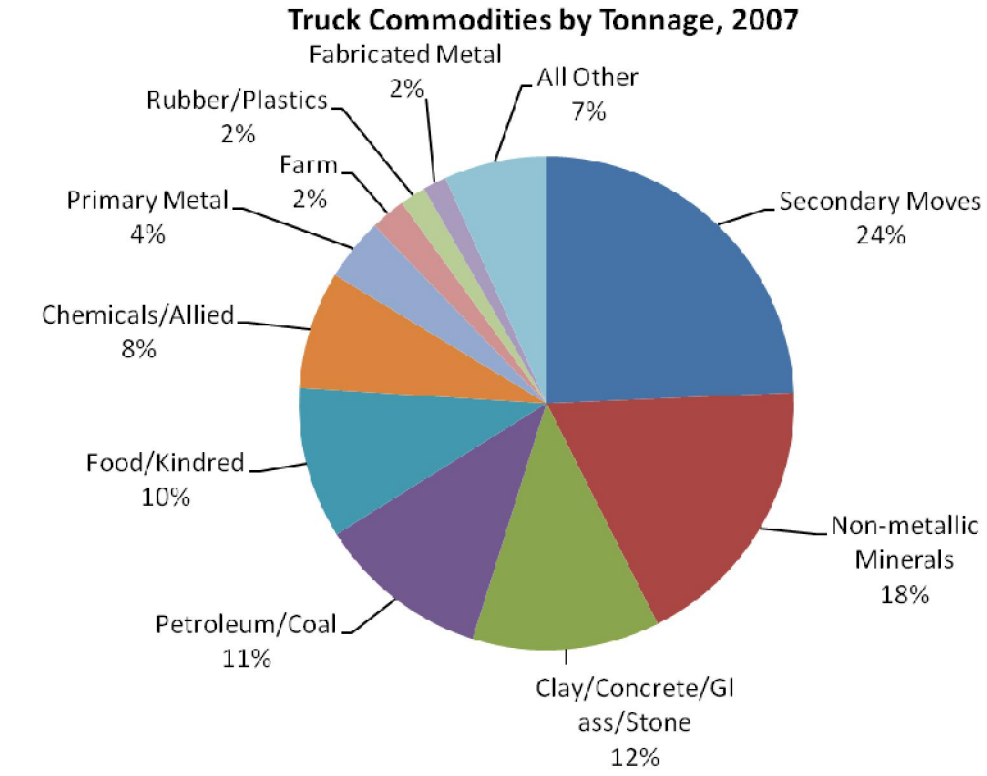
Southern New Jersey's transportation network moves a large variety of commodities. Retail products, business and industrial supplies, and goods from the region's core industries are among the products moving into, out of, and within southern New Jersey. A discussion of the leading types of commodities by mode follows.

Goods Moved by Trucks

As shown in the modal breakdown discussed above, trucks move the largest amount of freight in southern New Jersey. Figure 2-7 and Table 2-5 shows the top commodities transported by truck based on tonnage. The leading commodities include:

- A broad range of products captured by the commodity category "Secondary Moves." This category generally represents a diverse set of commodities that have been processed through a distribution center, packaged together, and re-shipped to their final destination, either a retailer or local distributor. "Secondary moves" is the leading commodity shipped by truck, representing 24% of total tonnage, which is slightly greater than other top commodities. However, it is the dominate commodity by value, representing 63% of total value shipped by truck. This reflects the importance of the region's distribution centers to the region's economy.
- Non-metallic minerals represent the second largest commodity grouping by tonnage, at 18%. Non-metallic minerals include products such as sand and gravel, which are part of the region's construction aggregate industry and raw materials for the region's glass industry. Based on value, however, this commodity is less than 1% total value shipped by truck.
- Clay/Concrete/Glass/Stone is the third largest commodity grouping in southern New Jersey, representing 12% by truck tonnage. This commodity is again related to the region's aggregate and glass industries. It represents 2% of value shipped by truck.

Figure 2-7: Summary of South Jersey Commodities Transported by Truck (Inbound, Outbound, and Internal Flows)



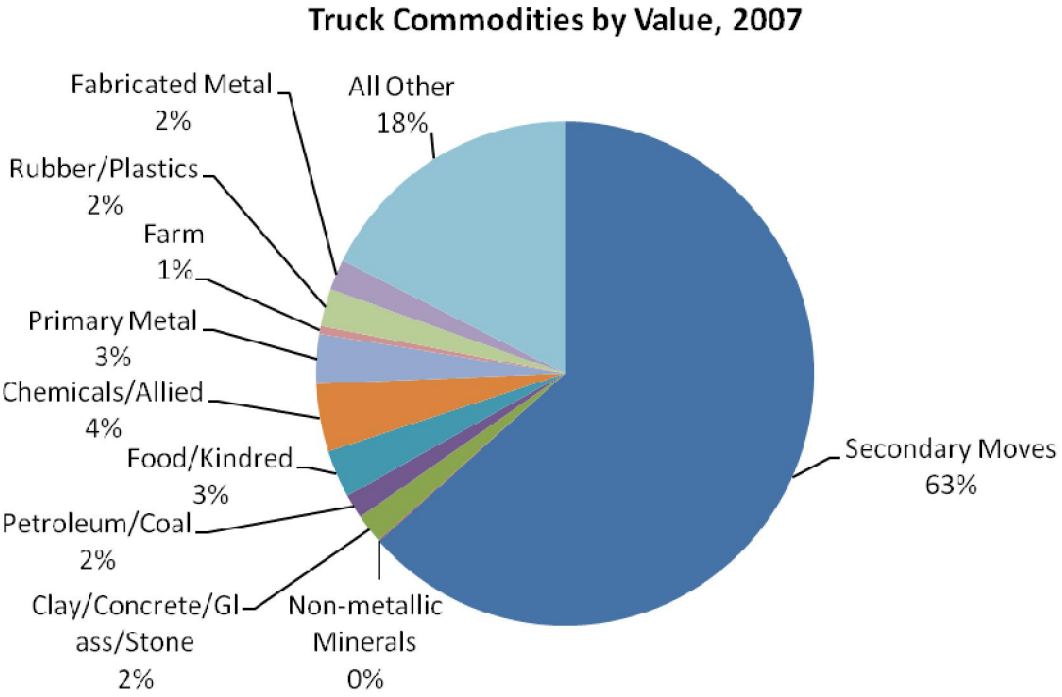


Table 2-5: Top Commodities Moved by Truck - Inbound, Outbound, and Internal Flows

STCC2	STCC2 Commodity	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
50	Secondary Moves	16,187,984	$155,210	52.35%	52.33%
14	Non-metallic Minerals	12,138,309	$177	22.80%	40.56%
32	Clay/Concrete/Glass/Stone	8,165,686	$4,604	9.03%	27.88%
29	Petroleum/Coal	7,502,650	$3,863	-21.77%	-21.06%
20	Food/Kindred	6,565,372	$7,453	73.88%	75.12%
28	Chemicals/Allied	5,131,250	$10,658	85.61%	133.39%
33	Primary Metal	2,717,523	$7,748	11.25%	10.60%
1	Farm	1,519,514	$1,262	31.46%	43.40%
30	Rubber/Plastics	1,130,117	$5,865	109.04%	93.86%
34	Fabricated Metal	1,019,219	$4,833	51.95%	46.94%
	All Other	4,466,471	$43,055	95.28%	181.18%
	Total	**66,544,095**	**$244,728**	**39.66%**	**77.12%**

Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Goods Moved by Water

As shown in the modal breakdown discussed earlier, water borne freight is the second largest mode of transportation in the region. Figure 2-8 and Table 2-6 shows the top commodities transported by water based on tonnage. Value and growth data was not available for water freight by commodity grouping. The leading commodities include:

- Petroleum/coal is the largest commodity grouping, representing 78% of all tonnage shipped by water. When crude petro/natural gas (the fourth largest commodity grouping at 2%) is added in, fossil fuel products account for a total of 80% of water borne freight. This is expected, given the location of oil refineries and petroleum industries, such as Valero, in the greater Camden area.
- Waste/scrap materials is the second largest commodity, representing 11% of water borne tonnage in the region.
- Chemical/Allied is the third largest commodity grouping in South Jersey, representing 8% by water tonnage. DuPont is a major employer in the region.

Figure 2-8: Summary of South Jersey Commodities Transported by Water (Inbound and Outbound Flows)

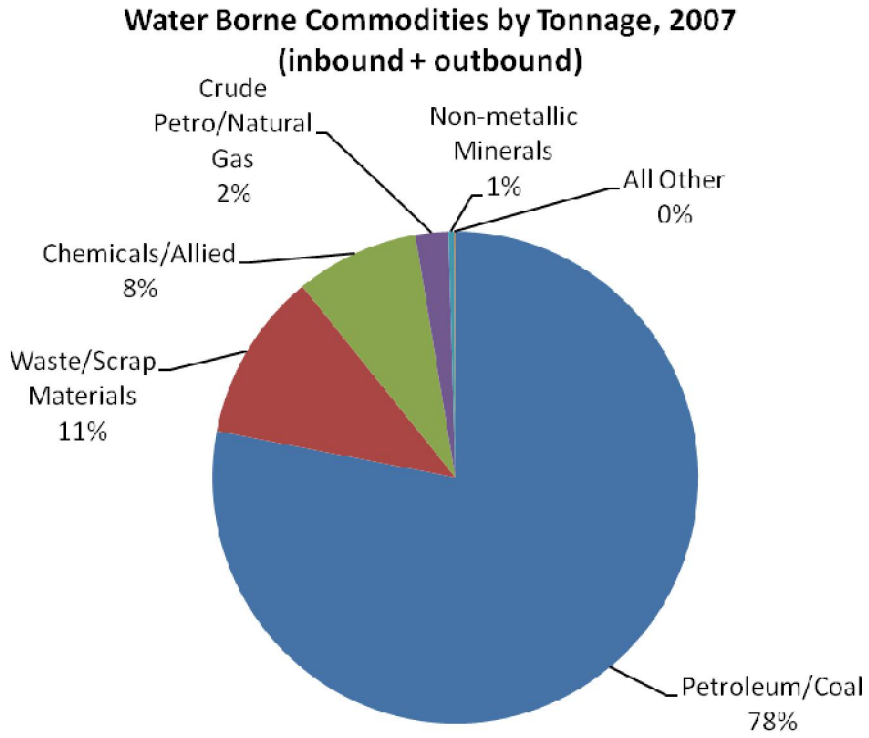


Table 2-6: Top Commodities Moved by Water – Inbound and Outbound Flows

STCC2	STCC2 Commodity	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
29	Petroleum/Coal	12,389,767	N/A	N/A	N/A
40	Waste/Scrap Materials	1,768,494	N/A	N/A	N/A
28	Chemicals/Allied	1,302,128	N/A	N/A	N/A
13	Crude Petro/Natural Gas	347,871	N/A	N/A	N/A
14	Non-metallic Minerals	60,206	N/A	N/A	N/A
	All Other	*11,440*	N/A	N/A	N/A
Total		**15,879,906**			

Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Goods Moved by Rail

As discussed in the modal breakdown above, rail currently has a relatively minor role for freight movement in southern New Jersey. This mode is projected to grow by approximately 14% by tonnage and 35% by value by 2035. Figure 2-9 and Table 2-7 shows the top commodities transported by rail based on tonnage. The leading commodities include:

- Coal is the largest commodity grouping, representing 21% of all rail tonnage. Coal is used to fuel five power plants in the region. By value, coal represents only 1% of rail commodities.
- Chemicals/allied is the second largest commodity grouping, representing 19% of all rail tonnage. It is also the leading rail commodity by value, at 43%. This is an important commodity grouping, as DuPont is a prominent employer within the region, and the grouping is projected to grow 33% by 2035.
- Petroleum/Coal is the third largest commodity grouping in southern New Jersey, representing 17% by both rail tonnage and rail value. Oil refineries are a significant industry and employer in the area.

Figure 2-9: Summary of South Jersey Commodities Transported by Rail (Inbound, Outbound, and Internal Flows)

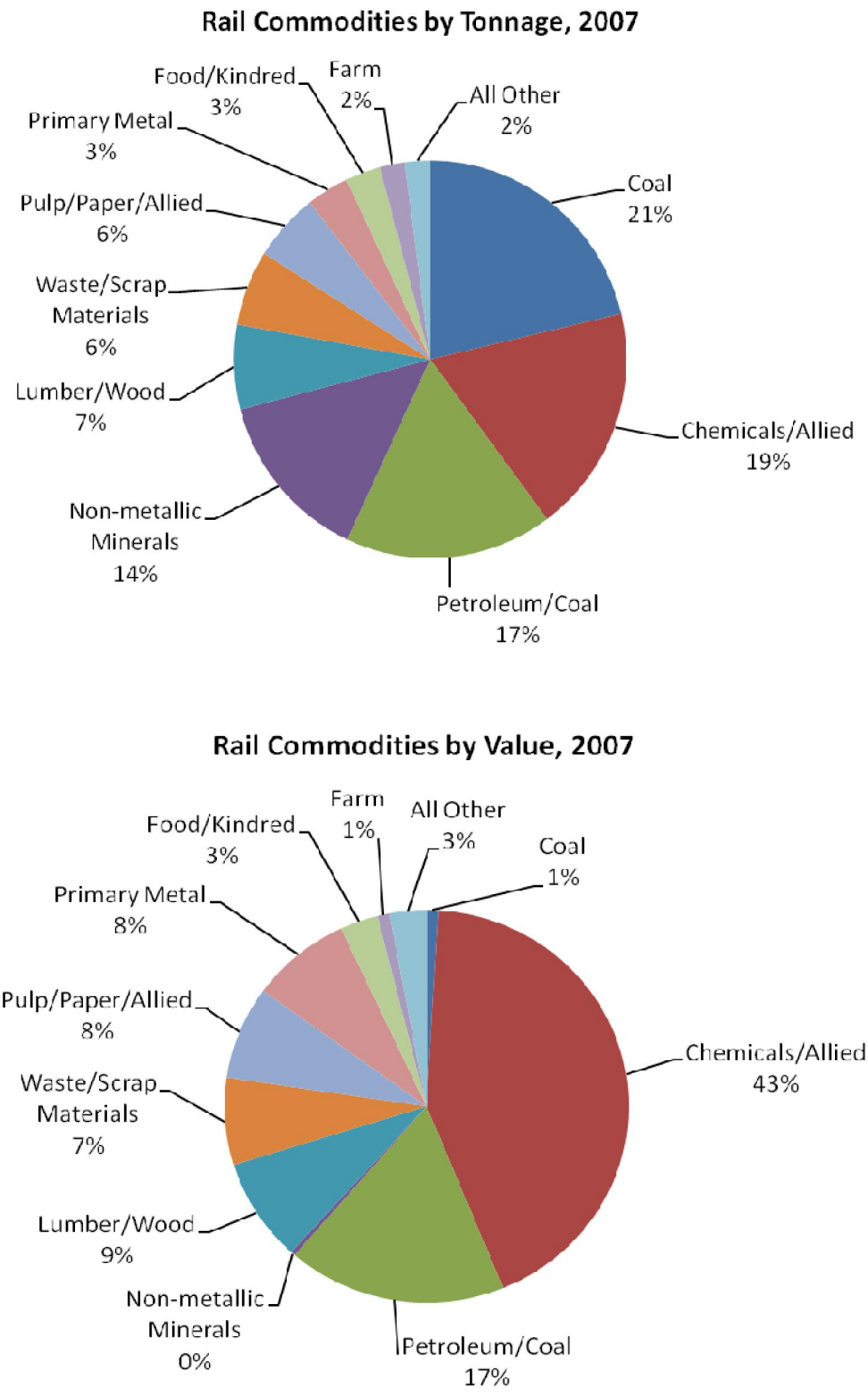


Table 2-7: Top Commodities Moved by Rail – Inbound, Outbound, and Internal Flows

STCC2	STCC2 Commodity	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
11	Coal	1,445,395	$48	6.38%	-10.12%
28	Chemicals/Allied	1,261,218	$2,226	32.59%	32.63%
29	Petroleum/Coal	1,158,551	$907	16.22%	19.78%
14	Non-metallic Minerals	950,185	$19	-34.82%	-39.16%
24	Lumber/Wood	467,744	$441	6.22%	-7.82%
40	Waste/Scrap Materials	416,814	$373	26.85%	109.75%
26	Pulp/Paper/Allied	375,594	$398	41.01%	42.13%
33	Primary Metal	237,115	$417	16.68%	13.97%
20	Food/Kindred	194,788	$158	37.26%	35.96%
1	Farm	140,485	$50	47.71%	37.29%
	All Other	140,496	$153	60.83%	115.27%
	Total	**6,788,386**	**$ 5,190**	**13.55%**	**33.64%**

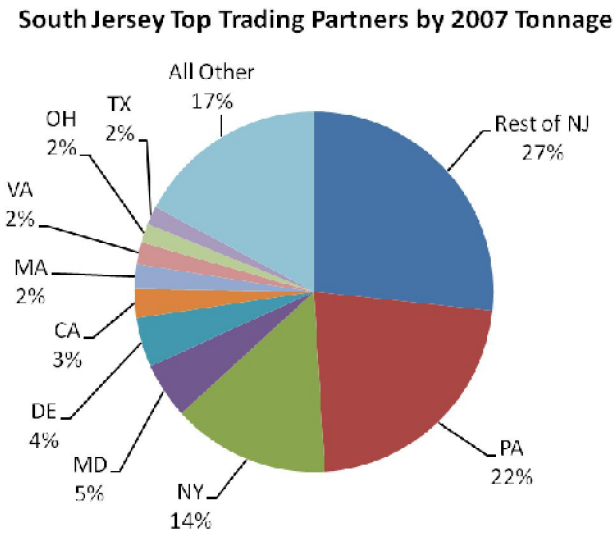
Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

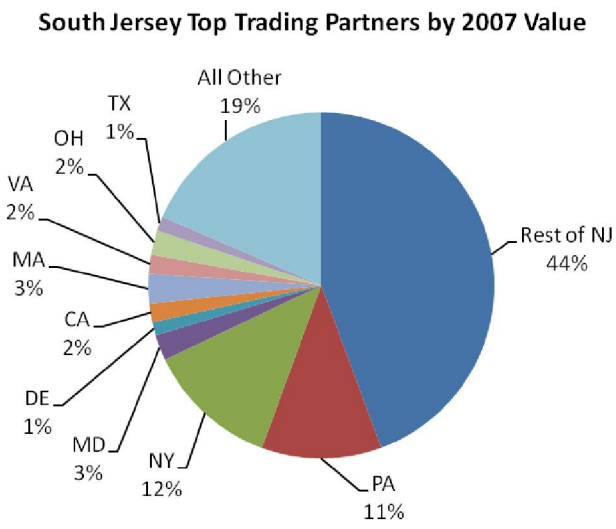
2.3.3. Main Trading Partners

As might be expected, 2007 data show that southern New Jersey's largest trade partners are with neighboring and nearby states and regions (Figures 2-10, 2-11, and 2-12). Northern New Jersey is the region's largest trading partner, at 27% of tonnage and 44% of value. By tonnage, Pennsylvania ranks second (22%) and New York third (14%). Ranked by value, the two are reversed (Pennsylvania at 11%, New York at 12%). Points south, Maryland and Delaware, round out the top five, representing 5% and 4%, respectively, of inbound and outbound tonnage.

The emphasis on neighboring/regional trading partners in this data reflects the importance of the southern New Jersey supply chain corridor and distribution centers to support the larger population centers of the greater New York City and Philadelphia metropolitan areas. It also is reflective of the dominance of trucking as the prominent shipping mode.

Figure 2-10: Summary of South Jersey Trading Partners, all Modes (Inbound and Outbound Flows)



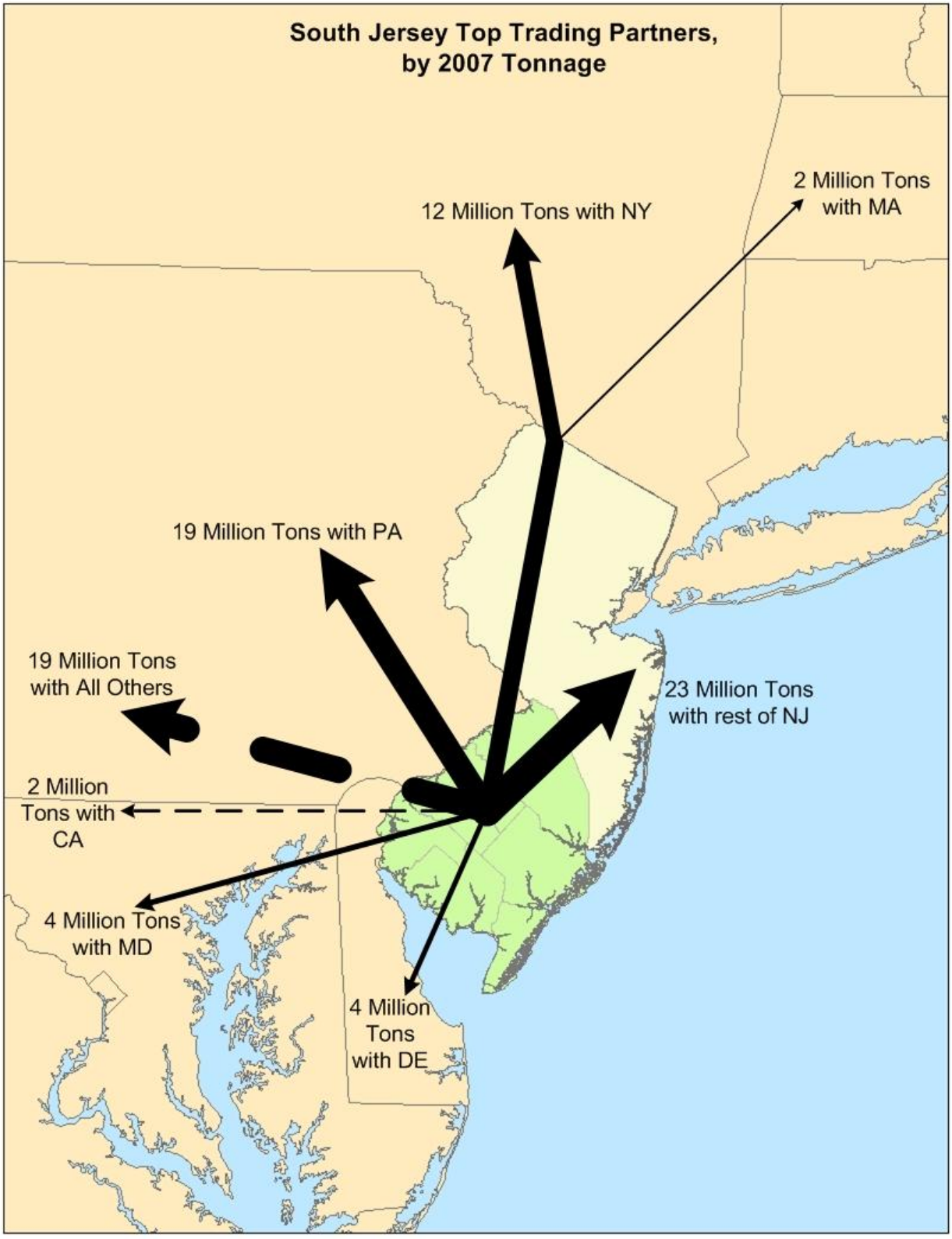


Top Trading Partners (Inbound and Outbound Flows)

Trade Partner	2007 Tons	2007 Value (Millions of $)	2035 Growth (by Tons)	2035 Growth (by Value)
Rest of NJ	22,667,583	$110,594	32.84%	51.70%
PA	18,998,800	$27,986	15.37%	49.74%
NY	12,058,013	$30,844	22.18%	59.87%
MD	4,241,226	$5,967	22.85%	46.97%
DE	3,794,477	$3,074	29.42%	48.64%
CA	2,202,036	$4,271	95.25%	166.46%
MA	1,850,227	$6,895	26.43%	79.34%
VA	1,693,838	$4,401	17.85%	82.03%
OH	1,449,768	$5,700	46.91%	66.91%
TX	1,407,073	$3,375	71.17%	183.23%
All Other	14,614,433	$46,188	23.77%	144.70%
Total	**84,977,475**	**$ 249,296**	**27.26%**	**74.97%**

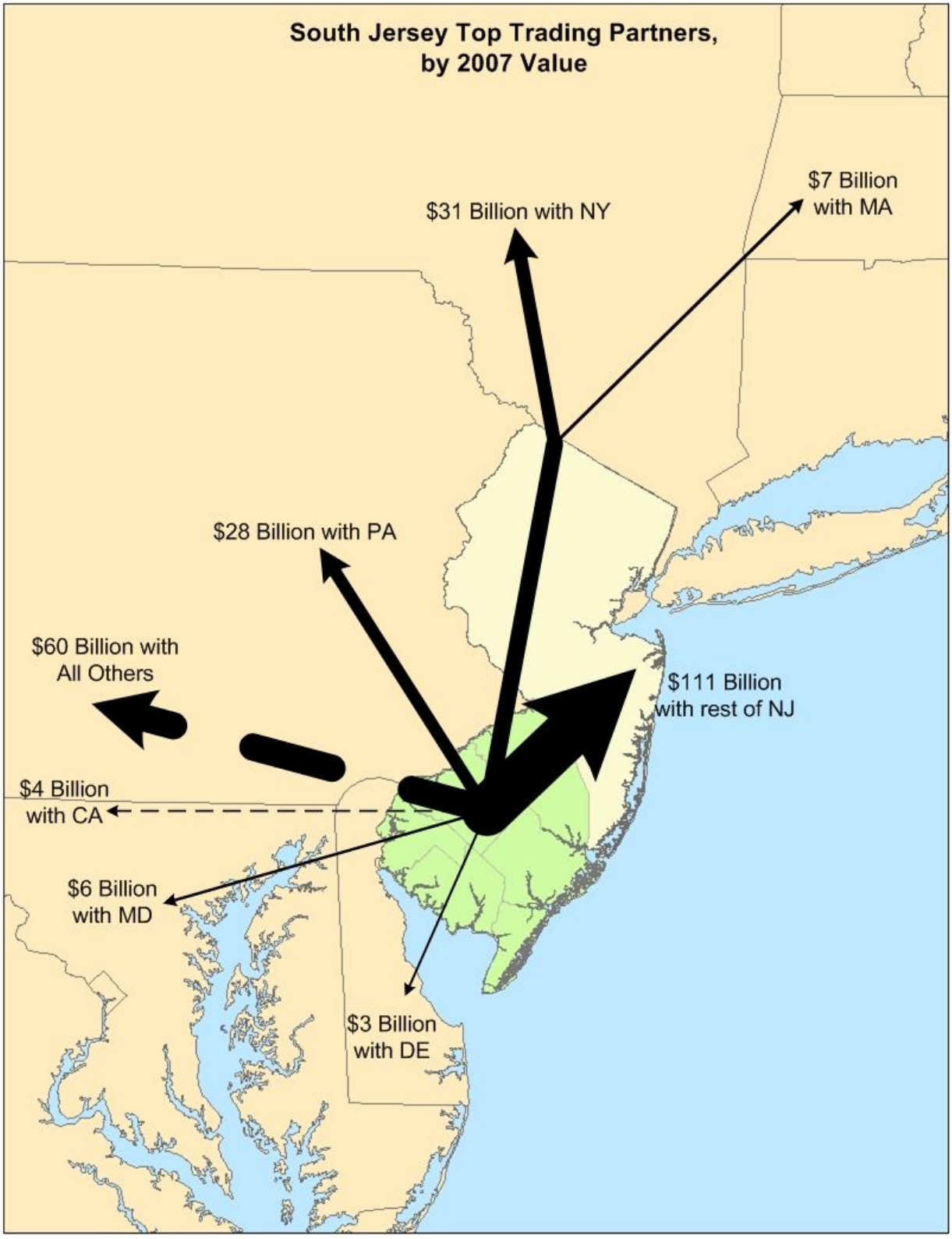
Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Figure 2-11: South Jersey Top Trading Partners, by Tonnage



Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

Figure 2-12: South Jersey Top Trading Partners, by Dollar Value



Source: Cambridge Systematics analysis of Transearch and NJDOT Freight Tools

CHAPTER THREE: ISSUES, NEEDS, OPPORTUNITIES, CONSTRAINTS

3.1. INTRODUCTION

Chapter Three presents a regional system-level review of the current multimodal network used by the logistics industry in southern New Jersey, including identifications of key issues, improvement needs, opportunities to address deficiencies or expand the goods movement network, and potential constraints (if known) associated with the recommendations.

The technical work that formed a basis for this chapter includes:

- Identifying key network elements (roadway, rail, maritime, distribution)
- Conducting macro-level review of system conditions and issues
- Analyzing planned improvements and opportunities

3.2. SOUTH JERSEY FREIGHT AND LOGISTICS SYSTEM ELEMENTS

The southern New Jersey freight and logistics system is an interconnected multimodal network of roadway, rail, and maritime links that provide connections between producers, distribution centers, and ultimately consumers. The Atlantic City International Airport (ACY) provides the only regional hub for commercial passenger airline traffic, and almost all air cargo moving from southern New Jersey must travel to the Philadelphia or Newark airports.

This chapter included an overview of the existing system components, based on readily available data concerning current usage and/or condition; identification of primary linkages between system elements and major nodes of freight activity; and an examination of currently planned improvements, as well as opportunities for further enhancement. A vital source of information was the direct collection of data through a series of stakeholder discussions, meetings, and field visits to examine critical elements and key issues facing the region today.

3.2.1. Roadway System Elements

Existing System

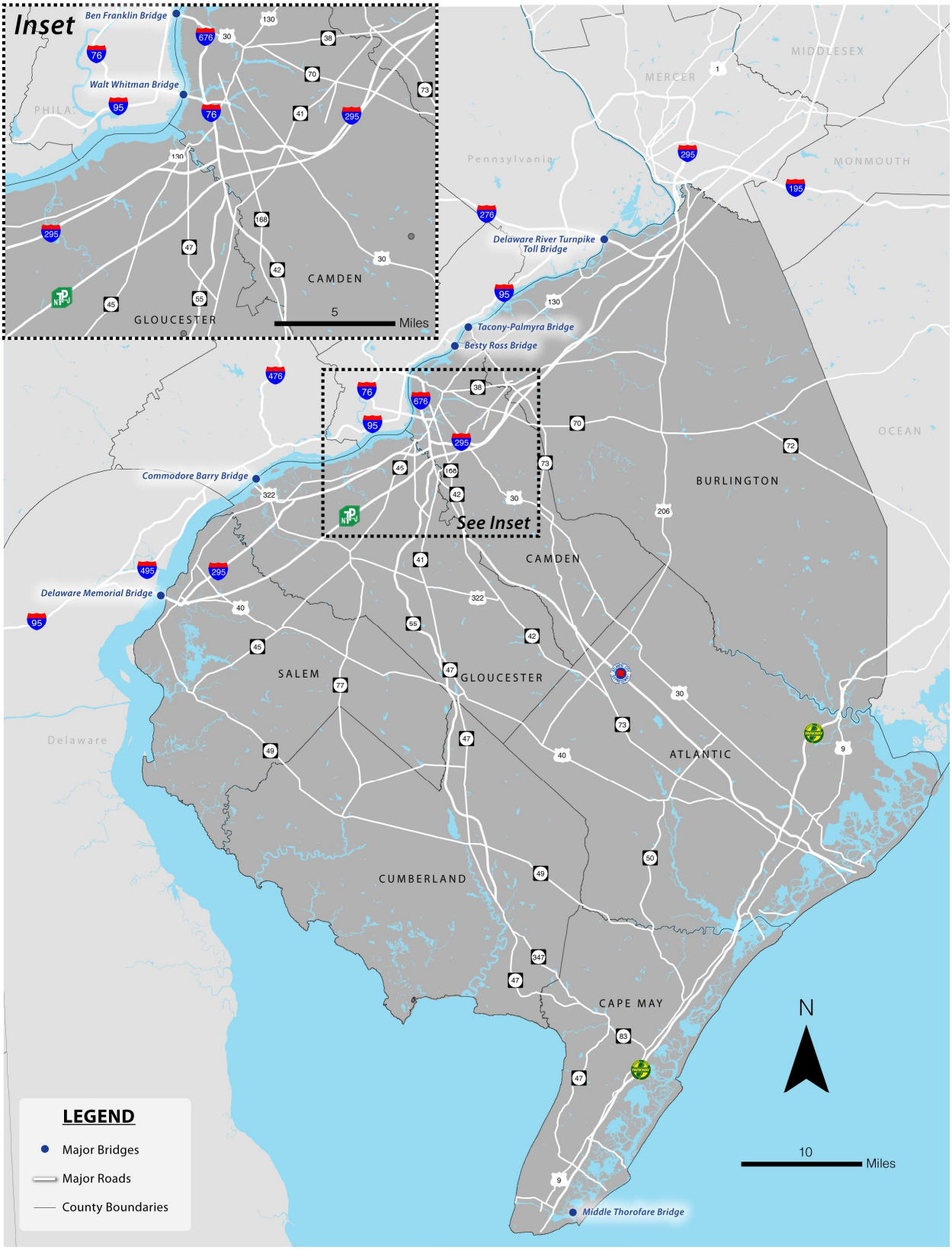
The southern New Jersey roadway network includes many roadways that freight traffic uses to access points within and outside of the region (see Figure 3-1). Various Interstate, U.S., state, and county routes provide circulation throughout the region and provide connections to northern New Jersey and the Delaware River crossings into Pennsylvania and Delaware.

Current Conditions

Overall, the region has a strong highway network to carry the large volumes of goods into, out of, and through the region. This study process included evaluating existing operations with readily-available data including NJDOT traffic count station data; NJDOT management systems databases including Congestion (CMS), Pavement (PMS), and Bridge (BMS); interview information from the outreach efforts in Task 1; and the South Jersey Transportation Planning Organization (SJTPO) CMS data. This assessment found several locations that have heavy truck volumes, congestion, and pavement issues along routes that provide access to key ports and distribution centers.

The following sections provide more details on this assessment.

Figure 3-1: Southern New Jersey Roadway Network



Traffic Congestion

Peak period congestion is a major concern along the South Jersey roadway network. An analysis of 2008 NJDOT Congestion Management System (CMS) data identified several locations of congestion within the southern New Jersey region -- many intersections and interchanges experience significant congestion. The NJDOT CMS priority ratings are based on a segment's overall score, which is a function of volume to capacity (v/c) ratio and average daily traffic (ADT) per lane. NJDOT's criteria for describing congestion levels are defined in Table 3-1.

Table 3-1: NJDOT definitions for levels of congestion

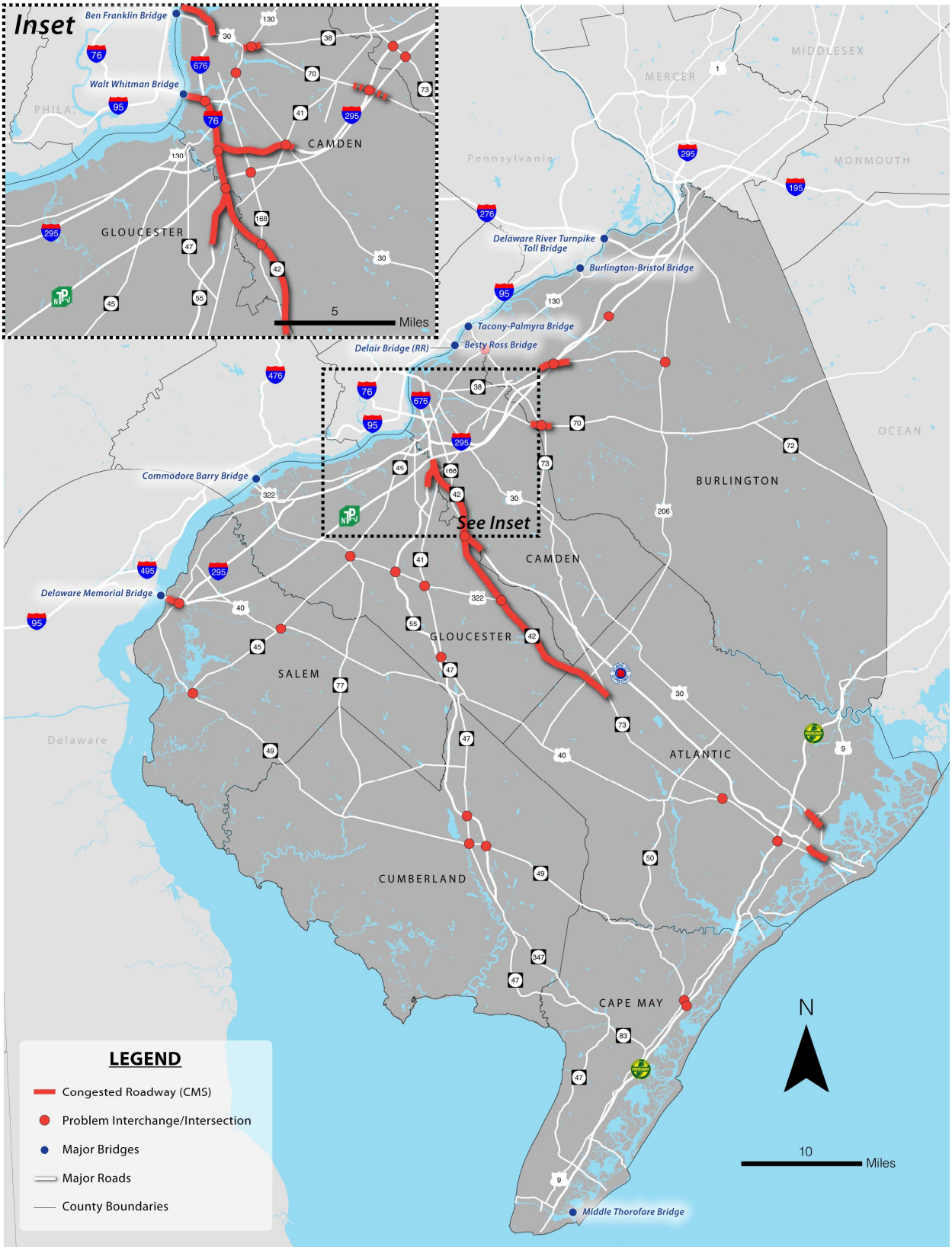
V/C		Priority Rating	Description
Min	Max		
0.00	< 0.7	Any	Not Congested
0.70	< 0.9	Any	Moderately Congested
0.90	< 1.0	Low	Moderately Congested
0.90	< 1.0	Medium, High	Very Congested
1.00	< 1.1	Any	Very Congested
1.10	< 1.2	Medium, Low	Very Congested
1.10	< 1.2	High	Severely Congested
1.20	1.5 +	Any	Severely Congested

Southern New Jersey also experiences heavy congestion during the summer months on major links between New York/Philadelphia and the Jersey Shore. As such, a review of the SJTPO CMS data, which accounts for the seasonal congestion, was also completed for this study. Figure 3.2 shows major congestion locations, including congested interchanges/intersections, NJDOT "problem area interchanges," mainline bottleneck links, and seasonal (summer) congestion points. The problem area interchanges is a ranking of the 100 most congested interchanges involving State highways in New Jersey (1 being the most congested), as compiled by NJDOT.

The CMS analysis found four regional roadways, Interstate 76, and N.J. Routes 38, 42, and 168, that are "very" or "severely" congested over more than 50% of their length. Of these four, N.J. Route 42 experiences the heaviest congestion, with nearly its entire length being "very" or "severely" congested, making it among the most heavily congested roadways within New Jersey.

The analysis also identified two critical mainline roadway segments denoted as bottleneck areas by NJDOT and three roadway segments near Delaware River crossings (Walt Whitman Bridge, Delaware Memorial Bridge, and Ben Franklin Bridge) plagued by heavy congestion. Additionally, 13 problem area interchanges are located within the study area and 25 other major intersections are marred by high levels of congestion. Furthermore, several roadway segments near the Shore are affected by severe levels of congestion only during the summer months.

Figure 3-2: Traffic Congestion in the Southern New Jersey Roadway Network



The analysis identified three locations with seasonally severe congestion that were not captured by the lists of problem area interchanges or congested major intersections. These findings and locations are summarized in Table 3-2 and Figure 3.1

Table 3-2: Summary of findings from CMS analysis

CMS denoted Mainline Bottlenecks	
NJ 42 approaching NJ 55	NJ 55 approaching NJ 42
River Crossings Classified as "Very" or "Severely" Congested	
Walt Whitman Bridge (I-76)	Ben Franklin Bridge (I-676 / US 30)
Delaware Memorial Bridge (I-295)	
Problem Interchanges (ranking out of 100 statewide)	
NJTPK / NJ 168 (#16)	I-295 / NJ 73 (#40)
NJTPK / NJ 73 (#32)	I-295 / NJ 38 / CR 615 (#53)
NJTPK / CR 541 (#97)	I-76 / I-676 / I-76-C / CR 630 (#49)
NJTPK / I-95 (rank not provided)	I-76 / US 130 / CR 634 (#44)
I-295 / I-76 / NJ 42 (#6)	US 30 / US 130 / NJ 38 (#90)
I-295 / US 30 / CR 666 (#64)	NJ 42 / CR 534 (#59)
I-295 / CR 561 (rank not provided)	
Major Interchanges / Intersections with nearby Roadway Links Classified as "Very" or "Severely" Congestion (in addition to Problem Interchanges listed above)	
Atlantic City Expy / NJ 42	US 322 at NJ 42
Atlantic City Expy at Pleasantville Tolls	NJ 38 at NJ 73
I-295 at NJ 70	NJ 42 at NJ 55
I-295 at NJ 168	NJ 42 at NJ 168
I-676 at US 30	NJ 45 at NJ 49
US 30 at GSP	NJ 47 at NJ 55
US 30 in Atlantic City	NJ 47 at NJ 49
US 40 at NJ 45	NJ 70 at NJ 41
US 40 at US 322	NJ 70 at NJ 73
US 206 at NJ 38	NJ 70 at CR 541
US 206 at CR 537	NJ 73 at NJ 90
US 322 at NJ 45	NJ 168 at NJ 41
US 322 at NJ 47	
Locations Predominately Affected by Seasonally "Severe" Congestion (in addition to Interchanges / Intersections listed above)	
US 206 at US 30	NJ 47 near GSP & US 9 in Cape May County
NJ 49 at NJ 55	

Source: NJDOT Congestion Management System Database - 2008

Pavement Conditions

In order to identify deficient pavement conditions along the major highways within southern New Jersey, PB analyzed (2008) NJDOT Pavement Management System (PMS) data. Figure 3-3 identifies key locations of poor condition pavement, which is defined as having an International Roughness Index (IRI) greater than 170 or a Surface Distress Index (SDI) of less than or equal to 2.4.

Of the 23 major routes outlined in section 2.1.1, 12 were identified as having poor pavement conditions over at least 50 percent of their entire route within southern New Jersey. The 12 routes are identified in Figure 3.3 and summarized in Table 3-3.

Table 3-3: Summary of pavement conditions within southern New Jersey

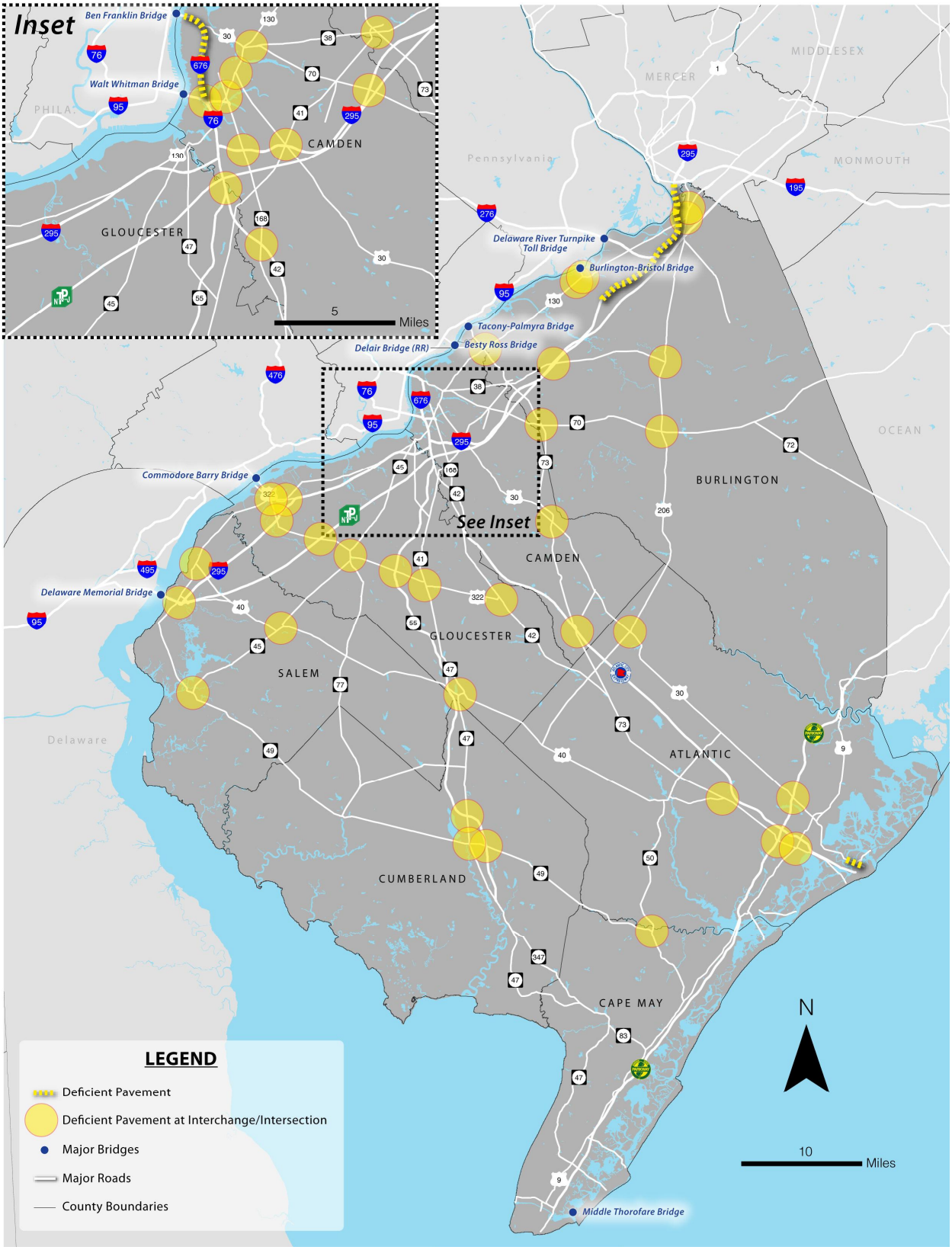
Pavement Condition	Miles	% of Total
Good	384.6	24.3%
Fair	569.4	35.9%
Poor	630.2	39.8%
Total	1584.2	100.0%

Roadways with 50% or more in 'Poor' Condition		
Route	**Miles in 'Poor" Condition**	**% of Route in 'Poor' Condition**
I-76	4.2	55.3%
I-676	6.4	68.8%
US 30	75.8	66.0%
US 130	49.4	51.6%
US 206	41.1	54.4%
US 322	64.6	64.3%
NJ 42	17.0	59.4%
NJ 44	11.2	59.6%
NJ 49	59.8	55.6%
NJ 70	34.6	52.0%
NJ 73	39.1	68.6%
NJ 168	10.8	50.2%

Source: NJDOT Pavement Management System Database - 2008

The analysis identified many other interchanges/intersections as having poor pavement conditions within their vicinity (see Figure 3-3).

Figure 3-3: Deficient Pavement in the Southern New Jersey Roadway Network



Bridge Conditions

NJDOT employs a Bridge Management System (BMS) to maintain an inventory of all bridges in New Jersey with a span over 20 feet and track information on their physical characteristics, condition, and ownership. Bridges are inspected biennially and the condition of various bridge elements is rated on a numerical scale. The scale ranges from zero to nine, with a zero representing a failed condition and a nine representing an excellent condition.

A bridge can be defined as Structurally Deficient or Functionally Obsolete. Any bridge that is classified as structurally deficient is excluded from the functionally obsolete category. A bridge is deemed structurally deficient if the condition rating of its deck, superstructure, substructure, or culvert is four (poor) or less; or if either its structural evaluation for load capacity or its water adequacy has an appraisal rating of two (critical) or less. Structural deficiency does not necessarily mean that a bridge is unsafe. It often indicates that a bridge has been load posted and is unable to handle vehicle loads that would normally be expected on the roadway, requires rehabilitation to remain open, or is closed.

A bridge is classified as functionally obsolete if the deck geometry, underclearances (vertical and horizontal), approach roadway alignment, overall structural evaluation for load capacity, or waterway adequacy has an appraisal rating of three (serious) or less. Functional obsolescence typically means that the bridge geometry (clearances, lane widths, etc.) no longer meets the current design criteria for the roadway system of which it is a part.

A review of the 2009 NJDOT BMS data indicated that approximately 4% of the study area's bridges are structurally deficient and 17% are functionally obsolete. The bridges affected include six on major regional routes through the Camden area, including I-295, I-76, and I-676. This could adversely affect freight traffic through the region if the issues leading to the structurally deficient classifications require load restrictions. The structurally deficient bridges in the study area are summarized in Table 3-4 and shown in Figure 3-4

Figure 3-4: Deficient Bridges in Southern New Jersey

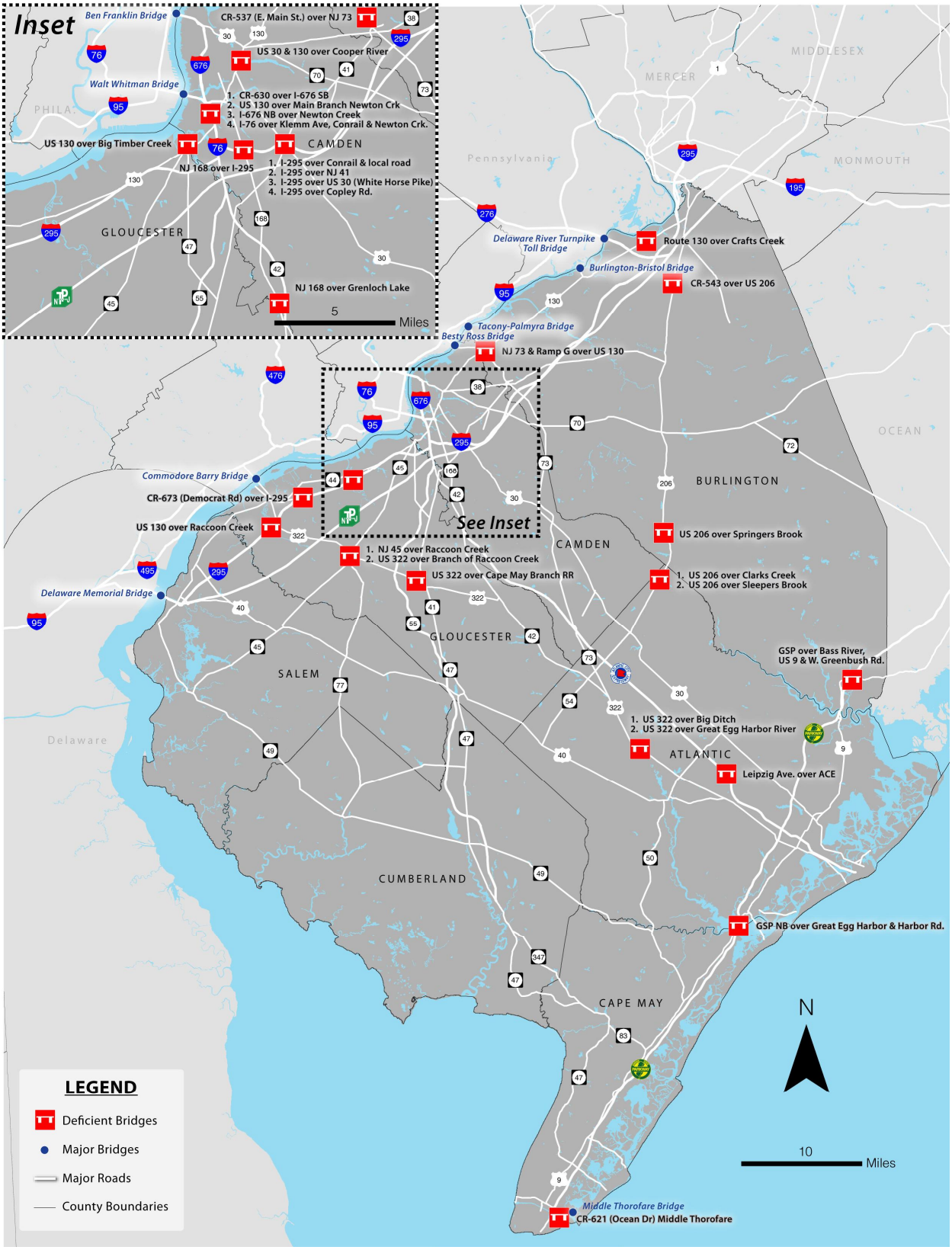


Table 3-4: Summary of structurally deficient and functionally obsolete bridges in southern New Jersey

Classification	# Bridges	% of Total
Structurally Deficient	29	4.2%
Functionally Obsolete	119	17.4%
Neither	537	78.4%
Total	685	100.0%

Locations of Structurally Deficient Bridges	
Route	**Feature Intersected**
I-76	I-76 over Newton Creek, Klemm Ave & Conrail
I-295	I-295 over Conrail (Beasley Pt. Sec) & Local Rd
I-295	I-295 over NJ 41
I-295	I-295 over US 30 (White Horse Pike)
I-295	I-295 over CR 666 (Copley Rd)
CR 673	CR 673 (Democrat Rd) over I-295
I-676	I-676 NB & Ramp FN (NB&SB) over Newton Creek
CR 630	CR 630 (Collings Ave) over I-676 SB
GSP	GSP NB over Great Egg Harbor & Harbor Rd
GSP	GSP over Bass River, US 9, & W Greenbush Rd
US 30 & US 130	US 30 & 130 over Cooper River
NJ 45	NJ 45 over Raccoon Creek
CR 537	CR 537 (E. Main St) over NJ 73
NJ 73	NJ 73 & Ramp G over US 130
US 130	US 130 over Raccoon Creek
US 130	US 130 over Big Timber Creek
US 130	US 130 over Main Branch Newton Creek
US 130	US 130 over Crafts Creek
NJ 168	NJ 168 over I-295
NJ 168	NJ 168 over Grenloch Lake
US 206	US 206 over Clarks Creek
US 206	US 206 over Sleepers Brook
US 206	US 206 over Springers Brook
CR 543	CR 543 (Main St) over US 206
US 322	US 322 over Branch of Raccoon Creek.
US 322	US 322 over Cape May Branch RR
US 322	US 322 over Great Egg Harbor River
US 322	US 322 over Big Ditch
Local Rd	Leipzig Ave over ACE

Source: NJDOT Bridge Management System Database - 2009

The NJDOT BMS also uses a variety of data to create a holistic view of a bridge's condition and its relative importance to the transportation network, and thereby create a priority ranking for statewide bridge maintenance purposes. The ranking is a weighted average of the following bridge characteristics (weighting in parenthesis): average daily traffic (10%), functional class (5%), deck condition (5%), sufficiency rating (30%), structurally deficient (25%), functionally

obsolete (10%), bypass detour length (5%), scour critical (5%), and fracture critical (5%). The formula produces a score ranging from 0 – 500, which then corresponds to a 1 – 10 priority ranking. Bridges with a score greater than 450 are highest priority, scores 400 – 450 are second, 350 – 399 are third, etc. Any bridge required to have interim inspections between its biennial inspections receives a minimum score of 399. Engineers at NJDOT review the ranking list and refine it further based on engineering judgment.

An analysis of the BMS rankings shows that no bridges in the southern New Jersey study area have a priority ranking of three or higher, 1% have a ranking of 4, and 1% have a ranking of 5. This finding would show that the majority of the study area bridge population is in good condition relative to the rest of the state and no immediate repairs are required. The distribution of priority bridge rankings in southern New Jersey is illustrated in Table 3-5 below.

Table 3-5: NJDOT BMS priority rankings for South Jersey

Ranking	1 – 3	4	5	6	7	8	9	10	Total
# Bridges	0	4	6	18	35	106	280	236	685
% of Total	0.0%	0.6%	0.9%	2.6%	5.1%	15.5%	40.9%	34.5%	100.0%

Source: NJDOT Bridge Management System Database - 2009

In addition to the Interstate, State, and U.S. Routes evaluated in the BMS data, PB also reviewed the condition of three bridges on County Route 621 (Ocean Drive, MP 0.7 – 1.7) in Lower Township, Cape May County.[10] These structures are of importance to Cape May's fishing industry, including Atlantic Capes Fisheries, Lund's Fisheries, and Snow's/Doxsee, Inc., who are located along County Route 621 in the vicinity of MP 1.5. Trucks transporting goods to market from the fisheries traverse Mill Creek Bridge (MP 0.75) and Upper Thorofare Bridge (MP 1.3) en route to N.J. Route 109 and the Garden State Parkway (GSP). Constructed in 1940 and 1941, these structures are now classified as functionally obsolete due their narrow deck width, which restricts the lane width to 10 feet and poses a safety hazard for vehicular, pedestrian, and bicycle traffic. Additionally, the elevation of County Route 621 itself (from the bridges to N.J. Route 109, MP 0.0 – 1.7) is approximately three feet below the 100-year flood elevation (9.1 feet) and the profile grading is substandard, possibly making the route impassable during flood events.

East of the fisheries, Middle Thorofare Bridge connects County Route 621 to Wildwood Crest Borough. This bridge is classified as structurally deficient. Truck traffic has been restricted to 15 tons and the structure is on the NJDOT's 'select list,' which identifies the most deficient bridges in the state. Though most truck traffic from the fisheries moves west to N.J. Route 109/GSP and does not depend on access to Wildwood Crest, fishery truck traffic is impacted by congestion caused by the opening of the movable span. The movable span opens approximately 7,500 times annually, and up to 40 times per day during the summer months. During peak summer traffic periods (evenings and weekends), excessive queues can develop when the span is opened, extending up to one mile. Additionally, the Middle Thorofare Bridge's movable span restricts maritime vessel traffic accessing the fisheries to a width of 50 feet.

[10] Ocean Drive Upgrade and Bridge Replacements – Alternatives Analysis Report, January 2004

Issues, Needs, Opportunities, and Constraints

The database information and analysis found that many roadways in southern New Jersey suffer from congestion, deficient pavement, and/or deficient bridge conditions, which have a significant impact on overall efficiency and reliability of goods movement. In addition to the data analysis, the study process (Task 1) involved obtaining input from local stakeholders and system users, which provide further insight into the key roadway infrastructure issues across the region. The following is a summary of key issues facing the existing roadway network, and the corresponding needs, opportunities, and constraints that might be involved with resolving those issues.

Issue 1: Variability in Roadway Character

Issue:

Roadways through southern New Jersey vary in size and character, and access to different areas within the region is inconsistent. There are few limited access roadways that provide seamless connections into and out of the region, and this constrains goods movement within southern New Jersey as well.

Need:

Options for new limited access connections and bypasses, including the extension of the N.J. Route 55 freeway south from Millville, and significant enhancements (e.g., signal eliminations through new underpasses and overpasses, ITS) to existing signalized east-west connections between the NJ Turnpike/I-295 and the ports in Camden and Philadelphia, should be explored. These roads include N.J. Routes 38, 70, and 73 in Camden and Burlington Counties.

Opportunity:

Improve the efficiency of goods movement within the region, with an emphasis on providing more robust connections between the NJ Turnpike, especially from the northeast, and the ports of Camden and Philadelphia.

Constraint:

Funding, right of way issues, and environmentally sensitive areas are the main constraints. Additionally, major roadway projects in the greater Camden area would likely have significant traffic impacts in the short-term.

Issue 2: Providing "Last Mile / First Mile" Connections

Issue:

Access to the interstate system is critical to facilitate truck movements. As discussed in the previous section on current conditions, many major interchanges experience congestion (peak hour and/or seasonal), have deficient pavement, or do not provide direct access to the many major freight facilities and terminals in the region. Providing more adequate "last mile/first mile" roadway connections will have a positive impact on goods movement within the region.

Need:

Right now, there is a need to maintain and improve the efficiency of truck traffic moving between freight facilities and the regional and long distance highway network. Several projects are already in the works to improve problem interchanges used by freight traffic in the region. They include:

- N.J. Route 168/Benigno Boulevard Intersection Improvements – This project, already in the planning stages, involves reconfiguring the intersection to allow better access for trucks accessing the adjacent Interstate Industrial Park. This intersection provides the only direct link between the Interstate Industrial Park and New Jersey Turnpike/I-295 via N.J. Route 168.
- Camden County Civic Center Access Improvements – Based on Camden City Urban Supplement documentation, this project will address operations and access improvements on N.J. Routes 130, 73 and 90 around the proposed redevelopment of the former Pennsauken Mart. Additionally, it may also improve access to the nearby Pennsauken Industrial Park. The CMS data show that N.J. Route 73 near the intersection of N.J. Route 90 is impacted by high levels of congestion (in the top 4% in the state).
- To achieve a long-range vision of improved "last mile/first mile" connections, the draft *Southern New Jersey Waterfront Master Plan* by the Delaware River Port Authority (DRPA) includes a proposal to create a dedicated port district access road for Camden's marine terminals. The access road would separate port and truck traffic from city traffic, directing all port traffic to the Morgan Street/I-676 interchange.

Opportunity:

Improved efficiency of goods movement from freight facilities and terminals to markets.

Constraint:

Local neighborhoods may object to increased freight traffic; it will be important to buffer local neighborhoods from the noise and congestion associated with heavy truck traffic.

Issue 3: Peak Hour Congestion in Camden County

Issue:

Peak hour congestion along many of Camden County's major roadways—including the North-South Freeway; Black Horse Pike; N.J. Routes 30, 38, 70, and 73; and the approaches to the Walt Whitman and Ben Franklin Bridges—is a major issue that hampers goods movement and the economy in southern New Jersey. These roadways—several of them signalized, two-lane, and dotted with busy commercial development —provide the most direct connection to many of southern New Jersey's major freight facilities, including the Port of Camden's three marine terminals and several distribution centers in Pennsauken, Cherry Hill, and Bellmawr. These roadways also provide the most direct connections for goods moving through the region to points west into Pennsylvania.

As noted in the previous section on current conditions, the NJDOT's CMS data indicate key links across the Delaware River are affected by congestion, including I-676 and U.S. Route 30 near the Ben Franklin Bridge, as well as I-76 approaching the Walt Whitman Bridge, which is among the top 6% in congested roadways in the state. The entire length of N.J. Route 42 (part of the North-South Freeway), a critical connection between the major north/south corridor (I-295) and the major east/west routes (the ACE, I-76, and N.J. Route 55), is very or severely congested. The intersection of N.J. Route 42 and I-295 itself is a major bottleneck, ranking in the top 1% of congested roadways in the state. Additional major roadways in Camden County with sections of high congestion include N.J Routes 38, 70, 73, and 168.

Need:

Several initiatives are in the planning, design or construction stages to address the current need to improve the performance of congested roadways in Camden County.

- N.J. Route 70 (Route 38 to Route 73) Intersection/Interchange Improvements – Several projects will improve traffic circulation, throughput, and flow on this key link between I-295 and I-676/Ben Franklin Bridge.
- N.J. Route 70/73 Interchange Construction –The elimination of the Marlton Circle at the Camden/Burlington County line will improve congestion concerns at a location that is ranked as highly congested in the NJDOT CMS and was identified as having deficient pavement.
- N.J. Route 168/I-295 Interchange Improvements – The upgrade of this interchange will improve the flow of traffic for local trips utilizing N.J. Route 168 (Black Horse Pike), which parallels the limited access N.J. Route 42 in Camden County.
- Reconfiguration of the Interchange of I-295, I-76, and N.J. Route 42 or "Direct Connection and Missing Moves" – This planned improvement will relieve congestion at one of the region's worst bottlenecks. The project will construct a six-lane mainline on I-295 through the interchange, eliminating existing merging and weaving movements for I-295 through traffic. Additional improvements and new ramps will accommodate all moves between the three roadways. Overall, the project will greatly improve the efficiency and safety of truck traffic moving north and south through New Jersey, as well as traffic connecting to Camden, Pennsylvania, and points west via I-76 and I-676. Eastbound traffic via N.J. Route 42 and the Atlantic City Expressway (ACE) would also be well served by the planned improvement of the interchange.

Opportunity:

The projects mentioned above would improve the efficiency of goods movement through Camden County, to/from Camden's freight facilities, as well as to/from Pennsylvania.

Constraint:

Potential right-of-way requirements for enhancing or reconfiguring congested interchanges and roadways are a possible constraint.

Issue 4: Throughput along I-295 / NJ Turnpike Corridor

Issue:

Congestion and pavement conditions may reduce the efficiency of goods movement along the I-295/NJ Turnpike corridor through southern New Jersey, the region's primary north/south corridor. Two critical nodes along I-295 suffer from known congestion issues, including the interchange with I-76 / N.J. Route 42 and the approach to the Delaware Memorial Bridge; these links are classified as very congested in NJDOT's CMS data. The efficiency of I-295 is also reduced by congestion issues in Camden County around interchanges with N.J. Route 42/I-76, N.J. Route 168, and U.S. 30 (MP 27.0 – 30.13) and in Cherry Hill and Mount Laurel near the N.J. Route 73 interchange (MP 35.1 – 37.0). Freight traffic utilizing the NJ Turnpike is frequently slowed by recurring congestion between Exit 6 and Exit 8A, where the roadway's existing six-lane cross-section often fails to meet demand. This portion of the NJ Turnpike includes the connection to I-276 in Pennsylvania, and is in the top 15% of congested roadway segments in the state.

NJDOT's PMS data indicated poor pavement conditions along 38% of I-295. Affected sections include the Delaware Memorial Bridge approach and junction with the NJ Turnpike (MP 0.0 – 1.8), the section near the proposed Port of Paulsboro (MP 16.6 – 21.3, more widespread on northbound lanes), and large stretches in Burlington County (predominately MP 43.0 – 60.0).

Need:

Several projects are in development to address this current need and maintain this critical corridor. The projects include:

- Reconfiguration of the Interchange of I-295, I-76, and N.J. Route 42 – As described above (in Issue 3: Peak Hour Congestion in Camden County), this planned improvement will relieve congestion at one of the region's worst bottlenecks. The project will significantly improve the efficiency of long-haul and regional truck traffic on this principle north/south corridor.
- Delaware Memorial Bridge – The Delaware River and Bay Authority is completing geometric improvements and repaving on the Delaware approach to the Delaware Memorial Bridge. These improvements will benefit New Jersey freight traffic through improved traffic flow through the bottleneck and better connect southern New Jersey to southern markets.
- NJ Turnpike Widening – The NJ Turnpike Authority has initiated work on widening the Turnpike to 12 lanes between Exits 6 and 9, including major modifications at four interchanges. The widening will significantly increase capacity to meet future demand and will allow a dual-dual alignment to separate heavy truck traffic from the majority of car traffic. This megaproject is expected to alleviate recurring congestion between Exit 6 and Exit 8A, and will improve the overall flow of freight traffic between southern New Jersey, the markets of northern New Jersey and New York, and points farther north and east.

- Interstate 295 (MP 45.0 – 57.6) Resurfacing – This project will improve a lengthy section of deficient pavement in Burlington County identified by the PMS.

Opportunity:

Improve regional mobility and the efficiency of north-south goods movement along NJ Turnpike/I-295 corridor by better linking the South Jersey region with the greater New York market (as well as the and Port of Newark-Elizabeth) and the rest of the I-95 Corridor.

Constraint:

Constraints include potential right-of-way requirements for enhancing or reconfiguring congested interchanges and roadways.

Issue 5: Access to Port of Paulsboro

Issue:

The existing local road to/from the Port of Paulsboro is inadequate to serve the current and future needs of the port. Also, the existing road passes through a residential area, creating potential adverse noise and quality-of-life impacts for that community.

Need:

To achieve the vision of a revitalized Port of Paulsboro, a dedicated access road is planned to provide a direct link between the port and I-295 at interchange 19. The new access road will bypass an existing residential neighborhood located near the terminal by carrying heavy truck traffic across Mantua Creek, where it would connect to County Route 656 less than a half mile from I-295.

Opportunity:

The access road will provide more efficient landside access to the Port of Paulsboro and ameliorate adverse sound and quality of life impacts to the adjacent residential neighborhood.

Constraint:

N.J. Route 44 and several interchanges with I-295 (including 19, 20, 21 and 22) could likely see greater increases in truck traffic to and from Paulsboro, thereby creating adverse congestion and environmental impacts elsewhere. Additionally, there are wetlands concerns near the marine terminal and possible right-of-way constraints to constructing the access road.

Issue 6: Access to New Jersey Turnpike

Issue:

Although a major toll way, the NJ Turnpike has few interchanges within southern New Jersey. For example, the lack of a direct connection with the North-South Freeway (Route 42, I-76, and I-676) requires certain truck movements to use local roads, which is a minor disincentive to truck freight commerce in the region.

Need:

The vision for better integration of the NJ Turnpike with southern New Jersey's regional roadway system could be achieved by constructing additional interchanges with key east-west roadways. Potentially desirable locations include U.S. Route 40 and N.J. Routes 42, 47, and 48.

Opportunity:

Increased efficiency for truck movements between southern New Jersey's freight facilities, interstate highways, state highways, and the NJ Turnpike.

Constraint:

The NJ Turnpike is designed and operated as a long distance, limited access Interstate toll way, and the New Jersey Turnpike Authority may not approve proposals for an additional interchange(s). Furthermore, right-of-way constraints from existing development as well as environmental constraints would be a major impediment to constructing new interchanges. The high capital costs associated with the projects are additional constraints.

Issue 7: East-West Connectivity

Issue:

The lack of a direct east-west connection between the southern New Jersey base of the Delaware Memorial Bridge and the areas of Vineland, Atlantic City, and Cape May, may reduce the potential for freight-related commerce in the region. East-west truck traffic in the southern and easternmost portions of southern New Jersey is generally restricted to two-lane roadways, significantly reducing the speed and capacity of the system. For example, as US 322 eastbound crosses the Commodore Barry Bridge and enters New Jersey, it becomes a two-lane road. The road has further geometric/capacity constraints as it approaches Route 55. The ACE currently provides the only limited access east-west highway across the region, linking Atlantic City and Camden, which does not efficiently serve traffic to/from the Delaware Memorial Bridge.

Need:

To achieve the vision of improved connectivity within southern New Jersey, an east-west highway could be constructed to link southern and eastern portions of the region with the Delaware Memorial Bridge. Such a highway may utilize existing routes such as U.S. 40 and 322, and N.J. Route 49. An additional solution is to extend the N.J Route 55 freeway further south from Millville to the Cape May Peninsula, which has been discussed intermittently since the roadway's construction. Though not providing direct east-west access to the vicinity of the Delaware Memorial Bridge, it would greatly improve overall access for Cape May County and its fishing industry.

In addition to the visioning need, there is a current need for improvements to existing N.J. Route 55. Construction is scheduled for 2010 to increase capacity of the interchange with N.J. Route 49 in Millville. The project will enhance traffic flow and circulation, and would benefit the nearby South Millville industrial area.

Opportunity:

Increased east-west connectivity to the Delaware Memorial Bridge would boost the economic competitiveness of important industrial areas in the region, such as Vineland, Cape May's fisheries, and distribution centers in Bridgeton and Millville.

Constraint:

Environmental concerns, particularly wetlands, are a major obstacle for roadway construction in the region, and would significantly affect the cost of the project. Previous proposals to extend N.J. Route 55 have been thwarted by environmental concerns. Obtaining the necessary right-of-way and funding the high capital cost associated with the project are additional constraints.

Issue 8: Bridge Connections to Cape May Fisheries

Issue:

The condition of the three bridges along County Route 621 in Lower Township negatively impacts the fishing industry in Cape May, particularly Atlantic Capes Fisheries, Lund's Fisheries, and Snow's/Doxsee, Inc. Mill Creek and Upper Thorofare Bridges are functionally obsolete, and their narrow lane width poses a safety hazard to truck traffic traveling from the fisheries to market. The Middle Thorofare Bridge is also functionally obsolete, structurally deficient, and load restricted to 15 tons. The width of its movable span restricts maritime vessels accessing the fishery ports to a width of 50 feet. Opening of the movable span also causes significant congestion problems during the summer months, which reduces the efficiency of truck traffic traveling to/from the fisheries. The average elevation of County Route 621 between the fisheries and its junction with N.J. 109/GSP also makes it susceptible to flooding during major storm events, which would make it impassable to fishery truck traffic.

Need:

There is a current need to improve existing connections to Cape May fisheries. The Cape May County Bridge Commission and the County of Cape May have developed a concept for a high-level fixed span replacement to the Middle Thorofare Bridge. The concept is for a main span having 116-foot underclearances and a minimum navigational channel of 300 feet wide. The County has incorporated this improvement into a larger proposed project for Ocean Drive, and the NJDOT 2010 Capital Program includes $1.5 million for preliminary design. Eliminating the movable span will solve the current summer congestion problems for northbound traffic. As part of the project, Mill Creek and Upper Thorofare Bridges will also be brought up to current design standards and County Route 621 will be raised above the 100-year flood elevation.

Opportunity:

Improved efficiency and reliability of connections to Cape May fisheries will increase their economic competitiveness. Enabling larger fishing vessels to access the fishery ports will encourage future growth.

Constraint:

Environmental concerns, particularly wetlands, are a major obstacle for roadway construction in the region, and would significantly affect the cost of the project. Obtaining the necessary right-of-way for the Middle Thorofare Bridge realignment and the high capital cost associated with the project are additional constraints.

3.2.2. Rail Freight System Elements

Overview of Existing Services

The region's rail freight operations include Conrail Shared Assets lines and several short line operators.

All rail freight service in the region is carload service, which refers to moving products in boxcars, hopper cars, tank cars, and special lumber cars over a long distance. The characteristics of these commodities (e.g., bulk, heavy, or over- dimensional) make rail the preferred option for long distance movement. Intermodal rail service consists of containers or truck trailers moving on rail flat cars. Intermodal rail traffic is one of the fastest growing rail freight markets, but no intermodal rail service is currently provided or available in southern New Jersey. This current lack of intermodal rail service is due to a combination of existing deficiencies and inefficiencies in the existing rail network, and the market demand generated by the industrial and port activities that are prevalent in southern New Jersey.

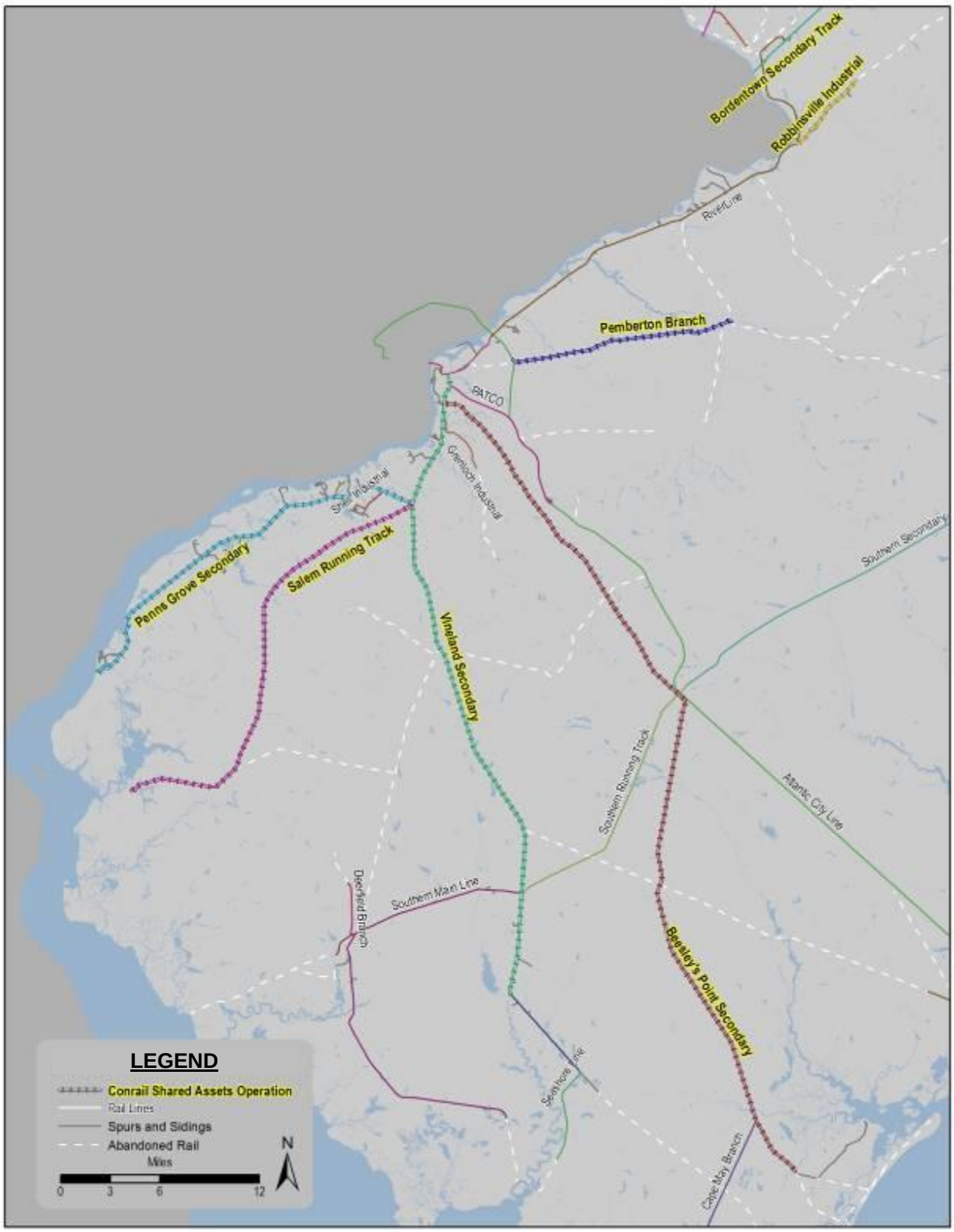
Conrail Shared Assets Operation (CSAO)

The southern New Jersey region is part of Conrail's Southern New Jersey / Philadelphia Shared Assets Area (CSAO). Three Shared Assets Areas were created in 1999 to provide equal access to both CSX and Norfolk Southern (NS) when they acquired Conrail. As a result, Conrail became the terminal and switching agent for CSX and NS in these areas, providing local freight service and connections with the short lines serving southern New Jersey on most of the existing rail lines south of Trenton. Pavonia Yard in Camden is the hub of Conrail's southern New Jersey operations, handling between 1,250 and 1,950 rail cars per week (fourth quarter 2009). Local serving yards are located in Burlington City, Mount Holly, Paulsboro, and Woodbury. The Delair Lift Bridge, the only rail crossing of the Delaware River south of Trenton, connects Conrail and short line services in southern New Jersey with CSX and NS in Pennsylvania, and thereby the rest of the national network. The following describes the lines that are part of the southern New Jersey CSAO, which are depicted on Figure 3-5.

- The Bordentown Secondary runs between Pavonia Yard and Bordentown (27 miles) and further extends to the Northeast Corridor in Trenton. NJ TRANSIT purchased this line in order to operate the RiverLINE light rail service over it, but Conrail retains trackage rights to operate freight service during the overnight hours. This line serves various customers, including the Haines Industrial Park.
    - The Robbinsville Industrial Track branches off the Bordentown Secondary and runs between Bordentown and Hamilton (5 miles). This line has six customers, including an Ocean Spray distribution plant in Bordentown.

- The Pemberton Industrial Track runs between a junction with the Atlantic City Rail Line and Mount Holly (about 14 miles), serving customers including Roosevelt Paper, Atlantic Wood, and Hainesport Industrial Park.
- The Vineland Secondary runs between Pavonia Yard and Millville (40 miles). For the six miles between Vineland and Millville, CSAO shares this track with the operations of the Winchester & Western short line railroad.
    - A spur line, the Grenloch Industrial Track, runs between Gloucester City and Bellmawr (4 miles), where it serves the Interstate Business Park.
- The Penns Grove Secondary runs between Woodbury and Penns Grove (20 miles). The line provides access to the Valero refinery in Paulsboro, Pureland Industrial Complex, the DuPont Deepwater facility, and a power plant in Carneys Point, among other businesses.
    - The Deepwater Point Running Track, which branches off the Penns Grove Secondary, connects Penns Grove with Deepwater Point (3.7 miles)
- The Salem Running Track runs between Woodbury and Swedesboro (10.5 miles), where it connects with the Salem County Short Line. This segment has two active customers.
- The Beesleys Point Secondary runs between south Camden and Winslow Junction (26 miles), then between Winslow Junction and Tuckahoe via NJ TRANSIT trackage rights, and then to Palermo, from where the Beesleys Point Industrial Track connects to Beesleys Point. The major customer is the coal-fired Atlantic Electric power plant at Beesleys Point, which receives three 90-car coal trains per week.

Figure 3-5: Southern New Jersey Conrail Shared Assets Operation railroads



Short Line Railroads

The region is served by four (4) short line railroad operations, providing local service to customers in southern New Jersey not located along the CSAO lines. These short line railroads include SMS Rail Lines, Southern Railroad of New Jersey, Winchester & Western, and the Cape May Branch. These short line railroads are described below and are depicted on Figure 3-6.

SMS Rail Lines

SMS is based at the Pureland Industrial Complex where it operates 6.5 miles of track connecting with the Penns Grove Secondary. In addition, its Paulsboro Branch serves the Valero refinery and other industrial customers.

Southern Railroad of New Jersey (SRNJ)

This company operates services along two lines: the Salem Division and Winslow Division. Salem County owns the Salem Division (Salem County Short Line), which extends from the Salem Running Track at Swedesboro to Salem (18 miles). This line serves manufacturing plants such as Mannington Mills and the Anchor Glass Container Corporation, as well as the Southern New Jersey Farmers Exchange.

The Winslow Division includes a line between Vineland and Winslow Junction (owned by NJDOT), the Atlantic City Rail Line between Winslow Junction and near Atlantic City (owned by NJ TRANSIT), and the Pleasantville Secondary between Pleasantville and Egg Harbor Township.

Winchester & Western (W&W)

This operator's New Jersey Division includes the following four lines:

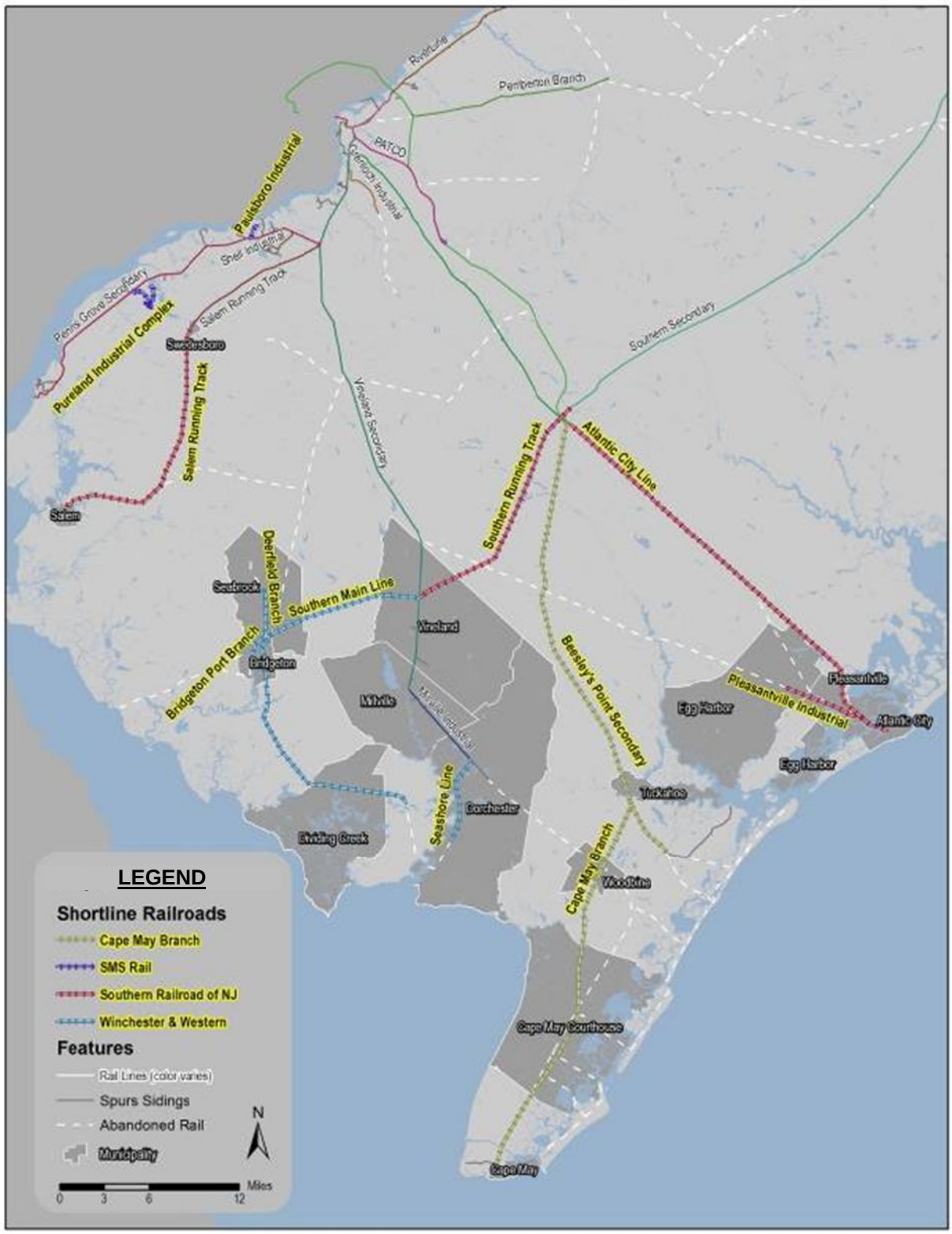
- The Mainline between Millville and Dividing Creek (28 miles). A major customer is Hanson Aggregates in Newport, which mines and ships sand.
- The Deerfield Branch, which runs between Bridgeton and Seabrook (three miles). An important customer along this branch is Perdue, which receives and stores grain from local farms and then ships it to Virginia for export.
- The Bridgeton Port Branch, a two-mile spur serving the Port of Bridgeton.
- The Seashore Line between Millville and Dorchester (10 miles). This line serves four customers.

Cape May Branch

NJ TRANSIT owns this line, which runs for a total of 54 miles between Winslow Junction and Cape May. The line includes the following four segments:

- Winslow Junction – Tuckahoe (27 miles). Along this segment, NJ TRANSIT has granted track rights to Conrail for freight operations. Also, within this segment, between Richland and Tuckahoe (15 miles), NJ TRANSIT has granted rights to the Cape May Seashore Lines (CMSL) for a tourist passenger operation.
- Tuckahoe – Woodbine (5 miles). This segment serves freight customers at the Woodbine Industrial Park.

Figure 3-6: Short Line Railroads in Southern New Jersey



- Woodbine – 4H Fairgrounds at Cape May Courthouse (9 miles). This segment currently is out of service due to poor track conditions.
- Cape May Courthouse – Cape May (13 miles). CMSL operates passenger excursion service along this segment

Issues, Needs, Opportunities, and Constraints

Issue 1: Regional Connectivity

Issue:

While the physical ability to move freight by rail between southern New Jersey and northern New Jersey and the rest of the national network currently exists, rail freight movement to and from southern New Jersey is constrained and inefficient due to a combination of the region's peninsular shape and limited physical connections to both northern New Jersey and the national network. New Jersey's railroad network essentially has two separate parts – North and South. The only current direct connection between North and South is via the Bordentown Secondary, which meets the Northeast Corridor at Trenton. The ability to move more freight traffic along this line is limited, however, by light rail passenger operations for the RiverLINE.

The two-track Delair Lift Bridge, the only rail crossing of the Delaware River south of Trenton, connects Conrail and short line services in southern New Jersey with CSX and NS in Pennsylvania. The bridge's southern track is reserved for freight, with the northern track utilized by NJ TRANSIT in the operation of the Atlantic City Line. The only current route for freight rail access between northern and southern New Jersey requires traversing the Delair Bridge. Trains from northern New Jersey travel along the West Trenton Line, crossing into Pennsylvania near Trenton, NJ. In Philadelphia, trains would then reverse direction and travel east across the Delair Bridge.

The approximately 105-mile rail route between Camden and the Port of New York / New Jersey is circuitous and inefficient: the route must cross the AMTRAK Northeast Corridor line; it does not have double stack clearance; a segment of the CSX line also carries SEPTA commuter rail service; and the line is mostly single track with numerous at-grade crossings. The estimated round trip travel time between Pavonia Yard and the Port of New York / New Jersey is over 12 hours, which requires a second crew to complete the trip, thus increasing the shipping costs. These two issues, time and cost, make rail shipping between north and south port complexes practically impossible. In order to capitalize on efficiencies to be gained from having two ports, rail connectivity must be modernized.

Need:

An immediate need exists to maintain and safeguard the one freight rail access route to southern New Jersey: the Delair Lift Bridge. Structural analysis has determined the need for both short-term and long-term investment in the bridge and its approaches, as it is rated in "poor" condition. There is a critical need to maintain the

286,000 lb capacity of this bridge and within the next decade it needs significant investment or there will be a need to weight-restrict the bridge. Freight rail traffic is limited to a single track, and it cannot currently accommodate double stack operations.

Proposals to create double-stack clearance and add a second main track along the CSX Trenton Line eventually could benefit southern New Jersey rail shipping.

A longer term need focuses on the creation of additional routes for rail access between southern New Jersey and northern New Jersey and the national network. This is a long term need to facilitate the One State – One Port vision, and allow the north and south Jersey port complexes to function as a single entity.

Opportunity:

- According to Conrail, the Delair Lift Bridge needs investments in the range of $20 to $30 million in order to maintain 286,000 lb capacity and Conrail is looking for a partner agency with whom to progress the investments.
- Reactivation of the Blue Comet Route to create additional routes for rail access between northern New Jersey, southern New Jersey and the national network – This concept would require reactivation of a length of the currently out of service Southern Secondary. The Southern Secondary route is currently active over NJ TRANSIT's North Jersey Coast Line from South Amboy to Red Bank, then over the former Central Railroad of New Jersey's Southern Division from Red Bank to Lakehurst, where activity terminates. Reactivation of the inactive portion of the Southern Secondary between Lakehurst and Winslow Junction would provide an alternative route between northern and southern New Jersey and create a potential loop route between the two port complexes.
- Reactivation of the Hightstown Industrial connection to the Robbinsville Industrial – A number of years ago, a section of the Hightstown Industrial was taken out of service and the right of way abandoned through downtown Hightstown. The replacement of this right of way would allow for a virtually direct connection between northern and southern New Jersey.

Various studies have identified other opportunities to expand the region's rail freight network by increasing capacity on existing lines or restoring service on abandoned lines. The following describes some of these possibilities:

- Double-track the Bordentown Secondary: This expansion would increase the span of rail freight service that can be offered and the feasibility and attractiveness of rail shipping for industrial customers along the line, including those at the Haines Industrial Park.
- Extend the Winchester & Western Seashore Line from Dorchester to its previous terminus in Leesburg: This extension could complement redevelopment efforts in the Bayshore region.
- Restore service on the former branch line between Manumuskin and Woodbine: This line could serve freight traffic, including lumber, as well as passenger traffic, which could assist in emergency evacuation efforts.

Constraint:

Each of these opportunities comes with a series of community and environmental constraints that would require solutions to make the new route not only physically feasible, but operationally meaningful.

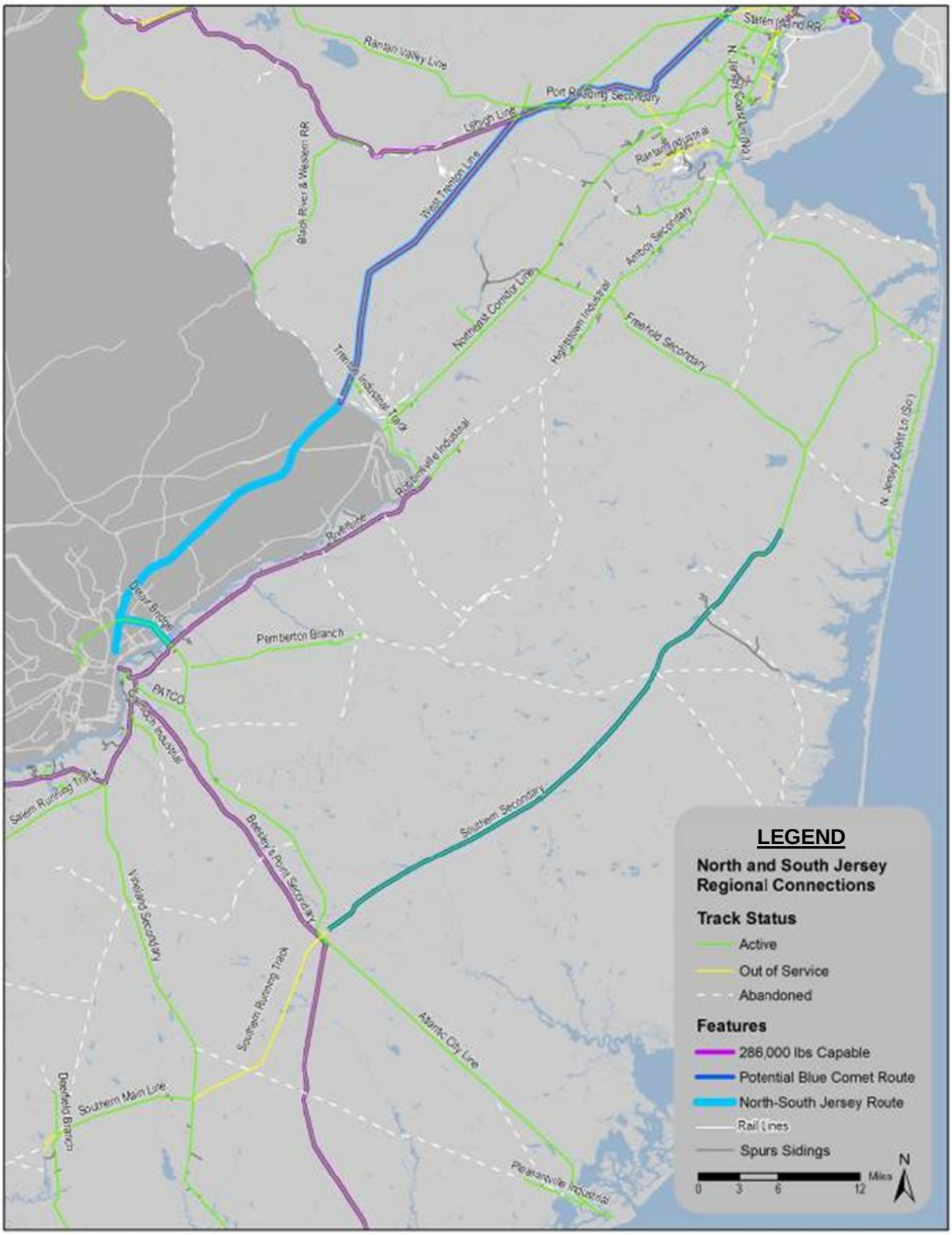
Delair Bridge Upgrade - The approach spans of the Delair Bridge, 60 associated with the bridge, are over 100 years old. Estimates to replace and upgrade the deck and deck girders of the approach spans to maintain 286,000 lb railcars range from $20 to $30 million. Upgrade to double-stack would require additional evaluation of the bridge and the approaches. Some initial work to provide double-stack clearance could take place with the initial bridge repairs and rehabilitation; addressing the approached would a longer term undertaking and the costs are not currently known.

Reactivation of the Blue Comet Route - There are a number of constraints and issues that would require resolution to make this alternative viable along the 45± mile long corridor. First, reconstruction of this route includes significant environmental concerns as the route passes through the Pine Barrens. Second, rehabilitation of the existing serviceable track between Lakehurst and Lakewood would also be required to address operational and speed restrictions. Third, while the right of way exists, sections of track have been removed between Winslow Junction and Lakehurst. Fourth, the route from Lakewood to Red Bank weight is limited to 263,000lb, with height and width restrictions (catenary lines and high level passenger platforms along the route) precluding the movement of high and wide loads. Fifth, the NJ TRANSIT Bridge over the Raritan River (on the North Jersey Coast Line) is currently restricted to 263,000 lb rail cars, which would minimize the potential value and efficiency of this route for freight movement without significant additional investment in reconstructing or renovating this bridge. Further, this bridge represents a height restriction that prohibits the running of high cube double stack railcars, thus limiting the economies of scale that such a service offers. Sixth, this route is one of the alternatives under consideration for the NJ TRANSIT Monmouth-Ocean-Middlesex (MOM) passenger rail service; sharing of the route between passenger and freight service would necessitate either double-tracking or a temporal separation of passenger and freight service.

Reactivation of the Hightstown Industrial connection to the Robbinsville Industrial - It is highly unlikely that the right of way could be reclaimed. In addition, reactivation of this route would require trains to share activity along the Bordentown Secondary that is currently being utilized for light rail service (River LINE). Use of this line for freight would be restricted to overnight periods when passenger service is not operating.

The existing connections and potential improvements between southern New Jersey railroad lines and northern New Jersey are shown below in Figure 3-7.

Figure 3-7: North and South Jersey regional connections



Issue 2: Rail Yard Capacity / Short line Handoff

Issue:

Moving freight cars from one point to another is only part of the freight rail logistics chain. Facilities, or yards, are required at each end of a rail trip for temporary staging/storage of rail cars, loading and unloading rail cars, building train sets, and handing off cars and sets of cars between operators. The capacity of yards for storing and assembling trains is important for overall rail system capacity and efficiency. Currently, all freight rail service to and from southern New Jersey passes through and utilizes Pavonia Yard, the hub of activity in southern New Jersey CSAO. Operationally, Pavonia Yard is equally accessible to both parent railroads (CSX and NS) via Conrail service. Although traffic flows into Pavonia yard seven days per week, the yard itself is a five day per week operation. Conrail has implemented "safety valves" whereby trains are now back stopped in Pennsylvania to avoid overtaxing Pavonia Yard during periods of high demand.

The short line railroads typically operate their own small yards. These yards are utilized in a similar manner as the CSAO service yards, providing local switching and classification of cars, as well as the temporary storage of railcars and equipment. The significant rail yards in southern New Jersey are depicted on Figure 3-8.

Need:

While the current operations in southern New Jersey are accommodated by the existing Pavonia rail yard, latent demand for yard capacity is being held back in Pennsylvania during peak operational periods. In addition, need has been noted for additional rail yard and car storage capacity south of the existing Pavonia Yard. Future economic growth and expansion of freight rail operations in southern New Jersey will likely require expansion of the handling capacity of Pavonia Yard, and exacerbate the already existing need for capacity south of Pavonia.

Opportunity:

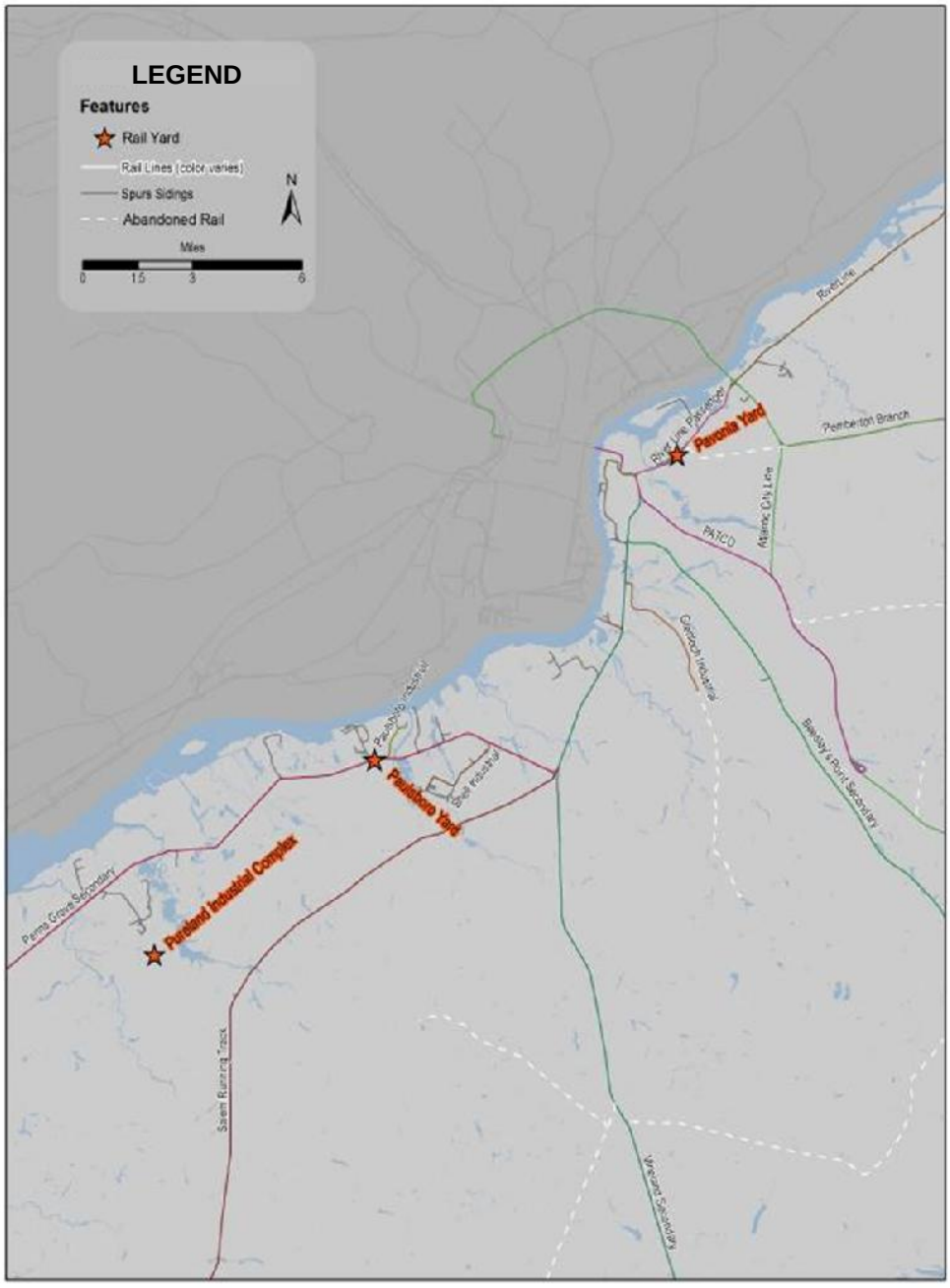
- Creation of supplemental support yards – Should rail freight demand increase as a result of economic growth, the creation of supplemental support yards should be investigated. Currently, the southern New Jersey short lines interchange with Conrail at various locations:
    - SMS Interchanges at Paulsboro
    - Winchester & Western Interchanges at Millville
    - Cape May Seashore Line Interchanges at Tuckahoe
    - Southern Railroad of NJ Interchanges at Winslow Junction
- Expansion of yard facilities in Paulsboro – This action would provide excess/overflow capacity to accommodate additional trains that would otherwise be served at Pavonia.
- Physical and Temporal Expansion of Pavonia Yard – The ability to physically expand facilities at Pavonia Yard are limited by geometry and property

ownership. However, extending operations of the yard to six or even seven days per week as demand grows may be a viable means of maximizing the utilization of a fixed piece of infrastructure with little to no capital investment.

Constraint:

- Each of the above opportunities (supplement support yards, expansion of yards at Paulsboro, and physical and temporal expansion of Pavonia yards) comes with a series of community and environmental issues that would require solutions to make these investments feasible.

Figure 3-8: Major southern New Jersey rail yards



Issue 3: Infrastructure Capacity (286) and Connectivity

Issue:

Class I railroads in the U.S. have adopted a standard maximum carload weight limit of 286,000 pounds in order to improve cost effectiveness. Lines operated as part of the CSAO are generally 286,000 pound capable.

Need:

While a number of key short lines have been upgraded, numerous tracks in southern New Jersey have a capacity of only 263,000 pounds. Branch lines with 263,000 pound capacity are driving out end-of-line business, as the ability to receive 286,000 pound railcars becomes a more important element of the industry's location decision making process.

Opportunity:

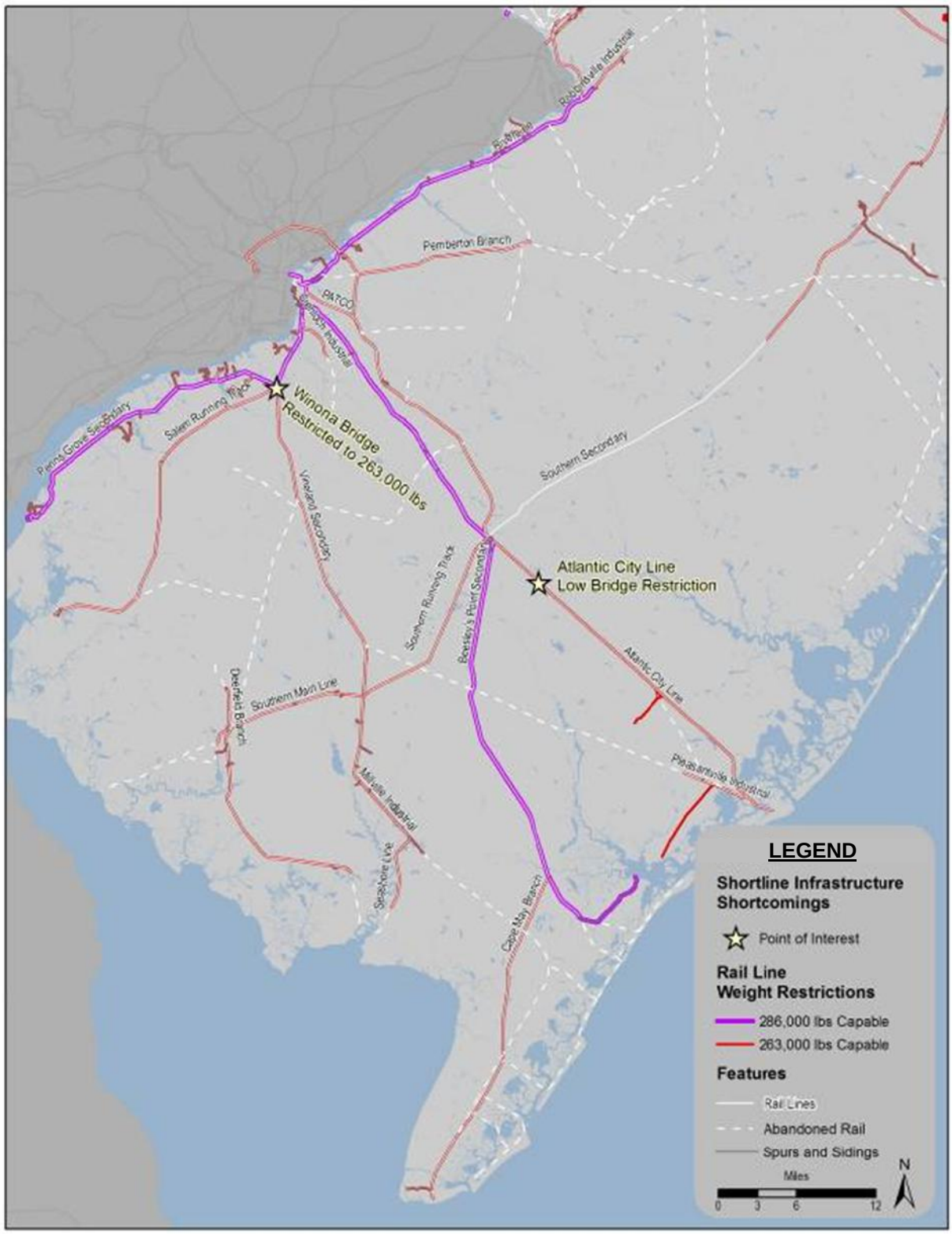
The Delair Bridge is currently listed in the DVRPC Long-Range Vision for Freight (part of *Connections 2035*) as planned for upgrades in the 2014 to 2025 period to maintain 286,000 lb capacity.

Constraint:

Short line railroads typically lack the financial resources to upgrade their lines.

In addition, even if the physical capacity exists, NJ TRANSIT restricts the operation of 286,000 pound cars on right of way they own as a matter of policy. Current weight restrictions on trackage in southern New Jersey are depicted on Figure 3-9.

Figure 3-9: South Jersey rail line weight restrictions



Issue 4: Shared Operations – Passenger with Freight

Issue:

In a few locations, rail freight service operates on the same tracks as passenger rail service. The sharing of lines occurs through trackage rights agreements, which permit carriers to operate over lines owned by another entity. The terms of these agreements, relating to coordinating schedules and providing safety measures to reduce potential conflicts, may affect the availability and efficiency of rail freight operations.

Need:

The existing shared lines in the southern New Jersey study area include the following:

- The NJ TRANSIT RiverLINE operates over the Bordentown Secondary (NJ TRANSIT owns the majority of the Bordentown Secondary) during daytime and early evening hours and all of Saturday night and Sunday morning with Conrail having exclusive access for freight at other times.
- The SRNJ Winslow Division operates over NJ TRANSIT's Atlantic City Rail Line between Winslow Junction and Atlantic City.
- The Cape May Seashore Line operates tourist passenger rail service over two segments of the Cape May Branch.

On lines accommodating passenger and freight service, shared-use operating agreements are negotiated between the owner of the line and the other user; however, passenger service typically receives priority for daytime and peak-period travel. Freight capacity is severely curtailed in these circumstances, limiting the growth potential of rail served industries in southern New Jersey.

A future need related to the vision plan is the proposed light rail passenger service, under environmental study by the Delaware River Port Authority (DRPA) and PATCO, between Camden and Glassboro. This service would be light rail, eliminating the possibility of shared freight operations with heavy rail without a physical or a temporal separation. The initial operating segment is envisioned to utilize the existing Vineland Secondary from Camden to Glassboro. This would severely curtail rail freight operations on the Penns Grove Secondary of the Salem Running Track. Additional rail freight activity could be diverted along the Beasley Point Secondary to the Southern Running Track, but would create additional strain on the already deficient Winslow Junction.

Opportunity:

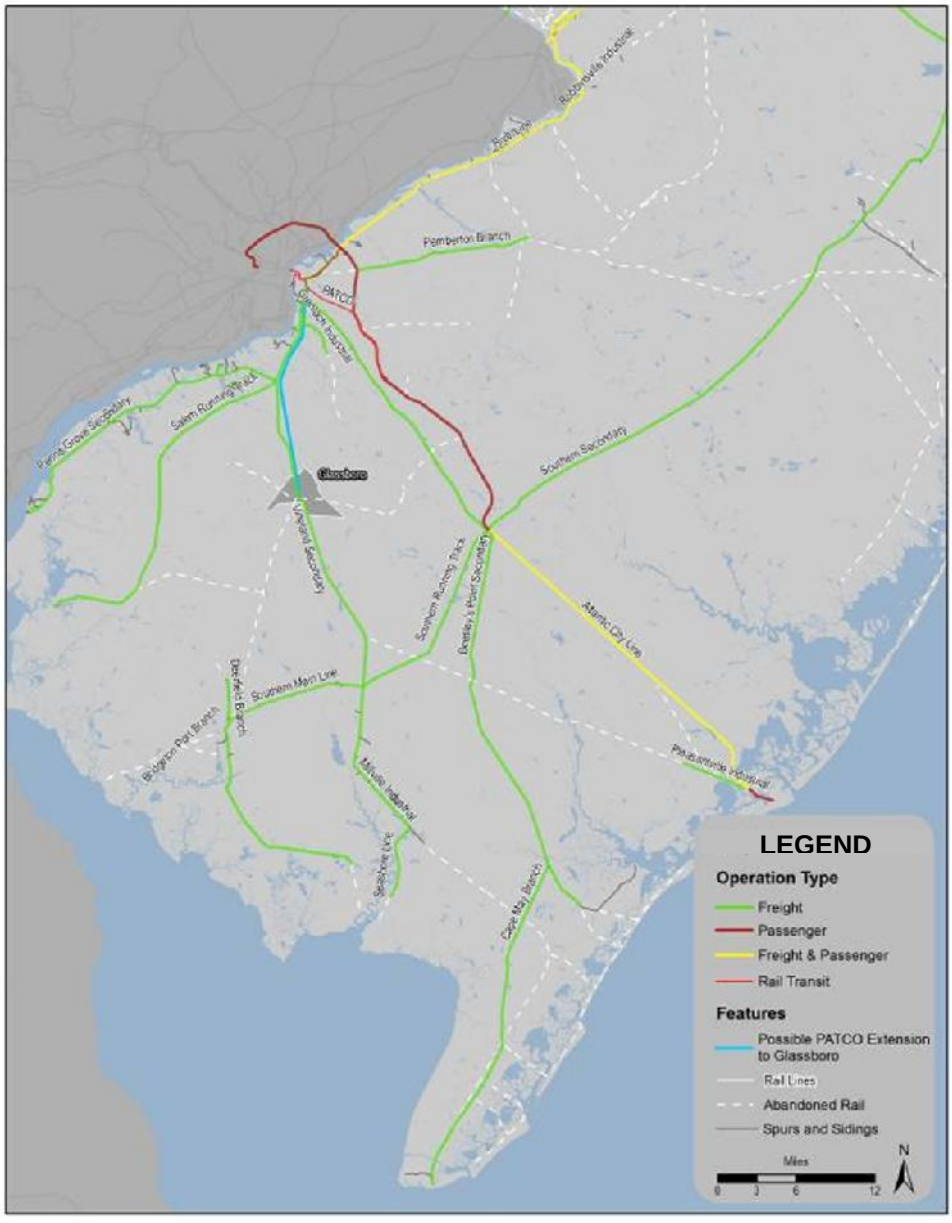
Double tracking of the Vineland Secondary if the DRPA/PATCO light rail service is advanced from environmental study – To avoid the severe implications to southern New Jersey freight operations, the DRPA/PATCO light rail passenger service extension should consider double-tracking the route to allow for freight activity without temporal restrictions. Accommodating passenger and freight operations is possible on the right of way from Camden to Glassboro and south. The ROW is 100 feet in width from Camden to Woodbury, and 60 feet in width south of Woodbury.

Constraint:

Funding is a constraint to double tracking rail lines to better accommodate both passenger and freight use within the right-of-way.

At present level of study (initiation of an Environmental Impact Statement) the DRPA/PATCO proposed light rail passenger service would use diesel-powered light rail vehicles, operating on either new dedicated tracks and/or sharing portions of Conrail track with temporal separation. The determination of new tracks or sharing will be made as the project advances and as funding is identified. The types of rail services (freight, passenger, shared) operated in southern New Jersey are depicted below in Figure 3-10.

Figure 3-10: Southern New Jersey railroad operational types



Issue 5: Regulatory Requirements

Issue:

As with many industries, the railroad industry has had placed upon it a range of new regulations aimed at minimizing environmental impacts, particularly emissions and impacts to air quality. While serving important environmental goals, these regulations place an additional strain on short line railroads. With more limited revenue streams, short lines often rely on older equipment that does not meet the new environmental standards. Replacement of this equipment represents an economic hardship that could conceivably force some key operators out of business.

Beyond the need to assist in funding compliance with new regulatory requirements, there are a number of infrastructure improvement needs that have been articulated in recent plans or raised by the current rail operators serving the southern New Jersey region.

Need:

The NJDOT funds an annual grant program to assist short line railroads in the maintenance, expansion, and operation of their facilities. A portion of the existing grants program should be allocated for the exclusive purpose of assisting short line railroads upgrade or purchasing new equipment to meet environmental requirements. In addition, the need for Positive Train Control as a result of new federal regulation is an added cost that should be considered as eligible for application to the grant program.

These infrastructure improvement needs include:

- The lead track serving the Broadway Terminal at the Port of Camden is in need of rehabilitation and upgrading to maintain reliable service for shipments to and from the Port. NJDOT's FY '09 Rail Plan included funding for these improvements.
- Along the Salem Division, certain sections are in such disrepair that trains are limited to 5 miles per hour. Reportedly, some distributors of heavily demanded goods, such as lumber and limestone, refuse to use the line due to frequent derailments. A federal grant was recently announced to assist in the cost of rehabilitating this line.
- The SRNJ Vineland – Winslow Junction branch is out of service due to a collapsed bridge across Hospitality Creek. Restoring service along this line could facilitate shipping sand to Pleasantville and Atlantic City, and possibly to northern New Jersey in the future.
- As noted above, one segment of the Cape May Branch is completely out of service, and others have rehabilitation needs. Cape May Seashore Lines has proposed a project to repair the track for 27 miles between Tuckahoe and Cape May. This project would enable shipping along the entire length of the branch between Cape May and Winslow Junction.

- The recently-updated DVRPC Regional Transportation Plan (*Connections 2035*) identified a need to reconstruct two swing bridges, at Paulsboro and Bridgeport, along the Penns Grove Secondary. In August 2009, the Paulsboro Bridge collapsed.

Opportunity:

Utilize the NJDOT annual grant program to assist short line railroads in the maintenance, expansion, and operation of their facilities. The following table shows the southern New Jersey projects included in NJDOT's FY 2010 State Rail Plan applications eligible for funding. These projects are depicted on Figure 3-11.

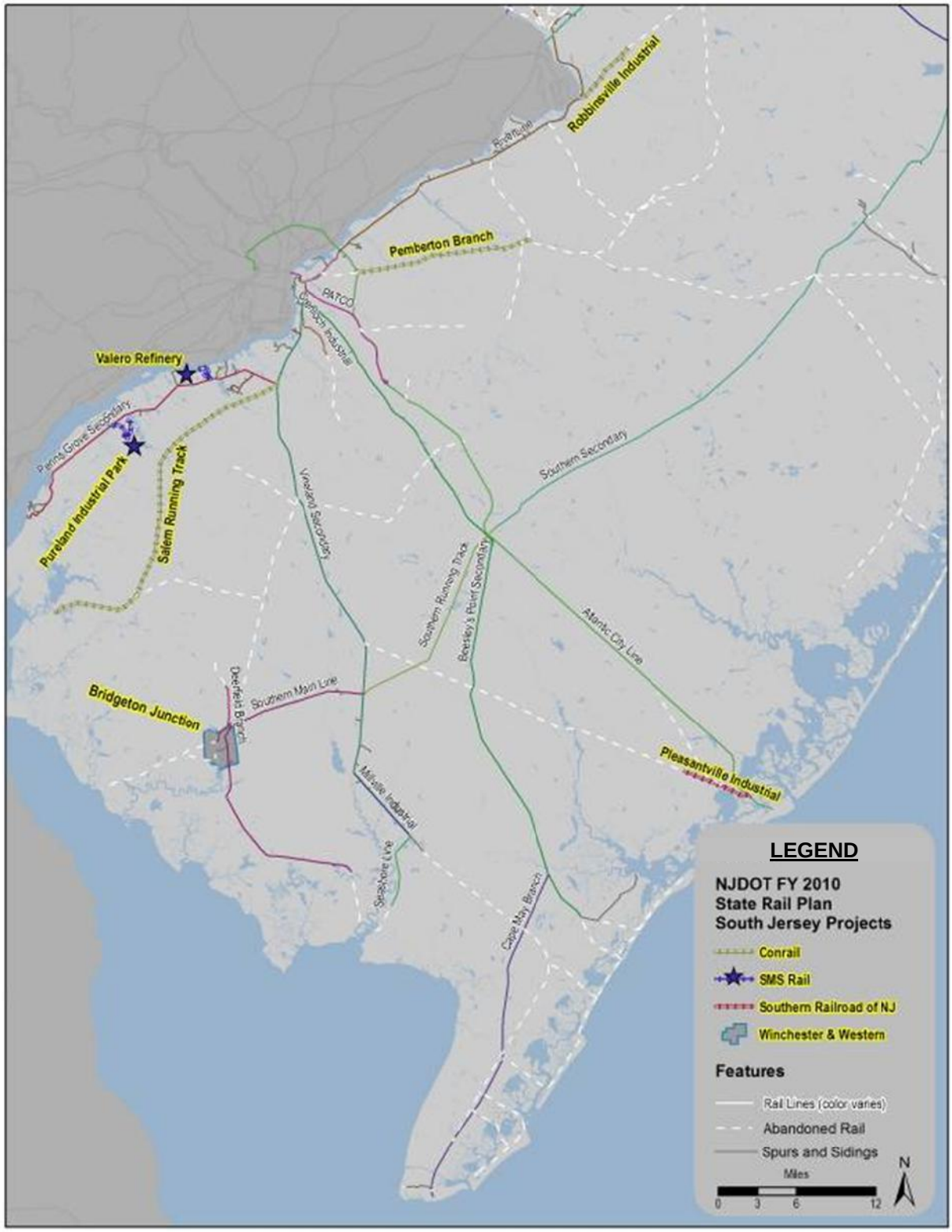
Table 3-6: South Jersey projects included in NJDOT's FY2010 State Rail Plan applications eligible for funding

Operator	Project	Cost
Conrail	Pemberton Industrial Runaround Track	$505,000
Conrail	Upgrade Robbinsville Industrial Track	$2,576,950
Conrail	Rehabilitation of Vineland Running Track	$795,000
Conrail	Up-Grade Salem Running Track	$7,625,479
SMS	Pureland Industrial Park	$1,367,192
SMS	Valero Refinery - Paulsboro	$929,453
SRNJ	Rehabilitate Pleasantville Secondary Track to FRA Class 2 Standards (4 segments)	$4.3 million (total)
W&W	Additional Yard Trackage – Bridgeton Junction	$479,600

Constraint:

This grant program has historically been funded at levels well below the cost of the applications for aid. Beyond the funding limitations, a key requirement of the program is that a grant proposal must have local municipal support for it to be accepted for consideration. Accordingly, the investment decision may be taken completely out of the hands of the NJDOT due to local objection to an improvement that could offer substantial regional economic benefit.

Figure 3-11: NJDOT TY 2010 State Rail Plan South Jersey Projects



3.2.3. Marine Terminal System Elements

Overview

The main port facilities in southern New Jersey are located along the Delaware River. The bulk of cargo moving along the river is crude petroleum and associated petroleum products, most of which are inbound. These commodities generally are destined for private facilities owned and operated by major oil companies. The other cargo on the NJ side of the Delaware (about 25 million tons annually) is mostly bulk or break-bulk commodities, not containerized cargo. The South Jersey marine terminals cater to niche cargoes, such as plywood, cocoa, and fruits, and the predominant trading partners for these cargoes are countries in South America.

The major general cargo port along the river in southern New Jersey is the Port of Camden, while secondary ports include the Gloucester Marine Terminal and the Port of Salem. Additionally, there is an inactive port in Bridgeton. In addition to these ports, the southern New Jersey region has two major commercial fishing ports along the Atlantic Coast in Cape May and Atlantic City.

Figure 3-12 shows the recent history of shipping activity at the combined Ports of Camden and Gloucester. The data shows that these Ports experienced major growth from 2001-2005, but recent activity has decreased somewhat from the peak year of 2005.

Figure 3-13 provides a comparison of the 2007 shipping activity at Camden-Gloucester, Paulsboro (private terminals), and the Port of New York – New Jersey.

Projections indicate that shipping on the Delaware River will increase substantially over the next 25 years – the draft *Southern New Jersey Waterfront Master Plan* (SNJWMP) projects that the volume of bulk and break-bulk cargoes could more than double. Continued privatization of container terminals, the expansion of the Panama Canal, and continued optimization of existing facilities could lead to further increases in opportunities for shipping and port activity on the Delaware River. Also, the growth of distribution centers in southern New Jersey, largely due to lower land costs than in northern New Jersey, could make the river an even more attractive shipping

Figure 3-12: Shipping activity in Ports of Camden - Gloucester

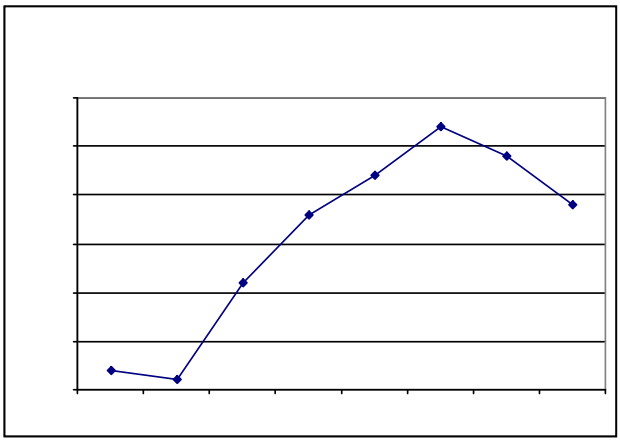
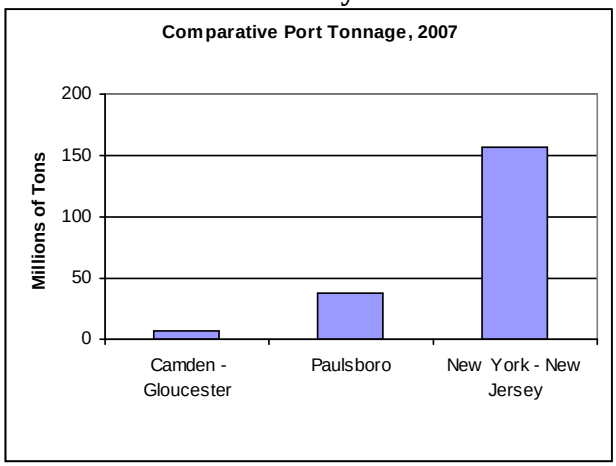


Figure 3-13: Comparison of shipping activity



option.

New port facilities have been proposed for the Delaware riverfront. In particular, a new deep water marine terminal at Paulsboro is in the final design stages. Executive Order 215 Environmental Impact Statements (EIS) have been prepared for the marine terminal on behalf of the project lead agency, the South Jersey Port Corporation (SJPC), as well as for an access road and overpass required to reach the terminal on the behalf of the Gloucester County Improvement Authority. Contracts have been awarded for the final design and project management of the Paulsboro Marine Terminal and approval has been given by the SJPC to issue $56 million in bonds to begin the site preparation of the terminal.

Current Ports

Port of Camden

The Port of Camden, operated by the South Jersey Port Corporation (SJPC), has three terminals (Beckett Street, Broadway, and Broadway Produce) that provide a total of seven berths. Among the main products handled are wood, steel, cocoa, iron ore, scrap metal, minerals, and fresh fruit, including bananas and pineapples.

Details for each terminal are provided below.

Beckett Street Terminal
SJPC's Beckett Street Terminal provides a "one-stop service" bulk and breakbulk facility that handles steel, project cargo, wood products, cocoa beans, and other bulk cargoes.

Port specifications include:

- Specialized Cargos: Wood product, steel products, cocoa beans, containers, iron ore, furnace slag, scrap metal.
- Other Cargos: Project and dry bulk cargos
- Terminal Area: 125 Acres
- Number/Size of Berths: 3 berths: 2,000 linear feet
- Depth at MLW: Berth 2: 30 feet; Berth 3: 35 feet; Berth 4: 40 feet (Berth 1 not operational)
- Heavy lift: 2 multipurpose bulk/container cranes 95 tons
- Other Features: Food grade warehousing; all storage warehouse and shed served by rail; innovative direct discharge for bulk cargoes; custom cargo carriers for direct discharge to storage; all-weather-controlled warehouse.

Broadway Terminal
SJPC's Broadway Terminal handles all types of break-bulk and bulk cargoes. In addition, the Broadway Terminal is also an industrial park with over 25 maritime business tenants.

Port specifications include:

- Specialized Cargos: Petroleum coke, furnace slag, dolomite, other dry bulks, steel products, wood products, minerals, cocoa beans, and fresh fruit
- Terminal Area: 180 Acres
- Number/Size of Berths: Pier 1: 735 linear feet; Pier 1A: 750 feet; Pier 5: 1,050 linear feet
- Depth at MLW: 35 feet
- Reefer Plugs: 130 reefer plugs available on terminal

- Other Features: Full service facility for all break-bulk and bulk cargoes; 30 acre open lay down space; bulk cargo storage area with direct rail service; 2,000 feet of rail siding for intermodal transfer.

Broadway Produce Terminal

SJPC's Broadway Produce Terminal handles fruit and other fresh produce. The primary tenant in this facility is Del Monte, which uses the terminal as their largest fruit port and distribution center in the world.

Port specifications include:

- Specialized Cargoes: Bananas, pineapples, other perishables
- Terminal Area: 26 acres
- Number/Size of Berths: 1 berth, 1,050 linear feet
- Depth at MLW: 35 feet

The Port of Camden includes a total of 30 dry warehouses totaling more than 1.2 million square feet and two temperature-controlled warehouses totaling 135,000 square feet.

Access / Connectivity

The main highway access to the Port of Camden is via Exit 3 of I-676, about ½ mile from the entrance to the Broadway terminals via Morgan Boulevard and Atlantic Avenue/Broadway. This exit is approximately 2 ½ miles away from I-295. The New Jersey Turnpike is located about 2 miles from I-295, and Turnpike access requires using I-295 (Exit 28) and Black Horse Pike to reach Exit 3 of the Turnpike.

The Port has rail freight access via Conrail, which runs parallel to Broadway and provides sidings to the Port. Pavonia Yard is only about 3 miles north of the Port, providing connections to the national, regional, and statewide rail freight network.

Gloucester Marine Terminal

This 150 acre facility, owned and operated by Holt Logistics, Inc., is located in Gloucester City, south of the Port of Camden. It includes four berths and its main commodities are fruit, steel, wood, and containers. The terminal has the largest refrigerated capacity of any terminal in the United States. Other attributes of the terminal are shown below.

- Depth at MLW is 45 ft.
- Reefer Plugs: 56 available
- Cranes: Container cranes with capacities of 45 tons and 30 tons
- Other Equipment: 3 container top loaders with 90,000 lbs capacity and 2 rubber tired gantry cranes for magnet loading and unloading of railcars.

Access / Connectivity

The terminal has similar road and rail access as noted above for the Port of Camden with I-95, I-76, I-295, and the NJ Turnpike within a few miles, and the Conrail line providing access to the Pavonia Yard.

Port of Salem

The South Jersey Port Corporation oversees the Port of Salem Terminal in Salem County, New Jersey. Operations at the terminal are leased to Salem Terminals Limited. The port is located

along an inlet (the Salem River) of the Delaware Bay. Its one berth handles apparel, motor vehicles, consumer goods, and food products. It also includes aggregate operations and a small containerized cargo facility that handles traffic between the United States and Bermuda. The Port of Salem includes 22 acres, berthside truck access, with a berthing space of 350 feet with 65 feet of beam. Covered storage at the Port of Salem includes 80,000 square feet of shed and warehouses. This port is designated as a Foreign Trade Zone and is thus excluded from United States Customs regulations, which greatly reduces shipping and importing costs.

Access / Connectivity

The main roadway access to the port is via N.J. Route 49, and the distance to the New Jersey Turnpike and I-295 is about eight miles.

The port also has rail service via the Salem County Short Line, which is operated by the Southern Railroad of New Jersey as its Salem Branch and runs between the Port and Swedesboro, where it connects with Conrail.

Port of Bridgeton (inactive)

The Port of Bridgeton, currently not in operation, has a depth of 17 feet and has supported barge traffic containing bulk cargoes such as gravel, lumber, and oil. Truck access is provided by N.J. Route 49. The SJPC is currently in search of a new tenant.

Port of Atlantic City

Based in Atlantic City's Marina section, the Atlantic City fishing fleet is almost exclusively dedicated to surf clams and quahogs (ocean clams). This specialized fishery, accomplished primarily by larger vessels equipped with hydraulic dredges, provides much of the world's supply of minced clams and clam strips. The port ranks #29 in the U.S. for the value of its catch. Sea clams are marketed directly to processors, which make chowders, dips, and fried clam strips. The city has no clam processing facilities; therefore, clams are trucked to plants in southern New Jersey or on the Delmarva Peninsula.

Access / Connectivity

The Atlantic City Expressway provides an east-west highway, with connections to U.S. Route 40 and U.S. Route 322 for other points west and south. The Garden State Parkway provides a north-south highway, although trucks are prohibited north of Exit 105.

Port of Cape May

This port is the largest and most diversified commercial fishing port in the state. The port ranked fourth in the U.S. in 2008 for the value of its seafood catch, with scallops accounting for about 75% of the value. Federal regulations have boosted the scallop harvest by closing large portions of the ocean to fishing in order to let scallops grow larger. A large area off of Cape May was recently re-opened for scallop fishing, making fishing more lucrative in the region. The nearby area also has modern fish processing and packing facilities, which ship products worldwide. Lund's Fisheries, Inc. is a primary producer (processing and freezing) of various species of fish, and it imports and trades various other types of seafood products from around the world. The facility produces for regional markets including Boston, New York, Philadelphia, and Baltimore. Goods predominantly move out of the Port of Cape May by truck.

Access / Connectivity

The Garden State Parkway is located only about one mile from the port, providing a convenient north-south roadway up to Exit 105, where truck restrictions begin. The port has no direct east-west highway connections – N.J. Route 47 and N.J. Route 50 provide possible routes for products heading west and south.

Issues, Needs, Opportunities, and Constraints

Issue 1: Condition of Infrastructure at Port of Camden

Issue:

The Port's facilities are old – the Broadway Terminal dates back to about 1900. Over the years, the SJPC has made improvements to port facilities that have enabled cargo handling operations to continue, but upgrades are desperately needed.

Need:

The aging infrastructure limits the port from functioning efficiently and fully realizing its economic potential.

Opportunities:

SJPC has proposed several infrastructure improvement projects, including the following:

- Rebuild wharf at Berth #1 of Beckett Street Terminal
- Rebuild Pier #1 at Broadway Terminal
- Rehabilitate Covered Ways and adjoining H-Slip at Broadway Terminal

Constraint:

Substantial funding will be necessary for these infrastructure improvements. SJPC has estimated that the above three projects would cost over $100 million, and it has identified other smaller infrastructure improvement needs costing over $40 million.

Issue 2: Need to Improve Access and Circulation at Port of Camden

Issue:

The roadway system surrounding and serving the Port of Camden does not provide for efficient access and circulation. The impacts of truck traffic, particularly from the Beckett Street Terminal, are a concern in the adjacent residential neighborhoods.

Needs:

The port area needs improvements to the roadway network that will serve the needs of the port and related businesses, while minimizing the impact on the surrounding community. Addressing these needs will be especially important as the port grows and for improved security.

Opportunities:

SJPC has endorsed three roadway improvement concepts that the draft *Southern New Jersey Waterfront Master Plan* (SNJWMP) study has proposed. These concepts are the following:

- Port District Access Roadway, which connects the Beckett Street, Broadway, and Gloucester Terminal areas.
- Local Connector Roadway, which replaces Broadway Avenue as a non-port roadway connection between Camden and Gloucester City
- Safety Improvements at the interchange of I-676 and Morgan Boulevard (Exit 4).
- Another improvement concept, proposed by SJPC, would provide a new I-676 interchange/ramp directly connecting to the Port.

Constraints:

The proposed roadway circulation improvements will require funding, along with further planning, design, and permitting, as well as possible right-of-way acquisition.

Issue 3: Rail Freight Opportunities for the Port of Camden

Issue:

The Port of Camden suffers from a limited ability to conduct direct rail-to-ship transfers. In particular, the lead track serving the Broadway Terminal is in poor condition.

Need:

The condition of the port facilities and related rail infrastructure mitigates the potential for rail freight to carry a larger portion of goods to or from the port.

Opportunities:

SJPC's proposed terminal infrastructure improvement projects include provisions for facilitating direct rail-to-ship transfers, and the NJDOT State Rail Plan includes funding to rehabilitate the lead track to the Broadway Terminal. Also, NJDOT, in collaboration with SJPC, Conrail, and Salem County, had submitted a federal TIGER grant application for rail-port improvements in southern New Jersey. This grant request included a request for funding to improve dockside rail connections at the Port of Camden, but unfortunately it was not selected for award. Salem County resubmitted the grant application in Round 2, but again was not selected. In addition, studies for the Southern New Jersey Port Inland Distribution Network (SJPIDN) have identified the potential for rail freight service between the port and northern New Jersey.

Constraints:

As with other proposed infrastructure investments, funding availability may be a constraint. Also, the potential for enhancing rail freight service could be constrained by the need to share rail lines with passenger rail service, particularly the existing RiverLINE service and the new light rail service that DRPA is planning for Camden to Glassboro.

Issue 4: Potential for Expanded Shipping Demand

Issue:

The draft SNJWMP included a market analysis to estimate the future goods movement activity along the Delaware River. This analysis projects that marine cargo volumes along the river could increase by 2-4% annually over the next 20 years.

Continued privatization of container terminals, the expansion of the Panama Canal, and continued optimization of existing facilities could lead to further increases in opportunities for shipping and port activity on the Delaware River. Also, the growth of distribution centers in southern New Jersey, largely due to lower land costs than in northern New Jersey, could make the river an even more attractive shipping option.

Need:

Such increases in shipping demand would generate the need for new deepwater marine terminal berths or other means of increasing capacity (expand existing ports or improve their efficiency) to accommodate this volume.

Opportunities:

The draft SNJMWP identified three possible new general cargo port facilities along the Delaware River. Design for one facility, a new Port of Paulsboro, is underway, while concept plans are in place for a port at the old DuPont property in Greenwich and another port at the DuPont property in Penns Grove. Combined with the recommendations from the studies for the Southern New Jersey Port Inland Distribution Network (SJPIDN) that has identified the potential for rail freight service between the port and northern New Jersey, the potential for expanded shipping demand is likely in southern New Jersey.

Constraints:

Construction of these facilities will require substantial capital investment, and all proposed facilities will need to undergo feasibility analysis and planning processes, including environmental impact assessment and final design.

Issue 5: Impact of Increased Demand on Port of Camden

Issue:

Physical expansion of the Port of Camden currently is not possible. In 2005-06, its peak years of business, the port turned away ships because of constraints in its ability to rapidly handle cargo.

Need:

In order to capitalize on the projected increases in shipping activity, SJPC will need to explore opportunities for increasing its capacity by improving the efficiency of its operations or reconfiguring the port facilities.

Opportunities:

The draft SNJWMP proposed several improvements that would expand the capacity of the Port of Camden while essentially maintaining its current footprint. These improvements comprise a "Working Waterfront" concept, which would integrate objectives for preserving and expanding port operations and related economic activity with objectives for the quality and sustainability of life for the neighboring residential areas. Among the proposed improvements are the following:

- Reconfigure Beckett Street Terminal
- Develop an integrated Broadway Terminal and industrial / warehouse complex, including a new 2,000-foot wharf
- Consolidate current scrap metal operations and construct new scrap metal wharf

The plan also includes the roadway circulation improvements noted above, along with several recommendations for landscaping and design to buffer the port district from the residential areas.

Also, the SJPIDN *Phase II* study assessed container handling and storage capacity expansion possibilities for Broadway Terminal, owing to possible opportunities for marine highway shipping.

Constraints:

Although the proposed improvements provide various amenities for improving the quality of life for the nearby residential neighborhoods, the plan yet may encounter public and political opposition. Like other improvements, identifying available funding is an issue as significant capital investment is needed.

Issue 6: Access Needs for Proposed New Port Facilities

Issue:

The planned and proposed new port facilities will require effective and efficient landside connections, including roadways and rail freight.

Need:

As with the current conditions at the Port of Camden, access to the new facilities should aim to minimize the impact of operations, especially in terms of truck traffic, upon the surrounding community.

Opportunities:

The draft SNJMWP identified potential roadway improvements to support the new port facilities. The design for the Paulsboro Marine Terminal has included plans for a new connecting roadway to the east over Mantua Creek, which would provide a direct connection between the port and I-295, keeping trucks out of the residential neighborhoods to the east of the port. The concept planning for the Greenwich port facility includes a new roadway connection that would connect with N.J. Route 44 outside the Gibbstown village center. The proposed Carneys Point port may require upgrading the intersection of U.S. Route 130 and N.J. Route 140, along with upgraded roadway access to the facility, in order to encourage trucks to use Exit 2 of

I-295. In the long-term, a grade separated intersection at U.S. Route 130 and N.J. Route 140 or additional access points to the port may be warranted.

Constraints:

All proposed facilities and related infrastructure improvements will need to undergo feasibility analysis and planning processes, including environmental impact assessment. Construction of the facilities will require substantial capital investment.

Issue 7: Access Improvement Needs for Port of Salem

Issue:

The Port of Salem currently suffers from a lack of modern port infrastructure and the deteriorating Salem County Short Line railroad, which makes the port less attractive for shipping activity.

Need:

Improving the port and rail infrastructure would improve the efficiency of existing operations and serve as a potential generator of additional economic development, rail traffic, and port activity.

Opportunity:

In 2009, Salem County announced that it had received federal funds to rehabilitate the line but that substantial additional funding would be necessary. The federal TIGER grant application included $21 million for upgrading the rail line, but it was not selected for award. Salem County resubmitted the grant application in Round 2, but again was not selected. SJPC has allocated $13 million for constructing a new 800-foot wharf and constructing a 3,000-foot siding / rail yard, which will facilitate efficient switching and assembling of trains at the port. Also, the NJDOT State Rail Plan includes funding for upgrading the Conrail rail line that extends from Swedesboro to Woodbury.

The Port of Salem was identified as a potential marine highway hub in the recently recognized New Jersey Marine Highway Platform. Because of its expansion potential and separation from international terminals, Salem was identified as an excellent location for domestic shipping services.

Constraint:

The availability of funding for the proposed projects will be a key factor.

Issue 8: Potential Expansion of Delaware Bay Oyster Industry

Issue

An effort to restore oyster harvesting along the Delaware Bay began in the late 1990s and the U.S. Army Corps of Engineers is now overseeing a restoration program, which has led to substantial increases in the bay's oyster population.

Need:

The Bayshore area is one of the most economically-disadvantaged areas in the state. A resurgence in the oyster industry and related economic activity could generate substantial economic growth in the region.

Opportunity:

Cumberland County has designated Port Norris as part of its federal empowerment zone. Possible investment targets include food processing, ecotourism, crab trap manufacture, restoring historic shipping sheds, and revitalizing other related industries. County officials have also noted similar redevelopment opportunities for the communities of Leesburg and Dorchester, across the Maurice River from Port Norris.

Constraint:

The Bayshore area has limited highway and rail access. The closest highway is N.J. Route 55. Winchester & Western Railroad services extend to about four miles from Port Norris and to Dorchester. Also, it will be necessary to integrate further transportation development efforts in this area with environmental and preservation objectives.

Issue 9: Size of Navigation Channel at Middle Thorofare Bridge

Issue:
The narrow width of the navigation channel (50 feet) of Middle Thorofare at Ocean Drive restricts the size of fishing boats and thus may be limiting the potential growth of the Cape May fishing industry. Currently, the Middle Thorofare Bridge provides a 23-foot underclearance with the span in the closed position, requiring the movable bridge to open approximately 7,500 times a year.

Need:

The existing bridge is structurally deficient. Replacing the bridge to increase vertical and horizontal clearance not only would benefit the fishing industry, but also would improve roadway safety, reduce congestion due to bridge openings, and provide a reliable evacuation route for coastal residents.

Opportunity:

The Cape May County Bridge Commission and the County of Cape May have developed a concept for a high-level fixed span replacement to the Middle Thorofare Bridge. The concept is for a main span having 116-foot underclearance and a minimum navigational channel of 300 feet wide. The County has incorporated this improvement into a larger proposed project for Ocean Drive, and the NJDOT 2010 Capital Program includes $1.5 million for preliminary design.

Constraint:

The proposed improvement project is expensive (estimated $232 million), and it requires extensive planning and design. The NJDOT 10-Year Capital Plan does not include any additional funding beyond that for the preliminary design. The County is seeking federal funds to support design and construction.

Issue 10 – Uncertain Future of the Clam Industry

Issue:

Several issues within the clam industry may limit future commercial fishing based in Atlantic City. One issue is that the size of the sea clam fleet has seen an active decline due to a federal law that establishes quotas and allows consolidating and transferring individual quotas. More recently, flat prices, rising costs, and a decline in productivity have hurt the industry. Some discussion to date suggests that warmer waters have led to reduced clam populations along the New Jersey coast and forced fishermen to go farther in search of the largest beds of surf clams and ocean quahogs.

Need:

The decreasing productivity of clam fishing suggests the need to consider other economic and employment opportunities.

Opportunity:

Aquaculture provides a possible alternative for open sea fishing. Hard clams are the leading product of New Jersey's aquaculture industry, and they account for over 25% of the total clam harvest.

Constraint:

Other states have been more active in supporting and promoting aquaculture opportunities. Regulatory support and increased funding for technology, marketing, etc., could help to increase hard clam aquaculture in New Jersey.

Issue 11 – Delaware River Main Stem & Channel Deepening

Issue:

The Corps' history in dredging the Delaware River shipping channel dates back to the late 1800s, when the controlling depth of the Delaware River was 18 feet. As ships with deeper drafts evolved, periodic modifications of the channel took place over the years, eventually reaching the current 40-foot depth during World War II. For more than 60 years the Corps' Philadelphia District has maintained the Delaware River at this authorized depth, thus allowing the safe transit of commercial and recreational vessels from Philadelphia to the Delaware Bay.

In 1983, Congress directed the Philadelphia District to begin a study to determine if it was in the federal interest to modify the existing 40-foot Delaware River main shipping channel. In 1987, the study progressed to the feasibility phase where extensive environmental and economic studies were performed. The 1992 final feasibility report recommended to Congress that the channel be deepened to 45-feet and that doing so was environmentally sound, economically justified, and technically feasible. Congress supported that recommendation by authorizing the deepening project for construction in 1992.

During the subsequent Preconstruction Engineering and Design (PED) phase, the Corps completed an economic re-evaluation and spent over $7 million in additional environmental analyses, consulting national experts and conducting studies with the

close cooperation of the appropriate federal and state environmental agencies. The resulting Supplemental Environmental Impact Statement was circulated for both resource agency and public review in January 1997. After an extended comment period, the document was finalized in July 1997 and once again circulated for public comment in the same year. In May 1998, the Corps held a public hearing, and the transcript from that hearing is a part of the official record for this permit application. In December 1998, the Record of Decision was signed, signifying completion of the National Environmental Policy Act, or NEPA, process.

Figure 3-14: Delaware River main channel 45' deepening project

The Delaware River Main Stem and Channel Deepening will cost approximately $311 million dollars -- with about two-thirds funded by the federal government and the remainder by the Philadelphia Regional Port Authority, the non-federal sponsor. The project is designed to deepen the existing main shipping channel of the Delaware River from 40 feet to 45 feet from Philadelphia Harbor, Pennsylvania and Beckett Street Terminal, Camden, New Jersey to the mouth of the Delaware Bay (Figure 3-14).

Although this is a total distance of 102.5 miles, 33 miles (mostly in the Delaware Bay) are already at 45 feet or deeper. The project follows the existing 40-foot federal main shipping channel alignment. The existing authorized widths in the straight portions of the channel, ranging from 400 feet in Philadelphia to 1,000 feet in the bay, will not change. However, 12 of the existing 16 bends in the channel will be widened for safer navigation. In addition, the Marcus Hook Anchorage will be deepened to 45 feet.

To deepen the channel, approximately 16.0 million cubic yards of material must be removed during initial construction of the project. Of that amount, approximately 11.9 million cubic yards of sand, silt, and clay will be taken from the river portion of the project -- the area from Philadelphia/Camden to the Upper Delaware Bay. About 77,000 cubic yards of rock will also be removed from the Marcus Hook area of the river.

The material to be dredged from the river portion is slated for placement at existing federal upland Confined Disposal Facilities, or CDFs, in New Jersey and Delaware. While these sites will provide more than adequate long-term capacity, material placed there will also be available for beneficial uses in other locations. For example, several years ago about 150,000 cubic yards of dredged material from the Corps' National Park, New Jersey CDF were donated to West Deptford Township for use in its River Winds riverfront development project. The Philadelphia Regional Port Authority funded the cost of transporting the material to the site.

Annual maintenance dredging for the entire project will increase by approximately 860,000 cubic yards per year to approximately 4.3 million cubic yards. The current 40-foot channel requires approximately 3.5 million cubic yards in annual maintenance dredging.

The bulk of dredging will be performed by hopper and hydraulic pipeline dredges with a bucket dredge used for rock removal in the Marcus Hook area.

To ensure that construction of the project does not impact the natural resources of the region, the Corps has set up pre-construction monitoring to establish baseline information that the Corps, DNREC, and other state and federal agencies will use to track the ongoing effects of the project. Data is being collected on oysters, horseshoe crabs, shorebirds, blue crabs, and sand builder worms. The monitoring will continue during and after project construction.

Need:

The project is designed to deepen the existing main shipping channel of the Delaware River from 40 feet to 45 feet from Philadelphia Harbor, Pennsylvania and Beckett Street Terminal, Camden, New Jersey to the mouth of the Delaware Bay.

Opportunities:

The Main Stem and Channeling deepening project will support deep-draft ships to access the Pennsylvania and New Jersey ports along the Delaware River, providing opportunities for more cost competitive port operations relative to neighboring ports in the northeast.

Delaware River channel deepening is not required to support exiting New Jersey port operations. However, deepening the channel will be required to support expansion of port operations in South Jersey, especially any expansions into international export shipping.

Additional expansion opportunities exist for southern New Jersey ports along the Delaware River from a number of regional and federal initiatives. On a regional level, the DVRPC is working toward the development of a southern New Jersey Port

Inland Distribution Network or SJ-PIDN. The primary objective of the SJ-PIDN initiative is to enhance southern New Jersey's economic development initiatives, while providing a cost-effective alternative to intermodal trucking between southern and northern New Jersey ports (from over-the-road transportation to alternative modes such as short-sea and short-rail). It is anticipated that achieving this objective will result in reduced impacts of trucking and congestion in northern New Jersey, as well as along the I-95 corridor that connects northern and southern New Jersey.

On a federal level, a new federal initiative is the National Export Initiative (NEI), which is a single, comprehensive strategy to promote American exports by marshalling the resources of the United States government behind American businesses that sell their goods and services abroad. Through the NEI, the United States will take steps to open up new markets, doubling exports over the next five years. This initiative presents an opportunity for southern New Jersey to become a freight platform for exported goods. This would complement the largely import function of the northern and Philadelphia ports, without introducing competition between these ports. Additionally, southern NJ has substantial land; a necessary component of a successful export platform.

With its ample natural resources, diversified legacy industries, and emerging new industries, along with support from these new initiatives and complemented by this study's recommended improvements to maritime terminals and deepened main stem and shipping channel on the Delaware River, southern New Jersey could be poised for significant economic growth.

Constraint:

The Delaware River Main Stem and Channel Deepening will cost approximately $311 million dollars -- with about two-thirds funded by the federal government and the remainder by the Philadelphia Regional Port Authority, the non-federal sponsor.

To deepen the channel, approximately 16.0 million cubic yards of material must be removed during initial construction of the project.

The material to be dredged from the river portion is slated for placement at existing federal upland Confined Disposal Facilities, or CDFs, in New Jersey and Delaware.

Annual maintenance dredging for the entire project will increase by approximately 860,000 cubic yards per year to approximately 4.3 million cubic yards. The current 40-foot channel requires approximately 3.5 million cubic yards in annual maintenance dredging.

3.2.4. Distribution System Elements

Overview

Distribution centers and warehouses are structures primarily used for the receipt, temporary storage, possible modification/customization, and/or distribution of goods en route from production sites to locations where they will be consumed. Warehouses and distribution centers are often sites where value is added to the products moving through them. Warehousing and distribution center operations vary considerably in size, ranging from just a few thousand square

feet to buildings that are over one million square feet. Distribution centers and warehouses may handle local distribution to an area, distribute to a multi-state area, distribute goods throughout North America, and/or export products. These facilities may receive products from domestic and overseas sources.

Southern New Jersey has many industrial and business parks that include warehouses and distribution centers. Most of these distribution centers are located in Burlington, Camden, Gloucester, and Cumberland Counties. These distribution centers largely are concentrated along the U.S. Route 130/I-295/NJ Turnpike corridor, which attracts businesses because of its central location and access to Philadelphia, northern New Jersey, and points south and west. In addition, employment centers along the U.S. Route 130 corridor between Bordentown and Camden benefit from potential workforce access via the RiverLINE light rail system, NJ TRANSIT bus service, and Burlington County shuttle service.

Recent history suggests that distribution centers are growing in southern New Jersey largely due to lower land costs than in northern New Jersey and the desire to locate in accessible locations away from congested areas such as NJ Turnpike Exit 8A.

Additionally, a review of the locations of existing and planned distribution centers, along with input from county economic development interests, indicates that some businesses and developers are now considering locating in other corridors, such as the N.J. Route 73, 42, and 55 corridors.

These patterns and trends all have implications for assessing the current and future access and connectivity needs of major distribution centers.

Current Conditions

The southern New Jersey region has over 25 major industrial / business parks with over 200,000 square feet of built space. The two largest centers, the Haines Center and the Pureland Industrial Complex, anchor either end of the U.S. Route 130/I-295/NJ Turnpike corridor in southern New Jersey. Other major centers are located in Burlington, Camden, and Gloucester Counties. In addition, Cumberland County has several distribution centers in Vineland, Millville, and Bridgeton. The following is a table of the major centers by county:

Table 3-7: Southern New Jersey distribution centers

Distribution/Business or Industrial Park	Town	Sq Feet of Space	Primary Access
Burlington			
Central Crossings Business Park	Bordentown Twp.	262,000	NJ Turnpike, Exit 7, I-295 Exit 56 (partial)
Interchange 7 Business Park	Bordentown Twp.	225,000	NJ Turnpike, Exit 7, I-295 Exit 56 (partial)
Haines Industrial Center	Burlington Twp, Florence	4,000,000	NJ Turnpike / PA Turnpike interchange
Cross Roads Business Park	Burlington Twp, Florence	600,000	I-295, Exit 47
Westampton Industrial Park	Westampton	1,500,000	I-295, Exit 45
Highland Business Park	Westampton	570,000	I-295, Exit 45
Burlington County Business Center	Hainesport / Lumberton	1,000,000	N.J. Route 38, CR 541
Millside Industrial Park	Delran	413,000	Near U.S. Route 130
Cindel / River Road Industrial Area	Cinnaminson / Delran	2,000,000	Near U.S. Route 130
Moorestown Industrial Park	Moorestown	400,000	Local roads (4 mi. to I-295, Exit 36)
Camden			
Pennsauken Industrial Park	Pennsauken	2,700,000	Near U.S. Route 130, N.J. Rt 73, N.J. Rt 90
Twinbridge Center	Pennsauken	1,400,000	Near U.S. Route 130, N.J. Rt 73
Airport Industrial Park	Pennsauken	2,100,000	Near U.S. Route 130, N.J. Rt 38, N.J. Rt 70
Cherry Hill Industrial Park	Cherry Hill	1,500,000	I-295, Exit 34
Korman's Interstate Business Park	Bellmawr	2,800,000	NJ Turnpike, Exit 3; I-295, Exit 1
Freeway Corporate Center	Gloucester	380,000	N.J. Route 42, Exit 7
Gloucester			
I-295 Industrial Center	Westville, Deptford	378,000	I-295, Exit 25
Westgrove Industrial Park	Westville	250,000	I-295, Exit 25
MidAtlantic Corporate Center	Thorofare	2,800,000	I-295, Exit 20
Forest Park	W Deptford	2,400,000	I-295, Exit 19
Commodore 295 Business Park	Swedesboro	1,600,000	I-295, Exit 11
Pureland Industrial Complex	Logan	16,200,000	I-295, Exit 10
LogistiCenter at Logan	Logan	3,500,000	I-295, Exit 10
Route 55 Industrial Center	Glassboro	370,000	N.J. Route 55, Exit 48
Salem			
Gateway Business Park	Oldmans	2,800,000	I-295, Exit 7
Cumberland			
Vineland industrial parks	Vineland	2,000,000	N.J. Route 55, Exit 35
Bridgeton industrial parks	Bridgeton	750,000	N.J. Route 49, N.J. Route 77
Millville Airport Industrial Park	Millville	600,000	Local roads (4 mi. to N.J. Route 55, Exit 4)
South Millville industrial parks	Millville	2,500,000	N.J. Route 55, Exit 4

The combined total of all these centers is over 58 million square feet of space. It is important to recognize that not all this space currently is occupied. On the other hand, the total does not include smaller centers or warehouses and distribution centers of individual businesses such as Burlington Coat Factory or A.C. Moore.

Access and Connectivity

This section provides a summary of the overall current access and connectivity of the major distribution centers.

Available Modes
The southern New Jersey distribution centers are largely oriented to major highways, including the New Jersey Turnpike, I-295, U.S. Route 130, and N.J. Route 55.

Rail freight lines serve some distribution centers, including the Pureland Industrial Complex (Conrail and SMS) and the South Millville Industrial Park (Winchester & Western and Conrail).

A few distribution centers are located near general aviation facilities, for example, the Millville Airport Industrial Park; however, there is no air freight activity at these general aviation facilities.

Southern New Jersey Connections
In addition to the New Jersey Turnpike, I-295, U.S. Route 130, and N.J. Route 55, other key roads that provide connections within the southern New Jersey region include U.S. Routes 40, 206, and 322, and N.J. Routes 70 and 73. In addition, many distribution centers are located along local or county roads that connect with arterials or state highways.

New Jersey Connections
The main highways that provide connections between southern New Jersey and northern New Jersey are the New Jersey Turnpike and the Garden State Parkway.

The main current rail freight connection between southern New Jersey and northern New Jersey is through Pavonia Yard in Camden.

Interstate Connections
The key connections for goods moving in and out of the region to other states (particularly Pennsylvania and Delaware) are the bridge crossings of the Delaware River, which include the Delaware Memorial Bridge, Commodore Barry Bridge, and the various bridges connecting with Philadelphia.

International Connections
The Port of Camden and the Port of Newark / Elizabeth in northern New Jersey provide potential international connections for southern New Jersey distribution centers. In addition, the Philadelphia International Airport and Atlantic City International Airport provide for possible air freight connections.

Issues, Needs, Opportunities, and Constraints

Issue 1: Roadway Access Limitations

Issue:

As Section 2.1 describes, the region's roadway system has various issues that somewhat limit its ability to serve distribution centers efficiently. For example, the interchange of I-295, I-676, and N.J. Route 42 is one of the 10 most congested locations in the state. Also, some distribution centers have difficult "last mile / first mile" access between main highways and local roads serving their sites.

Need:

An efficient roadway network is important to expedite truck flows.

Opportunities:

NJDOT is advancing projects to address congestion at the I-295 / I-676 / N.J. Route 42 interchange.

One proposed "last mile / first mile" project is to expand Exit 10 on I-295, including improving Center Square Road, which serves the Pureland and LogistiCenter distribution centers.

Constraint:

Funding availability is a key concern in implementing these projects.

Issue 2: Roadway Needs in Cumberland County

Issue:

Cumberland County economic development officials have stated the need for improved roadway travel. Such improvement could reduce travel time for products to and from Cumberland County and make this area more attractive for future development, including the development of distribution centers.

Need:

The main improvement needs are along the N.J. Route 55, U.S. Route 40, and U.S. Route 322 corridors.

Opportunities:

Planning efforts have identified the following potential improvements for the N.J. Route 55 corridor:

- Extend the four-lane freeway from its current terminus at N.J. Route 47 near Millville to Cape May County.
- Add a new interchange in the area of the South Millville Industrial Park
- Construct a new connecting road between Bridgeton and N.J. Route 55
- Improve the interchange of N.J. Route 55 & N.J. Route 49 (Exit 24), including the intersection of N.J. Route 49 & Wade Boulevard
- Improve the interchange of N.J. Route 55 & U.S. Route 40

Regarding U.S. Routes 40 and 322, the possibility of a new east-west highway, roughly following the alignment of either U.S. Route 40 or U.S. Route 322, has been considered for many years. Recently, NJDOT has conducted studies of alternatives for improving traffic flow along U.S. Route 322 and it is planning some improvements, including a bypass around Mullica Hill and road widening near the interchange with N.J. Route 55.

Constraint:

Previous feasibility assessments for extending N.J. Route 55 have encountered some opposition based upon potential environmental impacts. Similarly, for U.S. Routes 40 and 322, not all local officials and residents may support improvements, instead preferring the current two-lane alignments as a means of attempting to preserve the rural landscape of the surrounding area.

Issue 3: Rail Freight System Constraints

Issue:

As Section 2.2 describes, the current rail freight system has various bottlenecks, such as the Delair Bridge and Pavonia Yard, and other infrastructure deficiencies, which limit the potential effectiveness of rail freight in meeting the region's goods movement needs, including those at distribution centers.

Needs:

Removing current bottlenecks and otherwise improving the condition and capacity of the rail freight system would increase shipping options in the region. Rail freight improvements could lead to increased use of rail freight; reduced truck traffic, pollution, and congestion; improved road and rail safety; and increased economic development.

Opportunities:

The following improvements could expand rail freight opportunities for distribution centers located along or near rail lines in the region:

- Improve efficiency and / or expand capacity of operations at Pavonia Yard
- Improve the Delair Bridge
- Double-track the Bordentown Secondary, which would increase rail freight capacity and efficiency for distribution centers along this line in Burlington and Camden Counties, particularly including the Haines Center.

Also, restoring rail freight service along the Cape May Seashore Line between Woodbine and Cape May would increase rail shipping opportunities, particularly to and from the Woodbine Airport Industrial Park (see next issue).

Constraints:

As noted in section 2.3.3.3, funding availability may be a constraint, and the prospect of increased rail freight service should be coordinated with existing and potential future rail passenger service.

Issue 4: Limited Air Freight Capacity

Issue:

The region currently has limited ability to move goods via air.

Need:

Increasing air freight capability requires improving aviation infrastructure, as well as connecting ground services. These improvements could help to expand markets for goods and attract related business activity to nearby locations.

Opportunity:

Some airports provide an opportunity to increase or initiate air freight service to complement nearby distribution centers. One such opportunity is the Millville Airport, operated by the Delaware Regional Bay Authority (DRBA). The airport has an adjacent industrial park and the city has been promoting development in this area, which is part of the designations for Foreign Trade Zone (FTZ), federal Empowerment Zone, and Urban Enterprise Zone (UEZ). DRBA recently completed an updated business plan for the airport.

Another air freight development possibility is at the Woodbine Municipal Airport. Woodbine has a 50-acre business park at the airport and has been conducting studies for expanding development in the area. As of early 2010, the borough and the Woodbine Port Authority were working on a memorandum of agreement for expanding the airport and business park.

Constraints

Airport runway length may be a constraint to developing air freight capacity. Millville's longest runway is 6,000 feet and Woodbine's longest is 3,300 feet. In addition to physical improvements, an air freight carrier would need to be attracted to serve these airports. Also, the airports would need good roadway and / or rail connections. A 2002 study assessed roadway improvement alternatives for the area around Millville Airport, and it also identified two possible rail connections. The Woodbine airport and business park are located adjacent to the CMSL, which currently provides a rail freight connection to and from points north.

Issue 5: Potential for Distribution Center Expansion

Issue:

Some existing distribution centers have available space to accommodate additional businesses. In addition, new development and redevelopment efforts may increase the amount of economic activity and available space.

Need:

Increases in distribution center business, either by filling existing space or occupying new space, would increase the demands on the surrounding transportation network.

Opportunity:

The following are some examples of potential new distribution centers:

- Gloucester Township in Camden County is actively pursuing industrial development and redevelopment opportunities in areas near N.J. Route 42. One area has five properties with about 300 acres along College Drive, and other areas have about 100 acres and 500 acres.

- The Cumberland Economic Development Corporation is promoting a new regional business park that would be located north of Bridgeton in Upper Deerfield along N.J. Route 77 and a spur of the Winchester & Western Railroad.

Constraints:

As with existing distribution centers, new centers will require good road or rail access. In Gloucester Township, work is underway on a new interchange for N.J. Route 42 at College Drive, which should help development prospects in this area.

3.2.5. Summary of Issues and Opportunities

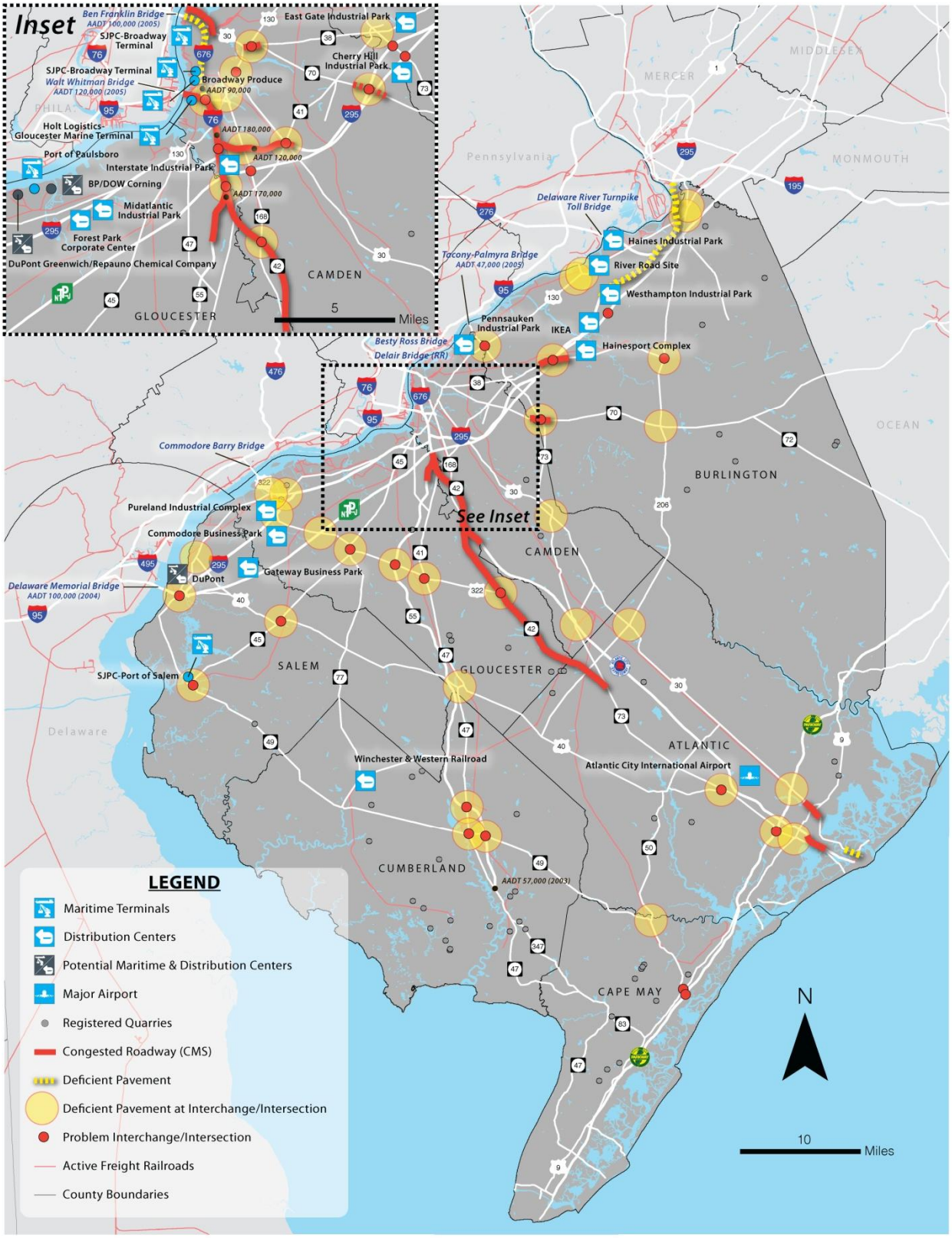
In summary, this chapter has identified many issues and opportunities for improving the region's goods movement system by identifying possible investments to enhance the efficiency of existing freight operations and to enhance freight-related economic development opportunities. In general, the main categories of issues and opportunities relate to infrastructure conditions, access and connectivity among and between modes, and possible capacity expansion needs. The following summary describes the main issues and opportunities for each mode.

The analysis resulted in identifying key focus areas to maintain the long term viability, growth, and economic strength of the southern New Jersey freight system. These include the "last mile/first mile" connections between port areas and access to the interstate system; buffering residential areas from heavy truck activity; key rail system gaps/opportunities; and critical interchanges/links in need of infrastructure improvements.

Figure 3-15 on the following page depicts a summary of the key infrastructure (maritime terminals, distribution centers, airports, rail, bridges, and roadways) resources (including quarries), as well as key issues (deficient pavement, traffic congestion, and problem interchanges and intersections), as identified in this chapter.

Following the map is a summary of issues and opportunities under the headings of: roadways, rail freight, ports, distribution centers, and air freight.

Figure 3-15: Southern New Jersey freight infrastructure



Roadways

The roadway system is the main means for goods movement in southern New Jersey. Concerns about the roadway system include congestion along major corridors and at key interchanges, inadequate connections between state and local roads, and the possible need for improved highway capacity in certain areas. The following is a summary of more specific issues and opportunities for addressing them.

Throughput along the I-295 / NJ Turnpike Corridor

This corridor has been experiencing increasing congestion, as well as deteriorating pavement conditions. Two key bottleneck locations are at the Delaware Memorial Bridge and the interchange of I-295, I-676, and N.J. Route 42. Also, occasional lengthy delays along the NJ Turnpike detract from the efficiency and desirability of this road as a preferred route.

NJDOT has been advancing two major projects to improve the connections in the area of I-295, I-676, and N.J. Route 42. The NJ Turnpike Authority has initiated work on widening the Turnpike to 12 lanes between Exits 6 and 9, including major modifications at four interchanges. The Delaware River and Bay Authority currently is working on a project of geometric improvements on the Delaware approach to the Delaware Memorial Bridge to improve future traffic flow.

"Last mile/First mile" Access Issues

While the major state highways provide relatively good access through the region, other concerns relate to the efficiency of access via local roads between state highways and business parks, distribution centers, ports, etc. For example, Gloucester County would like to expand the interchange of I-295 Exit 10 and improve Center Square Road in order to improve access to and from the nearby Pureland Industrial Complex.

One example of a completed project of this type is NJDOT constructing a short connector road to provide more direct access between U.S. Route 206 and business parks/distribution centers and truck stops in Bordentown Township.

Possible Capacity Enhancements

Cumberland County stakeholders have identified the possible need for roadway capacity enhancements, along the U.S. Route 55, U.S. Route 40, and U.S. Route 322 corridors serving their county.

NJDOT has announced improvements at N.J. Route 55 and N.J. Route 49 (Exit 24). Other possible improvements are a new interchange in the area of the South Millville Industrial Park, a new connecting road between Bridgeton and N.J. Route 55, and an improved intersection of N.J. Route 55 and N.J. Route 47. In addition, there remains interest in extending the N.J. Route 55 freeway from its current terminus at N.J. Route 47 to Cape May County, and the South Jersey Transportation Authority (SJTA) recently announced that it is assuming a new role in leading further study of this possible extension.

Regarding east-west access, the possibility of a new east-west highway, roughly following the alignment of either U.S. Route 322 or U.S. Route 40, has been considered for many years.

Rail Freight

The region's rail freight system presents several issues and opportunities for improving and expanding the system in order to increase the viability of rail as a goods movement alternative.

System Bottlenecks

Various points in the system may be bottlenecks that constrain the capacity of the rail freight system. These locations include the Delair Bridge, Pavonia Yard, and Winslow Junction.

Infrastructure Conditions

Available information indicates that much, if not most, of the rail system infrastructure could use upgrading to current track standards (286K) and to improve clearances to allow for double-stack operations. Additionally, the Delair Bridge suffers from poor structural conditions. The New Jersey State Rail Plan provides funding for improvements, but it appears that current needs outweigh available resources.

Potential Capacity Improvements

Work on this study has identified several possible opportunities to expand the capacity of the rail freight system. These opportunities include double-tracking the Bordentown Secondary for its entire length and restoring service along several lines.

Ports

Given forecasts for a large increase in future marine cargo demand, the region has a great opportunity to capitalize upon this demand through improving and expanding its port facilities.

Infrastructure Conditions

Existing infrastructure conditions are a particular concern at the Port of Camden, which dates back to the early 1900s. The SJPC has identified several improvement projects at the Port of Camden, including the following:

- Rebuild wharf at Berth #1 of Beckett Street Terminal
- Rebuild Pier #1 at Broadway Terminal
- Rehabilitate Covered Ways and adjoining H-Slip at Broadway Terminal

Access and Connectivity

Landside connections are vital to moving goods to and from port facilities. The draft SNJMWP has proposed roadway improvement projects for the Camden / Gloucester port facilities. These projects include a new port district access roadway, a new local connector roadway, and a new I-676 interchange / ramp directly connecting to the terminals. In addition, SJPC has identified projects for improving rail access to its port facilities.

The proposed Delaware River Channel Deepening would expand opportunities for larger ships to access river ports in the region. While a deeper channel would attract more and varied businesses, and allow existing businesses to expand, current operations could be maintained without the need for the channel deepening. From a New Jersey-centric perspective, channel deepening opens new opportunities and supports expansion efforts, rather than helping to maintain and improve existing operations and goods movement.

The Port of Salem could benefit from planned improvements to the Salem County Short Line railroad, which is in poor condition. The County just announced that it had received federal funds to rehabilitate this line, but substantial additional funding will be necessary. Also, possible redevelopment of the old port areas along the Delaware Bayshore in Cumberland County may require improved road and rail access to make development feasible.

Potential Capacity Expansion Needs

The draft SNJWMP study estimated that shipping demand along the Delaware River would more than double by 2030, which would require a major increase in existing marine terminal capacity. Alternatives for increasing capacity are to improve operations of current facilities, expand current facilities, or build new facilities.

The draft SNJWMP identified three possible new general cargo port facilities along the Delaware River. Design for one facility, a new Port of Paulsboro, is underway, while concept plans are in place for a port at the old DuPont property in Greenwich and a port at the DuPont property in Penns Grove. Each of these facilities would require supporting landside access improvements.

The New Jersey Marine Highway Initiative designates Salem and Camden as potential hubs in a newly envisioned domestic and international feeder services along the eastern seaboard. New Jersey could benefit greatly from viable marine highway services through increased employment opportunities as well as reduced highway congestion. It is far easier and cheaper to build and expand marine terminals than it is to increase the capacity on I-95.

Distribution Centers

The region has many large industrial / business parks that are major goods distribution centers. The largest concentration of these centers is along the I-295 / NJ Turnpike corridor. Good regional and local roadway access and / or rail access is integral to the efficiency and success of such distribution centers. Some current centers may experience some constraints due to local access issues. Proposals for new distribution centers could benefit from investment in local access improvements.

The development of DC properties is subject to both local and statewide land use and regulatory requirement; include both zoning at the local level and statewide considerations such as SDRP (State Development and Redevelopment Plan) and COAH (Coalition on Affordable Housing). COAH, and its regulations, have been the subject of recent legal and legislative action. As the reform of COAH proceeds, the impact to DC sites and the freight transport and logistics industry will need to be evaluated.

Air Freight

Aviation facilities provide economic development opportunities through expanded or new air cargo operations, which would complement nearby distribution centers. Constraints at South Jersey airports include inadequate runway length and insufficient local road or rail connections. And although the Atlantic City, Millville, and Woodbine Airports are actively promoting business development opportunities, the vast majority of air fright moves through the region's largest airports - including Philadelphia, Newark, and Kennedy Airports - and these remain the focus of regional air freight planning efforts.

CHAPTER FOUR: IMPLEMENTATION BLUEPRINT

4.1. VISION STATEMENT AND STUDY PURPOSE AND NEED

The vision of the South Jersey Freight Transportation and Economic Development Assessment study is to promote sustainable economic and community development throughout the state of New Jersey, by leveraging southern New Jersey's assets and natural resources with strategic investments in freight and transportation infrastructure that support the operation and growth of the region's critical industries. These efforts should support livable, sustainable communities by providing good jobs, improving transportation, and ensuring market access for the region's natural resources.

This vision can be realized through continued development of the region's freight industry. Strategic and targeted improvements should leverage existing strengths of the region, such as:

- Enhancing the region's access to key national and international transportation corridors and facilities by providing multimodal connections between freight-related businesses and transportation infrastructure. The region's critical infrastructure elements to target include:
    - Regional and interstate highways, especially I-295, the New Jersey Turnpike, and the Delaware River bridge crossings
    - The local, regional, and national freight rail network
    - The Atlantic Ocean marine highway network via the Delaware River and Bay and its vital port facilities at Camden, Gloucester, Paulsboro, and Salem
- Using readily available and affordable land adjacent to Interstate trucking routes to support warehousing and distribution.
- Leveraging the region's available, affordable, and skilled labor pool.
- Promoting key industries derived from the region's natural resources, including agriculture and seafood production and processing, glass production, and sand/aggregate.
- Exploiting the region's access to some of the largest consumer markets and population centers in the nation.
- Streamlining the regulatory process to remove impediments to the growth of freight and logistics industries.

The goal builds upon the overall "One-Region-One Port" strategy through strategic investments in critical needs. Southern New Jersey can best contribute to the attainment of this goal by focusing on its strengths, resources, and assets in ways that complement regional facilities in Philadelphia and northern New Jersey. The One-State-One Port concept envisions New Jersey as a single, unified freight and distribution platform serving North America and the World.

4.2. INVESTMENT BLUEPRINT

An enhanced transportation infrastructure will increase the economic development potential of the southern New Jersey region. Vital industries in the region—including petroleum and chemicals, aggregates, glass, food processing, seafood, and ports that facilitate international trade and commerce in southern New Jersey and greater Philadelphia—could benefit or even expand as a result of targeted investments in "last mile/first mile" roadway connections, railway improvements, bridge reconstruction and/or rehabilitation, and new highway access and connections that facilitate faster travel times, ease of access, and above all else, allow southern New Jersey to remain economically competitive with other regions nationally and globally.

The study team has developed the three-stage investment blueprint to maintain, improve, and expand freight operations in South Jersey.

Stage One Maintains the existing core industries and strengths. These minimal improvements are recommended to maintain the region's existing strengths, industrial and infrastructure capacity, access to markets, and competitive advantages compared to neighboring states and regions.

Stage Two Improves upon the existing core of regional industries and strengths. Targeted improvements in infrastructure and supporting policies leverage the region's assets to improve access to markets, increase efficiency of operations and cost competitiveness, and open the region's products to new markets.

Stage Three Expands beyond the traditional core strengths, resources, and industries of the region. Investments are proposed to develop new products, services, supply chain industries, and modes of transport and delivery, by seeking opportunities for synergies among the region's industries, transportation infrastructure, freight modes, natural resources, and locational advantages.

CHAPTER 5: TRANSPORTATION SYSTEM IMPROVEMENTS

5.1. INTRODUCTION

Chapter Five builds upon the work conducted for Chapter Three, on the definition of issues and the identification of opportunities and constraints, to present an overview and matrix of proposed transportation system improvements.

The purpose of this chapter is to identify transportation system improvements that support economic development opportunities for the southern New Jersey region and focus on goods-oriented industries, which involve distributing goods, adding value to goods, or producing goods. The region has several such industrial sectors, which have been integral to the regional economy over many years. These sectors include warehousing and distribution, ports, petroleum and chemicals, aggregates, glass, agriculture, food products, and seafood. These industries have various needs for improvements that would enhance the distribution of raw materials and / or products. The following sections summarize the economic development opportunities and potential transportation system improvements that would support them.

5.2. ECONOMIC DEVELOPMENT ELEMENTS

5.2.1. Warehousing and Distribution

The southern New Jersey region has many industrial and business parks that include warehouses and distribution centers. These centers largely are concentrated along the I-295 / New Jersey Turnpike corridor, which businesses market for its central location and access to Philadelphia, northern New Jersey, New York City, and points south and west. The region has the opportunity to increase the efficiency of goods movement for existing warehouse and distribution businesses, and to attract new businesses.

This sector would benefit from reducing regional roadway bottlenecks, improving "last mile/first mile" roadway connections to warehouse and distribution centers, and enhancing rail freight service.

5.2.2. Ports

Along the Delaware River, southern New Jersey has three marine ports: the Port of Camden, the Gloucester Marine Terminal, and the Port of Salem. Additionally, a fourth marine terminal is under development at Paulsboro. Analysis has shown the potential for increasing the volume of cargo moving through these ports, as well as potential new ports at Greenwich and Carney's Point.

Improving existing port infrastructure and inland transportation connections (by road and rail) would support increased marine shipping opportunities.

5.2.3. Petroleum and Chemicals

Also along the river, the region has various petroleum and chemical businesses. The recent closing of the Eagle Point oil refinery presents the opportunity for industrial re-use, such as for bio-fuel production.

Waterfront industrial development in southern New Jersey could benefit from improving the regional rail freight infrastructure.

5.2.4. Aggregates

Mining operations for aggregates (sand, gravel, and crushed rock) are located throughout the region. Cumberland County has a concentration of aggregate businesses, particularly for high-quality industrial sand. The industry has potential new markets for construction activities in Atlantic City and northern New Jersey and for use in shale gas extraction in Pennsylvania.

These opportunities for expanding aggregate markets require improved rail service, including upgrading existing rail lines and adding new connections. Aggregates are particularly suited to movement by barge as well.

5.2.5. Glass

The glass industry in southern New Jersey dates back to the late 1700's. Today, many of the nation's foremost glass factories operate in the region and Cumberland County contains a concentration of glass product manufacturers. The glass container industry has a potential expansion opportunity, partly due to environmental concerns over the use of plastic bottles.

The glass industry could benefit from various improvements to the regional road and rail network. In particular, improving the Salem County Short Line would improve the efficiency of shipping raw materials to Anchor Glass in Salem.

5.2.6. Agriculture

The region is a statewide leader in producing various types of agricultural commodities, including nursery products, produce, and grains. Growth opportunities may be present for different commodities, including soybeans.

Growth in markets for southern New Jersey agricultural products could benefit from enhanced rail freight service, as well as new barge service for grain. Also, air freight could provide additional marketing opportunities, especially for highly perishable items such as cut flowers.

5.2.7. Food Processing

As a companion to the agricultural industry, the region also has many food processing operations, with concentrations in Cumberland County and along the I-295 corridor. This sector could have growth opportunities related to growth in agriculture and in warehouse / distribution activity.

The same improvements that could benefit the warehouse / distribution industry, focusing upon regional roadways and "last mile/first mile" connections, also could benefit food processing businesses.

5.2.8. Seafood

The region has a major east-coast fishing port at Cape May and a smaller regional fishing port at Atlantic City, as well as a re-emerging oyster industry along the Delaware Bay. As a highly regulated (federal and state) industry, the seafood industry has some opportunities to increase its markets, especially by targeting niche markets, such as those from ethnic populations.

A major infrastructure improvement need is replacing the Middle Thorofare Bridge, which limits shipping movements at the Port of Cape May. This transportation improvement is funded for

preliminary design. In addition, the seafood industry could benefit from general improvements to north-south and east-west highway access in the southern part of the region.

5.3. IMPROVEMENTS NEEDED TO SUPPORT THE VISION

An enhanced transportation infrastructure will increase the economic development potential of the southern New Jersey region. Vital industries in the region—including petroleum and chemicals, aggregates, glass, food processing, seafood, and ports that facilitate international trade and commerce in southern New Jersey and greater Philadelphia—could benefit or even expand as a result of targeted investments in "last mile/first mile" roadway connections, railway improvements, bridge reconstruction and/or rehabilitation, and new highway access and connections that facilitate faster travel times, ease of access, and above all else, allow southern New Jersey to remain economically competitive with other regions nationally and globally.

Table 5-1 presents the recommended transportation improvements as they align with the and industry clusters and goal established through interactions with the study's Technical Advisory Committee; presentations at DVRPC; and dialogue sessions with the New Jersey Economic Development Authority, industry representatives, and county planning staff.

Table 5-2 presents planning level order of magnitude cost estimates for the construction of the recommended transportation improvements, where available.

Table 5-1: List of Current and Potential Economic Development "Clusters" and Corresponding Transportation Improvements

Cluster	Location / Businesses	Current Activity (est.)	Economic Potential	Mode and Transportation Issue		Transportation System Improvement		IMPLEMENTATION BLUEPRINT
				Mode	Issue	Planned	Proposed	
Distribution Centers	Business and industrial parks	Est. 50M sf in I-295 corridor >> est. 50,000 direct jobs	Improve efficiency, attract new firms	Highway Rail	"Last mile/ first mile" highway access Rail service		Improve access to interstate and state highways Improve rail freight capacity	Maintain, Improve
	• I-295 in Burlington Co. IKEA, et al.	Est. 3M+ sf		Highway	Access to I-295, general congestion	"Direct Connection" at I-295, I-676, and Rt. 42 NJTP widening	Complete "Missing Moves" at I-295/Rt. 38 (Exit 40) Improve I-295 Exit 52 (Columbus) Improve I-295 Exit 57 (Rt. 130/Bordentown)	Maintain, Improve
	• US 130 corridor in Burlington and Camden Haines Center, et al.	Est. 6M+ sf in Burlington, and 6M+ sf in Camden	Infill, redevelopment	Highway Rail	Access to I-295 Need for improved rail capacity and operations		 Double-track Bordentown Secondary, improve sidings	Improve
	• I-295 S Camden / Gloucester / Salem, Pureland, et al.	Est. 30M+ sf	Add higher-paying value-added jobs	Highway Rail	Need improved highway access and improvements to local/county roads	Improve I-295 Exit 10 and Center Square Road New switches, etc. at Pureland	Identify improvements at I-295 Exit 7 Examine possible new interchanges with NJTP Penns Grove Secondary improvements	Improve
	• Rt. 55 Cumberland, Vineland and Millville Industrial Parks	Est. 6M sf	Local officials hope to fill and expand parks	Highway	Need improved highway access	Improve Rt. 55 & Rt. 49 interchange (Exit 24) Improve Rt. 55 & Rt. 47 interchange (Exit 27)	Re-examine extension of Route 55 Improve east-west roads, US 40 and US 322	Improve
	• Rt. 42 Gloucester Twp	Est. 380k sf near Exit 7	Twp targets over 500 acres in College Drive area for development	Highway	Need direct highway access	I-295 "Direct Connection" I-295 "Missing Moves" New interchange at College Drive (underway)		Improve
Delaware River Ports	Camden, Gloucester, and Paulsboro	Port of Camden may support as many as 20,000 jobs Fruit is major import	Improve efficiency, increase volume of shipping and related commerce	Port Highway Rail	Condition of port infrastructure Access between ports and inland roads and rails	Rail siding access and new roadway	Local and regional rail improvements Improvements in SNJWMP, including possible new Ports	Maintain, Improve, and Expand
	• Port of Camden; surrounding businesses	Camden: 2.8 M tons / yr Mostly bulk and breakbulk, e.g., scrap, cement, steel, wood, fruit Direct employment = 1,100	Improve efficiency, promote related commerce	Port Infrastructure Rail Highway	Poor condition of port facilities Need to improve rail access Improve circulation and interstate access	 Improve access to dock at Broadway Terminal	Improve gate access/queuing lanes Rehab Beckett St berth #1, Rehab Broadway pier #1, Rehab covered ways and H-slip Recycle Metal Export Wharf New siding for proposed metal recycling wharf Provide dockside rail to Beckett St New port access road and local connector road I-676 interchange safety project New connector road/ramp to I-676 (direct to Port) Interchange improvements I-676/Morgan St	Improve and Expand
	• Gloucester City - Holt Marine Terminal	Gloucester: 4.1 M tons 2M sf warehouse space Leads US in refrigerated space (1M sf)	City exploring new port development at Southport					Maintain, Improve, and Expand
	• Paulsboro, new Paulsboro Marine Terminal		New port activity and related commerce	Rail Highway	Need improved rail	 Connecting road between	Dockside rail loop, yard improvements, line upgrade, grade crossing improvement	Improve and Expand

Cluster	Location / Businesses	Current Activity (est.)	Economic Potential	Mode and Transportation Issue		Transportation System Improvement		IMPLEMENTATION BLUEPRINT
				Mode	Issue	Planned	Proposed	
						port and I-295		
	• Port of Salem	170 k tons / yr (SJPC)	County would like to expand activity Potential for creating new businesses	Highway Port Rail	Rt. 49 between I-295 & Port Limited port facilities Poor condition of rail line		Improvements to Rt. 49 New 800' wharf Rehabilitate the rail lines (Salem Secondary, Salem Short Line) Extend line to wharf, new linear siding / yard	Improve and Expand
	• Proposed ports: Greenwich and Carneys Pt		New port activity and related commerce	Rail Highway	Need enhanced service Local traffic impacts		Upgrade sidings and on-site facilities New connecting roads – I-295 and Port of Greenwich	Improve and Expand
Oil Refineries	• Paulsboro – Valero • Westville Sunoco plant	500+ jobs Refining is closed, but distribution continues	Maintain existing business Potential re-use, bio-fuel production?	Rail	Track conditions	Rebuild track, crossings, etc. at Valero		Maintain; tie to economic development Vision for this industry
Chemical Plants	• DuPont – Salem County, Chambers Works	1,250 jobs total 750 jobs	Maintain					Maintain
Glass Products	Containers, Scientific glassware	Leading firms employ est. 3,000, mostly in Cumberland Co.	Efficiency / cost savings Solar panel mfg Increased market for glass containers	Rail	Need efficient access to raw materials and markets Rail is expensive and unreliable		Improve Salem County Short Line – will benefit Anchor Glass	Maintain, improve, tie to economic development Vision for this industry
Construction Aggregates	Sand, gravel, crushed rock, Cumberland, Cape May, Gloucester, et al.	Est. production = $120 M / yr	Atlantic City – for casino construction North Jersey – for construction	Rail	Improve efficiency, open new routes	Improvements to track on the SRNJ line between Winslow Junction–Pleasantville New Jersey Seashore Lines is restoring service on old "Blue Comet" route between Woodmansie and Lakehurst	Restore service between Vineland and Winslow Jct. Re-establish service along "Blue Comet" route between Winslow Junction and Lakehurst Cape May Branch – Tuckahoe to Cape May improvements Winslow Branch restoration (Hospitality Creek Bridge)	Improve and Expand
Industrial Sand (silica)	Primarily lower Cumberland County	$40 M / yr	For glass mfg. PA – for "frac" for shale gas extraction	Rail	Reduce delays and congestion on rail		Improve throughput through Pavonia Yard and Delair Bridge	Improve and Expand
Agriculture	Nursery, Vegetables, Fruits, and Grains	Market value of all products sold = $580 M / yr	Expand markets for various products Bio-fuel development Export opportunities (grain)	Rail Port	Need improved rail access Possible barge movements	Upgrade Robbinsville Industrial Track	Improve rail shipping for Perdue, possible barge movements Expand capacity on Bordentown Secondary Consider air freight for high-value products	Improve and Expand
Food Processing	Bordentown: Ocean Spray Florence: Ready Pac Pennsauken: J&J, Pepsi Camden: Campbell's U. Deerfield: Seabrook Farms Vineland: GM/Progresso, Aunt Kitty's Swedesboro: Missa Bay, US	Listed businesses have over 5,000 employees				Upgrade Robbinsville Industrial Track	Expand capacity on Bordentown Secondary	Maintain, Improve

Cluster	Location / Businesses	Current Activity (est.)	Economic Potential	Mode and Transportation Issue		Transportation System Improvement		IMPLEMENTATION BLUEPRINT
				Mode	Issue	Planned	Proposed	
	Food Service							
Seafood Industry	Bayshore and Ocean	$600 million economic value (= dollar value of catch * 6)	Maintain / increase catches, expand markets, exports	Maritime/port Highway Rail	Access to markets		Improve highway travel time Explore air freight potential	Maintain and Improve
	• Port Norris	Oyster harvest - $3 M / yr		Rail Road	Limited road and rail access		Winchester & Western Seashore Line – Dorchester to Leesburg improvements	
	• Cape May Processing Cape May: Lunds Cold Spring Fish and Supply	Total catch - $74 M / yr Scallops - $56 M / yr 75-120 jobs 500 jobs		Port	Channel access	Replace Middle Thorofare Bridge		
	• Atlantic City Processing Cape May: Snow's / Doxsee Millville: Lamonica	Total catch - $24M / yr, mostly clams 130 jobs 200+ jobs						