

2040 Freight Industry Level Forecasts

ABOUT THIS PROFILE

The NJTPA has developed a set of alternative freight forecasts to support transportation, land use, and economic development decisions. The first step in the study process was to document current baseline conditions. This Freight Profile offers a snapshot of key metrics – Economy and Land Uses, Freight Flows, and Freight Transportation Networks in 2010 and in the forecast year, 2040.

ECONOMY AND LAND USES

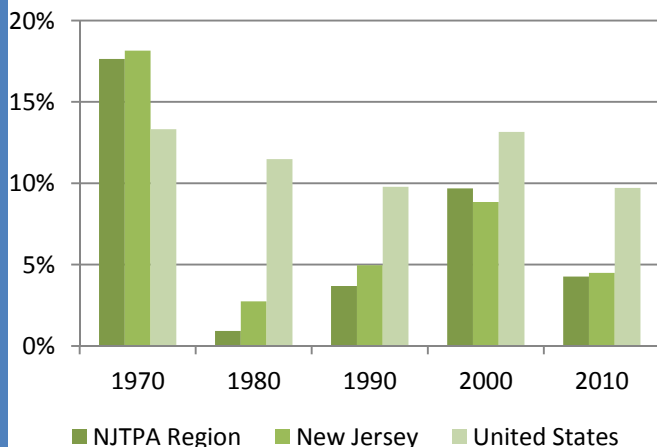
With a 2010 population of 6,579,907, the 13 counties of the NJTPA Region contain about three quarters of the State's population in just over half of its land area. North Jersey's population has historically grown more slowly than the State overall, though growth in the 1990s and 2000s has kept pace with the State. Trends in median household income among the Region's thirteen counties have varied in recent years. Hunterdon, Somerset, and Morris counties, which have the highest median household incomes, also experienced the most pronounced changes in income due in part to the recession. Household incomes in Essex, Ocean, Passaic, and Union counties have changed less significantly in recent years.

North Jersey is home to...

- 6.6 million people
- 312,736 businesses that employ 2.85 million people; 32% of these jobs are in businesses that are highly dependent on freight movement
- 6,828 warehousing/distribution buildings and 2,605 manufacturing buildings
- About 473 million tons of domestic freight shipped or received annually
- Interstate, State, and County highways used by tens of thousands of trucks every day
- The East Coast's largest container port
- Major intermodal rail and air cargo terminals

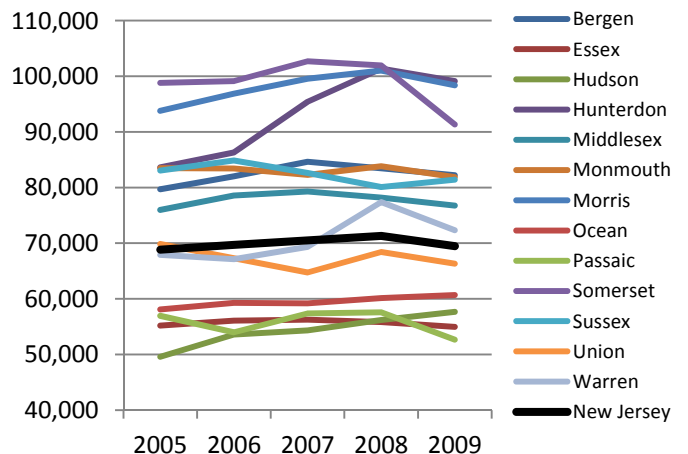
Population Growth by Decade

Source: U.S. Census Bureau



Household Income, Constant 2010 Dollars

Source: U.S. Census Bureau



Employment

The Region's economy employs 2.85 million people in more than 312,000 establishments. About 32% are employed in "freight intensive" industries, such as construction, manufacturing, mining and extraction, retail trade, wholesale trade, and logistics. About 68% are employed in industries that may generate freight, but are less dependent on freight movement.

FREIGHT FLOWS

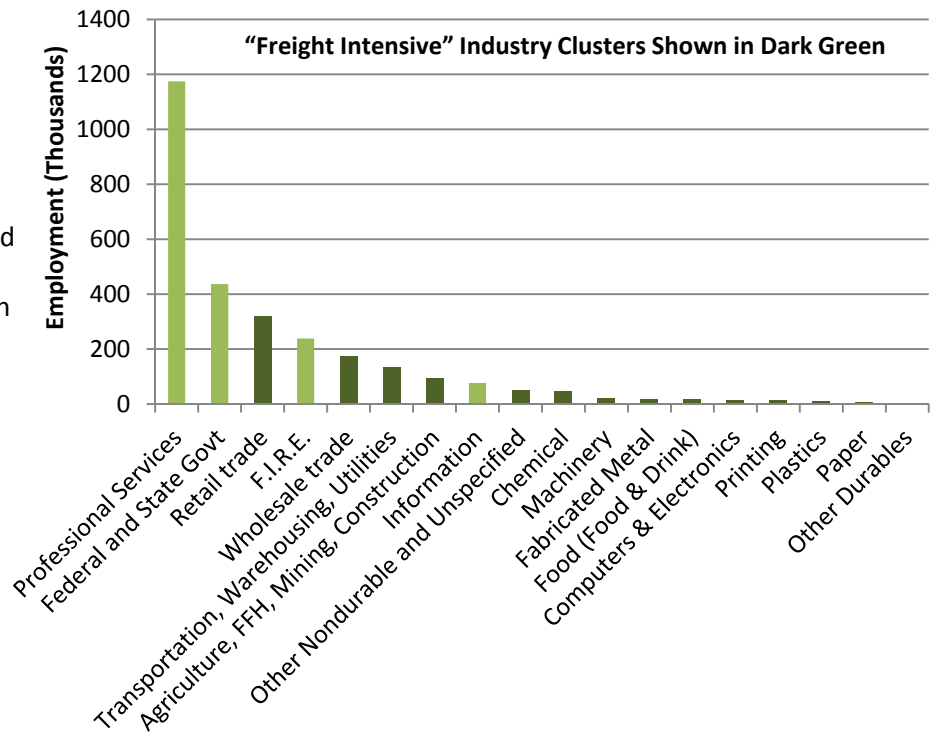
In 2007, approximately 473 million tons of domestic freight moved into, out of, or within North Jersey, by all modes of transportation (truck, rail, water, and air). This figure includes commodities moving into or out of North Jersey, but excludes pass-through tonnage. (The movement of international cargo to and from seaports, airports, and border crossings is captured and counted as domestic tonnage.)

Commodities

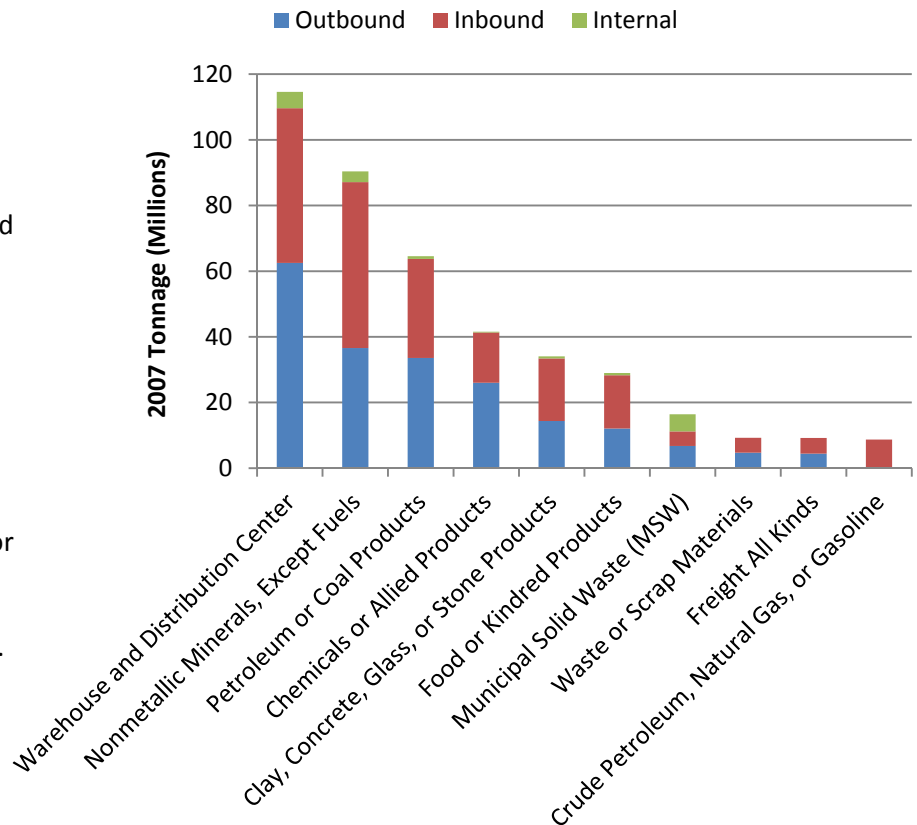
For domestic O-D tonnage, around 24% consisted of moves of consumer goods between warehouses or distribution centers, 55% of which moved in the outbound direction. Other leading commodities include nonmetallic minerals, which represents the Region's largest inbound commodity, petroleum or coal products, chemicals, clay/concrete/glass/stone, food, and municipal solid waste (MSW).

Employment by Industry, 2010

Source: R/ECON


Domestic O-D Commodities by Tonnage, 2007

Source: IHS Global Insight



Trading Partners

North Jersey’s major trading partners are its neighbors. About 40% (189 million tons) of all tonnage is transported between origins and destinations within the State of New Jersey. New York and Pennsylvania are the largest out-of-state trading partners. Most New York trade is in the outbound direction, while most trade with Pennsylvania is inbound. Canada, Illinois, New England, Virginia, and Maryland are also among the Region’s top trading partners.

FREIGHT TRANSPORTATION NETWORKS

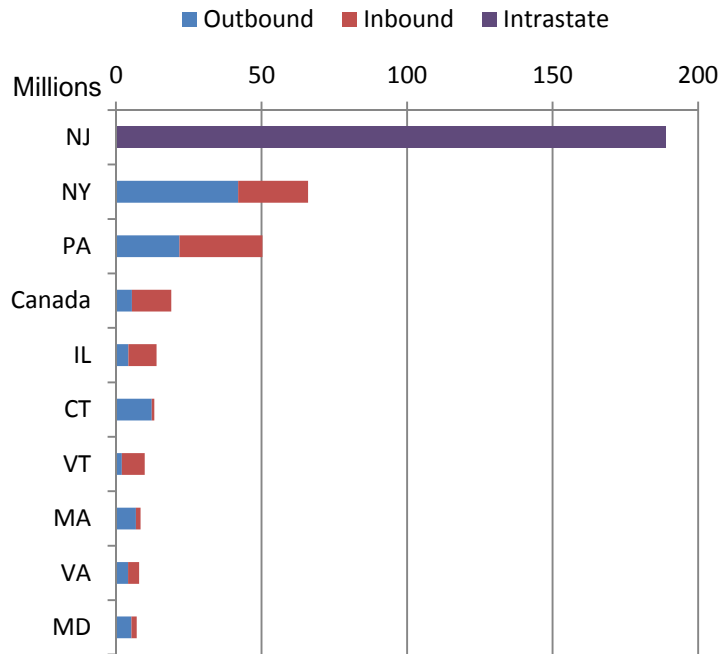
Freight can be handled by truck, rail, air or water. The choice of mode depends on a variety of factors, including: length of trip (rail and air are more competitive at longer distances), commodity type (rail and water are more competitive for heavy materials), time sensitivity (truck and air are most competitive), need for door-to-door service (trucking is needed unless the customer has a dock or a rail connection).

Mode Split

For domestic freight traveling to, from or within North Jersey, more than 80% travels by truck. Nearly 13% travels by water, and 6.5% by rail. Less than 1% of freight in the Region travels by air, pipeline, or other modes.

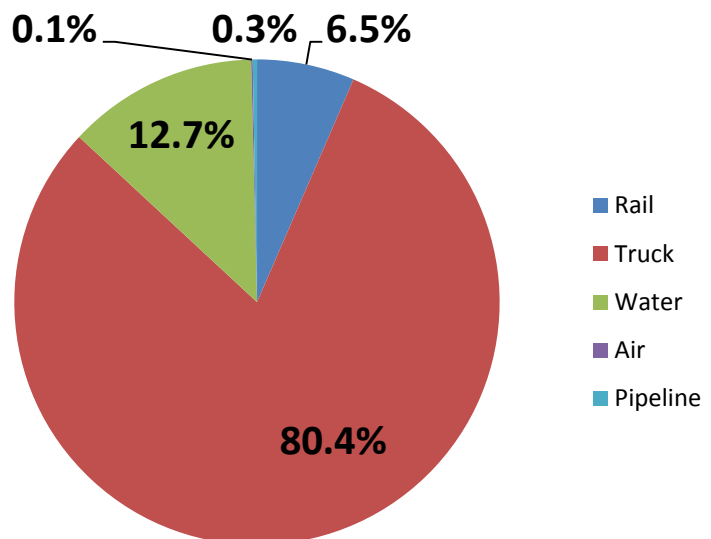
Top Origins and Destinations of Domestic O-D Freight Tonnage, 2007

Source: IHS Global Insight



Mode Split, Domestic O-D Tonnage, 2007

Source: IHS Global Insight

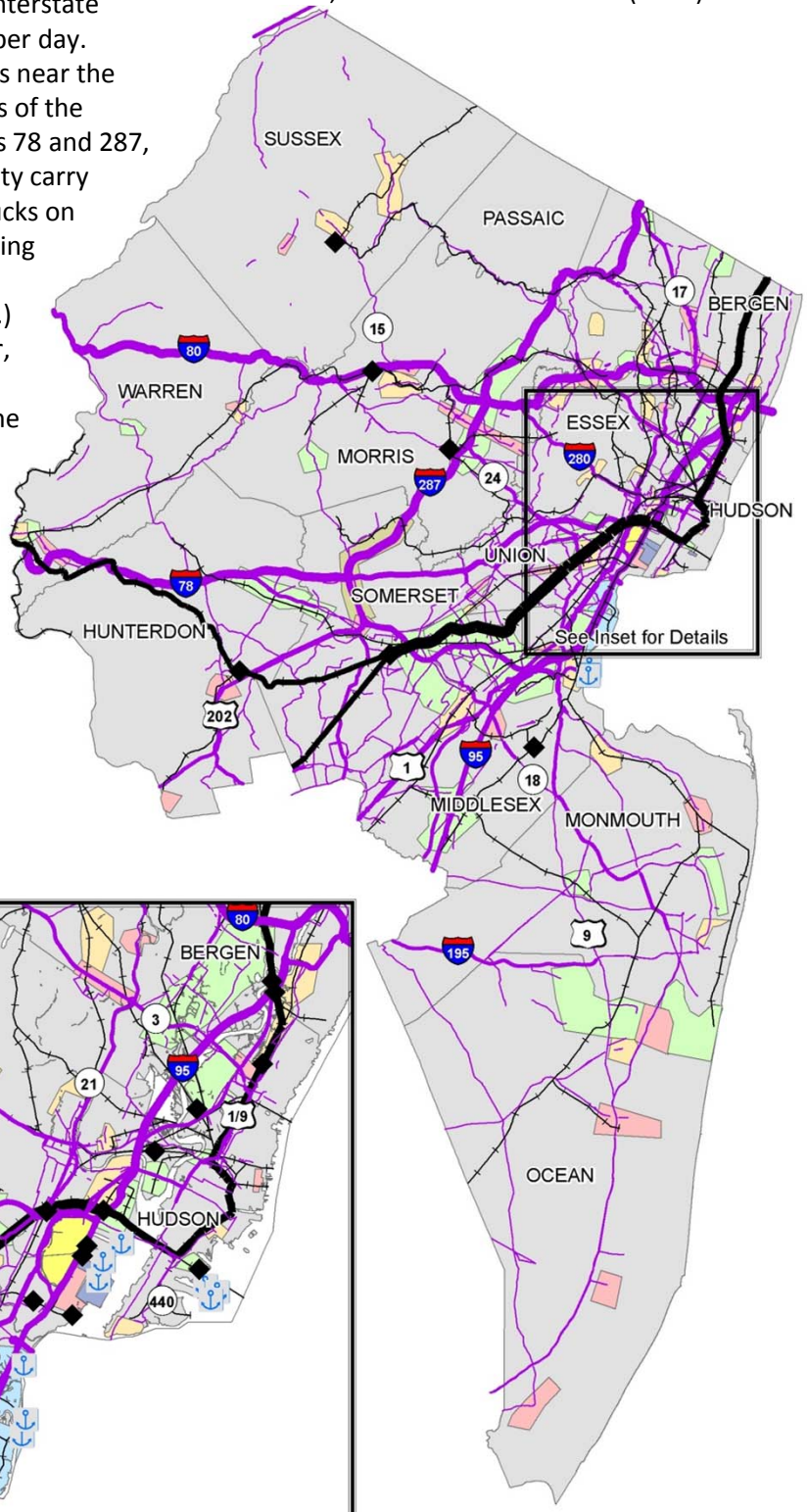


Highway and Rail Network Utilization

North Jersey's highway network serves to connect its major freight activity centers with key trading partners elsewhere in the State of New Jersey, in other parts of North America, and – via international seaports and airports – the world. Segments of the New Jersey Turnpike and Interstate 80 accommodate more than 18,000 trucks per day. The highest volume of trucks in the Region is near the interchange of these two highways. Portions of the Turnpike south of Interstate 287, Interstates 78 and 287, and parts of Routes 1 and 9 in Hudson County carry more than 10,000 trucks per day. Not all trucks on the road are carrying freight. Some are moving empty. Others are providing municipal services (waste transfer, utility services, etc.) or commercial services (contractors, lumber, landscapers, etc.). On the rail network, the Norfolk Southern and Conrail Lehigh Line, the Conrail National Docks Secondary, and the Conrail and CSX River Line are the highest-volume freight lines in the Region. The map illustrates how the highway and rail networks and terminals align with industrial activity clusters.

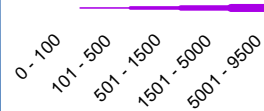
Commodity Truck and Rail Flows in North Jersey, 2007

Sources: IHS Global Insight (2007), NJTPA Regional Transportation Model-Enhanced (NJRTM-E), I-95 Corridor Coalition Integrated Corridor Analysis Tool Rail Network, and Dun and Bradstreet (2010)

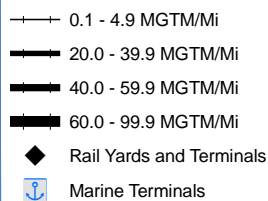


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Daily Trucks (Each Direction)



Rail Freight Density



Industry Clusters

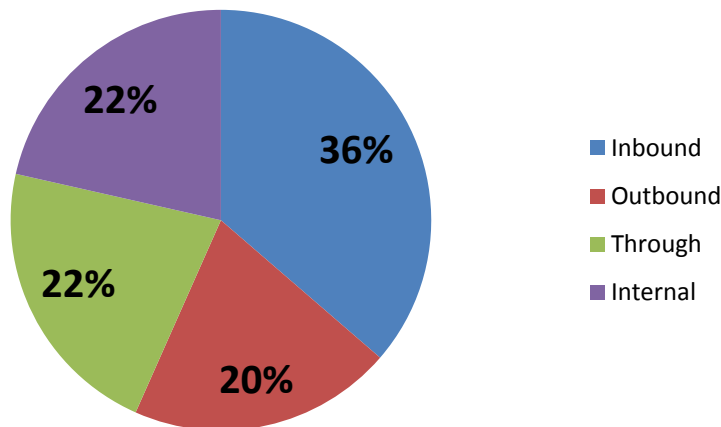


Highway Link Analysis

Different highways can be used by trucks carrying freight in different ways. Some highways have a high percentage of local traffic; others a high percentage of pass-through traffic. Many highways show significant differences at different locations. Among major highways in North Jersey, including the New Jersey Turnpike; Interstates 78, 80, and 287; US Routes 1, 9, 22, and 46; and NJ Route 17, the average values of internal and through traffic are shown in the graph to the right.

Truck Trips on North Jersey Highway Links, 2007

Source: IHS Global Insight and USDOT Freight Analysis Framework-3



On the selected highways in the North Jersey Region, about 36% of trucks were traveling in the inbound direction. About 22% each were traveling either within the Region’s boundaries or through the Region between origin and destination points outside the Region. About 20% of trucks on the selected highways were traveling outbound.

Industrial Buildings Inventory

Freight-generating industries are supported by industrial buildings. The location of these buildings often depends on transportation access, and their uses may be significant generators of freight traffic. As illustrated on Pages 6 and 7, more than 6,800 warehousing and distribution center buildings are located in the Region, with Bergen and Middlesex counties each having more than 1,300. More than 2,600 manufacturing buildings are located in the Region, 465 of which are in Bergen County, and 396 of which are in Middlesex County.

As summarized in the two tables to the right, many of the industrial buildings generate large volumes of freight. According to the Freight Locator database, 5,274 facilities in the NJTPA Region receive more than 69.8 million tons and ship nearly 74.6 million tons of freight annually. It is important to note that some facilities’ inbound and outbound tonnage values do not match. This is because some types of local delivery and pickup moves are not classified as “commodity moves” in the source data.

Top 5 Facilities by Inbound/Outbound Tonnage, 2007

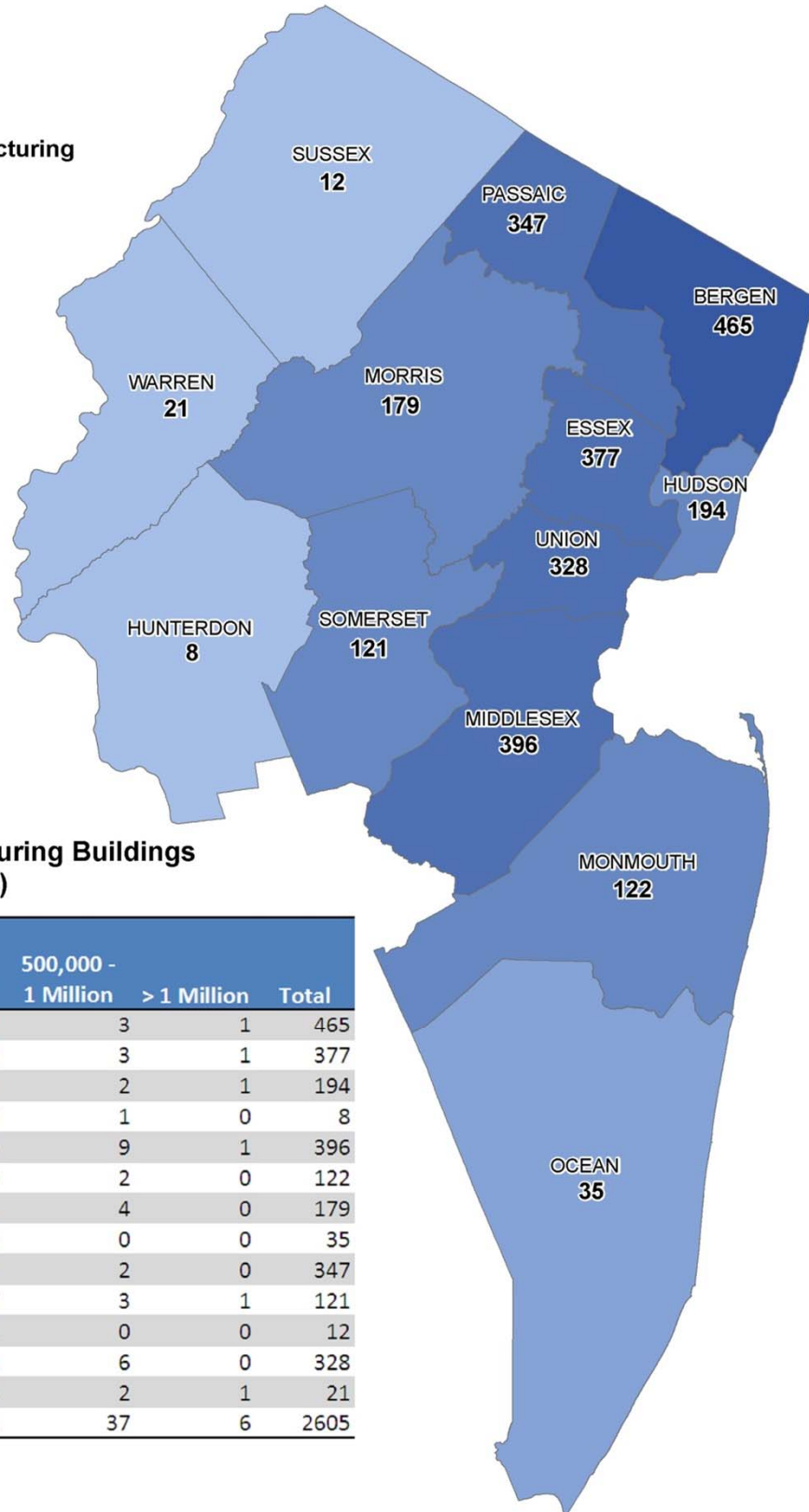
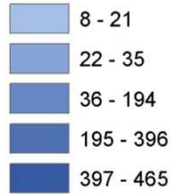
Source: IHS Global Insight Freight Locator Database

COMPANY NAME	CITY	INBOUND TONS
MAC ARTHUR PETROLEUM & SOLVENT	NEWARK	4,547,587
AM TOPP CORP	LIVINGSTON	2,924,409
MERCK & CO INC	MADISON	2,073,855
Region OIL	DOVER	1,965,827

COMPANY NAME	CITY	OUTBOUND TONS
CONOCO PHILLIPS BAYWAY RFNRY	LINDEN	9,930,730
MID-STATE LUMBER CORP	BRANCBURG	1,450,211
TILCON NEW JERSEY INC	PROSPECT PARK	1,387,999
WOODHAVEN LUMBER & MILLWORK	LAKWOOD	1,334,845
EARL ASPHALT CO	FARMINGDALE	1,303,155

Manufacturing Buildings by County, 2010

Source: CB Richard Ellis

Legend
Number of Manufacturing Buildings

Number of Manufacturing Buildings by Size (Square Feet)

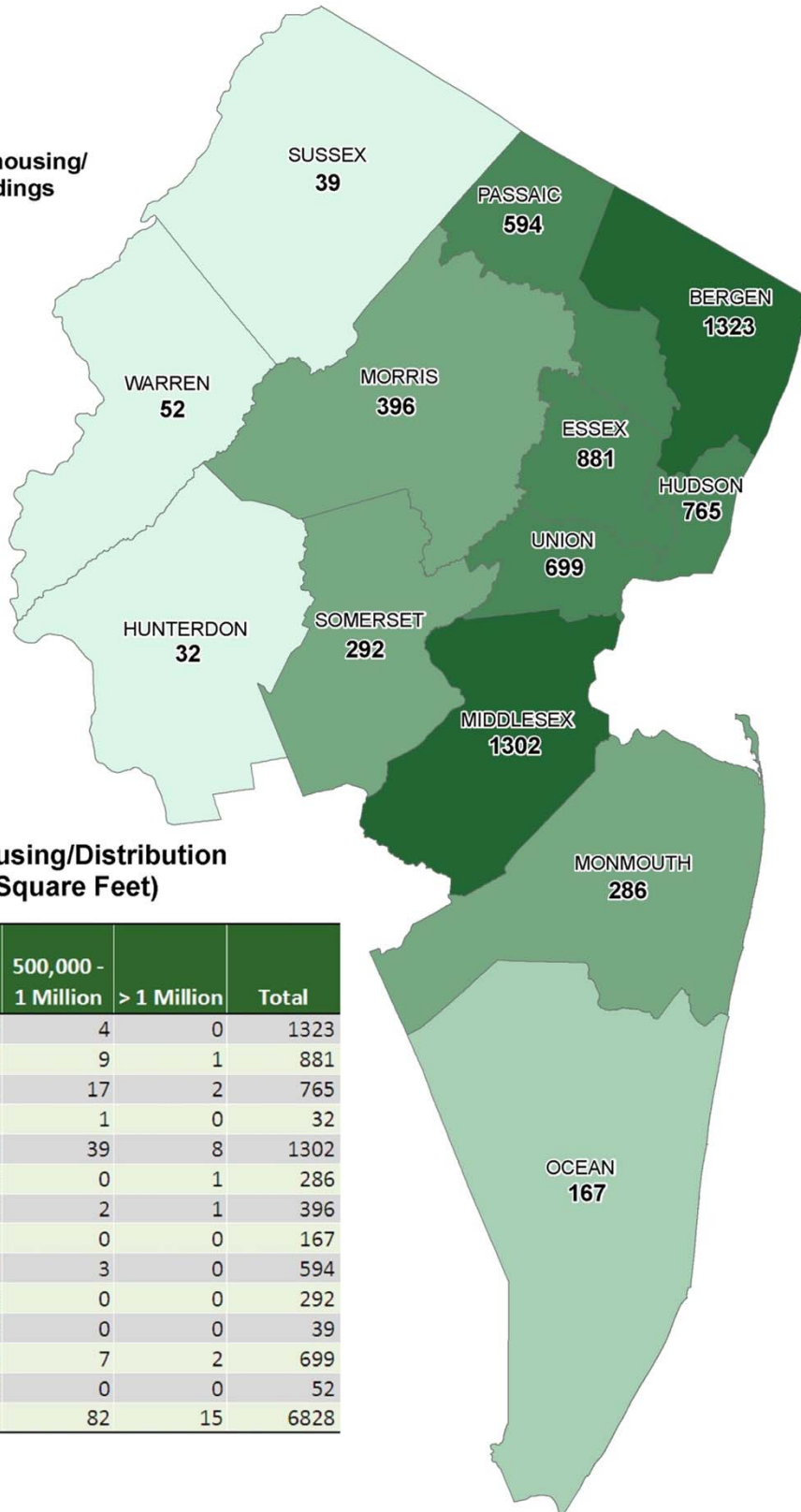
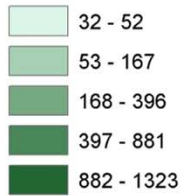
County	500,000 -			Total
	< 500,000	1 Million	> 1 Million	
Bergen	461	3	1	465
Essex	373	3	1	377
Hudson	191	2	1	194
Hunterdon	7	1	0	8
Middlesex	386	9	1	396
Monmouth	120	2	0	122
Morris	175	4	0	179
Ocean	35	0	0	35
Passaic	345	2	0	347
Somerset	117	3	1	121
Sussex	12	0	0	12
Union	322	6	0	328
Warren	18	2	1	21
Total	2562	37	6	2605

Warehousing/Distribution Buildings by County, 2010

Source: CB Richard Ellis

Legend

**Number of Warehousing/
Distribution Buildings**



Number of Warehousing/Distribution Buildings by Size (Square Feet)

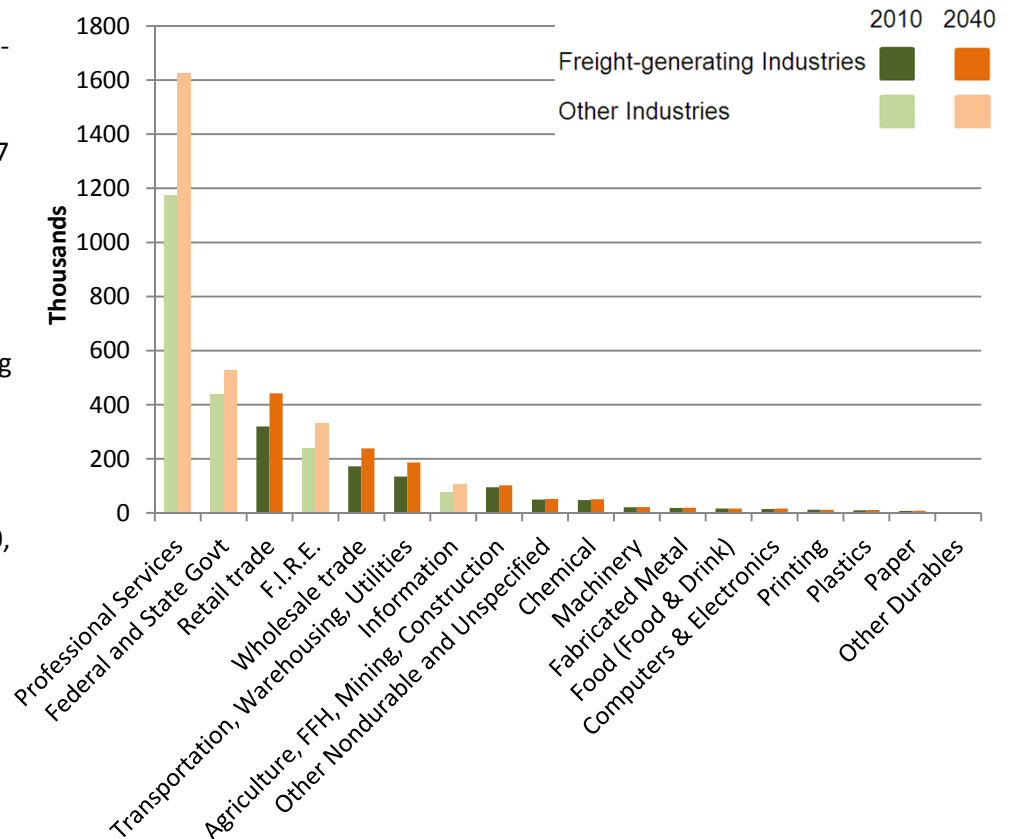
County	< 500,000	500,000 - 1 Million	> 1 Million	Total
Bergen	1319	4	0	1323
Essex	871	9	1	881
Hudson	746	17	2	765
Hunterdon	31	1	0	32
Middlesex	1255	39	8	1302
Monmouth	285	0	1	286
Morris	393	2	1	396
Ocean	167	0	0	167
Passaic	591	3	0	594
Somerset	292	0	0	292
Sussex	39	0	0	39
Union	690	7	2	699
Warren	52	0	0	52
Total	6731	82	15	6828

EMPLOYMENT FORECAST

Between 2010 and 2040, non-farm employment in North Jersey is expected to grow by 32%, from 2.85 million to 3.77 million. Employment in freight-intensive industries is expected to grow by 28% during the forecast period, compared to 34% for other industries. The faster-growing services, finance, insurance, real estate, and other less freight-intensive industries, will make up 69% of the Region's employment in 2040, compared to 68% in 2010. Among individual industry groups, professional services is expected to experience the greatest numeric growth in employment (451,000 jobs) during the forecast period. Printing is the only sector expected to have fewer jobs (-350) in 2040.

Industry Employment Forecast, 2010 - 2040

Source: R/ECON



2040 COMMODITY FLOWS

By 2040, overall commodity flows into, out of, and within North Jersey are expected to have increased by about 43%, from 473 million tons to 675 million tons (a difference of 202 million tons). Warehouse and distribution center traffic is expected to remain the number one commodity in North Jersey by tonnage. Growth rates among the top ten commodities are expected to range from 29% (nonmetallic minerals) to 63% (waste or scrap materials).

Top 10 Commodities by Tonnage, 2040

Sources: Cambridge Systematics, with data from IHS Global Insight

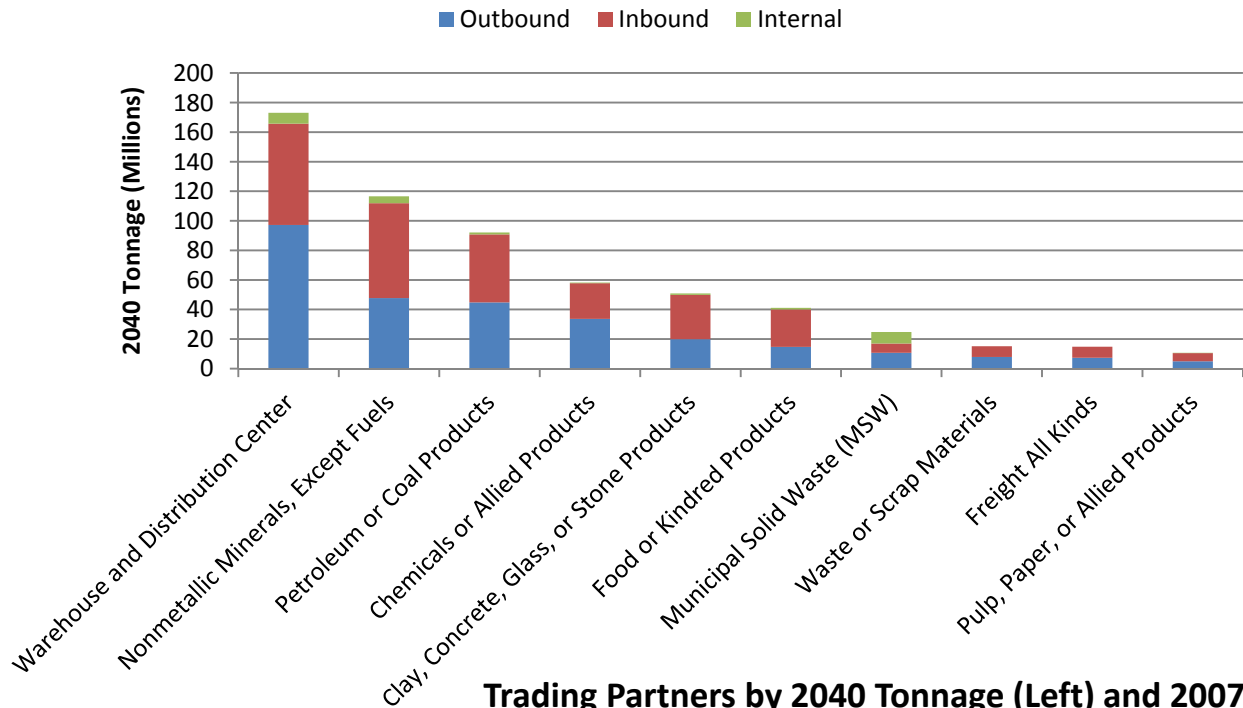
Commodity	2007 Tons	2040 Tons	Difference	Growth Rate
Warehouse and Distribution Center	114,626,915	173,075,821	58,448,906	51%
Nonmetallic Minerals, Except Fuels	90,402,386	116,571,209	26,168,823	29%
Petroleum or Coal Products	64,564,638	92,104,778	27,540,140	43%
Chemicals or Allied Products	41,549,714	58,176,840	16,627,126	40%
Clay, Concrete, Glass, or Stone Products	34,063,546	50,841,419	16,777,873	49%
Food or Kindred Products	28,985,090	41,098,084	12,112,994	42%
MSW	16,426,643	24,809,957	8,383,314	51%
Waste or Scrap Materials	9,250,295	15,083,434	5,833,139	63%
Freight All Kinds	9,190,535	14,838,500	5,647,965	61%
Pulp, Paper, or Allied Products	8,721,313	10,648,777	2,906,880	38%

Commodity Volumes and Direction

Inbound freight moves are expected to grow slightly faster than outbound moves during the forecast period. In 2007, inbound moves accounted for 49% of all freight tonnage. By 2040, inbound moves are expected to account for 50% of all tonnage. Growth in petroleum traffic is expected to fuel the faster increase in inbound traffic.

Top 10 Commodities by Tonnage by Direction, 2040

Sources: Cambridge Systematics, with data from IHS Global Insight

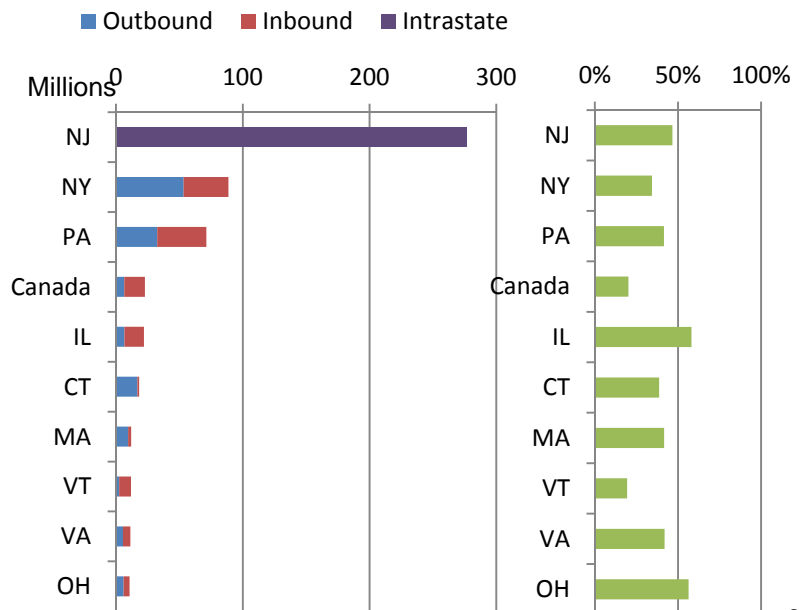


Trading Partners by 2040 Tonnage (Left) and 2007-2040 Growth (Right)

Source: Cambridge Systematics, with data from IHS Global Insight

Future Trading Partners

North Jersey's largest trading partners will continue to be neighboring areas in the future. In 2040, about 41% of North Jersey trade will be intrastate. New York and Pennsylvania are expected to remain the Region's second and third largest trading partners. Growth in trade with Midwestern states is expected to exceed growth in trade with Northeastern states, thereby allowing Ohio and Illinois to gain slightly larger shares of the Region's trade in 2040 compared to 2007.

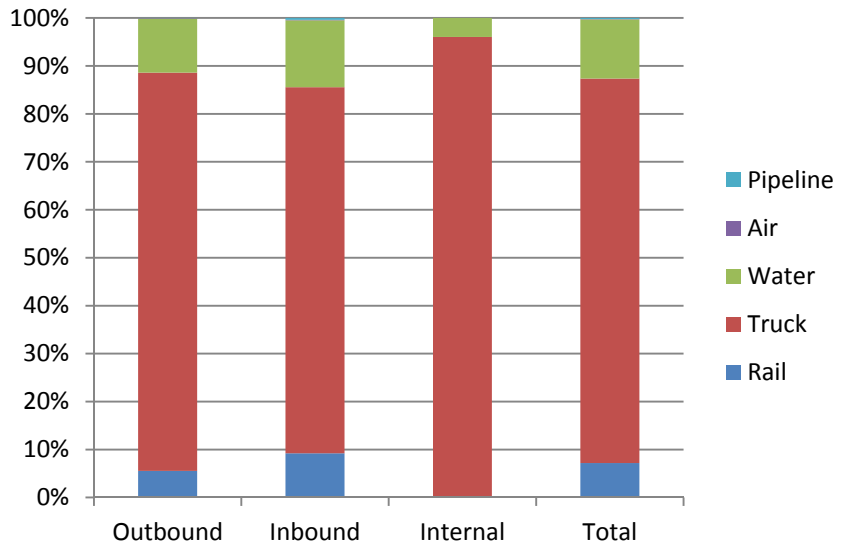


Future Mode Utilization

The forecast anticipates that rail will gain a slightly larger share of the market (7.2% in 2040, compared to 6.5% in 2007) and water will carry a slightly lower share (12.3% in 2040, compared to 12.7% in 2007) by 2040. Trucks are expected to carry 80% of all freight tons in 2040, which is the same share trucks carried in 2007. Rail and water are expected to carry a larger share of inbound traffic than traffic moving in other directions (9.2% and 13.9% respectively). Trucks will carry 96% of intra-regional freight tons.

Freight Tonnage by Mode and Direction, 2040

Source: Cambridge Systematics, with data from IHS Global Insight



Future Highway Network Utilization

In 2040, North Jersey's highway network is expected to remain the primary conveyor of freight into, out of, within and through the Region. The number of trucks traveling on portions of the New Jersey Turnpike /Interstate 95 and Interstate 80 is expected to increase by more than 30%, or as many as 6,000 trucks per day. Segments of Interstates 78 and 287 and US Routes 1/9 could carry 2,500-3,000 more trucks per day in 2040.

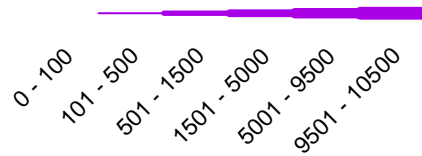
The map on Page 11 illustrates the projected truck volumes in 2040 on highways in North Jersey.


Commodity Truck Flows in North Jersey, 2040

Sources: IHS Global Insight, NJTPA Regional Transportation Model-Enhanced (NJRTM-E), Dun & Bradstreet (2010)

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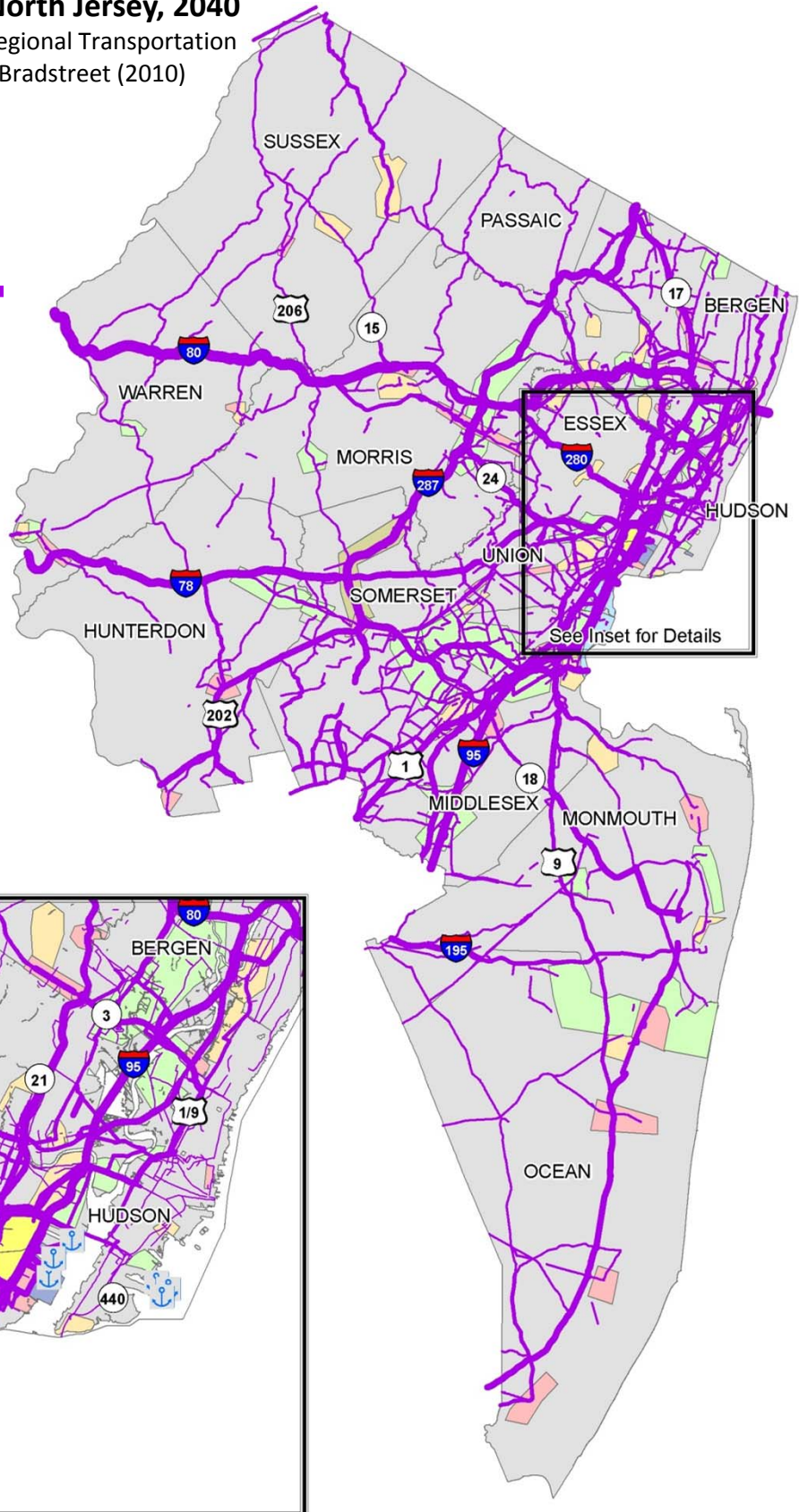
Daily Trucks (Each Direction)



 Marine Terminals

Industry Clusters

-  Air Cargo
-  International Container Terminal
-  Manufacturing
-  Petroleum/Chemicals
-  Pharma
-  Retail
-  Wholesale/Retail Distribution



ABOUT THE NJTPA

The North Jersey Transportation Planning Authority (NJTPA) is the federally authorized Metropolitan Planning Organization for 6.6 million people in the 13-county northern New Jersey Region. Each year, the NJTPA oversees the investment of more than \$1 billion in federal funding for transportation projects and provides a forum for interagency cooperation and public input into funding decisions. It also sponsors and conducts studies, assists county planning agencies and monitors compliance with national air quality goals.

The NJTPA Board of Trustees includes 15 local elected officials, including one representative from each of the 13 northern New Jersey counties—Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren—as well as from the cities of Newark and Jersey City. The Board also includes the Commissioner of the New Jersey Department of Transportation (NJDOT), the Executive Directors of NJ Transit and the Port Authority of New York & New Jersey, a Governor’s Representative, and a Citizens’ Representative appointed by the Governor.

ABOUT THIS STUDY

The North Jersey Transportation Planning Authority (NJTPA) is pleased to announce the completion of a major new freight planning initiative – the development of Year 2040 Freight Industry Level Forecasts.

Freight issues are extremely important in the NJTPA planning Region, which includes thirteen counties in Northern New Jersey. The Region hosts: the Port of New York and New Jersey, one of the nation’s top three ports on the basis of tonnage and containers; heavily-used local, Regional, and interstate truck corridors and crossings; heavy concentrations of intermodal and non-intermodal rail activity; significant national and international air cargo facilities; and hundreds of millions of square feet of warehouse/distribution space. These networks and facilities are essential to the economic and transportation well-being of 6.6 million residents in the NJTPA Region and 20 million in the NY/NJ metropolitan statistical area, along with more than 312,000 Regional businesses. Understanding the effects and importance of freight is therefore critical – not only to ensure the accuracy of the Regional transportation planning process, but also to effectively communicate the importance of freight to the Region’s freight stakeholders, businesses, communities, residents, and funding decision-makers.

The primary goal of the 2040 Freight Industry Level Forecasts project was to develop a clear, accurate and comprehensive picture of Regional freight activity, both current and future. The end product is an accurate picture of where concentrations of goods movement activity can be expected to occur in the Region in the future, the types of commodities that will be moving, and where strategic investments should be made.

FOR FURTHER INFORMATION

For further information, please contact Jakub Rowinski, NJTPA Project Manager, at jrowinski@njtpa.org.

This Freight Profile is one of a series of profiles, covering the 13 counties of the NJTPA Region, the City of Newark, Jersey City, and the Region as a whole. This document was prepared by the North Jersey Transportation Planning Authority, Inc. with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.