

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

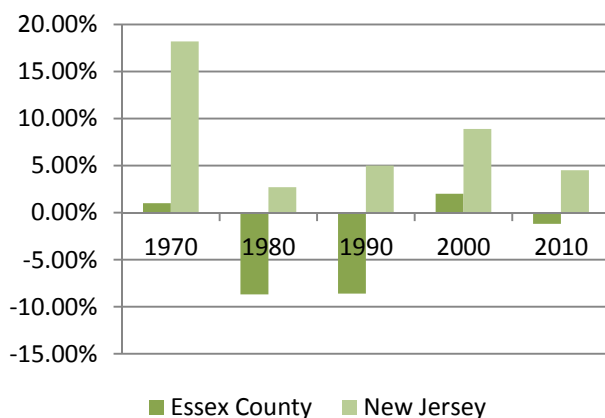
With a 2010 population of 783,969, Essex is the third most-populous County in the State of New Jersey. Essex County's population has historically grown at a slower pace than the State overall, since much of the County's land area was developed late last century. Household income in Essex County is about 20% lower than the State's median household income.

Essex County is home to...

- 783,969 people
- 37,151 businesses that employ 361,200 people; 26% of these jobs are in businesses that are highly dependent on freight movement
- More than 880 warehousing/distribution buildings and 377 manufacturing buildings
- About 77.3 million tons of domestic freight shipped or received annually
- Interstate, State, and County highways used by tens of thousands of trucks every day
- Major freight hubs, including Port Newark Container Terminal, Newark Liberty International Airport, and the Conrail Oak Island Yard.

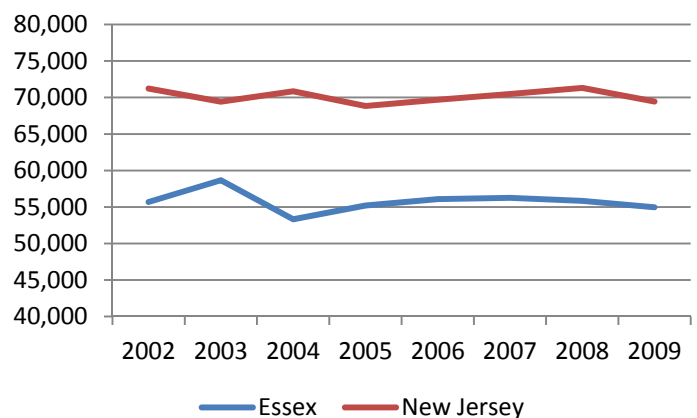
Population Growth by Decade

Source: U.S. Census Bureau



Household Income, Constant 2010 Dollars

Source: U.S. Census Bureau



Employment

The County's economy employs 361,200 people in more than 37,000 establishments. About 26% are employed in "freight-intensive" industries, such as construction, manufacturing, mining and extraction, retail trade, wholesale trade, and logistics. About 74% are employed in industries that may generate freight, but are less dependent on freight movement.

FREIGHT FLOWS

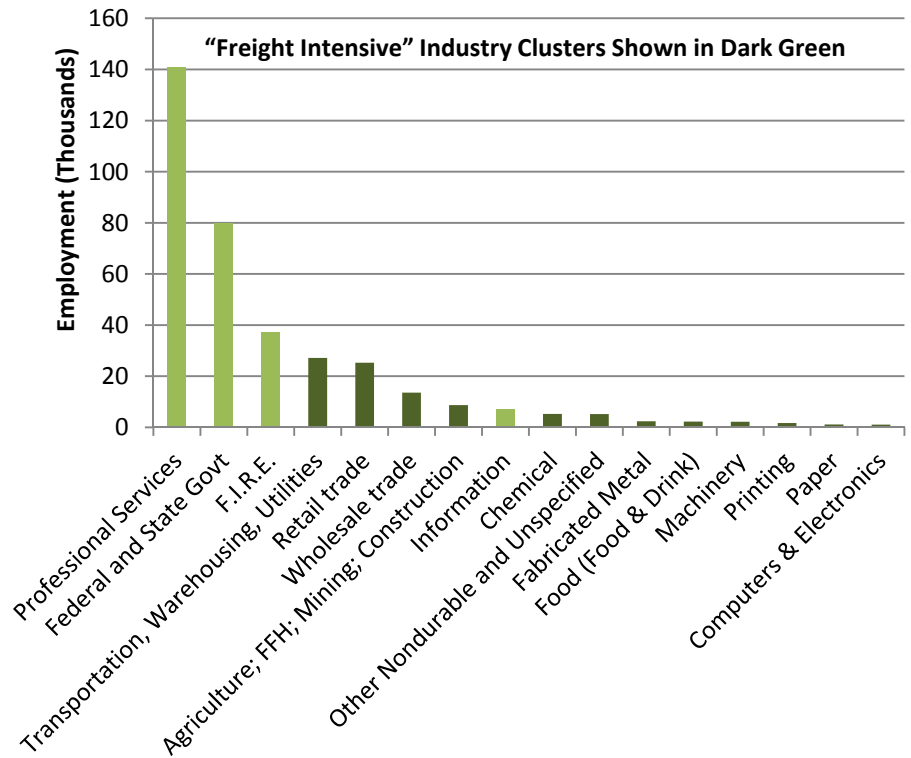
In 2007, approximately 77.3 million tons of domestic freight moved into, out of, or within Essex County, by all modes of transportation (truck, rail, water, and air). This figure includes commodities moving into or out of Essex County, but excludes pass-through tonnage. (The movement of international cargo to and from seaports, airports, and border crossings is captured and counted as domestic tonnage.)

Commodities

For domestic O-D tonnage, around 23% consisted of petroleum or coal products, 88% of which moved in the inbound direction. Other leading commodities include moves of consumer goods between warehouses and distribution centers, inbound crude petroleum or natural gas, nonmetallic minerals, outbound moves of food, chemicals, and clay/concrete/glass/stone. Much of the inbound municipal solid waste (MSW) was destined for the Essex County Resource Recovery Facility.

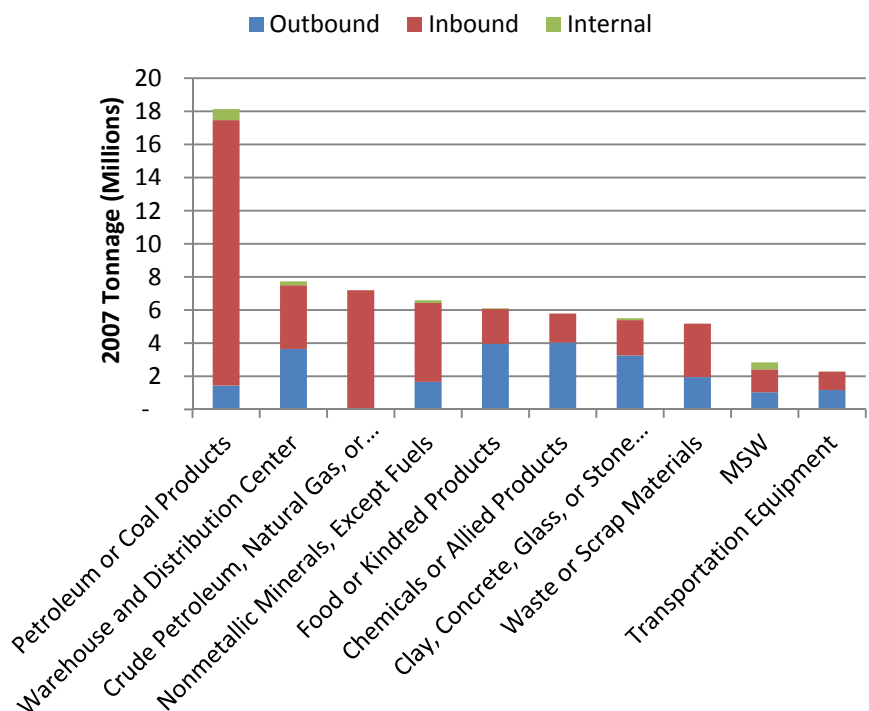
Employment by Industry, 2010

Source: R/ECON



Domestic O-D Commodities by Tonnage, 2007

Source: IHS Global Insight



Trading Partners

Essex County’s major trading partners are, not surprisingly, its neighbors. As illustrated to the right, locations in New Jersey are the greatest origins of inbound freight. Outbound flows to New York outweigh outbound flows to New Jersey locations, however. Nearly 90% of trade with Canada is in the inbound direction. Pennsylvania, Connecticut, and other States in the Northeast, Mid-Atlantic, and Midwest represent the majority of origins and destinations for freight traded with Essex County.

FREIGHT TRANSPORTATION NETWORKS

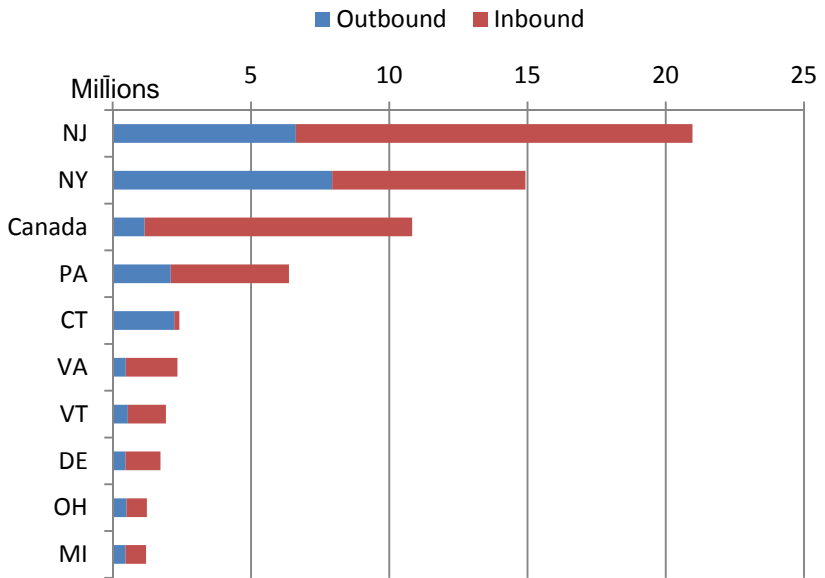
Freight can be handled by truck, rail, air or water. The choice of mode depends on a variety of factors, including: length of trip (rail and air are more competitive at longer distances), commodity type (rail and water are more competitive for heavy materials), time sensitivity (truck and air are most 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 Essex County, 55% travels by truck, 39% by water, 5% by rail, and 1% by air. The presence of rail, air, and water terminals in Essex County results in Essex having the most diverse mode split among counties in the NJTPA region.

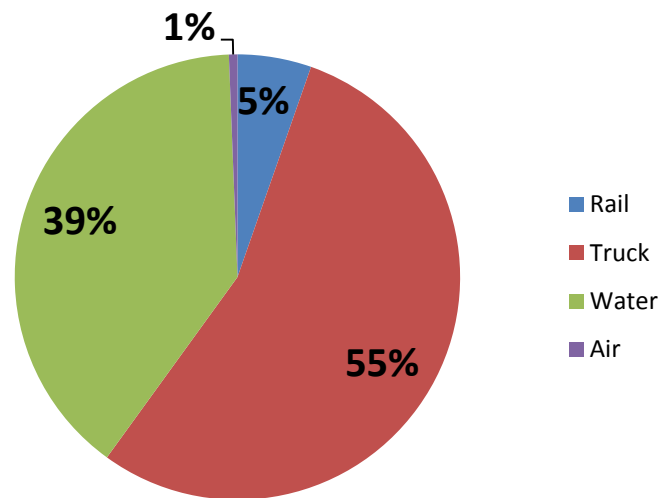
Top Origins and Destinations of Domestic O-D Freight Tonnage, 2007

Source: IHS Global Insight



Mode Split, Domestic O-D Tonnage, 2007

Source: IHS Global Insight



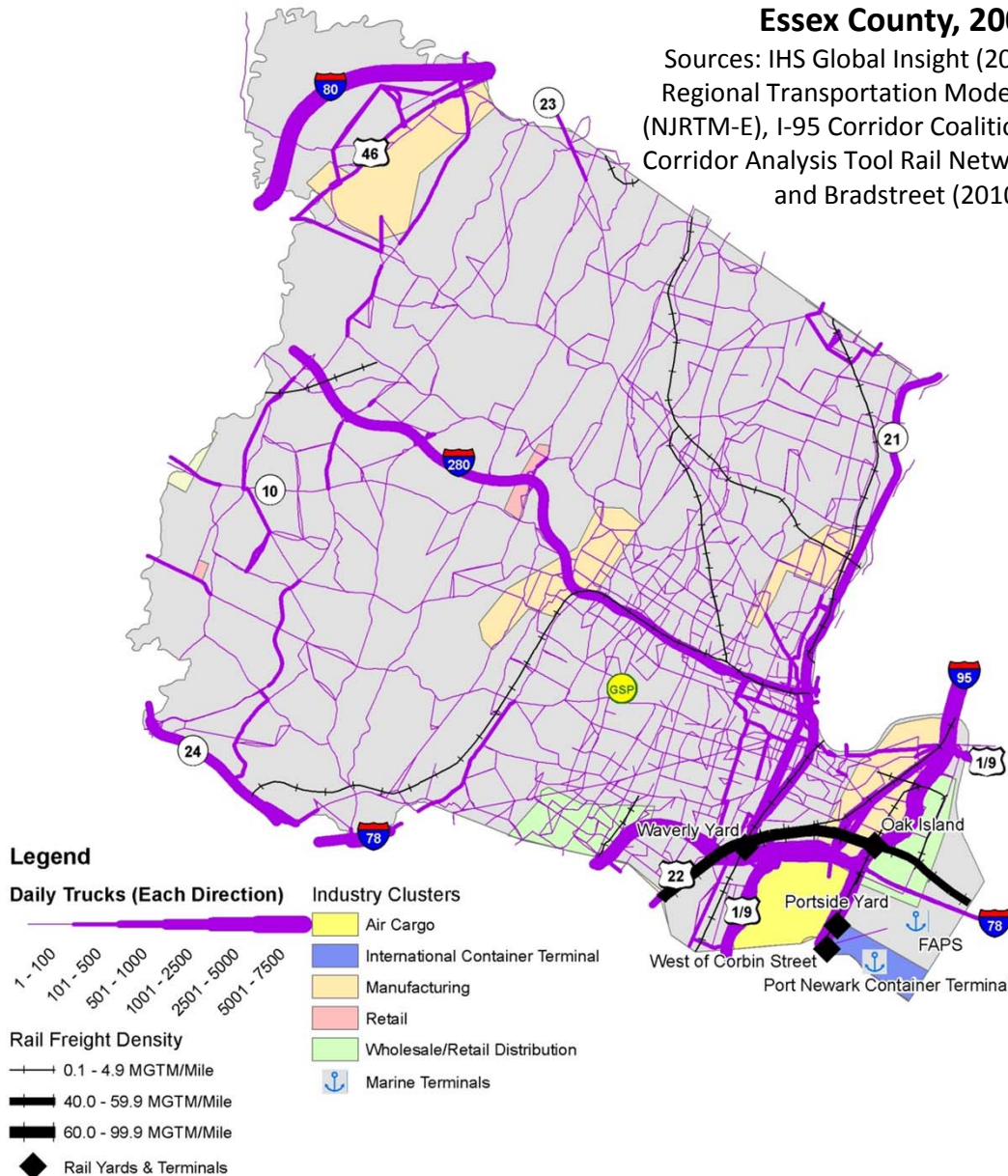
Highway and Rail Network Utilization

Essex County’s highway network serves to connect its major freight activity centers with key trading partners elsewhere in the County, 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 as many as 15,000 trucks per day. Portions of US Routes 1 and 9 and Interstate 78 carry up to 9,000 trucks per day. Interstate 280, US Route 22, and NJ Routes 21 and 24 carry 2,000 to 5,000 trucks daily. 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 Conrail Lehigh Line, one of the busiest freight rail lines in the State, crosses the southeastern portion of the County. Intermodal container transload facilities serve Port Newark and Port Elizabeth, allowing international containers to be loaded from ship to rail for transport out-of-State.

Commodity Truck and Rail Flows in Essex County, 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)

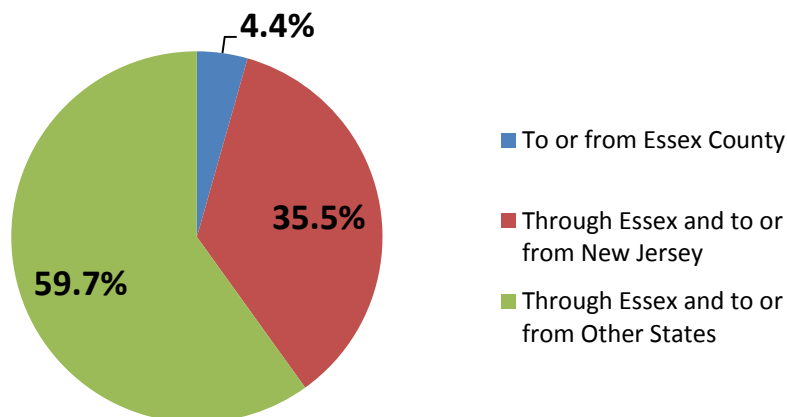


Highway Link Analysis

Different highways can be used by trucks carrying freight in different ways. Some highways have a high % of local traffic; others a high % of pass-through traffic. Many highways show significant differences at different locations. Among major highways in Essex County, including the New Jersey Turnpike and Interstates 78 and 80, the average values of internal and through traffic are shown in the graph to the right.

Truck Trips on Essex County Highway Links, 2007

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



Nearly 60% of trucks traveling on the selected highways in Essex County were passing through the County on their way between origins or destinations outside the State of New Jersey. About 35.5% were traveling through Essex on their way to or from locations within the State, but outside Essex County. Just over 4% of trucks on the selected highways were traveling to or from a point in Essex County.

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, there are 377 manufacturing buildings located in the County. Manufacturing buildings tend to be clustered in the south and east wards of Newark, along the Route 21 corridor, the Route 46 corridor, and in West Orange. More than 880 warehousing/distribution buildings are located within the County, one of which is over 1 million square feet, and nine of which are between 500,000 and 1 million square feet. These buildings are clustered in many of the same areas as the manufacturing buildings – southern and eastern parts of Newark, the Route 21 and Route 46 corridors, and in West Orange.

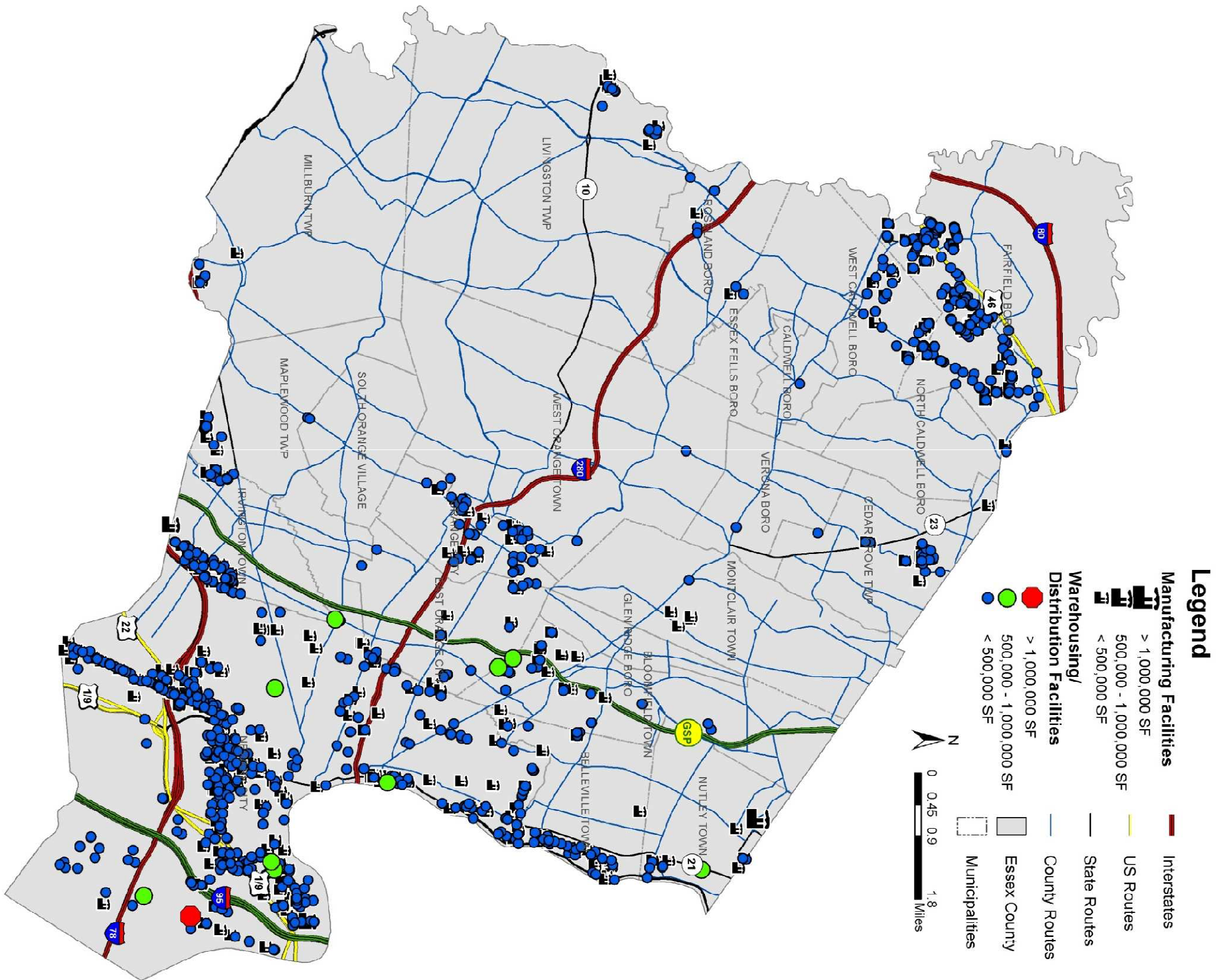
As summarized in the two tables to the right, many of the industrial buildings generate large volumes of freight. According to the Freight Locator database, 641 facilities in Essex County receive more than 20 million tons and ship nearly 7.4 million tons of freight annually. It is important to note that 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
INNOVATION FUELS INC	NEWARK	1,139,611
ATLANTIC FUEL CO	NEWARK	997,160
ORANGE-ALDEN FUEL CO	EAST ORANGE	949,676

COMPANY NAME	CITY	OUTBOUND TONS
SIMS METAL MGMT		
NORTHEAST INC	NEWARK	697,812
INNOVATION FUELS INC	NEWARK	449,558
ANHEUSER-BUSCH CO	NEWARK	426,334
JOYCE FOOD LLC	NEWARK	406,553
ATLANTIC FUEL CO	NEWARK	323,687



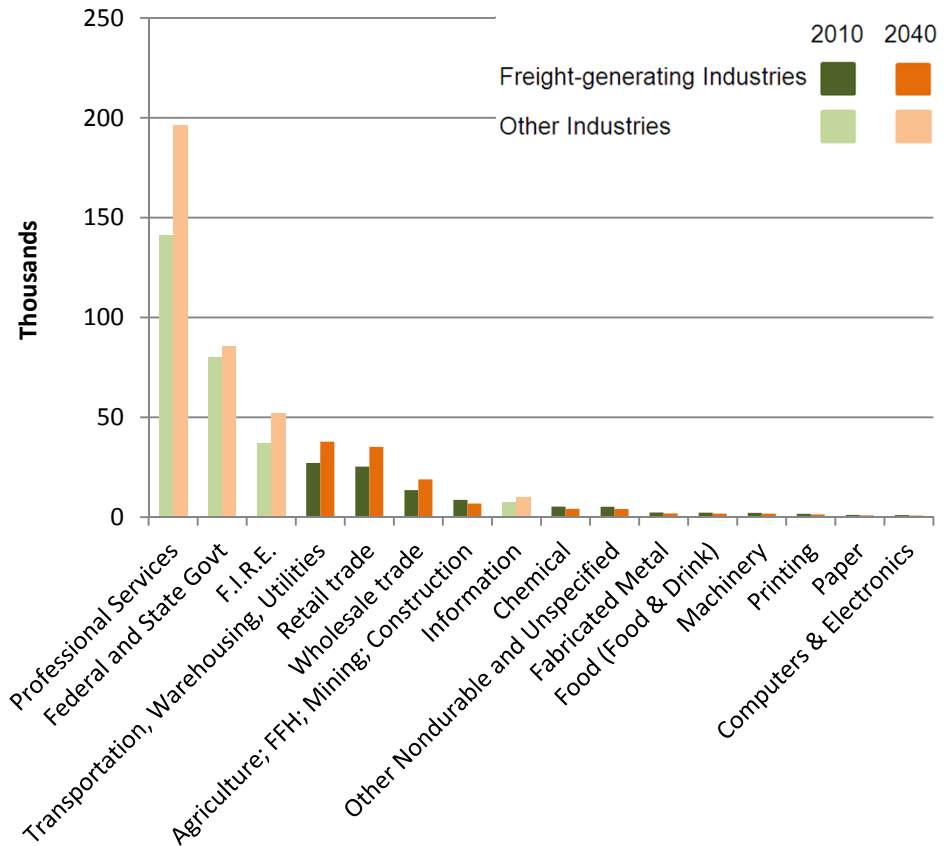
Industrial Buildings by Type and Square Footage, 2010
Source: CB Richard Ellis

EMPLOYMENT FORECAST

Between 2010 and 2040, non-farm employment in Essex County is expected to grow by 27%, from 361,200 to 458,800. Employment in freight-intensive industries is expected to grow by 20% during the forecast period, compared to 29% for other industries. The faster-growing services, finance, insurance, real estate, and other less freight-intensive industries, will make up a larger share of the County's employment in the future (75% in 2040, compared to 74% in 2010). Among individual industry groups, professional services is expected to experience the greatest numeric growth in employment (55,200 jobs). There could be about 1,900 fewer jobs in agriculture, mining, and construction in 2040.

Industry Employment Forecast, 2010 - 2040

Source: R/ECON



2040 COMMODITY FLOWS

By 2040, overall commodity flows into, out of, and within Essex County are expected to have increased by about 29%, from 77.3 million tons to 99.7 million tons (a difference of 22.5 million tons). Petroleum or coal products is expected to remain the number one commodity in Essex County by tonnage. Waste and scrap metal is expected to grow fastest among the top ten commodities, rising in rank (by tonnage) from 8th in 2007 to 3rd in 2040. Growth rates are expected to range from -3% (crude petroleum and natural gas) to 61% (waste and scrap metal).

Top 10 Commodities by Tonnage, 2040

Sources: Cambridge Systematics, with data from IHS Global Insight

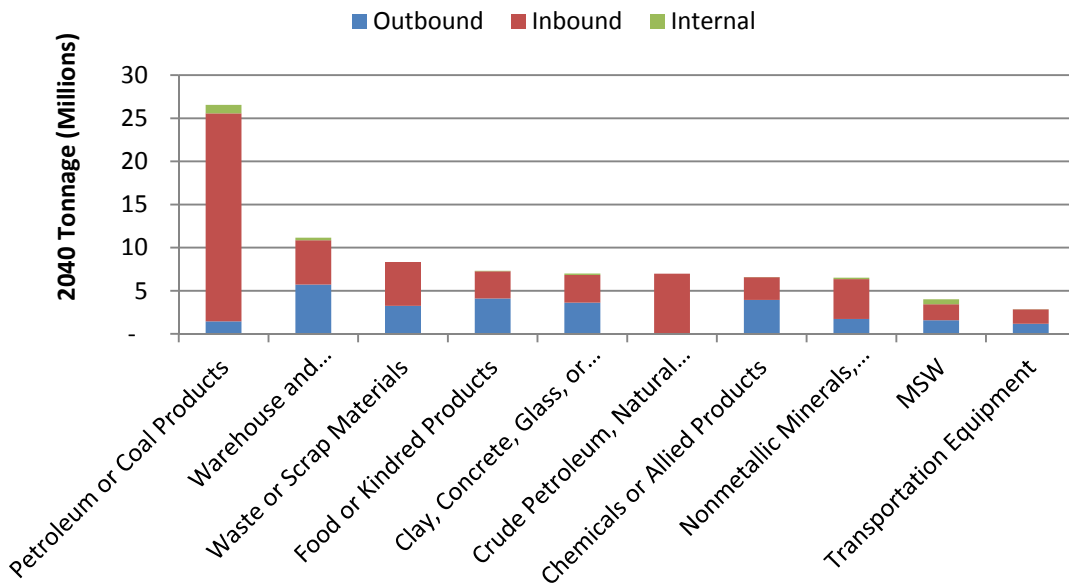
Commodity	2007 Tons	2040 Tons	Difference	Growth Rate
Petroleum or Coal Products	18,135,041	26,563,579	8,428,537	46%
Warehouse and Distribution Center	7,730,900	11,158,378	3,427,478	44%
Waste or Scrap Materials	5,178,445	8,338,520	3,160,075	61%
Food or Kindred Products	6,110,511	7,323,257	1,212,746	20%
Clay, Concrete, Glass, or Stone Products	5,507,873	7,007,941	1,500,069	27%
Crude Petroleum, Natural Gas, or Gasoline	7,198,782	6,986,736	(212,046)	-3%
Chemicals or Allied Products	5,802,713	6,598,087	795,374	14%
Nonmetallic Minerals, Except Fuels	6,590,029	6,512,502	(77,528)	-1%
MSW	2,846,240	4,009,850	1,163,610	41%
Transportation Equipment	2,288,296	2,858,590	570,293	25%

Commodity Volumes and Direction

Inbound freight moves are expected to grow faster than outbound moves during the forecast period. In 2007, inbound moves accounted for 61% of all freight tonnage. By 2040, inbound moves are expected to account for 64% of all tonnage. Growth in petroleum and waste or scrap metals are expected to contribute to the increased inbound share.

Top 10 Commodities by Tonnage by Direction, 2040

Sources: Cambridge Systematics, with data from IHS Global Insight

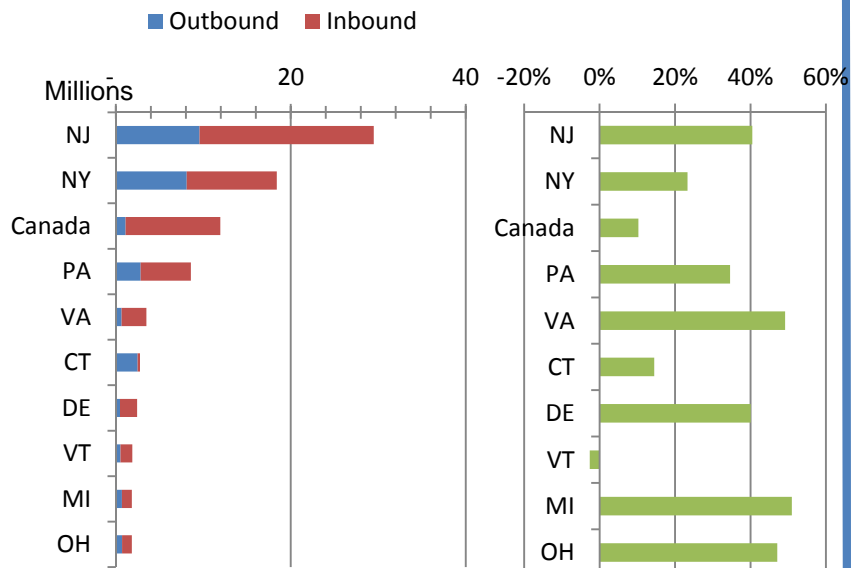


Trading Partners by 2040 Tonnage (Left) and 2007-2040 Growth (Right)

Source: Cambridge Systematics, with data from IHS Global Insight

Future Trading Partners

Essex County's largest trading partners will continue to be other New Jersey counties, followed by New York and Canada. Relatively low growth rates in trade with Canada and the New England states will allow Virginia and Delaware to advance ahead of Connecticut and Vermont, respectively, as Essex County's top trading partners.

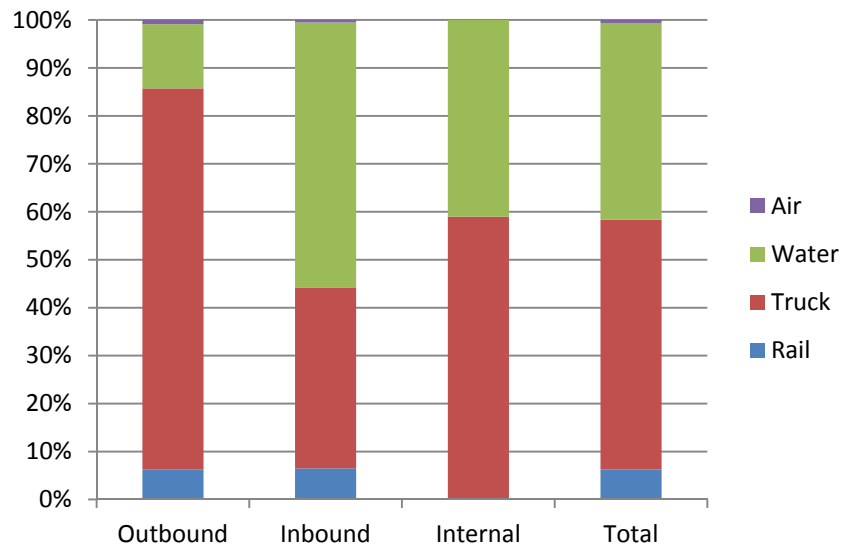


Future Mode Utilization

The forecast anticipates that rail and water will gain slightly larger shares of the market relative to trucks by 2040. The mode share for rail is expected to increase from 5% to 6%, and water is expected to increase from 39% to 41% during the forecast period. Trucks are expected to carry just over 52% of all freight tons in 2040, compared to 55% in 2007. Rail and water both are expected to make their greatest impact on inbound moves, with rail carrying 6% and water carrying 55% of inbound tonnage in 2040. Trucks are expected to carry 79% of outbound and 59% of internal tonnage.

Freight Tonnage by Mode and Direction, 2040

Source: Cambridge Systematics, with data from IHS Global Insight

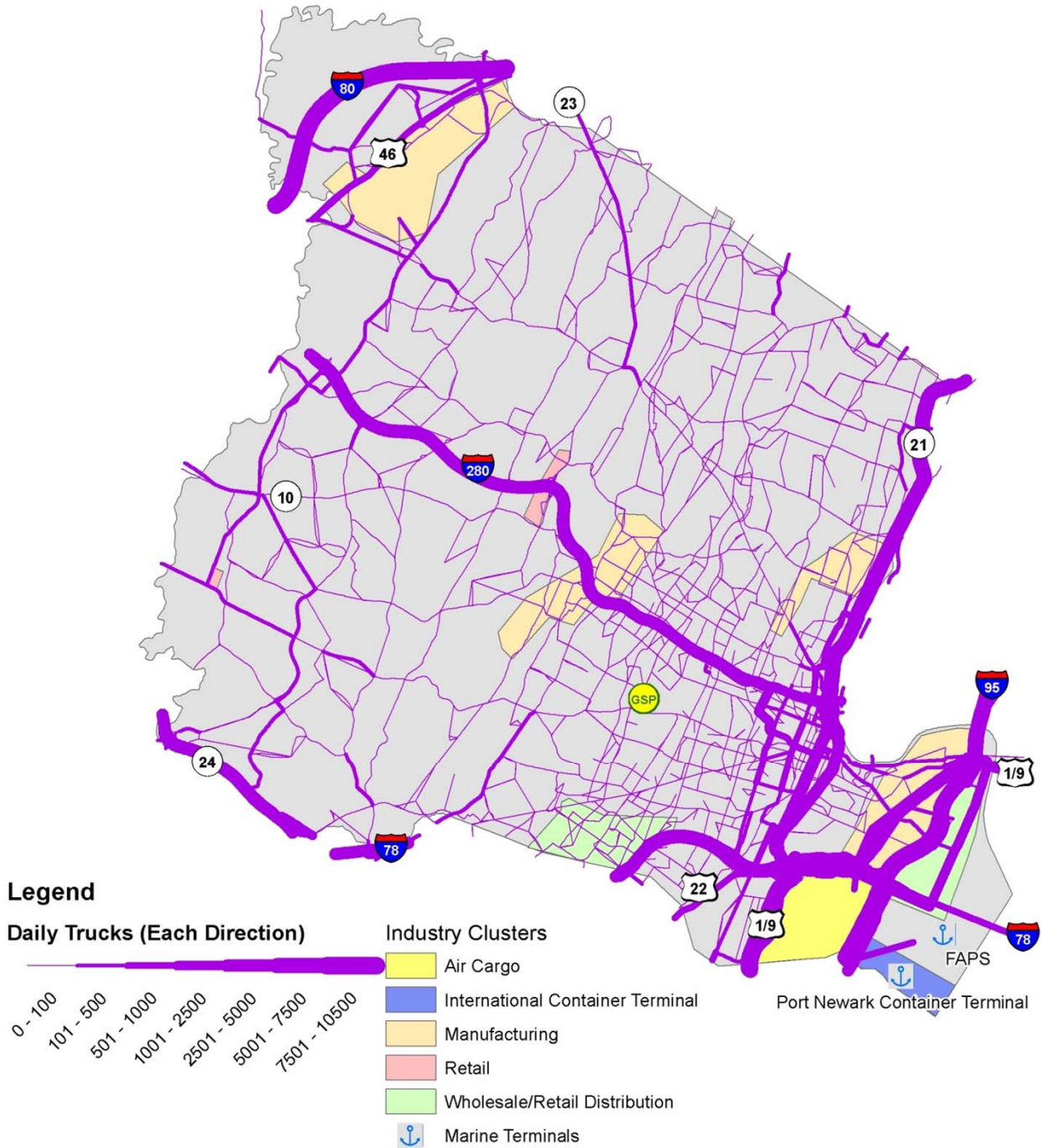

Future Highway Network Utilization

In 2040, Essex County’s highway network is expected to remain the primary conveyor of freight into, out of, within and through the County. The number of trucks traveling on the New Jersey Turnpike and Interstate 80 is expected to increase by 40%, or 6,000 trucks per day. Segments of Routes 1/9 and Interstate 78 west of the Turnpike could carry 2,000-3,000 more trucks in the future. Truck volumes on sections of Interstate 280, US Route 22, and NJ Routes 21 and 24 could double to nearly 10,000 daily trucks.

The map on Page 11 illustrates the projected truck volumes in 2040 on highways in Essex County.

Commodity Truck Flows in Essex County, 2040

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



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.

Essex County’s representative on the NJTPA Board of Trustees is County Executive Joseph DiVincenzo, who also serves as Third Vice-Chairman of the Board and Vice-Chairman of the Planning and Economic Development Committee.

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.