

SUBREGIONAL FREIGHT PROFILE

Essex County

ABOUT THIS PROFILE

The North Jersey Transportation Planning Authority (NJTPA) has developed a set of alternative freight forecasts to support transportation, land use, and economic development decisions. This Freight Profile is an update to a previous version published in 2012, and offers a snapshot of key metrics – Economy and Land Uses, Freight Flows, and Freight Transportation Networks in 2020 and in the forecast year, 2050.

ECONOMY AND LAND USES

With a 2018 population of 799,767, Essex is the 3rd 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 percent lower than the State's median household income.

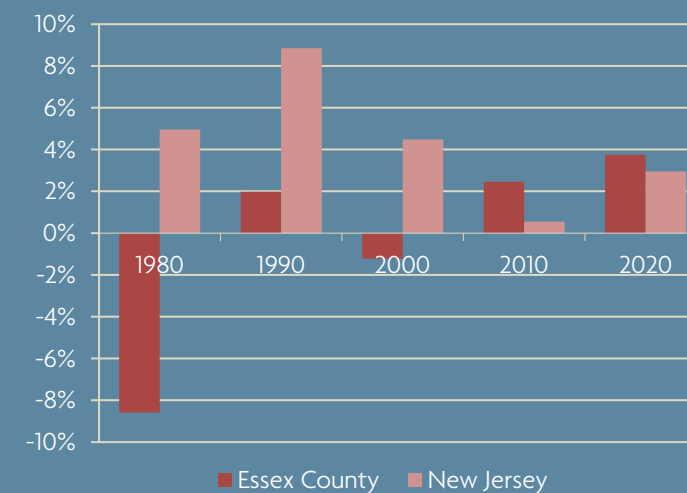
Essex County is home to:

- 799,767 people
- More than 20,000 businesses that employ 345,400 people; about 29 percent of these jobs are in industry sectors that are highly dependent on freight movement
- About 51 million tons of domestic freight shipped or received annually
- Nearly 10 million e-commerce packages delivered 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

Highlights

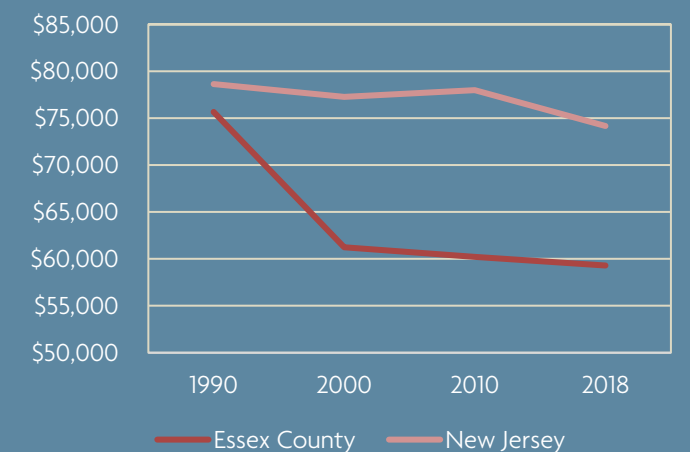
Population Growth by Decade

Source: U.S. Census Bureau



Median Household Income, Constant 2018 Dollars

Source: U.S. Census Bureau



EMPLOYMENT

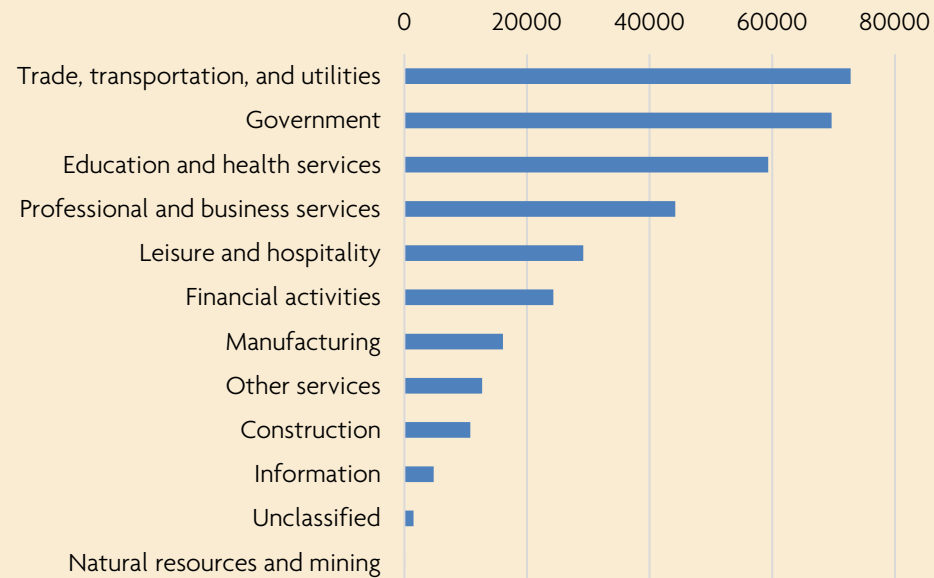
The County's economy employs 345,400 people in more than 20,000 establishments. About 29 percent are employed in "freight-intensive" industries, such as construction, manufacturing, mining and extraction, retail trade, wholesale trade, and logistics. About 71 percent are employed in industries that may generate freight but are less dependent on freight movement.

FREIGHT FLOWS

In 2020, an estimated 51.4 million tons of domestic freight will move into, out of, or within Essex County, by all modes of transportation (truck, rail, water, pipeline, 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).

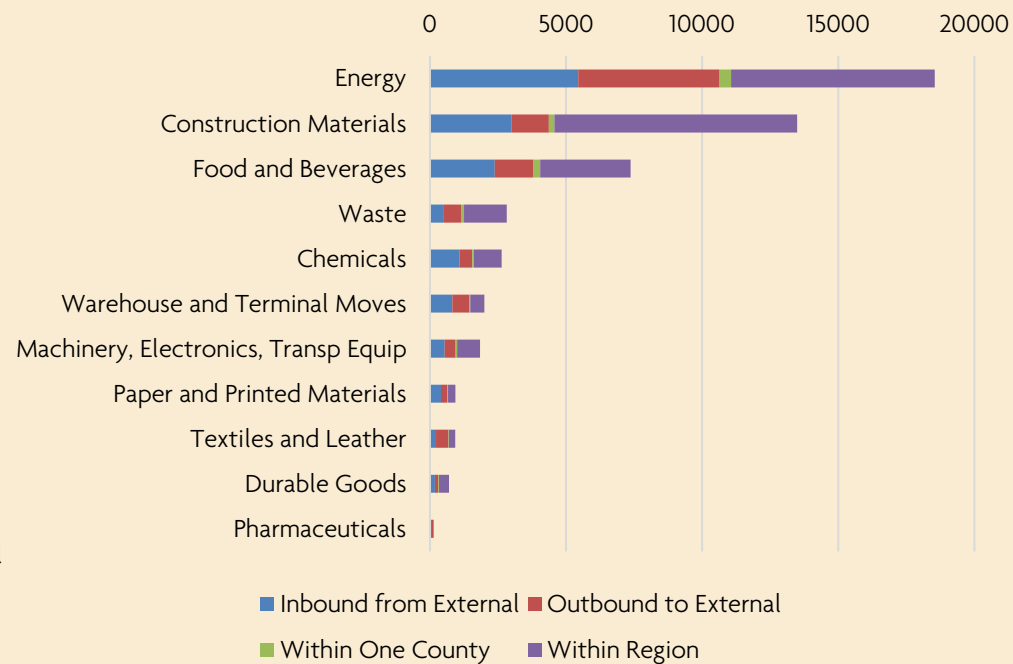
For domestic tonnage with an origin and/or destination in the County, around 36 percent consists of energy products, 40 percent of which moved between counties in the NJTPA region. Other leading commodities include moves of construction materials and food and beverages. Much of the inbound and intraregional municipal solid waste (MSW) was destined for the Essex County Resource Recovery Facility.

Employment by Industry, 2019



Source: U.S. Bureau of Labor Statistics

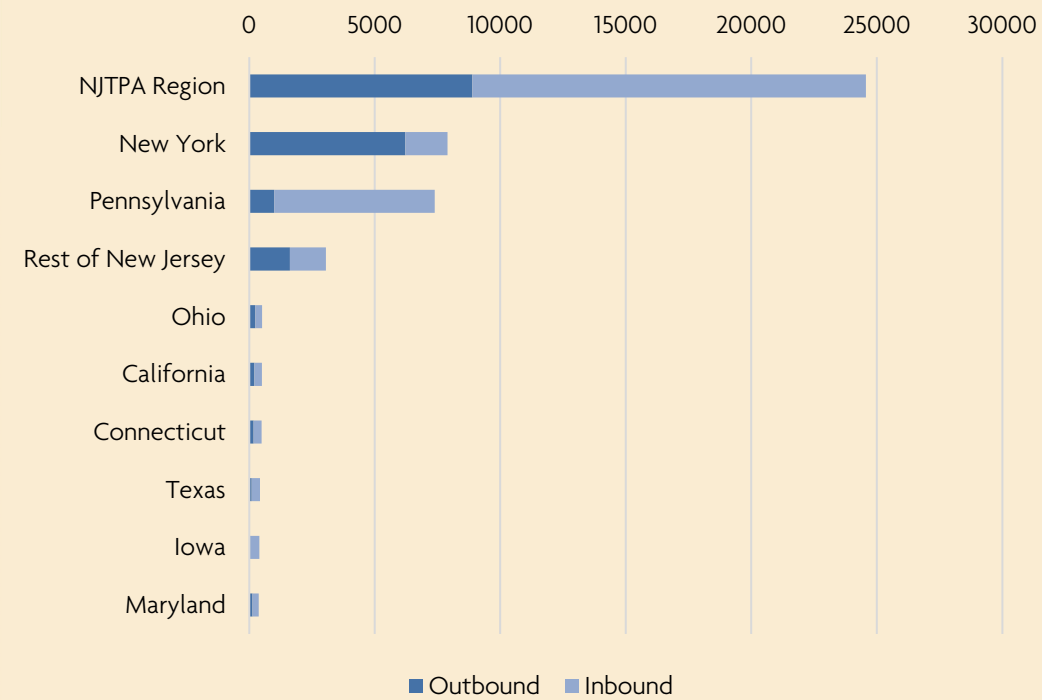
Thousands of Tons by Commodity by Direction, 2020



Source: NJTPA Freight Forecasting Tool, 2020

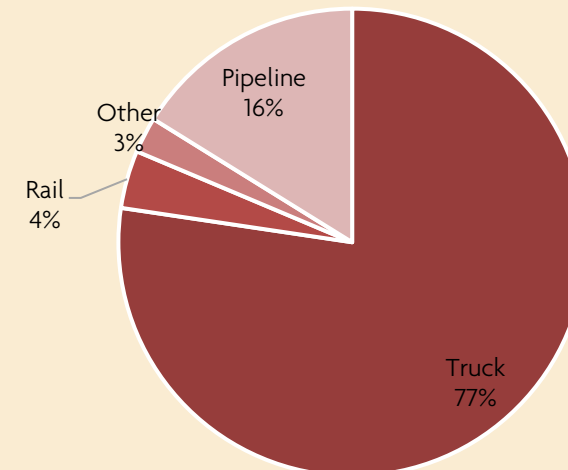
E-commerce has a growing presence in the retail landscape. Some of the freight shipments described in this profile include goods that are ultimately delivered to consumers who shop online. In 2019, about 10 million e-commerce shipments containing 14 million items were delivered to consumers in Essex County.

Thousands of Tons by Domestic Trading Partner, 2020



Source: NJTPA Freight Forecasting Tool, 2020

Tons by Mode, 2020



Source: NJTPA Freight Forecasting Tool, 2020

TRADING PARTNERS

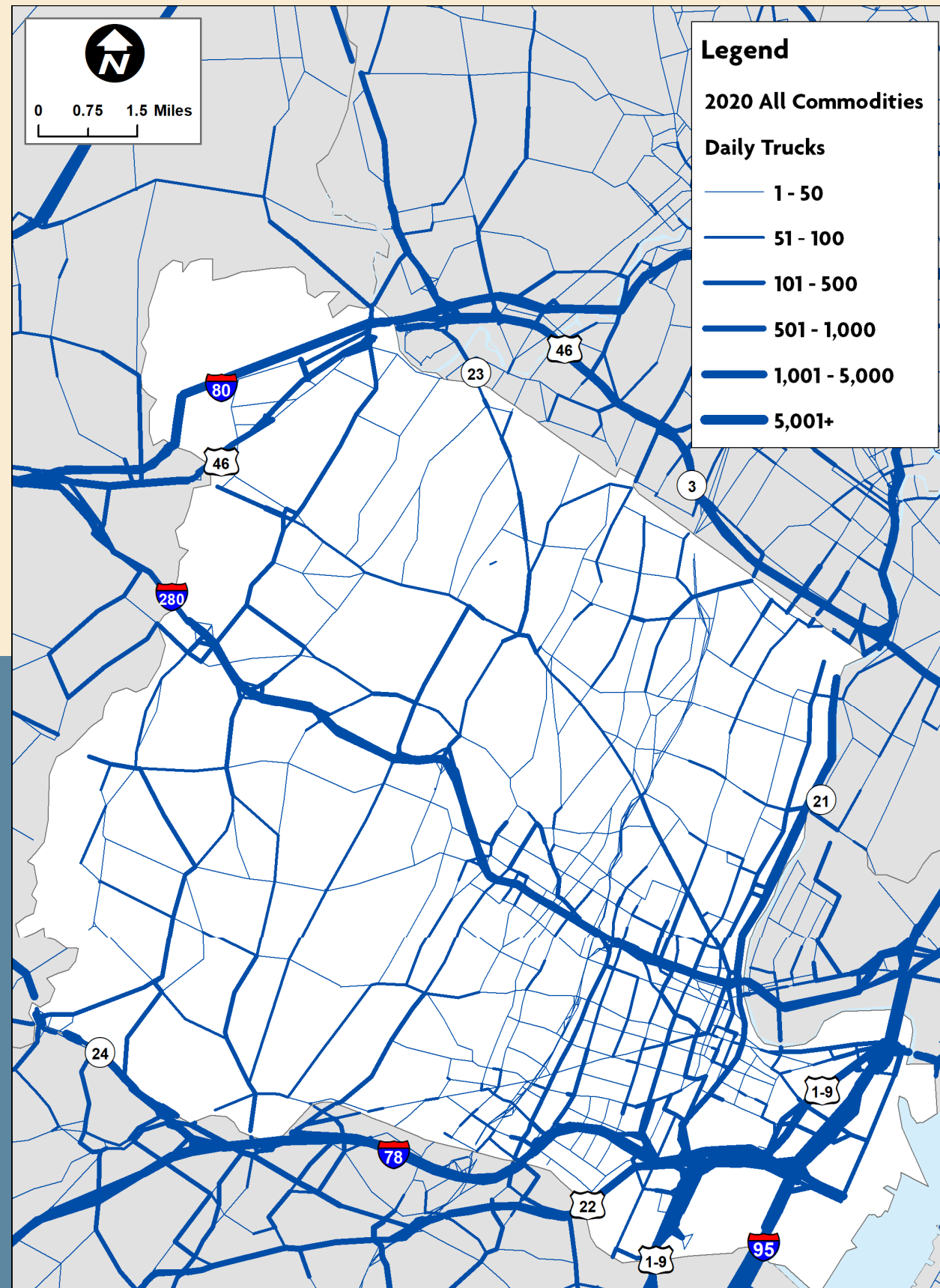
Essex County's major trading partners are, not surprisingly, its neighbors. As illustrated to the left, locations in the NJTPA region are the greatest origins of inbound freight and destinations for outbound freight. New York, Pennsylvania, and portions of New Jersey outside the NJTPA region are also among the top origins and destinations for freight traded with Essex County.

FREIGHT TRANSPORTATION NETWORKS

Freight can be handled by truck, rail, pipelines, 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, and pipelines are suited for moving energy products), time sensitivity (truck and air are most competitive), need for door-to-door service (trucking is needed unless the customer has a dock or rail connection).

For domestic freight traveling to, from or within Essex County, 77 percent travels by truck, 16 percent by pipeline, 4 percent by rail, and 3 percent by other modes. These modes also connect with the marine and air networks at terminals located in Essex County to move international freight to and from locations outside the United States.

Highway Network Utilization, 2020



Source: NJTPA Freight Forecasting Tool, 2020; NJRTM-E, 2019; NJOIT, 2008; Esri, 2014

HIGHWAY 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.

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.).

The map on the previous page illustrates the flows of commodity trucks, or trucks loaded with freight, on the highway network.

Portions of the New Jersey Turnpike/Interstate 95 carry more than 7,600 commodity trucks per day in each direction. Interstate 78 carries more than 5,200 commodity trucks per day in each direction. Between 2,000 and 3,000 commodity trucks per day per direction travel on Interstate 80 in Fairfield. About 2,000 trucks per day per direction travel on Route 1/9 and Route 21 in Newark. About 1,500 trucks per day per direction travel on Interstate 280.

BUSINESS ESTABLISHMENTS

The map on the next page illustrates the locations of facilities that ship, handle, or receive freight, including:

- Production facilities such as manufacturing businesses or mining and quarrying facilities where goods are produced or raw materials are extracted;
- Logistics facilities, including warehousing and transportation facilities through which goods are distributed; and
- Sales, including retail, services, and institutional establishments where goods are sold.

Large business establishments in the production and logistics categories are clustered in the Ironbound neighborhood and in and near the marine terminals in Newark and along the Route 46 corridor in Fairfield. Retail and other establishments in the sales category are clustered in Fairfield and along commercial corridors such as Springfield Avenue, Bloomfield Avenue, and Main Street in East Orange and Orange.

Top 5 Business Establishments in Freight-Generating Industry Sectors, by Size

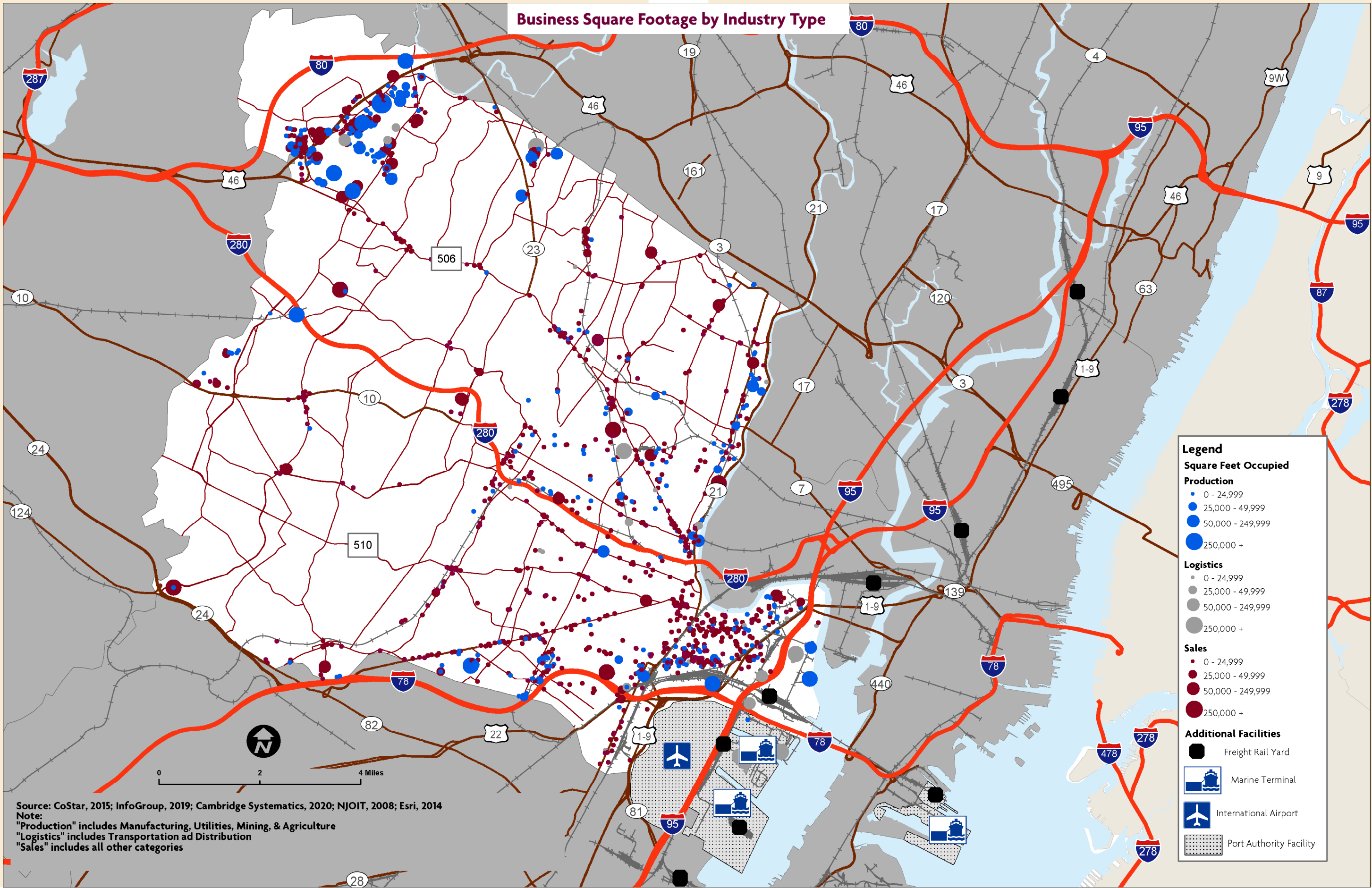
Company	Square Footage	Municipality	Business Type
Fabuwood Cabinetry	750,000	Newark	Production
Salson Logistics	575,000	Newark	Logistics
Port Logistics Group	450,000	Newark	Logistics
Middle Atlantic Products	417,000	Fairfield	Production
HelloFresh	350,000	Newark	Logistics

Source: Infogroup, 2019; CoStar, 2015

Note: In addition to the establishments listed in this table, other major freight generating facilities are in Essex County, including the Anheuser-Busch production facility in Newark.

Note: Some companies may have multiple locations in the county and/or region.

Business Square Footage by Industry Type



Legend

Square Feet Occupied

Production

- 0 - 24,999
- 25,000 - 49,999
- 50,000 - 249,999
- 250,000 +

Logistics

- 0 - 24,999
- 25,000 - 49,999
- 50,000 - 249,999
- 250,000 +

Sales

- 0 - 24,999
- 25,000 - 49,999
- 50,000 - 249,999
- 250,000 +

Additional Facilities

- Freight Rail Yard
- Marine Terminal
- International Airport
- Port Authority Facility

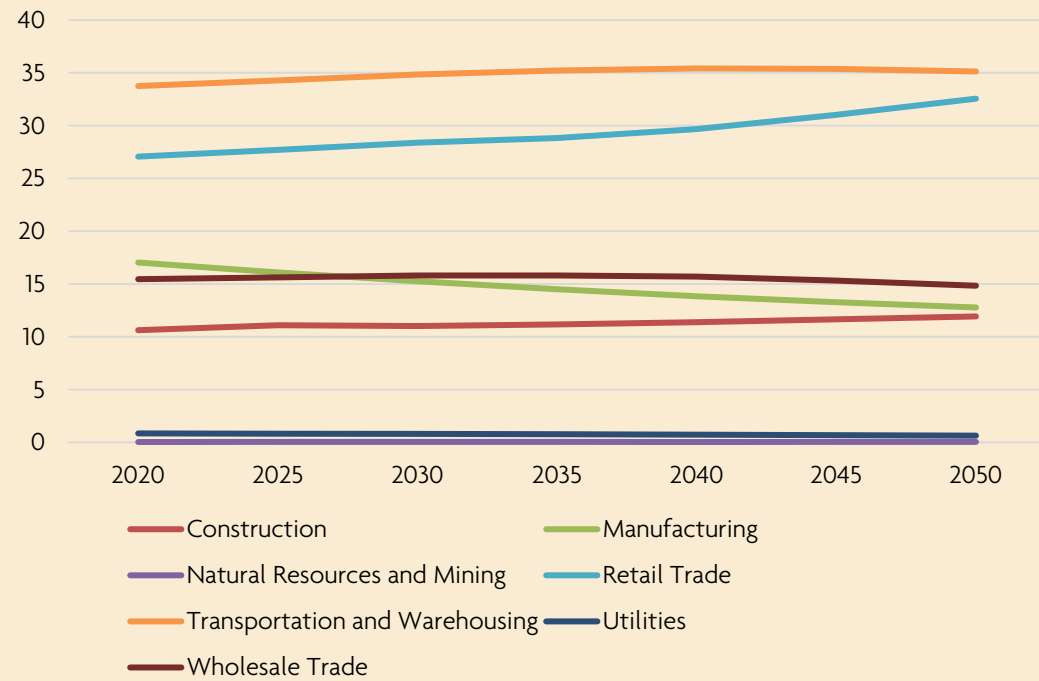
Source: CoStar, 2015; InfoGroup, 2019; Cambridge Systematics, 2020; NJOIT, 2008; Esri, 2014

Note:
 "Production" includes Manufacturing, Utilities, Mining, & Agriculture
 "Logistics" includes Transportation and Distribution
 "Sales" includes all other categories

EMPLOYMENT FORECAST

Employment in freight-intensive industries is expected to increase by about 3 percent during the forecast period. Manufacturing, utilities, and wholesale trade employment is expected to decline while retail trade, construction, transportation and warehousing, and natural resources employment are expected to increase by 20 percent, 12 percent, 4, percent, and 3 percent, respectively, between 2020 and 2050.

Forecasted Employment in Freight-Generating Industry Sectors, 2020-2050 (Thousands of Jobs)



Source: Moody's, 2020

Commodity Flow Forecast, 2020-2050

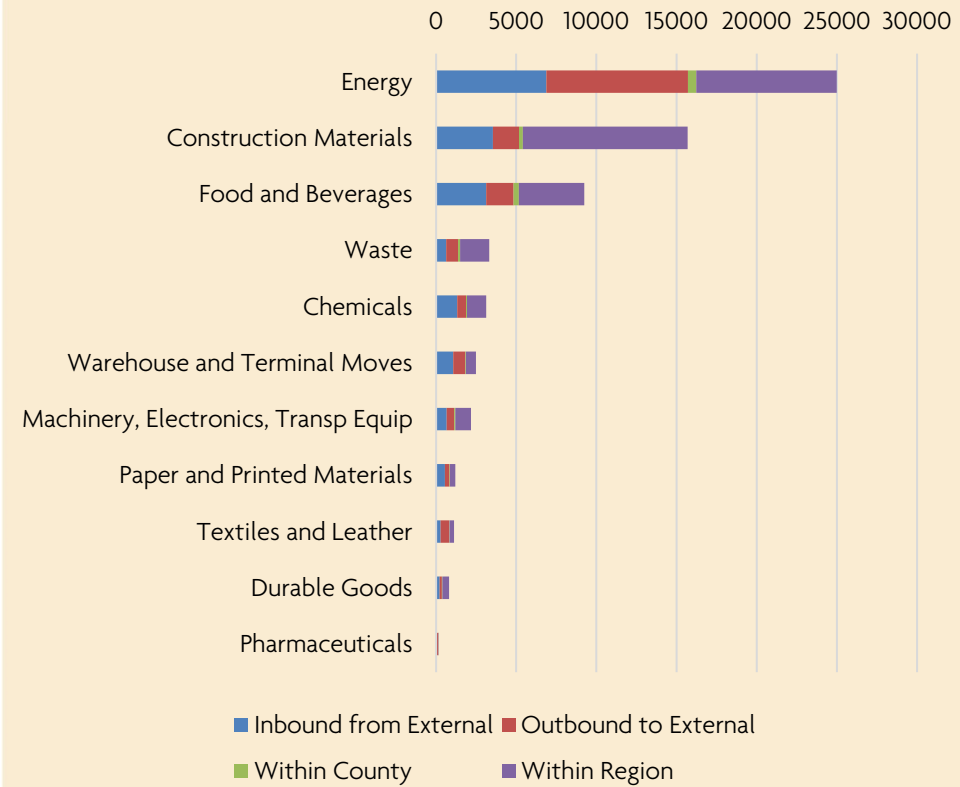
By 2050, commodity flows into, out of, and within Essex County are expected to have increased by about 25 percent, from 51.4 million tons to 64.4 million tons (a difference of 13 million tons). Energy products is expected to remain the number one commodity transported by tonnage, followed by construction materials, food and beverages, and waste. Machinery, electronics, and transportation equipment and food and beverages are the top commodity bundles by value of goods and are expected to remain the top two bundles by value through 2050.

Commodity Bundle	2020 Tons (thousands)	2050 Tons (thousands)	2020 Value (millions \$)	2050 Value (millions \$)	Change in Tons	Change in Value
Chemicals	2,634	3,127	10,774	12,751	19%	18%
Construction Materials	13,492	15,690	6,399	7,456	16%	17%
Durable Goods	702	816	5,770	6,792	16%	18%
Energy	18,544	24,997	11,629	14,877	35%	28%
Food and Beverages	7,371	9,251	13,722	17,030	25%	24%
Machinery, Electronics, Transp Equip	1,844	2,180	22,002	26,231	18%	19%
Paper and Printed Materials	938	1,200	2,114	2,947	28%	39%
Pharmaceuticals	135	158	5,078	5,961	17%	17%
Warehouse and Terminal Moves	2,001	2,487	12,639	16,151	24%	28%
Waste	2,826	3,323	920	1,095	18%	19%
Textiles and Leather	933	1,128	8,872	10,718	21%	21%
Grand Total	51,420	64,356	99,918	122,009	25%	22%

Source: NJTPA Freight Forecasting Tool, 2020

Note: Commodities assigned a value of \$0 indicate the absence of sales or commercial value

Thousands of Tons by Commodity by Direction, 2050



Source: NJTPA Freight Forecasting Tool, 2020

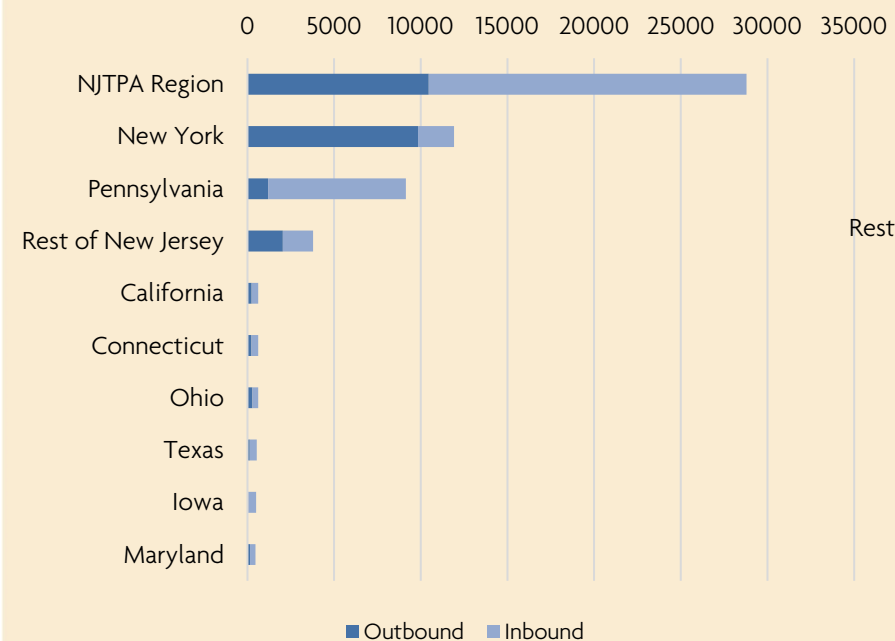
COMMODITY VOLUMES AND DIRECTION

The directional movement of shipments containing the top 10 commodities are expected to shift slightly. By 2050, outbound moves of energy products are expected to surpass intraregional moves as the predominant directional flow. Inbound flows of food and beverages are expected to grow slightly more than intraregional moves between 2020 and 2050.

FUTURE TRADING PARTNERS

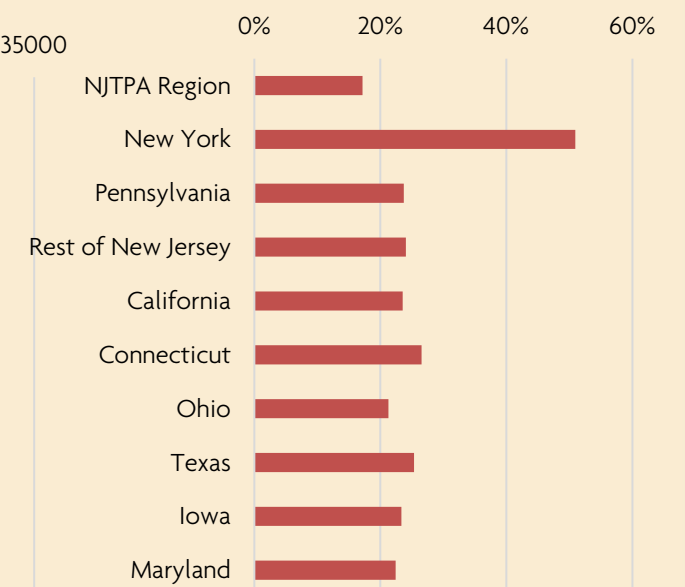
Essex County's largest trading partners will continue to be other counties in the NJTPA region, followed by New York and Pennsylvania. The volume of trade with New York is expected to grow at a greater rate (51 percent) than trade with other top trading partners between 2020 and 2050.

Thousands of Tons by Domestic Trading Partner, 2050



Source: NJTPA Freight Forecasting Tool, 2020

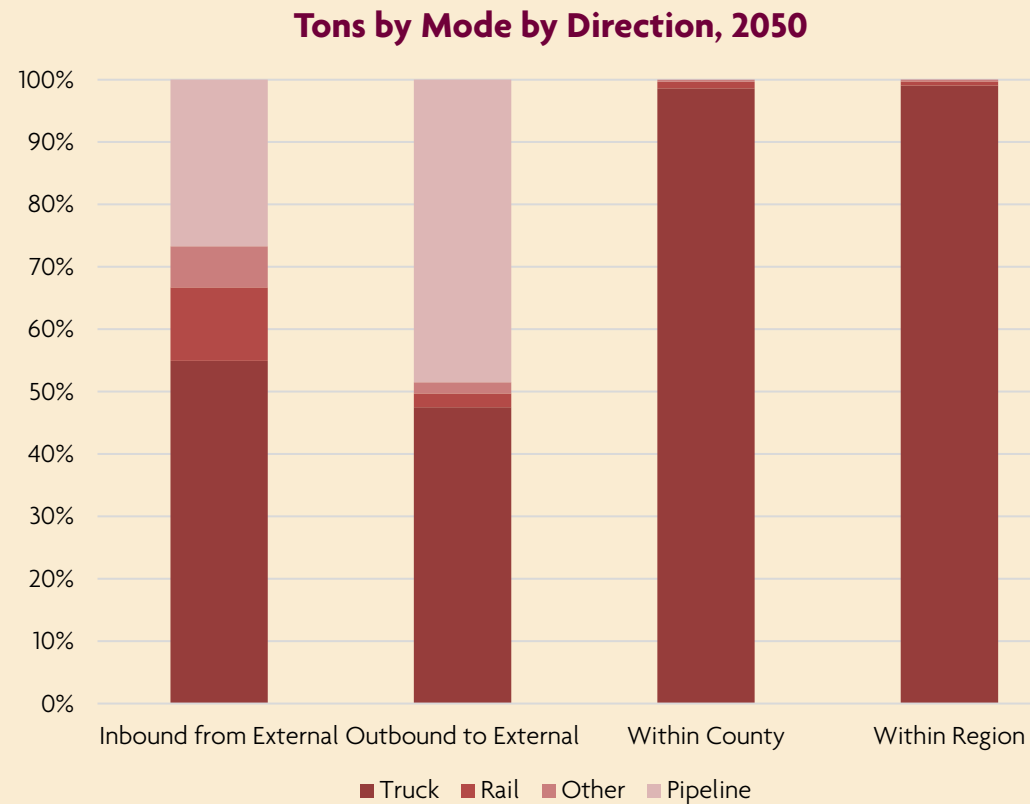
Growth, 2020-2050



Source: NJTPA Freight Forecasting Tool, 2020

FUTURE MODE UTILIZATION

The forecast anticipates a slight increase in mode share for pipeline by 2050. Trucks are expected to carry 74 percent of all freight tons, about 19 percent is expected to move by pipeline. Rail is expected to move 4 percent and other modes are expected to carry about 2 percent. Rail is expected to move 12 percent of inbound tonnage, pipelines are expected to move 27 percent of inbound and 49 percent of outbound tonnage, and truck will carry about 99 percent of intracounty and intraregional freight moves.



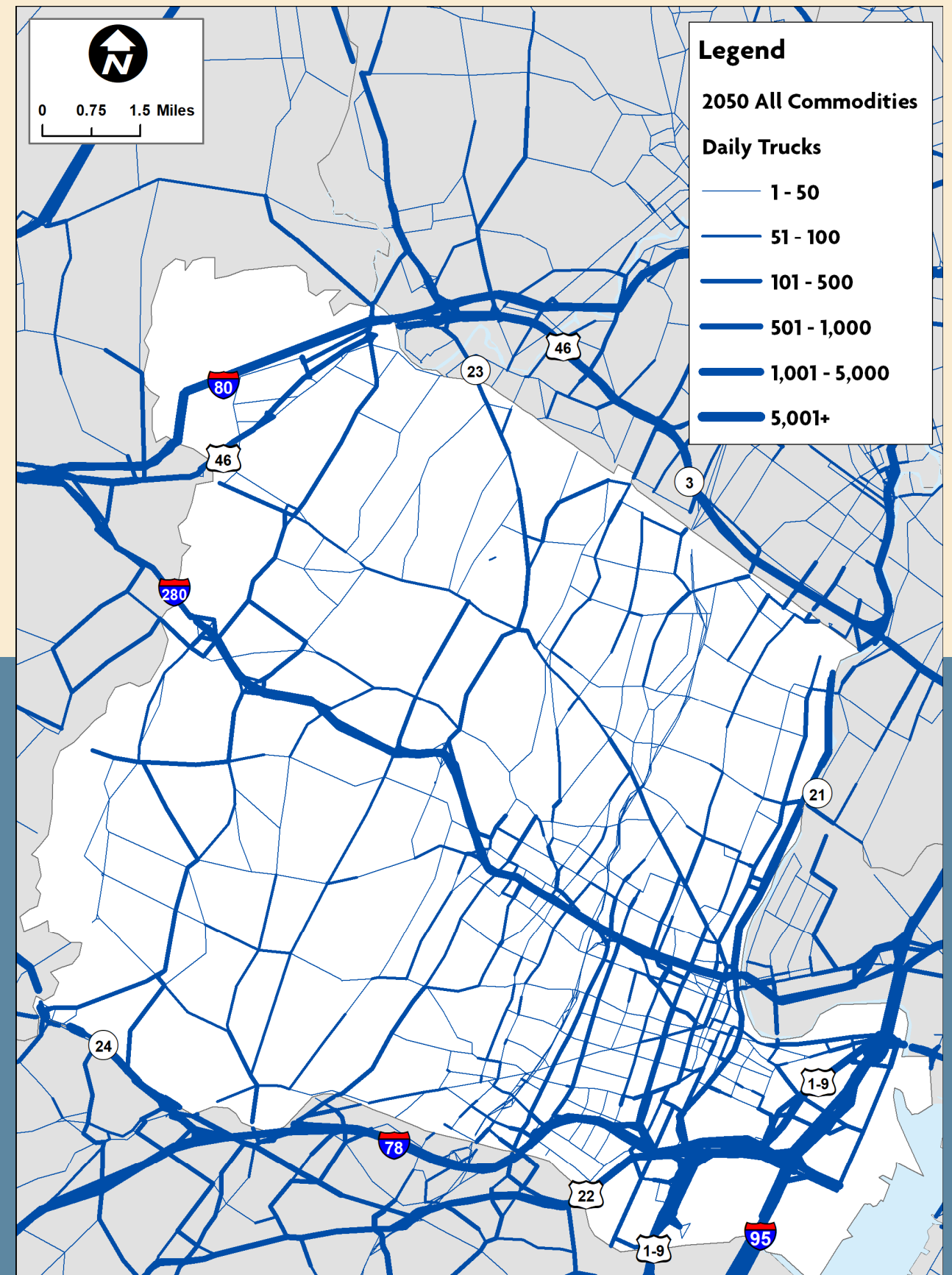
Source: NJTPA Freight Forecasting Tool, 2020

Future Highway Network Utilization

In 2050, 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 commodity trucks traveling on Interstates 95 and 78 is expected to increase by about 500 trucks per day in each direction between 2020 and 2050. Commodity truck volumes on Interstate 80 are expected to increase by 350 trucks per day in each direction. Route 1/9 commodity truck volumes are expected to increase by about 200 trucks per day in each direction, and volumes on Interstate 280 and Route 21 are expected to increase by about 100 trucks per day in each direction.

The map on Page 11 illustrates the projected commodity truck volumes in 2050 on highways in Essex County.

Highway Network Utilization, 2050



Source: NJTPA Freight Forecasting Tool, 2020; NJRTM-E, 2019; NJOIT, 2008; Esri, 2014.

ABOUT THE NJTPA

The North Jersey Transportation Planning Authority (NJTPA) is the federally authorized Metropolitan Planning Organization for 6.7 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, 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 Director of NJ TRANSIT, the Chairman of the Port Authority of New York and 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.

ABOUT THE STUDY

Conditions in the goods movement industry have changed over the last several years. The 2050 Freight Industry Level Forecasts Study developed updated information on current and projected freight demand through 2050 for the NJTPA to use in its freight planning activities. This effort built on two previous NJTPA freight planning studies: the 2040 Freight Industry Level Forecasts Study (completed in 2012) and the Regional Freight Commodity Profiles Study (completed in 2015).

This study helps identify locations with concentrations of goods movement activity and where they will occur in the future; the types of commodities that are and will be moving through the region; and where strategic investments should be considered to support economic growth and enhance regional resiliency. The results of this work will serve as background for the NJTPA's next Long Range Transportation Plan as well as freight planning and subregional planning studies.

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 NJTPA with funding from the Federal Transit Administration and the Federal Highway Administration. The NJTPA is solely responsible for its contents.