

REGIONAL FREIGHT COMMODITY PROFILE

Food and Beverages

COMMODITY BUNDLE OVERVIEW

The food and beverages commodity bundle consists of seven groups of commodities: alcoholic beverages, cereal grains, animal feed, milled grain products, other agriculture products, meat and seafood, and other foodstuffs. Other foodstuffs is the largest category by weight and value, and includes a variety of food products sold in stores or to food retailers.

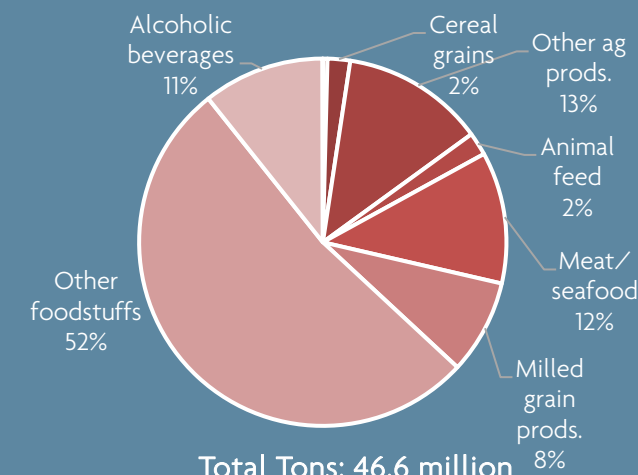
The primary data source for commodity flows reported in this profile is NJTPA's Freight Forecasting Tool, which generates commodity freight data and forecasts for a 2020 base year and 2050 forecast year. This profile describes freight flows between domestic origins and destinations.

- 46.6 million tons in 2020, increasing 16 percent to 54.2 million tons in 2050.
- Represents 13 percent of the goods moved in the region by weight and 12 percent by value.
- More than 30 million square feet of warehousing/distribution center space dedicated to the supply chain of commodities in this bundle
- 90 percent moves by truck, 6 percent by rail, and 4 percent by other modes.

Highlights

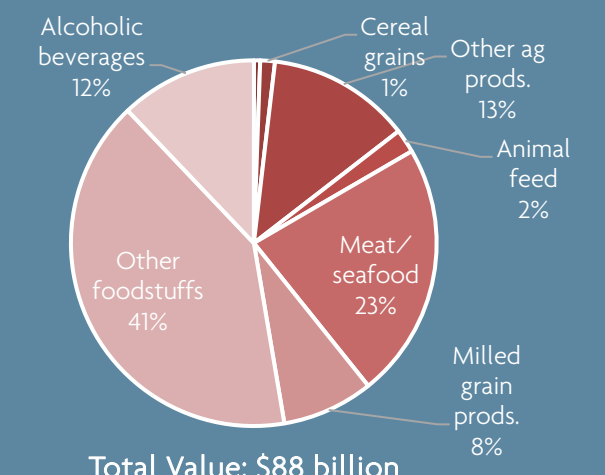
Composition

Domestic Tons in 2020



Source: NJTPA Freight Forecasting Tool, 2020

Domestic Value in 2020



Source: NJTPA Freight Forecasting Tool, 2020

Other foodstuffs (a.k.a. food products) is the largest commodity by weight and by value in this commodity bundle. Other agriculture products, meat and seafood, and alcoholic beverages are next-largest commodities by weight and by value.

LOGISTICS SUMMARY

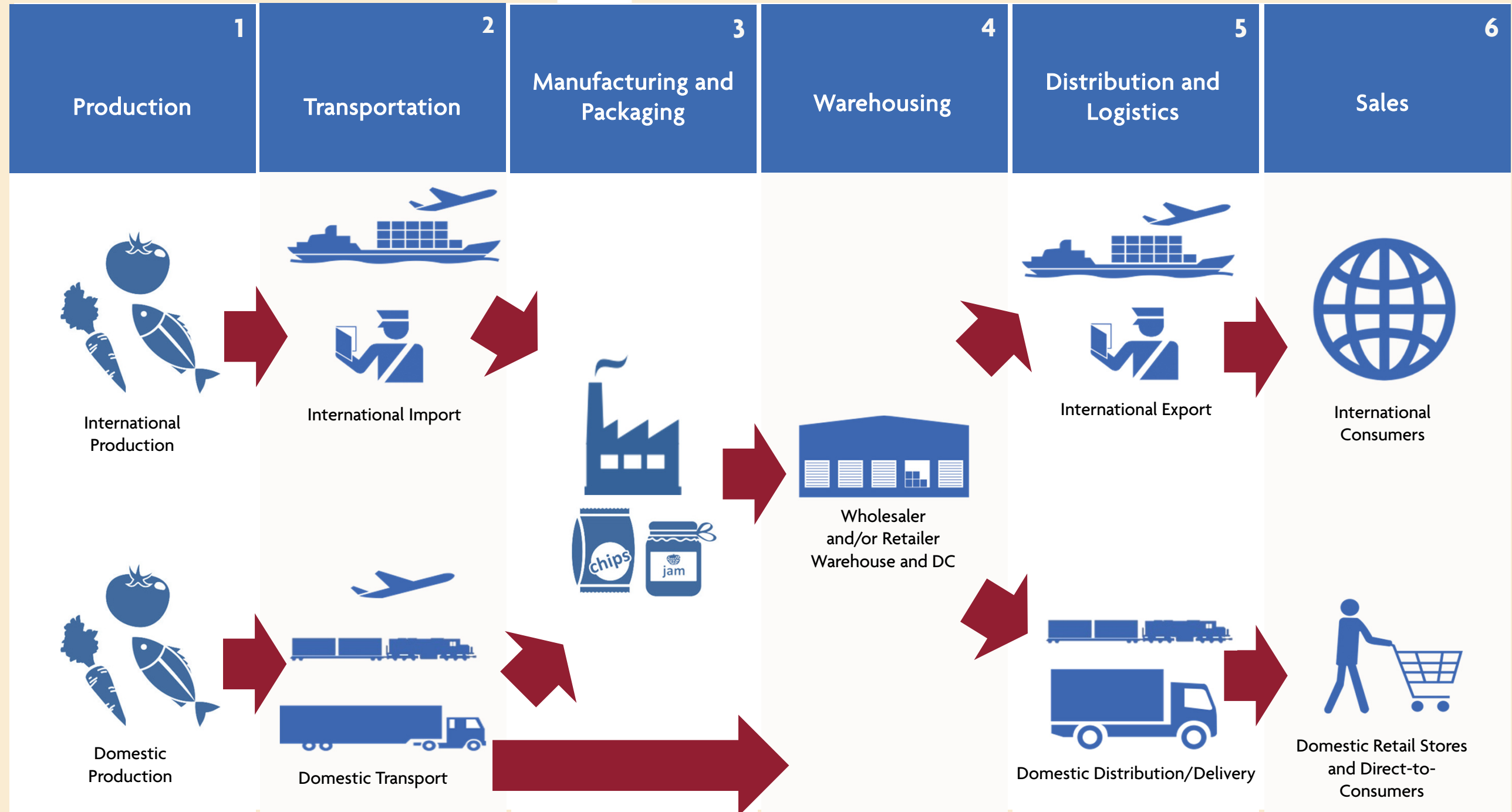
The graphic to the right represents the supply chain for the food subsection of this bundle from initial production through distribution of products to retail stores and consumers.

This supply chain consists of six steps:

1. International and domestic raw goods are produced and collected.
2. International goods are transported by ocean vessel or air to U.S. Ports-of-Entry where they are inspected by U.S. Customs and transloaded to truck and rail. Domestically produced goods are transported by truck, rail, and air.
3. Goods are delivered to a manufacturing center where they are processed and packaged.
4. Finished goods are sent to a wholesaler or retailer distribution center or warehouse for sorting and storage.
5. Products are distributed via one of two routes:
 - A. By truck to an export distributor or freight forwarder for export to international customers via air or ocean vessel.
 - B. By truck for domestic delivery to retail stores and to fulfill direct-to-consumer orders.
6. Shipments are delivered to international and domestic customers according to customers' specification.

Note that some products bypass retailer or customer warehousing and distribution centers and move directly from a wholesaler's warehouse to the final user.

Also note that online grocery and food product shopping is gaining popularity, and some products are delivered from retail stores to consumers. See the e-commerce delivery profile for more information.



Business Locations by Industry Type

Business Square Footage by Industry Type

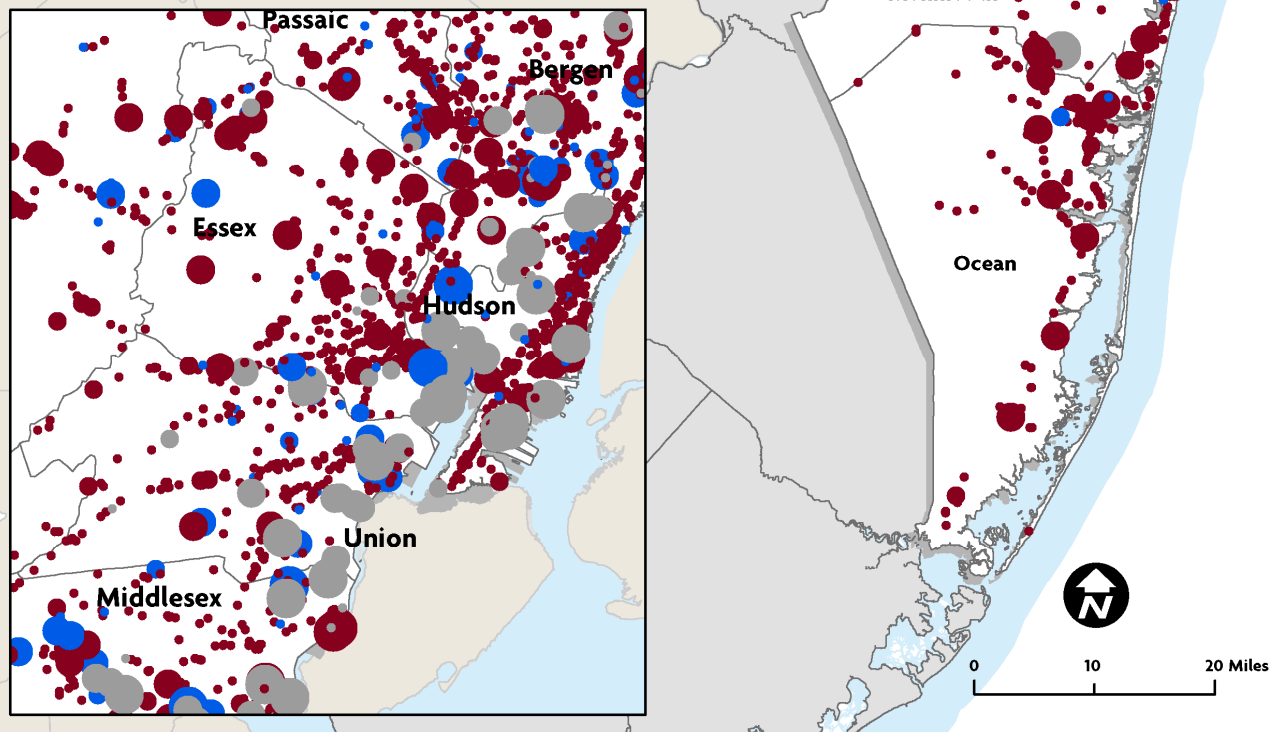
Food & Beverage

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 +

Source: 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



BUSINESS LOCATIONS SUMMARY

The map on the previous page illustrates the locations of facilities that ship, handle, or receive commodities in this bundle, including:

- Production facilities such as mining, agriculture, and manufacturing businesses where goods are produced, and correspond to Step 1 in the logistics summary chart on pages 2 and 3.
- Logistics facilities, including warehousing and transportation facilities through which goods are distributed, and correspond to steps 2 through 5 on the logistics summary chart.
- Sales, represented in Step 6 on the logistics summary chart, including retail, services, and institutional establishments where goods are sold.

Clusters of establishments are located in the urban areas of the region, including southern Bergen, southern Passaic, Hudson, eastern Essex and Union, and Middlesex counties. Northwestern Essex, eastern Morris, and eastern Somerset counties also contain clusters of facilities handling food and beverages.

KEY INDUSTRY TRENDS

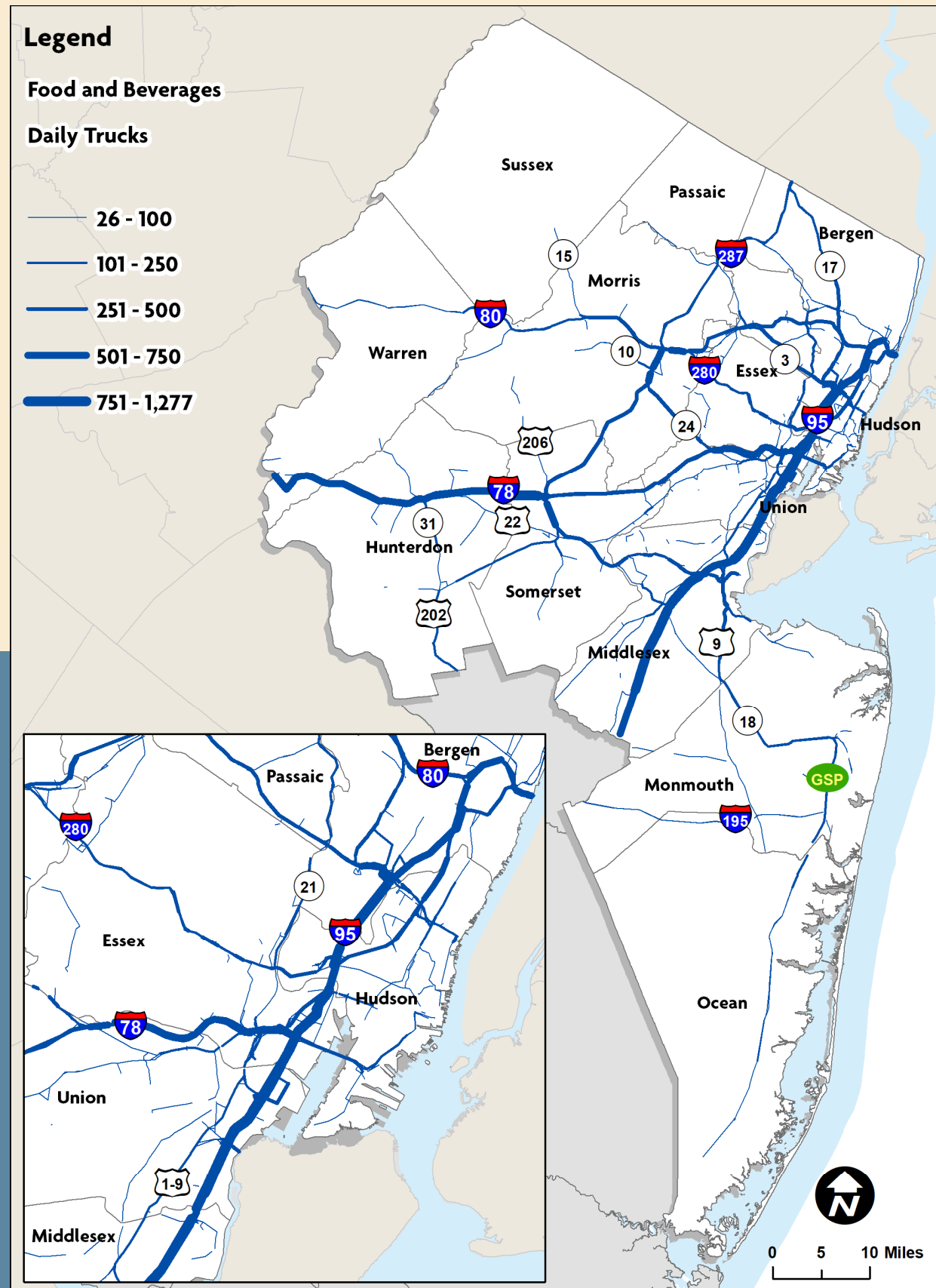
The following trends are shaping demand for food and beverages today, and projected demand in the future:

- Grocery and prepared meal delivery and curbside pickup services continue to grow in ways that both challenge and strengthen traditional grocery stores and restaurants.
- Demand for alternative meat and dairy products is increasing while manufacturers utilize a wider variety of protein substitutes to make their products.
- Demand for locally sourced food is growing. This trend could shorten the supply chain for many products and reduce the cost associated with food transportation.
- The New Jersey craft beer industry is leading the country in market growth, increasing 43 percent between 2015 and 2019.
- Hydroponic farming, aerofarms, and 3D food printing are emerging food production technologies that could change origins, destinations, and the products transported.
- Food products increasingly need refrigerated storage and transportation, in part to comply with the Food Safety Modernization Act.

Beverage Product Manufacturing Facility (Left) and Food and Beverages Retail Outlet (Right)



Highway Network Utilization, 2020



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

HIGHWAY NETWORK FLOWS OF FOOD AND BEVERAGES

The map on the previous page shows the volume of truckloads of goods in this bundle traveling on highway segments in the NJTPA region every day.

Portions of the New Jersey Turnpike in between Exit 8A in Middlesex County and Exit 16W in Bergen County carry between 1,000 and 1,277 daily truckloads of food and beverage products in each direction.

Sections of Interstate 78 in Somerset, Hunterdon, Warren, Union, and Essex counties, and parts of the New Jersey Turnpike north of Exit 17 and south of Exit 8A carry 501 to 750 truckloads of food and beverage products per day in each direction.

COMMODITY FLOW SUMMARY

Collectively, more than 46.6 million tons of food and beverage commodities, worth \$88 billion, moved in the NJTPA region in 2020. By 2050, nearly 54.2 million tons worth \$100 billion will move in the region. These projections represent 16 percent growth by tons and 14 percent growth by value.

Food and beverages represented 13 percent of the goods moved in the region by weight and 12 percent by value in 2020 and are expected to represent the same shares of weight and value of goods moved in the region in 2050.

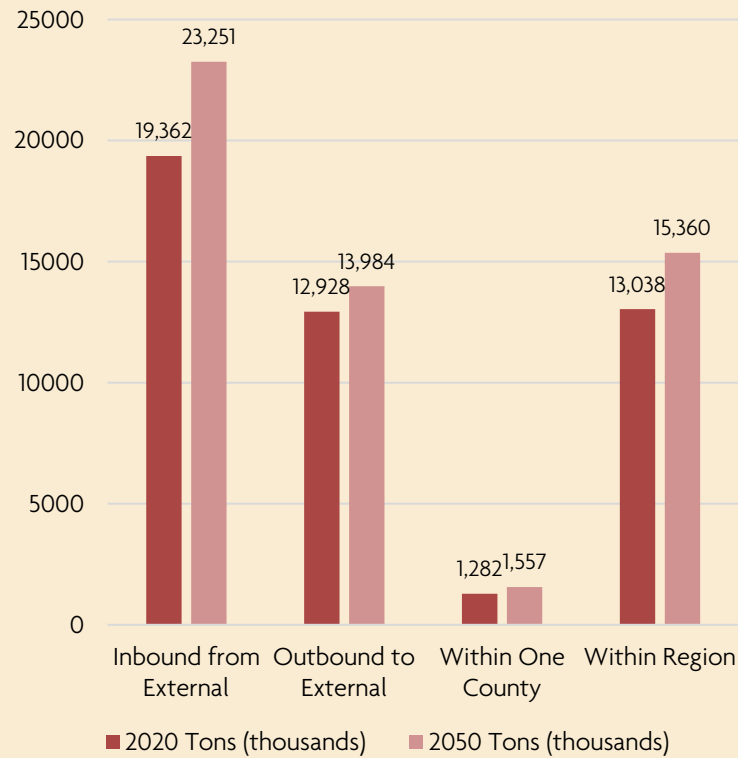
Other foodstuffs (a.k.a., food products), other agriculture products, meat and seafood, and alcoholic beverages combined make up 87 percent of food moves by weight and value. Alcoholic beverages is expected to be the fastest-growing commodity in this bundle, increasing 28 percent by weight and 26 percent by value between 2020 and 2050.

Forecasted Change in Commodity Flows in the Food and Beverages Bundle by Weight and Value, 2020 and 2050

Commodity	2020 Tons (thousands)	2050 Tons (thousands)	2020 Value (millions \$)	2050 Value (millions \$)	Change in Tons, 2020-2050	Change in Value, 2020-2050
Live animals/fish	190	200	489	512	5%	5%
Cereal grains	927	1,040	1,130	1,316	12%	16%
Other ag prods.	5,876	6,199	11,056	11,644	6%	5%
Animal feed	943	1,015	1,824	1,979	8%	8%
Meat/seafood	5,397	5,605	19,747	20,567	4%	4%
Milled grain prods.	3,870	4,645	7,056	8,442	20%	20%
Other foodstuffs	24,415	29,037	35,421	41,774	19%	18%
Alcoholic beverages	4,981	6,399	10,559	13,316	28%	26%
Tobacco prods.	10	11	489	537	10%	10%
Grand Total	46,609	54,153	87,772	100,087	16%	14%

Source: NJTPA Freight Forecasting Tool, 2020

Tons by Direction, 2020 and 2050



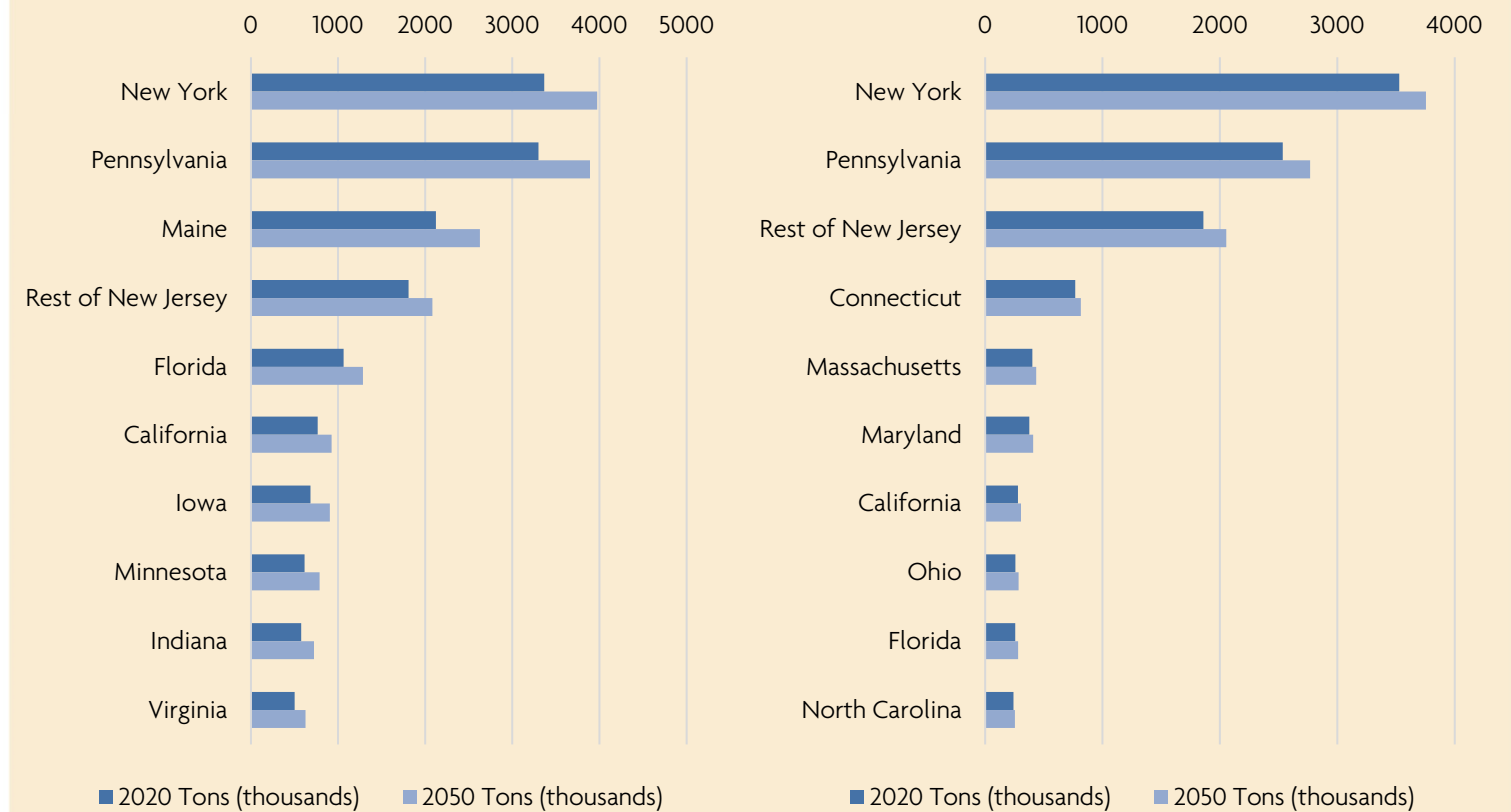
About 42 percent of food and beverages travel in the inbound direction from points of origin outside the region. Inbound and intraregional moves are expected to grow at the greatest rates (20 percent and 18 percent, respectively) between 2020 and 2050.

About three-quarters of the food and beverages imported to the NJTPA region originate in one of the locations shown in the graph on the next page. New York, Pennsylvania, and Maine each sent more than 2 million tons of food or beverages to the NJTPA region in 2020. Among the top origins, flows from Iowa are expected to grow fastest (33 percent) and flows from the rest of New Jersey are expected to grow slowest (15 percent) through 2050.

The graph on the next page also shows the destinations of 81 percent of the goods in this commodity bundle that leave the NJTPA region. Among the top destinations, flows to the rest of New Jersey and Ohio are expected to grow fastest (10 percent) and flows to North Carolina are expected to grow slowest (5 percent) through 2050.

Source: NJTPA Freight Forecasting Tool, 2020

Top Origins of Inbound Domestic Commodities (Left) and Top Destinations of Outbound Domestic Commodities (Right), 2020 and 2050



Source: NJTPA Freight Forecasting Tool, 2020

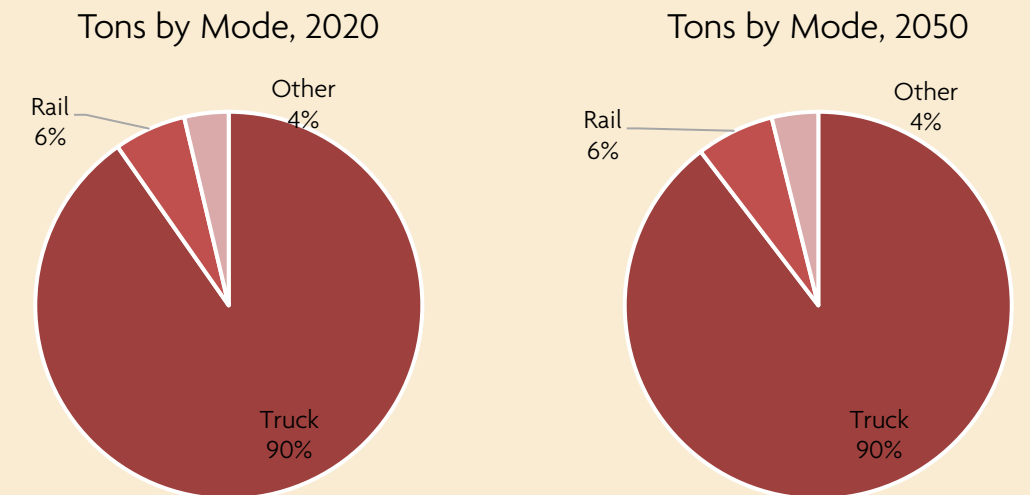
Source: NJTPA Freight Forecasting Tool, 2020

Nearly All of the Food and Beverage Goods in the Region Travel by Truck or Rail



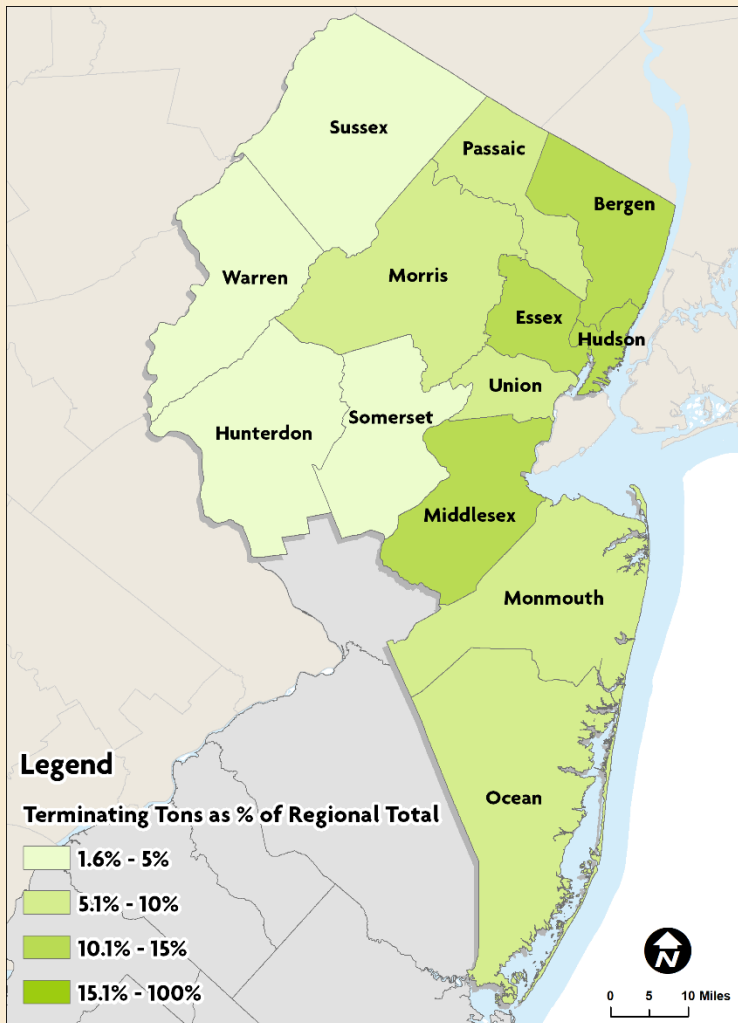
Mode Splits, 2020 and 2050

In 2020, about 90 percent of the food and beverages commodities moving in the NJTPA region traveled by truck. Rail carried about 6 percent of goods in this commodity bundle. Other modes carried about 4 percent of goods in this bundle. By 2050, the share of tons moving by each mode is expected to remain similar.



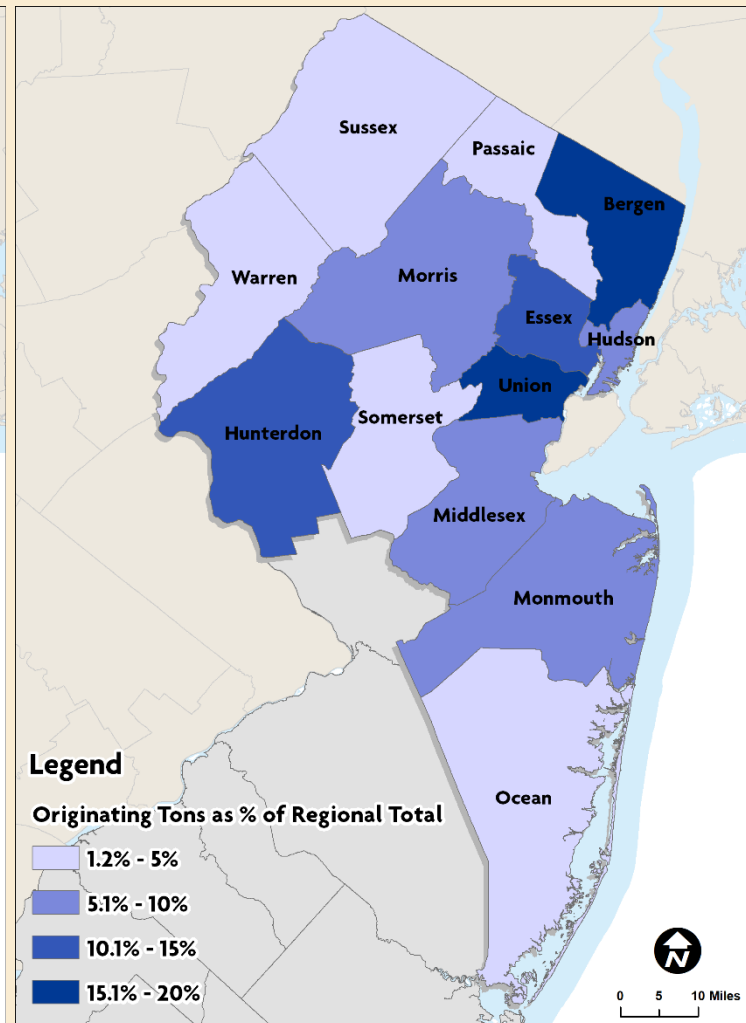
Source: NJTPA Freight Forecasting Tool, 2020

Inbound Domestic Tons by County, 2020



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

Outbound Domestic Tons by County, 2020



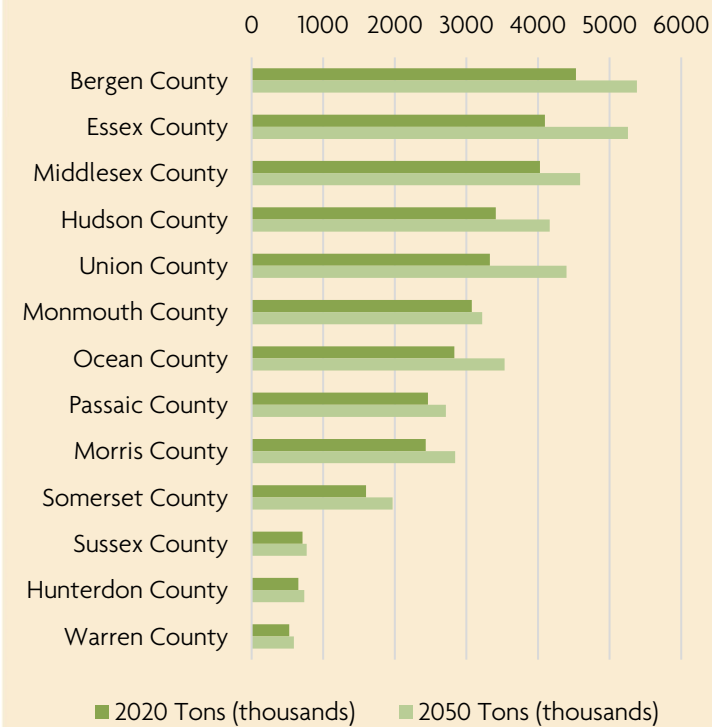
Source: NJTPA Freight Forecasting Tool, 2020; NJRTM-E, 2019; NJOIT, 2008; Esri, 2014.

The maps above and the graphs on the next page show the top counties of origin and top counties of destination for goods in this commodity bundle traveling to or from the NJTPA region.

About 38 percent of the food and beverages traveling into the NJTPA region terminate in Bergen, Essex, or Middlesex counties, each receiving 4 million or more tons in 2020. Projected growth rates in inbound tonnage of food and beverages between 2020 and 2050 range from 5 percent (Monmouth County) to 32 percent (Union County).

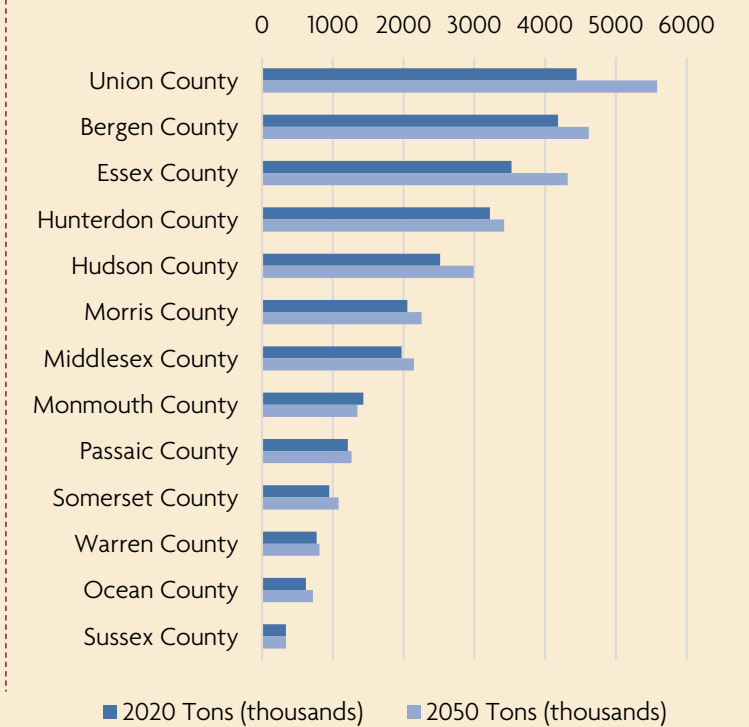
About 45 percent of all food and beverages shipped outbound originate in Union, Bergen, or Essex counties. More than 3 million tons originate in each of the following: Union, Bergen, Essex, and Hunterdon counties. Projected growth rates in outbound tonnage between 2020 and 2050 range from -6 percent (Monmouth County) to 26 percent (Union County).

Inbound Tons Domestic by County, 2020 and 2050



Source: NJTPA Freight Forecasting Tool, 2020

Outbound Domestic Tons by County, 2020 and 2050



Source: NJTPA Freight Forecasting Tool, 2020

References

For more information on food and beverage commodity flows and logistics in the North Jersey region and elsewhere, consult the following sources:

- New Jersey Food Processors Association, www.njfoodprocessors.org
- New Jersey Farm Bureau, www.njfb.org
- New Jersey Food Council, www.njfoodcouncil.com
- American Beverage Association, www.ameribev.org
- Association of Food Industries, www.afius.org
- Bureau of Labor Statistics, U.S. Department of Labor, www.bls.gov

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.

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, representing 12 freight commodity bundles in the 13-county NJTPA region.

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.