

2050 Freight Industry Level Forecasts

Freight Initiatives Committee

August 19, 2019



North Jersey Transportation Planning Authority

Goals and Objectives

1. Develop a clear, accurate and comprehensive picture of regional freight activity, current and future out to 2050
2. Update and enhance the NJTPA Freight Forecasting Tool
3. Prepare regional, county, and top commodity profiles



Background

- Previous Studies
 - 2040 Freight Industry Level Forecasts
 - Regional Freight Commodity Profiles
- Key Products
 - Freight Forecasting Tool (FFT)
 - Profiles
- New for the 2050 Study
 - Freight Analysis Framework (FAF)
 - E-Commerce



North Jersey Regional Freight Profile

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 income in Essex, Ocean, Passaic, and Union counties have changed less significantly in recent years.

Population Growth by Decade
Source: U.S. Census Bureau

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
- 6,028 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

Household Income, Constant 2010 Dollars
Source: U.S. Census Bureau

REGIONAL FREIGHT COMMODITY PROFILE

Food and Beverages

COMMODITY BUNDLE OVERVIEW
The food and beverages commodity bundle consists of five sub-categories of commodities. The Food products category includes processed food products, canned foods, and prepared foods. The Farm products category includes fruits, nuts, vegetables, and livestock. The beverages category includes soft drinks, mineral water, and alcoholic beverages. Tobacco products includes cigars, cigarettes, and chewing tobacco.

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 2010 base year and 2040 forecast year. This profile describes freight flows between domestic origins and destinations.

Highlights

- 68 million tons in 2010, increasing 42% to 97 million tons in 2040.
- Represents 10% of the goods moved in the region by weight and 4% by value.
- 3,531 business establishments employing 26,257 people send or receive goods in this bundle.
- More than 29 million square feet of warehousing/distribution center space
- 93% moves by truck, 7% by rail, and less than 1% by air or water.

Domestic Tons in 2010

Total Tons: 68 million
Source: NJTPA Freight Forecasting Tool, 2012

Domestic Value in 2010

Total Value: \$74 billion
Source: NJTPA Freight Forecasting Tool, 2012

Composition

Food products represent the largest sub-group by weight and by value. In this commodity bundle, Beverages account for nearly one-quarter of goods by weight and 18% by value. Farm products represent 18 percent of this bundle by weight and 11 percent by value. Tobacco products and fresh fish, each represent less than 1 percent of this bundle by weight.

Scope Overview

Task	Task Description	Status
1	Develop methodological framework	Underway
2	Acquire data	Beginning
3	Disaggregate FAF	Underway
4	Develop e-commerce trip table	Prelim. steps
5	Update FFT and forecasts to 2050	Prelim. steps
6	Stakeholder outreach	Prelim. steps
7	Develop profiles	--
8	Develop final report and deliverables	--
9	Project management	Ongoing

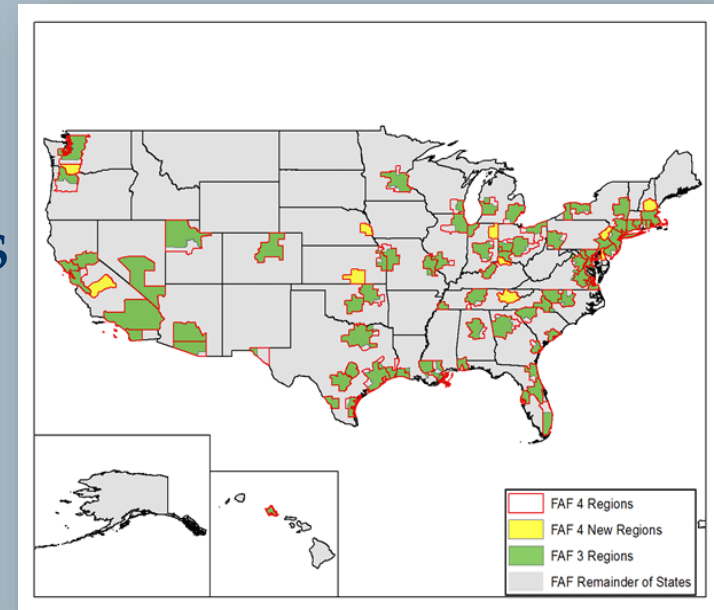
Task 1: Methodological Framework

Evaluation of alternative approaches and recommendations, with emphasis on:

- FAF Disaggregation (Task 3)
- E-Commerce Truck Trip Table (Task 4)
- FFT Update and 2050 Forecast (Task 5)
- Recommended Approach for Interviews (Task 6)

Task 3: FAF Disaggregation

- Transearch and FAF have different geographic zones
- Gather data from other sources
 - Employment and trip generation by county
 - BEA Make/Use Tables
 - Carload Waybill Sample
 - Port data



Task 4: E-Commerce Trip Table

Two Key Challenges:

DEMAND

How to estimate
and forecast
e-commerce
demand and
commodity flows

TRAVEL PATTERNS

How to estimate
and assign
e-commerce truck
trips

Task 4: Data Types

- Market research data
 - Available from data vendors
 - Households' e-commerce spending
- Shipment data
 - How much product is delivered to/from locations
- Truck GPS data
 - Where trucks delivering e-commerce product go



Task 4:

Recommended Process

- Acquire and analyze market/demand data
- Associate sample with Socio-economic demographic (SED) data, and apply to region
- Convert sales by product category to freight tons
- Analyze truck GPS data to estimate delivery territory and TAZ-to-TAZ travel pattern



Task 5: FFT Update and Forecast

- Create an updated and improved version of the FFT, incorporating results of previous tasks
- Produce year 2050 forecast outputs
- “What if” scenario capability



**NJTPA Freight
Forecasting Tool**

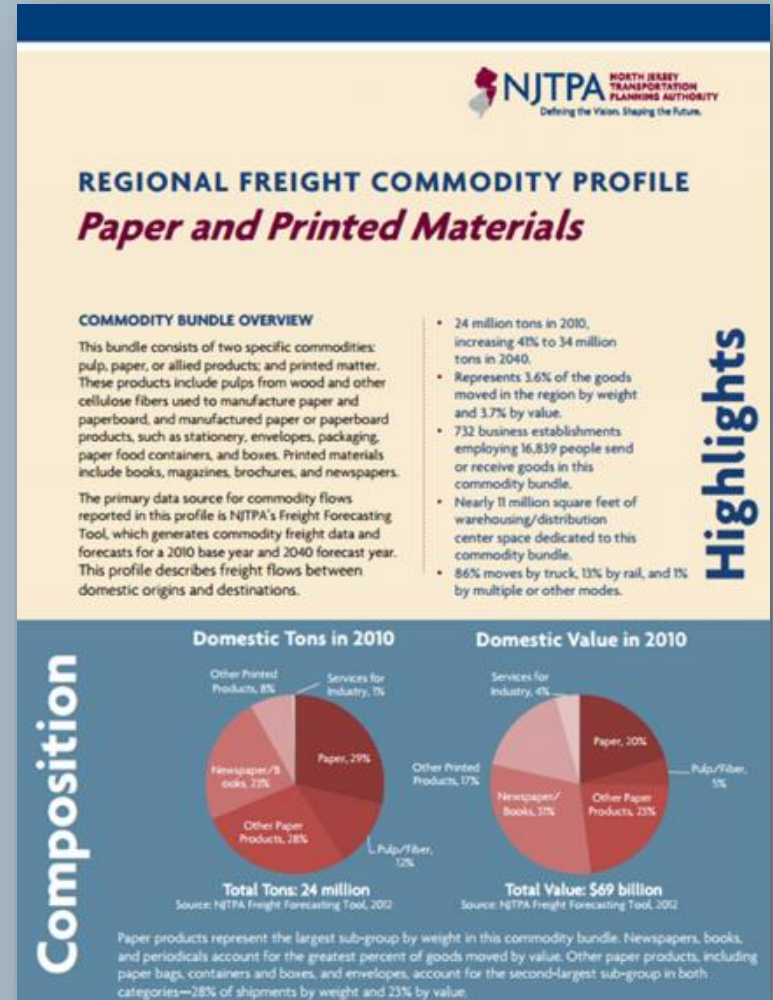
Task 6: Outreach

- Industry interviews
- Subregional meetings
- Supplement and ground truth data analysis findings



Task 7: Profiles

- Regional freight profile
- 15 Subregional freight profiles
- 12 Commodity bundle profiles



Next Steps

- Finalize the Methodological Framework
- Acquire data (Task 2)
- Proceed with Tasks 3, 4, 5, and 6

Thank You!

Defining the Vision. Shaping the Future.



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