The Basics of Freight Transportation in the NYMTC Region
FAST FREIGHT FACTS FOR THE NYMTC REGION

- 405 million tons of freight move through the NYMTC region annually (2007).
- Freight volume (tonnage) in the NYMTC region is expected to increase by 46 percent by 2040.
- Trucks carry 91 percent of all freight in, out, and within the NYMTC region.
- 65.6 million tons of freight move between the NYMTC region and northern New Jersey, making that region NYMTC’s largest trading partner by tonnage. The NYMTC region’s largest trading partner by value is Pennsylvania, which traded $149 billion worth of freight in 2007.
- The top three commodity groups transported in the region are secondary traffic (moves of consumer products to or from warehouses or distribution centers), nonmetallic minerals, and petroleum or coal products.
- Of the 5.5 million private-sector jobs in the NYMTC region, 1.3 million, or 24 percent, are in freight-intensive industries, such as construction, manufacturing, agriculture, wholesale or retail trade, and transportation and warehousing.
- The NY/NJ region is the nation’s second largest marine port based on number of containers transported, as well as the nation’s third largest port based on cargo value and the busiest port on the East Coast.
- The NY/NJ region contains the 8th largest airport in the United States (John F. Kennedy International Airport) by air cargo volume, and is the top international gateway based on cargo value.
- Nationally, truck and rail freight together are responsible for 40 percent of nitrogen oxides, 31 percent of particulate matter, and 20 percent of carbon dioxide emissions from all transportation sources.
- Federal emissions standards for heavy vehicles are expected to reduce tractor-trailer emissions by 20 percent nationwide by 2018.

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What is NYMTC?

The New York Metropolitan Transportation Council (NYMTC) is a regional council of governments that is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley. NYMTC provides a collaborative planning forum to address transportation-related issues, develops regional plans and makes decisions on the use of federal transportation funds. The nearly 2,440 square-mile region is home to more than 12 million people, whose gross regional product leads the nation with an estimated value of nearly $1.3 trillion annually.

The role played by transportation in facilitating the movement of people and goods, thus reinforcing economic development, cannot be underestimated. Despite moving enormous numbers of people each day, the regional transportation network is increasingly congested. Traffic congestion costs the New York metropolitan area more than $13 billion per year in delay costs and revenue losses. Identifying and implementing improvements to the regional transportation network is crucial to assuring sustainable economic growth in the NYMTC region, and beyond.
Introduction

The NYMTC region is tied together in many ways. Its economy, transportation system, educational resources, medical care facilities, communications capabilities and tourism and recreational attractions bring each of the many jurisdictions within the planning area together for common purposes. The employment opportunities that exist in the NYMTC region for those living within and outside of the area support the notion of interdependence. Freight transportation and handling underscores this concept because of how and where rail yards, marine cargo terminals, highway links, and warehouses and distribution centers are located. While many of these facilities are located in the NYMTC region, many others, including some of the largest facilities, are located in New Jersey, eastern Pennsylvania, or neighboring New York State counties that are not part of the NYMTC planning area.
Transportation is more than moving people: the movement of freight connects people with the products and services they need to sustain the flow of everyday life. Freight moves continually in and out of the NYMTC region every day via its roads and highways, rail lines, waterways and airports.

This brochure tells the story of freight transportation in the region and highlights necessary steps to maintain the flow of goods in the future. The information includes the importance of freight transportation; pertinent characteristics of freight, including commodities, freight volume and forecasts; discusses how freight is moved; incorporates brief facts about some of the region’s freight facilities, and highlights ongoing projects, programs, and policies.

Materials presented in this brochure are developed from several sources, the primary being the New York Metropolitan Transportation Council’s Regional Freight Plan Update 2015-2040 Interim Plan (hereafter “Regional Freight Plan Update”), which references information and data contained in federal, state, regional, and local plans and studies. The Regional Freight Plan Update is available at [http://www.nymtc.org](http://www.nymtc.org); NYMTC’s member agencies also post information about freight movement within and out of the region. A glossary, along with a list of additional references, is located at the back of this brochure. As a companion to this piece, a NYMTC Freight Data Wheel, which provides county-level socioeconomic and freight data, is also available.
What it Means to You

Freight Facilitates a Huge Economy

The regional transportation system supports economic activity by linking widely separated points through the use of a complex network which connects people, products, and services. Everything that is consumed or manufactured is considered freight, including household items, food, clothing, electronics, office supplies, parcels, building materials, petroleum and gasoline, waste, and many other commodities that are shipped to and from businesses and households every day.

Freight transportation in the region supports a huge economy. A review of the Gross Metropolitan Product (GMP), or the total annual value of all goods and services produced in an area, gives an idea of the magnitude of the region’s economy: of the top 20 metropolitan areas in the United States in 2011, New York City ranked first with a $1.28 trillion GMP. The freight system in the NYMTC planning area supports a population of 12.4 million people in 10 counties over a 2,440 square-mile area, delivering the food they eat (24 million tons in 2007), the clothing they wear (1.9 million tons purchased in 2007), and gasoline needed to get to and from jobs and activities (16.6 million tons in 2007). Disruptions to the freight transportation system due to incidents, natural disasters such as Superstorm Sandy, or deferred maintenance can have negative impacts on the region’s economy and quality of life because they limit the ability for goods and services to reach the region’s businesses and consumers.
According to the U.S. Bureau of Labor Statistics, from 2010 to 2011, each of the 9.1 million households in the New York Metropolitan Statistical Area spent an average $7,371 on food, $2,596 on apparel (clothing) and $2,006 on gasoline.

Freight transportation carries these and many other items used every day, as well as the raw materials to build homes and supply businesses. As the cost and complexity of transporting freight increases, the cost consumers pay for these items increases as well. Additionally, the amount of products and materials coming into and out of the region is expected to increase a total of 48 percent in the next 25 years.

Clearly a great deal is at stake when it comes to providing transportation for the essential materials of daily life.
Freight Is Global

In addition to local manufacturing, products are made and moved internationally, with many countries involved in the manufacturing of parts and assembly of products. This trend, called “off-shoring,” has resulted in a truly global supply chain. As a result, logistics, or the movement of freight, is global in nature and always changing in response to, or in anticipation of, economic, demographic and political trends.

In response to rising labor costs in East Asia and fluctuating fuel and transportation costs, some companies are instead producing these products closer to the United States, in South Asia or Latin America. This process of bringing production closer to the consumer market to manage transportation costs is called “near-shoring.” The transportation system that supports this movement is itself global in nature, depending on ever larger internationally-owned ships and the highway and rail systems of the countries of origin. Eighteen percent of the goods moved into and out of the New York metropolitan area have either a foreign origin or foreign destination. Forty-five percent of imported apparel comes through the region.
The Future of Freight in the United States

Nationally, trucks carry about 72 percent of freight tons. As Figure 1 illustrates, rail, water and air carry fewer tons relative to trucks, but the gap is much smaller in ton-miles, suggesting those modes tend to carry freight longer distances than most truck trips. Air carries less than one-tenth of one percent of all freight tons, or five percent of freight by value, suggesting air is used for high-value products.

**FIGURE 1.** National Freight Mode Share, 2007

SOURCE: U.S. Department of Transportation, Freight Analysis Framework v. 3.4.
It is anticipated that the volume of freight (by tons) will increase by 51 percent nationally between 2007 and 2040 (compared to 48 percent in the NYMTC region alone), as shown in Figure 2. By ton-miles, freight growth is expected to exceed 73 percent over the same period, suggesting the average freight trip will cover a longer distance in the future. The value of freight is expected to more than double, increasing by 136 percent, meaning higher-value commodities such as electronics and consumer products are expected to make up a larger share of the freight traveling throughout the country.

**FIGURE 2.** Growth in Freight Nationally, 2007-2040

**SOURCE:** U.S. Department of Transportation, Freight Analysis Framework v. 3.4.
Basic Information About Freight in the NYMTC Region

Regional Freight Volumes

Forecasters expect the regional economy to continue to grow, and this growth is expected to fuel an increase in the amount of freight moved to, from and within the region. Between 2015 and 2040, total employment is expected to increase by a total of 23 percent, or 1.7 million jobs, while annual population will increase by 13 percent, or about 1.7 million people.\(^1\)

The amount of commodities required to sustain the increase in population will need to increase. More freight movements will be required to bring in and take out an increasing amount of materials that are used, produced and discarded in the region. Forecasted economic growth in the ten counties that make up the NYMTC planning area is expected to significantly increase the volume of freight moved in the region. The regional commodity flows are expected to grow from 405 million annual tons in 2007 to 592 million annual tons in 2040, a 46% increase.

Figure 3 shows the freight growth that is expected in the region, broken down by individual commodities. The region’s top commodity, when measuring by weight, is “secondary traffic,” which moves consumer goods to or from a warehouse or distribution center. Other top commodities in the region include nonmetallic minerals used in construction; petroleum or coal products used for fuel, heating homes, and in some manufacturing processes; food products; clay, concrete, glass, and stone used in the construction industry; chemicals or allied products used for manufacturing; municipal solid waste (MSW); paper and wood pulp; farm products such as produce, livestock, and seeds; and metal products.

FIGURE 3. Forecasted Freight Growth in the NYMTC Region by Tons, 2007-2040

The Mode Share of Freight

The movement of freight is made possible by a transportation network comprised of several components. These components, or “modes,” include: marine facilities such as ports and barges; railroad lines; trucking companies; and air carriers. Many of these modes work together to get the job done. While at times the movement of freight requires just one mode, a combination is often necessary.

As illustrated in Figure 4, trucks move the majority of freight in the region. The benefit of direct access to several waterways allows for about 5 percent of freight to travel into the region by water. Rail carries a small percentage of freight into the region as well, mostly heavy materials that travel long distances through the country. Air freight comprises the smallest amount of freight by weight, and is generally limited to high-value and time-sensitive cargo such as letters, packages, specialized machinery, flowers and specialty food products.

FIGURE 4. Mode Split for the NYMTC Region by Tons, 2007
The Origins and Destinations of Freight

The region’s most active trading partners are its immediate neighbors: the NYMTC region’s largest trading partners are northern New Jersey and the rest of New York State. A majority of the region’s freight originates in or is destined for locations on the East Coast, and from manufacturing centers in the Midwest. A notable amount of freight also moves between the region and upstate New York. Figure 5 shows how much freight the NYMTC region trades with other regions of the United States. The darker green color symbolizes the highest volume of trade.

FIGURE 5. Trading Partners by Weight, 2007

Getting the Job Done: How Freight is Moved

The movement of freight requires a robust network of highways, rail lines, marine ports and air cargo airports. In addition, the network needs an immense support system consisting of warehouses and distribution centers. The largest and busiest port terminals and freight rail terminals are located in northern New Jersey, along with more than 800 million square feet of warehousing and distribution center space. Much of this infrastructure serves the needs of the NYMTC region. The following pages describe how freight moves between and within each modal network.

Moving Freight Intermodally

The key to the efficient movement of freight is using all of the available modes together in a coordinated fashion. This interconnection of modes is known as intermodal transport, which utilizes ships, railroads, trucks and barges to move containers, and indeed trucks themselves, from point to point. As the logistics examples in the “Tracking the Movement of Freight” section of this brochure illustrate, many shipments require the coordinated use of multiple modes of transportation.
Moving Freight by Truck

As noted previously, trucks carry about 91 percent of all freight (measured in tons) in the region, and according to freight forecasts, that mode share is expected to persist through 2040. Truck freight is moved by thousands of common carriers, truck operators and individual companies. Some operators are as small as a single vehicle, while others operate thousands of trucks across the country.

Every mode of freight transportation is tied to a truck trip. Intermodal rail and air cargo would not be possible without trucks. Trucks provide flexibility, low-cost transportation and make the critical “last mile” connection to a shipper or receiver’s door.

Trucks utilize specific combinations of highways known as corridors, which connect to the local routes that trucks use to reach their origins and destinations. Figure 6 shows the tri-state region’s most heavily used corridors and the volume of freight (in tons per year) moved through them. The corridors illustrate the key highways used for freight into and through the region. As shown in Figure 6, I-95, I-78, I-80, I-87, I-287, I-495, and I-278 are the most heavily traveled corridors in the New York metropolitan region. Apart from these routes, there are few alternative routes trucks may use to get into or out of the region. Commercial vehicles are not allowed to use parkways or many other streets and roads as they are constrained by height and weight limits.
Moving Freight by Water

Waterborne freight transportation has a long history in the region, accounting for the movement of about 5 percent of all freight by tonnage. It is facilitated by marine cargo ports, inland waterways and hundreds of wharves and docks scattered throughout the region. Regional ports work closely with other modes such as truck and rail to link local markets with distant locations such as Western Europe and Asia.

Marine cargo is made up of two main types: 1) the cargo delivered via ocean-going vessels called liners, which carry bulk commodities, vehicles and containers; and 2) barges, which carry only bulk commodities such as stone, sand and fuel. Ocean-going vessels sail to the Port of New York and New Jersey from many international locations, while barges make short trips all around the region and to neighboring regions. The amount of marine system freight moving within and through the New York/New Jersey region has been
growing rapidly, and is expected to grow by 44 percent by 2040. Figure 7 shows the locations of marine container terminals in New York Harbor.

**FIGURE 7.** Port Authority of New York and New Jersey (PANYNJ) Marine Container Terminals

![Map of New York Harbor showing marine container terminals](image)

**SOURCE:** Port Authority of New York and New Jersey

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**Moving Freight by Rail**

The volume of freight moved by rail is relatively small in the NYMTC region, due in part to limited freight rail infrastructure and the challenge of operating freight rail within the high-density commuter rail network east of the Hudson River. Rail accounts for about 3 percent of freight movement by tonnage and is forecasted to carry 3 percent of freight by tonnage by 2040. Nevertheless, the
railroads continue to be a crucial transportation mode, delivering the building products, lumber, food, stone and fuel to and from shippers and receivers throughout the NYMTC region. In addition to those bulk commodities, intermodal containers carrying higher-value commodities move by rail as well. Inbound intermodal containers travel by rail to intermodal rail terminals located in New Jersey and Pennsylvania, where truck trips connect those facilities with receivers in the NYMTC region. One challenge to planners is the development of new intermodal terminals closer to the customers in the NYMTC region in a manner that reduces overall transportation costs while also mitigating impacts on communities. The “What is Planned for the Future” section of this brochure includes a description of one such project. Several freight railroads serve the NYMTC region, including CSX Transportation, Consolidated Rail Corporation (Conrail), New York and Atlantic Railway (NYA), New York New Jersey Rail (NYNJ), Providence and Worcester Railroad (PW), and Brookhaven Rail (BHR).

FIGURE 8. Major Freight Rail Corridors Serving the NYMTC Region by Traffic Pattern
The NYA operates freight service over MTA/Long Island Rail Road tracks. This short-line carrier interchanges railcars with CSX and PW at its Fresh Pond Yard in Queens. NYA also interchanges with NYNJ, which operates a rail car float service between Greenville Yard in Jersey City, New Jersey and 65th Street Yard in Brooklyn, and the First Avenue line in Brooklyn. The NYA provides local industry service along the Bay Ridge Branch.

CSX Transportation provides service over 21,000 rail miles in 23 states, the District of Columbia, and two Canadian provinces. It provides rail, intermodal, and rail-to-truck transload services. It is the largest railroad in the eastern United States. PW is a regional railroad operating in the states of Massachusetts, Rhode Island, Connecticut, and New York. It covers 545 miles of track.

Freight railroad routes traverse many parts of the NYMTC region. Figure 8 shows the rail lines and the volume of freight moved while Figure 9 shows these routes and the freight rail yards located in the region:

1. Harlem River Yard. Located at 132nd Street in the Bronx, two rail-served facilities have been developed on the site, including a 16-acre New York Post printing facility and a 13-acre Waste Management transfer facility. About 28 acres have been reserved for future development of a trailer-on-flatcar (TOFC) transfer facility. More than 12 acres remain available for future rail-served development.

2. 65th Street Yard. Located on the Brooklyn waterfront between 65th and 63rd streets and consisting of nine body tracks and two float bridges, it is intended for use as a railcar float facility. This yard was included in the acquisition by the Port Authority of New York and New Jersey (PANYNJ) of the remaining cross harbor car float services in 2008, and is now maintained and operated by the New York New Jersey Railroad (NYNJ).

3. Bush Terminal Yard (51st Street Yard). This lightly-used facility is located on the Brooklyn waterfront at First Avenue between 43rd and 51st streets. It is switched by the New York New Jersey Railroad (NYNJ) and consists of several body tracks.

4. Brookhaven Rail Terminal (BRT). Opened in August 2011 and located along the LIRR Main Line in Yaphank, Suffolk County, BRT functions as a transloading and warehousing facility for commodities such as aggregates and building materials, flour for Long Island bakeries, and food products. BRT is operated by Brookhaven Rail LLC.

5. New York Container Terminal and Arlington Yard. The on-dock rail facility at New York Container Terminal (NYCT) on Staten Island is an intermodal rail transfer facility owned by New York City and operated by New York Container
Terminal, Inc. Arlington Yard, adjacent to NYCT, is owned by the City of New York, with service provided by Conrail. Intermodal unit trains are built at NYCT and interchanged with Conrail at Arlington Yard. Carloads of outbound solid waste are assembled and dispatched from Arlington Yard by Conrail.

6. Fresh Pond Yard. Located in the Glendale section of Queens County, Fresh Pond Yard is a classification yard, which serves as the interchange point between CSX and PW, which bring freight from other parts of the country to geographic Long Island, and NYA, which transports that freight to industrial facilities throughout Brooklyn, Queens and Long Island.

**FIGURE 9.** Freight Rail Lines and Yards in the NYMTC Region

**SOURCE:** Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool.
Moving Freight by Air

The air cargo market is made up of freight and mail. Air mail is contracted out by the United States Postal Service (USPS) and travels in the lower deck baggage/cargo compartments of commercial passenger aircraft and on freigh aircraft. Air freight refers to all cargo other than mail and passenger baggage. Three types of carriers move air freight: passenger airlines; traditional air cargo carriers; and integrated air cargo carriers.

Passenger airlines and traditional all-cargo airlines both provide transport with little through service, although at vastly different scales. The passenger airlines emphasize the use of “belly space” on their scheduled passenger aircraft, while the traditional air cargo airlines have entire fleets of aircraft dedicated to air cargo and have few limits on cargo size or type. Some passenger carriers also operate “combis,” which are aircraft designed to carry a combination of both cargo and passengers on the main deck. Integrated air cargo carriers such as United Parcel Service (UPS) and Federal Express (FedEx) provide all service from the origin to the receipt point, including ground and air.

Two airports in the New York metropolitan area provide the bulk of commercial air cargo service: John F. Kennedy International Airport (JFK) and Newark Liberty International Airport (EWR). LaGuardia Airport (LGA) and Stewart International Airport (SWF – which is not located within the NYMTC
planning area) also provide air cargo services, but in significantly smaller volumes. Of these four major airports, JFK and LGA are located within the NYMTC region. The volume of air cargo transported through each of the four airports in 2011 and 2012 is shown in Figure 10.

**FIGURE 10.** Change in Cargo Volume (Tons) by Airport, 2011-2012

![Graph showing cargo volume by airport for 2011 and 2012](image)

**SOURCE:** Port Authority of New York and New Jersey

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**Role of Warehousing and Distribution Centers**

An essential element supporting the transportation and handling of freight is warehousing and distribution. At some point in the transport of freight it is necessary to store, inventory and/or repackage goods. A warehouse or distribution facility serves as just such a location, and will typically feature loading docks so that trucks and/or railcars can load or unload into the facility. Modern facilities can cover more than one million square feet, and unique software is used to track the inventory of products so that nothing gets lost along the way.

Each warehouse or distribution facility works with each transport mode to ensure the expeditious movement and handling of goods. These facilities can be privately-owned and used by one single manufacturer or distributor for its own products, or they can be a “public facility,” which handles freight for a number of manufacturers and distributors.
Tracking the Movement of Freight

Three examples, illustrated below, demonstrate how popular items—a smartphone, imported beer, and household lumber—consumed in the NYMTC region arrive here from different origins and by different transportation modes. In each of these examples, trucks provide the critical “first mile” and “last mile” links in the logistics chain.

The Journey of a Smartphone Across the World

Because of the high value and time sensitivity of delivery of smartphones, a combination of air and truck is used to transport them from production facilities in Asia to retail locations, or directly to consumers’ homes. The flow chart below illustrates the steps a smartphone takes in its journey to a consumer’s home in the NYMTC region. The wide, orange arrows represent movement of goods (i.e., the smartphone), while the narrow, purple arrows represent the flow of information. The consumer supplies information to the phone’s manufacturer, which assembles a phone to the consumer’s specifications. The logistics manager ensures the phone is delivered on time to the location the consumer specifies. While the phone is on its way to the consumer, information regarding the phone’s status and estimated delivery time is shared with the consumer.
How Beer from Europe Gets to Brooklyn

Another example of global logistics is the production and distribution of beverages such as imported beer. Beer produced in Europe and consumed in the United States is typically transported by water across the Atlantic Ocean. Beer is heavier and less valuable than smartphones, thereby making air transport an impractical way to move this commodity. Like smartphones however, trucks are critical in providing the “first mile” and “last mile” connections at the beginning and end of the logistics chain.

Ingredients such as hops and barley are grown and harvested. Ingredients are shipped by truck to the brewery. At a brewery in Belgium, beer is brewed and bottled. The bottled beer is loaded into refrigerated containers and delivered by truck to the Port of Rotterdam in the Netherlands. At Rotterdam, containers are loaded onto ships, for transport across the Atlantic Ocean. The ship arrives at Red Hook Container Terminal in Brooklyn, and containers are unloaded from the ship. At Red Hook, the container holding the beer is unpacked, and re-loaded into a smaller truck for local distribution. The smaller trucks deliver the beer to your favorite bar in Brooklyn and to bars, restaurants, and convenience stores throughout the region.
How 2” x 4” Lumber Gets to a Long Island Hardware Store

Dimensional lumber, such as a 2” x 4” (two-by-four) board, is critical to deck building and other home improvement projects. Lumber sold in many Long Island hardware stores begins its journey in forests in the Pacific Northwest, as shown in the graphic below.

1. Trees are cut down
2. Logs are cut and treated to specification
3. Lumber products are transported by train
4. Train arrives at rail terminal on Long Island
5. Lumber products are distributed to Long Island hardware stores by truck
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What is Planned for the Future?

Public sector planning for freight transportation takes place at three levels: federal, state, and local. The federal government, through federal transportation law known as the “Moving Ahead for Progress in the 21st Century (MAP-21) Act,” provides guidance, funding, and expertise to other government units to improve transportation infrastructure and operations. The State of New York also provides planning guidance and funding for freight and passenger transportation. NYMTC’s Regional Freight Plan Update incorporates this guidance into regional freight planning goals.

The 2014 Update:

1. Reassesses the issues, challenges, and recommendations of NYMTC’s previous Regional Freight Plan, published in 2004, in light of global and regional trends
2. Sets forth a new program of strategies and actions that include capital projects, operational improvements and policy changes to advance regional freight planning goals and to align with MAP-21 guidance

NYMTC’s regional freight planning goals include:

- Improving the transportation of freight by removing burdensome government regulations and restrictions and by rationalizing and coordinating regulations and restrictions
- Improving the physical infrastructure of the transportation system for freight-related transport among shipping and receiving points, and major terminals and ports
- Improving the reliability and overall movement of freight in the region by encouraging expedient and cooperative multimodal shipment of freight
- Improving the reliability and overall movement of freight in the region by
expanding alternatives for trucks and other commercial vehicles

- Improving the performance, reliability, and local accessibility of the region’s strategic (or major) roadway (or highway) corridors for freight movement
- Maximizing existing land use patterns in ways that make maximum use of freight transportation investments and improve cost-effectiveness of expenditures
- Improving the freight system’s strategic redundancy

In general, the NYMTC region’s freight system works well to move the large volume of goods needed to keep the nation’s largest regional economic engine running. However, high levels of traffic congestion in the region impacts residents, businesses and truck movement, the predominant mode of freight travel in the region. Congestion can contribute to an increase in the cost of living in the region, as companies are required to pay more for freight services, which can result in higher prices for consumer products.

A number of specific issues combine to create less than efficient conditions for the movement of freight, particularly related to broad regional issues, specific bottlenecks, or detailed terminal interconnections at specific facilities. In addition, the conclusions of recent plans and studies, commodity flow data and forecast and evaluation of the existing conditions on the modal networks, together lead to the identification of several key challenges that NYMTC’s member agencies face with regard to maintaining the region’s multi-modal freight transportation system in a state of good repair and efficient operation. These key challenges include:

- Constrained capacity
- Sub-optimal physical condition of some components of the network
- Limitations on shippers’ and receivers’ access to components of the network
- Vulnerability of the network to the effects of climate change
- Lack of strategic redundancy
- Need for improved management of truck movements
- Complex public and private institutional relationships

Despite these large, complicated challenges, the region’s stakeholders, including public-sector agencies and transportation service providers, private-sector shippers, receivers and carriers, can take advantage of several opportunities, including on-going capital improvements, industry and
technology trends and common-ground issues that could be the foundation of coordinated planning.

**Improving the Regional Highway Network Operations:** A number of initiatives to improve the network are currently underway. The New York State Department of Transportation (NYSDOT) has advanced rehabilitation projects on many of the aging interstate highway segments in the NYMTC region. In addition, the Port Authority of New York and New Jersey (PANYNJ) is advancing a project to replace the aging Goethals Bridge between Staten Island and New Jersey. Metropolitan Transportation Authority (MTA) Bridges and Tunnels is improving its major bridge structures to meet current load criteria for heavy trucks. Agencies in the region are also pursuing strategies to use existing highway capacity more efficiently. The New York City Department of Transportation (NYCDOT) is encouraging shippers and receivers in New York City to receive deliveries during off-peak hour periods. NYCDOT and NYSDOT are using Intelligent Transportation System (ITS) technologies to manage oversize/overweight vehicles and to push real-time information to truck drivers and passenger vehicle drivers. The PANYNJ is working with a private developer to develop a service facility at JFK Airport that will provide a safe designated place for up to 50 trucks to park.
**Expanding Rail Freight Service:** Rail freight volumes are growing in the NYMTC region due to investments in rail freight infrastructure. Brookhaven Rail Terminal (BRT), a freight rail terminal in Yaphank, opened in 2011 and received 1,600 loaded railcars in 2012. In 2013, BRT began receiving building supplies for more than 20 Home Depot stores on Long Island. In 2012, the New York City Economic Development Corporation (NYCEDC) completed rehabilitation of the First Avenue Line along the Brooklyn waterfront, connecting an automobile import/export facility at the South Brooklyn Marine Terminal to the region’s freight rail network. PANYNJ and the Federal Highway Administration (FHWA) are making necessary improvements to keep a railcar barge service operating between New Jersey and 65th Street Yard in Brooklyn, and the two agencies are conducting a study of longer-term rail freight service alternatives in that corridor. In order to serve anticipated future demand, capacity of rail yards in the region will need to be assessed.

**Waterborne Freight Opportunities:** The expansion of the Panama Canal will improve all-water access between the East Coast of the United States and East Asia, and could result in re-routing of some East Coast and Midwest cargo from West Coast ports to East Coast ports. This change in travel pattern could result in increased volume of containers traveling through the Port of New York and New Jersey, preserving or increasing the region’s share of waterborne freight relative to other East Coast ports and associated jobs and economic benefits. At the same time, PANYNJ is advancing a project to raise the roadbed of the Bayonne Bridge from 151 feet to 215 feet above the surface of the water to accommodate larger ships expected to visit the Port.

The NYCEDC is investing in South Brooklyn Marine Terminal in Sunset Park, Brooklyn, which will be home to a modern recycling facility and an import/export firm that will move material by water. These two waterborne freight facilities will shift 260,000 annual truck trips from city streets and highways to waterways instead.

The U.S. Maritime Administration (MARAD), in partnership with transportation agencies throughout the country, has designated 11 “marine highway” corridors throughout the country including two that traverse the NYMTC region, M-87 and M-95, shown in Figure 11. Marine highways are navigable waterways that support or relieve congested landside transportation systems. Currently, several projects and initiatives are underway along designated marine highway corridors, aimed at studying the feasibility of potential services, starting new services or expanding existing services.
Airport Redevelopment: Airport redevelopment initiatives and ongoing capital investment at JFK and Stewart International Airport, including planned cargo area expansion, provide the opportunity to preserve and grow the region’s share of international air cargo trade and could improve the efficiency and reduce costs for shippers in the region and beyond. Easier ground access to JFK is an important corollary to on-airport cargo improvements.

Facilitating Intermodal Connections: Public and private stakeholders are working to facilitate the transfer or the transload of cargo from one mode to another, thereby making truck, rail, marine and air freight operate in a more seamless manner. In 2007, PANYNJ, in cooperation with New York Container Terminal and Conrail, opened an on-dock rail facility at New York Container
Terminal in Staten Island. The facility allows for the transfer of containers from ocean-going marine vessels to rail for distribution to inland consumer markets. PANYNJ is also working with NYCEDC and NYCDOT to evaluate the potential for 53’ long tractor-trailers (the current national standard trailer length) to use the Van Wyck Expressway to access air cargo facilities at JFK Airport. The NYC Department of Sanitation is working with PANYNJ and private railroads to facilitate the transfer of containerized municipal solid waste from truck to barge and rail for export to disposal sites outside the region.

**Addressing Regulatory Issues:** Federally-mandated Hours of Service rules require that truck drivers rest for 10 hours after 14 hours on duty (which includes a maximum 11 hours of driving time). In the NYMTC region, there are few designated areas for trucks to park and drivers to take this required period of rest. A coordinated planning approach involving public agencies that own highway facilities (such as NYSDOT, NYS Thruway Authority, Port Authority of New York and New Jersey), private-sector developers of truck rest areas, and/or other stakeholders are needed to develop proposals to address the truck parking shortage in the region.
Land Use Issues: NYMTC is working with partner agencies and private-sector stakeholders to study the feasibility and market potential for developing freight villages in the NYMTC region. Freight villages are clusters of facilities where activities related to transport, logistics and distribution of cargo are carried out by various operators. The proximity of these facilities in a freight village could reduce truck trip distances in the region and associated environmental and community impacts.

Mitigating Environmental and Community Impacts: The movement of freight can introduce negative impacts such as greenhouse gas and particulate matter emissions, noise and vibration and wear and tear on highways and rail lines. Truck and rail emissions per ton-mile of freight moved have been and will continue to decline due to progressively strict U.S. Environmental Protection Agency (USEPA) emissions standards. The USEPA and the U.S. Department of Transportation (USDOT) are working in partnership with many private-sector freight carriers to upgrade vehicle fleets, introduce anti-idling technologies and improve operations performance, with the goal of further reducing transportation-related emissions. Agencies such as NYCDOT, municipal and county planners throughout the region and NYSDOT, work with community boards and organizations and the freight industry to designate appropriate truck routes or introduce truck restrictions in a manner that allows freight to get to where it is needed while avoiding or mitigating as many community impacts as possible. NYCDOT is also engaged in projects throughout the city to find strategies to more effectively manage curbside parking areas and loading zones with policies that meet business and residential needs.

Coordinated Regional Freight System Planning and Management: Momentum is growing for more extensive and coordinated cross-jurisdictional planning to meet the freight needs of the greater metropolitan region, and to support its role as an international trade gateway and crossroads of domestic goods movement. These include a partnership planning effort among NYSDOT, NJDOT and PANYNJ to develop a regional freight strategy; new federal mandates for freight planning in MAP-21; and expanded exchanges on freight issues among NYMTC, the neighboring North Jersey Transportation Planning Authority (NJTPA) and other nearby metropolitan planning organizations. These efforts can provide a framework and context for freight planning by the region’s MPOs and local government agencies.
# Glossary of Freight Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td><strong>53’ Trailer</strong></td>
<td>A truck trailer used for freight, whose standard length is 53 feet. These trailers are the industry standard for long-distance transport, but are not legal on the arterial streets of New York City.</td>
</tr>
</tbody>
</table>
| **Arterials** | A main road or channel with many branches off of it.  
**Arterial Highway** |  
**Arterial Route** |
| **Barge** | A marine vessel, usually unpowered and pushed or towed by tugboats, used for transporting freight. |
| **Cargo** | Goods carried by a truck, ship, train, or plane. |
| **Carrier** | An individual or organization that deals in the transport of people or goods. |
| **Clearance** | The amount of space or distance by which a moving object clears a stationary object: overhead clearance is the space above the moving object as it passes under an overpass or a bridge; vertical clearance is the distance from the ground to the underside of the bridge or overpass; lateral clearance is the distance from side to side; double-stack clearance is the vertical clearance necessary for a double-stack rail freight car to pass through (see Railcar).  
**Overhead** |  
**Vertical** |  
**Lateral** |  
**Double-stack** |
<p>| <strong>Commercial Vehicle</strong> | Any motor vehicle, other than a passenger vehicle, which is designed, used and maintained for the transportation of persons or property for hire, compensation, profit or in the furtherance of a commercial enterprise. |
| <strong>Commodities</strong> | Goods which are bought and sold; an article of commerce. |
| <strong>Congestion</strong> | A state of flow on a road or highway in which movement is restricted due to the high volume of other vehicles. |
| <strong>Connectivity</strong> | The extent to which a system facilitates connections between modes. |</p>
<table>
<thead>
<tr>
<th>Term</th>
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<tbody>
<tr>
<td>Container</td>
<td>A rectangular storage unit commonly used to transport goods in a process called intermodal transport (see Intermodal).</td>
</tr>
<tr>
<td>Curbside capacity/space</td>
<td>The amount of space available at the curb of a street used for commercial vehicles to load and unload cargo.</td>
</tr>
<tr>
<td>Dense Trade Clusters</td>
<td>Areas where trade industry is concentrated so as to reduce the amount of vehicle-miles traveled and therefore reduce congestion and emissions.</td>
</tr>
<tr>
<td>Expressways</td>
<td>A major arterial used for high-speed vehicle travel.</td>
</tr>
<tr>
<td>Fleet</td>
<td>A group of transport vessels operated by a single organization.</td>
</tr>
<tr>
<td>Floats/Float Operations</td>
<td>Terms used to describe the movement of railcars across water using barges.</td>
</tr>
<tr>
<td>Freight</td>
<td>Commercial goods generally transported by truck, train, ship, or airplane; cargo.</td>
</tr>
<tr>
<td>Freight Facility</td>
<td>A space designated to facilitate the storage, transfer, and/or transport of freight.</td>
</tr>
<tr>
<td>Freight Village</td>
<td>A clustering of facilities where activities related to transport, logistics, and the distribution of cargo are carried out by various operators.</td>
</tr>
<tr>
<td>Freight Volume</td>
<td>The quantity of freight shipped through a given area; usually measured in tons per day/month/year.</td>
</tr>
<tr>
<td>Freight Yard</td>
<td>A railroad facility where freight cars are assembled or reassembled into trains; also applies to railroad facilities engaged in intermodal freight transfers.</td>
</tr>
<tr>
<td>Idling Reduction</td>
<td>A program of emissions reduction utilizing external facilities allowing the electric operation of auxiliary components of a truck without engaging the engine or battery.</td>
</tr>
<tr>
<td>Intermodal</td>
<td>A single shipment of goods utilizing several modes of transportation combined with the connections between them.</td>
</tr>
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<tr>
<td>Intermodal Terminal</td>
<td>A facility at which freight is transferred from one mode of transportation to another, i.e., an intermodal rail terminal, where containers are transferred from truck to rail or vice-versa.</td>
</tr>
<tr>
<td>ITS</td>
<td>An information-sharing technology integrated into the transportation system infrastructure, and in vehicles themselves, to help monitor and manage traffic flow, reduce congestion and provide alternate routes to travelers.</td>
</tr>
<tr>
<td>Loading Zones</td>
<td>Curbs designated in urban areas specifically for the use of loading and unloading commercial vehicles.</td>
</tr>
<tr>
<td>Logistics</td>
<td>All activities involved in the management of freight movement, ensuring that the correct quantity of the correct commodity is transported between the correct origin and destination on the correct schedule for the correct price.</td>
</tr>
<tr>
<td>Mobility</td>
<td>The degree of ease with which people and freight can move through the transportation system.</td>
</tr>
<tr>
<td>Modes</td>
<td>The various methods by which people and goods can be transported, including truck, rail, waterborne and air.</td>
</tr>
<tr>
<td>Near-shoring</td>
<td>The practice of relocating a company’s business functions to a neighboring or nearby country in order to save transportation costs associated with off-shoring to a more distant country (see off-shoring).</td>
</tr>
<tr>
<td>Off-shoring</td>
<td>The practice of relocating a company’s business functions, such as manufacturing, product assembly or packaging, to another country.</td>
</tr>
<tr>
<td>Parkways</td>
<td>A major arterial, usually limited-access, used for high-speed vehicle travel, restricted to passenger vehicles only.</td>
</tr>
<tr>
<td>Railcar</td>
<td>A vehicle with flanged wheels that is designed to carry freight along a guideway composed of steel rails: a boxcar is a rectangular, roofed freight car usually with sliding doors, used for the transport of general freight; a flatcar is a freight car consisting of a flat platform onto which containers or other large items are loaded and fastened; a hopper car is a freight car with an open top used to haul bulk commodities such as coal or stone; a tanker car is used to carry liquid commodities; a wellcar is a specialized railcar that is essentially a platform with short sidewalks onto which containers or truck trailers are loaded.</td>
</tr>
<tr>
<td>Right-of-Way</td>
<td>A series of continuous tracts of land designated for specific transportation uses, i.e., a rail line, roadway or utility line.</td>
</tr>
<tr>
<td><strong>Shipper and Receiver</strong></td>
<td>A shipper is a party that tenders goods for transportation (the sender of cargo). A receiver is the party to which the transported goods arrive.</td>
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<tr>
<td><strong>Station</strong></td>
<td>A facility along a rail line for loading or unloading of passengers and goods.</td>
</tr>
<tr>
<td><strong>Supply Chain</strong></td>
<td>A sequence of events starting with the extraction of unprocessed raw materials and concluding with the final customer using the finished goods.</td>
</tr>
<tr>
<td><strong>Terminal</strong></td>
<td>A passenger freight facility, which constitutes the final rail destination for a specific train and may include intermodal capabilities (see Intermodal Terminal).</td>
</tr>
<tr>
<td><strong>Trading Partners</strong></td>
<td>Other regions from which inbound freight originates, or to which outbound freight is destined. The NYMTC region’s largest trading partner by tonnage is northern New Jersey. By value of freight, Pennsylvania is the NYMTC region’s largest trading partner.</td>
</tr>
<tr>
<td><strong>Transloading Facilities</strong></td>
<td>A facility where bulk commodities can be loaded from one mode of transportation to another, for example from a barge or a train to a truck.</td>
</tr>
<tr>
<td><strong>Trip</strong></td>
<td>The transport by truck of goods between various places: a warehouse trip is the distribution by truck of goods from a warehouse or distribution facility to the delivery site; a core trip is the distribution of goods a truck makes within the urban core; a through trip is the movement of goods through a region without stopping in the region; an interplant trip is the transport of materials between facilities.</td>
</tr>
<tr>
<td><strong>Truck Parking</strong></td>
<td>Facilities located on-highway (such as a state-operated rest area) or off-highway (such as a private truck stop), which provide spaces for trucks to park and drivers to rest.</td>
</tr>
<tr>
<td><strong>Truck Trailer</strong></td>
<td>The portion of a tractor-trailer that is the platform upon which cargo is loaded and towed by the truck.</td>
</tr>
</tbody>
</table>
Where to Find More Information

Planning and Understanding Freight in the NYMTC Region

- NYMTC Website, [www.nymtc.org](http://www.nymtc.org)

Facilities

- Port Authority of New York and New Jersey, [www.panynj.gov](http://www.panynj.gov)
- New York City Department of Transportation, [http://www.nyc.gov/dot](http://www.nyc.gov/dot)

Freight Operators

Trucking


Railroads

- Norfolk Southern, [http://www.nscorp.com](http://www.nscorp.com)
Marine
• U.S. Maritime Administration, http://www.marad.dot.gov/

Air
• Federal Aviation Administration, http://www.faa.gov/

Environment
• U.S. Environmental Protection Agency (EPA), http://www.epa.gov/
• EPA SmartWay Partnership, http://www.epa.gov/smartway/
• New York State Department of Environmental Conservation, http://www.dec.ny.gov/
• Northeast Diesel Collaborative, http://www.northeastdiesel.org/
• Coalition of Northeastern Governors, http://www.coneg.org/

Freight Data
• NYMTC Data Services, http://www.nymtc.org

Questions or comments?
199 Water Street, 22nd floor
New York, NY 10038
212-383-7200

www.nymtc.org

This report is also available at the NYMTC website at www.nymtc.org
Notes