Chapter 1: Purpose and Need

A. INTRODUCTION

The Federal Highway Administration (FHWA) and the Port Authority of New York and New Jersey (PANYNJ) have prepared this Tier I Environmental Impact Statement (EIS) to evaluate Cross Harbor Freight Program (CHFP) alternatives. The primary purpose of the project is to improve the movement of freight across New York Harbor between the east-of-Hudson and west-of-Hudson regions. By improving the movement of goods across the harbor, the project would provide near-term and long-term improvements to the regional freight network, reduce truck traffic congestion, improve air quality, and provide economic benefits.

This chapter begins by providing an overview of the project's background, including the fact that several previous studies have been conducted to examine possible alternatives to improving freight movement across New York Harbor. The chapter then provides an overview of the region's existing freight transportation networks by highway, rail, waterborne, and air modes, and describes the limitations of the existing systems. Infrastructure and operational constraints are briefly discussed for each transportation mode and the need to provide greater modal and route options is identified as crucial to improving the movement of freight across the harbor. As a way to demonstrate the project need, the chapter proceeds with a more detailed discussion of the overwhelming dependence on trucks for freight movement across the harbor and the challenges and inefficiencies that this dependence brings. The need for the proposed project and its goals and objectives are then discussed.

The environmental review process is discussed in greater detail in Chapter 2, "Regulatory Process."

B. PROJECT BACKGROUND

Several previous studies have been conducted to examine possible alternatives to improve freight movement across the lower Hudson River and New York Harbor. The Cross Harbor Freight Movement Major Investment Study (MIS), commissioned by the New York City Economic Development Corporation (NYCEDC) and completed in 2000, identified alternatives and strategies to improve regional freight mobility; expand shippers' choices of route and mode; enhance the region's environmental quality; and promote regional economic development. Fifteen alternatives—involving highway, rail, waterborne, and air systems, and a combination of these modes—were initially evaluated, with the most promising strategies advanced to a subsequent phase for refinement and evaluation. Four alternatives were advanced for study in an EIS. The Draft EIS was published in April 2004 by FHWA and the Federal Railroad Administration (FRA), acting as co-lead agencies, and NYCEDC, acting as the project sponsor. The 2004 *Cross Harbor Freight Movement Project Draft EIS* (2004 DEIS) considered a No Action Alternative; a Transportation Systems Management (TSM) Alternative; an Expanded Float Operations Alternative, which involved the expansion of capacity for the existing railcar float system across New York Harbor; and a Rail Tunnel Alternative with two possible

alignments (connecting New Jersey with Brooklyn and connecting Staten Island with Brooklyn) and two potential tunnel designs (single track and double track).

The 2004 DEIS was the subject of public hearings in May and June in 2004 and an extended public comment period, with many substantive submittals by public agencies, elected officials, other stakeholders, and the general public. Subsequent to the hearings, NYCEDC suspended active work on the 2004 DEIS.

OTHER RELEVANT PLANNING STUDIES

In addition to CHFP, a number of planning and transportation agencies in the greater New York/New Jersey/Connecticut region continue to identify the need for improved freight transportation in the region, and are studying (or have previously studied) strategies to alleviate congestion in the region's major freight corridors. The following list describes some of these past or ongoing studies, and their relationship to this project. In addition, various findings, goals and objectives from these studies have been integrated throughout this EIS.

FEDERAL RAILROAD ADMINISTRATION

The Northeast Corridor (NEC) FUTURE program is a comprehensive planning effort focused on the 457-mile rail transportation system extending from Boston's South Station in the north to Washington's Union Station in the south.[1] The program is being led by FRA with the Federal Transit Administration (FTA) acting as a cooperating agency for the initiative. FRA is developing the program in close coordination with the NEC Commission. NEC FUTURE aims to define, evaluate, and prioritize future investments in the NEC, and will include new ideas and approaches to grow the region's intercity, commuter, and freight rail services. The proposed project will be informed by any rail freight related outcomes of the Tier I EIS as not to preclude the NEC FUTURE project determinations.

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

As part of the Regional Goods Movement plan, PANYNJ is seeking to develop a comprehensive long-term regional goods movement plan for the New York/New Jersey region that establishes a framework and action plan for the identification and prioritization of freight strategies and projects within a 30-year planning horizon. The CHFP is considered to be a key strategy of the Regional Goods Movement Plan.

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

The New York Metropolitan Transportation Council (NYMTC) is an association of governments and transportation providers that serves as the metropolitan planning organization (MPO) for ten counties comprising New York City, Long Island, and the lower Hudson Valley.[2] In recognition of the importance of streamlined freight movement to regional goals and objectives, NYMTC created a Freight Committee and a public Freight Transportation Working Group (FTWG) and developed a *Regional Freight Plan* in 2004. The plan laid out strategies for improving regional freight movement, which include reducing barriers to east-of-Hudson rail service (via clearance and operational improvements), expanding east-of-Hudson yard facilities, and exploring expanded or new harbor crossings.

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[1] http://www.necfuture.com/. Accessed on December 10, 2013.

[2] Rockland, Putnam, Westchester, Bronx, Manhattan, Richmond, Kings, Queens, Nassau, and Suffolk counties.

In February 2014, NYMTC released an interim update of the 2004 Regional Freight Plan, reinforcing, as recurring themes, the predominance of trucking for freight deliveries in the region, the lack of modern rail freight facilities east of the Hudson, the competition with and priority for passenger rail services in the use of rail infrastructure, and fragmented rail operations and lack of supporting infrastructure for rail. The plan anticipates that the results of this EIS may present a number of strategies for evaluating the further expansion of the region's freight yards and improving cross-harbor rail service.

NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

NJTPA is the MPO for a 13-county northern New Jersey region, comprising Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren Counties. NJTPA has an active Freight Initiatives Committee. NJTPA has adopted *Plan 2035: The Regional Transportation Plan for Northern New Jersey*, which is a federally mandated long-range transportation plan. The plan "recognizes the importance of freight to the region's economy, and calls for investments and policies that would help the region handle a projected doubling of cargo with multiple transportation modes, including more efficient truck shipment and a greater role for rail, air, and marine freight." In 2013, NJTPA completed the *Rail Freight Capacity and Needs Assessment to Year 2040*, which examined existing physical and operational characteristics of the freight rail network in the NJTPA region; forecasted future demand; assessed the capacity of the network to accommodate growth; and identified issues affecting capacity and potential solutions. In 2012, NJTPA published the *Industry-Level Freight Forecasts to the Year 2040*, which developed a freight forecasting tool with scenario planning capabilities. Currently, NJTPA is evaluating the composition, mode splits, origins and destinations, and key handling facilities associated with several key commodity groups moving in the NJTPA region in its *Regional Freight Commodity Profiles Study*.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)

NYSDOT—charged with ensuring the state's safe, efficient, balanced, and environmentally sound transportation system—prepares the state's transportation plan. The most recent plan, *Strategies for a New Age: New York State's Transportation Master Plan for 2030,* acknowledges that the "reliability and predictability of the freight transportation system is essential to the health of the State's and the nation's economy," and that congestion and capacity constraints are problems that must be addressed to keep New York State freight terminals' cost and service competitive. The plan also advocates corridor-based transportation management, designating the New York Harbor crossing as one of the primary New York State Trade Corridors. NYSDOT also has a comprehensive statewide rail plan, *New York State Rail Plan 2009*, which articulates the State's vision, goals, and objectives for intercity passenger and freight rail systems and serves as a guide for New York State's rail transportation investment strategies.

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

NJDOT developed its first *Comprehensive Statewide Freight Plan* in 2007. The plan recommended that NJDOT undertake a multi-modal corridor study of these primary freight corridors to encompass land use, Intelligent Transportation Systems (ITS), modal alternatives, and shifting freight to off-peak periods. NJDOT developed the *New Jersey Statewide Freight Plan Recommendation Advancement (Freight Plan II)*, which developed and prioritized problem statements related to congestion and safety performance on several key freight highway corridors in the state. The analyzed corridors included Interstate 78, Interstate 80, New Jersey Turnpike and Interstate 295, Interstate 287, and NJ Route 17. The analysis found long segments

of Interstates 78 and 80 experiencing congestion and more than half of the trucks on these highways are traveling through New Jersey without an origin or destination in the state.

C. PROBLEM IDENTIFICATION

The greater New York/New Jersey/Connecticut region is the financial center of the United States economy, the nation's largest consumer market, and a major hub of entertainment, services, fashion, and culture with a population of approximately 20 million people. The region receives, processes, and distributes raw materials, intermediate products, and finished consumer goods, which are transported to and from the rest of the United States and countries around the world.

The region's highway system, illustrated in **Figure 1-1**, especially the crossings of Upper New York Harbor and the Hudson River, illustrated in **Figure 1-2**, suffers from significant peak period traffic congestion,[1] which continues to expand in duration beyond the typical commuting hours (the weekday 6 AM to 10 AM and 3 PM to 7 PM peak periods, as defined by NYMTC's regional highway model). Planned highway improvements (considered in NYMTC's regional highway model, the Best Practices Model) would address some local constraints, but would not significantly alleviate region-wide congestion. As shown in **Figure 1-3** (which is based on NYMTC's projections), highway congestion in 2035 would be widespread.

Due to the region's overwhelming dependence on trucking, highway congestion has a tremendous impact on freight movement—increasing the costs and environmental impacts of goods movement, while decreasing reliability and speed of freight delivery and safety of roadways and infrastructure. With the expected future growth in freight transport, truck vehicle miles traveled (VMT) would increase and the current inefficiencies of freight movement by truck and adverse effects of trucks would grow, with the higher transportation costs passed on to consumers as higher prices for goods.

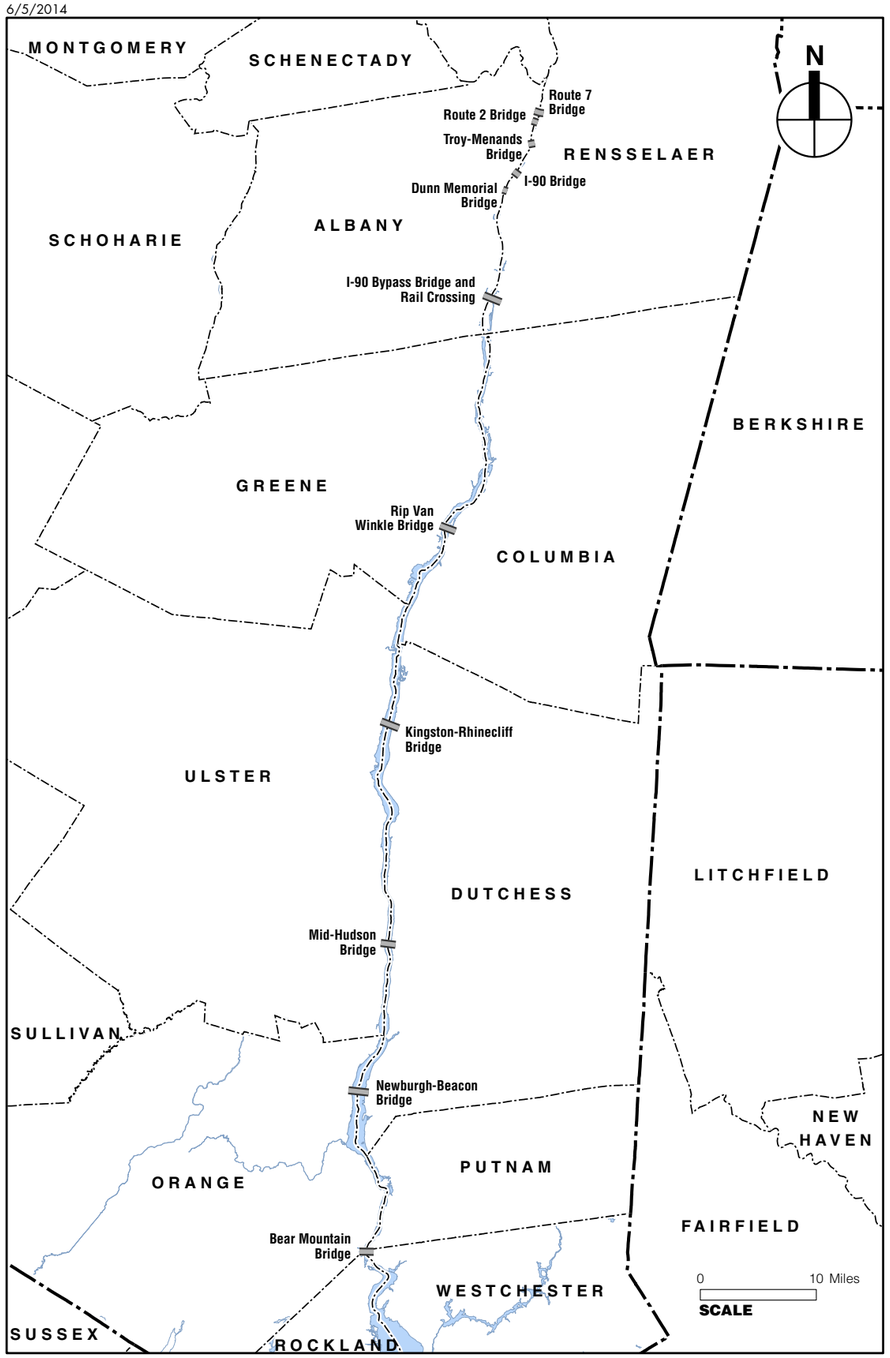
This overwhelming dependence on trucks could be balanced by shifting freight movement from truck to other modes; however, as explained below, the existing rail, waterborne, and domestic air systems in the region are also constrained. For example, existing waterborne and air cargo facilities in the region are plagued by the same deficiencies and constraints that constrain truck-based freight transport, related to already congested highway system and crossings between the west-of-Hudson and east-of-Hudson regions. Overall, the region has a well-developed freight rail system (see **Figure 1-4**), but it is far better developed and better connected to the national rail network west of the Hudson River than it is east of the Hudson River. As a result, critical rail connections to the east-of-Hudson market are remote, inefficient, or have capacity restrictions, leading to a greater dependency on trucks for moving freight to and from the east-of-Hudson counties. As a result, a large portion of the region's freight shippers have a limited choice, in terms of transportation mode. Consequently, the highway connections between the west-of-Hudson and east-of-Hudson regions experience the greatest proportion of surface freight transport impacts, and freight shippers, receivers, and carriers throughout the region continue to experience the negative effects of growing highway congestion.

The *Cross Harbor Freight Program Needs Assessment*,[2] issued on September 15, 2010 and included in **Appendix B** of this EIS, details the existing and historic constraints associated with the current freight highway and rail network systems. The following sections summarize existing

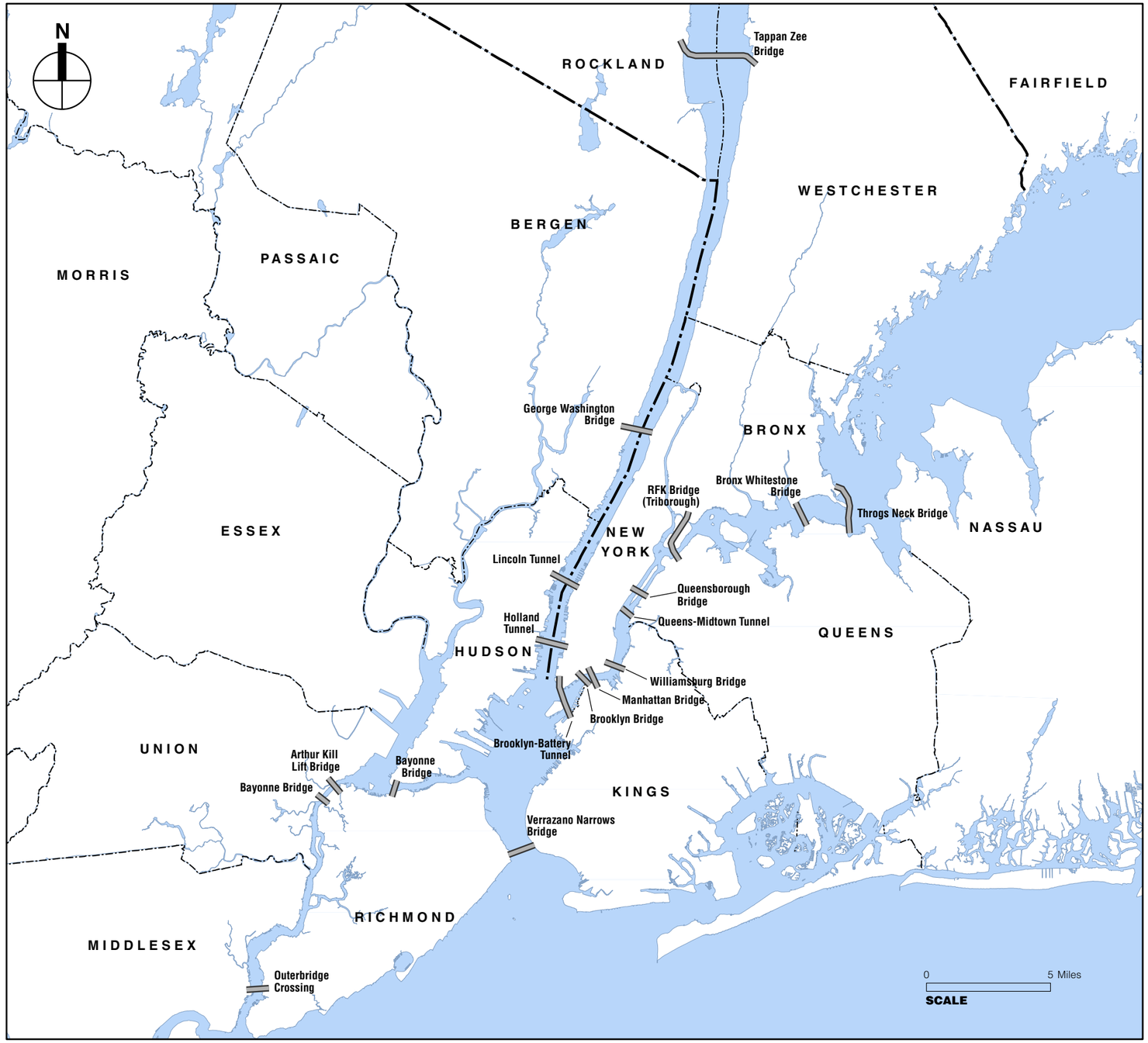
[1] Significantly congested roads are defined here as those having a volume to capacity ratio (v/c) greater than 0.8.

[2] The full report can be found on the Cross Harbor Freight Program website: http://www.panynj.gov/about/cross-harbor.html.

FIGURE 1-1
Regional Highway System
CROSS HARBOR FREIGHT PROGRAM

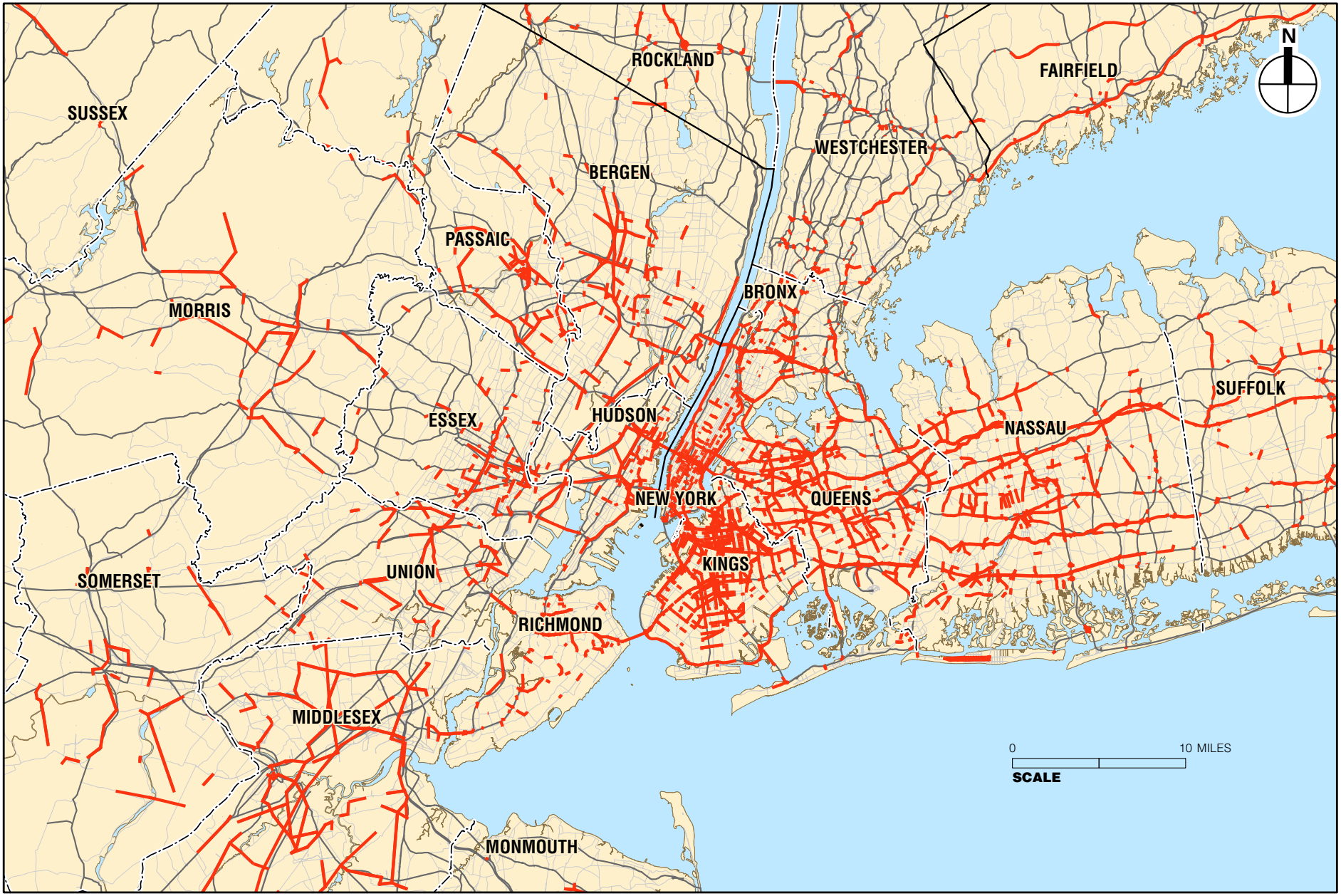


Hudson Valley Crossings



New York City Area Crossings

FIGURE 1-2
Major Bridge and Tunnel Crossings
CROSS HARBOR FREIGHT PROGRAM



Source: NYMTC, 2035 BPM Model

2035 Congested Major Roads: V/C > 0.8

Major Road

Freeway

FIGURE 1-3

Projected Highway Congestion, 2035

CROSS HARBOR FREIGHT PROGRAM

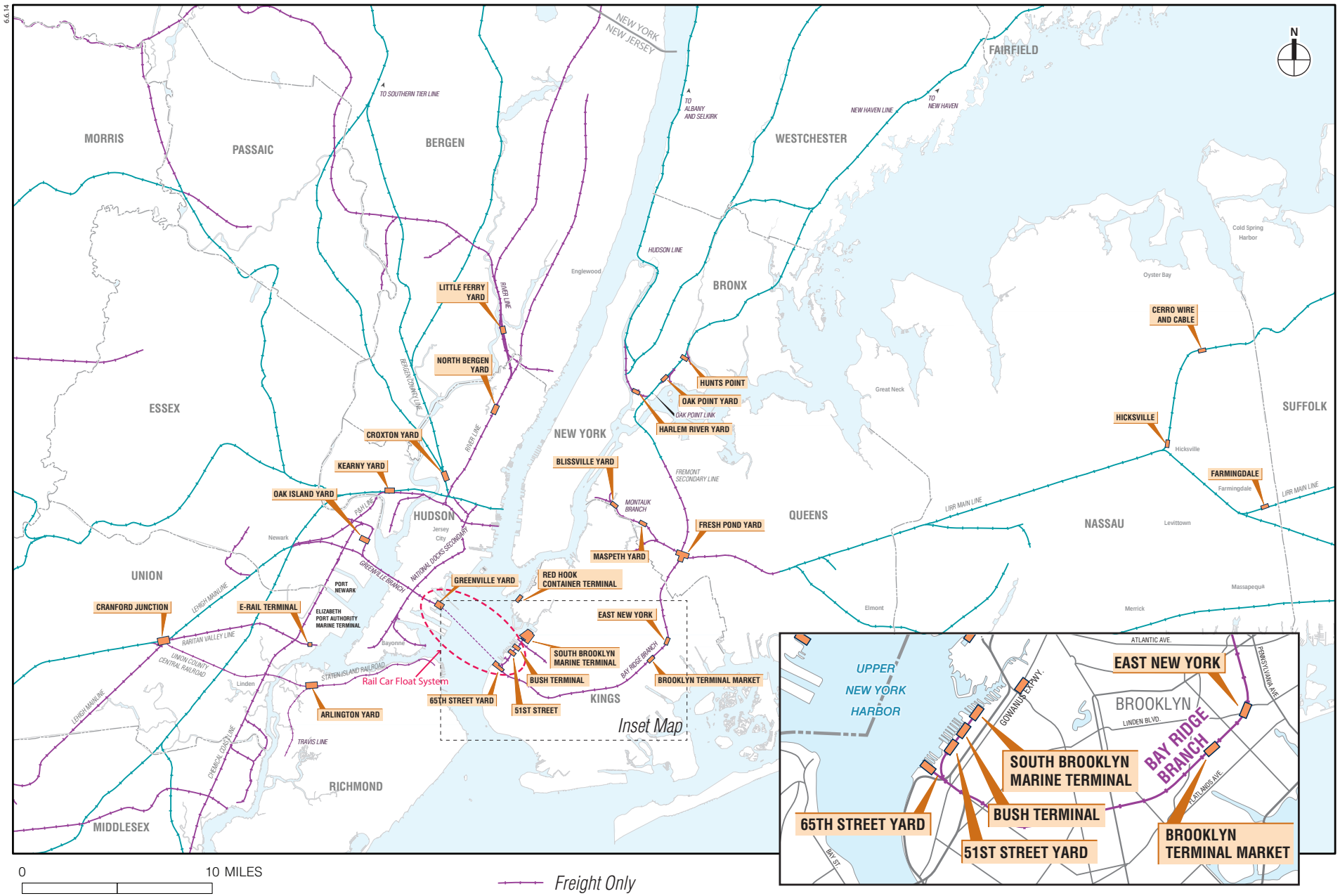


FIGURE 1-4

Regional Rail System

CROSS HARBOR FREIGHT PROGRAM

conditions on the freight highway and rail network systems as well as discuss the limited waterborne and air freight transport options in the region.

HIGHWAY SYSTEM

Over 90 percent of freight crossing between the west-of-Hudson and east-of-Hudson regions is moved by truck. Trucks hauling freight in the region share an extensive highway and roadway system with passenger cars, buses, and other non-freight vehicles. This condition contributes to extensive traffic congestion on roadways leading to and from the New York Harbor/Hudson River crossings.

EXISTING CONGESTION

Only a limited number of bridges, tunnels, and highway corridors are available to traffic traveling between the west-of-Hudson and east-of-Hudson regions, as shown in **Figure 1-1** and **Figure 1-2**. When these facilities become congested, which often occurs throughout most of the day and into the night, no alternative local arterial road or crossing is available. Delays of up to 45 minutes to enter the Lincoln and Holland Tunnels or to traverse the George Washington Bridge (GWB) are common.

There are even fewer routes available for large trucks on the national network of designated interstate highways serving the traffic traveling between the west-of-Hudson and east-of-Hudson regions. These are the I-95 corridor including the GWB; the I-278 corridor, including the Goethals Bridge and Verrazano-Narrows Bridge (VNB); and the I-87/287 corridor including the Tappan Zee Bridge (TZB), shown in **Figure 1-1** and **Figure 1-2**. Since the 9/11 attacks, security protocols restrict trucks to the upper levels of the GWB and VNB.

While the I-95, I-278, and I-87/287 corridors provide routes for large trucks traversing the NY-NJ metropolitan region, trucks depend primarily on the I-95 corridor and the more constrained I-278 corridor crossings for goods movement. The GWB accommodates an average of approximately 300,000 total vehicles daily, and the VNB just over 200,000 total vehicles daily.[1]

According to NYMTC, peak-period demand already exceeds capacity on the major crossings and other chokepoints on the corridor. The I-95, I-278, and I-87/287 corridors within New York City are heavily congested and fall short of federal interstate highway standards for lane width and other features. For example, vertical clearance restrictions on the BQE force larger trucks onto inadequate alternate routes using city streets. As another example, the Cross Bronx Expressway (which is the I-95 corridor through the Bronx) provides extensive access to major highways in the area (including the GWB) and therefore carries very high traffic volume on its six-lane mainline. Accordingly, the Cross Bronx Expressway included three out of the top four worst interchanges in the United States in 2008 and four of the top five in 2007.[2]

HIGHWAY NETWORK LIMITS

In some parts of the City, through truck traffic is confined to a single route option and often results in extreme congestion as both trucks and private automobiles compete for limited capacity available on these routes. For example, 53-foot long trailers are not allowed to make pick-ups or deliveries in any of the boroughs of New York City. Access to/from destinations on Long Island for 53-foot trailers is limited to the following routes, shown in **Figure 1-1**:

[1] New York City Department of Transportation, "New York City Bridge Traffic Volumes 2009," February 2011.

[2] Inrix traffic information.

- I-95 from Bronx/Westchester County line to I-295;
- I-295 from I-95 to Throgs Neck Bridge to the Long Island Expressway (I-495); and
- I-495 from I-295 to Queens/Nassau County line.

While the City's arterial and street network does include designated truck routes[1], these provide a secondary, and generally much slower, alternative for trucks.

PROJECTED VOLUME INCREASES

In addition to the aforementioned constraints posed by an existing lack of highway capacity in the region, conditions are only expected to worsen in the future. As an example, based on NYMTC projections, total truck traffic on two major Cross Harbor crossings in the NYMTC region that allow trucks (GWB and VNB) is expected to increase by 35 percent by 2035. Specifically, projected truck increases by 2035 include:

- GWB (I-95) truck volume increase from 10 to 14 million annually.
- VNB (I-278) truck volume increase from 5.7 to 7.4 million annually.

The total percentage of trucks on the VNB is projected to increase from 10 to 16 percent. Daily vehicle hours of delay (VHD) estimates for the NYMTC region for 2010 is 2.35 million and projected to increase by 42.6 percent to 3.35 million by 2035.[2] **Table 1-1** shows the 2010 and projected daily average hours of delay on regional truck routes.

Table 1-1
Average Daily Vehicle Hours of Delay (VHD)

Regional Truck Routes	2010	2035	Percent Increase
Brooklyn/Queens Expressway (I-278)	17,384	24,968	44
Long Island Expressway (I-495)	81,482	121,219	49
Cross Bronx Expressway (I-95)	11,640	15,349	32
George Washington Bridge (I-95)	12,424	22,394	80
Lincoln Tunnel	11,763	20,652	76

Sources: NYMTC 2005 Best Practices Model (BPM) Network, 2010 Base Year Scenario and 2035 Forecast Scenario.

INFRASTRUCTURE CONDITIONS

The region's heavy dependence on trucks also results in wear and tear on the region's roads, bridges, and tunnels. For example, nearly two-thirds of the $2.5 billion allocated each year to the North Jersey Transportation Planning Authority (NJTPA) region's transportation system are used for maintaining existing facilities in good working order. Many key transportation facilities in the region were built more than 50 years ago and are due for major overhaul or replacement. Approximately 33 percent of the NJTPA region's bridges are considered functionally obsolete,

[1] The New York City Department of Transportation has developed a NYC Truck Route Network that consists of a set of roads that commercial vehicles must use in NYC. The network comprises two distinct classes of roadway: Local Truck Routes for deliveries within a borough, and Through Truck Routes for truck trips that pass through and do not stop within a borough. http://www.nyc.gov/html/dot/downloads/pdf/2011_truck_route_map.pdf

[2] NYMTC Best Practice Model, "2005 Base Year Scenario" and NYMTC Best Practice Model, NYMTC "2035 Forecast Scenario."

and approximately 11 percent are structurally deficient.[1] Maintaining and improving these roads and bridges is challenging with the amount of travel in the region, as work can only be conducted in a manner that minimizes disruptions to key travel routes. State-of-good-repair projects collectively comprise the single largest category of investments in the NYMTC Regional Transportation Plan. Over the next 25 years, more than $290 billion would be needed to maintain state-of-good-repair conditions in the NYMTC region through replacement and refurbishment of equipment and facilities. In addition, over $661 billion would be needed to maintain and operate the regional transportation system.[2]

According to FHWA,[3] the estimated responsibility for the cost of pavement improvements due to wear and tear from trucks is 10 times greater than that from passenger vehicles. With the projected increases in vehicle miles traveled over the next 25 years, pavement wear would increase.

FREIGHT RAIL SYSTEM

FREIGHT RAIL SYSTEM HISTORICALLY[4]

Beginning in the mid-19th century, freight movement throughout the New York and New Jersey region was extensively served by railroads. Large railroads servicing the Port of New York established one or more waterfront terminals, and from them served every part of the region by waterborne modes. Railroad terminals lined the New Jersey, Brooklyn, and Manhattan waterfronts in 1949.

Railroad car "floating" was the predominant mode for transporting freight cars across the New York Harbor in the 1930s, with approximately 5,300 cars per day moved in 1937. Of note, a terminal for the Long Island Rail Road (LIRR) Bay Ridge Branch was located at 65th Street in Bay Ridge, Brooklyn (65th Street Yard). From this facility, carfloats transported freight to Greenville Yard in Jersey City, New Jersey. During World War II, the Greenville-Bay Ridge interchange operated 24 hours a day, handling 2,160 railcars per day at its peak.

A steep decline in float traffic began in the 1950s. The 65th Street Yard fell into disuse and within 25 years, only a single railcar float operation remained across New York Harbor—between Greenville Yard and 51st Street Yard (also referred to as the Bush Terminal, a 6-acre facility located on the Brooklyn waterfront at First Avenue between 43rd and 51st Streets). A significant factor in the New York City railroad freight industry's decline was the push for investment of public funds in vehicular crossings of the harbor and the Hudson River, rather than in rail crossings. This investment included the construction of the Tappan Zee Bridge in 1955, the third tube of the Lincoln Tunnel in 1957, addition of a lower deck to the GWB in 1962, and construction of the VNB in 1964. The railcar float operation between Greenville Yard and 51st Street Yard was purchased by the PANYNJ in 2008; New York New Jersey Rail, LLC (NYNJR), a wholly owned entity of PANYNJ, now operates the only railcar float service in the New York region (between Greenville Yard in New Jersey and 65th Street Yard in Brooklyn). Over the past decades, the physical infrastructure of Greenville Yard—including the Greenville

[1] Plan 2035: The Regional Transportation Plan for Northern New Jersey.

[2] 2010-2035 NYMTC Regional Transportation Plan.

[3] *Federal Highway Cost Allocation Study Final Report*, 1997, U.S. Department of Transportation Federal Highway Administration.

[4] *The Cross Harbor Freight Program Needs Assessment*, issued on September 15, 2010 and included in Appendix B of this EIS, details the existing and historic constraints associated with the current freight highway and rail network systems.

Yard Lift Bridge, track, barges, and other ancillary equipment—has greatly deteriorated. In November 2012, severe damage from Superstorm Sandy required that the structure be demolished in an emergency action and replaced with a temporary pontoon bridge.

After World War II, due to the various national and local changes in the freight industry, the railroads began experiencing financial difficulties. Over time, thousands of miles of trackage were abandoned or sold and rail freight access to New York City was dramatically reduced. East-of-Hudson trackage became publicly owned and used for passenger services (see **Figure 1-4**). Many of the LIRR's property holdings, including its freight yards in Bronx and Brooklyn, were either sold or converted to use by the LIRR for storage of commuter cars. Furthermore, the rise in demand for intermodal traffic (first trailer-on-flatcar and then container-on-flatcar) resulted in the development of large intermodal terminals in New Jersey. Most of the distribution infrastructure for the New York area is located west of the Hudson River. Only a limited amount of direct traffic moves directly by rail or railcar float into the New York area without first being handled at a distribution facility on the west side of the Hudson River. However, the greatest growth in freight transport in the area in the last 20 years has been outbound Municipal Solid Waste (MSW) and construction and demolition debris, which originates by rail east of the Hudson River and connects to the Harlem River and Oak Point Yards via the Oak Point Link.

FREIGHT RAIL SYSTEM TODAY

The various rail lines and facilities comprising the regional rail network, along with existing operations, are described in detail in Chapter 5, "Transportation." As noted in that chapter, the principal deficiency of the regional network is the lack of a direct rail link between the national rail hubs in northern New Jersey (e.g., Oak Island Yard) and the east-of-Hudson region. The nearest conventional railroad crossings of the Hudson River are owned by Amtrak, and are currently restricted to passenger service. Freight to and from Long Island, destined for customers across the Hudson River, must either complete the 48-hour (300-mile) trip via Fresh Pond Yard in Queens and the old New York Central Bridge in Selkirk, New York, or travel via NYNJR on a railcar float service between the Bay Ridge Branch (65th Street Yard) and Greenville Yard (see **Figure 1-5)**. The only overland freight line connection between Long Island and the continental United States is the Hell Gate Bridge. These limited rail crossings comprise a heavy limitation on the transfer of freight across New York Harbor and the Hudson River via rail and are central to defining the need for the proposed project.

One existing operational rail asset in the regional freight network is the Bay Ridge Branch in the east-of-Hudson region, shown in **Figure 1-4**. The Bay Ridge Branch is an example of a freight-only rail line through Brooklyn and Queens that is currently underutilized. Because of low capacity, delay, narrow service windows, and low reliability and predictability of deliveries and pickups, industries that previously relied on this line have been displaced. The Bay Ridge Branch was once a major rail freight corridor during the peak of railcar float operations across the harbor. At one time the Bay Ridge Branch carried 600,000 railcar loads per year, but now carries less than 3,000 carloads per year. Today, the Bay Ridge Branch, operated by New York and Atlantic Railway (NY&A) via a concession from LIRR, has only one active track, with passing sidings. Shipper and consignee demand on this rail line is generally met on an as-needed basis and averages only about one freight train per day.

11.4.14

N

0 50 MILES
SCALE

Shortcut Made Viable by Cross Harbor Freight Program

Circuitous Route Via Selkirk/Albany

FIGURE 1-5

Trans Hudson Connectivity

CROSS HARBOR FREIGHT PROGRAM

EAST-OF-HUDSON CONSTRAINTS

Capacity Barriers

A review of the existing characteristics and needs for the east-of-Hudson rail system, which is shown in **Figure 1-4**, identified four types of barriers to growth of rail freight traffic:

1. **Conflicts with passenger service** limit the flexibility, reliability, and transit times of freight operations;
2. **Clearance issues** prevent freight carriers from operating their most modern and efficient rail equipment in the study area;
3. **Weight restrictions** prevent freight carriers from operating their highest volume and lowest cost bulk equipment in the study area; and
4. **Yards and terminals**, when brought to a state of good repair will be adequate for current volumes of traffic, but would require expansion to accommodate increased freight demand and provide more efficient service.

Conflicts with Passenger Service

Most of the rail lines in the east-of-Hudson region (see **Figure 1-4**) are publicly owned and maintained. The public agencies that acquired the lines were primarily motivated to maintain (and later expand and improve) passenger rail services that are critical to the economy of this region. During the ensuing decades, public agencies have made large investments to improve and expand rail passenger services in the region. Maintaining passenger train movements has become a priority, with freight movements relegated to off-peak hours. This condition limits the capability of freight railroads to compete for certain time-sensitive commodities that must arrive or depart during passenger peaks. It also prevents freight railroads, namely NY&A which handles freight operations on LIRR infrastructure on Long Island, from serving customer industries on weekdays, when they are typically staffed, which is an important consideration for many rail shippers. In addition, if passenger operations become delayed or off-schedule, freight railroad reliability is severely impacted because freight trains are typically the lowest priority trains on the railroad, especially when the passenger railroad is in operational control of the line. If the window of operation is missed by the freight operator, it can be very difficult for the freight operator to regain access to the passenger railroad.

Clearances

The rail lines in the east-of-Hudson region were designed and engineered when the railcar fleet in the U.S. was lighter and lower than many of today's railcars. As recently as 30 years ago, the disparity in dimensions between freight and passenger railcars was not great, and the rail lines in the east-of-Hudson region accommodated most freight railcars. However, elsewhere in the nation, freight carriers increasingly use railcars that are too tall to be operated in the east-of-Hudson region and frequently operate trains that stack two containers on one flatcar (double stacked service). On geographic Long Island, vertical clearances range from 14.5 feet to 17.5 feet, only enough to accommodate single-stacked containers. Double-stacked container service would require a vertical clearance of at least 20.5 feet. In addition, the bottom width of double-stack train equipment would not be able to clear third-rail power infrastructure on Long Island lines.

Weight Restrictions

The maximum weights of commonly used freight railcars are also growing. Class I freight carriers are increasing their reliance on heavier, 286,000-pound gross weight cars, and even

starting to move to 315,000-pound gross weight cars in some markets. When fully loaded, the this newest generation of bulk freight railcars does not fit within maximum allowable weight restrictions in place for portions of the LIRR system, although LIRR's recent policy decisions have increased the tolerance of 286,000-pound gross weight cars on the Bay Ridge Branch and the rest of the system.

Yards and Terminals

As noted previously, the various existing rail lines and facilities comprising the regional rail network, along with existing operations, is described in detail in Chapter 5. Due to very low rail freight volumes in the east-of-Hudson region, the few existing yards and terminals can accommodate current demand. However, freight traffic levels would not be able to grow substantially without some expansion and enhancement to terminal facilities. For most yards and terminals in the east-of-Hudson study area, investments in trackage, connections, and control systems would be required to support the increase in use of these underutilized yards to achieve the level of activity found in the west-of-Hudson region. Chapter 4, "Alternatives," outlines the expansions and enhancements to existing facilities that would be required to support the project alternatives. That chapter also discusses that many of these freight facilities would be developed both within the areas controlled by PANYNJ, i.e., the Port District (see **Figure 1-6**), however, some facilities would be located outside of the Port District, where cooperation from other agencies and stakeholders would be required.

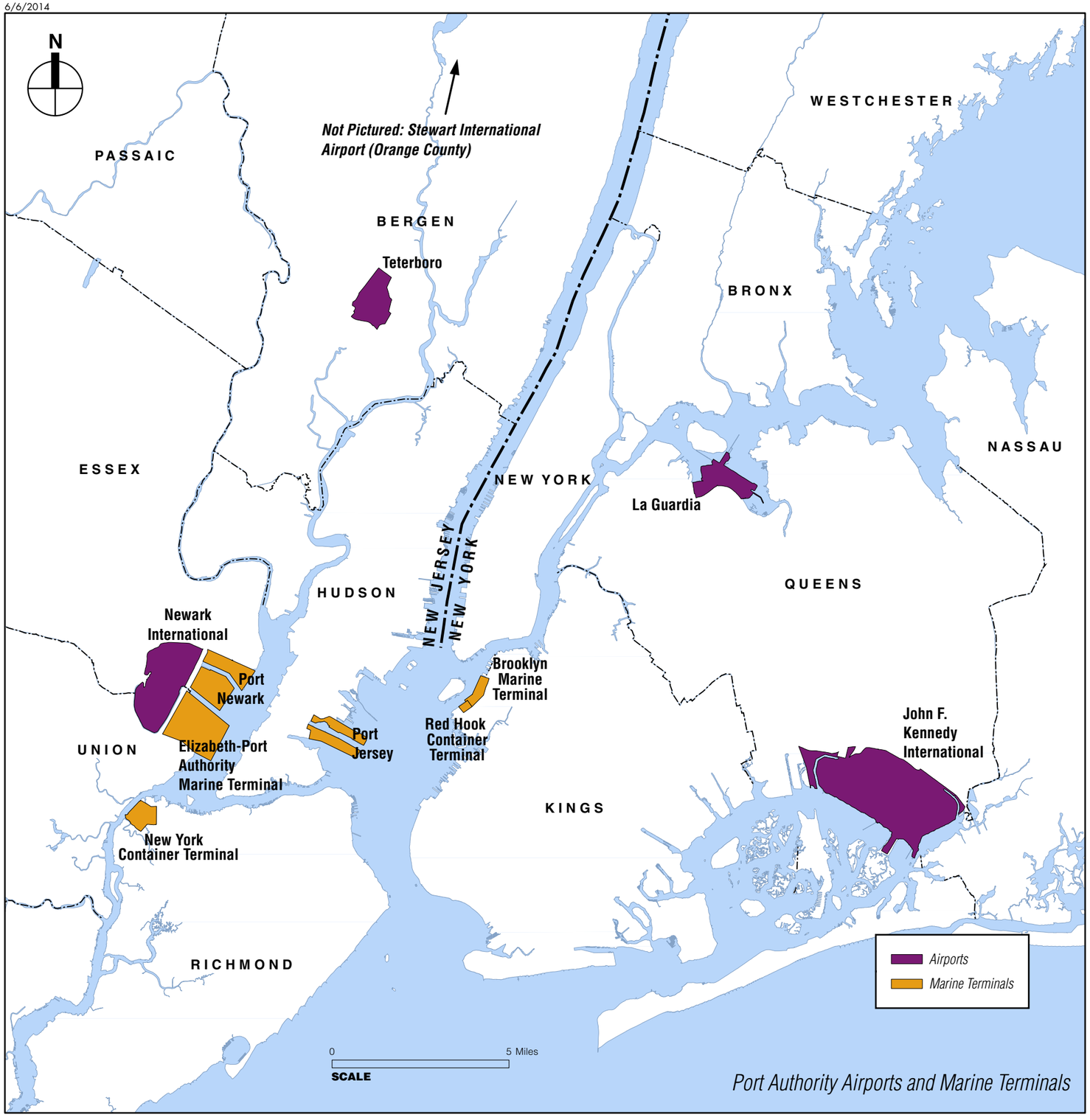
Institutional Constraints

At present, rail shipments destined for east-of-Hudson locations often involve multiple parties and/or very inefficient routing. Each interaction incurs considerable administrative expense and holds the potential for delay and conflict, with the net effect being higher costs and inferior service for the shipping public. Under current conditions, national rail traffic utilizing the Cross Harbor railcar float necessitates the involvement of three or more carriers (see **Figure 1-7**), such as:

- The class I carriers CSX Corporation (CSX) and Norfolk Southern (NS), which operate trains from their respective networks to Oak Island Yard, northern New Jersey's largest carload yard;
- Consolidated Rail Company (Conrail) North Jersey Shared Assets, operator of Oak Island Yard, provides switching service to and from Greenville Yard;
- NYNJR, which operates the railcar floats and associated terminals at Greenville Yard and 65th Street Yard in Brooklyn;
- New York and Atlantic (NY&A), which provides freight service on the Bay Ridge Branch and throughout Long Island; and
- CSX, which serves the Fresh Pond Junction Yard from Oak Point Yard over the Hell Gate Bridge and the Fremont Secondary.

For west-of-Hudson traffic, CSX and NS trains destined for the New York region terminate at Oak Island Yard. Conrail disassembles the train, sorting out the cars destined for Long Island and other locations. Then, depending on schedules and volumes, a block of cars bound for Long Island via the Cross Harbor is moved from Oak Island to Greenville Yard, where the NYNJR takes possession, loads the cars onto the railcar float, and transports them across the Hudson River to Brooklyn. In Brooklyn, the NYNJR unloads the cars from the railcar float, arranging them for pick-up by the NYA. In turn, the NYA delivers the cars to Long Island receivers, using the Fresh Pond Junction Yard as the primary sorting and staging facility for island traffic.

6/6/2014



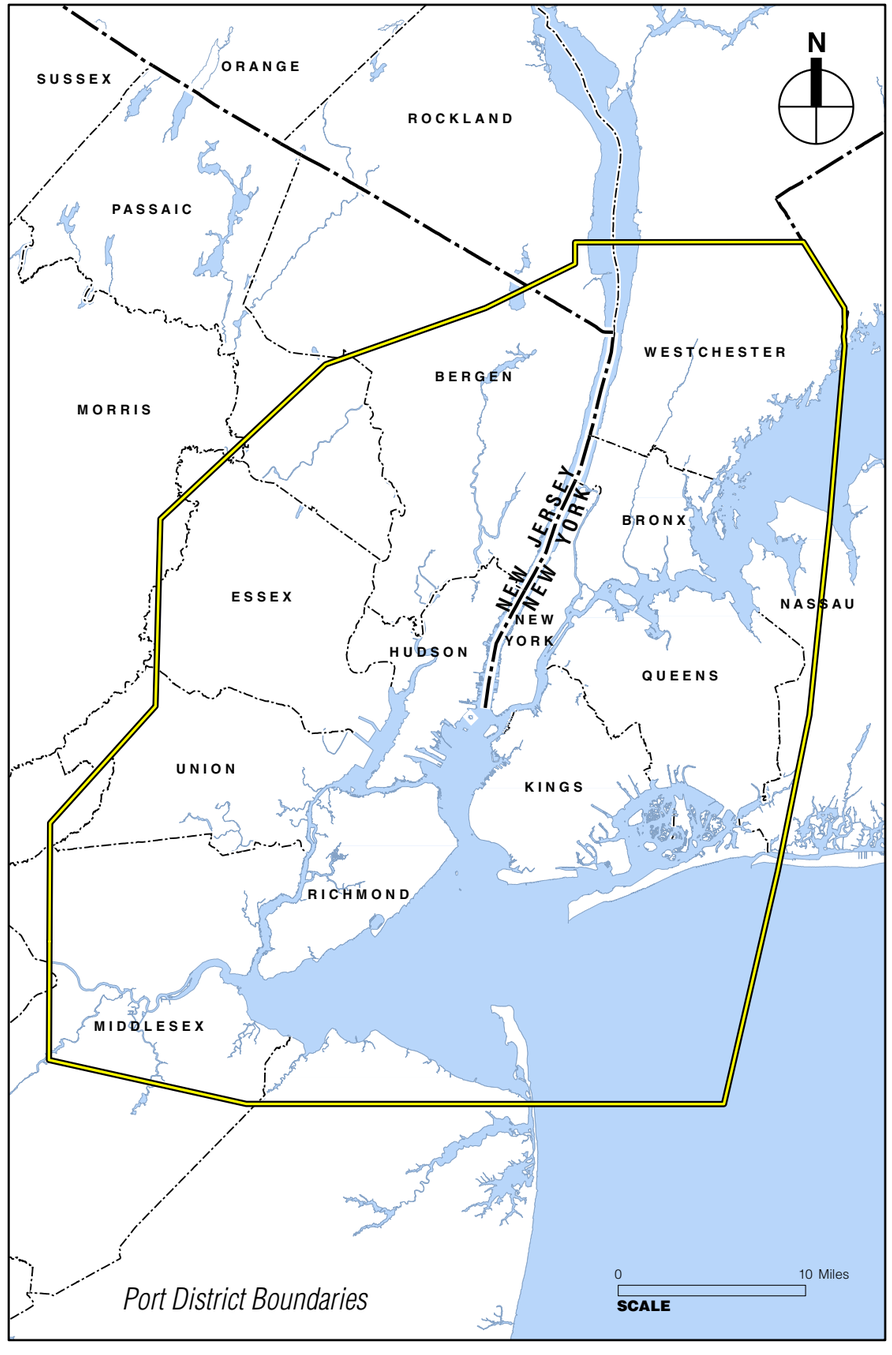


FIGURE 1-6
Port District and Port Authority Facilities
CROSS HARBOR FREIGHT PROGRAM

6.4.14

Source: Port Authority

FIGURE 1-7

Regional Rail Network

CROSS HARBOR FREIGHT PROGRAM

Shipments bound for off-island locations would be interchanged once more at Fresh Pond Junction with CSX transporting the cars over the Hell Gate Bridge to Oak Point Yard and forwarding to their eventual destination or interchanged at the 65th Street Yard for west bound trips by railcar float.

Each of these interchanges produces a delay of at least a half-day, with the result that railcars destined for Long Island take at least two days to reach their destination upon arrival at Oak Island. The competitive postures of NS and CSX, the rival Class I carriers serving the eastern half of the U.S., drive day to day tactical and long-term strategic decisions regarding markets served, train operations, schedules, prices, and relationships with connections. At the same time, each of the smaller participants also must deal in their own direct self-interest. The end result is a sub-optimal outcome for east of the Hudson service, and Long Island in particular.

WEST-OF-HUDSON CONSTRAINTS

A relatively more efficient west-of-Hudson freight rail system helps the region avoid hundreds of millions of truck VMT every year. Though not as serious as in the east-of-Hudson region, there are still operational, institutional, and capacity constraints that limit the rail system from meeting future higher demand.

Conrail Shared Assets formed by Class I freight railroads facilitates the shared use of rail facilities in west-of-Hudson region, and relieve the institutional constraints between private railroad entities. However certain constraints between public agencies and private sectors still exist. CSX and NS have worked with PANYNJ, NJDOT, NYSDOT, NJ Transit, Conrail, Amtrak, and other regional partners to identify and coordinate various improvement programs in the west-of-Hudson region; however a number of improvements are still needed, as outlined below.

Unlike the east-of-Hudson region, several freight-only mainlines serve the region as part of the national rail network. However, some of these lines are functioning near capacity during critical portions of each day. Terminals, yards, and connecting freight railroads in northern New Jersey are also operating at or near capacity. NJTPA's Rail Freight Capacity and Needs Assessment to the Year 2040 (March 2013) summarized capacity constraints of rail lines and freight rail yards; weight, clearance, and other physical constraints; joint use issues with passenger rails; and grade crossing issues. Conrail reports that significant portions of the freight-only connecting railroad network that links the serving yards, classification yards, and intermodal terminals in northern New Jersey are in need of upgrade. Service delivery would be enhanced if some segments were double-tracked with signal and speed improvements. To accommodate the forecasted growth in total freight traffic, increase in capacity in key rail lines and terminals in New Jersey would be required, as discussed in greater detail in Chapters 4 and 5.

NJDOT Statewide Freight Plan (2007) identified a lack of adequate capacity for such lines as the North Jersey Shared Assets Area (NJSAA) Lehigh Line, NS Lehigh Line, Passaic and Harsimus (P&H) Line, and Chemical Coast Line, with the CSX River Line close to capacity. Accommodation of forecasted growth in total freight traffic will require a significant increase in capacity along key rail lines and terminals in New Jersey if railroads are to maintain market share, let alone add service to increase it.

CSX and NS have formulated a program, including approximately 10 projects, to upgrade trackage in northern New Jersey. Based on availability of funding, it is expected that the private carriers, the Port Authority, the state of New Jersey, and NJ TRANSIT will work in public-private partnership to cooperatively fund these necessary enhancements. Projects under way

include improvements to the River Line, New York Susquehanna and Western Railway, Belvidere Delaware Railroad, and Morristown and Erie Railway.

WATERBORNE FREIGHT

The Port of New York and New Jersey is the largest port complex on the eastern seaboard, accepting national and international waterborne freight traffic. It consists of publicly owned and privately owned marine terminal facilities located throughout the region's waterfront (see **Figure 1-6**). Terminals located in New Jersey include Port Newark/Port Elizabeth along Newark Bay and the Port Jersey Global Marine Terminal on Upper New York Bay. Terminals located in New York include New York Container Terminal in Staten Island and Red Hook Container Terminal in Brooklyn. In 2013, these existing container terminals handled over 5.5 million twenty-foot equivalent units, estimated at a value in excess of $200 billion, 71 million tons of bulk cargo, and nearly 750,000 vehicles.[1] While the CHFP does not address the movement of waterborne international container freight to and from New York and New Jersey port facilities, the project's alternatives have the potential to divert existing truck traffic and improve the performance of highways serving port facilities. Furthermore, as discussed in Chapter 4, the container barge alternatives have the potential to provide an alternative means of transferring international container cargo between the west-of-Hudson and east-of-Hudson regions.

In terms of domestic waterborne freight, in both the west-of-Hudson and east-of-Hudson regions the waterborne freight system plays an important role in carrying containerized and other cargo to businesses through the region and in neighboring states. In the NYMTC region, approximately 5 percent of domestic freight tonnage is moved by water; in the NJTPA region, waterborne domestic freight comprises 13 percent. The NJTPA's *Freight System Performance Assessment* (2003) estimated that approximately 57 million tons of domestic freight originated or terminated at the NJTPA region and was associated with domestic marine terminals along the Atlantic coast and in the tri-state region. The NYMTC's Regional Freight Plan (2014 Update) found that about 22 million tons of domestic bulk and breakbulk freight moved by water into, out of, and within the 10-county region in 2007.

For more local, cross-harbor waterborne freight movement, water transport is most effective at moving non-time sensitive bulk commodities, where the emphasis is on low cost. As discussed above under Rail Freight System Constraints, at one time, water transport played a key role in floating cargo across the harbor from the New Jersey railheads. But even in the 1920s, the inefficiency of this system was widely recognized, leading to the formation of PANYNJ for the purpose of constructing a rail tunnel to replace the water transport system. Since then, the harbor float system has declined precipitously to where it serves on average just one train per day. Trucks taking cargo from New York and New Jersey port facilities face the same deficiencies and constraints that constrain truck-based freight transport.

As the working waterfront is encroached upon by residential and mixed-use developments, the existence of maritime industrial facilities and waterborne freight terminals is increasingly challenged. The New York City Economic Development Corporation's (NYCEDC) Marine Cargo Systems Plan (2008) and associated actions have begun to address these issues.

[1] "2011 Trade Statistics," Port Authority of New York and New Jersey, available from: http://www.panynj.gov/port/pdf/port-trade-statistics-bar-C2c-2011.pdf (accessed 05/21/2012).

EXISTING FACILITIES

As discussed in Chapter 4 there are a number of existing facilities in New England that could serve as destinations for waterborne freight moving between the west-of-Hudson and east-of-Hudson regions. Chapter 4 discusses, as an illustrative example, that container barge service to New England under one of the project's alternatives is assumed to land in Davisville, Rhode Island, due to that port's existing capacity to handle containerized cargo, and its proximity to sources of freight travel demand in Rhode Island and eastern Massachusetts. The Port of Davisville has three berths, 50 acres of storage capacity, and a 150-ton mobile harbor crane. Several other ports in the vicinity—such as Providence, Rhode Island; New Bedford, Massachusetts; Fall River, Massachusetts; and New London, Connecticut—could also serve as significant destinations for New England-bound containers leaving the port. It is important to note that these facilities are outside of the Port District and that PANYNJ does not have jurisdiction in New England and therefore partnerships with freight facility owners in New England and agencies with jurisdiction there would need to be established.

As discussed above, the railcar float operation between Greenville Yard and 51st Street Yard was purchased by the PANYNJ in 2008; NYNJR, a wholly owned entity of PANYNJ, now operates the only railcar float service in the New York region (between Greenville Yard in New Jersey and 65th Street Yard in Brooklyn). Over the last few years, PANYNJ has taken major steps in securing the future of Greenville Yard, thus ensuring that freight movements on this vital cross-harbor link were maintained. As discussed in Chapter 4, the restoration of the NYNJR service comprises the long-term lease by PANYNJ of portions of Greenville Yard, construction of up to two hydraulic transfer bridges (the previous transfer bridge was destroyed during Superstorm Sandy) and new fender system, site work and track improvements, design and construction of two railcar floats, procurement of three ultra-low emission locomotives to replace functionally obsolete and fuel-inefficient locomotives that are currently used, and track rehabilitation and fender system modifications at 65th Street Yard. These actions, which are well under way, would allow the NYNJR system to accommodate the projected growth in cross-harbor waterborne freight, expected to reach approximately 1.6 million tons per year, as per PANYNJ projections.

AIR CARGO

The aviation industry centered on John F. Kennedy International Airport (JFK), Newark Liberty International Airport (EWR), and LaGuardia Airport (LGA) provides direct air transportation services to more than 200 cities in 70 countries. In 2010, the regional airport system allowed the handling of over 2.4 million tons of cargo.

JFK handled approximately 1.4 million tons of cargo in 2010. The airport has more than four million square feet of office and warehouse space for air cargo, hosting 1,000 cargo companies. The entire air cargo area is designated as a Foreign-Trade Zone and is home to the northeast region's U.S. Customs headquarters. Hundreds of long-haul and short-haul trucking companies use JFK's cargo facilities. The airport is well connected to the highway network. Van Wyck Expressway (I-678), Rockaway Boulevard and Belt Parkway Service Road (Conduit Avenue) are the designated truck routes serving the airport.

EWR handled nearly 0.9 million tons of cargo in 2010 and is a major hub for express carriers with nearly 1.4 million square feet of cargo space. The airport is adjacent to Port Newark, Port Elizabeth, and Foreign-Trade Zone No. 49, providing fast and efficient air-sea connections. U.S. Routes 1 and 9, U.S. Route 22, and the New Jersey Turnpike (I-95) provide good road connection for truck carriers.

LGA, which handled only 7,500 tons of cargo in 2010, specializes in short- and medium-haul cargo service. Passenger traffic is well served by Grand Central Parkway, while trucks are only allowed to access the airport via 82nd Street and 94th Street.

While air transport is a part of the regional freight network, air freight carriers do not typically transport the type of freight typically moved by truck, rail, or waterborne modes. Air cargo mainly consists of high value goods that are urgently needed—precious stones and metals, machinery, precision medical instruments, art and antiques, aircraft parts, and pharmaceutical products. Therefore, while by weight, air cargo makes up a small percentage of all freight moving through the region, air transport serves a small but important niche role in the movement of lightweight, high value, time-sensitive goods for which shippers are willing to pay a high price. It is best exemplified by the overnight delivery services such as Federal Express and its competitors. In the future, air freight will continue to be a niche player in the movement of regional freight and critical to the region's financial and service sectors, but unable to move large volumes of key consumption products such as food, lumber, clay, and concrete, or waste and construction debris.

Furthermore, while each of these air cargo facilities is relatively well connected to the regional highway network, they are also subject to the same truck access constraints as truck-based freight movement. For example, although direct expressway access is available to JFK, it is limited to the Van Wyck Expressway, which is heavily congested at most times of the day. Since air cargoes are time-sensitive, the access delays can be serious. EWR is better situated in terms of regional highway access; it has direct access to I-78 with good connections to the New Jersey Turnpike (I-95), as well as direct access to U.S. Routes 1 and 9 and U.S. Route 22. Still, any trucks traveling between these airports and locations east of the Hudson River must pass through the same bottlenecks and pay tolls to cross the water.

Nonetheless, because JFK remains one of the highest-volume air cargo airports in the nation, and because access to this west-of-Hudson region airport (via Hudson River crossings and other gateways) is wholly truck-dependent, air cargo represents a market that could potentially benefit from an improved cross-harbor service.

D. STUDY AREAS

As mentioned at the start of this chapter, goods consumed and produced within the west-of-Hudson and east-of-Hudson regions are transported well beyond the boundaries of these regions, spanning the nation and including transcontinental goods movement. To appropriately account for the complexity of freight transport to and from the region, the EIS uses a 54-county freight modeling study area, comprising portions of southern New York, northern and central New Jersey, western and southern Connecticut, and a portion of eastern Pennsylvania (see **Figure 1-8**). The counties of this modeling study area have been selected to reflect the following:

- PANYNJ core planning region, which includes the five boroughs of New York City (Bronx, Kings, New York, Queens, Richmond counties), Long Island (Nassau and Suffolk counties), lower Hudson Valley (Westchester and Rockland counties), and northern New Jersey (Passaic, Bergen, Morris, Essex, Hudson, Union, Somerset, and Middlesex counties);
- Surrounding counties that are also part of NYMTC and the NJTPA planning regions;
- Counties that accommodate truck/rail terminals and freight corridors that are important in serving the region; and
- Additional counties that accommodate important Hudson River crossings.

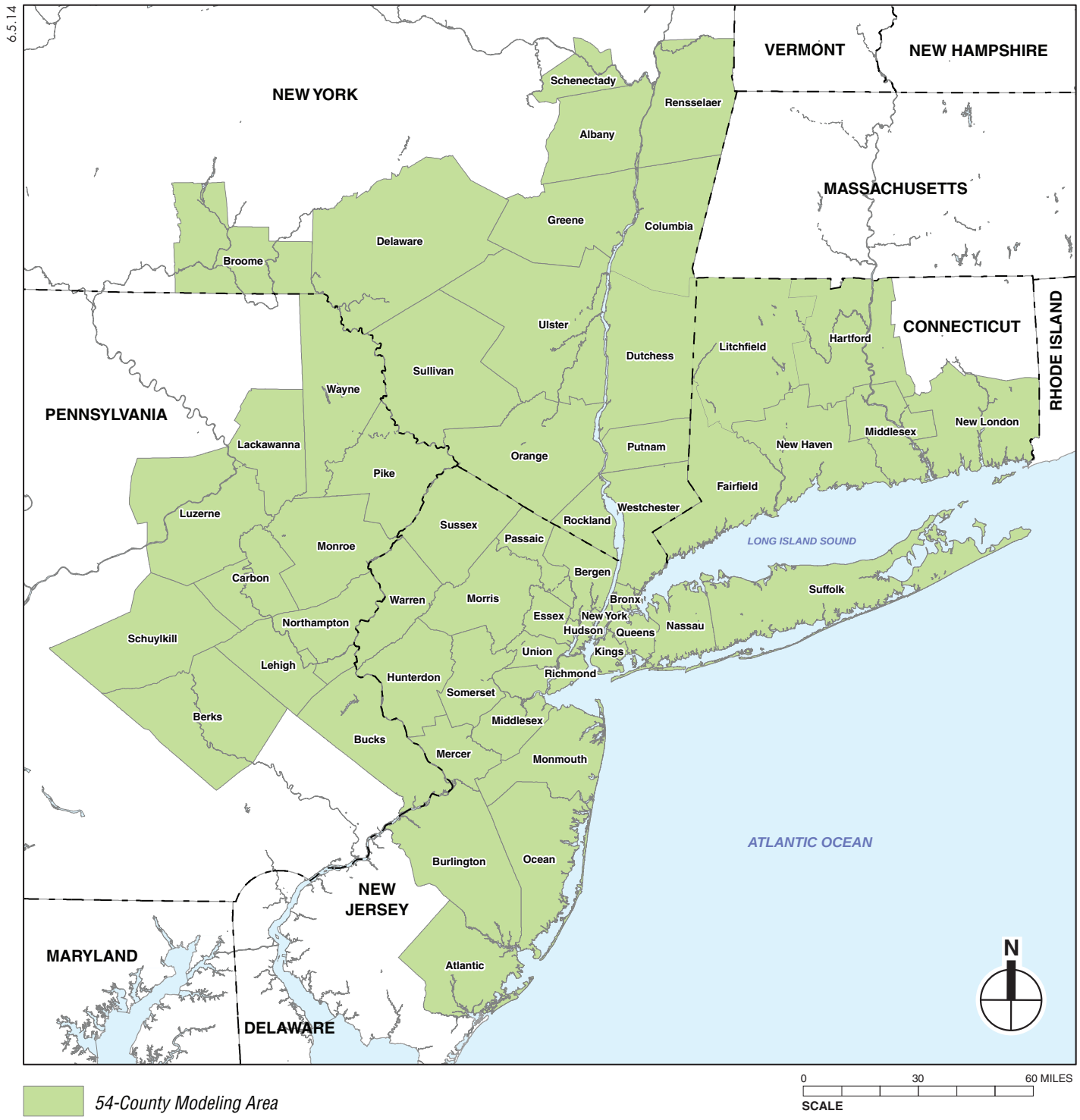


FIGURE 1-8

54-County Modeling Area

CROSS HARBOR FREIGHT PROGRAM

As described in detail in **Appendix A**, this modeling area was used to determine the demand for freight movement, develop classifications and forecasts of freight movement, and project the ability of the Build Alternatives to divert the freight currently moved by trucks to rail and/or waterborne modes. It is critical to note that the analysis of freight movement is not actually limited to activity within the 54-county Cross Harbor modeling study area. National and international flows from all North American origins and destinations are captured in the analysis, provided they "touch" the 54-county Cross Harbor modeling study area (moves to, from, within, or through the 54-county region). The 54-county modeling area was chosen as a balance between the need to represent national freight flow entering the regional transportation network and to capture all freight moving to, from, and through the east-of-Hudson region, which represents a major market area requiring freight moves across the Hudson River and New York Harbor.

While the study of goods movement requires the consideration of a large regional area, the effects of the project on transportation, economic, and environmental resources will be most pronounced within a smaller region and on a local scale. Therefore, the EIS also uses targeted study areas to assess the potential for effects in areas where CHFP infrastructure (such as railcar float bridges, tunnel, and support tracks) and related facilities (such as rail yards) would be constructed. The local study areas described throughout Chapter 6, "Environmental Effects," include the rail facilities that may be expanded or created under the Build Alternatives, as well as corridors where rail operations and induced local truck trips could have potential effects.

E. THE NEED FOR THE PROPOSED PROJECT

The definition of the need for the proposed project is based on a comprehensive market demand analysis and forecasting effort (described in detail in **Appendix A**), which aimed to answer three fundamental questions:

- How much freight is moving to, from, within, and through the aforementioned 54-county modeling area, and by what modes?
- How much freight is likely to move in the future, and by what modes, absent the proposed project?
- What are the specific, quantifiable effects of the project alternatives on the volumes, modes, routes, and origin-destination patterns of freight movement?

As noted above, to answer these questions, the Tier I EIS has modeled freight movement in a 54-county modeling study area. According to freight databases developed and queried for this study, and as shown in **Table 1-2**, in 2007 just over 1.1 billion tons of freight moved to, from, within, and through the 54-county freight modeling study area as shown in **Figure 1-8**.[1] Approximately 81 percent of this freight was moved by truck, while nearly 9 percent moved by rail. Water carried 9.4 percent of freight moving in the area, air carried 0.1 percent, and other modes, such as pipelines, carried 0.5 percent.

[1] 2007 was a peak year for freight movement, as it predated the recession. Available data suggest that current freight volumes remain near 2007 volumes and that the 2007 dataset remains applicable to the project. In addition, the 2007 TRANSEARCH Commodity Flow data used in the demand analysis for this EIS is consistent with the United States Department of Transportation (USDOT) Freight Analysis Framework 3 (FAF3) dataset (2007), which was used to calibrate and enhance the TRANSEARCH data for this project.

Table 1-2
2007 and 2035 Freight Movement by Mode in the 54-County Modeling Study Area[1]

		Truck	Rail[2]	Water[3]	Air[4]	Other[5]	Total[6]
2007	Millions of Tons	909.6	96.7	105.2	1.2	5.9	1,118.6
	% Share	81.3%	8.7%	9.4%	0.1%	0.5%	100%
2035	Millions of Tons	1,272.4	125.6	120.3	2.0	7.0	1,527.3
	% Share	83.3%	8.2%	7.9%	0.1%	0.5%	100%

Notes:

1. The 54-county modeling study area analyzed is shown in Figure 1-8.
2. The rail tonnage includes both carload and intermodal rail. Carload rail includes commodities that move in traditional railcars, hopper cars, boxcars, flat cars, etc. To transfer carload rail commodities to another mode, the railcars must be unloaded and the contents reloaded into trucks, ships, or other equipment. Intermodal rail includes commodities that move in international shipping containers or domestic trailers. To transfer intermodal rail commodities to another mode, the container or trailer may be transferred to truck chassis or ships without unloading the contents.
3. Water includes waterborne cargo moving between origins and destinations in the United States, Canada, and Mexico. International waterborne cargo moves to or from points in other countries are not included.
4. Air includes air cargo moving between origins and destinations in the United States, Canada, and Mexico. International air cargo moves to or from points in other countries are not included.
5. Other modes include pipeline, mixed modes, and other modes.
6. Total tons shown may be slightly different than the sum of the components due to rounding.

Source: Analysis prepared by Cambridge Systematics Inc., based on IHS Global Inc. data.

Table 1-2 also shows that this condition, the overwhelming dependence on trucking, is likely to continue in the future. Based on the forecasts developed using commodity flow TRANSEARCH data provided by IHS Global Insight—with adjustments to reflect plans and growth estimates provided by the region's freight railroads—total freight movement within the 54-county modeling study area would exceed 1.5 billion tons by 2035, with trucks expected to not only continue to carry more than 80 percent of the freight moving from, to, within, or through the 54-county modeling study area, but to also carry increasingly more freight as compared to other modes.

With a 38 percent growth in overall freight tonnage between 2007 and 2035, continuing dependence upon truck, and with the east-of-Hudson region continuing to represent a major market area requiring freight moves across the Hudson River and New York Harbor, pressure on the region's highway system and congested truck crossings can be expected to continue to increase substantially. As shown in **Figure 1-3**, regional highway congestion in 2035 would be even more widespread than today, with many key Hudson River and harbor crossings and local highways operating below acceptable volume-to-capacity ratios. The result is a tremendous impact on freight movement, increasing the costs and environmental impacts of goods movement, while decreasing reliability and speed of freight delivery and safety of roadways and infrastructure. With the expected future growth in freight transport, truck VMT would increase and the current inefficiencies of freight movement by truck and adverse effects of trucks would grow, with the higher transportation costs passed on to consumers as higher prices for goods.

As described above in the Problem Identification section, ideally non-highway modes could provide alternative freight movement options and increase reliability and resiliency, while reducing costs. However, the barriers to this approach are evident in the constraints of the existing freight movement systems in the region:

- The regional rail system provides only one crossing of the Hudson River and New York Harbor—over the old New York Central Bridge in Selkirk, NY—a detour of over 300 miles for much of the rail traffic that approaches the east-of-Hudson region from the south and

west. Freight rail traffic traveling in the east-of-Hudson region must share most tracks with passenger service and is subject to horizontal and vertical clearance limits.

- Waterborne modes are limited in their nature to areas accessible by water and after freight reaches the waterfront termini, it must still travel by truck or rail. The waterborne-to-rail freight system for domestic freight moves is limited to one existing harbor crossing, the NYNJR operation between Greenville Yard and 65th Street.[1] As detailed throughout this EIS, an expansion of this service is under way, making waterborne freight movement a promising alternative to truck freight. As noted above, there are a number of existing facilities in New England that could serve as destinations for waterborne freight moving between the west-of-Hudson and east-of-Hudson regions.
- Air freight movement, comprising a very small percentage of freight moving in the region, is limited to lightweight, high value, time-sensitive goods and likely cannot provide a large-scale solution to regional freight movement.

The project alternatives, detailed in Chapter 4, aim to remedy these constraints by providing a new harbor crossing, as well as new termini and support facilities in the region.

F. GOALS AND OBJECTIVES

The primary purpose of the CHFP is to improve the movement of freight across New York Harbor between the east-of-Hudson and west-of-Hudson regions.

A project's goals and objectives are the foundation of its purpose and need under NEPA. They are used as the basis for developing the criteria and methodology for evaluating the project alternatives. Four goals have been established for the CHFP. Objectives have also been identified that further define the goals and provide specific and measurable criteria by which to evaluate and compare project alternatives.

These goals are intended to address *some* of the freight movement and distribution problems described above, however, it is important to point out that the some of the project goals and objectives cannot be fully achieved by improvements that could be implemented under PANYNJ's current jurisdiction. Given the regional nature of the transportation network and goods movement, to fully address some of the project goals, cooperation across jurisdictional and geographic boundaries would be required for successful implementation and operation of the improvements proposed as part of the Build Alternatives, discussed in Chapter 4. It is also important to acknowledge that the various goals and objectives identified below may be accomplished at various timescales—i.e., short-term and long-term improvements would address these goals to a different extent—and at various levels of capital investment.

The four project goals and respective objectives are as follows:

GOAL 1: Reduce the contribution of Cross Harbor truck trips to congestion along the region's major freight corridors relative to No Action conditions.

Objectives:

a. Reduce the vehicle miles traveled by freight trucks that utilize Hudson River, East River, and Staten Island bridge crossings.
b. Reduce the truck contribution to the travel-time and delay on regional highway network.

[1] This is not inclusive of the Port Authority's ExpressRail facilities in Elizabeth, New Jersey, and Staten Island, New York, which offer waterborne-to-rail connections for international containers arriving from overseas by container vessel.

c. Maximize efficient use of available capacity on existing transportation infrastructure.
d. Maintain or improve regional freight transportation network performance.

GOAL 2: Provide Cross Harbor freight shippers, receivers, and carriers with additional, attractive modal options to existing interstate trucking services.

Objectives:

a. Increase the number of modal options available for Cross Harbor freight transport.
b. Provide modal options and choices that offer attractive and competitive performance, consistent with business requirements related to cost, speed, and reliability.

GOAL 3: Expand facilities for Cross Harbor goods movement to enhance system resiliency, safety and security, and infrastructure protection.

Objectives:

a. Provide Cross Harbor freight facilities and services that improve system redundancy and resilience in the event of a major interruption of service on existing interstate highway corridors serving the region.
b. Support contingency planning for emergency alternative Cross Harbor goods movement operations.
c. Reduce the number of freight vehicle-related accidents.
d. Develop effective alternative options for transporting overweight/non-standard cargo to support infrastructure protection for regional bridges and highway network.

GOAL 4: Support development of integrated freight transportation/land use strategies.

Objectives:

a. Maximize the use of currently underutilized freight transportation infrastructure and related land uses.
b. Support services to existing freight distribution centers in the region.
c. Integrate freight transportation services with local land use and transportation planning objectives.
d. Integrate freight transportation development with statewide freight and passenger rail plans.

The ability of the project alternatives to meet these goals and objectives is addressed in Chapter 4, "Alternatives"; Chapter 5, "Transportation"; Chapter 6.1, "Land Use, Neighborhood Character and Social Conditions"; and Chapter 6.2, "Economic Conditions and Effects." The performance of the Build Alternatives with respect to these goals and objectives is quantified to the extent practicable and appropriate for a Tier I EIS throughout this document. ✷