TECHNICAL MEMO

NYMTC Regional Freight Plan Update 2015-2040 Interim Plan

Task 2.1.2 Rail Network and Infrastructure



REVISED, JANUARY 2014

technical memorandum

Task 2.1.2 Technical Memorandum

Rail Network and Infrastructure

Revised, January 30, 2014

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1.0 Introduction

This memorandum provides an overview of the freight rail assets in the region covered by New York Metropolitan Transportation Council (NYMTC). The current complex composition of these assets has developed over many years, from the 1830s when rail was a fledgling mode to the recent past, when in 1999 Conrail was jointly acquired and split by the two large eastern railroads. Throughout the years, lines have changed ownership, the network has adapted, and freight and passenger services have come and gone and sometimes returned. The result is the complex web of private and public organizations that are involved in providing rail freight service today, and which will have a great bearing on how they might appear in the future.

Simply describing the assets does not provide a sufficient understanding of the rail system. Thus, the memorandum leads off with a discussion on the institutions that are involved in the delivery of freight rail service to the region. These consist of the freight carriers, the passenger railroads, and the public agencies that own much of the New York area rail infrastructure. A discussion on the physical issues affecting freight rail performance in the NYMTC region is covered in the concluding chapter. Most importantly, these include such issues as limitations to weight and clearances, track access for freight operations, and diminished availability of land adjacent to rail lines for potential rail freight use.

Although the region covered by NYMTC includes only ten counties located in the state of New York, users of freight rail in these counties rely heavily on infrastructure located in the New Jersey portion of the New York metropolitan region, and, to a lesser extent, infrastructure in Connecticut along the New Haven Line as well. Indeed, most rail freight associated with the NYMTC region enters or leaves through a terminal located in northern New Jersey. Thus, by necessity this memorandum provides an overview of the infrastructure located in northern New Jersey and along the New Haven Line in Connecticut in addition to that directly located in the ten NYMTC counties.

Key sources of information and data referenced in this memorandum include "New York State Rail Plan, 2009: Strategies for a New Age," published by NYSDOT, the I-95 Corridor Coalition's Integrated Corridor Analysis Tool (ICAT) rail network database, and input and review from NYSDOT and the Metropolitan Transportation Authority's Metro-North Railroad.

2.0 Institutional Structure

2.1 BACKGROUND

The beginnings of rail service in New York City go back to 1831 and the New York and Harlem Railroad. From a terminal in Lower Manhattan, the railroad eventually reached Chatham Four Corners in 1852, 125 miles to the north of the City. Starting out as a private firm operating horse drawn passenger trains, the road went through bankruptcies, multiple changes in ownership, and in 1873, a lengthy tenure under the ownership of the New York Central. This stable period came to an end during the 1960s, when the railroad's private owners encountered great financial distress. The New York Central and the Pennsylvania Railroads merged in 1968 to become the Penn Central. In 1972, the Penn Central, by that time in bankruptcy, leased the Hudson Line (from Poughkeepsie south) and the Harlem Line, as well as the Grand Central Terminal, to the Metropolitan Transportation Authority. (The PC sold the New Haven Line in New York to the MTA and the New Haven Line in Connecticut to the State of Connecticut.) The Penn Central Estate became American Premier Underwriters, who ultimately sold the leased properties to Midtown TDR Ventures, LLC. Under provisions of the Northeast Rail Service Act of 1981, Conrail's responsibility to operate commuter rail services through out its system was transferred to Commuter Rail Authorities, including the Metropolitan Transportation Authority in NYS, whose principal purpose was to operate commuter rail services. Effective January 1, 1983, the Metro North Commuter Railroad, a newly-created subsidiary of the Metropolitan Transportation Authority, begin operation of commuter rail services on the Hudson, Harlem and New Haven Lines, and operation of Grand Central Terminal. What was once a line serving the broader freight and passenger transportation needs of the lineside communities, now specializes in transporting commuters to New York City. One customer on the Harlem Line in the Bronx remains. The industries that once utilized freight rail service have either disappeared entirely, relocated, or have come to rely on highway transport.

The history of this one railroad is rather representative of railroading in the New York Metropolitan region. For a time one of the largest enterprises, railroading, both passenger and freight, has become more of a niche business. Now, the majority of regional traffic goes by highway, and what remains of a network that once extended throughout the region is largely focused on connecting New York City with the suburbs for the purposes of commuter traffic. Due in large part to the region's geography, rail infrastructure and traffic volumes are significantly different on each side of the Hudson River. Large freight railyards were developed on the west side of the Hudson, from which cargo was barged or lightered across to New York City and Long Island, until the middle of the 20th Century, when trucks became a cheaper and more efficient option for

transporting cargo to and from the east-of-Hudson region. East of the Hudson River, rail freight volumes are modest, though recent developments such as Brookhaven Rail Terminal and the reactivation of the New York-New Jersey Rail carfloat service to 65th Street, are expected to generate growth in east-of-Hudson freight rail volume. On the Hudson's west side, volumes have increased in recent years, riding the globalization of the U.S. economy, the inherent efficiencies of rail freight for long-haul high-volume transportation, and the direct connectivity to the North American rail network.

In considering the current state of freight rail in the NYMTC region, it is worth briefly exploring the relatively recent history that led up to the present conditions.

Prior to World War II, the railroad industry dominated land-based transportation in the U.S., through a combination of service and low cost. Although this balance had started to shift with the advent of modern highway and air transport during the 1930's, it accelerated during the 1950's as massive public investments were made in those modes. The changed competitive landscape, combined with a sclerotic railways management and regulatory regime, led to an erosion of passenger and freight traffic without a commensurate reduction in the railroad's costs. The result was the financial destabilization of the railroad industry.

Particularly hard hit was the Northeast. Its typically short-haul traffic and the rise of more high-value precision manufacturing was more susceptible to highway diversion than other regions in the U.S., and by the mid-1960's, it had begun suffering from a long-term decline in manufacturing, long before other regions of the U.S., and the reduction in coal consumption in the region. Industry executives and regulators responded by combining the long-time arch rivals Pennsylvania Railroad and New York Central into the Penn Central in 1968. Unfortunately, the combined railroads failed to stem the rapid decline in northeastern rail service. By 1970 the Penn Central fell into bankruptcy, creating the largest business failure in U.S. history at that time. This event caused a ripple effect throughout the entire northeast, as other railroads that relied on the Penn Central to haul traffic no longer had a means to move their freight.

Realizing the severity of the situation, the federal government established the Consolidated Rail Corporation on April 1, 1976, as a means to consolidate and restructure the bankrupt northeastern railroads. With substantial federal backing, Conrail streamlined its network through line sales and abandonments, and remade its core network into a modern railroad. As these changes were implemented, Conrail's financial position began to improve, and by the mid-1980s it had become a profitable railroad.

Critical to the financial turnaround of Conrail was the passage of the Staggers Act in 1980. This Act substantially reduced economic regulation of the railroads, and recognized that most traffic handled by the railroads was not only intra- but also inter-modally competitive. Henceforth, carriers could establish confidential rates and were only permitted to jointly set rates on traffic in which they were actual participants, rather than on all rates. They were also given the freedom to adjust reciprocal switching charges and discontinue joint rates and routes that could be proven to be inefficient. These latter provisions enabled Conrail to simplify its operations, and discontinue services that were viewed as being insufficiently profitable.

As freight operations were restructured, the public sector took on a direct and active role in preserving passenger rail service. With financial losses from passenger service a major contributing cause to the collapse of the eastern railroads, the public was unwilling to lose services that were viewed as critical to the vitality of the region's economy and way of life. Compounded with concerns that dwindling freight traffic would jeopardize many of the main passenger arteries, all of the primary passenger routes in the New York area fell into public control. East of the Hudson, this includes the entirety of the Long Island Rail Road purchased from the Pennsylvania RR by MTA in 1966, the Hudson and Harlem Lines through Westchester County leased from Penn Central by MTA in 1971, and the New Haven main line purchased from Penn Central by MTA in 1971. By 1976, Amtrak, the federal passenger railroad, acquired title to most of the Northeast Corridor, including the entirety of the route between New Rochelle, New York and Washington, D.C. With the acquisition of these lines, the primary focus of the new management was to improve their utility for passenger service, with freight a necessary requirement at best.

The combined effect of these changes dramatically reduced rail freight access to New York City which was historically already quite isolated from the national freight rail network due to its island location and limited bridge crossings. The three rail tunnels underneath the Hudson - Amtrak's North River Tunnels on the Northeast Corridor Line, and the Port Authority Trans-Hudson (PATH) Downtown Tubes and Uptown Tubes – were and still are used for passenger services, and have never handled significant volumes of freight. The nearest rail bridge across the Hudson River was once the Poughkeepsie-Highland Bridge. This bridge offered a direct route to and from New England, but being located 80 miles upstream from New York, was a bit circuitous for New York-region traffic When the Poughkeepsie Highland Bridge was permanently closed to rail traffic after a fire in 1974, the Hudson River freight rail closest to Manhattan became the Alfred H. Smith Memorial Bridge (a.k.a., the Castleton Bridge) at Selkirk, which was 132 miles upstream. Consequently, most New York bound traffic was handled via marine services across the Hudson River. This makes all rail movements east of the Hudson River, especially from the south, circuitous and very slow.

By 1999, the rail system reached its present form. The New York Metropolitan region is now served by two major railroads (Class I in industry parlance), Norfolk Southern (NS) and CSX, a jointly owned switching carrier called Conrail in northern New Jersey, and a handful of small railroads that provide service to local industries. East of the Hudson, freight rail service is primarily provided

over infrastructure owned by Metro-North, the Long Island Rail Road, and Amtrak. West of the Hudson, most of the freight infrastructure is owned directly or indirectly by the two large railroads.

The following sections provide an overview of the freight railroads serving the NYMTC region.

2.2 CLASS I CARRIERS AND AFFILIATES

CSX and Norfolk Southern dominate service in the eastern half of the U.S., with both serving the New York region to varying degrees. A jointly-owned switching carrier, Conrail, has a significant presence in the region. A third Class I carrier, Canadian Pacific Railway, has access to the region via haulage and trackage rights agreements with CSX and Norfolk Southern. The section below provides an overview on the region's Class I railroads.¹

CSX

Among the major railroads, CSX has the largest presence in the NYMTC region, and is the only major freight railroad that has direct access to both sides of the Hudson River. Headquartered in Jacksonville, Florida, CSX reached its current configuration through the acquisition of parts of Conrail in 1999. Somewhat larger than its primary competitor Norfolk Southern by most measures, CSX boasted 2012 revenues of \$11.8 billion and volume of 8.4 million units, all handled over a network of approximately 21,000 route miles. The single most important commodity hauled by CSX in 2012 was coal, accounting for 34% of all carload traffic and \$3.19 billion or 27% of revenues. Intermodal freight came in second in terms of volume, and third (after chemicals) in revenues, at 13.6% and \$1.594 billion.²

In recent years, CSX has focused its efforts on four core service lanes, with a fifth currently under development. Each of these service lanes is defined geographically and by commodity flows below and is highlighted in Figure 2.1.

• Interstate 90 (I-90) Corridor – This service lane links the metropolitan areas of New York and New England with Chicago and the Midwest. Operating primarily over the former New York Central "Water Level

¹ A third Class I carrier, CP, has served the NYMTC region with its trains in the recent past. Until 2010, CP operated carload train service east of the Hudson to Oak Point Yard and Fresh Pond Yard, as well as intermodal service into North Jersey. While the North Jersey intermodal operations continue at a modest level, CP has established a haulage agreement with CSX, with CSX handling CP traffic in their trains south of Albany. CP retains the right to resume trackage rights operations in lieu of the haulage agreement.

²http://investors.csx.com/phoenix.zhtml?c=92932&p=quarterlyearnings

Route", this route has minimal grades and nearly all of it has two main tracks which permit the corridor to support consistent, prompt intermodal, automotive and merchandise service. This lane is a primary route for import traffic coming from the Far East through western ports moving eastward across the country, through Chicago and into the population centers in the Northeast. The Corridor reaches the New York City region using a route along the western shore of the Hudson River.

- Interstate 95 (I-95) Corridor The I-95 lane connects the heavily populated mid-Atlantic region with Charleston, Savannah, Jacksonville, Miami and many other cities throughout the Southeast. CSX primarily transports food and consumer products, as well as metals and chemicals along this line. As the easternmost rail corridor along the eastern seaboard, the lane provides access to all of the major U.S. Atlantic coast ports.
- Southeastern Corridor Links CSX's western gateways of Chicago, St. Louis and Memphis through the cities of Nashville, Birmingham, and Atlanta and markets in the Southeast. Traffic along this service lane consists primarily of intermodal, automotive and general merchandise. The lane also provides direct rail service between the coal reserves of the southern Illinois basin and the Southeast.
- Coal Network The CSX coal network connects the coal mining regions in the Appalachians with electricity generating stations and industrial areas throughout the eastern seaboard, the Southeast and the Midwest, as well as many river, lake, and deep water port facilities. Roughly three of every four tons of domestic coal and almost half of the export coal that CSX transports are used for generating electricity.
- The National Gateway With completion anticipated in 2015, this effort will open the network to double stack intermodal service through a series of line and terminal improvements along CSX routes between the Mid-Atlantic States and Ohio, along with new and expanded intermodal terminals in the region. The net effect of these investments will be better and more efficient access for intermodal services between the Midwest and major East Coast markets, notably Baltimore and the Virginia Ports.



Figure 2.1 CSX National Rail Network

Source: http://www.sec.gov/Archives/edgar/data/277948/000027794812000014/newnetworkmap.jpg.

Norfolk Southern (NS)

Norfolk Southern competes directly with CSX in most major markets east of the Mississippi River. Headquartered in Norfolk, Virginia, this publicly held company operates over 20,000 route miles, generating \$11 billion in revenues and 7.1 million units in 2012³. As with CSX, the single most important commodity hauled by NS is coal, mostly from the Appalachians and the Illinois basin,

³ https://www2.nscorp.com/sd/sdoc?doc=4Q_earnings_release_20130122160400.pdf

accounting for 26% of revenues and 41% of all carload volume. Intermodal freight came in second, amounting to \$2.2 billion or 20% of revenues. The current composition of the NS network was set in 1999 with acquisition of 58% of Conrail. At present, NS only serves the New York region from the south and west, and its lines do not directly touch the NYMTC member counties. NS' complete network is shown in Figure 2.2.



Figure 2.2 Norfolk Southern National Rail Network

Source: NS web site http://www.nscorp.com/nscportal/nscorp/map.html.

Over the past decade, NS has undertaken a series of strategic developments centered on certain corridors, most of which have had or will have a direct impact on NS' intermodal service in the New York region. While these efforts have primarily focused on developing intermodal service, they also are intended to improve carload operations. Notably, a number of these initiatives have involved public-private partnerships and collaborative efforts with other carriers. These initiatives are defined below and highlighted in Figure 2.3.

• Heartland Corridor - The product of a public-private partnership among the Federal Government, the state of Ohio, and NS, this \$150 million project increased clearances to allow double stack intermodal service along NS' direct route between the Norfolk, Virginia port region Columbus, Ohio, and Chicago, Illinois. Completed in 2010, the outcome of this line and related terminal improvements was substantially reduced rail travel time and increased capacity, thereby making rail service competitive with highway in these lanes.

- Crescent Corridor Also undertaken as a public-private partnership among NS, the Federal Government, states, and local communities, this development envisions a series of line and terminal improvements along routes roughly paralleling I-81, linking New York with Harrisburg, Atlanta, and Birmingham. When fully completed by 2020, the \$2.5 billion in improvements⁴ will permit a substantial restructuring of NS' intermodal operations along the eastern seaboard and the southeast, with the establishment of new services and greatly improved service in existing lanes. While funding has yet to be secured for many of the planned infrastructure improvements, a number of project elements have been completed or are currently underway.
- Meridian Speedway In December 2005, Kansas City Southern (KCS) and NS announced creation of a joint venture along KCS' line between Meridian, Miss., and Shreveport, La. Labeled the "Meridian Speedway," this line provides a direct rail connection between the Southeast and central Texas, bypassing the traditional interchange of New Orleans, and providing over one days savings in travel time. Since 2005, over \$135 million had been spent on improvements to enhance travel times and capacity.
- Patriot Corridor A joint venture between NS and Pan Am Railways (formerly Guilford Transportation Company), a regional rail operator in New England, has allowed for greatly improved rail service for intermodal and assembled automobiles between Ayer, Massachusetts and Mechanicville, New York. An initial phase of \$135 million in investment was completed in 2010, with service commencing over the Chicago – New England lane. West of Mechanicville, the route utilizes CP trackage to Binghamton, NY, thence NS to Chicago.

⁴http://www.thefutureneedsus.com/images/uploads/crescent-corridor-brochure_1.pdf



Figure 2.3 NS Four Major Intermodal Corridor Initiatives

Source: BizNS, Volume 4 Issue 6, November-December 2012.

Conrail Shared Assets

A direct outcome of the Conrail split and acquisition by NS and CSX in 1999 was the creation of a jointly-owned switching carrier. The intent was to have a single carrier provide service in the dense terminal areas of the former Conrail where separation of operations would have been contentious and difficult, and potentially creating competitive imbalances between the two carriers. Headquartered in Philadelphia, Conrail Shared Assets ("Conrail") took over operations in North Jersey, South Jersey, and Detroit. In these areas, Conrail operates the carload yards, and provides carload switching services to industries in the serving districts. The North Jersey District is the largest of these operations, consisting of 243 route miles of track, ten terminals, and average weekday freight train activity in excess of 110.⁵ At present, Conrail operates in only one of the NYMTC counties. Conrail operates over the Arthur Kill Lift Bridge onto Staten Island (Richmond County) to serve the New York Container Terminal, Arlington Yard, and Travis Industrial Track.

⁵ Fred Frailey, *Conrail Lives!*, **Trains**, October 2012, p. 25.

Canadian Pacific (CP)

Canadian Pacific Railway, headquartered in Calgary, Alberta, Canada, operated carload train service east of the Hudson to Oak Point Yard and Fresh Pond Yard via the Hudson Line and Oak Point Link until 2010. CP has established a haulage agreement with CSX, in which CSX handles CP traffic in their trains south of Albany. CP retains the right to resume trackage rights operations in lieu of the haulage agreement. CP's intermodal operations continue at a modest level over the NS Lehigh Line in New Jersey to Oak Island Yard in Newark.

2.3 SHORT LINE AND REGIONAL FIRMS

In addition to CSX, NS, and the associated Conrail Shared Assets, the NYMTC region is also served by several smaller operators. These six firms, all of which operate east of the Hudson River, are described below. More detailed discussion on some of the routes used by these carriers is provided in Section 3 of this memorandum.

Housatonic Railroad

The Housatonic Railroad (HRRC) is a small, privately held short line that provides freight service over 161 miles of trackage in Massachusetts, Connecticut, and New York. Chartered in 1983, the Housatonic is headquartered in Canaan, Connecticut. In the NYMTC region, the HRRC holds presently unused freight rights over Metro-North's Beacon Line, the former Maybrook Line, from Beacon east through Hopewell Junction to the state line.

New York and Atlantic Railway

A subsidiary of Anacostia and Pacific, a short line holding company based in Chicago, the New York and Atlantic (NYA) has held an exclusive franchise to provide freight service over trackage owned by the Long Island Rail Road (LIRR) since 1997. The NYA handles more than 20,000 carloads annually, operating from a hub at Fresh Pond Junction in Queens, and serving Brooklyn via the freight-only Bay Ridge Branch, and points west, east, and south on Long Island via the Lower Montauk Branch and Main Line of the LIRR. The NYA's rights extend to 279 route miles of track on the Island, of which 263 route miles are in shared use with LIRR passenger operations, and 16 are used exclusively by NYA. Currently, the NYA provides freight service to 185 miles of the 263 shared use route miles. Most of those 185 miles are along the Main Line, Montauk Branch, and Port Jefferson Branch. Other LIRR branches experience little or no freight deliveries. The NYA interchanges with CSX and the Providence and Worcester Railroad (P&W) at Fresh Pond Junction, and with the New York New Jersey Railroad at 65th Street in Bay Ridge, Brooklyn.

New York New Jersey Rail

New York New Jersey Rail, LLC (NYNJ), which is owned by the Port Authority of New York and New Jersey, operates a carfloat bridge route between Greenville Yard in Jersey City, NJ and the 65th Street Yard in Brooklyn, NY. It pushes freight rail cars onto a carfloat – basically, a barge with rail track on the deck – tows the carfloat across Upper New York Bay, and unloads it on the other side. NYNJ delivers cars bound for Fresh Pond, Queens, and Long Island to interchange with NYA on the Bay Ridge Branch. It also provides local switching for users along the Sunset Park/South Brooklyn industrial complex, including the MTA's South Brooklyn Railway and South Brooklyn Marine Terminal, and occasional transload for bulk customers at 65th Street. With the permission of NYS Department of Transportation, NYNJ relocated the 51st Street Pontoon Bridge to Greenville to replace the lift bridge there that was destroyed by Superstorm Sandy.

Providence & Worcester

Providence and Worcester Railroad (P&W), is a publicly held regional freight carrier railroad that handled approximately 36,000 carloads with gross revenues of \$31.7 million in 2011⁶. Headquartered in Worcester, Massachusetts, the railroad provides service over 516 miles of line in Massachusetts, Connecticut, Rhode Island, and New York. The P&W accesses New York through trackage rights over the freight operating rights held by CSX (as successor to Conrail and PC) on Metro-North's New Haven route. The only regular move by P&W on this route is the handling of crushed rock in unit train service to Fresh Pond Junction on Long Island, which is the only commodity permitted under P&W's limited trackage rights.

South Brooklyn Railway

The South Brooklyn Railway (SBK) is a freight carrier owned by the MTA/New York City Transit that presently consist of isolated segments of track at 39th Street and 3rd Avenue and at NYCT's Coney Island yards. At one time the line was a common carrier, handling freight for numerous shippers. Its current purpose is to serve as connection for delivery of assembled rolling stock and other supplies to the NYCT. Use is sporadic, and most traffic handled by the SBK utilizes the NYNJ's cross-harbor float, arriving or departing at the NYNJ's 65th Street Float Bridge.⁷

⁶http://www.sec.gov/Archives/edgar/data/831968/000119312512129225/d275954d10k .htm

⁷ http://members.trainweb.com/bedt/indloco/sbr.html

U.S. Rail/Brookhaven Rail Terminal

The Brookhaven Rail Terminal (BRT), is located along the LIRR Main Line in Yaphank, Suffolk County. Opened in August 2011, BRT functions as a transloading facility for construction aggregates and building materials traveling between quarries in the Capital District of New York and central and eastern Long Island, in addition to soybean diesel, flour, semolina, and fencing materials. Brookhaven Rail LLC, a stand-alone Class III railroad, provides service over 3.4 miles of track on the property.⁸ Plans for expansion of Brookhaven Rail Terminal include the development of a 200,000 square-foot warehouse to serve as a distribution center for The Home Depot, which will receive 1,820 railcars annually.⁹

⁸ http://www.brookhavenrailterminal.com/

⁹ Sarah Crichton, "Home Depot to stock up LI stores via rail terminal," *Newsday*, March 27, 2013, available from: <u>http://www.newsday.com/business/home-depot-to-stock-up-li-stores-via-rail-terminal-1.4916296</u>.

3.0 NYMTC Region Rail Network

This section provides an overview of the rail lines and related yards and terminals in the NYMTC region that presently handle rail freight. The New York region's rail network is typically described as consisting of two parts, those services being either east or west of the Hudson River. These two parts operate almost in total isolation, as there are no substantive links that connect them within the region. Amtrak's Northeast Corridor, with its tunnels under the Hudson and East Rivers, does not handle any freight traffic, and the New York New Jersey Rail (NYNJ) carfloat operation only carries low volumes to a few locations on geographic Long Island. The nearest Hudson River bridge or tunnel for rail freight traffic is the Alfred H. Smith Memorial Bridge (a.k.a., the Castleton Bridge) at Selkirk, approximately 132 miles upstream from Manhattan.

Most of the rail freight activity within the New York Metropolitan region takes place near the western shores of the Hudson. The largest carload freight yards, intermodal terminals, rail-served industries and distribution centers that serve the NYMTC region are located in North Jersey. The two NYMTC counties, Rockland and Richmond, Which are located on those western shores, have limited rail originating and terminating activities.

Where freight was once a major element of rail service in the region, the massive decline in rail freight demand and volumes over the years, and the shift to public ownership with a primary emphasis on passenger train operations, have resulted in the cessation of freight service on many parts of the network. However, even though some of these lines may be handling little or no freight at present, the potential exists for some key routes to handle freight service again if it was expanded in the region. These are briefly described.

A map of the lines where freight railroads own or have operating rights, and associated terminals, is shown in Figure 3.1. These are referred to in the subsequent discussion.



Figure 3.1 NYMTC Region Rail Freight Access

Source: Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool and National Transportation Analysis Database, 2012

Figure 3.2 illustrates, in a simplified abstraction, the major freight rail corridors that traverse or pass near the NYMTC Region. The line weights correspond to the volume of freight handled on each corridor. As the figure suggests, the New York Metropolitan region is primarily connected to the national rail network via lines and terminals located west of the Hudson River. Intermodal terminals in northern New Jersey are connected to locations to the north and west by the CSX River Line and the CSX Mohawk Subdivision (historically, the New York Central Main Line). The NS Lehigh Line and CSX Trenton Line connect northern New Jersey terminals to locations in the southern and western states.

This network is serving the NYMTC Region primarily in two capacities:

- 1. In this pattern, shown in Figure 3.2 in black arrows, inbound goods are transported by rail from origins throughout North America to intermodal terminals located in northern New Jersey. In northern New Jersey, shipments are transferred or transloaded to truck for delivery throughout the NYMTC Region. Outbound shipments follow this pattern in reverse.
- 2. In this pattern, shown in Figure 3.2 in red arrows, goods destined for the east-of-Hudson portion of the NYMTC Region are transported by rail from origins throughout North America and approach the region via the CSX Mohawk Secondary, CSX Trenton Line, or NS Lehigh Line. Trains approaching from the latter two lines must travel north along the CSX River Line toward Selkirk, near Albany, which is the southernmost freight rail bridge over the Hudson River. From Selkirk, trains travel south along the Hudson Line into Putnam, Westchester, and Bronx counties. Traffic destined for Queens, Brooklyn, and Long Island cross the East River via the Hell Gate Bridge. In 2012, approximately 1,500 carloads per year used the NYNJ Rail carload float system between Greenville Yard in Jersey City, New Jersey and 65th Street Yard in Brooklyn, which provides a more direct route for traffic originating or terminating in the Southeastern United States, avoiding the approximately 280-mile trip via Selkirk. Selkirk remains an efficient routing for CSX traffic from Chicago and points west, because CSX uses Selkirk as a classification facility for traffic destined throughout New York and New England.



Figure 3.2 Major Freight Rail Corridors by Volume and Traffic Patterns Serving the NYMTC Region

Source: Cambridge Systematics, using I-95 Corridor Coalition's ICAT Rail Network, 2006

3.1 EAST OF THE HUDSON

The freight rail network east of the Hudson consists of a primary, "trunk line" route from the Albany area into the NYMTC Region via the Hudson Line, Oak Point Link, and Fremont Secondary, to Fresh Pond Junction in Glendale, Queens. Several secondary lines and branches connect to the main trunk line, including the Beacon Line in Beacon, Harlem Line and New Haven Line in The Bronx, and at Fresh Pond, connections to the Bay Ridge Branch, Long Island Railroad Main Line, Montauk Branch, Lower Montauk Branch, and Port Jefferson Branch. The components, ownership, and key features of the East-of-Hudson trunk line and branches are described in this section.

Freight "Trunk Line" Route From Albany to Fresh Pond Junction in Queens via Hudson Line, Oak Point Link, and Fremont Industrial Track

The Hudson Line, formerly the New York Central main line, was built to high standards, with four tracks between New York and Croton Harmon and two tracks between Croton Harmon and Albany. At Castleton, located south of Albany, freight traffic utilizes the Alfred H. Smith Memorial Bridge (a.k.a., the Castleton Bridge) to cross the Hudson River to access Selkirk Yard, CSX's system yard for eastern New York and New England.

The Hudson Line is owned by Midtown TDR Ventures, LLC south of Poughkeepsie. MTA has a long-term lease on the line, which extends to 2274, with an option to purchase the line starting in 2017. The remaining route between Poughkeepsie and Schenectady is owned by CSX, but was leased to Amtrak in December 2012. Amtrak now has responsibility for dispatching the line, and has maintenance responsibility for track, signal, and bridge and building. The intent of this lease is to facilitate improvements to the line for expanded intercity passenger service that will result in higher speeds, better reliability, and greater frequencies.

Approximately 26 Amtrak and 160 Metro-North trains, along with three to five freight trains operated by CSX, ply the Hudson Line on a typical weekday. The line is characterized by high volume of passenger operations, electrified third-rail south of Croton-Harmon; the presence of the third rail precludes the use of double-stack intermodal well cars regardless of available vertical clearance. Although the industry standard AAR Plate "F" railcars clear the full length of the Hudson Line, restrictive overhead clearances beginning in Tarrytown preclude the use of some tall or wide freight cars, including fully-enclosed autorack cars and first generation double stack intermodal cars which otherwise clear the third rail.

Beacon is the junction for the former Maybrook line, once an important connecting route for freight heading to southern New England. This route, owned by Metro-North (as the Beacon Line), currently does not have any active

freight service. As noted previously, dormant freight rights remain held by the HRRC.

At **Spuyten Duyvil**, the route splits, with the Hudson Line continuing on toward Grand Central Terminal, while the diverging line follows the Hudson River down the west side of Manhattan. Commonly referred to as the **West Side Line**, this was once the primary rail freight artery onto the island of Manhattan. Following World War II, the rapidly growing use of trucking, coupled with New York's changing economy, lead to sharp declines in traffic and the line largely abandoned by the early 1980s. In 1991, the section north of West 38th Street was restored by Amtrak by the construction of the Empire Tunnel to provide direct access to Penn Station from Albany over the Empire Corridor and section south of that point has been converted to the very successful "Highline" public open space.

Traveling south on the main line, freight trains are usually routed over the **Oak** Point Link, an approximately 3.7 mile single track freight-only alignment, built largely on structure in the Harlem River, that provides a direct route through the Bronx from CP-u just north of Metro-North Railroad's Highbridge Yard to Oak **Point Yard**, the primary rail freight hub in New York City. Completed at a cost of \$187 million in 1998, and extended approximately 3,800 feet north along the Harlem River to the north end of Highbridge Yard in 2002, this line was expressly built to provide a means for freight trains to bypass a congested and circuitous route that also severely constrained the type of rolling stock that could be used. The link was initially built only to have sufficient clearances for Trailer on Flat Car (TOFC) service, but not double stack, the result of constraints set by a combination of maximum tidal levels and roadway bridges crossing over the line. Subsequent to the opening of the Link in October 1998, the City of New York has replaced or rehabilitated all highway bridges over the Link to provide second generation double stack car clearances (AAR Plate "H" maximum car height of 20 feet, 3 inches) to Harlem River Yard. The last structure over the Link to Harlem River Yard which does not meet double stack clearance is the Metro-North Railroad lift bridge carrying the Hudson Line over the Harlem River. The improved clearances and separation from passenger traffic afforded by the Oak Point Link have permitted retention of carload service to the Bronx and Long Island, and the ability to tap the rapidly growing market of transporting municipal solid waste (MSW) and construction and demolition (C&D) debris to landfills located far from the New York region.

Connecting Oak Point Yard in the Bronx with Long Island is the single track **Fremont Industrial Track**. This track, owned and maintained by CSX, utilizes a freight-only track on Amtrak's Hell Gate Bridge route to Sunnyside Junction, where it splits off to reach Fresh Pond Junction Yard. Freight cars are interchanged with the NYA at Fresh Pond Junction, a grade-separated interchange with the Montauk Branch of the LIRR. This route has been the primary means of rail freight access to Long Island since the 1970s. The freight-only track on the Hell Gate Bridge was upgraded for 286,000 pound gross weight

railcars in 2006 and the Fremont Industrial Track is cleared for AAR Plate "F" railcars 17'-0" high.

Metro-North New Haven Line and Hell Gate Line to New York

Constructed by the New York New Haven and Hartford Railroad, the New Haven Line is well engineered, consisting of four tracks for most of its length. Its use of overhead catenary with high voltage alternating current makes it the oldest electrified main line in the U.S. The states of New York and Connecticut have owned this line since January 1971. Initially, operations continued under the freight carriers, first Penn Central and then Conrail, until 1983, when Metro-North Commuter Railroad was formed. Conrail retained the freight rights, which then went to CSX in 1999.

Freight service between Connecticut and New York City typically operated south or west along the New Haven Line to New Rochelle, then continued along the Hell Gate Line in the eastern Bronx to terminals along the Harlem River, while passenger trains to Manhattan's Grand Central Terminal continued along the main line to Mount Vernon and the junction with the Harlem Line.

None of the New Haven route within the NYMTC region hosts any local freight at present. However, the line is regularly used by the P&W from the east to New Rochelle, where Amtrak's Northeast Corridor line splits off, for unit trainloads of crushed rock. Between New Rochelle and Oak Point Yard in the Bronx, freight trains operate over Amtrak's New York Division Hell Gate Line.

The combination of high passenger train volumes, with in excess of 40 Amtrak and 220 Metro-North trains on a typical weekday, along with horizontal and vertical clearance restrictions make the New Haven main line difficult for freight use. The New Haven Line and the Hell Gate Line are restricted to railcars having a maximum 263,000 pound gross weight a maximum height of AAR Plate "C" 15'-6", which is below the industry standard of 286,000 pounds gross weight and a maximum height of AAR Plate "F" 17'-0".

Metro-North Harlem Line

The third major passenger route that radiates from Grand Central Terminal is the Harlem line. Splitting off from the New Haven line at Woodlawn Junction, the Harlem line heads in a northerly direction through White Plains to Dyckmans, where it intersects with the Maybrook Line, and Wassaic in Dutchess County. Where there was once considerable freight traffic along this 82 mile route, there is almost none now. CSX holds freight rights, and occasionally operates as far as Mount Vernon West. The Harlem Line is are restricted to railcars having a maximum 263,000 pound gross weight a maximum height of AAR Plate "C" 15′-6″.

Long Island

On the Long Island Rail Road, carload freight service is provided exclusively by the NYA. Freight customers are located mostly on the suburban **Main Line**, **Montauk**, and **Port Jefferson** branches in Nassau and Suffolk Counties, and in the industrial areas of Queens and Brooklyn along the **Bay Ridge** and **Bushwick** branches. Other LIRR branches experience little or no freight traffic. These five routes (shown in Figure 3.3) are as follows:

- **Bay Ridge branch**. The Bay Ridge Branch is a freight-only rail line through Queens and Brooklyn, connecting the waterfront with Fresh Pond Junction Yard. The LIRR leases the Bay Ridge Branch to NYA, who operates and maintains it. Once part of a rail freight corridor that connects New Jersey with Long Island and southern New England through a cross-Hudson carfloat, the Bay Ridge Branch south of Fresh Pond Junction carried upwards of 600,000 railcar-loads annually. In 2011, it carried fewer than 3,000 carloads per year, of which the majority enter Long Island over the Hell Gate route. At present, the Bay Ridge Branch has one active track, with occasional sidings. The remaining yards of significance are at Bay Ridge 65th Street Yard and at Fresh Pond Junction. Shippers and consignee demand on this rail line is generally on an asneeded basis, and averages only about one freight train per day. The Bay Ridge Branch can carry 286,000 pound gross weight railcars and it is cleared for AAR Plate "F" railcars 17'-0" high.
- The **Bushwick Branch** runs west from the Montauk Branch at Maspeth, Queens toward Bushwick Terminal. Ten miles in length, the line is single track, unsignaled, with a speed limit of 10 mph. Freight traffic consists primarily of municipal solid waste and scrap. The Bushwick Branch is restricted to 263,000 pound gross weight railcars and it is cleared for only AAR Plate "E" railcars 15'-9" high.
- The Lower Montauk Branch links the NYA's operational base at Fresh Pond Junction Yard with the rest of the LIRR network. The segment west of the junction provides access to Maspeth and Long Island City; it is restricted to 263,000 pound gross weight railcars and AAR Plate "C" 15'-6" high. The eastern segment connects with the LIRR Main Line at Jamaica; it is also restricted to 263,000 pound gross weight railcars, but is cleared for AAR Plate "F" 17'-0" high railcars. Passenger service along this double track route ceased in November, 2012. NYA plans to shift its Long Island City cross-dock and transload operations from Arch Street Yard to Wheelspur Yard. This is a cost avoidance mesasure as upgrading the Montauk Cut-Off viaduct for 286,000 gross weight railcars is prohibitively expensive. Upon completion of the move of facilities to Wheelspur Yard, the Montauk Cut-Off could then be abandoned.
- The **Main Line** runs through the middle of Long Island between Long Island City, Jamaica, Hicksville and Greenport. The volume of passenger

traffic on the route varies considerably, with the western sections handling very high volumes. Between Long Island City and Hicksville, passenger trains operate using electrified third rail, which precludes the use of certain types of freight equipment. The Main Line is restricted to 263,000 pound gross weight railcars but it is cleared for AAR Plate "F" railcars 17'-0" high. Much of the freight volume along this route is concentrated between Farmingdale and Yaphank. Volumes on this route are expected to increase as the Brookhaven Rail Terminal is built out with warehousing to accommodate a more diverse array of commodities. NYA is repairing the western end of its siding and adding new track at Pine Aire, which serves as the hub for its operations in central Long Island.

• Finally, the **Port Jefferson** branch diverges off of the Main Line at Hicksville in an eastward direction toward Stony Brook. Passenger volumes on this route are heavy, with the line electrified and double tracked west of Huntington. East toward Stony Brook, the line is single track with passing sidings. Freight activity on the route is primarily concentrated on the western end. The Port Jefferson Branch is restricted to 263,000 pound gross weight railcars but it is cleared for AAR Plate "F" railcars 17'-0" high.

NYNJ Rail

• The 65th Street Float Bridge, the 65th Street Yard, the Bush Terminal and the 1st Ave Industrial Track can carry all 286,000 pound gross weight railcars and they are cleared for AAR Plate "J" fully-enclosed multilevel auto rack cars 19'-0" high.





Source: Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool and National Transportation Analysis Database, 2012

Terminals

Within the NYMTC region, only a handful of carload service freight yards and terminals remain, with most previous facilities either converted to non-rail or non-freight rail uses. Each of the active terminals is mapped in Figure 3.4 and listed in Table 3.1 below, along with the serving carrier, and their type of use. Terminals and yards can be divided into three categories, which are as follows:

- **Industry Service** yards are designed to stage cars for the purpose of serving nearby industry. Once of substantial size during the heyday of freight rail service in the region, the existing industry service yards have been scaled down to support modest traffic volumes. The largest industry yard in terms of activity is **Hunts Point**, which is located in New York City's Hunts Point Peninsula. A thriving industrial area in the South Bronx, it is best known as the primary food distribution center for produce which often arrives by rail. There are 670 businesses which collectively employ over 13,000 people.
- **Bulk Transload** terminals provide access to the rail network for shippers that do not have a rail siding next to their facility(ies). The design of these terminals can range from simple to elaborate, depending on the types of commodities and volumes handled through them. A recent addition is the new Brookhaven Rail Terminal, which has been designed to handle construction materials and other bulk goods destined for central and eastern Long Island.
- **Carload Classification/Interchange** yards sort rail cars by destination for assembling into outbound blocks and trains. **Oak Point** and **Fresh Pond Junction** yards are the primary classification/interchange yards in the NYMTC region.

Two other common types of terminals, intermodal and automotive, do not currently exist in the region.



Figure 3.4 Major Rail Yards East of the Hudson River

Source: Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool.

Yard Name	Operating Railroad	Industry Service	Bulk Transload	Carload Classification/ Interchange
Oak Point	CSX		✓	✓
Fresh Pond Junction	NYA			\checkmark
65th Street	NYNJ			✓
Bush Terminal (51st Street)	NYNJ		✓	\checkmark
Yard A, West Maspeth Yard, Arch Street Yard, Blissville Yard.	NYA	~	✓	
New Lots	NYA	\checkmark		
East New York	NYA	\checkmark		
South Brooklyn Marine Terminals	NYNJ	\checkmark		
Brookhaven Rail Terminal	U.S. Rail	✓	✓	
Harlem River	CSX	\checkmark		
Hunts Point	CSX	✓		

Table 3.1NYMTC Region Yards and Terminals East of the Hudson

3.2 WEST OF HUDSON

As noted previously, the extensive network of rail lines and terminals located west of the Hudson carry the vast majority of rail freight associated with the New York City metropolitan region. CSX, NS, and the Conrail Shared Services are the dominant operators in the region. Several regional and short lines connect the Class I systems to local markets, notably the New York, Susquehanna and Western (NYSW) and the Central New York Railroad, both of which reach New Jersey from Binghamton, NY. As none of these carriers operate in the NYMTC member counties, they are not further described here. Figure 3.4 illustrates the freight rail facilities located west of the Hudson River.



Figure 3.5 West of Hudson Rail Freight Network

Source: Source: Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool and National Transportation Analysis Database, 2012

Inter-Regional Links

Four routes handle most rail freight entering or leaving the West-of-Hudson region. These routes provide access from the north, west and southwest. (See Figure 3.3, "West-of-Hudson Freight Rail Network").¹⁰

CSX River Line

Freight access along the Water Level Route, which runs between Chicago and Northern New Jersey via a route parallel to the southern shore of Lake Erie, the Erie Canal and the Hudson River, is routed via the CSX River Line south of Selkirk, New York. Trains dispatched from Selkirk Yard travel south along the west shore of the Hudson River through Rockland County to North Bergen, Kearny, Little Ferry, and Port Newark yards in Northern New Jersey. Passenger trains are absent from this heavily used route south of Selkirk, which has seen some lengthening and addition of passing sidings to accommodate traffic growth and improve reliability. Recently, CSX announced a new round of capacity expansions along this route, a \$26 million effort that will add 18 miles of second main track at various locations.¹¹ This route is capable of carrying 315,000 pound gross weight railcars and is cleared for AAR Plate "H" Double Stack Well cars 20'-3" high and AAR Plate "K" "Auto-Max"-type Auto Rack Cars 20-3" high. This route is CSX's only route to the Northern New Jersey terminals of the Port Authority of New York and New Jersey which is cleared for second generation double stack cars.

Southern Tier Line

The NS-owned Southern Tier Line is a 420 mile corridor connecting Buffalo with New Jersey via Binghamton, NY. For a distance of 88 miles south of Port Jervis, the line is used primarily by NJ Transit (NJT)/Metro-North (MNR) passenger trains, with local freight service between Binghamton and Port Jervis provided by the Central New York Railroad (CNYK). In 2003, Metro-North entered a long-term lease of the section of the line in New York State from Port Jervis south to the state line, and is making significant capital investments in the line, which it has an option to buy."

However, NS continues to retain ownership and the rights to operate through traffic, with minimal volumes in recent years. The line is mostly single-track, with a double-track alignment in place south of Suffern (31 miles). NS leases the Southern Tier Line between Binghamton and Port Jervis to CNYK, who operates

¹⁰ The North Jersey Transportation Planning Authority (NJTPA) is currently conducting a study to estimate the capacity of these freight main lines, and forecasted volume-to-capacity ratios through 2040.

¹¹ http://www.csx.com/index.cfm/media/press-releases/capacity-project-announcedon-premier-river-line/

and maintains it. NS leases the Southern Tier Line between Port Jervis and Suffern to MNR, who maintains it and contracts with NJT to operate it. The Southern Tier Line is cleared for AAR Plate "H" Double Stack Well cars 20'-3" high. The track and all bridges on the Southern Tier Line are capable of carrying 286,000 pound gross weight railcars, with the exception one bridge. That bridge is the Portage Bridge over the Genesee River in Letchworth State Park, which is restricted to 273,000 pounds gross weight railcars at a speed of 10 MPH. NS and NYSDOT are actively pursuing a USDOT TIGER V grant to complete the funding package to replace this 139 year old bridge.

Lehigh Line

NS' Lehigh Line from Harrisburg, PA provides direct entry to Oak Island Yard, and to Port Elizabeth Yard, Port Newark Yard and E-Rail Terminal via the Elizabeth Industrial Track. Access to the Staten Island Railroad is also possible at Cranford Junction. The northern-most 13 miles, which are shared with NJ Transit's Raritan Valley Line passenger trains, is double track, while the rest of the route consists of single track with frequent passing sidings. This route is capable of carrying 286,000 pound gross weight railcars and is cleared for AAR Plate "H" Double Stack Well cars 20'-3" high.

Trenton Line

The Trenton Line is CSX's main route between northern New Jersey, Philadelphia, and points to the south and southwest. The Trenton Line joins with the Lehigh Line at Port Reading Junction, where trains operate either directly to Oak Island Yard or diverge at CP Bound Brook to the Port Reading Secondary. The Trenton Line is a combination of single- (35 mi.) and double- (22 mi.) track alignments that accommodate speeds of 40-50 mph. The final leg of the journey to Oak Island Yard is either via the Lehigh Line (25 mi.) or the Port Reading Secondary/Chemical Coast Secondary. This route is capable of carrying 286,000 pound gross weight railcars but is only cleared for Trailer on Flat Car (TOFC) cars 17'-3" high.

Northeast Corridor

In addition to the freight corridors described above, the four-track Amtrak Northeast Corridor (NEC) also handles a small volume of freight traffic between Newark (Oak Island) and Metuchen. The route is restricted to 263,000 pound gross weight railcars. The vertical clearance between Oak Island and Metuchen varies by track and ranges between AAR Plate "C" 15′-6" high and AAR Plate "J" 19′-0" high. Large volumes of Amtrak and NJT passenger trains operate along this section of the NEC (322 trains per weekday), resulting in few opportunities for relatively slow freight train movements.

Access to Staten Island

Staten Island, NY is connected to the national rail network via the Arthur Kill Lift Bridge. Built by the Baltimore and Ohio Railroad in 1959, the Arthur Kill Lift Bridge closed in 1991 due to the closure of several key customers on Staten Island between the 1960 and 1991. In 2004, the Port Authority and New York City Economic Development Corporation engaged in a project to re-open the bridge to support on-dock rail service at New York Container Terminal and solid waste export from the Staten Island Transfer Station via the Travis Branch. Service to both facilities was begun in 2007, and is provided by Conrail. A northbound connector was constructed to allow Staten Island traffic to access the Chemical Coast Secondary in Elizabeth, NJ. The Travis Branch, Staten Island Railroad North Shore Branch, Arthur Kill Lift Bridge, and Chemical Coast Secondary are all 286K capable and have AAR Plate "H" 20'-3" high double-stack vertical clearance.

Terminals

Key yards and terminals located west of the Hudson River are shown in Figure 3.6 and summarized in Table 3.2 below. Along with carload classification/interchange yards, intermodal and auto terminals are also listed. The multitude of industry yards located in the region is not shown. The New York Container Terminal and Arlington Yard, located on Staten Island, is the sole facility actually located within the NYMTC region.



Figure 3.6 Major Rail Yards West of the Hudson River

Source: Cambridge Systematics, using I-95 Corridor Coalition Integrated Corridor Analysis Tool.

Yard Name	Operating Railroad	Intermodal	Auto Terminal	Carload Classification/ Interchange	Industry Service
Croxton	NS	✓		Jan 19	
Doremus Avenue Auto Terminal	Conrail		✓		
E-Rail	NS	✓			
ExpressRail Elizabeth	Conrail ¹²	✓			
ExpressRail Newark	Conrail ¹³	✓			
ExpressRail Staten Island	Conrail ¹⁴	✓			
Greenville	NYNJ			✓	✓
Little Ferry	CSX	✓	\checkmark		
North Bergen	CSX	✓		✓	
Oak Island Yard	Conrail		\checkmark	✓	
South Kearny	CSX	✓			

Table 3.2Major Yards and Terminals West of the Hudson

Each of these facilities is briefly described alphabetically below.

- **Croxton Yard**. This yard is served by Norfolk Southern (NS) for traileron-flatcar (TOFC) and container-on-flatcar (COFC) trains. The yard consists of three loading tracks situated on 135 acres. It has double stack capability and storage for refrigerated containers. The general condition of this facility is excellent. Southbound traffic destined to points in North Carolina, Alabama, and Texas exit New Jersey via the National Docks Secondary and Lehigh Line. Croxton is also the origin and destination yard for traffic along the Southern Tier route to Buffalo.
- **Doremus Avenue Auto Terminal**. This terminal is the largest rail auto facility in the New York metropolitan area, with access to rail, water, and highway. The terminal is owned by Conrail, serving both CSX and NS. The yard occupies 87 acres, and consists of ten unloading tracks and ten holding tracks.

¹² ExpressRail Elizabeth is operated by Millenium, LLC. Conrail provides rail service.

¹³ ExpressRail Newark is operated by Port Newark Container Terminal. Conrail provides rail service.

¹⁴ ExpressRail Staten Island is operated by New York Container Terminal. Conrail provides rail service.

- **E-Rail Yard**. This facility is also used for the transfer of double stack transcontinental and international containers. It is operated by Rail-Bridge Terminals and serves NS.
- ExpressRail is an on-dock intermodal rail service offered at Maher Terminal in Elizabeth, Port Newark Container Terminal in Newark, and New York Container Terminal in Staten Island. The ExpressRail facilities are supported by the Corbin Street Intermodal Support Yard, located to the west of the Port Newark/Port Elizabeth marine terminals. Between 1991 and 2012, ExpressRail volumes have increased 15-fold, from 27,700 containers to more than 424,000 containers. Since 2007, when the Staten Island facility opened, ExpressRail volumes have increased 18 percent. In 2012, ExpressRail handled about 13 percent of all containers traveling through the Port. Each of the three ExpressRail facilities are described
 - ExpressRail Elizabeth. This is an on-dock intermodal facility, opened in 2002, and is owned by the PANYNJ, with Millenium Marine Rail, LLC (jointly owned by Maher Terminal Inc. and APM Terminals) as the operator of the facility. The facility serves Maher and APM terminals. Conrail provides switching services, with access to both NS and CSX. The facility is furnished with an extensive system of modern communications equipment and state-of-the-art lifting equipment.
 - **ExpressRail Newark.** This on-dock intermodal rail facility at Port Newark Container Terminal opened in 1991 and is owned by PANYNJ and operated by Port Newark Container Terminal. Like ExpressRail Elizabeth, Conrail provides the switching service, and NS and CSX both have access to the facility.
 - ExpressRail Staten Island and Arlington Yard. Opened in 2007, the on-dock rail facility at New York Container Terminal (NYCT) on Staten Island is an Intermodal rail transfer facility owned by the PANYNJ 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. NYCT and Arlington Yard are connected to the North American Class I railroad network by the Arthur Kill Lift Bridge and the Chemical Coast Secondary.
- Greenville Yard. Operated by New York New Jersey Rail, LLC (NYNJ), which leases it from Conrail, Greenville is the western terminus of NYNJ's carfloat bridge route to Brooklyn. The Port Authority, which owns NYNJ, is planning a multi-user, multimodal redevelopment of Greenville Yard, which includes substantial expansion of NYNJ's carfloat facilities, municipal solid waste barge-to-rail operation, and development

of an intermodal container transfer facility (ICTF) to serve Global Marine Terminal as part of the Port Authority's ExpressRail system.

- Little Ferry Yard. This facility is owned and operated by CSX and serviced by NYSW. CSX has indicated that it is the least used of its principal northern New Jersey Intermodal facilities and is sometimes used for experimental services.
- North Bergen Yard. The North Bergen Terminal is owned and operated by CSX and is used for double stack, as well as premium and UPS TOFC traffic. There are four tracks within the body of the yard for unloading trucks and/or containers.
- **Oak Island Yard**. By far the largest (500 acres) rail facility in northern New Jersey, Oak Island is primarily a classification yard for carload traffic. It is owned by Conrail Shared Assets and serves trains operated by CSX, NS, and CP. In keeping with its primary function, the yard consists of 30 classification tracks, 9 departure tracks and 10 receiving tracks.
- South Kearny Yard. Owned and operated by CSX, South Kearny is primarily devoted to handling international double stack container traffic. Situated on 120 acres, the yard consists of six working and eight support tracks.

4.0 Freight Rail Network Challenges

This chapter provides a brief review of the critical issues facing the freight rail network in the NYMTC region. These issues are divided into four categories, network capacity, physical constraints, institutional, and network access.

4.1 CAPACITY

The freight forecast presented in the Task 2.2.1 Technical Memorandum, "Commodity Flow Analysis," shows that rail freight in the NYMTC region is expected to grow by 47 percent between 2007 and 2040, from 10.2 million to 15.1 million tons. A variety of capacity constraints affect the ability of the NYMTC region rail network to absorb this potential growth in freight rail traffic. West of the Hudson, these capacity constraints can be found both on the freight main lines as well as terminals. Thus far, these constraints have been generally addressed as they have occurred, with CSX, NS and Conrail, along with NJT, NJDOT, and the PANYNJ, making investments to facilitate the growth of traffic. Typically, the respective infrastructure owners have taken responsibility for making the necessary investments. An example of this process is the recent announcement by CSX about improvements that it will make on the River Line, discussed in Section 3.2. Whether private investment will be sufficient to meet policy goals for desired modal shares is a different question, particularly once the options for low-cost capacity expansion (typically reconversion of single track to double track) have been exhausted.

Capacity constraints for rail freight access east of the Hudson, particularly over the long-term, are more daunting. With all of the major freight access routes being primary passenger routes as well, expected growth in passenger train volumes make it more difficult to handle increased freight volumes. These constraints are particularly evident on the east of Hudson River route, and the New Haven, where freight operations are generally permitted only during night time hours.

Cross Hudson connectivity also impedes capacity. With the nearest Hudson River bridge or tunnel approximately 132 miles upriver from New York City, freight rail service is circuitous and inefficient between the east-of-Hudson region and origins and destinations in the southeastern and south-central states. The present barge service is not a competitive option for most cross-Hudson shipments. Improved capacity, in the form of an upgraded cross-Hudson barge or ferry service, a new bridge, or a new tunnel, will be one of several important factors (in addition to the physical limitations, access, and institutional issues described below) to maintaining, if not improving, the viability of east of

Hudson rail freight. Programmed improvements include expanded barge capacity, operations at 51^{st} St. and 65^{th} St. in Brooklyn, and a permanent float bridge at Greenville.

4.2 PHYSICAL

In addition to the insufficient availability of freight tracks and yards, another physical constraint facing the NYMTC region's rail network relates to the limitations in the types of freight railroad equipment that can be used. The network was built at a time when rolling stock was smaller and lighter than contemporary industry standards. These limitations prevent the use of some modern equipment, thereby diminishing the potential economic advantages of freight rail.

Weight limits are the most important physical limitation. Starting in the mid-1990s, the maximum weight for freely interchanged standard four axle freight cars was increased from 263,000 (263k) to 286,000 pounds (286k). Since then, the U.S. rail network has largely adapted to the higher weight limits, including most lines located in the west of the Hudson River region. East of the Hudson, a number of the key freight lines have gained increased weight limits to 286k.¹⁵ As Figure 4.1 shows, the primary freight route to New York City and Long Island along the Hudson Line to the Bronx, across the Hell Gate Bridge, and along the Fremont Secondary to Fresh Pond is capable of accommodating 286k railcars. The Bay Ridge Branch from Fresh Pond to 65th Street can also accommodate 286k. The New Haven main line and most branch lines on Long Island, in Westchester, and Putnam counties are limited to 263k railcars. The New Haven main line constraint impacts access between the NYMTC Region and New England, while the branch line constraints impact the capacity for shippers of bulk commodities located in Westchester and Putnam Counties and in Connecticut to continue, expand, or return to using rail.

¹⁵ Following Superstorm Sandy in October 2012, the NYA received a temporary waiver from the LIRR to handle cars loaded to 286k in an unrestricted manner on the LIRR.





Sources: Cambridge Systematics, using I-95 Corridor Coalition's ICAT Rail Network and NYSDOT.

MN, LIRR, and Amtrak all have programs underway to increase weight limits on their routes. As weight limits are largely driven by bridge conditions, completion of these modifications is primarily being done as part of larger capital projects. Many of these bridges are quite old and require close examination to ensure their safety and performance under the higher limit. Furthermore, it is also evident that the higher weight limits do increase wear on track, which imparts additional maintenance costs to maintain the track in proper condition.

Horizontal and vertical clearances also impede the use of certain equipment, including double-stack well cars, enclosed multi-level auto rack cars, as well as modern configurations of tank, hopper and box cars. Horizontal clearance is affected by the presence of third rail on the LIRR and Metro-North, which precludes the use of double-stack well cars in those territories. Vertical clearance is generally insufficient for double stack equipment throughout the east of the Hudson region. The primary causes are low bridges and tunnels, along with catenary on the Metro-North New Haven Line and Amtrak Northeast Corridor route. New York State's Full Freight Access Program has addressed many of the vertical constraint issues along the Hudson Line, allowing TOFC (17'3") clearance between Selkirk and Harlem River Yard. Removal of vertical constraints on the Hudson Line south of Tarrytown would allow for enclosed multi-level auto racks and other equipment up to 19'0" (AAR Plate J) to travel south to Harlem River Yard.

4.3 INSTITUTIONAL

East of the Hudson, the freight railroads are mostly tenants of the large public sector passenger carriers, who are not particularly attuned to rail freight needs and opportunities. This relationship constitutes a further impediment to innovative efforts to develop new freight business.

An example of the complexity of the current institutional relationships is the NYNJ Cross Harbor carfloat between Greenville and Long Island. Where this was once a two-line move (Pennsylvania to New Haven Railroad), at present any operation utilizing this route necessitates the involvement of three or more carriers: CSX or NS to Oak Island Yard; Conrail, which brings the cars to Greenville Yard; and the NYNJ to carry the cars over the Hudson River to the Brooklyn Waterfront. If a car is destined for anywhere else on Long Island, it would have to be interchanged once more with the NYA for delivery to the final destination.

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. While operational delays might be surmounted through improved coordination and increased volumes forcing more frequent train operations, of equal or greater importance will be the need to overcome impediments in the commercial realm. Given that railroads are a network industry, geography is destiny, and a direct presence or close partnership is imperative to being a viable competitor.

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. Public sector planning must proceed with awareness of the potential impact of public policies and investments on these private sector competitive relationships.

4.4 NETWORK ACCESS

A critical factor that impedes the use of freight rail is network access, particularly in the east of the Hudson region. This includes intermodal terminals as well as line-side industry access. Traditionally, the primary means of access to freight rail was for an industry to locate along a rail line. Such access has become increasingly difficult in the NYMTC region, with the loss of choice rail-served industrial property to other uses.

Concurrently, the growing density of passenger train volumes has made providing service to rail-served customers, whether located along a passenger line or not, more difficult and costly. The higher train densities, combined with poorly built out infrastructure for serving rail customers, complicates service and increases costs for freight providers. This issue affects industries located on passenger lines and on freight-exclusive lines in the region, since many of the access routes into and out of the region use the Hudson Line or other heavilytrafficked freight and passenger shared-use lines.

Similar issues are encountered in the development of intermodal terminals, including transload facilities. Effects of intermodal facilities on local communities, which may include increased rail and highway traffic, may make them undesirable neighbors and thus very difficult to site.

4.5 **POTENTIAL ACTIONS**

[The following presents some preliminary thoughts on how to address some of the key challenges. These will be finalized once the focus groups have been completed.]

Capacity. As rail line owners develop capital plans for improvements to the physical plant, the capacity needs of current and potential freight and passenger operations at the corridor level should specifically be taken into consideration through comprehensive corridor planning that includes the involvement of all rail service providers operating in the corridor. Such a planning process was exemplified by the Hudson Line Railroad Corridor Transportation Plan, which

identified a program of capital investments along the Hudson Line corridor that would improve performance for all rail service providers in the corridor.¹⁶

West of the Hudson, with most rail infrastructure in private ownership, the primary concern is that capacity needs are addressed in a timely manner, such that congestion does not result in lost economic opportunities for the region. In addition to the PANYNJ-related investments, strategic public investment in rail facilities might be considered where the economic gains are insufficient to justify solely private investment.

A specific priority should be placed on improving cross-Hudson connectivity. These improvements could take several forms, including upgraded cross-Hudson barge service as is being considered as part of the Port Authority's Cross Harbor study, and participation in new combined rail/highway bridge schemes, such as the Tappan Zee Bridge Replacement Project.

Upgrading of infrastructure to handle modern equipment. For publicly owned rail infrastructure, consideration should be given of the needs of modern freight equipment in capital projects. While certain types of equipment would be very difficult to accommodate due to the presence of electrified third rail, etc., there should be a general requirement to allow for 286K maximum weight railcars, and expansion of the clearance envelope to 22' for new structures, where economically feasible. Upgrading to the industry standard 286k and vertical clearance will reduce the cost of shipping food, consumer goods, and building materials to consumers on geographic Long Island. Upgrading the Hudson Line and Oak Point Link as far as Harlem River Yard to AAR Plate "J" will reduce the cost of shipping finished vehicles to automobile dealers on geographic Long Island. Both of these upgrades will reduce truck traffic across the Hudson River Bridges and Tunnels by reduction in the need to transload cargo in Northern New Jersey and truck the cargo to geographic Long Island.

Institutional. When major public investments to freight operations are being considered (such as New York Cross Harbor improvements), the institutional manner in which service would be provided should be considered. The full benefit of such investments can only be realized if the service utilizing the investments is structured efficiently. These efficiencies can be facilitated by well designed agreements with operating entities, and avoiding complex operating arrangements that diminish service performance and increase costs.

Enhance network access for freight. A range of options should be considered for adoption include reducing track access ("trackage rights") fees for freight trains (effectively to incentivize use of publicly owned rail lines for freight), land use planning for areas around rail lines that supports rail-oriented industrial and terminal uses in targeted locations, and ensuring that freight rail operators gain efficient access to the publicly owned network. Such strategies have been

¹⁶ "New York State Rail Plan 2009: Strategies for a New Age," pp. 66-67.

implemented in Europe with varying degrees of success, but not the United States. To do so would require that the MTA acquire the Class I freight rights from CSX, and then either lease out individual train paths to any train operator or lease rights in a fashion similar to the arrangement MTA has made with NY&A. The potential to implement such arrangements in the NYMTC Region has not yet been explored in great detail, and warrants further examination with the participation of the railroads.