

5B.1 INTRODUCTION

Chapter 5 of this Environmental Impact Statement (EIS) presents the evaluation the Federal Railroad Administration (FRA) and the New Jersey Transit Corporation (NJ TRANSIT) conducted of the impacts of construction and operation of the Hudson Tunnel Project on transportation conditions. The Port Authority of New York and New Jersey (PANYNJ), in its role as Project Sponsor, has accepted and relied on the evaluations and conclusions of this chapter.

This chapter is divided into two subchapters, Chapter 5A, “Traffic and Pedestrians,” and Chapter 5B, “Transportation Services” (this chapter). Chapter 5A presents the evaluation of the Project’s effects during construction and operations on vehicular traffic on roadways and on pedestrian conditions. Chapter 5B presents the evaluation of the Project’s effects during construction and operation on the transportation services operating in the Project area, including passenger rail service (intercity passenger rail service and commuter rail services); the Hudson-Bergen Light Rail (HBLR) and New York City subway service; surface bus operations; Port Authority Trans-Hudson (PATH) rail service; freight rail; ferry and other maritime services; and helicopter operations at the West 30th Street Heliport in Manhattan.

Unlike other chapters of this EIS that follow, this chapter is organized by transportation mode rather than geography.

This chapter reflects the following changes made since the Draft Environmental Impact Statement (DEIS) for the Hudson Tunnel Project:

- The chapter is updated to describe current conditions in the affected environment and any related updates to the analysis of potential impacts.
- The chapter includes revisions and clarifications in response to comments FRA and NJ TRANSIT received during the public comment period for the DEIS.

It should be noted that the description of the affected environment in this chapter describes service levels prior to the COVID-19 global health crisis that began in 2020. Since that time, travel patterns in the New York metropolitan region and throughout the country have been radically altered as a result of the health crisis. With substantial decreases in the numbers of people traveling to and from work, many transportation providers in the study area have reduced services. While Amtrak has reduced some service, NJ TRANSIT continues to operate its normal service volumes. FRA and NJ TRANSIT assume that in the long-term, commuting patterns will recover and return to their previous levels and service providers will respond accordingly.

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5B.2 ANALYSIS METHODOLOGY

During development of this EIS, FRA and NJ TRANSIT developed methodologies for evaluating the potential effects of the Hudson Tunnel Project in coordination with the Project's Cooperating and Participating Agencies (i.e., agencies with a permitting or review role for the Project). The methodologies used for analysis of transportation services are summarized in this chapter.

5B.2.1 REGULATORY CONTEXT

The transportation modes in the Project area are regulated and/or monitored by Federal, state, and local agencies, including FRA, the Federal Transit Administration (FTA), Federal Highway Administration (FHWA), Federal Aviation Administration (FAA), U.S. Coast Guard (USCG), NJ TRANSIT, New York City Department of Transportation (NYCDOT), New York's Metropolitan Transportation Authority (MTA), the PANYNJ, National Railroad Passenger Corporation (Amtrak), U.S. Maritime Administration (MARAD), and New Jersey Department of Transportation (NJDOT).

Following completion of the DEIS, the PANYNJ became the Project Sponsor for the Hudson Tunnel Project (see Chapter 1, "Purpose and Need," Section 1.1.2, for more information). Consistent with the roles and responsibilities defined in Section 1.1.1 of that chapter, as the current Project Sponsor, the PANYNJ will comply with mitigation measures and commitments identified in the Record of Decision (ROD).

5B.2.2 ANALYSIS TECHNIQUES

This analysis in this chapter is based on information on existing and projected future transportation services from the transportation service operators and other organizations responsible for these services in the Project area. These include the following: Amtrak, NJ TRANSIT, the PANYNJ, MTA, FAA, freight railroads, ferry and other maritime operators, USCG, and bus service and heliport operators.

5B.2.3 STUDY AREAS

The study area for consideration of transportation services consists of the Project site, as outlined in Chapter 4, "Analysis Framework," and immediate areas to the Project site.

5B.3 AFFECTED ENVIRONMENT: EXISTING CONDITIONS

5B.3.1 INTERCITY AND COMMUTER PASSENGER RAIL SERVICE

5B.3.1.1 AMTRAK AND NJ TRANSIT OPERATIONS VIA THE NORTHEAST CORRIDOR

Passenger rail service (which includes both commuter and intercity passenger rail service) into Manhattan from New Jersey operates on the Northeast Corridor (NEC). The NEC extends from Washington, D.C., in the south to Boston, Massachusetts, in the north, serving the densely populated Northeast region. The existing NEC rail tunnel beneath the Hudson River between New Jersey and New York is known as the North River Tunnel. Amtrak and NJ TRANSIT use this tunnel to travel to and from Penn Station New York (PSNY). Only electric-powered passenger trains are permitted to operate into PSNY through the North River Tunnel.

The NEC is the most heavily used passenger rail line in the U.S., both in terms of ridership and service frequency. Amtrak, the nationwide intercity passenger rail operator, operates over the entire NEC, providing regional service, long-distance service, and high-speed Acela Express service. Amtrak owns the majority of the NEC, including the portion in New Jersey and the North River Tunnel. NJ TRANSIT operates an extensive commuter rail network in New Jersey that extends to Philadelphia, Pennsylvania; Orange and Rockland Counties in New York; and New York City. In New Jersey, NJ TRANSIT owns much of the commuter rail network that converges on the NEC. NJ TRANSIT's rail lines all include direct or connecting service to PSNY.

The North River Tunnel is more than 100 years old and was designed and built to early 20th century standards. As described in Chapter 1, "Purpose and Need," service reliability through the tunnel, already suboptimal because of the tunnel's age and antiquated design, has been further



compromised because of the damage to tunnel components caused by Superstorm Sandy. Since Superstorm Sandy, Amtrak has been making repairs to the tunnel, and the repairs are ongoing. This involves scheduled work during evening off-peak periods as well as full closure of one tube on many weekends for a 55-hour window beginning on Friday evening and ending early on Monday morning. To allow for these regular maintenance activities, Amtrak and NJ TRANSIT operate with an adjusted, reduced schedule on weekends. This revised schedule has substantially fewer trans-Hudson trains than the regular weekend schedule prior to the adjustment and constrains NJ TRANSIT's ability to serve current customer demand for weekend travel. Additional emergency maintenance has been necessary with increasing frequency since Superstorm Sandy and disrupts service for hundreds of thousands of rail passengers throughout the region.

Prior to the COVID-19 global health crisis, the existing North River Tunnel operated with a maximum of 24 trains in the peak direction in the peak hour. The reverse peak service level for both the AM and PM peak hours is 11 trains, for a total peak-hour train operation moving in both directions through the existing North River Tunnel of 35 trains. Trains operate at a maximum speed of 60 mph in the existing tunnel, dropping to a maximum of 15 mph entering and leaving PSNY. The complexities of the track network leading into and out of PSNY and the high volume of train movements in the PSNY complex often reduce train speeds further, as trains wait for other trains to cross or for open platforms. Given that the tracks at the existing PSNY complex and on the NEC between Newark, New Jersey and PSNY are currently operating at capacity (see Section 5B.3.1.1), the North River Tunnel's current peak-hour capacity of 24 trains in one direction is the maximum rail capacity for the tunnel.

In the morning peak period, eastbound trains from New Jersey drop off passengers at the platforms of PSNY and then either reverse for westward service (or move westward out of the station without passengers) or continue eastward to Sunnyside Yard in Queens (for NJ TRANSIT) and beyond (for Amtrak). In the evening peak period, the process is reversed. New Jersey-bound trains come into PSNY from Sunnyside Yard (in non-revenue service) or from New Jersey (generally in revenue service), to collect passengers bound for New Jersey (for NJ TRANSIT), or come from points east and north (for Amtrak) for service heading west and south on the NEC. PSNY currently operates at capacity during the peak periods—there is no additional capacity to process trains at the platforms, given the time required for trains to wait at the platform for passengers to board and alight, and to move through the station. In addition, no capacity is available to route additional trains through the East River Tunnels for midday storage in Sunnyside Yard, and there is limited storage capacity within the PSNY complex.

Prior to the COVID-19 global pandemic, the North River Tunnel was heavily used throughout the day, with a total of about 500 trains per day in both directions on weekdays. To allow for regular maintenance activities in the tunnel on weekends, Amtrak and NJ TRANSIT operate with an adjusted, reduced schedule on weekends to allow one tube of the North River Tunnel to be closed on weekends. Even with the reduced weekend schedules, nearly 300 trains per day used the North River Tunnel on weekends prior to the COVID-19 global pandemic.

Amtrak operates high-speed Acela Express trains, Northeast Regional trains, and long-distance trains through the North River Tunnel to and from PSNY. Four of NJ TRANSIT's electrified rail lines—NEC, North Jersey Coast Line, Morris and Essex Lines, and Montclair-Boonton Line—provide direct, one-seat ride service into PSNY during peak and off-peak periods. In addition, using dual-power locomotives (i.e., locomotives that operate in diesel mode on non-electrified lines and electric mode on electrified lines), NJ TRANSIT also operates off-peak Raritan Valley Line trains through the North River Tunnel to and from PSNY.

In its 2017 Fiscal Year, Amtrak carried approximately 20,900 weekday passenger trips (one-way ride) each day on more than 100 trains between New York and New Jersey, not counting passengers who traveled through the North River Tunnel and PSNY but did not get off or on at

PSNY. In its 2017 Fiscal Year, NJ TRANSIT carried approximately 189,000 weekday trips each day on approximately 350 trains between New York and New Jersey.

5B.3.1.2 PSNY COMPLEX

PSNY provides access to New York City for passenger railroad trains operated by Amtrak, MTA Long Island Rail Road (LIRR), and NJ TRANSIT. The station operates both as a through station for Amtrak and as a terminal station for all three railroads. During peak operations, Amtrak uses Tracks 5 through 12, NJ TRANSIT uses Tracks 1 through 12, and LIRR uses Tracks 13 through 21. During off-peak operations, Amtrak and NJ TRANSIT also use Tracks 13 through 16. Track and platform usage is dictated by use agreements¹ between the three railroads and also by track connections that provide access to the various tracks and platforms. The maximum operating speed within the existing PSNY complex is 15 miles per hour (mph). Not all platforms can accommodate the longest trains operated.

The platform tracks in PSNY are connected to a network of tracks to the east and west (see Figure 2-1 in Chapter 2, “Project Alternatives and Description of the Preferred Alternative”). On the west, Amtrak and NJ TRANSIT passenger trains on the Northeast Corridor (NEC) to and from New Jersey use the North River Tunnel, which consists of two single-track, electrified rail tubes. Trains move between the North River Tunnel and passenger platforms via ladder tracks that provide connections to each of the platform tracks. Amtrak also operates its Empire Line, serving Albany and northward to Niagara Falls via a route along the eastern shore of the Hudson River, into PSNY. The Empire Line joins the NEC in Manhattan just west of PSNY (at approximately Tenth Avenue, south of the North River Tunnel tracks).

West of PSNY, the blocks are occupied by the PSNY approach tracks and ladder tracks and several rail storage yards. The largest yard, the LIRR’s John D. Caemmerer West Side Yard, is bounded by Tenth Avenue, Twelfth Avenue (New York State Route 9A), West 30th Street, and West 34th Street, and is used by LIRR for midday storage of trains. On the north side of the North River Tunnel, four tracks connect to the West Side Yard. In addition, several smaller rail storage yards—including A Yard, D Yard, and E Yard—are located between Eighth and Tenth Avenues in the below-grade track area just west of PSNY and are used primarily by NJ TRANSIT and occasionally by Amtrak for midday storage of trains, for overnight storage and servicing of trains, and for operational flexibility.

Amtrak positions two standby locomotives in the storage tracks west of PSNY, typically in Yard D, which are kept continuously available for emergencies or as substitute power if a revenue train experiences a locomotive failure. Amtrak also stores engineering equipment used to maintain the railroad infrastructure in all three yard areas but predominantly in A Yard or E Yard. NJ TRANSIT stores five train sets during the midday in these PSNY yards: two at E Yard, one at D Yard, and two at A Yard. NJ TRANSIT also stores one train set overnight on an available storage track in this area.

East of the PSNY platforms, the station’s tracks connect to the East River Tunnels, which consist of four single-track electrified rail tubes that are used by Amtrak, LIRR, and NJ TRANSIT. These tubes are used for operations to Queens, New York, where tracks connect to Sunnyside Yard (a large Amtrak storage and maintenance yard that is also used for midday storage by NJ TRANSIT), to the segment of Amtrak’s NEC known as the Hell Gate Line (for operations toward New England), and to LIRR’s rail lines to the east.

¹ Track and platform use agreements in place include the Joint Venture Agreement between LIRR and Amtrak; and the NEC Services Agreement (an operating agreement), and Slot Agreement (proscribing allowable trains per hour/per peak period) between NJ TRANSIT and Amtrak.



Prompted by the growing demand for passenger service to and from Manhattan in recent decades, over the past several years the three railroads have regularly performed extensive operations analysis and have implemented infrastructure improvements that have allowed the railroads to increase service frequency. Prior to the COVID-19 global pandemic, the three railroads fully used the capacity of the tracks and platforms within PSNY in peak hours. There is no additional capacity to process trains at the platforms, given the time required for trains to wait at the platform for passengers to board and alight, and to move through the station. In addition, no peak-period capacity is available to route additional trains through the East River Tunnels for either passenger (i.e., revenue) service or for midday storage in Sunnyside Yard in Queens, and there is limited storage capacity within the PSNY complex.

Each railroad operating at PSNY has its own ticketing and passenger services area. Amtrak's passenger operations recently moved to the new Moynihan Train Hall, which opened to the public in January 2021 in the James A. Farley Post Office building between Eighth and Ninth Avenues and West 31st and 33rd Streets. Accommodations include a sunlit atrium boarding concourse, a combined ticketing and baggage unit, a new Metropolitan Lounge, a new reserved customer waiting room, retail and food shops, and an expansion of the station's emergency ventilation system. This new train hall is directly above existing platforms and tracks at PSNY and has new stairs, escalators, and elevators that connect directly to existing PSNY platforms and tracks.

5B.3.2 HUDSON-BERGEN LIGHT RAIL

NJ TRANSIT's HBLR serves Hudson County, New Jersey, municipalities, including Hoboken and Weehawken. The two-track segment of the system between 9th Street-Congress Street Station in Hoboken and the Lincoln Harbor Station in Weehawken traverses the study area (see **Figure 5B-1**). This line segment is located at ground level over the path of the proposed Hudson River Tunnel and over the existing North River Tunnel. Light rail trains operate with varying frequencies depending on the time of day, but trains operate in each direction as close as two minutes apart in peak time periods. During peak hours, as many as 11 trains per hour are operated on each track on this line segment.

As of March 31, 2016, the HBLR system had an annual average weekday ridership of 54,350 trips.

5B.3.3 NEW YORK CITY SUBWAY SERVICE

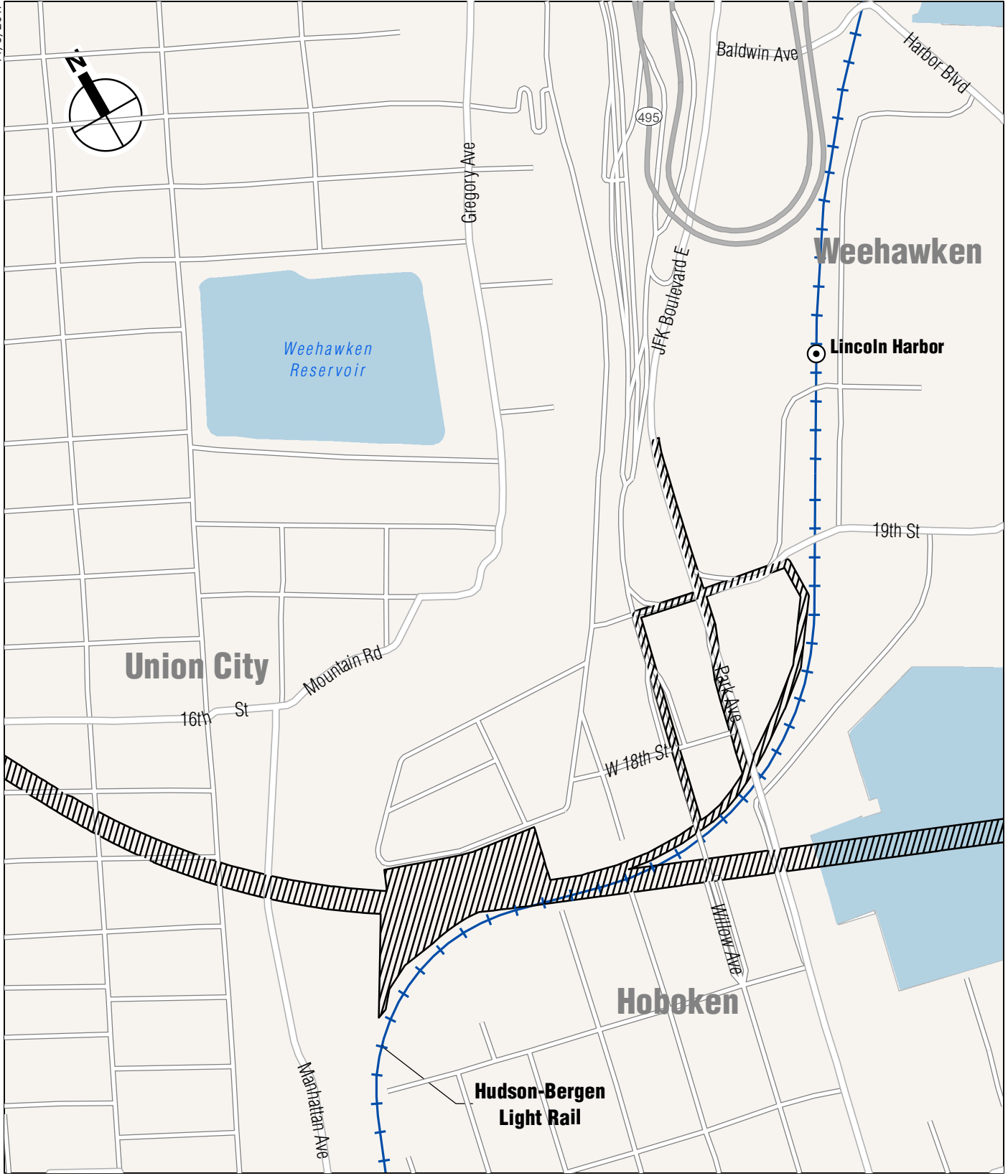
PSNY, MTA New York City Transit (NYCT) operates subway service that serves PSNY and the vicinity, including the Broadway (N, Q, R, W), Sixth Avenue (B, D, F, M), Seventh Avenue (1, 2, 3) and Eighth Avenue (A, C, E) northbound and southbound subway routes. Each of these routes has a 34th Street station at or near PSNY. In addition, NYCT operates the No. 7 line to its western terminus at the 34th Street-Hudson Yards Station under Eleventh Avenue. The No. 7 line infrastructure includes tail tracks² that extend under Eleventh Avenue south of the 34th Street Station to 25th Street.




5B.3.4 BUS SERVICE

The bus services operating in the study area consist of numerous NJ TRANSIT, NYCT, and New York Waterway ferry bus routes, as well as several private bus operators that have stops for passenger pick-up and drop-off in the study area, which offer service to destinations outside New York City. In addition, north of the study area, a high volume of buses use the highways and roads that lead to the Lincoln Tunnel and operate through the Lincoln Tunnel to and from the Port Authority Bus Terminal (PABT) in New York City, as well as other private bus companies that

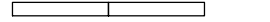
² Tail tracks are located at the end of a rail line to provide a place to store or hold trains, or for trains to switch tracks to reverse direction.

11/8/2017



 Project Site
  Hudson-Bergen Light Rail
 Station

0 500 FEET




Hudson-Bergen Light Rail Route in the Study Area
Figure 5B-1

operate through the area but do not have offices or gates at the PABT. The PABT bus services include both commuter and intercity services. They are operated by NJ TRANSIT and several private bus operators serving the nearby communities as well as communities throughout the region. Many of the bus services that operate to and from the PABT during the morning peak period utilize the Exclusive Bus Lane (XBL) on Interstate 495 (I-495) that accommodates approximately 700 buses per hour. In total, more than 1,800 buses and 65,000 commuters travel through the Lincoln Tunnel in the four-hour AM peak period via the XBL. In addition to the regular daily use, when NJ TRANSIT commuter rail service is disrupted, customers rely on other trans-Hudson transportation modes to get to their jobs, which include the trans-Hudson bus routes.

In New Jersey, several local NJ TRANSIT bus routes operate on surface streets in the study area in North Bergen, Union City, Weehawken, and Hoboken. The bus services include Route 2 (on Secaucus Road just north of the NEC); Route 22 (south of the Project site in Hoboken and continuing on the Palisades in Union City); Route 23 (on Park Avenue and JFK Boulevard through Hoboken and Weehawken, passing close to the Hoboken staging area); Routes 63, 64, and 68 (on Willow Avenue and 19th Street through Hoboken and Weehawken, passing close to the Hoboken staging area); and Routes 89, 119, and 126 (on Willow Avenue through Hoboken and Weehawken, passing close to the Hoboken staging area). **Figure 5B-2a** shows the bus routes in the New Jersey portion of the study area.

NYCT bus routes and New York Waterway ferry bus routes operate on surface streets in the New York portion of the study area (see **Figure 5B-2b**). NYCT bus services operate on Tenth, Eleventh, and Twelfth Avenues and on 33rd and 34th Streets. New York Waterway ferry bus services operate on Twelfth Avenue and on 34th Street. Bus routes that operate in the study area include NYCT bus routes M11 (on Ninth and Tenth Avenues), M12 (on Eleventh and Twelfth Avenues), M34 (on 34th Street), and the New York Waterway downtown bus, on 34th Street and other streets nearby.

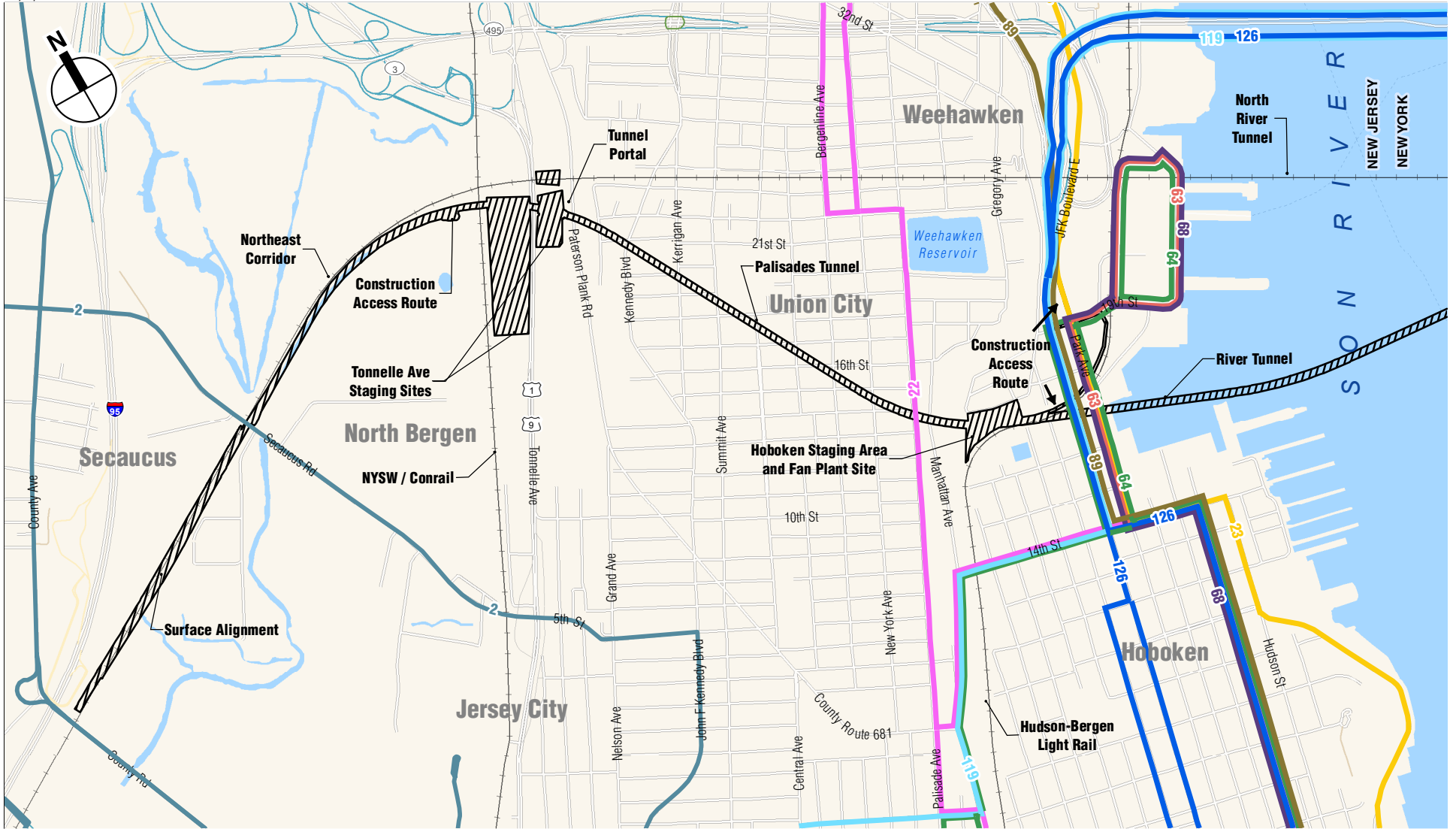
An area adjacent to the Project site in New York currently includes parking for non-MTA buses. An approximately 250-foot-long area on the south side of West 30th Street between Eleventh and Twelfth Avenues is designated for on-street bus parking spaces, signed as “Non-MTA Bus Layover Only,” and is currently used by tour and charter buses.

5B.3.5 PATH SERVICE

In addition to Amtrak and NJ TRANSIT passenger rail service between New Jersey and New York and extensive bus service via the Lincoln Tunnel, the PANYNJ operates a local commuter rail service between New Jersey and New York, the PATH system. PATH is an electrified, heavy-rail rapid transit system that operates 24 hours a day, seven days a week. PATH operates along four routes between northeastern New Jersey (the cities of Newark, Hoboken, and Jersey City and the Town of Harrison) and Manhattan. The PATH system includes 13.8 route miles and has two termini in New Jersey (Newark Penn Station and Hoboken) and two termini in Manhattan (33rd Street near PSNY and the World Trade Center). PATH carries approximately 270,000 customers per day. When NJ TRANSIT commuter rail service is disrupted, customers rely on other trans-Hudson transportation modes to get to their jobs, including the PATH system. PATH typically cross-honors tickets during such disruptions.

5B.3.6 FREIGHT RAILROAD SERVICES

A number of freight railroad services, including CSX Transportation, Inc. (a subsidiary of CSX Corporation), Conrail, Norfolk Southern, and the New York, Susquehanna & Western Railway (NYSW) operate in or near the study area in New Jersey. The following freight railroads operate on railroad tracks that cross under the NEC tracks: the Conrail Shared Assets Area Northern



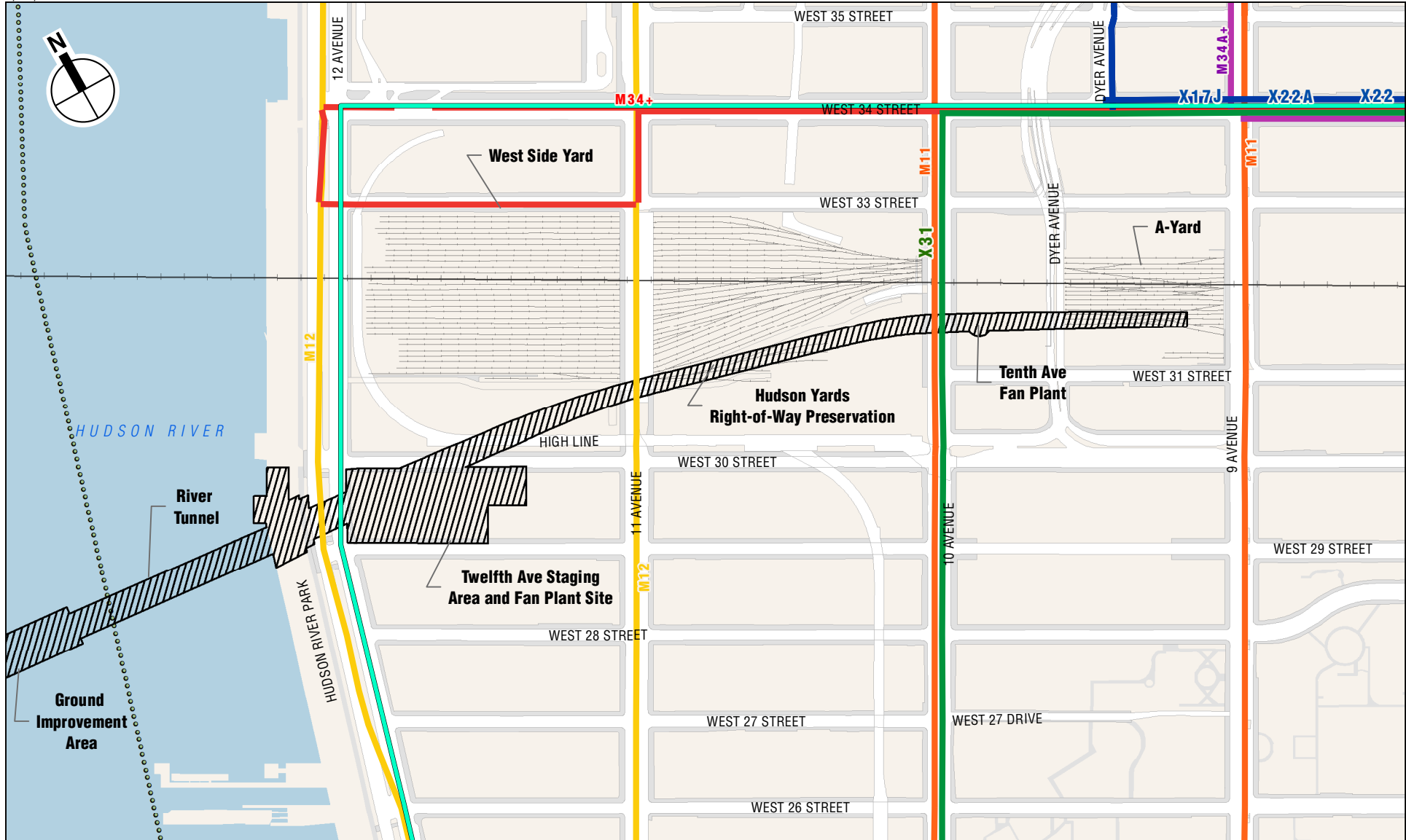
Project Site

- Bus Routes**
- 2
 - 64
 - 22
 - 68
 - 23
 - 89
 - 63
 - 119
 - 126

0 2,000 FEET



Bus Routes in New Jersey
Figure 5B-2a



Project Site

Existing Northeast Corridor

Express Bus Routes

X17J, X22, and X22A

X31

MTA/NYCT Bus Routes

M11

M12

M34+

M34A+

NY Waterway Ferry Bus

0 500 FEET



Bus Routes in New York
Figure 5B-2b



Branch; NYSW; and the Norfolk Southern Croxton Yard. While some portions of the NEC are used for rail freight, the North River Tunnel is not used for freight.

The Norfolk Southern Croxton Yard is west of the Project site, adjacent to the Frank R. Lautenberg Secaucus Junction Station. The NEC crosses the yard on a viaduct.

Conrail's Northern Branch consists of two tracks in the study area, running parallel and to the west of Tonnelle Avenue in North Bergen, New Jersey. The NEC is elevated over the Northern Branch west of Tonnelle Avenue. It connects to several rail freight lines and yards that are used for the movement of goods to and from the Port of New York and New Jersey, and for the movement of goods to or from the New Jersey/New York metropolitan region or through the region. CSX Transportation is the most frequent user of the Northern Branch since the branch connects to CSX Transportation's River Line. An average of 40 freight trains operate in a 24-hour period through the study area. No passenger trains utilize the Northern Branch corridor. Time table speed through the study area is 30 mph. There are no train schedules.

The NYSW right-of-way, which includes one track, is adjacent to and on the west side of the Northern Branch in the study area. The NEC is elevated over the NYSW right-of-way. It connects to both CSX Transportation and Norfolk Southern services in New Jersey. Its trains operate north into Bergen, Passaic, Morris and Sussex Counties in New Jersey, as well as into New York State to Binghamton in upstate New York.

5B.3.7 HUDSON RIVER MARITIME TRAFFIC

Maritime traffic on the Hudson River in the study area includes passenger ferries, freight and barge traffic, cruise vessels, and other commercial and recreational boats.

The Hudson River estuary system is a major waterway of the northeastern United States. There are one main and two secondary navigation channels in the Hudson River through the Project area. The main navigable channel, with an approximate width of 2,000 feet, has a required minimum depth of 45 feet. The secondary channels, known as wing channels, are located between the main navigable channel and the pierhead lines on each side of the river, and have a required minimum depth of 40 feet. On the Manhattan and New Jersey sides of the river within the study area, these wing channels are approximately 550 feet wide and 250 feet wide, respectively.

Passenger ferry service traverses the Hudson River to and from both Midtown and Lower Manhattan. NJ TRANSIT has collaborated with New York Waterway to coordinate fares and improve ferry service for passengers traveling between New Jersey and New York. Ferry services that operate on the Hudson River near the Project site are listed in **Table 5B-1**. In addition to the regular daily use, when NJ TRANSIT commuter rail service is disrupted, customers rely on other trans-Hudson transportation modes to get to their jobs, which include these ferry routes.

**Table 5B-1
Daily Weekday Ferry Trips
in the Hudson River Near the Project Site**

New Jersey Terminals	New York Terminals		
	Midtown West 39th Street	Battery Park City	Pier 11 Wall Street
Belford, Monmouth County	11	—	—
Edgewater	32	—	—
Hoboken: 14th Street	101	—	—
Hoboken: NJ TRANSIT Terminal	48	—	—
Jersey City: Harborside	56	—	—
Jersey City: Paulus Hook	37	—	—
Weehawken: Port Imperial	146	38	47
Weehawken: Lincoln Harbor	109	—	—
Note:	— indicates no service near the Project site.		
Source:	www.nywaterway.com, 2018.		

Most maritime freight movements through the study area are tug and barge combinations shipping various bulk commodities, such as oil, sand, stone, and aggregates. Large container vessels do not travel through the area. There are many work vessels engaged in marine construction typically using the waterway. Cruise vessels up to 1,000 feet in length pass through the Project area going to and from the Manhattan Cruise Terminal, which is located near 48th Street and handles approximately 150 ships annually. The most recent annual volumes of commercial maritime traffic on the Hudson River from the U.S. Army Corps of Engineers (USACE), for 2010-2014, show an average of 222,106 vessels per year traversing the Project site, with a majority of those vessels having a draft of 12 feet or less (approximately 99 percent). This average does not include the numerous private pleasure craft and ferries that also operate within this area. The majority of vessel movements in the study area occur during the summer and fall months, although activity is year round. Sightseeing boats, privately owned yachts, and smaller watercraft are commonly active in the study area, particularly in the warmer months. Near the Project site, there is a boathouse at Pier 66 at West 26th Street in New York, which is part of Hudson River Park, that serves boaters in small unpowered watercraft, including sailboats, outrigger canoes, and kayaks. Potential impacts to recreational boat users are discussed in Chapter 8, "Open Space and Recreational Resources."

5B.3.8 WEST 30TH STREET HELIPORT

The West 30th Street Heliport extends from approximately West 29th Street to West 33rd Street (within the boundaries of Hudson River Park) in New York. The heliport has 10 active use helipads, 6 on land (Pads 1 through 6) and 4 additional helipads (Pads A through D) on a barge that is permanently moored at the northern end of the heliport, as well as 2 on-land pads at the southern end of the heliport that are exclusively for fueling activities. The heliport provides commercial/transient general aviation, and air taxi services. The West 30th Street Heliport is owned by the Hudson River Park Trust (HRPT) and is currently operated by a private company, Air Pegasus. At the heliport, approximately 85 percent of the flights are air taxi/commercial services, 14 percent are transient general aviation, and less than 1 percent are military³. No tourist

³ Source: <http://www.airnav.com/airport/KJRA>, accessed 05 February, 2018, for 12-month period ending 07 September 2017.

flights operate from the West 30th Street Heliport. The facility operates 24 hours per day, seven days a week. Its busiest times coincide with normal AM and PM peak commuter traffic periods. In the summer and fringe months⁴ (i.e., May and October), while there is some overnight operation, the facility generally operates from 7 AM to 9 PM, averaging from 72 to 100 flights daily. In the winter and fringe months (i.e., November and April), the facility generally operates from 8 AM to 6 PM, again with some limited nighttime operations, with about 40 flights daily. The portion of the heliport within the Project site includes a driveway and parking area at the western end of West 30th Street, the helicopter fueling area and 2 fueling pads, and 1 to 2 of the heliport's 10 active use helipads. The West 30th Street Heliport is the only heliport in Manhattan that provides fueling services.

5B.4 AFFECTED ENVIRONMENT: FUTURE CONDITIONS

This section describes future conditions absent the implementation of the Preferred Alternative, which are anticipated in the Project's study area by the analysis year considered in this EIS (2033) and is the baseline against which the impacts of both the No Action and Preferred Alternatives are compared.

5B.4.1 INTERCITY AND COMMUTER PASSENGER RAIL SERVICE

5B.4.1.1 AMTRAK AND NJ TRANSIT OPERATIONS VIA THE NORTHEAST CORRIDOR

5B.4.1.1.1 Long-Term Plans to Improve NEC

FRA, Amtrak, NJ TRANSIT, and the PANYNJ have been planning for long-term improvements to rail service on the NEC between Newark, New Jersey and New York City through several planning initiatives, including FRA's NEC FUTURE program and the Gateway Program. The Hudson Tunnel Project, including a new Hudson River Tunnel and rehabilitation of the existing North River Tunnel, is part of both of these programs.

5B.4.1.1.1.1 NEC FUTURE

In 2012, FRA launched NEC FUTURE to consider the role of rail passenger service in the context of current and future transportation demands and to evaluate the appropriate level of capacity improvements to make across the NEC. The intent of the NEC FUTURE program was to help develop a long-term vision and investment program for the NEC. Through NEC FUTURE, FRA evaluated overall capacity improvements and environmental consequences associated with improved NEC rail services, including trans-Hudson service. FRA released the NEC FUTURE Tier 1 Final EIS prepared in accordance with the National Environmental Policy Act (NEPA) in December 2016. The Preferred Alternative evaluated in the Tier 1 Final EIS consisted of an investment program that grows the role of rail by identifying numerous upgrades and state-of-good-repair investments along the length of the NEC.

In July 2017, FRA issued the Record of Decision for the NEC FUTURE program, which completed the Tier 1 environmental review process under NEPA. The Record of Decision documents FRA's formal selection of an investment program for the NEC, referred to as the Selected Alternative. The Selected Alternative is a refinement of the Preferred Alternative identified in the Tier 1 Final EIS and represents a vision for the NEC that will serve as a framework to help prioritize, facilitate, and expedite investment in the NEC for the next several decades. It is a corridor-wide commitment

⁴ Fringe months are the months immediately before and after the months that correspond to the season being discussed (e.g., the summer fringe months would be May and October, as summer runs from June through September).

to the NEC to bring it to a state of good repair and provide additional capacity and service enhancements to address passenger rail needs for the future. To achieve this vision, the Selected Alternative includes the following four components:

- *Improve Rail Service:* Corridor-wide service and performance objectives for frequency, travel time, design speed, and passenger convenience.
- *Modernize NEC Infrastructure:* Corridor-wide repair, replacement, and rehabilitation of the existing NEC to bring the corridor into a state of good repair and increase reliability.
- *Expand Rail Capacity:* Additional infrastructure between Washington, D.C., and New Haven, Connecticut, and between Providence, Rhode Island, and Boston, Massachusetts, as needed to achieve the service and performance objectives, including investments that add capacity, increase speeds, and eliminate chokepoints.
- *Study New Haven to Providence Capacity:* Planning study in Connecticut and Rhode Island to identify additional on- and off-corridor infrastructure as needed to achieve the service and performance objectives.

Currently, the Northeast Corridor Commission, formed to facilitate collaborative planning (among other responsibilities) and comprised of representatives from each of the eight Northeast Corridor states, the District of Columbia, Amtrak, and the U.S. Department of Transportation, is leading the development of a plan to implement the NEC FUTURE Selected Alternative, called CONNECT NEC 2035.

5B.4.1.1.1.2 Gateway Program

The Gateway Program is a comprehensive program of phased strategic rail infrastructure improvements to preserve and improve current services and create new capacity on the NEC. The objective of the Gateway Program is twofold: (1) to update and modernize existing infrastructure and repairs to infrastructure elements that are damaged due to age or events such as Superstorm Sandy, and (2) to increase track, tunnel, bridge, and station capacity, eventually creating four mainline tracks between Newark and PSNY to allow the doubling of passenger trains in this section of the NEC.

The individual projects that make up the Gateway Program will advance through planning, environmental review, funding, and construction separately; some of these projects are approved for construction while others are in the planning stages. In addition to the Hudson Tunnel Project, projects that make up the Gateway Program include the following:

- **Dock Bridge Rehabilitation:** This project includes the rehabilitation of Dock Bridge, a complex of three vertical lift structures over the Passaic River in Newark and Harrison, New Jersey. The project would perform critical maintenance and rehabilitation work to restore the bridge to a state of good repair. This project is in the planning and design stage; environmental review in accordance with NEPA is complete.
- **Harrison Fourth Track:** This project includes the design and construction of approximately 2,000 feet of additional track along the NEC through Harrison, New Jersey. This project is currently in early planning stages, having reached 15 percent design.
- **Sawtooth Bridges Replacement:** Amtrak is proposing to replace these bridges along the NEC between Newark Penn Station and Frank R. Lautenberg Secaucus Junction Station to improve the efficiency and reliability of rail operations throughout this segment of the NEC. This project is in the planning and design stage; environmental review in accordance with NEPA is complete.
- **Portal North Bridge:** Amtrak and NJ TRANSIT will replace this two-track movable bridge across the Hackensack River between Newark Penn Station and Frank R. Lautenberg



Secaucus Junction Station with a new high-level, fixed-span bridge, which will address issues of operational reliability at this crossing and will increase rail service capacity across the Hackensack River by approximately 10 percent. Environmental review, final design, and permitting for this bridge are complete and procurement is under way for major construction.

- **Portal South Bridge:** In addition to the new Portal North Bridge, Amtrak and NJ TRANSIT are also proposing a second bridge to carry the NEC over the Hackensack River. Portal South Bridge would provide two additional tracks across the Hackensack River, matching the four-track territories to the east and west, substantially increasing operational capacity along this critical length of the NEC. Environmental review and preliminary design are complete for the Portal South Bridge.
- **Bergen/Secaucus Loop and Secaucus Station modifications:** This project would modify Frank R. Lautenberg Secaucus Junction Station and create a track connection between NJ TRANSIT's Pascack Valley, Main, and Bergen Lines and the NEC, allowing trains on these routes direct access to PSNY in addition to Hoboken. Planning and environmental review have not yet begun for this project.
- **New rail storage yard for NJ TRANSIT coupled with fleet expansion:** To operate substantially greater service on its system, NJ TRANSIT will need to purchase new rail vehicles and construct a new rail storage yard where they can be maintained and stored both overnight and during the midday. NJ TRANSIT is conducting site evaluation, although planning and environmental review have not yet begun for this project.
- **Hudson Yards Right-of-Way Preservation Project:** Amtrak is working to complete the third and final segment of a concrete tunnel box in Manhattan from the north side of 30th Street near Twelfth Avenue to the existing PSNY approach tracks at approximately Tenth Avenue. This structure will preserve a future location for rail operations beneath the large-scale redevelopment known as Hudson Yards to be built on a platform above the West Side Yard. The concrete casing is complete from Tenth Avenue to Eleventh Avenue. The final section from Eleventh Avenue to 30th Street close to Twelfth Avenue is not yet complete. Once the concrete casing is complete, construction activities for the Hudson Tunnel Project would involve finishing the casing with tracks, communications, signals, and other railroad systems.
- **Penn Station New York Station Expansion:** MTA, Amtrak, and NJ TRANSIT are proposing to add new tracks, platforms, and concourse space to PSNY to facilitate an increase in the station's rail service capacity. Prior to the global health crisis, the tracks and platforms at PSNY operated at full capacity in both the morning and evening peak periods with no additional capacity to process trains at the platforms, given the time required for trains to wait at the platform for passengers to board and alight, and to move through the station.

The Gateway Program is in the planning and design phase, but certain discrete, non-capacity-enhancing projects that are components of the Gateway Program, including the Hudson Tunnel Project and Portal North Bridge, are proceeding ahead of the rest of the program as critical infrastructure projects with independent utility.

5B.4.1.1.2 North River Tunnel

Amtrak has performed engineering analyses of the existing North River Tunnel and has concluded that continued reliable operations on both tracks in the North River Tunnel cannot be assured for the long term as a result of the tunnel's age in combination with the damage and ongoing deterioration of tunnel elements caused by flooding from Superstorm Sandy. As time allows in off-peak periods, maintenance and repair is done to try to avoid major service disruptions. Despite the ongoing maintenance, the damage caused by the storm continues to degrade systems in the tunnel and can only be addressed through a comprehensive reconstruction of the tunnel.

Given the unanticipated delays to the construction schedule for the Project, in 2020, Amtrak began the North River Tunnel Interim Reliability Improvements Program to accelerate immediate maintenance and repair in the tunnel prior to its full rehabilitation. Through that program, Amtrak is examining options for a variety of repairs and improvements to the North River Tunnel with the goal of improving safety and reliability for the public over the next decade in advance of comprehensive rehabilitation. More information on this program is provided in Chapter 1, “Purpose and Need,” Section 1.4.1.

However, given the uncertainty about the timing and extent of any closure of the tunnel, for the purposes of EIS analyses, FRA and NJ TRANSIT assume that ongoing maintenance and repairs to the North River Tunnel will continue in the future in the No Action condition so that the tunnel would remain in service until the analysis year of 2033, with service outages potentially occurring as a result of the continuing deterioration of the tunnel. In addition, late night and weekend service would continue to be limited to allow for the ongoing maintenance of the tunnel. If Amtrak and NJ TRANSIT operations become less reliable, then reduced customer satisfaction may reduce ridership.

The PSNY track network is currently operating at capacity during peak hours and without any projects to improve the capacity of PSNY, train operations in the station will remain at the same level as they are today.

To maintain existing service levels, both Amtrak and NJ TRANSIT have defined rail rolling stock plans that propose to maintain equipment and to replace it as it reaches the end of its useful life. Amtrak is currently procuring new equipment for its Acela Express train service to replace the existing fleet and to expand its passenger carrying capacity. NJ TRANSIT proposes to procure additional multilevel coaches and electric multiple-unit cars to replace life-expired equipment and to increase the passenger carrying capacity of existing trains. The use of multilevel rail cars to replace older cars of lower individual passenger capacity is expected to enable NJ TRANSIT to accommodate a modest level of passenger growth as the new cars are put into service, even though it would not be possible to increase the number of trains during peak hours when current train slots to and from PSNY are fully utilized.

Although the number of peak hour trains would not increase, Amtrak and NJ TRANSIT will be replacing rail passenger equipment that can accommodate more passengers, which will accommodate limited increases in ridership.

5B.4.1.2 CHANGES AT PSNY

Amtrak, NJ TRANSIT, and MTA are currently planning or undertaking a number of projects to improve Penn Station, including the station’s rail infrastructure and its passenger amenities. These include the following:

- **Ongoing Improvements in the Station:** Amtrak, NJ TRANSIT, and MTA are currently undertaking a number of projects in PSNY to improve access, pedestrian circulation, and customer amenities. Amtrak is updating and renovating vertical circulation, platforms, rest rooms, and waiting areas and improving accessibility at station entrances. NJ TRANSIT is developing improvements to its concourse adjacent to Seventh Avenue and proposes to extend the Central Concourse, which currently provides access to only some of the platforms in the station, so that it reaches all platforms. MTA is expanding LIRR’s main passenger concourse, increasing its width and height. A new entrance to the concourse at Seventh Avenue and 33rd Street opened on December 31, 2020.
- **Penn Station Master Plan:** This study is a collaborative effort of Amtrak, MTA, and NJ TRANSIT to develop concepts that address the deficient passenger experience at PSNY, improve passenger flow, and unify the existing station with the new Moynihan Train Hall.



- **LIRR East Side Access and Metro-North Penn Station Access:** MTA is currently completing its East Side Access Project, which will create a new terminal for LIRR at Grand Central Terminal. When that project opens for service in 2022, LIRR will increase its overall service to Manhattan and serve both terminals in Midtown—Grand Central Terminal and PSNY. While service to Midtown will increase overall, LIRR will decrease service to PSNY. Taking advantage of capacity formerly used by LIRR, MTA is planning to add new Metro-North Railroad service to PSNY, a project known as Penn Station Access (like LIRR, Metro-North is an operating agency within MTA). That project is currently in environmental review with FTA as lead agency.

5B.4.2 HUDSON-BERGEN LIGHT RAIL

HBLR ridership will increase in the coming years; longer light rail trains will accommodate most of this growth. In addition, NJ TRANSIT is planning, and is now preparing an EIS for, the extension of the HBLR from its existing terminus at the Tonelle Avenue station using the Northern Branch rail right-of-way to Englewood, New Jersey, with a terminal station at Englewood Hospital. The proposed operating plan for this extension of the HBLR includes 12 trains per hour in the peak hours to accommodate the estimated passenger demand.

In addition, NJ TRANSIT is also planning a short extension of the HBLR's West Side Branch in Jersey City to a new terminus west of Route 440, where it will serve Jersey City's planned development on the Hackensack waterfront.

5B.4.3 NEW YORK CITY SUBWAY SERVICE

The existing subway services in the study area will not change substantially by the 2033 analysis year. However, with ongoing development in West Midtown and at Hudson Yards, there will likely be additional subway ridership from development in the area and from background growth in Manhattan. As noted, the number of passenger rail trains operating through the North River Tunnel to and from PSNY in the peak hours will not increase since PSNY is now operating at capacity during peak hours. Consequently, passengers transferring between the passenger trains and NYCT subway routes during peak periods will continue at levels similar to the current volume.

5B.4.4 BUS SERVICE

The existing bus services in the study area will not change substantially by the 2033 analysis year. The bus services operating in the study area that use the highways and roads that lead to the Lincoln Tunnel and operate through the Lincoln Tunnel to and from the PABT in New York City, will continue to operate, and may adjust their operations to reflect known infrastructure projects to be undertaken in New Jersey that may affect traffic congestion and schedules during construction, including the future replacement of the Lincoln Tunnel Helix, the timing of which is unknown, and the rehabilitation of the Willow Avenue bridge in Hoboken/Weehawken (see more detailed description of these projects in Chapter 20, "Indirect and Cumulative Effects," Section 20.6.3). North of the study area, the PANYNJ is planning to replace the PABT, which would remain in operation while the new terminal is under construction. The PABT Replacement Program is currently in the planning stage, with the new replacement for the PABT anticipated to be operating by 2032.

Ridership on several local NJ TRANSIT bus routes will increase as background growth continues and as the various known development projects planned and under construction in Weehawken and Hoboken are completed (these are described in Chapter 6A, "Land Use, Zoning, and Public Policy," Section 6A.4.1). Per NJ TRANSIT policy, bus service will be modified as necessary to accommodate additional riders in this area, as necessary.

Ridership will also increase as background growth continues and as the various known development projects planned and under construction on the Far West Side of Manhattan are completed (these are described in Chapter 6A, “Land Use, Zoning, and Public Policy,” Section 6A.4.3). Per MTA policy, bus service will be modified as necessary to accommodate additional riders in this area, as necessary.

5B.4.5 PATH SERVICE

The PANYNJ is implementing improvements to PATH service that will accommodate increased ridership in the future. These include implementation of a new signal system using Automatic Train Control, which will allow more frequent service that can increase PATH system capacity; upgrades to certain stations to accommodate longer trains; and operation of longer trains throughout the system.

5B.4.6 FREIGHT RAILROAD SERVICES

Rail freight service will continue on the rail lines in the study area, but the number of trains may vary depending on market conditions for transporting freight goods over long distances. The North Jersey Transportation Planning Authority sponsored the preparation of the *2040 Freight Industry Level Forecasts* study, completed December 2012. The study estimated that by 2040, overall commodity flows into, out of, and within North Jersey are expected to increase by about 43 percent, from 473 million tons to 675 million tons (a difference of 202 million tons). The study anticipates that rail would gain a slightly larger share of the freight transport market in the future (7.2 percent in 2040, compared to 6.5 percent in 2007). By the 2033 analysis year, it is therefore possible that rail freight operations will increase on the Conrail and NYSW rail lines that cross the NEC in North Bergen, New Jersey.

5B.4.7 HUDSON RIVER MARITIME TRAFFIC

The Hudson River is an industrial, commercial, and recreational waterway that will continue to be an important part of the region’s economy and quality of life. In particular, as development continues along the Hudson River, coastline waterborne transportation will remain an important option for regular commuters.

5B.4.8 WEST 30TH STREET HELIPORT

As discussed in Chapter 8, “Open Space and Recreational Facilities,” Section 8.4.3, Hudson River Park will continue to be improved in the future. This park is being gradually developed as funding becomes available. Park improvements in this area will require relocation of the West 30th Street Heliport to another suitable location. As discussed in Chapter 8, “Open Space and Recreational Facilities,” Section 8.4.3, a 2013 amendment to the Hudson River Park Act called for relocation of the heliport to a floating structure between West 29th and West 32nd Streets.⁵ The timing of the relocation is unknown. If the West 30th Street Heliport has relocated, it will continue in operation in the future, although it would be in a new but nearby location and possibly in a different configuration than at present.

5B.5 IMPACTS OF NO ACTION ALTERNATIVE

5B.5.1 INTERCITY AND COMMUTER PASSENGER RAIL SERVICE

Both tubes in the existing North River Tunnel were inundated with seawater during Superstorm Sandy in October 2012. Since the North River Tunnel was dewatered, chlorides and sulfates from

⁵ 2013 Amendment to Hudson River Park Act (Chapter 517 of the Laws of 2013), Section 3(m)(v).



the seawater continue to cause ongoing damage to a number of tunnel elements, including the tunnel's concrete liner, bench walls, and ballast, as well as to embedded steel, track and third rail systems, and signaling, mechanical and electrical components. As time allows in off-peak periods, maintenance and repair is done to try to avoid major service disruptions. In the No Action Alternative, the existing maintenance regimen in the North River Tunnel will continue. However, this maintenance cannot address the damage to the ballast and bench walls in the North River Tunnel, which requires full removal of the tracks, ties, and bench walls—work that cannot be accomplished without full shutdown of the tunnel's two tubes over a period of almost two years for each tube. Therefore, despite the ongoing maintenance that will continue in the No Action Alternative, damage to the North River Tunnel caused by the storm will continue to degrade systems in the tunnel. This deterioration combined with the tunnel's age and intensity of use will likely lead to increasing uncertainty about and disruptions of rail operations in the North River Tunnel, and may lead to its eventual closure.

With the No Action Alternative, for purposes of the analyses presented in this EIS, FRA and NJ TRANSIT have assumed that the North River Tunnel would remain functional and in operation at least through the FEIS analysis year of 2033, and that the same level of train service would continue through the North River Tunnel in the future, subject to ongoing maintenance and repairs. The existing two-track North River Tunnel, which is at capacity in the peak hours and heavily utilized at other times, currently provides no operational flexibility when trains are delayed on the tunnel tracks or when emergency repairs are needed. In the No Action Alternative, late night and weekend service would continue to be limited to allow for the ongoing maintenance of the tunnel.

The No Action Alternative would result in negative impacts to passenger rail services on the NEC across the Hudson River as service disruptions would increase as a result of the continuing deterioration of the North River Tunnel. If Amtrak and NJ TRANSIT operations become less reliable, reduced customer satisfaction may reduce ridership.

With the No Action Alternative, as the reliability of the trans-Hudson rail system worsens because of ongoing deterioration in the North River Tunnel, and congestion on each trans-Hudson mode continues to increase to keep pace with future demand, the frequency and severity of each service disruption will be magnified compared to what is experienced today. As NEC North River Tunnel passenger rail service is disrupted for emergency repairs, passengers would divert to trans-Hudson bus services, as well as to ferries, automobiles, and PATH rail service, as occurs today when there is a disruption to NJ TRANSIT service between New Jersey and New York. Each time the North River Tunnel is closed, the disruption would affect up to 20,900 daily weekday Amtrak passenger trips (one-way rides) and up to 189,000 daily weekday NJ TRANSIT passenger trips based on existing (pre-COVID-19) ridership, on up to approximately 500 trains per day, as a worst-case scenario. Even if only one tube of the North River Tunnel closes, this would disrupt up to 75 percent of the train service through the tunnel. Because all trans-Hudson transportation routes and services are operating at or near capacity during peak travel hours,⁶ public transportation services paralleling the North River Tunnel (PATH trains, commuter buses, and ferries) would experience extreme overcrowding and delays, and many passengers might elect not to make the trip or to make the trip via automobile on the region's congested roadway system.

5B.5.2 HUDSON-BERGEN LIGHT RAIL

The No Action Alternative would not affect HBLR service, operations, or ridership.

⁶ <https://rpa.org/work/reports/crossing-the-hudson>.

5B.5.3 NEW YORK CITY SUBWAY SERVICE

The No Action Alternative would not affect NYCT subway service, operations, or ridership.

5B.5.4 BUS SERVICE

The No Action Alternative could result in negative impacts to trans-Hudson bus service as passenger rail service disruptions transfer more riders from rail to buses, overburdening a system that is also close to capacity.

5B.5.5 PATH SERVICE

With the No Action Alternative, if disruptions to trans-Hudson passenger rail service on Amtrak and NJ TRANSIT service increase due to ongoing deterioration in the North River Tunnel, riders would transfer to the PATH system (as well as buses and ferries), overburdening these already crowded parallel services (see Section 1.4.2 of Chapter 1, “Purpose and Need,” for further discussion). The Regional Plan Association’s “Fourth Regional Plan” documents these capacity constraints of the trans-Hudson transit services and highlights the inability of these services to absorb substantial numbers of NEC commuters.⁷

5B.5.6 FREIGHT RAILROAD SERVICES

The No Action Alternative would not affect freight railroad services in the Project study area, which cross the NEC in Secaucus and North Bergen.

5B.5.7 HUDSON RIVER MARITIME TRAFFIC

The No Action Alternative would not affect maritime traffic directly, but if NEC passenger rail service between New Jersey and New York is disrupted for repairs to the North River Tunnel, passengers would likely divert to ferries and other modes, resulting in potential overcrowding on trans-Hudson ferry routes if additional service (routes and/or vessels) are not added.

5B.5.8 WEST 30TH STREET HELIPORT

The No Action Alternative would not affect the West 30th Street Heliport. If the West 30th Street Heliport has relocated, it will continue in operation under the No Action Alternative, although it would be in a new but nearby location and possibly in a different configuration that at present.

5B.6 CONSTRUCTION IMPACTS OF THE PREFERRED ALTERNATIVE

5B.6.1 OVERVIEW

This analysis considers the effects of construction of the Preferred Alternative on transportation systems in the study area for the years when peak construction activity would occur.

5B.6.2 INTERCITY AND COMMUTER PASSENGER RAIL SERVICE

As described in Chapter 1, “Purpose and Need,” the purpose of the Hudson Tunnel Project is to preserve the current functionality of Amtrak’s NEC service and NJ TRANSIT’s commuter rail service between New Jersey and PSNY by repairing the deteriorating North River Tunnel; and to strengthen the NEC’s resiliency to support reliable service by providing redundant capability under the Hudson River for Amtrak and NJ TRANSIT NEC trains between New Jersey and the existing

⁷ <https://rpa.org/work/reports/crossing-the-hudson>.



PSNY. These improvements must be achieved while maintaining uninterrupted commuter and intercity rail service and by optimizing the use of existing infrastructure. The Preferred Alternative, with a new Hudson River Tunnel to carry passenger trains while the North River Tunnel is being rehabilitated, was developed and selected specifically for this purpose. Further, in light of this purpose, the Preferred Alternative is being designed to allow continued NEC operations first as the new Hudson River Tunnel is being constructed and then as the North River Tunnel is being rehabilitated.

Construction activities for the new Hudson River Tunnel would involve modifications to the existing NEC, in New Jersey where connections would be made into Allied Interlocking, and in New York where the Preferred Alternative would connect to the PSNY approach tracks at A Yard east of Tenth Avenue, as discussed below. In addition, construction activities associated with the North River Tunnel rehabilitation would involve work close to active tracks on the NEC near Tonnelles Avenue (at the west portal of the North River Tunnel).

5B.6.2.1 ALLIED INTERLOCKING (NEW JERSEY)

Existing tracks, electrification, and signals within Allied Interlocking just east of Secaucus Junction Station would be modified to connect, control, and provide traction power to the new tracks connecting with the NEC. This would include track connections and switches within the interlocking as well as modifications to the overhead contact system and signal towers along the existing NEC to accommodate the new tracks. This is discussed in more detail in Chapter 3, "Construction Methods and Activities," Section 3.3.1.

The construction activities to connect the new tracks to the existing NEC would be carefully staged to minimize impacts to Amtrak's and NJ TRANSIT's train operations. Most construction work would occur during nights and weekends to avoid disruptions to daytime train service. However, there may be some disruptions to train service or schedules as a result of construction activities and the corresponding safety measures that would be in place during construction (e.g., slower speeds along segments of the existing NEC surface alignment to accommodate construction safely). Since this work would occur over approximately seven years, as described in detail in Chapter 3, "Construction Methods and Activities," in Section 3.3.1, it would be coordinated with NJ TRANSIT and Amtrak to avoid or minimize service disruptions, especially during peak commuter periods.

5B.6.2.2 NEC AT TONNELLES AVENUE (WEST PORTAL OF NORTH RIVER TUNNEL)

The North River Tunnel rehabilitation would be conducted one tube at a time, with the other tube in active service, so that a total of three active tracks are available under the Hudson River for NEC passenger rail service. As discussed in Chapter 3, "Construction Methods and Activities," Section 3.3.10, rehabilitation work would be accomplished by taking one tube out of service at a time for reconstruction while the other tube remains in service. Once rehabilitation of the first tube is complete, that tube would be recommissioned (i.e., put back in service) and the second tube would be taken out of service for rehabilitation.

Based on conceptual design for the rehabilitation work, construction for the North River Tunnel rehabilitation would involve use of a deck and crane trestle system over the tracks of the NEC at the tunnel portal, where the tracks are located in an open cut. Use of a deck system would allow the Project contractor to lower construction material onto the construction track and lift debris from the track, while shielding the active track from debris and protecting the overhead contact system (catenary). In this way, work on the dead track could occur safely while the adjacent track remains active.

5B.6.2.3 PSNY COMPLEX (NEW YORK)

In Manhattan, the track connections for the Preferred Alternative in the subsurface area east of Tenth Avenue would require demolition of a portion of the A Yard retaining wall and selective underpinning and/or relocation of support columns for the building at 450 West 33rd Street. Construction in this area is discussed in more detail in Chapter 3, "Construction Methods and Activities," Section 3.3.8.4.

This work would require trackwork and minor excavation to lower the profile of several tracks so that they can meet the grade of the new tunnel tracks at the new portal within A Yard. An existing track that runs diagonal to the existing track network to provide connections to the PSNY platform tracks, known as the I Ladder, would be extended to connect to the new tunnel's tracks, so that connections are available from the new tunnel to PSNY Tracks 1 through 18. In addition, certain tracks within A Yard would be modified. The new tunnel's tracks would connect to two of the A Yard tracks, which would be connected to the station platform tracks via the extended I Ladder and a shorter connection referred to as the J Ladder. Other switches in A Yard would be modified to support the new tunnel operations.

As discussed above in Section 5B.3.1, Amtrak stores standby locomotives and engineering equipment in the storage tracks west of PSNY and NJ TRANSIT stores five train sets during the midday in these PSNY yards: two at E Yard, one at D Yard, and two at A Yard. NJ TRANSIT also stores one train set overnight on an available storage track in this area. The tracks Amtrak uses for locomotives and equipment would not be affected by the construction. In addition, the two E Yard tracks and the overnight storage track NJ TRANSIT uses would not be affected by the construction. Once construction begins in A Yard, the storage tracks currently being used by NJ TRANSIT would be permanently altered. The new Hudson River Tunnel alignment, including the new track connections in A Yard, would replace the storage tracks with tracks for revenue service into and out of PSNY. One locomotive slot would be available on Track 5A, which would remain a stub-end track beneath the building at 450 West 33rd Street. NJ TRANSIT would relocate its trains to other storage locations, depending on availability and time of day needed, either at Sunnyside Yard in Queens or in New Jersey during Project construction, and permanently, once the new Hudson Tunnel is operational.

Additionally, construction of the new track connections for the Preferred Alternative would involve modifications to the existing track systems at PSNY (including signals, electrification for traction power, and any other related railroad infrastructure components). This work would require trackwork and localized rock excavation to lower the profile of several tracks so they can meet the grade of the new tunnel tracks at the new portal within A Yard.

The Project Sponsor, in cooperation with the other Project Partners, will carefully stage this work, including the associated tie-ins to existing railroad facilities, to occur during nights and weekends to minimize disruption to daytime train service to the extent possible. However, as this is a constricted area, there may be some disruptions to train service or schedules as a result of construction activities and the corresponding safety measures that would be in place during construction. During advanced design, the Project Sponsor, in cooperation with the other Project Partners, will develop a detailed approach for implementing the tie-ins and the associated modifications to operations, including the identification of mitigation for any disruptions. This will involve coordination and consultation with the railroads operating in PSNY (i.e., Amtrak, NJ TRANSIT, and MTA LIRR).

Construction of the Preferred Alternative would not affect the LIRR West Side Yard or maintenance facilities in the West Side Yard. The Hudson Yards Right-of-Way Preservation Project (the concrete tunnel box that Amtrak is building in the West Side Yard) would be completed in advance of or concurrently with construction of the new Hudson River Tunnel, and the concrete



tunnel box would be used for the new tunnel. The tunnel box would be fitted out as described in Chapter 3, "Construction Methods and Activities," Section 3.3.8.2, with the new tracks and other Project components for use as part of the new tunnel.

Once the new tunnel is complete, passenger rail service would shift to use the two tubes of the new tunnel, and rehabilitation of the North River Tunnel would occur one tube at a time. Both tubes of the North River Tunnel would not be closed simultaneously for rehabilitation because the new tunnel's two tubes alone, without either North River Tunnel tube, would not provide the same level of peak-hour capacity as the North River Tunnel does today. This is because the new tunnel would connect to PSNY farther south than the North River Tunnel tracks do: trains using the new tunnel would not be able to access PSNY Track 19, and access to Tracks 9 through 18 would be solely via the single-track I Ladder with no parallel route available. This limitation is compounded by the fact that platform Tracks 1 through 6 have more limited capacity than the other station platforms and cannot handle the longest 12-car trains used by NJ TRANSIT. To avoid the reduction in capacity that would otherwise occur, one tube of the North River Tunnel would remain open while the other is being rehabilitated.

A specific operating plan for Amtrak and NJ TRANSIT's use of the three tubes during rehabilitation of the North River Tunnel has not yet been developed, although Amtrak and NJ TRANSIT have developed and modeled representative operating plans to confirm the feasibility of this approach. Amtrak and NJ TRANSIT will develop detailed operating plan for use of three tubes during North River Tunnel rehabilitation, and the associated modifications to operations, including the identification of mitigation for any disruptions, in consultation with any other affected rail operators during the final design of this aspect of the Preferred Alternative. Both Amtrak and NJ TRANSIT plan to operate at full capacity, as they do today.

5B.6.3 HUDSON-BERGEN LIGHT RAIL

The construction of the segment of the Preferred Alternative's new tunnel in Hoboken would involve the construction of an access shaft and a construction staging area south of West 18th Street and north of the HBLR tracks. In addition, a fan plant would be constructed at this location for tunnel ventilation. Truck access to and from the site would be provided via an off-street construction access route that would be constructed parallel to and north of the HBLR tracks. The off-street construction road would extend from the access shaft site and the construction staging area eastward to provide an at-grade connection to the Willow Avenue service road and/or the Park Avenue service road, or, in haul route Option 3, continuing beside the HBLR tracks to meet an existing signalized intersection at 19th Street, just west of the tracks. This third haul route option has been developed since completion of the DEIS, as the design has continued to be refined and in response to community input (see Chapter 3, "Construction Methods and Activities," Section 3.3.3). Construction of the access shaft, off-street construction access road, and the fan plant would occur outside the operating envelope of the HBLR, and if any work would need to be within the operating envelope of the HBLR, it would be scheduled during off-peak time periods to avoid impacts on HBLR services. All of the alternative routes for the off-street construction access road would be in close proximity to the HBLR tracks, and therefore, the Project Sponsor would coordinate the use of any required special safety protocols with NJ TRANSIT and the operators of the HBLR.

With the Preferred Alternative, the new Hudson River Tunnel would pass beneath the HBLR right-of-way in Hoboken, just east of the Hoboken shaft site and staging area. Prior to tunneling, the Project Sponsor would conduct ground improvement (such as hardening through injection of jet grout into the soil) in the area of the alignment near the HBLR right-of-way. This would protect the HBLR tracks from potential disturbance that might otherwise occur as the tunnel passes below.

The rehabilitation of the existing North River Tunnel in Weehawken would be done without any surface disturbance at the location where the HBLR tracks cross over the tunnel.

5B.6.4 NEW YORK CITY SUBWAY SERVICE

The alignment of the Preferred Alternative does not intersect with NYCT subway lines and construction activities would be located such that there would not be any impacts to subway service or facilities. The alignment of the new tunnel would pass approximately 50 feet above the No. 7 subway line tunnel below Eleventh Avenue. This portion of the alignment would be within the concrete box constructed as part of Amtrak's separate Hudson Yards Right-of-Way Preservation Project, and therefore no impacts to the No. 7 train tunnel or service would occur as the tracks and associated equipment are installed in this segment of the new Hudson River Tunnel.

5B.6.5 BUS SERVICE

With the Preferred Alternative, some disruptions to traffic patterns and flows on roads used by bus services in New Jersey and New York could occur.

In New Jersey, no bus routes travel on Tonnelle Avenue near the Tonnelle Avenue staging site for the Preferred Alternative, and therefore none would be affected by construction activities for the Preferred Alternative there. In Hoboken and Weehawken, construction traffic traveling to and from the Hoboken staging area would follow one or more of the construction truck routes that use the Willow Avenue service road, 19th Street, and JFK Boulevard East and the Park Avenue service road, resulting in increased traffic on those roadways (see Figure 3-7 in Chapter 3, "Construction Methods and Activities"). These roads are also part of several NJ TRANSIT bus routes, including Routes 23, 63, 64, 68, 89, 119, and 126 (see **Figure 5B-2a**). Based on comments received on the DEIS, design refinement, and coordination with representatives and residents of the Township of Weehawken and neighboring communities, FRA and NJ TRANSIT, working with the other Project Partners, have incorporated modifications to the construction methods into the Project that would reduce the volume of construction worker and truck traffic generated by the Preferred Alternative in the Hoboken and Weehawken study area from the levels presented in the DEIS.

As described in detail in Chapter 5A, "Traffic and Pedestrians," Section 5A.6.2, construction traffic would result in increased congestion and delays on Willow and Park Avenues at 19th Street in Weehawken. For the intersections of Willow and Park Avenues at 19th Street, mitigation measures were identified including signal timing changes and the use of a Maintenance and Protection of Traffic (MPT) plan; therefore, bus service would not have slower travel times at these locations.

In addition, the Preferred Alternative would require temporary disruptions to traffic on the Willow Avenue viaduct, which is used by a number of bus routes. The foundation of this viaduct would be underpinned prior to construction of the new tunnel in this area. The roadway would remain open throughout this process, with only short-term, intermittent closures during off-peak hours or weekends, and therefore bus service would not be adversely affected.

In New York, bus service could be affected by increased delays due to construction traffic, and also by lane closures associated with the cut-and-cover excavation of the new tunnel alignment across Tenth Avenue. As described in Chapter 5A, "Traffic and Pedestrians," Section 5A.6.4, the reduced traffic levels of service would occur at intersections along bus routes on Tenth, Eleventh, and Twelfth Avenues and on 34th Street. At all intersections, mitigation such as signal timing changes and implementation of an MPT plan would address some of the increased congestion associated with the Preferred Alternative's construction traffic. At most locations, mitigation can maintain intersection levels of service and avoid impacts that would otherwise occur. However, impacts at the intersection of 34th Street and Tenth Avenue would consist of some movements or approaches that could not be fully mitigated, resulting in slower bus traffic at these locations during construction of the Preferred Alternative.



During excavation of the tunnel alignment across Tenth Avenue, the Tenth Avenue roadway would remain open throughout this process, although temporary lane closures would occur. Implementation of an MPT plan in this area would address potential slowdowns that may result from temporary lane closures.

While the traffic impacts would slow bus travel times in some portions of the study area, during construction, these effects would be temporary. There would not be any reductions in bus service, and bus routes and locations of bus stops would remain unchanged during construction of the Preferred Alternative.

In addition, construction activities for the Preferred Alternative would require the removal of an approximately 250-foot-long area on the south side of West 30th Street designated for on-street bus parking spaces, signed as "Non-MTA Bus Layover Only," that is currently used by tour and charter buses. The Project Sponsor will coordinate with the NYCDOT's Office of Construction Mitigation and Coordination regarding the need to relocate this parking zone.

5B.6.6 PATH SERVICE

Construction activities for the Preferred Alternative would not affect PATH service, since it is not located in the area where construction would occur.

5B.6.7 FREIGHT RAILROAD SERVICES

With the Preferred Alternative, a new two-track rail bridge for the new Hudson River Tunnel's approach tracks would be constructed across the railroad right-of-way west of Tonnelle Avenue that is used by Conrail and NYSW. This would involve the construction of the bridge abutments, supported by piles, with the bridge spans constructed last to support the new tracks. The construction of the viaduct structure would be scheduled in coordination with the freight train operators so as to minimize any required disruptions to freight rail operations. The Project Sponsor will schedule construction activities at the Conrail-NYSW bridge in coordination with the freight rail companies to avoid impacts to their operations.

The rehabilitation of the existing North River Tunnel would not include construction work that could affect the freight railroad tracks, since all construction related to the rehabilitation would occur in the tunnel or nearby staging areas along Tonnelle Avenue.

5B.6.8 HUDSON RIVER MARITIME TRAFFIC

As discussed in Chapter 3, "Construction Methods and Activities," Section 3.3.5, the Preferred Alternative would require in-water construction activities in the Hudson River in a small area approximately 620 feet from the New York bulkhead (70 feet past the pierhead line). The in-water construction activities would affect an area of the river bottom approximately 1,200 feet long and 110 feet wide. In this area, cofferdams (in-water containment structures) would be installed. Barges and other equipment would be situated in a work zone approximately 100 feet wide on both long sides of the cofferdams. Typical barges would be approximately 30 feet wide by 90 feet long. Based on preliminary design, this work might be conducted in two stages of 600 feet long each. In this case, each 600-foot-long stage would take about 13 months to complete. The two cofferdams could be completed separately or work on both sections might overlap so that the full area is in construction at once.

Workers would travel to the construction zone on small boats (i.e., tugboats or dinghies) from established piers on the Hudson River shoreline. Two boats are likely to be needed one for the crew and the other for material delivery. Therefore, this aspect of construction would require three tugboats to be in continuous operation to, from, and around the in-water work area during weekdays between approximately 7 AM and 11 PM throughout the ground improvement process.

The barges in and around the cofferdams would be permanently moored in place until the construction in that cofferdam is complete.

About 600 linear feet of the work zone would be in the main, 45-foot-deep regulated navigation channel and 600 linear feet would be in the adjacent 40-foot-deep navigation channel. Modifications to the river bottom would require a permit from the USACE and must meet conditions imposed by the USACE to protect the navigation channel and maritime safety. The Project Partners will continue to refine the design for the in-river work, in coordination with USACE and the USCG, to minimize the potential for adverse impacts on navigation in the Hudson River during construction and will identify the final staging approach in coordination with USACE and USCG.

Maritime traffic on the Hudson River in the study area includes passenger ferries operating to and from the Midtown West 39th Street ferry terminal, freight and barge traffic, cruise vessels, and other commercial and recreational boats. Accordingly, during construction, safety measures would be followed to protect maritime commerce and boating safety. Measures would include notifications to mariners via the USCG, installation of lighting on barges and the cofferdam, and automatic identification system (AIS) transponders affixed to barges and the cofferdam to enable electronic locating of the cofferdam and tracking of the barges.

Considering that approximately 70 percent of the width of the main navigable channel would remain available during in-water construction, and that the Project Sponsor will implement measures to eliminate conflicts with marine traffic during construction, including lighting and AIS transponders, there would be no adverse impacts on maritime operations during construction of the Preferred Alternative. These measures would also protect recreational boaters, including sailboats, kayaks, and canoes that operate from the boathouse at Pier 66at West 26th Street in New York, in Hudson River Park.

5B.6.9 WEST 30TH STREET HELIPORT

If the West 30th Street Heliport is not relocated from the Project site prior to construction of the Preferred Alternative (see Section 5B.4.8, above), construction activities for the Preferred Alternative would affect heliport operations.

Equipment used for the in-water construction described above could require rerouting of helicopters headed to and from the West 30th Street Heliport to avoid conflicts between aircraft and tall construction equipment.

In addition, construction activities related to ground improvement and tunneling would also affect the West 30th Street Heliport. As described in Chapter 3, "Construction Methods and Activities," Section 3.3.6, construction activities in this area to stabilize the ground and excavate a tunnel beneath the Manhattan bulkhead and Hudson River Park would involve establishing a staging area within the southern part of the West 30th Street Heliport. Depending on the details of the construction method used, this would affect the heliport's fueling area, its two fueling pads, a driveway and parking area, and one to two landing pads for approximately 1.5 years. If the heliport is still in this location when construction activities begin, the Project Sponsor would relocate the heliport's fueling facilities. The new location would either be a new permanent location, if that location can be identified (possibly near West 30th Street), or a temporary new location within the heliport property or potentially on a new fueling barge moored at the heliport. The new fueling facility would comply with all applicable regulatory restrictions.

With one to two landing pads out of service during the 1.5 years of construction staging at the heliport, construction activities for the Preferred Alternative might affect the throughput capacity and volume of flights using the heliport, if demand for landing pads exceeds the remaining capacity of the landing pads remaining in service. The effect to heliport operations from reduced throughput capacity would be most pronounced in the summer and fringe months when the heliport is busiest,



with the reduction of available landing pads representing a reduction of 10 to 20 percent of the heliport's landing capacity. In the winter months, while there may be some disruption to operations, full utilization of the heliport's landing capacity does not generally occur. In addition, it may be necessary to reroute helicopters headed to and from the West 30th Street Heliport to avoid conflicts between aircraft and tall construction equipment either in this temporary staging area or during the in-water construction activities. This activity would be subject to a permit from the FAA.

For temporary construction period impacts to the West 30th Street Heliport, the Project Sponsor will determine the specific measures and methods to mitigate the impacts identified above, in coordination with the heliport operator and HRPT, the owner of the heliport property, and will pay for costs associated with the temporary relocation of fueling facilities or landing pads, as applicable. Mitigation measures could include restoration of heliport facilities and services upon completion of the Project. However, if the heliport is relocated during the construction period, then the area affected by tunnel construction activities would be restored in coordination with the HRPT. In either case, the restoration activities would not require manpower and trucking activities exceeding the levels described for tunnel construction activities occurring in the study area, and would be anticipated to be of short duration, less than 12 months.

5B.7 PERMANENT IMPACTS OF THE PREFERRED ALTERNATIVE

5B.7.1 OVERVIEW

As described in Chapter 2, "Project Alternatives and Description of the Preferred Alternative," there would be no change in rail capacity in the future as a result of the Preferred Alternative and no change to the Amtrak or NJ TRANSIT commuter rail service plans in comparison to the No Action Alternative. As ridership on the NEC would not change or shift to different modes as a result of the operation of the Preferred Alternative, there would also be no change in intercity and commuter passenger rail, HBLR, NYCT subway, or public bus services, compared with future No Action conditions. There would be no change in provision of freight rail, ferry or other maritime services, or service changes at the West 30th Street Heliport with the Preferred Alternative. Therefore, the operation of the Preferred Alternative would not have the potential to result in any permanent adverse impacts to transportation services operating in the Project area. The Preferred Alternative would also address the Project goal of not precluding future trans-Hudson rail capacity expansion projects and allowing for connections to future capacity expansion projects, including connections to station expansion projects in the area of PSNY.

5B.7.2 INTERCITY AND COMMUTER PASSENGER RAIL SERVICE

At completion, the Preferred Alternative would consist of two major elements: the two-track Hudson River Tunnel and the rehabilitated two-track North River Tunnel.

When the Hudson Tunnel Project is complete and both the North River Tunnel and new tunnel are in service in 2033, a total of four tracks would be available for the Hudson River crossing between New Jersey and New York. Amtrak and NJ TRANSIT's NEC service between New Jersey and New York would benefit from redundant capability and increased operational flexibility for future regular maintenance activities as well as during emergencies.

All four tracks would connect to PSNY platform Tracks 1 through 18, with the North River Tunnel tracks also having access to Track 19. Eastbound trains leaving Secaucus and westbound trains leaving PSNY could each be routed on two different tracks, providing increased operational flexibility. A specific operating plan for Amtrak and NJ TRANSIT's use of the two tunnels together has not yet been developed.

At the completion of the Project, Amtrak and NJ TRANSIT would operate the same number of peak-period trains using the four tracks beneath the Hudson River as in the No Action Alternative, when only two tracks would be available. While the Project addresses maintenance and resilience of the NEC Hudson River crossing, it would not increase rail capacity, which would remain constrained during peak periods at PSNY and elsewhere on the NEC between Newark, New Jersey and PSNY. A number of other substantial infrastructure capacity expansion projects must be completed along this stretch of the NEC before Amtrak and NJ TRANSIT can increase peak-period train frequency in this area of the NEC. As a result, the four tracks between Secaucus Junction Station and PSNY would continue to provide a capacity of 24 trains per hour in the peak hours in the peak direction.

The Preferred Alternative would increase operational reliability on the NEC between Newark and PSNY. With two tunnels and four tracks, the Preferred Alternative would reduce the likelihood of service disruptions resulting from repair work and night and weekend outages, as compared to the No Action Alternative, and would increase the resiliency and reliability of the NEC under the Hudson River. Further, the addition of two new tracks would provide redundancy, allowing Amtrak and NJ TRANSIT operational flexibility when trains are delayed on the tunnel tracks or when emergency repairs are needed. This service flexibility would improve the resilience and reliability of NEC train operations for Amtrak and NJ TRANSIT between Secaucus Junction Station and PSNY. In addition, by enabling Amtrak and NJ TRANSIT trains to more closely adhere to the defined train schedules, the overall reliability of operations in PSNY would be improved. Since platforms and tracks are shared by Amtrak, NJ TRANSIT, LIRR and, in the future, potentially Metro-North Railroad, this improvement would benefit all of the PSNY train services.

As described in Chapter 2, “Project Alternatives and Description of the Preferred Alternative” (Sections 2.5.4.5 and 2.5.6.9), the design of the Hudson River Tunnel and the rehabilitation of the North River Tunnel includes resilient infrastructure features. For example, the existing ballasted track and drainage systems in the North River Tunnel would be removed and replaced with a direct fixation track system and drainage system which would require less maintenance than is now required. The new Hudson River Tunnel would also have a direct fixation track system. In addition, the Preferred Alternative would include flood prevention infrastructure to lessen the potential for future flooding of both the new Hudson River Tunnel and the rehabilitated North River Tunnel during extreme weather events. As a result of these and other Project features, the four tunnel tracks would be more resilient than the existing North River Tunnel.

The Preferred Alternative would also address the Project goal of not precluding future trans-Hudson rail-capacity expansion projects and allowing for connections to future capacity expansion projects, including connections to station expansion projects in the area of PSNY. This would include the improvements for the proposed Gateway Program and would be consistent with and supportive of the NEC FUTURE program described above (see Section 5B.4.1.3).

5B.7.3 HUDSON-BERGEN LIGHT RAIL

The Preferred Alternative would cross under the HBLR tracks in Hoboken in a tunnel that would not involve any permanent modifications or changes to the HBLR tracks or operations. The ventilation facility in Hoboken for the Preferred Alternative would be adjacent to the HBLR right-of-way, but it would not interfere with or connect to the HBLR infrastructure. Therefore, the Preferred Alternative would not result in permanent impacts to the HBLR system.

5B.7.4 NEW YORK CITY SUBWAY SERVICE

Since the Preferred Alternative would not modify the level of existing NEC train service between New Jersey and PSNY, it would not increase ridership to or from PSNY where passengers transfer



between NEC passenger trains and NYCT subway trains. Therefore, the Preferred Alternative would not result in permanent impacts to the NYCT subway system.

5B.7.5 BUS SERVICE

Since the Preferred Alternative would not modify the level of existing NEC train service between New Jersey and PSNY, it would not affect trans-Hudson travel patterns or cause ridership changes to bus services in the study area. As noted above, with the Preferred Alternative, NEC service between New Jersey and New York would benefit from redundant capability and increased operational flexibility for future regular maintenance activities as well as during emergencies. The Preferred Alternative would also provide benefits to trans-Hudson bus services, by greatly reducing the need for commuters to transfer to buses when disruptions to NJ TRANSIT service occur.

5B.7.6 PATH SERVICE

As noted above, with the Preferred Alternative, NEC service between New Jersey and New York would benefit from redundant capability and increased operational flexibility for future regular maintenance activities as well as during emergencies. This would also benefit PATH service by greatly reducing the need for commuters to transfer to the PATH system when disruptions to NJ TRANSIT service occur.

5B.7.7 FREIGHT RAILROAD SERVICES

The Preferred Alternative would be constructed on a viaduct structure that would cross over Conrail and NYSW tracks, but not involve any permanent modifications to the tracks or train operations. Amtrak has coordinated with Conrail and NYSW regarding the design of the viaduct over the freight tracks and in response to comments from the freight railroads, has modified the viaduct to increase span length and vertical clearance for the freight railroads. The proposed bridge abutments for the new two-track rail bridge over the freight rail tracks would be outside of the freight rail right-of-way. The proposed new bridge would be a two-span bridge with a center pier that would straddle the line between the NYSW and Conrail rights-of-way and would provide adequate overhead clearance for the track, consistent with discussions between the Project Partners and the freight railroads during preparation of the EIS for this Project. The Project Sponsor will continue to coordinate with NYSW and Conrail regarding the proposed design as the Project advances. Therefore, the Preferred Alternative would not result in permanent impacts to freight railroad services in New Jersey.

5B.7.8 HUDSON RIVER MARITIME TRAFFIC

The Preferred Alternative would cross beneath the Hudson River in a tunnel constructed at a depth where it would not interfere with the navigable channel in the river. The only infrastructure that would remain in the river after completion of Project construction, would be located in the low-cover area described above, where the river bottom would be hardened. Modifications to the river bottom would require a permit from the USACE and must meet conditions imposed by the USACE to protect the navigation channel and maritime safety. This new hardened area of the river bottom would be designated as a no-anchor zone on navigation charts. With this designation in place, mariners would be aware of the anchorage restrictions in this area, and the Preferred Alternative would not result in permanent adverse impacts to maritime traffic in the Hudson River.

For a portion of this hardened river bottom area, the hardened ground would extend up to 2 feet above the bottom of the river, to provide additional cover above the tunnel crown. However, the hardened area of the river bottom would still be below the depth of the authorized navigation channel. The characteristics of the hardened area would be within the practical range of removal

by both hydraulic and mechanical type dredging equipment. Therefore, hardened area of the river bottom would not impede future dredging to maintain the navigational channel.

As noted above, with the Preferred Alternative, NEC service between New Jersey and New York would benefit from redundant capability and increased operational flexibility for future regular maintenance activities as well as during emergencies. The Preferred Alternative would also benefit trans-Hudson ferry service, by greatly reducing the need for commuters to transfer to ferries when disruptions to NJ TRANSIT service occur.

5B.7.9 WEST 30TH STREET HELIPORT

If the West 30th Street Heliport is not relocated from the Project site prior to construction of the Preferred Alternative, or if the heliport's fuel tank and fueling operations are moved to a new permanent location during Project construction, once construction of the waterfront portion of the Project alignment is complete, the number of helicopter fueling and landing pads in service and the associated passenger and fueling operations could resume and there would be no permanent impact to the heliport as a result of the Preferred Alternative.

5B.8 MEASURES TO AVOID, MINIMIZE, AND MITIGATE IMPACTS

The Project Sponsor will implement the following mitigation measures to avoid, minimize, or eliminate adverse impacts on transportation services during construction of the Preferred Alternative. The lead Federal agency will be responsible for ensuring that the Project Sponsor implements these measures, which will be identified in the ROD:

- Construction work in the vicinity of active passenger rail tracks on the NEC and near PSNY, including at the ladder tracks and yard tracks to the west of PSNY, will be carefully staged to minimize impacts to train operations. To the extent practicable, this work would be conducted during nights and weekends to avoid the need for daytime train outages.
- If any construction work at or near the Hoboken staging area is within the operating envelope of the HBLR, it would be scheduled during off-peak time periods to avoid impacts on HBLR services.
- Because of the proximity of the off-street construction access road to the HBLR tracks, any required special safety protocols would be coordinated with NJ TRANSIT and the operators of the HBLR.
- Traffic mitigation measures, including an MPT plan, will be implemented (as described in Chapter 5A, "Traffic and Pedestrians," Section 5A.9) to minimize delays to traffic on roads where Project construction would occur or that would be used as truck routes for construction traffic. This would address potential impacts to bus service on those roadways.
- The Project Sponsor will coordinate with NYCDOT's Office of Construction Mitigation and Coordination regarding the need to relocate an approximately 250-foot-long area on the south side of West 30th Street in New York that is designated for on-street bus parking spaces and currently used by tour and charter buses.
- Construction activities at the new viaduct over the Conrail and NYSW right-of-way will be scheduled in coordination with the freight rail companies to avoid impacts on their operations.
- During construction in the Hudson River, safety measures will be followed to protect maritime commerce and boating safety, including notifications to mariners via the USCG, installation of lighting on barges and the cofferdam, and AIS transponders affixed to barges and the cofferdam to enable electronic locating of the cofferdam and tracking of the barges.



- For temporary construction-period impacts to the West 30th Street Heliport, the Project Sponsor will determine measures to mitigate these impacts in coordination with the heliport operator and HRPT, the owner of the heliport property, and would pay for costs associated with the temporary relocation of fueling facilities or landing pads, as applicable.

The Preferred Alternative would not result in any construction-period impacts to rail passenger service (i.e., intercity rail passenger service and commuter rail services); HBLR and NYCT subway service; freight rail; or ferry services. In addition, the Preferred Alternative would result in improved resiliency and reliability of Amtrak and NJ TRANSIT NEC passenger rail services between Secaucus Junction Station and PSNY, which would be a benefit. Therefore, no mitigation measures are required for any of these transportation services. *