

4.1 INTRODUCTION

In this Final Environmental Impact Statement (FEIS), the Federal Railroad Administration (FRA), NJ TRANSIT, and the Port Authority of New York and New Jersey (PANYNJ) consider alternatives for and the impacts of the Hudson Tunnel Project on the human and natural environment. This chapter of the EIS describes the framework for that analysis, including: a description of the Project that is analyzed, including the alternatives evaluated, the Project setting, and the specific Project site considered; and the analytical approach, including the conditions analyzed, the study areas used, assumptions about the affected environment in the future at the time of Project construction and operation, and the analysis years considered. It also provides a description of the format of this EIS.

FRA and NJ TRANSIT, as joint lead agencies, prepared the Draft EIS (DEIS). As explained in Section 1.1.2 of Chapter 1, "Purpose and Need," the PANYNJ became a joint lead agency for the development of the FEIS after the public comment period on the DEIS. As such, the PANYNJ, while engaged in the Project as a Project Partner, did not participate in the original alternatives and environmental analyses, including impact assessment methodology development, alternatives development and Preferred Alternative identification, and study areas or analysis years selection. The PANYNJ, in its role as Project Sponsor, has accepted and relied on the evaluations and conclusions presented in this FEIS.

This chapter reflects the following changes made since the DEIS for the Hudson Tunnel Project:

- It includes clarifying information in the description of the No Action Alternative and Preferred Alternative.
- It also includes clarifying information in the description of the Project setting and new information on the three truck routes analyzed in this FEIS.
- The chapter incorporates updated information on the future affected environment.
- The chapter provides information on updated guidance documents and methodologies used in preparing this FEIS.

This chapter contains the following sections:

- 4.1 Introduction
- 4.2 Hudson Tunnel Project for Analysis
 - 4.2.1 Alternatives for Analysis
 - 4.2.2 Project Setting
 - 4.2.3 Project Site
- 4.3 Approach for Analysis
 - 4.3.1 Conditions Analyzed
 - 4.3.2 Study Areas
 - 4.3.3 Affected Environment in the Future
 - 4.3.4 Analysis Methodology
- 4.4 Format of this EIS



4.2 HUDSON TUNNEL PROJECT FOR ANALYSIS

4.2.1 ALTERNATIVES FOR ANALYSIS

The CEQ NEPA regulations require the consideration of a reasonable range of alternatives that would meet the purpose and need for a project, as well as consideration of a No Action (No Build) Alternative. This EIS considers the impacts of the No Action Alternative and one Build Alternative, the Preferred Alternative. Chapter 2, “Project Alternatives and Description of the Preferred Alternative,” Section 2.3, describes the alternatives evaluation process and how FRA and NJ TRANSIT identified the Preferred Alternative.

4.2.1.1 NO ACTION ALTERNATIVE

The No Action Alternative represents the conditions that would exist in the analysis year without implementation of the Preferred Alternative. The purpose of the No Action Alternative in the EIS is to provide a basis against which the effects of the Preferred Alternative can be compared. As described in Chapter 2, “Project Alternatives and Description of the Preferred Alternative,” the No Action Alternative assumes that the ongoing maintenance in the North River Tunnel will continue, and no new passenger rail tunnel under the Hudson River would be constructed. As part of the ongoing maintenance, Amtrak will implement the North River Tunnel Interim Reliability Improvements Program, a program to advance critical repair work during short-term tunnel outages to improve reliability and safety in the North River Tunnel in the near term, before complete rehabilitation of the North River Tunnel would occur as proposed in the Hudson Tunnel Project (see Chapter 2, Section 2.4). It should be noted that despite the ongoing maintenance that would continue in the No Action Alternative, damage to the North River Tunnel caused by Superstorm Sandy will continue to degrade systems in the tunnel. This deterioration combined with the North River Tunnel’s age and intensity of use will likely lead to increasing instability of rail operations in the tunnel, and may lead to its eventual closure. However, for purposes of analysis in this EIS, FRA and NJ TRANSIT have assumed that the North River Tunnel will remain functional and in operation at least through the FEIS analysis year of 2033. For more information on the No Action Alternative, please see Chapter 2, Section 2.4.

4.2.1.2 PREFERRED ALTERNATIVE

The Preferred Alternative is described in Chapter 2, “Project Alternatives and Description of the Preferred Alternative,” and Chapter 3, “Construction Methods and Activities.” As detailed there, the Preferred Alternative includes a new two-track tunnel, the Hudson River Tunnel, together with rehabilitation of the existing tunnel, the North River Tunnel. The Hudson River Tunnel would have two new tracks extending from the Northeast Corridor (NEC) in New Jersey, continuing beneath the Palisades and the Hudson River to connect to the existing approach tracks that lead into Penn Station New York (PSNY). It would also include related infrastructure, such as fan plants. While the Preferred Alternative would double the number of tracks between approximately Frank R. Lautenberg Secaucus Junction Station and the PSNY approach tracks at A Yard, it would serve to address maintenance and resilience of the NEC Hudson River crossing and 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. Ultimately, an increase in peak-period service between Newark Penn Station and PSNY cannot be realized until other substantial infrastructure capacity improvements are built, such as an expansion at PSNY and a new bridge over the Hackensack River to add capacity to the NEC at that pinch point. Therefore, this EIS assumes that upon completion of the Preferred Alternative, Amtrak and NJ TRANSIT would operate the same number of trains in peak periods using the four tracks beneath the Hudson River as in the No Action Alternative, in which only two tracks would be available.

4.2.2 PROJECT SETTING

The Preferred Alternative would be approximately 4.5 miles long, extending from Secaucus, New Jersey to Manhattan. Along that route, the Preferred Alternative would pass through several different topographies, including the following:

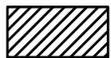
- The Meadowlands: a large system of wetlands in northeastern New Jersey, along the lower reaches of the Hackensack and Passaic Rivers just north of those rivers' termini at Newark Bay. While wetlands still predominate in this area, large swaths of the Meadowlands in the vicinity of the Preferred Alternative's alignment have been drained and converted to industrial use in the municipalities of Secaucus and North Bergen.
- The Palisades: A steep ridge with cliffs along both sides, running north-south along the western side of the lower Hudson River in New Jersey and New York. In the vicinity of the Preferred Alternative's alignment, where the Palisades ridge reaches a height of approximately 300 feet above sea level, the crest of the ridge is densely developed with mixed commercial and residential neighborhoods in the municipalities of North Bergen, Union City, and Weehawken.
- New Jersey Hudson River waterfront: Low-lying waterfront area to the east of the Palisades in the towns of Hoboken and Weehawken. This area was constructed predominantly on fill material and is developed with a mix of residential, commercial, and industrial areas.
- Hudson River: A major river that forms a portion of the border between New Jersey and New York that is heavily used for waterborne commerce and recreational maritime activities. The river is approximately one mile in width at the point where the alignment of the Preferred Alternative crosses beneath it.
- West Midtown, Manhattan: Low-lying waterfront area on the eastern shore of the Hudson River in New York City. Closest to the river, this area was constructed predominantly on fill material and is developed with a mix of commercial, industrial, and residential uses.

4.2.3 PROJECT SITE

The Project site analyzed in this EIS consists of all areas where the Preferred Alternative would have construction activities or permanent Project features. The Project site is depicted in **Figures 4-1, 4-2, and 4-3**. The Project site consists of the following components:

- The *New Jersey surface alignment*, the proposed new tracks at and along the NEC tracks from approximately County Road in Secaucus (east of Frank R. Lautenberg Secaucus Junction Station), to the tunnel portal east of Tonnelle Avenue (U.S. Routes 1 and 9) in North Bergen. The surface alignment also includes a new access roadway along the south side of the alignment for construction and maintenance access to the alignment. Today, this section of the Project site is largely within the Amtrak right-of-way and also contains portions of parking areas for the industrial uses situated along the southern side of the NEC tracks. The surface alignment would cross over Secaucus Road, small waterways in the Meadowlands, and freight rail tracks operated by Conrail and the New York, Susquehanna & Western Railway (NYSW); and beneath a Public Service Electric and Gas (PSE&G) utility easement. It would pass beneath Tonnelle Avenue.
- The *Tonnelle Avenue staging area*, consisting collectively of several sites on both sides of Tonnelle Avenue at and south of the existing NEC. Today, one of these sites is used as a bus storage facility and the other is a vacant lot; both are owned by NJ TRANSIT.
- The alignment for the *Palisades tunnel* segment, extending from the steep slope of the Palisades at Tonnelle Avenue to the Hoboken staging and fan plant site. This segment of the alignment would be a tunnel, beginning at a portal in the slope of the Palisades and continuing

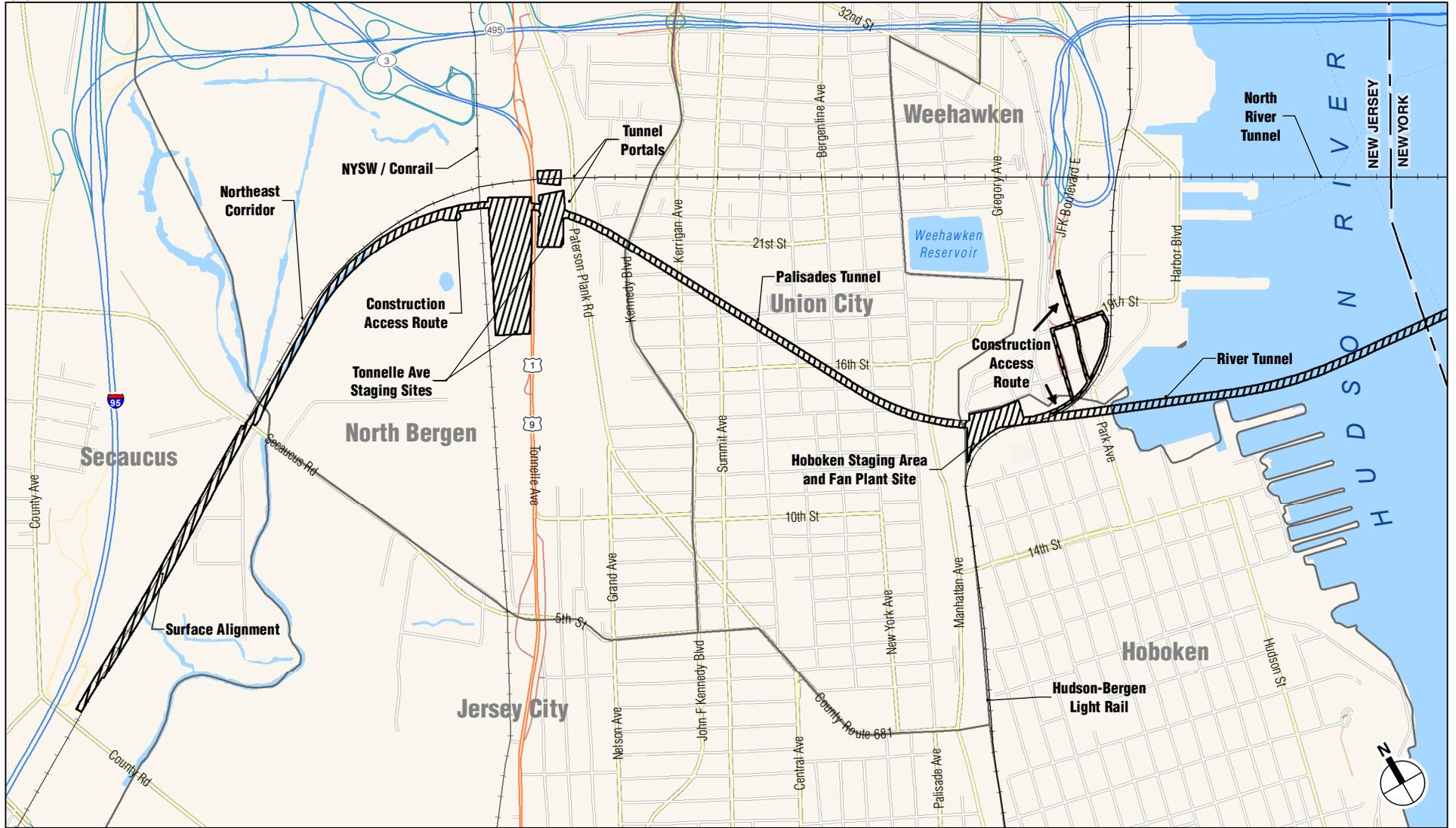


 Project Site

 Existing Northeast Corridor



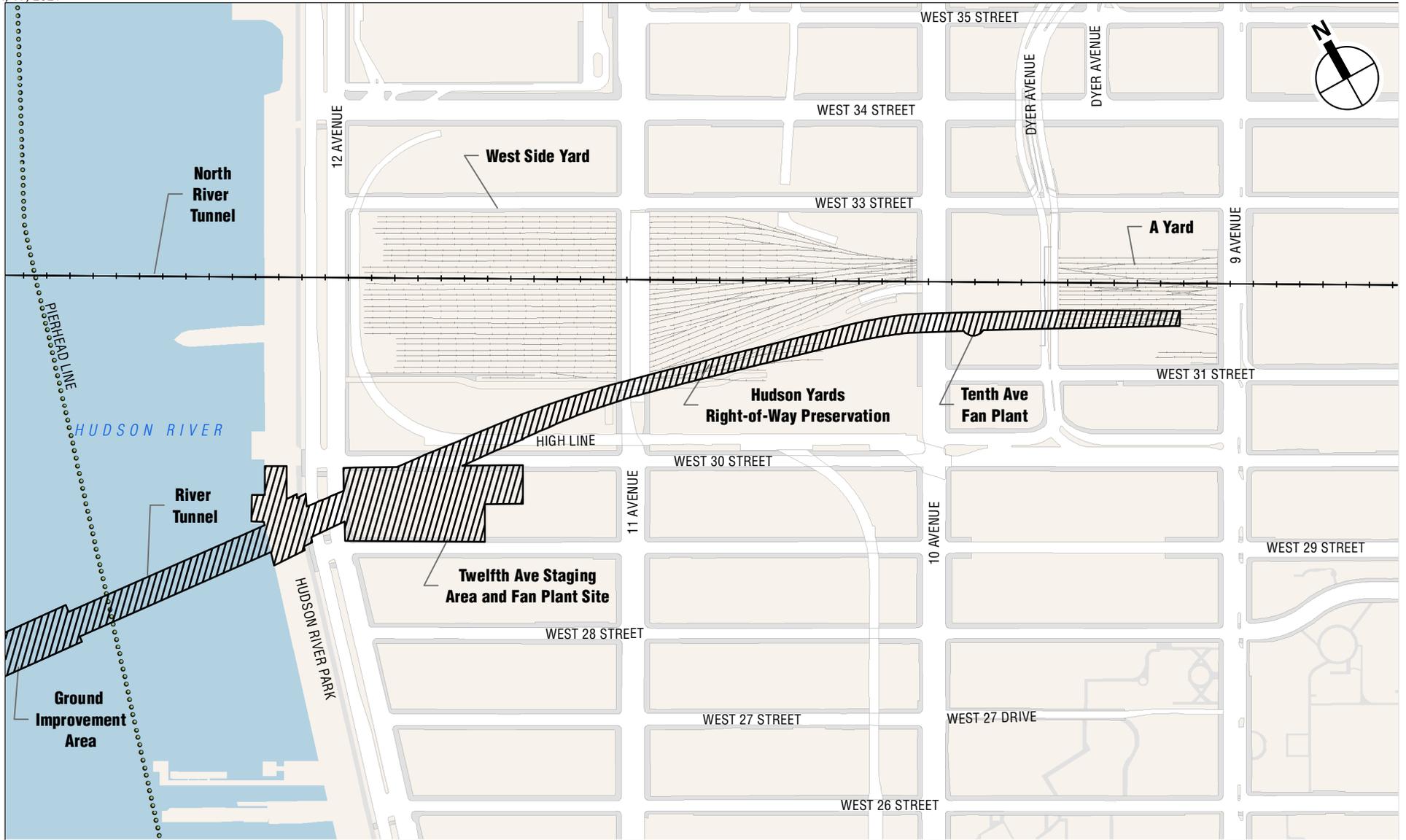
Project Site Overview
Figure 4-1



-  Project Site
-  Municipal Boundaries



Project Site in New Jersey
Figure 4-2

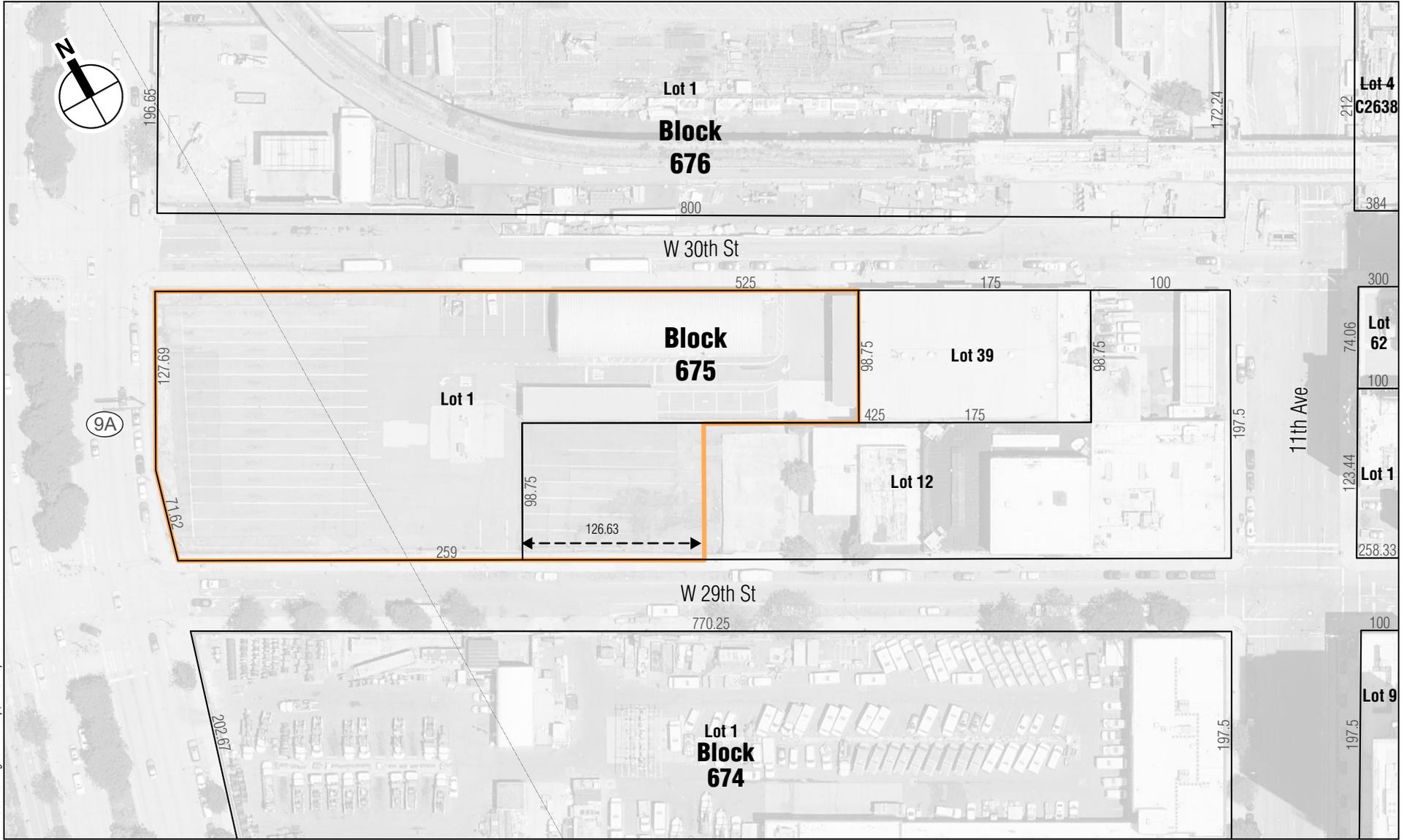


 Project Site

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beneath the Palisades through hard rock approximately 80 to 270 feet beneath the mixed-use neighborhoods atop the Palisades.

- The *Hoboken staging area and Hoboken fan plant site* on the Hoboken-Weehawken border at the base of the eastern slope of the Palisades. This site is primarily in Hoboken but has small portions in Weehawken and Union City. The staging area is on the south side of West 18th Street across from a residential neighborhood in Weehawken known as the Shades. Today, the staging area is a vacant lot owned by NJ TRANSIT. This part of the Project site also includes truck access routes on a combination of local streets and an off-street haul route to connect to the staging area. Three potential truck routes are evaluated in this EIS. All three would run along the Hudson-Bergen Light Rail (HBLR) right-of-way as well as existing built streets in Weehawken:
 - Option 1, a combination of the Park Avenue southbound service road (along the west side of the Park Avenue bridge over the HBLR tracks) and the Willow Avenue northbound service road (on the east side of the Willow Avenue bridge over the HBLR tracks);
 - Option 2, using only the Willow Avenue service road, on both sides of the Willow Avenue bridge; and
 - Option 3, using a longer off-street haul route along the HBLR right-of-way to 19th Street, avoiding Willow and Park Avenues altogether.
- The alignment for the *river tunnel* segment, the segment of the new Hudson River Tunnel extending from the Hoboken staging and fan plant site, beneath the Hudson River, to the Twelfth Avenue staging and fan plant site in Manhattan. In New Jersey, the river tunnel segment would pass beneath the HBLR right-of-way and buildings, streets, and parks in the New Jersey waterfront area. Beneath the Hudson River, the river tunnel would pass beneath the Federal navigation channel within the river. In New York, the river tunnel segment would pass through the underground foundation of the Manhattan Hudson River bulkhead and beneath Hudson River Park, the West 30th Street Heliport, and Twelfth Avenue (New York State Route 9A).
- The *low-cover area* in the Hudson River, above the tunnel near the eastern edge of the main navigation channel, where in-water ground improvement work would be conducted in the river bed for the tunnel alignment.
- The *Twelfth Avenue staging area and Twelfth Avenue fan plant site* on the west end of the block between West 29th and West 30th Streets, Twelfth Avenue and Eleventh Avenue (Manhattan Block 675). This site consists of a vacant privately owned property (Block 675 Lot 1) and a portion of another privately owned property (Block 675 Lot 12) that is currently part of a construction site for an adjacent new building. **Figure 4-4** shows the Twelfth Avenue staging site and the tax lots on Block 675. As shown in the figure, the Project site includes the western 126 feet of Lot 12.
- The alignment for the *Manhattan tunnel*, extending from the Twelfth Avenue staging area to the underground PSNY approach tracks at approximately Ninth Avenue, and including areas in West 30th Street and Tenth Avenue as well as the concrete tunnel box constructed as part of the Hudson Yards Right-of-Way Preservation Project (see Section 4.3.3 below).
- The site of the *Tenth Avenue fan plant*, in the vicinity of Tenth Avenue between West 31st and West 33rd Streets.
- The *North River Tunnel*, from its portal east of Tonnel Avenue in North Bergen, New Jersey to its portal at Tenth Avenue, west of PSNY in New York.



 Twelfth Avenue Staging Site



Tax Lots on Twelfth Avenue Staging Site
Figure 4-4

4.3 APPROACH FOR ANALYSIS

4.3.1 CONDITIONS ANALYZED

This EIS analyzes the effects of the Preferred Alternative on its environmental setting both during construction and once completed. Since construction and operation of the Preferred Alternative would take place in the future, the environmental setting is not the current environment, but instead the future environment as it would exist during Project construction and at Project completion. The technical analyses in this EIS therefore consider the following:

- **Affected Environment:**
 - **Affected Environment: Existing Conditions:** This section of each analysis describes existing conditions today. Throughout the FEIS, FRA and NJ TRANSIT updated this information to reflect current conditions in the Project study areas.
 - **Affected Environment: Future Conditions:** This section of each analysis describes the affected environment as it will be in the future, independent of the No Action or Preferred Alternative (sometimes referred to as the “No Action condition” or the “future affected environment”). This section of the evaluation considers the other initiatives and projects reasonably anticipated to occur in the Project study areas as well as the changes likely to occur because of growth in population and traffic or other ongoing trends. Section 4.3.3 below outlines the changes this EIS incorporates as part of the analysis of the future affected environment.
- **Impacts of the Project Alternatives:**
 - **Impacts of the No Action Alternative:** This section of each analysis describes impacts of the No Action Alternative, which is the alternative in which the Preferred Alternative is not implemented. The No Action Alternative serves as a baseline against which the effects of the Preferred Alternative can be measured. As noted above, for purposes of this EIS, FRA and NJ TRANSIT have assumed that in the No Action Alternative the North River Tunnel will remain functional and in operation at least through the FEIS analysis year of 2033.
 - **Construction Impacts of the Preferred Alternative:** This section considers the temporary impacts of the Preferred Alternative during construction, based on preliminary design information about construction that is presented in Chapter 3, “Construction Methods and Activities.” For most topics in this EIS, the analysis discusses the effects of construction over the full construction period. For certain quantified analyses, such as traffic, air quality, and noise, the analysis considers the impacts of construction activities for a specific time period that represents a period of peak construction activity or worst-case conditions during construction. The specific period considered is specified in the relevant chapters.
 - **Permanent Impacts of the Preferred Alternative:** This section considers the impacts of the Preferred Alternative once it is complete and both the North River Tunnel and the new tunnel are in operation. This analysis considers conditions in the year 2033, the year when the Preferred Alternative would be complete based on the conceptual Project schedule. As discussed earlier, this EIS assumes that upon completion of the Preferred Alternative, Amtrak and NJ TRANSIT would operate the same number of trains during peak periods as in the No Action Alternative, because of capacity constraints on the NEC that limit the number of trains that can operate between Newark, New Jersey and PSNY.
- **Measures to Avoid, Minimize, or Mitigate Impacts:**
 - This section of each analysis identifies measures that the Project Sponsor will undertake to minimize, avoid, or mitigate adverse temporary construction impacts or permanent



operational impacts of the Preferred Alternative. FRA and NJ TRANSIT identified such measures for adverse impacts wherever practicable. The lead Federal agency will be responsible for ensuring that the Project Sponsor implements these measures, which will be identified in the Record of Decision.

4.3.2 STUDY AREAS

Each technical analysis conducted for the EIS considered the Project site outlined above and a study area representing the area where the Preferred Alternative has the potential for community or environmental effects during construction or operation. The study areas differ for different resource and analysis areas because the type and range of potential impacts varies. For example, the study area for visual and aesthetic considerations encompasses areas from which the construction activities or permanent elements of the Preferred Alternative may be visible, while the study area for traffic consists of roadway intersections near the Project site where traffic related to the Preferred Alternative's construction may adversely affect local traffic conditions. Each chapter of this EIS describes the study area used for the specific analysis discussed in that chapter.

For most analyses, no study area was included for the rehabilitation work that would occur within the North River Tunnel, since this would occur well below the surface within an existing tunnel and does not have the potential to adversely affect surface uses above. The rehabilitation activities that would occur deep within the rock of the Palisades in the existing tunnel would not cause noticeable vibration at the top of the Palisades because they do not include major vibration-producing equipment such as pile drivers, blasting, or hoe rams (see Chapter 12B, "Vibration," Section 12B.6.2.5). The analyses in this EIS do consider the rehabilitation work that would occur outside the tunnel, such as at the Tonnel Avenue staging site. Similarly, most analyses do not have a study area for the operation of the rehabilitated North River Tunnel, since conditions would be similar to existing conditions with respect to rail operations.

4.3.3 AFFECTED ENVIRONMENT IN THE FUTURE

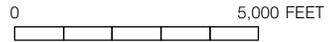
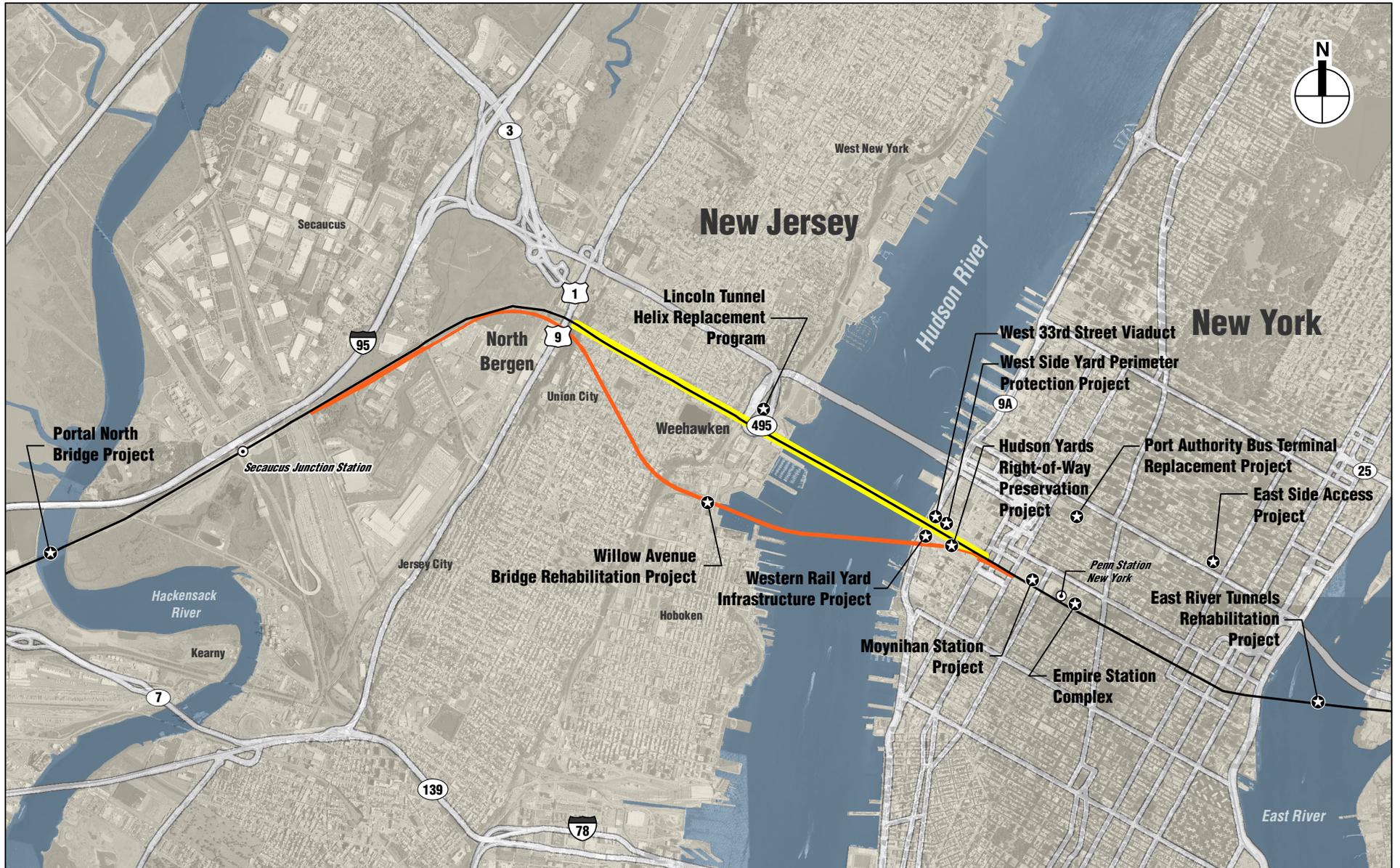
As noted above, this EIS evaluates the affected environment as it will be in the future, independent of the No Action or Preferred Alternative (sometimes referred to as the "No Action condition," or the "future affected environment"). Since completion of the DEIS, some of the projects FRA and NJ TRANSIT identified in the Project study area have advanced, some are now complete, and some are delayed. In addition, NJ TRANSIT and the PANYNJ have identified several new projects that were not considered in the DEIS.

This section of the evaluation considers the other initiatives and projects reasonably anticipated to occur in the Project study area, noting those that are newly identified since publication of the DEIS. They include the following projects:

4.3.3.1 TRANSPORTATION PROJECTS

A number of future projects are currently being implemented or planned that will affect the PSNY rail complex and rail operations through PSNY. In addition, other transportation improvements are planned or proposed in and near the Project study areas. These projects will occur independently of the Hudson Tunnel Project and therefore can be assumed to be implemented with the No Action Alternative (as well as with the Preferred Alternative for the Project) prior to the EIS analysis year of 2033. They include the following (see **Figure 4-5**):

- **Hudson Yards Right-of-Way Preservation Project:** Amtrak is currently 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-



Key Future Transportation Improvements
Figure 4-5

scale redevelopment known as Hudson Yards to be built on a platform above the Metropolitan Transportation Authority (MTA) Long Island Rail Road (LIRR) John D. Caemmerer West Side Yard. Construction is complete on the section of the concrete casing between Tenth and Eleventh Avenues and beneath 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 (expected in 2026), construction activities for the Hudson Tunnel Project would involve finishing the casing with tracks, communications, signals, and other railroad systems.

- **Western Rail Yard Infrastructure Project (new for the FEIS):** FRA is the lead Federal agency currently preparing an EIS for the Western Rail Yard Infrastructure project, which consists of the final section of the Hudson Yards Right-of-Way Preservation Project and the platform above the concrete casing and railyard that will support the Hudson Yards development above. The anticipated completion date for this project is 2026.¹
- **West Side Yard Perimeter Protection:** During Superstorm Sandy, flood waters entered the West Side Yard from the Hudson River, damaging critical infrastructure there including trackbeds, switches, and signals, and entering the North River Tunnel's two tubes from their Manhattan portal at Tenth Avenue and their ventilation shaft at Eleventh Avenue. To protect this infrastructure from future flooding, LIRR is planning a flood protection project that will include perimeter protection and drainage improvements around the West Side Yard, which also encompasses the North River Tunnel's vent shaft and portal. For perimeter protection, a new, permanent wall is proposed, with additional deployable barriers to be implemented across driveways and access points in advance of storm events. This project will protect not only the West Side Yard, but also the other existing railroad infrastructure connected to the yard, including the portal and ventilation shaft for the North River Tunnel, the smaller rail storage yards east of Tenth Avenue, and the tracks and platforms at PSNY. The new perimeter wall will also protect the new portal for the Hudson River Tunnel and the Tenth Avenue fan plant, which would be located above the A Yard tracks. LIRR plans to construct the perimeter protection project in phases beginning in 2022 with estimated completion in 2026.
- **East River Tunnels Rehabilitation:** Two of the four tubes of the East River Tunnels were flooded during Superstorm Sandy, with water reaching the tunnel roofs (i.e., crowns) at mid-river. This caused extensive damage within the tunnels. While the tunnels were repaired and brought back to service quickly after the storm, like the North River Tunnel, these tunnels require complete rehabilitation. Amtrak will rehabilitate the tunnels one tube at a time to minimize disruption to rail service, but closure of one tube will nonetheless require services changes for Amtrak, LIRR, and NJ TRANSIT. Amtrak is not planning to rehabilitate the East River Tunnels at the same time as rehabilitation of the North River Tunnel.
- **Moynihan Station Project:** With the Moynihan Station Project, the Moynihan Station Development Corporation, a subsidiary of Empire State Development (ESD), has created a new passenger train hall within the historic James A. Farley Post Office Building (Farley

¹ On November 20, 2019, FTA approved the request for a Class II Categorical Exclusion (CE) pursuant to 23 CFR § 771.118(d) for construction of Section 3 of the Hudson Yards Concrete Casing Project (final section of the Hudson Yards Right-of-Way Preservation Project). If FRA does not approve the Western Rail Yard Infrastructure Project or if the developer does not advance it, Amtrak may continue to advance the final section of the Hudson Yards Right-of-Way Preservation Project under the CE approved by FTA. On November 14, 2014, FRA issued a Finding of No Significant Impact based on FRA and Amtrak's preparation of a Supplemental Environmental Assessment (EA) in August 2014 to examine the extension of the concrete casing into the Western Rail Yard, extending from underneath the Eleventh Avenue bridge to 30th Street. The portion of the extension underneath the Eleventh Avenue bridge has been completed by Amtrak.



Building) across Eighth Avenue from PSNY. 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 the existing PSNY platforms and tracks. The train hall opened to the public on January 1, 2021. The project is currently developing commercial space in the Farley Building, including transit-oriented and destination retail as well as other commercial uses; this development is scheduled for completion in 2026.

- **LIRR East Side Access and Metro-North Penn Station Access:** MTA is currently completing the 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.
- **Portal North Bridge (Portal Bridge Replacement):** Amtrak and NJ TRANSIT will replace this two-track movable bridge across the Hackensack River between Newark Penn Station and 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 replacement project are complete and procurement is under way for major construction.
- **Lincoln Tunnel Helix Replacement Program (new for the FEIS):** The PANYNJ is planning the Lincoln Tunnel Helix Replacement Program to replace the curved approach ramp between Route 495 and the Lincoln Tunnel in New Jersey. The schedule for this work has not yet been set.
- **Port Authority Bus Terminal (PABT) Replacement:** The PANYNJ is planning to replace the PABT with a new facility that includes space for bus storage and staging, including certain intercity curbside buses that operate in the vicinity of the current terminal; open space/green space; and commercial, retail, and residential development. The initial phases addressing the staging and storage facilities, the main terminal and associated facilities are planned for completion in 2032. The existing bus terminal would continue to operate while the new terminal is under construction. The PABT Replacement Program is currently in the planning and environmental review stage, with FTA as lead agency.
- **Willow Avenue Bridge Rehabilitation (new for the FEIS):** Hudson County, New Jersey, intends to rehabilitate the Willow Avenue bridge over the HBLR between Hoboken and Weehawken. No information is available on the schedule for this work.
- **West 33rd Street Viaduct (new for the FEIS):** The City of New York will regrade West 33rd Street between Eleventh and Twelfth Avenues to correspond with the grade of the Hudson Yards development, which will be on a platform above the West Side Yard.
- **Empire Station Complex (new for the FEIS):** ESD has proposed to adopt a General Project Plan to facilitate creation of a modern, transit-oriented commercial district centered on Penn Station. This project, known as the Empire Station Complex, would result in new commercial buildings on up to eight development sites surrounding Penn Station. ESD is currently preparing an EIS in accordance with the New York State Environmental Quality Review Act

to evaluate the proposed project. The Empire Station Complex project would create a revenue source to support transit and public realm improvements in the PSNY area.

4.3.3.2 DEVELOPMENT PROJECTS

The Project area both in New Jersey and near PSNY in New York is undergoing redevelopment with new buildings. These are described in more detail in Chapter 6A, “Land Use, Zoning, and Public Policy,” in Section 6A.4, “Affected Environment: Future Conditions.”

4.3.3.2.1 New Jersey

In Weehawken, large-scale waterfront redevelopment is ongoing. In the Lincoln Harbor Redevelopment Area, vacant parcels are being redeveloped with a mix of retail, office, and residential uses similar to the other new waterfront properties in Weehawken.

In Hoboken, NJDEP will complete the Rebuild By Design Project, an initiative to reduce frequent flooding in Hoboken due to major storm surges, high tides, and heavy rainfall events. That project will include numerous green infrastructure elements, such as landscaped berms and levees and bioretention basins, to resist and delay flooding. Close to the Project site, the Rebuild by Design Project will include a flood wall along the east side of the HBLR alignment in Weehawken, crossing to the west side of the HBLR just south of 19th Street.

Since completion of the DEIS, a private developer has advanced an additional future residential development project in the Project study area near the Hoboken staging area. This development, referred to as Hoboken Heights, is currently under construction on Manhattan Avenue overlooking the proposed Hoboken staging area and ventilation facility. It will include 55 residential units.

4.3.3.2.2 New York

In New York, extensive development is occurring in West Midtown in the Project area as a result of recent public policy initiatives in the area. Many developments have recently been completed, and many other sites are currently under construction or planned for redevelopment with high-density developments. North of West 30th Street, three major redevelopment projects, Western Rail Yard, Eastern Rail Yard, and Manhattan West, are creating a new high-rise neighborhood on platforms above the West Side Yard and other subsurface tracks west of PSNY. These projects are collectively referred to as Hudson Yards. While much of the redevelopment between Tenth and Eleventh Avenues (Eastern Rail Yard project) has been completed, one remaining high-rise office building is under construction, to be complete in 2022. The Western Rail Yard component, between Eleventh and Twelfth Avenues, will include eight towers and open space, with a total of approximately 6.2 million square feet of residential, office, retail, and school space. This project has an estimated completion date of in 2029, following completion of the Western Rail Yard Infrastructure Project (described in Section 4.3.3.1). In addition, east of Tenth Avenue, a third project on a platform spanning the subsurface railyard below, Manhattan West, will include four towers with approximately 4.7 million square feet of office, residential, and retail space to be completed by 2026. Around the Hudson Yards redevelopment, many other sites are currently under construction or proposed for future construction with residential, retail, or commercial (i.e., office) space.

In addition, the eastern end of the block between West 29th and West 30th Streets and Twelfth and Eleventh Avenues (Manhattan Block 675), which is the same block where the Twelfth Avenue staging site for the Preferred Alternative would be, is currently in construction with two separate high-rise residential buildings that will be complete in 2022. One of these projects, 601 West 29th Street, may also include a new station for the New York City Fire Department (FDNY) Emergency Medical Services (EMS) on West 29th Street, to replace a station currently located on West 23rd Street; if the EMS station is not included in that project, this portion of the site would be developed with a one-story garage. The site of the potential EMS facility or garage, the westernmost portion



of Lot 12 on Block 675, is part of the Twelfth Avenue staging site for the Preferred Alternative for the Hudson Tunnel Project.

At the New York waterfront, Hudson River Park will continue to be improved in the future. This park is being gradually developed as funding becomes available. In addition, a 2013 amendment to the Hudson River Park Act (the New York State legislation that established the park) called for relocation of the West 30th Street Heliport, which is located within the boundaries of Hudson River Park, to a floating structure between West 29th and West 32nd Streets. The exact timing of the relocation is unknown.

In January 2021, New York State Governor Cuomo announced a plan to extend the elevated High Line park approximately 1,200 feet, from its current terminus at Tenth Avenue and 30th Street to an existing walkway within the Manhattan West development that leads to Moynihan Train Hall. This project would not intersect with the alignment for the Hudson Tunnel Project but would be nearby. This project is new to this FEIS.

Since FRA and NJ TRANSIT completed the DEIS, a number of development projects in New York that were included in the DEIS description of the future affected environment have been completed. These projects are listed in **Table 4-1**.

Table 4-1
New York Development Projects
Described in the DEIS that are Now Complete

Project	Description
550 West 29th Street, New York, NY	Mixed-use development with 32 dwelling units and 4,500 sf of retail space, under construction at the time the DEIS was prepared.
520 West 30th Street, New York, NY	Mixed-use development with 179 dwelling units and 13,000 sf of retail, under construction at the time the DEIS was prepared.
515 West 29th Street, New York, NY	Mixed-use development with 12 dwelling units and 1,700 sf of retail, under construction at the time the DEIS was prepared.
411 Ninth Avenue, New York, NY	Mixed-use development with 12 dwelling units and 1,200 sf of retail, under construction at the time the DEIS was prepared.
461 West 34th Street (428 Tenth Avenue), New York, NY	Commercial development to include a 399-room hotel, under construction at the time the DEIS was prepared.
444 Tenth Avenue, New York, NY, New York, NY	Commercial development to include a 111-room hotel, under construction at the time the DEIS was prepared.
55 Hudson Yards, New York, NY, New York, NY	Commercial development to include 1.2 million sf of office space, under construction at the time the DEIS was prepared.
441 Ninth Avenue, New York, NY	Commercial development to include expansion of an existing 8 story, 350,000 sf office building to add an additional 17 stories and 350,000 sf of office space, under construction at the time the DEIS was prepared.
505-511 West 27th Street, New York, NY	Commercial development to include 9,740 sf of gallery space.
High Line Tenth Avenue spur, extending along 30th Street between Tenth and Twelfth Avenues	Completion of repurposed High Line with open space amenities

4.3.4 ANALYSIS METHODOLOGY

In preparing the analyses presented in this EIS, FRA and NJ TRANSIT followed FRA's *Procedures for Considering Environmental Impacts* as well as other applicable guidance and regulations. Each chapter of the EIS outlines the regulations that apply to the analysis and the methodologies used for the assessment.

Whenever applicable and practicable, FRA and NJ TRANSIT conducted the analyses in accordance with local environmental review policies and guidance. In this way, the EIS will fulfill any applicable state and local environmental review requirements to support review of the document by state and local agencies from which permits or approvals are required for the Project. The analysis of Project components and elements located in New York City complies with the guidance of the *CEQR Technical Manual*. The *CEQR Technical Manual* was developed by the City of New York specifically for evaluation of the environmental impacts of projects proposed in New York, based on local conditions and issues. These criteria for adverse impacts are well suited for evaluation of effects in New York City and were therefore also used for purposes of NEPA, unless specific, more stringent NEPA criteria exist.

Since publication of the DEIS, new guidance documents have been promulgated; the FEIS has been prepared in accordance with the new methodologies as follows:

- FRA and NJ TRANSIT conducted the noise analysis for the DEIS following procedures described in the FTA guidance manual, Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06, May 2006. After FRA and NJ TRANSIT completed the DEIS noise and vibration analyses and issued the DEIS, FTA published a revised guidance manual (Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123, September 2018). FRA, NJ TRANSIT, and the PANYNJ have revised the noise analysis in Chapter 12A, "Noise," using the updated methodology.
- FRA and NJ TRANSIT conducted analysis of Project components and elements located in New York City in compliance with the guidance of the 2014 *CEQR Technical Manual*. After FRA and NJ TRANSIT completed these analyses and issued the DEIS, New York City published a revised guidance manual, the 2020 *CEQR Technical Manual*. FRA and NJ TRANSIT revised the analysis for the FEIS using the updated methodology.

Appendix 4 includes information on where the analyses normally provided in a CEQR analysis can be found in this NEPA EIS.

4.4 FORMAT OF THIS EIS

Each subsequent chapter of this EIS evaluates a different technical area. For each technical area, the EIS describes the methodology used to conduct the relevant technical analysis and discusses the affected environment in the existing conditions, the affected environment as it will be in the future analysis year for the Preferred Alternative, the effects of the No Action Alternative, the temporary construction impacts of the Preferred Alternative, and the operational, permanent impacts of the Preferred Alternative. These include the following chapters:

- Chapter 5A: Traffic and Pedestrians
- Chapter 5B: Transportation Services
- Chapter 6A: Land Use, Zoning, and Public Policy
- Chapter 6B: Property Acquisition
- Chapter 7: Socioeconomic Conditions
- Chapter 8: Open Space and Recreational Resources
- Chapter 9: Historic and Archaeological Resources



- Chapter 10: Visual and Aesthetic Resources
- Chapter 11: Natural Resources
- Chapter 12A: Noise
- Chapter 12B: Vibration
- Chapter 13: Air Quality
- Chapter 14: Greenhouse Gas Emissions and Resilience
- Chapter 15: Geology and Soils
- Chapter 16: Contaminated Materials
- Chapter 17: Utilities and Energy
- Chapter 18: Safety and Security
- Chapter 19: Public Health and Electromagnetic Fields (EMFs)

Following those chapters, this EIS also includes the following additional chapters:

- Chapter 20: Indirect and Cumulative Effects
- Chapter 21: Coastal Zone Consistency
- Chapter 22: Environmental Justice
- Chapter 23: Commitment of Resources
- Chapter 24: Final Section 4(f) Evaluation
- Chapter 25: Process, Agency Coordination, and Public Involvement
- Chapter 26: List of Preparers
- Chapter 27: Distribution of EIS
- Chapter 28: Comments and Responses
- Glossary

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