ENVIRONMENTAL ASSESSMENT
FOR CONSTRUCTION OF A CONCRETE CASING IN THE HUDSON YARDS, NEW YORK, NEW YORK

Prepared Pursuant to
the National Environmental Policy Act (42 U.S.C. § 4332), and
FRA's Procedures for Considering Environmental Impacts
(64 FR 28545 and 78 FR 2713)

by the National Railroad Passenger Corporation (Amtrak)
and
Federal Railroad Administration (FRA)

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AC	Alternating Current
ACM	Asbestos Containing Materials
APE	Area of Potential Effect
bgs	below ground surface
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide
DC	Direct Current
DEP	New York City Department of Environmental Protection
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FR	Federal Register
FRA	Federal Railroad Administration
GHG	Greenhouse Gas
LIRR	Long Island Rail Road
MOE	Maintenance of Equipment
MTA	Metropolitan Transportation Authority
$\mu g/m^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NEC Future	Northeast Corridor Future Program Studies
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NJT	New Jersey Transit
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxide
NRHP	National Register of Historic Places
NYC	New York City
NYSDEC	New York State Department of Environmental Conservation
OPRHP	New York State Office of Park, Recreation and Historic Preservation
OTR	Ozone transport region
Pb	Lead
PM_{10}	Particulate matter less than or equal to 10 microns
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-way
SDP	Service Development Plan
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SVOC	Semivolatile Organic Compound
U.S.C.	U.S. Code
VOC	Volatile Organic Compound

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CHAPTER ONE INTRODUCTION, BACKGROUND, PURPOSE, AND NEED

1.1 INTRODUCTION

This Environmental Assessment (EA) examines the potential environmental impacts of constructing an underground concrete casing through the John D. Caemmerer West Side Yard (also referred to as Hudson Yards) rail yard in New York, NY. The casing would preserve a right-of-way (ROW) for the possibility of future expansion of rail service between New Jersey and New York (see Figure 1) and would support Amtrak's efforts to improve resiliency in response to future disasters in Amtrak's Northeast Corridor. This EA is prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] 4321 *et seq*.), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508), and the Federal Railroad Administration (FRA) *Procedures for Considering Environmental Impacts* (64 Federal Register [FR] 28545 [May 26, 1999] and 78 FR 2713 [January 14, 2013]). This EA also documents compliance with other applicable Federal environmental laws and regulations, including Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. 470) and the Clean Air Act (CAA) (42 U.S.C. 7401 *et seq*.).

The proposed underground concrete casing (the "proposed Project") involves construction of an underground rectangular structure 800 feet long, 50 feet wide, and approximately 35 feet tall. The casing would preserve an underground ROW as a potential alignment alternative for a new future tunnel under the Hudson River into New York Penn Station. The National Railroad Passenger Corporation (Amtrak) is the proposed Project sponsor and would design and construct the underground concrete casing. Because the Project site—the Hudson Yards rail yard—is owned by the Metropolitan Transportation Authority (MTA) and used by the Long Island Rail Road (LIRR), Amtrak is preparing this EA in coordination with MTA and LIRR. Preliminary project cost estimates for the design and construction of the concrete casing range from $120 million to $160 million. FRA is the lead Federal agency for this EA because Amtrak anticipates constructing the proposed Project using Federal funding managed through the FRA.

1.2 BACKGROUND

In 2010, Amtrak, in cooperation with FRA, representatives of 12 northeastern States, commuter railroad owners, and other stakeholders prepared the *Northeast Corridor Infrastructure Master Plan* (Master Plan) (Amtrak, 2010a) for Amtrak's Northeast Corridor infrastructure, which predicts a significant increase in Amtrak and New Jersey Transit (NJT) ridership and train service across the Hudson River by the year 2030. Numerous other studies have identified the need for expansion of intercity and commuter train services into Penn Station, including the *Amtrak Vision for the Northeast Corridor 2012 Update Report* (NEC Vision Update) (Amtrak, 2012a), and *A Vision for High-Speed Rail in the Northeast Corridor* (Amtrak, 2010b), and the *Northeast Corridor Future Program Studies* (FRA, 2013). These studies indicate that the existing two 100-year-old, single-track tunnels under the Hudson River, connecting New Jersey and New York

Figure 1: Hudson Yards Concrete Casing Project Location Map

- Hudson Yards
- Project Location
- NJ-495
- Roads

Federal Railroad Administration

Imagery:
ESRI ArcGIS Online and data partners

Date.....January 2013
Prepared for.....Federal Railroad Adminstration (FRA)
Contract.....BPO1001987

City, currently operate at maximum capacity—approximately 25 trains per hour per direction—and are insufficient to meet the projected increase in demand.

The Master Plan recommends construction of a new tunnel under the Hudson River to meet the need of increased commuter rail ridership projections. The Master Plan described a vision encompassing all classes of passenger service and clearly documents that the current Penn Station and Hudson River tunnel system is vulnerable to continuous delay and disruption and cannot accommodate growth essential to the region's continued vitality.

As a key part of its planning for future service to and from New York City, Amtrak has developed a conceptual program, known as the "Gateway Program," which includes a vision to provide future double track capacity between Newark, New Jersey, and New York Penn Station. The Gateway Program includes two new track tunnels under the Hudson River from New Jersey, which would converge and travel through the west side of Manhattan to connect with a future expanded Moynihan and Penn Station, as well as elements in New Jersey including: new Portal Bridges, Newark to Secaucus improvements, and Newark and Secaucus Station Improvements. Amtrak is in the early planning stages of the Gateway Program, and there are no definitive funding sources for design or construction. Amtrak has developed conceptual studies to evaluate the feasibility of building future tunnels under the Hudson River from New Jersey through the west side of Manhattan to connect with Penn Station. These studies determined that the Hudson Yards Eastern Rail Yard provides the appropriate site for connectivity to Penn Station, from the west, and there is limited space available underground to construct a tunnel that could integrate new operations with the existing infrastructure at Penn Station (further details about the importance of the proposed Project location in the Eastern Rail Yard are discussed in Chapter 2 of this EA). While the proposed Project would preserve the ROW beneath the Hudson Yards, and thus the viability of a future tunnel from the west into Penn Station, it does not preclude the evaluation of alternative alignments for increasing capacity or services into Manhattan in future NEPA analyses as these conventional programs develop into proposed projects for Federal funding.

In February 2012, FRA launched the Northeast Corridor Future Program Studies (NEC FUTURE), a comprehensive planning effort to define, evaluate and prioritize future investments in the Northeast Corridor. The NEC FUTURE purpose and need discusses the present and future challenges facing the Northeast Region and identifies a need and continual growth in passenger rail transportation demands. The NEC FUTURE work includes both a Service Development Plan (SDP) and a broad environmental analysis of program-level alternatives to create a framework for the future investments needed to improve passenger rail capacity and service through 2040. A Tier 1 Environmental Impact Statement and the SDP are currently underway with expected completion in 2015.

The flooding of Amtrak's existing rail tunnels from Superstorm Sandy and the resulting extended rail service outage into Penn Station highlighted the vital need for improvements to harden the existing tunnel system from future flooding and other emergencies and to create redundant capacity into Penn Station. Superstorm Sandy exposed the risks of solely relying on a system of

100-year-old tunnels for rail access into New York City, the Nation's biggest metropolis and financial capital. Equally important, new tunnel infrastructure would allow removal of the existing century-old tunnels from service for extended periods to retrofit them with flood prevention measures and make other improvements needed to ensure reliable operation, which is currently not possible because of the current density of rail traffic in the existing tunnels.

1.3 PURPOSE AND NEED

In 2010, the Related Companies, a real estate development corporation (Developer), under an agreement with LIRR and MTA, proposed plans to develop the area above the Hudson Yards. This development, referred to as the Overbuild Project, has all necessary local and State approvals, and construction of the Overbuild Project south of the proposed Project site started in December 2012. The Overbuild Project involves constructing a platform above the Hudson Yards that will provide the footprint for commercial and residential development with buildings as tall as 1,250 feet above the ground surface. The placement of immense support structures throughout the Eastern Rail Yard for the Overbuild Project platform is projected to start in mid-2013.

The purpose of the proposed Project is to preserve an underground ROW in the Eastern Rail Yard of the Hudson Yards between 10th and 11th Avenues. Amtrak has identified this area underneath the Hudson Yards as the only viable location where a future tunnel from the west (under the Hudson River) could provide a direct connection with the existing infrastructure in Penn Station (Amtrak, 2011; Amtrak, 2012b; Amtrak, 2012c). The placement of immense support structures throughout the Eastern Rail Yard for the Overbuild project, projected to begin in mid-2013, will permanently foreclose the use of the area underneath the Hudson Yards for the construction of a future tunnel from the west connecting with Penn Station.

Preserving the ROW would maintain opportunities to expand rail services to meet future demand as well as improve intercity and commuter rail system safety and reliability. In addition, this proposed Project supports Amtrak's effort to improve resiliency in the passenger rail system for response to disasters, particularly flooding. New construction, including that proposed to preserve the ROW, would be designed to withstand flood levels at new standards, using criteria that would have prevented the flooding caused by Superstorm Sandy. There is an urgent need to preserve the ROW. If it is not preserved while the Overbuild Project foundations are being constructed, the use of this location under Hudson Yards would be permanently lost, and along with it one possible alignment for future expansion of rail service between New York and New Jersey that is dependent on this ROW.

CHAPTER TWO DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The proposed action of this EA is to design and construct an underground concrete casing in the Eastern Rail Yard portion of the Hudson Yards rail yard in the borough of Manhattan, New York City, NY. In a series of studies, Amtrak, in coordination with LIRR, MTA, and the Developer, has determined that there is one clear alignment on the west side of Manhattan–Hudson Yards– that would allow full connectivity of a future tunnel into Penn Station from the west. Under the proposed action, Amtrak would preserve an underground ROW to maintain this alignment as part of an alternative for future study, and only viable option to enter Penn Station from the west. Amtrak has determined that a concrete casing could be designed and constructed in conjunction with the Overbuild Project to preserve this area under Hudson Yards. The studies that evaluated the location, methods, and timing to preserve the ROW are described below.

2.1.1 Alignment of the ROW

Amtrak conducted a series of studies in 2011 and 2012 to evaluate conceptual-level alignments for the location of a new tunnel between the Hudson River and Penn Station, including: *Penn Station New York Major Support Facilities and Potential Improvements between the Hudson River and 7th Avenue, Preliminary Track Alignment Design and Impacted Disciplines, Phase I – Section 1* (Amtrak, 2011), *Penn Station New York Major Support Facilities and Potential Improvements Between the Hudson River and 7th Avenue, Preliminary Track Alignment Design and Impacted Disciplines, Phase 1 – Section 2A* (Amtrak, 2012b), and *Amtrak Gateway Project, High Speed Rail Penn Station, New York Feasibility Study, Phase 1 – Section 2B* (Amtrak, 2012c). As a result of these three studies, Amtrak determined that the Hudson Yards Eastern Rail Yard (see Figure 1) is the only location that could provide the appropriate space for the vertical and horizontal alignment of a new tunnel that would be fully and effectively integrated operationally with the existing Penn Station complex of tracks and platforms.

Within the Eastern Rail Yard, the specific location of a new tunnel is limited by physical and design constraints such as the presence of the Empire Line Tunnel, existing building foundations, and elevation requirements for the trains that would use the tunnels. Therefore, in a study prepared by Tutor Perini Corporation and Parsons Brinckerhoff, 2012 (Appendix A), Amtrak determined there is one underground location that is viable for a future tunnel within the Eastern Rail Yard (see Figure 2).

2.1.2 Timing

An in-depth engineering analysis undertaken by Amtrak, the Developer, LIRR, MTA and other parties (Tutor Perini/Parsons Brinkerhoff, 2012 [Appendix A]) determined that construction of the concrete casing needs to start prior to construction of the Overbuild Project support structures that are planned in the area of the ROW.

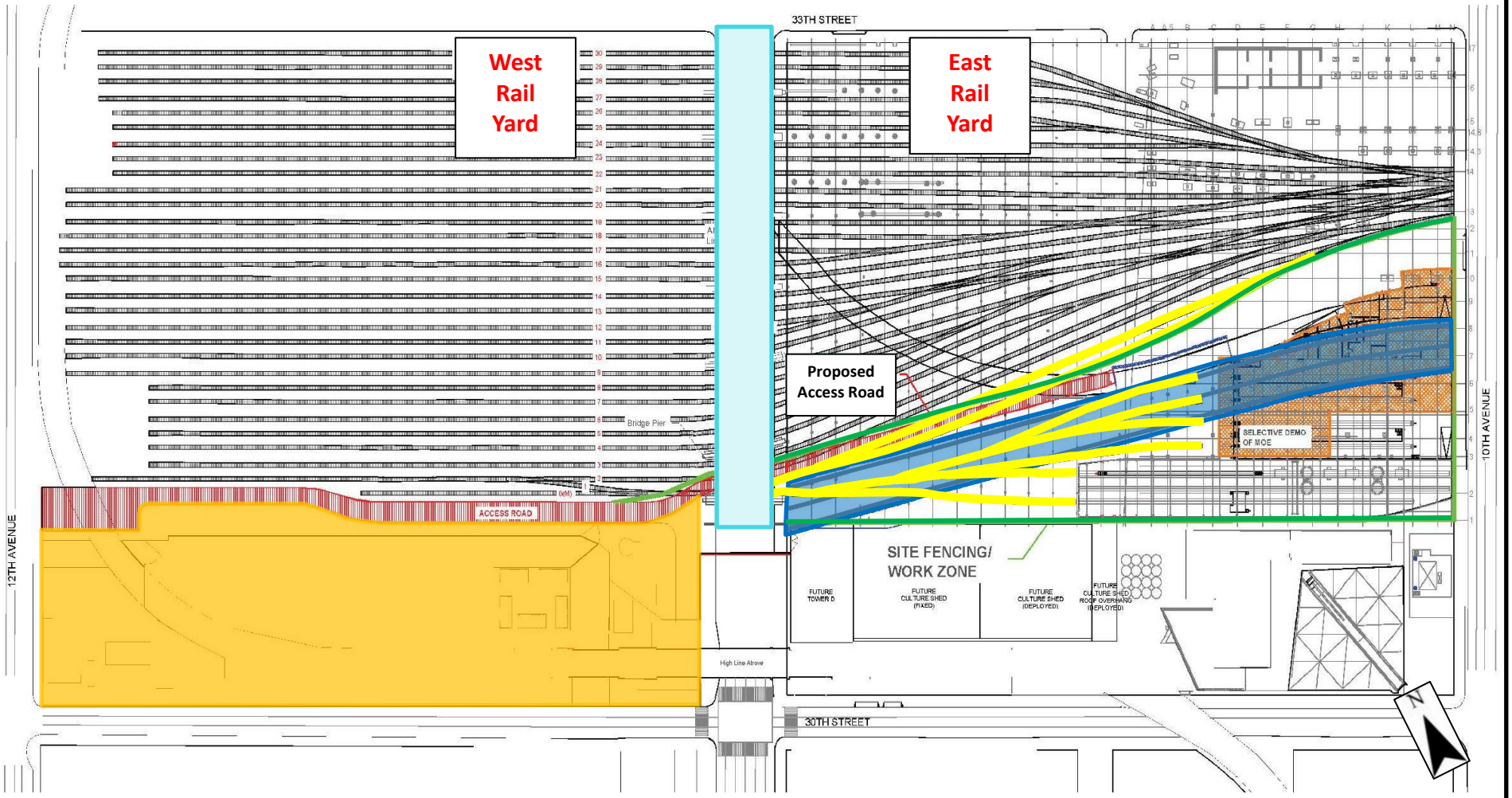


Figure 2: Hudson Yards Proposed Action Components

- *Proposed Action Work Zone*
- *Proposed Access Road*
- *MOE Building Demolition Area*
- *11th Avenue Bridge*
- *Proposed Concrete Casing*
- *Temporary Removal of Existing Tracks*
- *Construction Staging Area*

Federal Railroad Administration

Source:
Amtrak Gateway Project – Hudson Yards Study Final Report 11-16-2012

Construction at a future time is not possible due to unacceptable disruptions to LIRR facilities and unacceptable impacts to the residential and commercial structures of the Overbuild Project from rock blasting and excavation. Therefore, to protect the opportunity to construct a future tunnel entering Penn Station from the west, the foundation plan for the Overbuild Project must take into account the structural concrete casing (the proposed Project). The Tutor Perini Corporation and Parsons Brinckerhoff study (Appendix A) stated that the only means to preserve the ROW underground would be to construct an approximately 800-foot long, reinforced concrete, cut-and-cover box, also known as a concrete casing.

2.2 DESCRIPTION OF ALTERNATIVES

2.2.1 No Action

For the no action alternative, Amtrak would not construct the concrete casing to preserve the ROW. Construction of the Overbuild Project platform will still occur under the no action alternative, with placement of the support structures planned to start in mid-2013.

2.2.2 Construct a Concrete Casing

To preserve the ROW, Amtrak would construct a concrete encasement structure in the alignment shown on Figure 2. The concrete casing would be approximately 800 feet long, 50 feet wide, 35 feet tall, and would extend underground from 10th Avenue to 11th Avenue between 31st and 33rd Streets (see Figure 2 and Photograph 1). The size of the concrete casing is based on standard tunnel dimensions so that the preserved ROW would have sufficient space for the future construction of a train tunnel within the concrete casing.

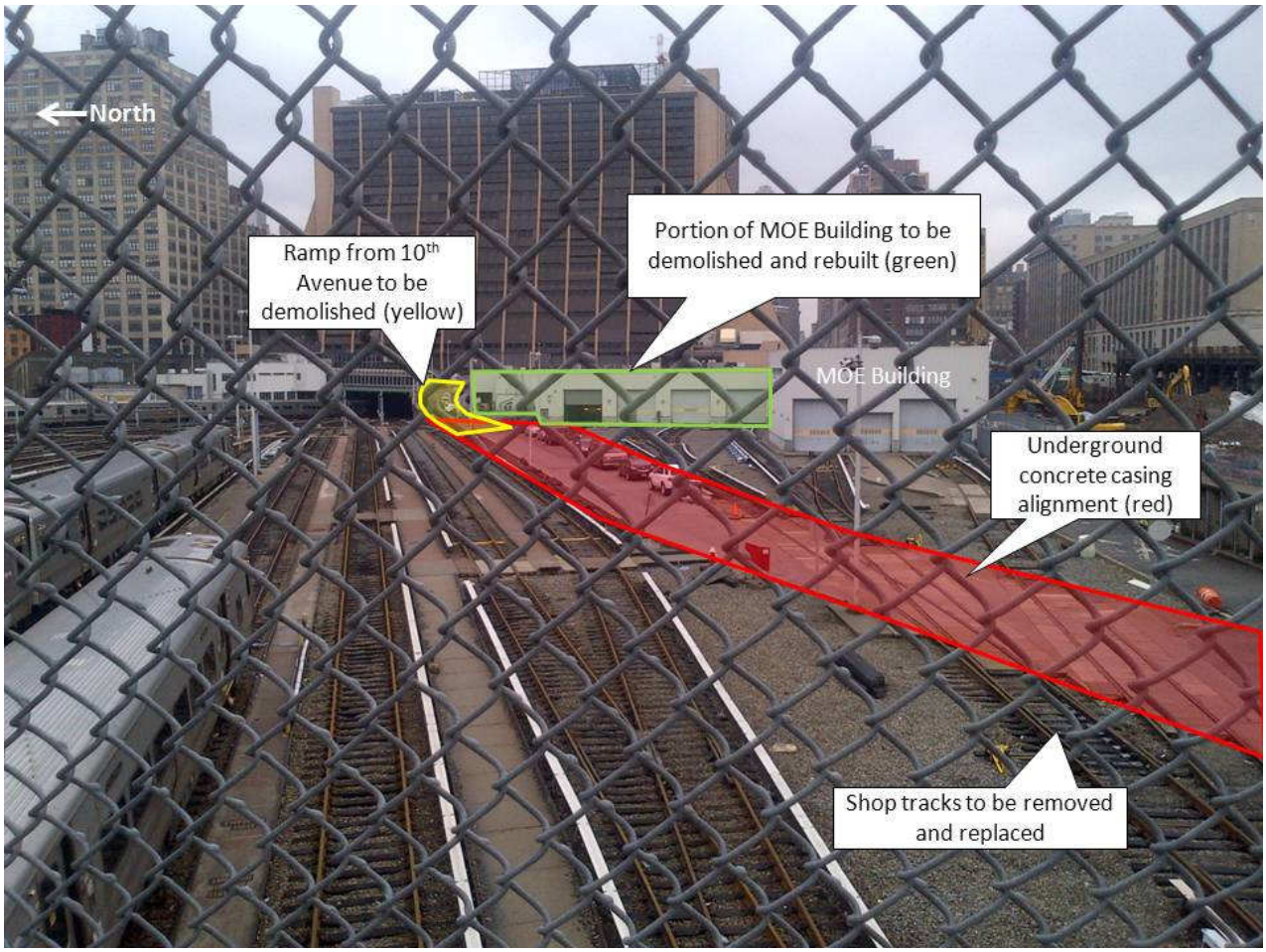
No operational components, such as tracks, lighting, ventilation, or electrical systems, would be constructed as part of the proposed Project. The proposed Project would not change or add to existing rail operations and would not become operational unless this ROW is selected for construction of future rail tunnels. The proposed Project preserves an area between 10th and 11th Avenues as an important option for a tunnel under Hudson Yards from the west. This proposed Project does not preclude future studies or the design and construction of future alignments for tunnels entering Manhattan from New Jersey. Future tunnels for expanding Amtrak intercity rail services would be studied as separate environmental impact studies pursuant to NEPA for construction of new tunnels. Therefore, this EA only addresses impacts from the construction of the underground concrete casing.

The Hudson Yards facility is an active rail yard used by LIRR and MTA for train storage, switching, and maintenance. Amtrak would acquire an easement from MTA for the ROW. Construction of the concrete casing would require:

- Demolition of the northern part of the LIRR Maintenance of Equipment (MOE) Building and reconstruction to its original condition following completion of the concrete casing.
- Temporary relocation of all MOE Building functions to other LIRR maintenance and shop facilities until the portion of the MOE Building being demolished is reconstructed.

- Demolition of a concrete ramp that originates at 10th Avenue and provides vehicular access to the Eastern Rail Yard. The ramp would not be rebuilt because construction of the Overbuild Project platform will preclude use of that space for a ramp.
- Temporary removal of shop tracks to the MOE Building and yard tracks, Track 0 and part of Track 1, and their reconstruction after completion of the concrete casing construction.
- Temporary removal from service certain yard tracks and their immediate return to service to allow for contractor work access during nights, weekends, or "foul time periods."
- Temporary relocation and replacement of utilities (storm/sanitary sewer, electric, water, gas) and signals/communications within the Eastern Rail Yard.
- Excavation of approximately 83,000 cubic yards of soil and bedrock.

Figure 2 and Photograph 1 show the elements of the proposed action alternative.



Proposed footprint of concrete casing and other proposed action elements viewed from the 11th Avenue bridge looking east

In general, the anticipated construction sequence would be as follows:

1. Fence off construction zone.
2. Relocate utilities, demolish part of MOE Building, demolish 10th Avenue ramp, and remove shop tracks.
3. Construct watertight retaining walls around the casing trench.
4. Excavate and brace the casing trench.
5. Construct the concrete casing.
6. Backfill over the casing trench.
7. Reconstruct MOE Building, relocate and restore utilities, signals, and communications.
8. Rebuild shop and yard tracks to their original condition and return to service.

The depth of excavation for the concrete casing varies along the alignment. Excavation for the western end of the concrete casing (near 11th Avenue) would reach approximately 54 feet below ground surface (bgs), while excavation at the eastern end of the casing (near 10th Avenue) would be approximately 35 feet bgs (Tutor Perini/Parsons Brinkerhoff, 2012). Excavation activities would include controlled rock blasting techniques, with special techniques such as channel drilling and rock splitting planned in some areas to reduce vibration impacts to nearby facilities and buildings.

Amtrak anticipates that excavation of the casing trench would remove approximately 47,300 cubic yards of soil and 35,700 cubic yards of rock. Excavated materials would be hauled by truck to facilities in New York, New Jersey, or Pennsylvania for disposal or beneficially reused off-site.

Construction dewatering of the excavated casing trench would be done by one of two methods (or a combination of the two). One option would be to pump groundwater into storage containers and then haul the water to an off-site disposal facility. A second option would be to discharge water on-site under a temporary construction dewatering permit.

The main staging area for equipment and materials would be located along paved areas in the southern portion of the Western Rail Yard within the Hudson Yards (Figure 2). Some smaller staging areas would be used within the construction work zone of the Eastern Rail Yard (see Figure 2 for extent of work zone).

Site preparation, relocation of utilities, demolition of a portion of the MOE Building, demolition of the 10th Avenue ramp, and removal of the yard tracks is expected to begin in June 2013, with casing construction scheduled to start in July 2013. Construction of the Overbuild Project and the proposed Project would occur simultaneously, with the Developer and Amtrak coordinating the construction processes and timing. The proposed Project is anticipated to be completed within 24 months from the start date.

Amtrak's construction contractor would secure the portion of the MOE Building that would not be demolished with appropriate heating and utility services supplied as necessary to maintain and safeguard the building and its contents. Although only part of the MOE Building would be

demolished, all activities currently performed in the MOE Building would be transferred to other LIRR maintenance and shop facilities.

2.3 EVALUATION OF THE ALTERNATIVES

2.3.1 No Action

The no action alternative would prevent Amtrak, NJT, and other rail service providers from including the ROW underneath the Overbuild Project in any potential alignment for the future construction of a tunnel that would support expanded intercity and NJT commuter rail services, as well as improve intercity and commuter rail system safety and reliability. Therefore, if the underground concrete casing is not constructed at the same time as the Overbuild Project foundations, the ROW underneath the Overbuild Project would be permanently lost as a potential alignment for the future expansion of rail service between New York and New Jersey. There are no underground areas remaining as feasible options for a new tunnel from the west that could provide a direct connection with the existing infrastructure in Penn Station because of physical and design restrictions (e.g., other underground tunnels, building foundations, elevation requirements, etc.) other than the alignment specified as the proposed Project (Amtrak, 2011; Amtrak, 2012b; Amtrak, 2012c).

2.3.2 Construct a Concrete Casing

Construction of the proposed underground concrete casing in conjunction with the Overbuild Project would preserve this ROW and essential location for a potential future tunnel alignment between the Hudson River and Penn Station. Preserving this ROW with the concrete casing would assist Amtrak in meeting the need for providing increased ridership and improved safety and reliability of intercity and commuter rail access as identified in the Master Plan (Amtrak, 2010a), the NEC Vision Update (Amtrak, 2012a), and the *Access to the Region's Core in Hudson County, New Jersey and New York County, New York Final Environmental Impact Statement* (FTA et al., 2008).

CHAPTER THREE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

Chapter 3 describes existing resources that may be affected by the proposed action and no action alternatives and the potential direct and indirect impacts on those resources from each alternative. Cumulative impacts are addressed in Section 3.12. Environmental resources that are not present within the proposed Project area and, therefore, are not discussed in this EA include:

- Surface water and wetlands
- Vegetation and habitat
- Wildlife
- Threatened and endangered species
- Coastal zone resources

Mitigation measures for potential resource impacts from the proposed action are described as appropriate within this chapter.

Chapter 3 focuses on addressing the type, intensity, and duration of the project-related environmental impacts for each resource area included in this EA. The impacts can be described in different ways including:

- Type (beneficial or adverse)
- Intensity (negligible, minor, moderate, or substantial)
- Duration (temporary or long-term)

Additionally, impacts are described in terms of whether they are direct or indirect as defined by CEQ as follows: *direct effects* are caused by the action and occur at the same time and place (40 CFR § 1508.8) and *indirect effects* are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR § 1508.8).

This EA does not evaluate impacts of the Overbuild Project other than considering cumulative impacts of the Overbuild Project when combined with the proposed Project (see Section 3.12). For a discussion of the impacts as a result of the Overbuild Project, see the *Final General Environmental Impact Statement for the proposed No. 7 Subway Extension and Hudson Yards Rezoning and Development Program* (MTA and NYCPC, 2004).

3.2 GEOLOGY

3.2.1 Affected Environment

Geology in the Eastern Rail Yard is characterized by a layer of metamorphic bedrock that slopes from east to west, varying in depth bgs from about 6 to 8 feet in the northeast corner of the

Eastern Rail Yard to about 53 feet bgs in the southwest portion (Langan, 2009; Langan, 2012). Bedrock in the area of the proposed Project alignment varies from approximately 10 feet bgs near 10th Avenue to 48 feet bgs near 11th Avenue (Tutor Perini/Parsons Brinkerhoff, 2012). In some areas, the bedrock is slightly weathered and therefore, softer than unweathered rock. However, it typically it ranges from hard to very hard (Langan, 2012).

3.2.2 Environmental Consequences

No Action

No impacts affecting the geology would occur under the no action alternative because no excavation of bedrock would occur.

Proposed Action

Excavation for the proposed Project would vary in depth from approximately 35 feet bgs near 10th Avenue to approximately 54 feet bgs at its maximum depth near 11th Avenue (Tutor Perini/Parsons Brinkerhoff, 2012). Therefore, rock blasting would be necessary to excavate approximately 35,700 cubic yards of bedrock to create a trench for construction of the concrete casing (Tutor Perini/Parsons Brinkerhoff, 2012). Excavation would involve controlled rock blasting techniques, with special techniques such as channel drilling and rock splitting planned in some areas to reduce vibration on nearby facilities, buildings, tracks, and railroad systems and operations. LIRR would review vibration levels to prevent any substantial impacts on LIRR facilities and operations; if LIRR finds that vibration levels may adversely affect LIRR facilities, Amtrak, working with LIRR, would reduce vibration to levels acceptable to LIRR.

Amtrak's construction contractor would obtain rock blasting permits as needed from the New York City Fire Department and the City's Department of Buildings. Rock material excavated during construction would be hauled by truck to a crushing and recycling facility, beneficially reused off-site, or hauled to a permitted disposal facility.

While the proposed Project would permanently remove 35,700 cubic yards of bedrock, there would be no substantial adverse environmental impacts because the removed rock would be handled, staged, transported, and disposed of in accordance with applicable Federal, State, and local regulations. The removal of bedrock would not affect the future LIRR operations because the surface of the Eastern Rail Yard would be restored following construction of the casing and would be adequate to support the presence of LIRR trains.

3.3 SOILS

3.3.1 Affected Environment

Soils in the Eastern Rail Yard are characterized by a layer of historic urban fill at the ground surface that lies on top of native soil. The depth of historic urban fill varies from about 12 to 25 feet, is categorized as silty sand, and may include varying amounts of cinders, gravel, bricks, wood, concrete, cobbles, and boulders (Langan, 2009). Below the historic urban fill, the native

soil is comprised of layers of sand, silt, and glacial till before reaching bedrock (Langan, 2012). The Developer tested the soils in the Eastern Rail Yard for contamination; the results of this testing are discussed in Section 3.8 Hazardous Materials and Hazardous Wastes.

3.3.2 Environmental Consequences

No Action

The no action alternative would not have any impacts on soils because no construction would occur.

Proposed Action

Amtrak anticipates that approximately 47,300 cubic yards of urban fill and native soils would be removed from the proposed Project site to excavate the concrete casing trench. Trucks would haul all soil and fill material that is excavated from the proposed Project site to licensed disposal facilities in New York, New Jersey, or Pennsylvania. Although soils and fill material in the proposed Project site are not expected to be classified as hazardous waste under the Resource Conservation and Recovery Act (RCRA) (Langan, 2009), Amtrak's construction contractor would complete verification testing in accordance with RCRA regulations and disposal facility acceptance requirements when soils are excavated. Amtrak would develop a Soil Management Plan to ensure that contaminated materials are handled, staged, transported, and disposed of in accordance with Federal, State, and local regulations. Therefore, no adverse impacts from excavation or handling of soils and no adverse impacts on soils are anticipated.

3.4 GROUNDWATER

3.4.1 Affected Environment

Within the Eastern Rail Yard, groundwater is typically found at approximately 3 feet to 14 feet bgs. From regional data, and as confirmed by groundwater elevation measurements at the Hudson Yards, the horizontal groundwater flow in the Eastern Rail Yard is generally to the southwest, towards the Hudson River. Groundwater that is contained in rock underneath the Eastern Rail Yard is isolated from the closest aquifer, located beneath the Queens and Brooklyn boroughs of New York City (Langan, 2009).

3.4.2 Environmental Consequences

No Action

The no action alternative would not impact groundwater resources because no excavation would occur.

Proposed Action

Excavation for the concrete casing trench would occur in the water table; therefore, construction dewatering (removal of water from the construction area) would be required. Amtrak's construction contractor would prepare a Groundwater Management/Dewatering Plan that would

address procedures for handling groundwater encountered during construction. Construction dewatering of the excavated concrete casing trench would be done by one of two methods (or a combination of the two). The first method would involve pumping groundwater into storage containers then hauling the water to an off-site disposal facility. The second method would involve discharging groundwater to a New York City Department of Environmental Protection (DEP) sanitary or combined sewer pursuant to a DEP dewatering permit, or discharging it to a storm sewer under a temporary New York State Department of Environmental Conservation (NYSDEC) construction dewatering permit and with New York City DEP approval if discharges would exceed 10,000 gallons per day into New York City sewers. Amtrak's construction contract would require testing of the groundwater, and the Dewatering Plan would describe procedures to ensure that Amtrak's construction contractor would treat or dispose of any contaminated groundwater released during dewatering operations in accordance with Federal, State, and local regulations.

Impacts to groundwater are anticipated to be temporary and minor, and no adverse impacts from handling of groundwater are anticipated.

3.5 AIR QUALITY

3.5.1 Affected Environment

The CAA of 1970 and its amendments require the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for ambient air pollutants considered harmful to public health and the environment (i.e., criteria pollutants). The CAA established two types of NAAQS: primary and secondary standards to protect public health and public welfare, respectively (40 CFR part 50). NAAQS have been established for the following criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and two types of particulate matter (PM_{10} is coarse particulate matter [10 micrometers or less in diameter] and $PM_{2.5}$ is fine particulate matter [2.5 micrometers or less in diameter]). Ground level ozone results from a chemical reaction of sunlight, volatile organic compounds (VOCs), and nitrogen oxide (NO_x), which are ozone precursors, while SO_2 is a precursor for $PM_{2.5}$. The standards are expressed as a concentration in air and duration of (often both short- and long-term) exposure. As with all aspects of environmental regulations, States have the authority to adopt stricter standards.

The EPA air quality standards for ozone are 0.12 parts per million (1-hour average) and 0.075 parts per million (8-hour average in effect since March 2008). The standards for $PM_{2.5}$ are 15 micrograms per cubic meter ($\mu g/m^3$) (annual average) and 35 $\mu g/m^3$ (24-hour average), and for PM_{10} is 150 $\mu g/m^3$ (24-hour average). The CAA defines non-attainment areas as geographic regions that have been designated as not meeting one or more of the NAAQS. Air quality maintenance areas are regions that have attained compliance with the NAAQS.

EPA has designated New York City as a moderate non-attainment area for the 1997 8-hour ozone standard and marginal non-attainment area for the 2008 8-hour ozone standard and a non-

attainment area for 1997 and 2006 $PM_{2.5}$ EPA standards, and Manhattan as a moderate non-attainment area for PM_{10} (EPA, 2012a; EPA, 2012b). EPA re-designated New York City from a non-attainment area to a maintenance area for CO after demonstrating compliance with the CO standards.

On December 31, 2012, EPA issued a finding that the New York-New Jersey-Connecticut non-attainment area for $PM_{2.5}$ is now in attainment for the 2006 24-hour $PM_{2.5}$ NAAQS and suspended requirements to submit an attainment demonstration as long as this area continues to meet the 2006 $PM_{2.5}$ standard (77 FR 76867 Dec. 31, 2012).

The General Conformity Rule (40 CFR parts 51 and 93) requires that Federal actions or federally funded actions planned to occur in a non-attainment or maintenance area be reviewed prior to their implementation to ensure that the actions will not interfere with that State's plans to meet or maintain the NAAQS, as outlined in the federally approved State Implementation Plan (SIP). Therefore, Amtrak is required to demonstrate that this federally funded action conforms to the approved SIP for the geographic area where action is proposed by performing a conformity applicability analysis. Amtrak must consider the total direct and indirect emissions. If, after evaluation and documentation, the total air emissions associated with the action are considered neither exempt nor below the de minimis levels (i.e., minimum thresholds for which a conformity determination must be performed for various criteria pollutants in various non-attainment areas) as specified in 40 CFR 93.153, then a conformity determination is required (see Table 1).

Table 1
Applicable General Conformity De Minimis Levels

Pollutants of Concern (tons per year)				
NO_x[1]	VOC[1]	PM_{10}[2]	$PM_{2.5}$	CO
100	50	100	100	100

Source: 40 CFR 93.153(b)(1)
[1]Other ozone NAAQS inside an ozone transport region.
[2]Moderate non-attainment area

In addition, EPA has designated the region extending from Northern Virginia to New England as an ozone transport region (OTR), whereby EPA has established more restrictive de minimis emissions levels for areas in the OTR. Since the proposed Project would occur within the OTR, a conformity determination would be required if total actual emissions for the Federal action exceed 100 tons of NO_x or 50 tons of VOCs.

Based on the attainment status designation for New York City, Amtrak must quantify the emissions of NO_x, VOCs, PM_{10}, and $PM_{2.5}$ to determine the applicability of the general conformity regulations. This area is also a "maintenance area" for CO; therefore, Amtrak would also need to quantify CO emissions for the applicability determination.

Climate Change

There is scientific consensus that human activities, such as fossil fuel combustion, deforestation, and other land use changes, are changing the chemical composition of the Earth's atmosphere resulting in the accumulation of trace greenhouse gases (GHGs) in the atmosphere. GHGs (e.g., water vapor, carbon dioxide [CO_2], methane, nitrous oxide, and hydrofluorocarbons) absorb the radiation energy from the sun and Earth. Water vapor occurs naturally and accounts for the largest percentage of GHGs, while CO_2 is the second-most abundant GHG. GHGs may be contributing to an increase in the Earth's average surface temperature, which in turn is expected to affect weather patterns, average sea levels, and increased intrusion of seawater into estuaries. Other effects are changes in precipitation rates, an increase in ozone levels due in part to changes in atmospheric photochemistry, and decreased water availability and quality (Jones & Stokes, 2007).

NYSDEC has developed a comprehensive air quality management plan that integrates air quality, climate, energy, and transportation goals. One of the environmental goals is to reduce GHG emissions (NYSDEC, 2010). The Inventory of New York City Greenhouse Gas Emissions, September 2010, estimated the citywide CO2e emission for 2009 at 49,301,948 metric tons.

3.5.2 Environmental Consequences

No Action

The no action alternative would not impact air quality because no construction would occur.

Proposed Action

According to 40 CFR part 93, the threshold levels for general conformity are 100 tons per year for NO_x, PM_{10}, $PM_{2.5}$ and CO and 50 tons per year for VOCs. As part of this determination, Amtrak considered activities subject to the general conformity requirements, including the following stationary sources, construction activities, and mobile sources.

Table 2 shows the total emissions due to the proposed activity for the next 2 years. Annual emissions generated as a result of the proposed activity are not expected to exceed the threshold levels established in the CAA's general conformity regulations.

Table 2
Annual Estimated Emissions for the Proposed Project Compared with Conformity Thresholds

Pollutant	2013 Emissions (tons per year)	2014 Emissions (tons per year)	Conformity Threshold (tons per year)
NO_x	20.72	20.10	100
VOC	2.52	2.47	50
PM_{10}	3.05	2.96	100
$PM_{2.5}$	2.02	1.93	100
CO	9.77	9.64	100

Air pollutant emissions shown in Table 2 include both direct and indirect air emissions associated with the proposed Project. Sources of direct emissions include construction activities and operation of equipment. Sources of indirect emissions include mobile source emissions from increased commuter activity. For the general conformity evaluation, actual emissions were estimated for each source type. Each of these sources of emissions is briefly described below. Detailed assumptions and calculations are provided in Appendix B.

Construction activities that would generate emissions would primarily include the following:

- Earth excavation, grading, and demolition activities;
- Handling and transport of excavated material and debris;
- Operations of heavy-duty diesel and gasoline-powered construction equipment; and
- Heavy-duty diesel trucks operating within construction areas, traveling to the proposed Project site to deliver construction materials, and traveling from the site transporting excavated soils and demolition material.

Construction would result in NO_x, VOC, PM_{10}, $PM_{2.5}$, and CO emissions from diesel-burning equipment and from the construction activities listed above. Amtrak's consultant calculated the emissions from diesel-burning construction equipment using an average of emission factors published in *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources (*EPA, 1995), *Air Emissions Factor Guide to Air Force Stationary Sources* (USAF, 2009a), and *Air Emissions Factor Guide to Air Force Mobile Sources* (USAF, 2009b) and an estimated average number of construction equipment operated per day throughout construction (between May 2013 and December 2014). Fugitive dust as a result of site clearing and earthmoving activities would temporarily increase during construction of the proposed Project. Fugitive dust would be minimized as needed through measures such as the application of water to disturbed areas and haul roads, and speed controls on earthmoving equipment and haul trucks.

Because LIRR staff that currently work in the MOE Building would be temporarily transferred to other LIRR facilities and MOE Building functions would be relocated to other LIRR facilities, staff commutes to and from work would change until the MOE Building is rebuilt and functional. Because only 34 staff would be transferred, the commute to other LIRR facilities would be in

New York City (Queens), and the transfer would be temporary, Amtrak's consultant considered the mobile source emissions associated with the temporary transfer of MOE Building staff and operations negligible, and therefore, did not calculate them.

Emissions associated with the proposed Project would be temporary and minor. A General Conformity analysis determined that construction emissions would not exceed the *de minimis* levels for pollutants and that the proposed Project would not adversely impact air quality.

Climate Change

Because GHGs are relatively stable in the atmosphere and are essentially uniformly mixed throughout the troposphere and stratosphere, the climatic impact of GHG emissions does not depend upon the source location. Therefore, regional climate impacts are likely a function of global emissions. GHG emissions were calculated for the proposed Project to estimate its contribution to the New York City environment.

Table 3 lists the total GHG emissions from the proposed Project by adding 2013 and 2014 CO_2 emissions, that were estimated to be 2,998 metric tonnes per year (3,304 tons per year). Emissions of the other GHG emissions would be negligible and are therefore not calculated. The relative contribution of GHG emissions from the proposed Project compared to New York City 2009 emissions would be negligible. Therefore, there is no adverse impact on climate change due to GHG emissions from the proposed Project.

Table 3
Comparison of GHG Emissions Between the Proposed Project and New York City

Source	CO_2 Emissions (metric tonnes per year)
Proposed Project	2,998
New York City (2009)	49,301,948
Percentage of 2009 New York City Emissions	6.08E-3%

3.6 CULTURAL RESOURCES

3.6.1 Affected Environment

The NHPA outlines Federal policy to protect historic properties and promote historic preservation in cooperation with States, tribal governments, local governments, and other consulting parties. The NHPA established the National Register of Historic Places (NRHP) and designated the State Historic Preservation Officer (SHPO) as the entity responsible for administering state-level programs. Section 106 of the NHPA (16 U.S.C. 470f) and its implementing regulations (36 CFR part 800 *et seq.*) outline the procedures for Federal agencies to follow to take into account the effect of their undertakings on historic properties. The Section 106 process applies to any Federal undertaking (here the proposed Project) that has the potential to affect historic properties, defined in the NHPA as those properties (archaeological sites,

standing structures, or other historic resources) that are listed in or eligible for listing in the NRHP.

Because elements of the proposed Project have the potential to create effects on both historic properties and archaeological sites, there are two Areas of Potential Effects (APEs): one for above-ground resources and one for archaeological resources (see Section 106 letter to SHPO, Appendix C). The archaeological APE is for areas where subsurface ground disturbance associated with the proposed Project would occur, and the above-ground APE is defined as 90 feet beyond the boundaries of the Work Zone shown on Figure 2.

Above-ground properties in the proposed Project area include the 1983 MOE Building, the 1980s LIRR tracks that service the MOE Building, and the 11th Avenue Viaduct constructed in the 1930s. None of these properties are considered historic because they either date to the 1980s rail yard redevelopment or were substantially altered as part of the 1980s rail yard development project. The Hudson Yards had been used as a rail yard for more than 100 years prior to the 1980s LIRR development and has served as a storage and maintenance facility of LIRR commuter trains since 1983.

A URS Architectural Historian qualified under the Secretary of the Interior's Professional Qualification Standards (36 CFR part 61) conducted a site visit and performed research of local and on-line repositories to assess the presence of NRHP above-ground and archaeological resources in the APE. This individual determined the proposed Project's potential to affect built historic properties within the APE. A URS Archaeologist performed the same assessment for archaeological resources. Local repositories included the New York State Office of Park, Recreation and Historic Preservation (OPRHP) in Peebles Island, New York.

The following two historic properties are located in the Hudson Yards and the above-ground APE: the High Line Freight Railroad viaduct in the vicinity of 10th Avenue from Gansevoort Street to West 34th Street (High Line) and the New York Improvement and Tunnel Extension of the Pennsylvania Railroad from New Jersey to Manhattan to Queens (Hudson River Tunnels). Based on previous work done at the Hudson Yards and from OPRHP research, there is low potential for archaeological resources to be present in the archaeological APE.

Appendix C contains the NHPA Section 106 letter to the SHPO that provides additional information about the APEs, cultural resources within the Hudson Yards Area, and the background information that was used to determine effects on historic properties.

3.6.2 Environmental Consequences

No Action

The no action alternative would not affect cultural resources because no excavation, demolition, or construction would occur.

Proposed Action

Temporary visual obstructions created by machinery and other construction equipment associated with the proposed Project could result in temporary loss of context for the architectural resources nearby, resulting in temporary, adverse indirect impacts on cultural resources. Based on available documentation located in the files of the New York SHPO, the *Final General Environmental Impact Statement for the proposed No. 7 Subway Extension and Hudson Yards Rezoning and Development Program* (MTA and NYCPC, 2004), the *Final Environmental Impact Statement for the Western Rail Yard* (NYCPC and MTA, 2009) and data gathered during a field investigation of the Hudson Yards in January 2013, the proposed Project would have no adverse effect on the two historic properties identified in the above-ground APE.

Although construction activities such as pile driving, caisson drilling, and bulldozing have the potential to inadvertently damage adjacent historic above-ground cultural resources from ground vibrations, Amtrak would implement protection measures such as monitoring of the High Line and Hudson River Tunnels to avoid accidental damage during construction, as determined through consultation with the SHPO.

There would be no direct or indirect adverse effects on historic properties from the proposed Project. FRA submitted a letter to the NY SHPO on March 5, 2013, requesting concurrence with this determination. No response has been received as of the date of issuance of this EA.

3.7 VISUAL RESOURCES

3.7.1 Affected Environment

The proposed Project site is contained within Hudson Yards, and primarily occupies the southern half of the Eastern Rail Yard between 10th and 11th Avenues, although some staging areas for construction materials/equipment would occur in the Western Rail Yard (see Figures 1 and 2). The proposed Project site can be seen (through existing construction fencing) from the street level, and from floors above ground level in residential and commercial buildings surrounding Hudson Yards. Because the proposed Project site is part of an active passenger train storage and maintenance yard, existing views primarily consist of the MOE Building, rail tracks, trains, vehicle access roads and ramps, miscellaneous train maintenance equipment, and worker vehicles (see Photograph 1). Hudson Yards is bordered by permanent fencing in some areas that block views of the yards from the street level. Construction projects unrelated to the proposed Project are being built in the Hudson Yards, and there is considerable construction fencing, equipment, and materials staging at the Eastern Rail Yard.

3.7.2 Environmental Consequences

No Action

The no action alternative would not result in any impacts on visual resources because no construction would occur.

Proposed Action

Because the Eastern Rail Yard contains other ongoing construction projects (other than the Overbuild Project), construction activities associated with the proposed Project would be difficult to distinguish from other activities. Construction activities associated with the proposed Project would result in negligible short-term impacts on views of the Hudson Yards. Because existing buildings and tracks would be restored to their current configuration and the concrete casing would be buried below ground, no long-term direct or indirect visual impacts are anticipated from the proposed Project.

3.8 HAZARDOUS MATERIALS AND HEALTH AND SAFETY

3.8.1 Affected Environment

The terms "hazardous materials" and "hazardous waste" as used in this assessment refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation and Liability Act, and the Solid Waste Disposal Act (42 U.S.C. 9601-9675), as amended by the RCRA. Hazardous materials include substances that, because of their quality, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment (42 U.S.C. 9602). Hazardous wastes include solid, liquid, gaseous, semisolid, or any combination of wastes that display one or more hazardous waste characteristics such as corrosivity, reactivity, and toxicity (40 CFR part 261).

Soil and groundwater within the Eastern Rail Yard have been previously assessed for contamination (Langan, 2009 and Langan, 2012). In 2008, the Developer tested soils in the Eastern Rail Yard for contaminants under RCRA hazardous waste standards (Langan, 2009). Testing results indicated that soils throughout the Eastern Rail Yard are typical of soils in the New York urban environment and contain concentrations of semivolatile organic compounds (SVOCs) and metals that exceed NYSDEC guidelines (Langan, 2009). None of the samples exhibited concentrations in excess of RCRA standards, nor did they exhibit reactivity or ignitability characteristics indicative of a hazardous waste. This contamination raises no unique environmental concerns, is indicative of background conditions in historical fill, and requires no specific precautions beyond the typical measures used during construction at redevelopment sites in New York City (Langan, 2009).

The Hudson Yards Developer tested the groundwater in the Eastern Rail Yard for contamination in 2008 (Langan, 2009). One groundwater sample in the southern portion of the Eastern Rail Yard contained concentrations of volatile organic compounds (VOCs) that exceed NYSDEC guidelines, and one sample north of the MOE Building contained concentrations of SVOCs that exceed NYSDEC guidelines. However, most groundwater samples had no evidence of pollutants in excess of NYSDEC guidelines (Langan, 2009).

The MOE Building contains a variety of hazardous materials associated with cleaning and maintenance activities (e.g., cleaning solvents, oil, and grease); all hazardous materials and

wastes are currently stored in RCRA-approved containers and are transported off-site as needed for licensed disposal.

Adjacent to the MOE Building are underground oil and water separators that treat water discharges from the MOE Building and would be removed for construction of the proposed Project.

3.8.2 Environmental Consequences

No Action

No construction would occur under the no action alternative; therefore, no impacts on worker and public safety or the environment from hazardous materials and wastes would occur.

Proposed Action

Hazardous materials could be encountered during excavation activities through exposure to groundwater or during demolition of the MOE Building.

Based upon the 2008 soil testing data, excess soils and fill material that would be excavated from the Eastern Rail Yard during construction are not expected to require management as RCRA hazardous wastes. All soil and fill that is excavated from the proposed Project site would be hauled by truck to licensed disposal facilities in New York, New Jersey or Pennsylvania. Amtrak's construction contractor would complete verification testing in accordance with RCRA regulations and disposal facility acceptance requirements when soils are excavated. Amtrak would develop a Soil Management Plan to ensure that contaminated materials are handled, staged, transported, and disposed of in accordance with Federal, State, and local regulations.

Hazardous building materials (asbestos-containing materials, lead based paint, and polychlorinated biphenyl-containing equipment) could be buried in the historic urban fill layer. Other hazardous materials in the proposed Project area could include contaminated soils and groundwater. None of the construction waste (excavated materials and/or groundwater) is expected to require management as RCRA hazardous waste (Langan, 2009). However, Amtrak's construction contractor would prepare a Soil Management Plan and Groundwater Management and Dewatering Plan to describe the procedures for the handling and disposal of contaminated soil and groundwater if any are encountered. The off-site transport and disposal would be performed in accordance with Federal, State, and local regulations. Additionally, dust control best management practices would suppress any potential for contaminated dust that is generated by the construction activities, such as spraying water, thorough cleaning of on-site vehicles, placing gravel on exposed soil, and covering transport vehicles with tarps.

Amtrak's construction contractor would remove groundwater encountered during excavation from the trench and would test it for contamination. The Dewatering Plan would describe procedures to ensure any contaminated groundwater released during dewatering operations would be treated or disposed of in accordance with Federal, State, and local regulations.

Even though the MOE Building was built in 1983 after several bans on using asbestos-containing materials (ACM) were implemented, there are still multiple building materials on the market that are allowed for use in the United States that contain ACM, such as: vinyl-asbestos floor tiles, roofing felt and coatings, asbestos-cement products, and gaskets. Therefore, to ensure that building materials removed during the demolition of the MOE Building would not expose workers to ACM, a licensed asbestos professional would perform a survey to determine whether all building materials are non-ACM. Documentation (test results, manufacturer's certification) of non-ACM status would be maintained with the proposed Project's records, with the results forwarded to the LIRR Corporate Safety & Training Department. A lead-based paint survey would also be performed, with results kept in the proposed Project's records and sent to the LIRR. Removal of any residual contents of the oil and water separators and the separators themselves would be handled and disposed of in accordance with all Federal, State, and local requirements.

Hazardous materials that are currently stored in the part of the MOE Building to be demolished would be placed in appropriate containers for transport and shipped off-site according to Federal, State and local regulations to other MOE maintenance facilities for their continued use.

Because the MOE Building would not be in use during construction of the proposed Project, the elimination of the oil and water separator during construction would have no impacts. Once the MOE Building is rebuilt, new oil and water separators would be installed to prevent the discharge of hazardous materials from the MOE Building once it resumes operations.

Construction activities would include the use of hazardous materials and hazardous waste generation (i.e., solvents, hydraulic fluid, oil, and antifreeze) from construction equipment. Amtrak would implement appropriate safety measures such as preparing a Health and Safety Plan along with procedures for the handling, storage, and disposal of hazardous materials and wastes during construction activities to limit worker, public, and environmental exposure; therefore, no impacts on worker and public safety are expected. Prior to construction, Amtrak would also require the construction contractor to develop a site-specific plan containing best management practices for hazardous materials and wastes spill prevention and cleanup procedures.

With implementation of the hazardous materials and hazardous waste best management practices and adhering to Federal, State, and local requirements for handling of hazardous materials and wastes, no direct or indirect adverse impacts are anticipated as a result of the proposed Project.

3.9 NOISE AND VIBRATION

3.9.1 Affected Environment

The New York City Noise Control Code (Local Law 113, 2005) establishes sound-level standards for various activities and equipment and contains guidelines and sets limits for noise generated from construction activities. Noise generated by construction is evaluated using noise

impact criteria provided in the *City Environmental Quality Review Technical Manual* (NYC Mayor's Office of Environmental Coordination, 2012). Rock blasting within New York City is regulated by the New York City Fire Department and the New York City Buildings Department.

Existing noise levels throughout the Eastern Rail Yard are very high, with lower levels occurring outside of standard business and construction hours (evenings and weekends). Vehicular and train traffic and construction equipment create the most common and the highest noise levels in the Eastern Rail Yard. Other commonly occurring loud noises include local traffic and aircraft flying overhead. Construction noise is currently being generated in and around the Hudson Yards by projects unrelated to the proposed Project, including nearby residential and commercial construction. Although there is a residential building adjacent to the Eastern Rail Yard to the south, no noise-sensitive receptors (such as churches, schools, hospitals, or landmarks/parks) are within hearing range of the Eastern Rail Yard.

The Eastern Rail Yard and surrounding areas currently experience vibration from existing underground trains and tunnels, construction activities such as rock blasting and drilling, and heavy equipment and vehicle operation.

3.9.2 Environmental Consequences

No Action

The no action alternative would have no effect on noise or vibration levels because no construction would occur.

Proposed Action

Construction activities associated with the proposed Project would cause temporary increases in noise levels, although these increases would be indistinguishable from existing construction noises already occurring at the proposed Project site. Amtrak's construction contractor would comply with the New York City Noise Control Code to minimize impacts from noise along with implementing good engineering practices such as proper maintenance and operation by muffling devices and shutting off idling machinery when not in use.

Vibrations from rock blasting would travel into the soil and rock and potentially into the foundations and walls of nearby buildings and facilities, including Amtrak's Empire Line Tunnel that is immediately north of the proposed Project in the Eastern Rail Yard. Special rock-blasting techniques such as channel drilling and rock splitting would be used to reduce vibration impacts so that no adverse impacts on nearby facilities, buildings, tracks, and railroad systems would occur. LIRR would notify Amtrak if vibration was occurring beyond LIRR-approved levels, and Amtrak would mitigate the vibrations to acceptable levels to prevent any substantial impacts on LIRR facilities and operations. As noted in Section 3.2.2, Amtrak's construction contractor would obtain rock blasting permits from the New York City Fire Department and the City's Buildings Department as needed. With implementation of noise and vibration control measures and compliance with city, State, and Federal noise and blasting regulations, the proposed Project

would not result in adverse impacts on buildings, facilities or operations from noise and vibration associated with demolition and construction activities.

3.10 ACCESS AND TRAFFIC

3.10.1 Affected Environment

The area of Manhattan in the vicinity of Hudson Yards is heavily used on a daily basis by pedestrians and vehicles. Hudson Yards is surrounded by streets, with 10th Avenue on the east, West 30th Street to the south, 12th Avenue on the west, and West 33rd Street to the north (Figure 1). Sidewalks run alongside these streets and avenues; however, because of ongoing construction at Hudson Yards unrelated to the proposed Project, in some areas pedestrians are either re-directed to sidewalks on the opposite side of the street (West 30th Street) or temporary sidewalks are provided (e.g., along 10th Avenue). The 11th Avenue bridge over the rail yards divides Hudson Yards into the Eastern Rail Yard and Western Rail Yard.

Construction-related traffic (e.g., equipment, worker vehicles, and transport trucks) associated with construction projects at or in the vicinity of Hudson Yards unrelated to the proposed Project primarily travels along five north-south avenues (8th, 9th, 10th, 11th, and 12th Avenues) and three bi-directional crosstown streets (23rd, 34th Street, and 42nd Streets) within Manhattan to and from the Hudson Yards area. Table 4 shows the routes employees are assumed to use when commuting to the Hudson Yards from outside Manhattan (MTA and NYCPC, 2004).

Table 4
Predicted Employee Commuter Routes to Hudson Yards from Outside Manhattan

Traveling From	Route
The Bronx and Westchester	12th Avenue/Route9A North to Henry Hudson Parkway
Brooklyn and Staten Island	12th Avenue/Route 9A South to Brooklyn-Battery Tunnel
Queens and Long Island	West 34th Street East to Queens Midtown Tunnel
New Jersey via George Washington Bridge	12th Avenue/Route9A North to Henry Hudson Parkway
New Jersey via Holland Tunnel	12th Avenue/Route 9A South
New Jersey via Lincoln Tunnel	11th Avenue (at West 40th Street) Entrance

Source: MTA and NYCPC, 2004

The City of New York prohibits trucks having an overall length of 33 feet or more from roadways except for designated through and local truck routes, as indicated in *New York City Traffic Rules and Regulations* (City of New York, 2012). Local trucks are defined as trucks intended for the purpose of delivery, loading, or providing service within Manhattan; local trucks in the vicinity of the proposed Project area are restricted to the following routes (MTA and NYCPC, 2004):

- 8th, 9th, 10th, 11th, and 12th Avenues
- 23rd Street from First Avenue to Twelfth Avenue
- West 30th Street from Broadway to Eleventh Avenue
- 31st Street from Third Avenue to Tenth Avenue
- 34th Street from First Avenue to Twelfth Avenue
- West 40th Street from the Lincoln Tunnel entrance to Eleventh Avenue
- West 41st Street from Ninth Avenue to the Lincoln Tunnel entrance
- 42nd Street from First Avenue to Twelfth Avenue

Local trucks traveling in and out of Manhattan would use certain routes, depending on their cargo. Trucks removing spoils that are traveling to New Jersey or Pennsylvania would likely use the Lincoln Tunnel. Concrete delivery trucks would likely travel from the Bronx, Queens, or Brooklyn and steel delivery trucks would originate west and use the Lincoln Tunnel and George Washington Bridge. Amtrak assumes that trucks delivering and removing any other construction materials not specified would use these same routes in and out of Manhattan (MTA and NYCPC, 2004).

Both on-street and off-street parking are available in the area surrounding the Hudson Yards. On-street parking is metered and can be difficult to find, especially during typical business hours (Monday to Friday from 7 a.m. to 7 p.m.). Off-street parking is available in both private and commercial parking facilities.

3.10.2 Environmental Consequences

No Action

The no action alternative would have no effect on traffic and access because no construction would occur.

Proposed Action

Throughout the proposed Project duration, Amtrak anticipates that it would need to haul approximately 5,190[1] truckloads of soil and rock from the proposed Project site. Both soils and rock that are excavated would be hauled by truck to facilities in New York, New Jersey, or Pennsylvania (up to 100 miles away) for disposal and recycling, respectively. Because disposal facilities operate during normal business hours, haul trucks would only operate during the day,

[1] Amtrak anticipates a total of 83,000 cubic yards of soil and rock would be excavated from the tunnel trench. Assuming haul trucks would have a 16-cubic-yard capacity, approximately 5,190 truckloads would be needed to transport the material off-site. Assuming haul trucks would run on weekdays only results in 20 trucks per day over a 12 month period (5,190 divided by 260 weekdays per year)

with an estimated average of 20 haul trucks per day leaving the proposed Project site during the 12-month excavation period. On some weekdays, more than 20 haul trucks may leave the site if a holiday limits hauling days. The additional truck traffic would result in direct impacts on traffic in the region from the proposed Project; however, given the existing amount of traffic in Manhattan and the region, impacts would be temporary and minor.

The proposed Project would result in additional traffic on the streets both within Manhattan and outside of Manhattan from construction workers traveling to the Hudson Yards, haul trucks transporting excavated materials from the proposed Project site, and from delivery of construction-related equipment to the proposed Project site. These direct traffic impacts would occur mostly during morning and evening peak commuter and would likely be most noticeable where traffic is already congested, primarily around the intersection of 11th Avenue at West 34th Street during the morning peak traffic period, the intersections of West 34th Street with both 10th and 11th Avenues during mid-day traffic peaks, and at 12th Avenue/West 34th Street during the evening rush hour. Project-related trucks would adhere to designated local truck routes to minimize impacts. No lane closures or traffic re-routing would be needed for the proposed Project since all Project-related work would occur within the Hudson Yards.

All worker and construction vehicles would park along the access road in the Western Rail Yard of the Hudson Yards; construction vehicles and equipment would be stored or parked in the staging areas shown on Figure 2. Therefore, parking in the Hudson Yards area would not be affected by the proposed Project. The sidewalk along the west side of 10th Avenue would be closed for part of the construction period; however, most of this sidewalk is already closed and the pedestrian walkway that has already been provided could be used. Therefore, pedestrian routes are not expected to be affected by the proposed Project. Construction fencing (e.g., chain link fence), and other barriers would be maintained around the work zone to prevent public access.

The existing vehicular ramp from 10th Avenue that provides private access to the Hudson Yards would be permanently removed for construction of the proposed Project. Access to the Hudson Yards would be provided by an existing paved access road from 12th Avenue.

Adherence to truck routes for haul trucks associated with the proposed Project and employee and construction equipment parking in designated areas would minimize impacts on access and traffic from the proposed Project. Impacts on access and traffic would be direct, but would be temporary and minor.

3.11 UTILITIES, INFRASTRUCTURE, AND LIRR OPERATIONS

3.11.1 Affected Environment

LIRR and MTA currently use the Hudson Yards for train switching, storage, and maintenance. A site investigation for the proposed Project was performed on behalf of Amtrak to identify the utilities and infrastructures that could be affected by the construction of an underground concrete

casing at the proposed Project site to connect to a potential future tunnel (Tutor Perini/Parsons Brinkerhoff, 2012). Amtrak's construction contractor would temporarily take the utility lines that cross the proposed Project alignment out of service or relocate them and keep them operational during construction, as described below. Amtrak's construction contractor would rebuild all utilities in their original locations after proposed Project completion and restore the utilities to their full pre-construction function and capacity. All information in this Section is taken from the *Amtrak Gateway Project-Hudson Yards Study Final Report* (Tutor Perini/Parsons Brinkerhoff, 2012).

Storm Sewer and Sanitary Sewer

Existing sanitary sewer lines serve the MOE Building. In addition, runoff from the proposed Project site drains into an existing storm water collection system of catch basins and underground pipes that discharges to City sewers, and is then conveyed to one of the several wastewater treatment plants that serve the City. Rainwater that infiltrates the ground percolates down into the water table and joins groundwater flow towards the Hudson River (Langan, 2009).

Electrical

Existing electrical systems (including Alternating Current [AC] Power, Direct Current [DC] negative and DC positive) provide service to facilities within Hudson Yards. The AC Power system currently provides lighting for the Eastern Rail Yard access ramp, the road that provides access into the rail yard from 10th Avenue, exterior lighting of the MOE Building, and facility power to the interior of the MOE Building.

Signals and Communications

The proposed Project site includes fire alarm and telephone communications systems that serve the Hudson Yards and the MOE Building. The site also includes a signal system comprised of switches, cabling, hardware and conduits that serve the LIRR yard and MOE Building.

Water

The proposed Project site includes 10-inch fire protection water lines and 6-inch potable water lines, which provide service to the proposed Project site as well as surrounding areas.

Gas

A 5-inch gas line at the proposed Project site services only the MOE Building.

MOE Building

The MOE Building addresses LIRR's daily fleet needs by providing an on-site location for immediate attention to unscheduled repairs of rolling stock equipment, scheduled inspections, and required modifications including wheel truing. The MOE Building also houses a large storeroom that supports MOE operations and provides the tools necessary for inspection and maintenance without requiring rail yard personnel to transport equipment into the building. The storeroom contains mostly train parts, handling equipment, and cleaning and service materials.

Currently, the building is in operation for two shifts, five days a week with 34 personnel assigned to the building.

Train Tracks

The proposed Project work area contains yard tracks 0, 1, and 2 used for train switching and storage. The proposed Project work area also includes shop tracks 1s through 6s used to get trains into the MOE Building for service and repair. The shop tracks are also used for the staging and then repairing of rolling stock.

3.11.2 Environmental Consequences

No Action

No impacts on utilities and infrastructure would occur under the no action alternative because no construction would occur.

Proposed Action

Storm Sewer and Sanitary Sewer

Amtrak would remove a portion of the existing Eastern Rail Yard storm water collection and discharge system for excavation of the trench for the concrete casing. Amtrak would install temporary stormwater infrastructure (i.e., catch basins and storm sewer lines) to collect and discharge stormwater runoff and to maintain the integrity of LIRR's current collection systems, in compliance with DEP and NYSDEC regulations and at locations acceptable to LIRR. Upon the proposed Project's completion, all affected storm sewers and catch basins would be returned to their original capacity and function.

Electrical

For the portion of the MOE Building that would remain standing, alternate arrangements to provide AC Power to the building may be needed. Temporary construction lighting would be provided along the access road and in the construction work zone. AC Power lines that connect the LIRR Emergency Facilities building west of 11th Avenue in the Western Rail Yard to portions of the Hudson Yards that would remain in operation during the concrete casing construction would also be affected. Therefore, Amtrak would keep this portion of the AC Power system servicing the Emergency Facilities building operable during construction including providing a temporary emergency generator for LIRR use if necessary.

The proposed Project construction would necessitate removal of a portion of the existing DC Negative and Positive systems serving the MOE Building. Therefore, the affected portions of the DC Negative and Positive systems would be temporarily taken out of service. Another segment of the DC Positive system that serves tracks north of the proposed Project would be disrupted during construction. These tracks would remain in operation throughout the proposed Project construction; therefore, Amtrak would temporarily relocate or maintain that portion of the DC Positive system to keep these tracks in service. Upon completion of the proposed Project,

Amtrak would restore any portion of the electrical systems removed during proposed Project construction with in-kind electrical systems.

Signals and Communications

Because the proposed Project construction would disrupt the existing signals and communications systems for the portion of the LIRR yard serving the MOE Building, the affected portions of these systems that are unnecessary to LIRR operations and safety would be temporarily taken out of service and fully restored after completion of the proposed concrete casing. The proposed Project would replace, subject to LIRR approval, that portion of the signals and communications systems needed for continued LIRR operations and safety with a temporary arrangement adequate to meet LIRR needs.

Water

The fire protection and potable water lines that lie within the proposed Project alignment would need to remain in service during construction because they provide service to areas of the Hudson Yards other than the MOE Building. Therefore, the water lines would be temporarily relocated outside of the construction zone. Temporarily exposed water lines would be protected from freezing by insulation or heat trace. All water lines would be fully restored upon completion of the concrete casing.

Gas

The Amtrak construction contractor would deactivate and cap the gas line that lies within the proposed Project alignment outside of the construction area. If it is necessary to remove the existing gas line during construction, the gas line would be fully restored upon completion of the concrete casing.

MOE Building and Ramp

Although the utilities servicing the part of the MOE Building that would be demolished would be removed and shut-down during the proposed Project construction, utilities to the portion of the MOE Building left standing (e.g., water lines, heat and air conditioning, electrical) would either be maintained or relocated as needed to protect the MOE Building from degradation and to provide security services, or be prepared for being off-line (such as insulating water lines that are susceptible to freezing) and periodically checked for integrity so that they could easily be turned back on and fully functional after the proposed Project construction. Any voids left in the portion of the MOE Building that would remain standing would be closed or filled by temporary walls to provide security and protection from the weather. No facility upgrades would occur during reconstruction of the MOE Building other than changes needed to conform to any new building codes and standards to be in compliance with State and Federal building codes and relevant building standards. The access ramp from 10th Avenue into the Eastern Rail Yard would be demolished prior to construction of the concrete casing. The ramp would not be rebuilt because construction of the Overbuild Project platform precludes use of that space for a ramp.

The MOE Building's functions would be temporarily transferred to the Hillside and Morris Park LIRR facilities in the Queens borough of New York City. Because most of the transferred facility functions would be performed inside LIRR buildings, any additional equipment and activities would likely be imperceptible to the surrounding communities. Equipment that is relocated to the Hillside and Morris Park locations for service would be transported there on LIRR trains. The movement of the equipment from Hudson Yards to the Hillside and Morris Park facilities is not expected to require more than two train trips per day, and, given existing number of LIRR train trips per day, this number of additional trips would be minor. The Hillside and Morris Park facilities would be able to accommodate the transferred functions without experiencing an increase in the number of personnel shifts per day, although a small increase in staffing at these two locations and an increase in personnel overtime hours would be necessary to accommodate the additional services. The transfer of functions may also lead to delays in repairs and a decrease in the amount of spare equipment available because of the increased workload at the Hillside and Morris Park locations. The majority of the 34 MOE Building personnel would be temporarily reassigned to the Hillside shop. The Hillside facility can be accessed by LIRR commuter trains. Therefore, the relocation of personnel for the proposed Project would not result in significant impacts on transportation, as defined by the New York City Environmental Quality Review Technical Manual[2] (New York City Mayor's Office of Environmental Coordination, 2012). While the cost of performing the MOE Building current functions would increase while the building is unavailable, LIRR does not anticipate any adverse impact on its provision of transportation services to the public.

Train Tracks

Amtrak would need to remove yard track 0, the portion of yard track 1 that is in the Eastern Rail Yard, and shop tracks 4s through 6s for construction of the proposed Project because the tracks lay directly over the proposed Project alignment. These tracks would be replaced after the proposed Project's completion. Amtrak would need to take yard track 2 out of service temporarily or install new switches because the construction work zone would encompass the tracks for part of the construction period. The portion of yard track 1 that is in the Western Rail Yard would be taken out of service temporarily to install a new switch. Amtrak would obtain LIRR approval prior to removing tracks or taking tracks out of service.

Summary

Temporary moderate direct and indirect adverse impacts to LIRR and MTA operations would occur as a result of the proposed Project. Amtrak would work closely with the LIRR to minimize the duration of disruption to facilities (e.g., some yard tracks would not be removed but only

[2]Chapter 16, Section 300 of the New York City Environmental Quality Review Technical Manual (2012) notes that no significant adverse environmental impacts would occur absent unusual circumstances when a project will result in less than an additional 50 peak hour vehicle trips or 200 peak hour subway/rail or bus transit riders.

taken temporarily out of service and a portion of the MOE Building will remain standing). Amtrak would coordinate a detailed Site Logistics Plan with the LIRR during the design phase of this proposed Project. With implementation of the mitigation measures discussed in this section, impacts on LIRR and MTA operations would not be adverse.

3.12 CUMULATIVE EFFECTS

This section addresses cumulative effects from the proposed Project. Indirect impacts are discussed under the Environmental Consequences sections for individual resources in Chapter 3 and are therefore not discussed further except where they would contribute to potential cumulative impacts. Cumulative effects are the impact on the environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, State, and local) or individuals.

3.12.1 Reasonably Foreseeable Future Actions

The following is a list of the major projects at Hudson Yards that are included in the evaluation of cumulative effects for the proposed Project. These projects are in the immediate vicinity of the proposed Project and are currently ongoing, or planned with funding, and could potentially result in cumulative impacts when combined with the Proposed Project.

- The **High Line Redevelopment Project** is a public park built on an historic freight rail line elevated above the streets on Manhattan's West Side. It is owned by the City of New York, and maintained and operated by Friends of the High Line. The High Line is a one mile linear greenway, with plans for expansion that would extend this existing urban park towards the Hudson River. The recycling and redesign of the former railway into an aerial greenway has spurred real estate development in the adjacent neighborhoods.
- The DEP is drilling the **New York City potable water tunnel shaft**, a vertical shaft in the southeast corner of the Eastern Rail Yard, to connect to an underground water tunnel. Construction of the shaft is expected to be completed in 2013.
- The **Hudson Yards Project** (Overbuild Project) is a mixed-use development of residential, commercial, and civic uses and open space to be construction on a platform over the Hudson Yards. The project is led by the private developer, Related Companies, and will contain approximately 13 million square feet of residential and commercial space in three office buildings, multiple residential towers, a school, and a cultural facility. The project will benefit from several public investments, including the extension of the No. 7 Subway line to a new station at 34th street between 10th and 11th Avenues and investments in the nearby High Line and Hudson River Park. The Developer has obtained all necessary approvals and permits for the work.

- Various entities have proposed conceptual proposals and plans for new buildings and renovations in the surrounding area. No specific plans have been identified at this time.

Because Amtrak is only in the early planning stages of studies to consider expand services and increase train capacity with a new tunnel under the Hudson River (see discussions of the Master Plan, NEC FUTURE, and the Gateway Program, discussed in Chapter 1), Amtrak has not yet developed specific plans or designs, nor has it received or identified any funding for construction of such a tunnel at this time. Therefore, this program could not be considered in the evaluation of cumulative impacts. Additionally, no rail or rail yard projects are planned in the foreseeable future at the Hudson Yards by LIRR, MTA, or Amtrak.

3.12.2 Potential Cumulative Impacts

This section addresses only those resources subject to cumulative environmental effects; resources that are not present within the proposed Project site or that would not be affected by the proposed Project are not addressed. Cumulative impacts from the proposed Project when combined with other projects discussed in Section 3.12.1 above are described below. All impacts from the proposed Project would be temporary, lasting part or all of the approximate 24 months of construction. Additionally, because the proposed Project is for construction of an underground structure that would be covered by the Overbuild Project, and the scale of the proposed Project is minor when compared to the scale and magnitude of the Overbuild Project, the contribution of the proposed Project to cumulative impacts, when combined with the Overbuild Project impacts, would be negligible.

Cumulative impacts from the proposed Project when combined with the reasonably foreseeable future actions listed above would be limited to the proposed Project construction phase and include an increase in traffic, air and noise pollution, soil and groundwater disturbance, disturbances to nearby buildings and facilities from vibration, impacts on visual resources from the presence of construction equipment, the potential for contact with hazardous materials, and impacts on LIRR and MTA utilities and operations. These cumulative impacts would be temporary, and with implementation of mitigation measures such as traffic control, adherence to city, State and Federal regulations for noise and vibration and hazardous wastes and materials, OSHA regulations, and Amtrak's coordination with the Developer, LIRR, and MTA, any cumulative impacts are anticipated to be minor.

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CHAPTER FOUR DISTRIBUTION

The Draft EA is available for public review online on FRA's Web site at http://www.fra.dot.gov/Page/P0214. Please submit comments no later than April 29, 2013 via email to HillA@amtrak.com or by mailing them to:

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A hard copy of the EA is available at the following location:

Science Industry and Business Library
New York Public Library
188 Madison Avenue
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Library Hours:
Mon., Fri., Sat.: 11:00 a.m. – 6:00 p.m.
Tues., Wed., Thurs.: 10:00 a.m. – 8:00 p.m.
Sun.: Closed

A copy of the EA was provided to the Federal Transit Administration (FTA) requesting comments and also to inquire what FTA projects, if any, may be in or planned within the proposed Project area. In addition, the NYSDEC and New York City Department of Transportation were invited to comment on the proposed Project and EA regarding excavation activities in New York City and traffic impacts and controls during construction, respectively.

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