Chapter 3: Affected Environment and Environmental Consequences

This chapter describes the existing conditions at the Proposed Project site and within the study area and analyzes the potential effects of the No Action Alternative and the Proposed Project on the environment. As discussed in Chapter 1, the study area for the Proposed Project includes a 750-foot buffer around the Proposed Project site in the Towns of Kearny and Harrison in Hudson County, New Jersey (see Figure 1-4). The analysis areas include transportation; land use; zoning, and public policy; socioeconomic conditions and environmental justice; visual and aesthetic resources; cultural resources; floodplains and riparian zones; coastal zones; wetlands and open water; threatened and endangered species; air quality; noise and vibration; contaminated and hazardous materials; public health and safety; and irreversible and irretrievable commitment of resources. Each section discusses the potential effects of the Proposed Project during project construction and operation, as applicable. Chapter 4 discusses the indirect and cumulative effects of the Proposed Project; Chapter 5 presents the Draft Section 4(f) Evaluation; and Chapter 6 describes and summarizes the environmental commitments made throughout this EA.

3.1 Transportation

3.1.1 Regulatory Context and Methodology

This section assesses the potential effects, both positive and negative, of the Proposed Project construction and operation on transportation conditions in the study area, in accordance with FRA's Procedures for Considering Environmental Impacts (FRA Environmental Procedures) (64 Federal Register [FR] 28545 [May 26, 1999]).[1]

The assessment considered the effects of the Proposed Project construction and operation on rail service. Amtrak performed a rail operations simulation analysis, using a Rail Traffic Controller (RTC) model of the Proposed Project site, to evaluate the effects of potential track outages during construction. The analysis was based on the June 2, 2013 NJ TRANSIT Hoboken Division Operating Plan and evaluated the effects of single-track and two-track outages during weekdays, weeknights, and weekends on NJ TRANSIT's Morris & Essex Line.

3.1.2 Existing Conditions

The rail lines within the study area include Amtrak's NEC, NJ TRANSIT's Morris & Essex Line and Eastbound Waterfront Connection, Conrail's Center Street Industrial Track, and PATH's Newark–WTC Line. Amtrak has restricted speeds along the Sawtooth Bridges to 60 mph due to the age and deteriorated condition of the bridges. This speed restriction is currently in effect.

As discussed in Chapter 1, Amtrak operates daily intercity rail service between Washington, DC and Boston via the Sawtooth Bridges. On a weekday, 347 Amtrak and NJ TRANSIT trains cross the Sawtooth Bridges in both the eastbound and westbound directions.[2] During the PM peak hour, 26 trains cross the Sawtooth Bridges in both the peak and reverse peak directions.[3]

[1] FRA Procedures for Considering Environmental Impacts. Accessed August 13, 2018. https://www.transportation.gov/sites/dot.gov/files/docs/FRAEnvProcedures_FED_REG_Notice.pdf

[2] The number of trains includes passenger trains in both directions but does not include empty trains (non-revenue moves) or equipment crossings.

[3] Amtrak Operations, April 2018. The peak hour for NJ TRANSIT trains is different from the peak hour for Amtrak trains. Train volumes were calculated for the Friday afternoon 6 PM to 7 PM peak, which is the hour when the total number of trains over the Sawtooth Bridges is greatest.

The Sawtooth Bridges pass underneath both the eastbound and westbound New Jersey Turnpike overpass. Rail traffic crossing the Sawtooth Bridges does not interface with vehicular traffic crossing the New Jersey Turnpike (see Photo 1 of Figure 1-3B and Photo 5 of Figure 1-3D). In addition, the Newark Turnpike passes under the NEC at the eastern boundary of the study area for the Proposed Project. Vehicular traffic on the Essex Freeway (I-280) is parallel to the rail right-of-way in the southwest portion of the study area for the Proposed Project. Rail traffic crossing the Sawtooth Bridges does not interface with vehicular traffic on any of these publicly accessible roads. The study area for the Proposed Project also includes the parking lot for the United States Postal Service Processing and Distribution Center. The access point to this parking lot is outside the study area for the Proposed Project and does not interface with rail traffic. There are no pedestrian or bicycle paths within the Proposed Project site or study area. While the study area includes a portion of the Passaic River, boaters do not interface with rail traffic. Additionally, there are no boating routes in the Proposed Project site as the Proposed Project site is on land.

3.1.3 No Action Alternative

Under the No Action Alternative, Amtrak would make only critical repairs to the Sawtooth Bridges on an as-needed basis and continue the current maintenance regime. Amtrak and NJ TRANSIT anticipate a growth in NEC ridership due to a higher demand for passenger rail service; however, corridor-wide improvements are necessary to accommodate this increase in ridership and such increase in service is not included as part of the Proposed Project. Therefore, for the purpose of this analysis, service capacity across the Sawtooth Bridges would remain the same.

Under the No Action Alternative, the condition of the Sawtooth Bridges would continue to worsen, potentially leading to stricter speed and weight restrictions in the future. Bridge maintenance costs and disruptions, as well as deterioration, would continue to increase over time, causing Amtrak to eventually take the Sawtooth Bridges out of service. Lack of service crossing the Sawtooth Bridges would disrupt the local, regional, and national rail networks, resulting in detrimental effects on mobility and the economy, and increased vehicular congestion on highways.

3.1.4 Potential Impacts of the Proposed Project

3.1.4.1 Construction

The Proposed Project would include construction on existing transportation rights-of-way. Temporary track outages on the NJ TRANSIT Morris & Essex Line would be necessary to support construction of the new structures and their associated piers and abutments where the Morris & Essex Line tracks pass below the Sawtooth Bridges. Based on the RTC model analysis, Amtrak could take one NJ TRANSIT track out of service on a 24-hour basis during weekdays and weeknights and up to two tracks out of service over the entire weekend period without significantly affecting NJ TRANSIT scheduled service and scheduled equipment and empty train (i.e., non-revenue) movements. However, Amtrak would generally limit weeknight outages to a single track for four to five hours. Amtrak would limit weekend outages to 56 hours for all tracks, including the time required for de-energizing, grounding, and restoring power.

During weekdays and weeknights, outages on the southern NEC track would affect two NJ TRANSIT trains making the MMC[4] employee stop, as NJ TRANSIT uses the southern track to access the MMC stop. Amtrak would either temporarily reroute trains to MMC via a different track or construct a temporary access

[4] NJ TRANSIT operates equipment ferry moves between the MMC and several outlying terminals. These movements largely occur during mid-day and especially late-night hours and are often "just in time" deliveries of railcars that are needed to support revenue operations.

platform. Amtrak would maintain access between the MMC and the existing Eastbound Waterfront Connection, as it provides NJ TRANSIT's only practical access to the NEC from the MMC and vice-versa. Even with one Morris & Essex Line track continuously out of service, it would be possible to support the essential and sometimes urgent "extra" train movements associated with the MMC.

On weekends, train volumes are light enough that single tracking would be feasible. Based on the RTC model results, the predicted delays associated with two-track outages for any combination of tracks would be negligible. During construction of the new Sawtooth Bridges, PATH trains would not use the tracks below and would therefore need to run bi-directionally on the eastbound PATH tracks along the Passaic River. Overall, the construction-period impacts to transportation would be temporary and not significant. Furthermore, there would be no construction-period impacts to roads and vehicular traffic.

3.1.4.2 Operation

The Proposed Project would benefit railroad operations by providing a structurally superior four-track crossing with increased design speeds of up to 90 mph. The Proposed Project would not change the length of the trains that use the Sawtooth Bridges nor increase train volumes. The Proposed Project would provide for redundancy along the Sawtooth Bridges and enable more reliable and resilient rail service.

There would be no increase in peak-period rail service until railroad operators implement other future initiatives to expand service, such as the expansion of New York Penn Station, as evaluated in the NEC FUTURE initiative (see Section 1.4.1.1). The number of Amtrak and NJ TRANSIT peak-period trains across the Sawtooth Bridges would be the same upon completion of the Proposed Project (with four NEC tracks) as in the No Action Alternative (with two NEC tracks). The Proposed Project would be consistent with the goals of the NEC FUTURE program that would achieve the long-term rail improvements envisioned for the region. Together with other projects along the corridor, the Proposed Project would allow for future service increases along the NEC to meet the growing ridership demand. The Proposed Project would not result in permanent roadway, traffic, or parking changes. The Proposed Project would not result in significant adverse effects to transportation and would, in fact, result in a long-term transportation benefit.

3.2 Land Use

3.2.1 Regulatory Context and Methodology

For purposes of environmental reviews, FRA follows guidance provided by the Council on Environmental Quality (CEQ) and FRA's Environmental Procedures. This section considers the potential impacts on existing and planned land uses. This section also identifies open space and areas devoted to recreation (passive and active) to determine whether the Proposed Project could adversely affect these sites.

Transportation projects often require property acquisition and relocation. A federally funded project must adhere to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, as codified in Title 42, Section 4601 et seq. of the United States Code, and the applicable implementing regulations set forth in Title 49, Part 24 of the Code of Federal Regulations (collectively, "the Uniform Act") with regard to relocation services, moving payments, replacement housing payments, and other allowable payments related to commercial and residential moving costs and displacement. The Uniform Act protects the rights of owners and tenants of real property acquired to implement a project; the Act provides for fair uniform and equitable treatment of persons displaced from their homes, businesses, or farms by federal and federally assisted programs. It also recognizes that displacement of businesses often

results in their closure and aims to minimize the adverse impact of displacement to maintain the economic and social well-being of communities. The Uniform Act is designed to ensure that individuals do not suffer disproportionate injuries as a result of programs and projects designed for the benefit of the public as a whole, and to minimize the hardship of displacement on such persons.

Amtrak used the New Jersey Department of Environmental Protection (NJDEP) online mapping tools (NJ-Geoweb), available parcel data, and field observations for the analyses discussed in this section.

3.2.2 Existing Conditions

The primary land use on the Proposed Project site is transportation right-of-way associated with Amtrak, NJ TRANSIT, PATH, and Conrail (see Figure 3-1). Amtrak, NJ TRANSIT, Conrail, and PATH each own various parcels in the Proposed Project study area.

The Proposed Project study area contains a mix of transportation, landfill, industrial, utility, commercial, and wetland uses. The New Jersey Turnpike overpasses bisect the Proposed Project site and study area (see Photo 1 on Figure 1-3B and Photo 5 on Figure 1-3D). Transportation, landfill, and industrial uses, as well as the Passaic River, dominate the western portion of the study area. An Amtrak electrical substation, industrial uses, a United States Postal Service distribution center, and undeveloped wetland associated with the Cedar Creek Marsh are within the eastern portion of the study area. The Town of Kearny owns an approximately 94-acre landfill — Landfill 1-D (Block 285, Lot 2) — north of the Proposed Project site. NJDEP is currently remediating the site.[5] A small wetland and open water system is at the southern end of Landfill 1-D and north of the Proposed Project site.

No sensitive uses, such as residences, schools, places of worship, or parks are located on the Proposed Project site or within the study area. Based on NJ-Geoweb, the Town of Kearny's Recreation Department, the Town of Harrison Master Plan (2007)[6] other public documents and comprehensive field surveys, there are no publicly accessible parks and recreational facilities on the Proposed Project site or within the study area.

3.2.3 No Action Alternative

Under the No Action Alternative, land use at the Proposed Project site and within the study area would likely remain the same, and there are no planned developments of publicly accessible parks, recreation facilities, or other community facilities.

3.2.4 Potential Impacts of the Proposed Project

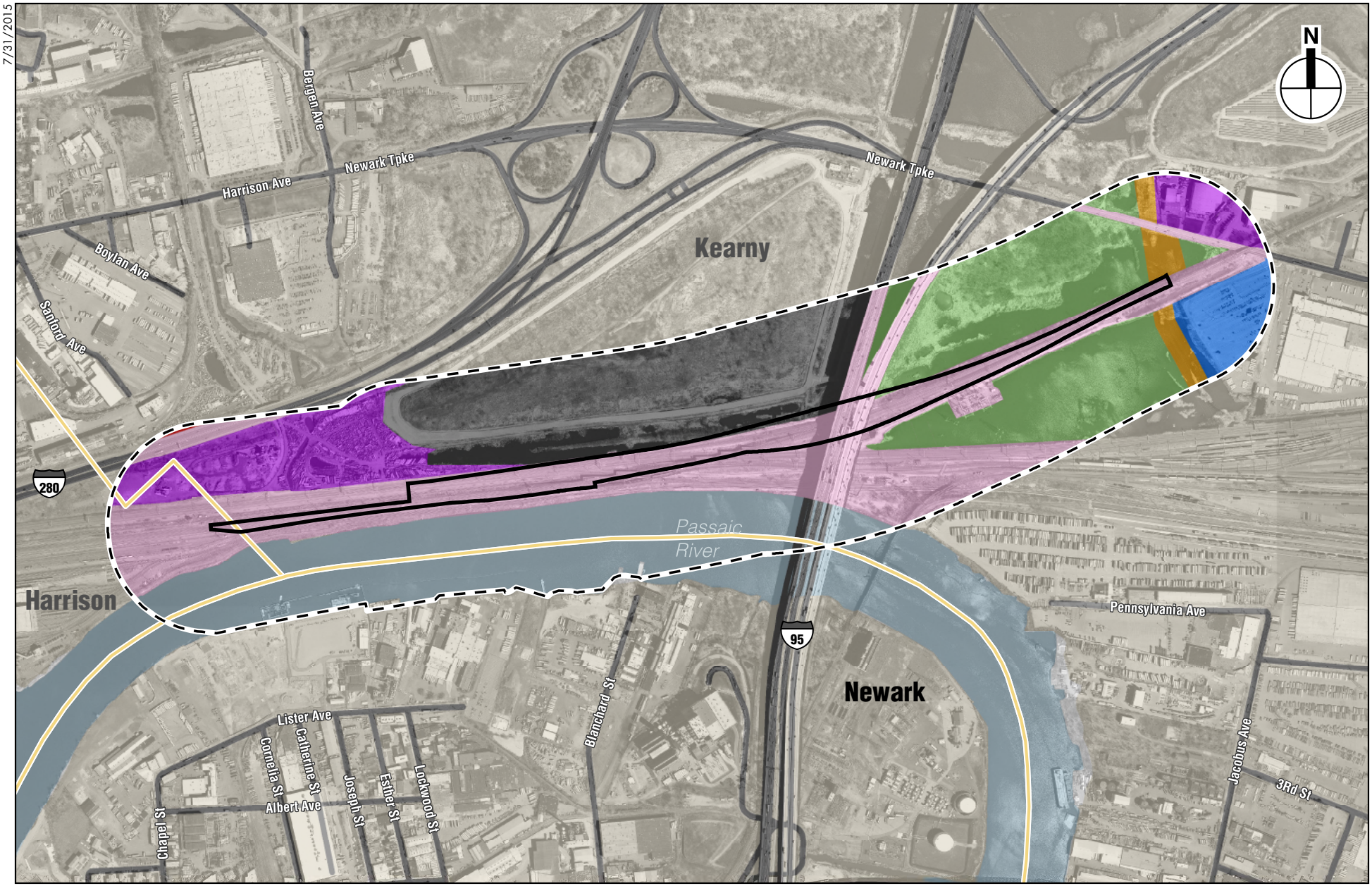
3.2.4.1 Construction

As there are no residences, schools, places of worship, or parks at the Proposed Project site or within the study area, there would be no adverse effects to local and/or sensitive land uses from construction of the Proposed Project. Amtrak would secure any needed easements from NJ TRANSIT, PATH, and Conrail for the new tracks and structures. New Jersey Turnpike Authority has aerial easements over the NEC (for the New Jersey Turnpike overpasses). The proposed Amtrak and NJ TRANSIT track alignments would pass below those New Jersey Turnpike easements.

[5] NJDEP/Municipal Sanitary Landfill Authority (MSLA 1-D). Accessed August 13, 2018. https://www.nj.gov/dep/srp/community/sites/pi/132232.htm

[6] Heyer, Gruel and Associates (2007). *Town of Harrison Master Plan.* Accessed April 16, 2018. http://www.townofharrison.com/DocumentCenter/View/152

7/31/2015



Proposed Project Site
Study Area
Municipal Boundary
Commercial
Environmental Conservation
Industrial
Institutional
Transportation
Utility
Vacant/Brownfield/Landfill

0 1,000 FEET

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Existing Land Use

Figure 3-1

To temporarily relocate third-party fiber optics during construction, Amtrak would secure a temporary construction easement from the Town of Kearny. To facilitate construction access, Amtrak would secure right-of-entry permits from adjacent railroads and temporary access permits from the New Jersey Turnpike Authority.

3.2.4.2 Operation

As there are no residences, schools, places of worship, or parks at the Proposed Project site or within the study area, there would be no significant adverse effects to local and/or sensitive land uses from operation of the Proposed Project. Railroad operators would continue to use the right-of-way within the study area for rail transportation.

The track alignments for the Proposed Project would remain largely within the existing railroad property boundaries. The Proposed Project requires approximately 5.25 acres of property currently owned by Conrail (see Figure 3-2). The rail property that Amtrak would acquire from Conrail would change ownership but would not affect land use. The Proposed Project would not require other commercial or residential property acquisition.

Land use within the study area would remain the same with the Proposed Project site, with the exception of the location of the new Morris & Essex Line Track 5 viaduct. While the new Sawtooth Bridges North and South would be entirely within the existing transportation right-of-way, the new Morris & Essex Line Track 5 viaduct would cross a wetland area (see Section 3.9 "Wetlands, Open Water and Water Quality" for the discussion of the Proposed Project effects on the wetland). As the Proposed Project's design progresses, Amtrak would incorporate appropriate measures to minimize wetland impacts. With these measures in place, the Proposed Project would not adversely affect land use. As there are no existing or planned parks or recreation facilities in the study area, the Proposed Project would not have an adverse effect on parklands.

3.3 Zoning and Public Policy

3.3.1 Regulatory Context and Methodology

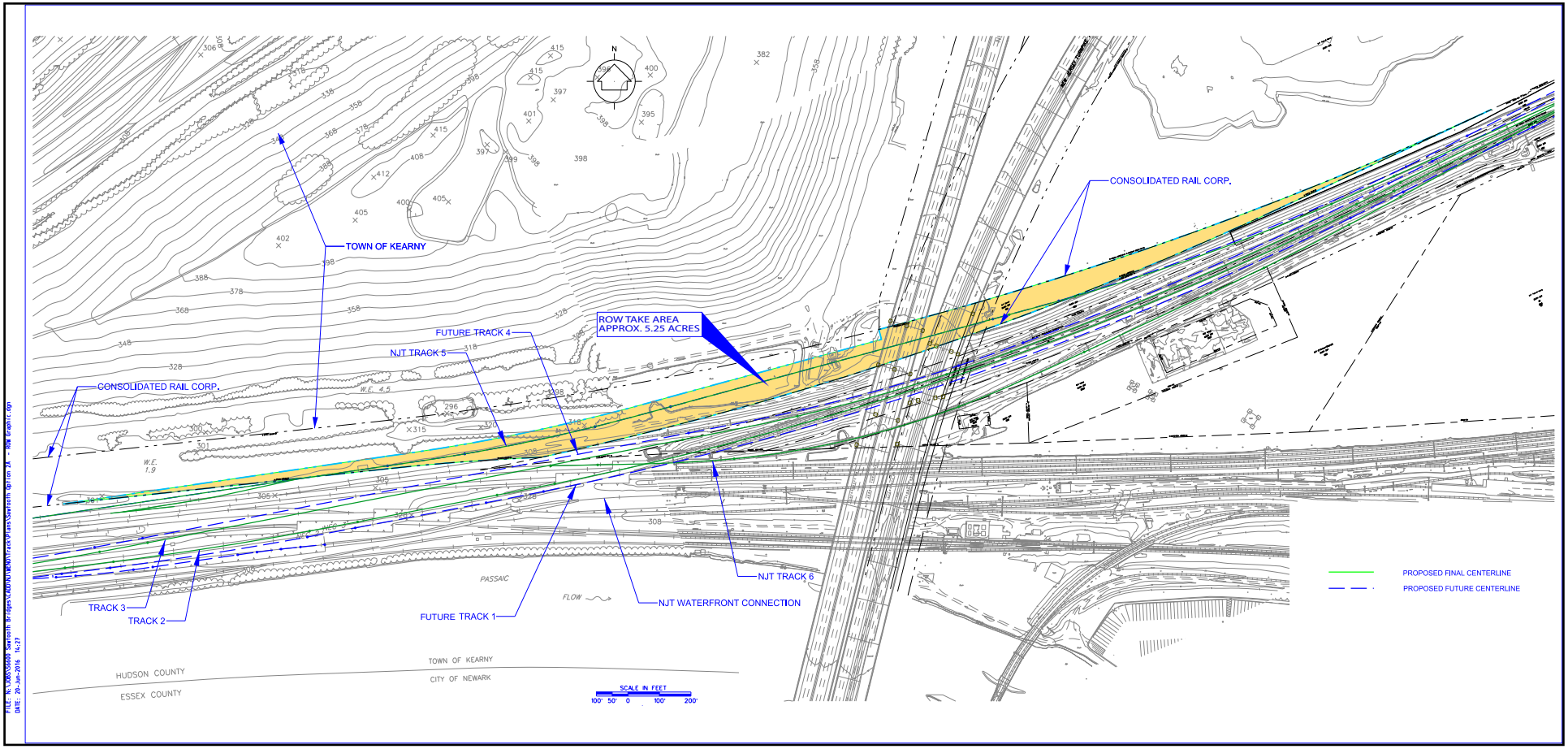
This section assesses the consistency of the Proposed Project with the applicable zoning and public policy initiatives within the study area. The assessment is based on the review of applicable zoning maps, regulations, and plans for the Hackensack Meadowlands District, Town of Kearny, and Town of Harrison. The assessment also considered the effect of the Proposed Project on larger transportation initiatives discussed in Chapter 1, "Purpose and Need," including NEC FUTURE.

3.3.2 Existing Conditions

3.3.2.1 Zoning

This section provides an overview of existing zoning conditions at the Proposed Project site and in the study area. The Proposed Project site is within the Hackensack Meadowlands District. The former New Jersey Meadowlands Commission (NJMC) oversaw the Hackensack Meadowlands District until 2015, at which point the New Jersey Sports and Exposition Authority (NJSEA), the regional planning and zoning agency for the Hackensack Meadowlands District, assumed jurisdiction.[7] The Hackensack Meadowlands District

[7] *Who We Are*, NJ Sports and Exposition Authority. Accessed March 5, 2018. http://www.njsea.com/njmc/about/who-we-are.html



Proposed Right-of-Way Taking

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Right-of-Way Requirements

Figure 3-2

consists of more than 30 square miles in Bergen and Hudson Counties, of which approximately 13 square miles are wetlands, waterways, and open space.

The dominant zoning classification within the study area is "Redevelopment Area" zoning, associated with the landfill under remediation and the industrial areas within the western portion of the study area. The study area also features "Environmental Conservation" zoning for the wetland and open water areas of Cedar Creek Marsh. In addition, a portion of the study area is classified as "Intermodal", describing the high intensity transportation facilities and industrial uses of this region (see Figure 3-3). There is no applicable zoning for the Proposed Project site, which is listed as a transportation right-of-way that is exempt from zoning policies. As detailed in New Jersey Administrative Code (NJAC) 19:4-3.2 within the discussion of the NJMC, "The following, except as otherwise provided, shall be exempt from these regulations: (1) Maintenance, repair, or replacement work within municipal, county, and State ROW's or on railroad tracks, signals, bridges, and similar facilities and equipment located in a railroad ROW...".

A small portion of the study area, south of the existing right-of-way, is outside of the Hackensack Meadowlands District. The Town of Kearny governs this portion of the study area, which is zoned as "South Kearny Industrial North". This zone permits a range of heavy industrial and transportation related uses. The westernmost edge of the study area is also outside of the Hackensack Meadowlands District in the Town of Harrison. This portion is zoned as "Industrial" for industrial, manufacturing, warehouse, and storage uses.

3.3.2.2 Public Policy

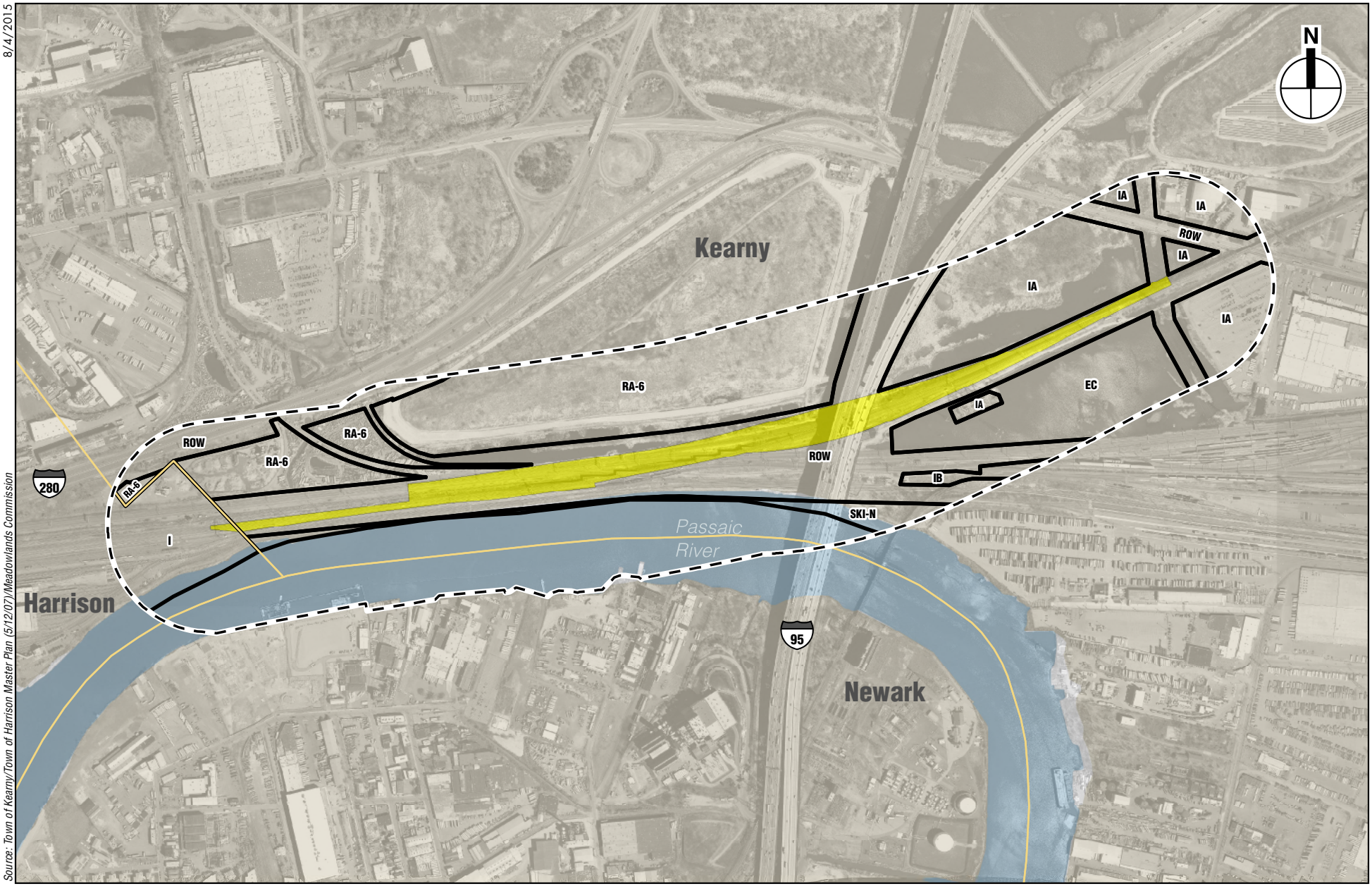
3.3.2.2.1 New Jersey Sports and Exposition Authority Master Plan

The NJSEA oversees infrastructure improvements, transportation and tourism, the development of the Meadowlands Sports Complex, the delivery of municipal services, flood control, and the continuance of the tax-sharing program within the Hackensack Meadowlands District. The former NJMC adopted a master plan in 2004, which established a policy framework for future development within the Hackensack Meadowlands District, while continuing to preserve and protect the resources within the District. NJSEA will likely prepare and adopt a new master plan, including the establishment of codes and standards covering land use and zoning. As of the date of this EA, NJSEA has not published a new master plan. Regardless, NJSEA does not have jurisdiction over Amtrak activities conducted entirely within its transportation right-of-way.

3.3.2.2.2 Kearny Area Redevelopment Plan

In 2000, the former NJMC adopted the Kearny Area Redevelopment Plan (the "Kearny Plan"), most recently amended in June 2014.[8] The Kearny Plan includes an approach for the redevelopment of an approximately 430-acres area of Kearny, divided into six sections. Two of the areas proposed for redevelopment in the Kearny Plan border the Proposed Project site: Landfill Reclamation Area, which NJSEA designated for redevelopment with energy production uses (methane recovery/renewables), and Heavy Industrial Center, which NJSEA designated for redevelopment with heavy industrial uses. NJDEP is currently remediating the Landfill Reclamation Area associated with Landfill 1-D. NJDEP must complete the remediation before development of the landfill may begin. NJSEA made no specific recommendations relative to the Proposed Project site, as the site is an active transportation right-of-way.

[8] *The Kearny Area Redevelopment* Plan, NJ Sports and Exposition Authority. Accessed August 9, 2018. http://www.njsea.com/njmc/pdfs/general/kearny-final-6-25-14.pdf



SAWTOOTH BRIDGES REPLACEMENT PROJECT

Existing Zoning

Figure 3-3

3.3.2.2.3 Town of Harrison Master Plan

The Town of Harrison Master Plan (the "Master Plan") adopted in 2007 provides a basis for zoning and planning decisions within the 1.3-square-mile Town of Harrison.[9] The Town of Harrison has plans to redevelop its waterfront, which the Town divided into seven different districts, including a residential district, commercial district, and parks district to create a continuous walkway along the waterfront. The Master Plan did not make any specific recommendations relative to the Proposed Project site as it is an active transportation right-of-way.

3.3.3 No Action Alternative

As stated above, NJSEA would likely prepare and adopt a new master plan under the No Action Alternative. The Kearny Plan and the Town of Harrison Master Plan would continue to be implemented, independently from the Proposed Project. The Proposed Project site would continue to function as a right-of-way for transportation and the Sawtooth Bridges would have no effect on zoning. If Amtrak had to eventually take the Sawtooth Bridges out of service, policies aimed at improving rail transportation and mobility would be adversely affected.

3.3.4 Potential Impacts of the Proposed Project

Amtrak is exempt from local zoning regulations. Zoning districts surrounding the Proposed Project site provide for industrial uses compatible with regional rail systems, and the Proposed Project would continue to be consistent with these surrounding zoning classifications during construction and operation. Based on the conceptual engineering plans, the Proposed Project would not affect the "Environmental Conservation" zoning area. Overall, during both construction and operation of the Proposed Project, the Proposed Project would remain consistent with public policies aimed at maintaining and promoting regional mobility and economic vitality.

3.4 Socioeconomic Conditions and Environmental Justice

3.4.1 Regulatory Context and Methodology

Following FRA's Environmental Procedures, environmental reviews consider a proposed project's potential to impact the socioeconomic environment—including available jobs, community disruption or cohesion, demographic shifts, and the need for and availability of relocation housing. An environmental review also considers the potential impacts on existing businesses and local government services and revenues. This subsection discusses direct effects; a discussion of indirect socioeconomic effects is presented in Chapter 4, Section 4.2.

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994) requires an environmental justice analysis that identifies and addresses any disproportionate and adverse effects on minority or low-income populations within the study area for a proposed federal action. Executive Order 12898 and USDOT Order 5610.2a (*Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) also requires federal agencies to ensure greater public participation in the decision-making process.

3.4.2 Existing Conditions

As stated above, there are no residences, schools, parks, or places of worship within the study area, as verified through field surveys, land use data, and population density data obtained from U.S. Census Bureau

[9] Heyer, Gruel and Associates (2007). *Town of Harrison Master Plan*. Accessed April 16, 2018. http://www.townofharrison.com/DocumentCenter/View/152

2010 Decennial Census (see Figure 3-4). Therefore, there are also no minority or low-income populations within the study area. The nearest residence is outside the Proposed Project site and study area, and is across the Passaic River in Newark, NJ, approximately 3,000 feet from the existing Sawtooth Bridges.

3.4.3 No Action Alternative

Under the No Action Alternative, the existing Sawtooth Bridges would remain in place and Amtrak would eventually need to take them out of service. Suspension of service across the bridges would have an adverse effect on regional mobility and economy.

3.4.4 Potential Impacts of the Proposed Project

The construction and operation of the Proposed Project would not change the demographic profile or the current use of the Proposed Project site and would not affect socioeconomic conditions. Moreover, no minority or low-income populations are present within or adjacent to the study area. As discussed in Chapter 4, "Indirect and Cumulative Effects", the Proposed Project, in combination with other projects along the NEC, would potentially lead to induced growth and improved socioeconomic outcomes in communities served by stations along the NEC due to the enhanced service and corresponding increases in ridership. The construction and operation of the Proposed Project would not disproportionately affect minority or low-income populations.

3.5 Visual and Aesthetic Resources

3.5.1 Regulatory Context and Methodology

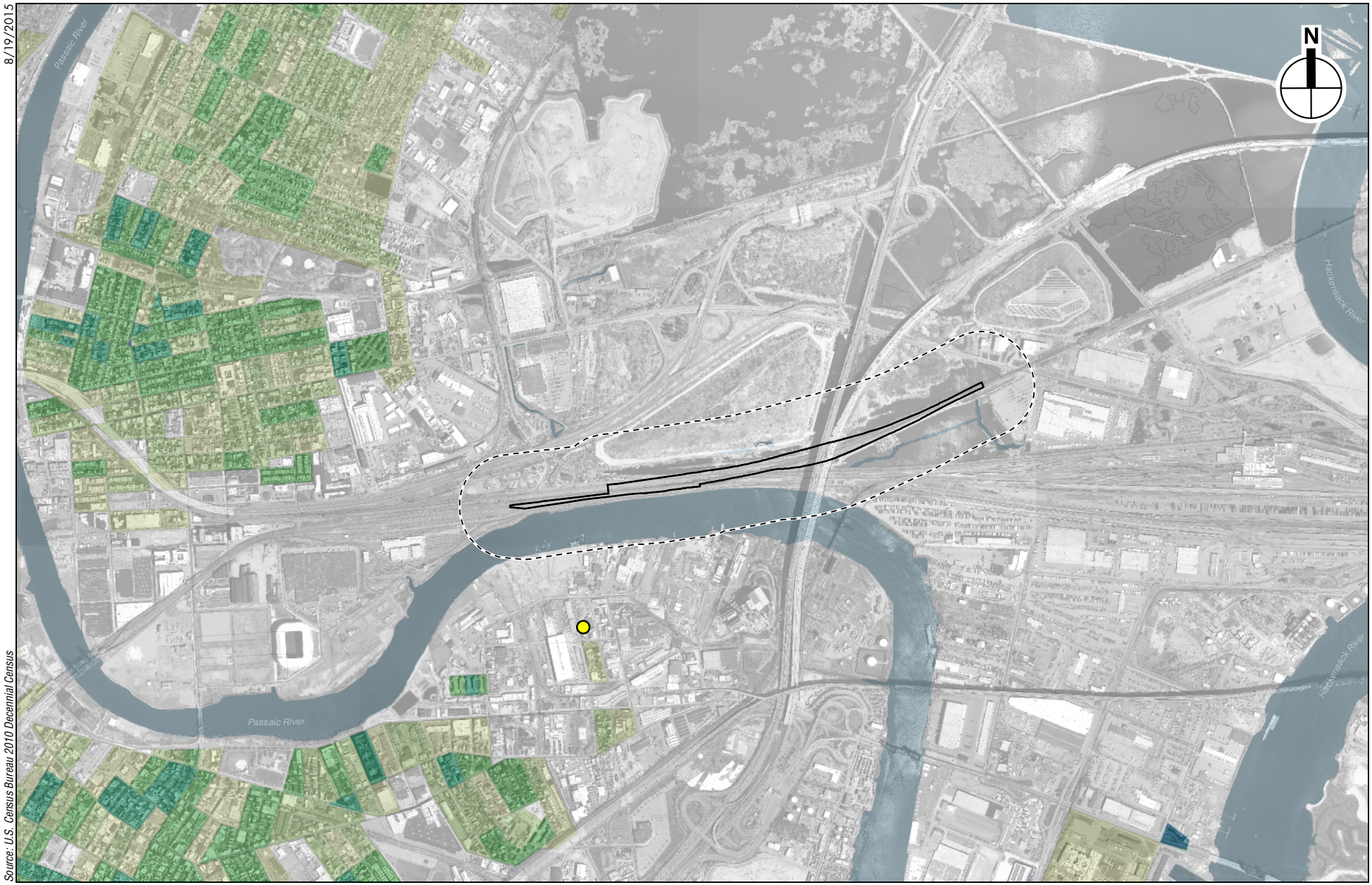
This section considers the effects of the Proposed Project on the visual character and aesthetic conditions of the study area. Amtrak prepared this section in accordance with the federal guidelines for visual analyses, including Federal Highway Administration (FHWA) *Guidelines for the Visual Impact Assessment of Highway Project Documents (2013), Environmental Impact Statement Visual Impact Discussion* (undated), and *Guidance Material on the Preparation of Visual Impact Assessments* (1986), which is the standard USDOT methodology for assessing potential impacts to visual and aesthetic resources.

FHWA's *Guidance Material on the Preparation of Visual Impact Assessments* defines visual resources as those physical features that make up the visible landscape, including land, water, vegetation, and man-made elements to which viewers attach visual value. Visually sensitive resources may include historic buildings, open spaces such as parks and landscaped plazas, and views to natural resources such as water features and natural vegetation.

The study area for this visual analysis extends 750 feet from the edges of the Proposed Project site (the proposed limits of disturbance). Amtrak delineated these boundaries to consider the potential visual range of the Proposed Project, as well as to account for potential construction-related impacts.

3.5.2 Existing Conditions

The Proposed Project study area is in an industrial landscape with transportation rights-of-way, landfills, and warehouses. The Proposed Project site is visible from the Passaic River, open water areas, the New Jersey Turnpike overpasses, the NEC and other rail lines. NJ TRANSIT's Bridge 0.35 (also known as the "Red Bridge"), completed in 1991 as part of the NJ TRANSIT Eastbound Waterfront Connection, is also within the viewshed. The Red Bridge is located immediately south of the Sawtooth Bridges, limiting the visibility of the existing Sawtooth Bridges from the Passaic River and points south.



Population Density

Figure 3-4

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Amtrak considered the sensitivity of viewer groups, which are groups of people who are visually affected by a project in a similar way. Viewer groups within the 750-foot study area consist of motorists, rail passengers, and boaters. These viewer groups may be divided into two categories: those who have views of visually sensitive resources and those who have views from those resources. Motorists on the New Jersey Turnpike overpasses have brief views of the Sawtooth Bridges. Amtrak and NJ TRANSIT passengers on the NEC have a limited ability to see the Sawtooth Bridges while crossing over them but can see the broader landscape beyond the Sawtooth Bridges. PATH passengers on the Newark-WTC Line and NJ TRANSIT passengers on the Morris & Essex Line have brief and limited views of the Sawtooth Bridges, and are able to view the landscape beyond the railroad. Viewer sensitivities of both motorists on the New Jersey Turnpike overpasses and rail passengers are low due to high speeds that limit prolonged views. Boaters on the Passaic River have limited views of the Sawtooth Bridges due to the presence of other rail infrastructure, including NJ TRANSIT's Red Bridge. Because there are no residential or highly-visited commercial uses within the study area, such potential viewer groups are not relevant to this visual analysis.

There are no publicly-accessible parks within the Proposed Project site or study area. Historic resources in the Proposed Project study area, which are further described in Section 3.6 "Cultural Resources," include the Pennsylvania Railroad New York to Philadelphia Historic District, the Old Main Delaware Lackawanna & Western Railroad, Substation 4, Hudson Tower, and the Pennsylvania Railroad New York Bay Branch Historic District.

3.5.3 No Action Alternative

Under the No Action Alternative, visual and aesthetic conditions would not change, with the exception of further deterioration of the Sawtooth Bridges.

3.5.4 Potential Impacts of the Proposed Project

3.5.4.1 Construction

There are no sensitive visual resources or publicly accessible spaces on the Proposed Project site or within the study area. As discussed in detail in Section 3.6, the Proposed Project would demolish the existing Sawtooth Bridges, which are contributing resources to the Pennsylvania Railroad New York to Philadelphia Historic District.

Drivers on the New Jersey Turnpike and boaters on the Passaic River could briefly view the Proposed Project site. During construction, there would be an increase in the level of activity within the study area. As the Proposed Project proceeds, large pieces of typical construction equipment would be visible from much of the study area. For the duration of construction, equipment and staging areas would be visible to boaters on the Passaic River, drivers on the New Jersey Turnpike, and passengers on various railroads. Boaters on the Passaic River would continue to have obstructed views of the Sawtooth Bridges due to other rail infrastructure in the study area, including the Red Bridge, which is consistent with existing conditions. Given the low viewer sensitivities of the motorists on the New Jersey Turnpike and rail passengers, and the temporary nature of the views of the construction activity, which would be compatible with the transportation and industrial character of the study area, the construction of the Proposed Project would not have adverse impacts on visual resources or views.

3.5.4.2 Operation

The Proposed Project would replace existing railroad infrastructure with new and more reliable railroad infrastructure. Although the Proposed Project would include the construction of three new viaducts, the

proposed structures would not differ substantially from the existing Sawtooth Bridges with regard to height or alignment. The elevation of the proposed structures would change from the existing elevation by a maximum of five feet. While the new Sawtooth Bridges would represent a visual change, the Proposed Project elements would remain consistent with the context of the Proposed Project site, the existing railroad use, and the industrial surroundings. Further, as described in the previous section, viewer group sensitivity in the Proposed Project study area is low. As such, the Proposed Project would not result in an adverse impact on visual and aesthetic conditions.

While the design of the new Sawtooth Bridges remains at the conceptual level, FRA and Amtrak would coordinate with the New Jersey Historic Preservation Office (NJHPO) to ensure that the new structures are compatible with the historic character of historic properties in the study area as set forth in the *Secretary of the Interior's Standards and Treatments for Historic Properties*.

3.6 Cultural Resources

3.6.1 Regulatory Context and Methodology

Cultural resources include both architectural and archaeological resources. This cultural resource analysis adheres to the guidelines under NEPA, Section 4(f) of the USDOT Act, and Section 106 of the National Historic Preservation Act of 1966 (NHPA, as amended) and its implementing regulations in 36 Code of Federal Regulations (CFR) Part 800. FRA has integrated the Section 106 analyses for the Proposed Project with NEPA compliance processes in accordance with 36 CFR 800.8(a) and the Advisory Council on Historic Preservation (ACHP) and CEQ guidance entitled *NHPA: A Handbook for Integrating NEPA and Section 106 (*March 2013).

Section 106 of the NHPA mandates that federal agencies consider the effects of their actions (or "undertakings") on historic properties, which are those properties listed in or determined eligible for listing in the National Register of Historic Places (NRHP), and properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria. The lead federal agency, in consultation with the State Historic Preservation Office (SHPO) and consulting parties, must determine whether a proposed action would have adverse effects on historic properties within the Area of Potential Effects (APE). Section 106 requires consultation with the appropriate SHPO, Federally-recognized Indian Tribes that might attach religious and cultural significance to historic properties affected by the proposed action, and additional consulting parties with a demonstrated interest in the proposed action based on a legal or economic relation to affected properties, or an interest in the proposed action's effects on historic properties. Per 36 CFR, §800.2(a)(3) and §800.2(c)(4), FRA authorized Amtrak, as an applicant for federal approvals, to prepare information and analyses regarding Section 106 consultation for the Proposed Project.

When an undertaking has the potential to result in adverse effects to historic properties, the lead federal agency, in consultation with SHPO and consulting parties, considers whether adverse effects can be avoided or minimized. If adverse effects cannot be avoided, the lead federal agency executes a Programmatic Agreement (PA) or appropriate program alternative to mitigate adverse effects. A PA typically lists the historic properties that may be affected by the proposed action and describes the coordination process that resulted in the adverse effect determination. Furthermore, a PA describes the measures that the project sponsor would implement during design and/or construction to avoid, minimize, or mitigate adverse effects of the proposed action on historic properties.

To assess the potential effects of the Proposed Project on historic properties, FRA and Amtrak delineated an APE for the Proposed Project in consultation with the NJHPO. Amtrak delineated the APEs for architectural and archaeological resources to account for potential direct, indirect, secondary, and cumulative effects of the Proposed Project on historic properties (see Figure 3-5). For this Cultural Resources analysis, the APE for architectural resources extends approximately 750 feet from the outer edges of the Proposed Project site (the proposed limits of disturbance); the APE for archaeological resources coincides with the Proposed Project site and includes areas that could experience ground disturbance as part of the Proposed Project. NJHPO concurred with the architectural and archaeological APEs on April 11, 2016. See Appendix 1 for a full description of the methodology, the effects assessment for historic properties, and Section 106 correspondence, including NJHPO concurrence with the methodology and the effects assessment.

The discussion that follows describes the APEs for architectural and archaeological resources and the methodologies used to assess potential effects within the APEs.

3.6.1.1 Architectural Resources

As shown on Figure 3-5, the APE for architectural resources extends approximately 750 feet from the outer edges of the Proposed Project site (the proposed limits of disturbance). The APE accounts for the distance within which the proposed construction activities could physically alter architectural resources or be close enough to them to potentially cause direct or indirect effects, such as physical damage or visual or contextual effects.

After establishing the architectural APE, Amtrak's Secretary of the Interior (SOI)-qualified consultants prepared an inventory of historic properties within the architectural APE based on field surveys and files from NJHPO and the New Jersey State Museum (NJSM). This inventory includes properties or districts listed or eligible for listing in the NRHP. After identifying the historic resources in the architectural APE, the SOI-qualified consultants assessed the effects of the Proposed Project on those resources.

3.6.1.2 Archaeological Resources

The APE for archaeological resources coincides with the Proposed Project site and includes areas that could experience ground disturbance as part of the Proposed Project (see Figure 3-5). Construction of new bridges, modification and addition of railroad tracks, embankments, and other railroad infrastructure may result in-ground disturbance and are included in the APE.

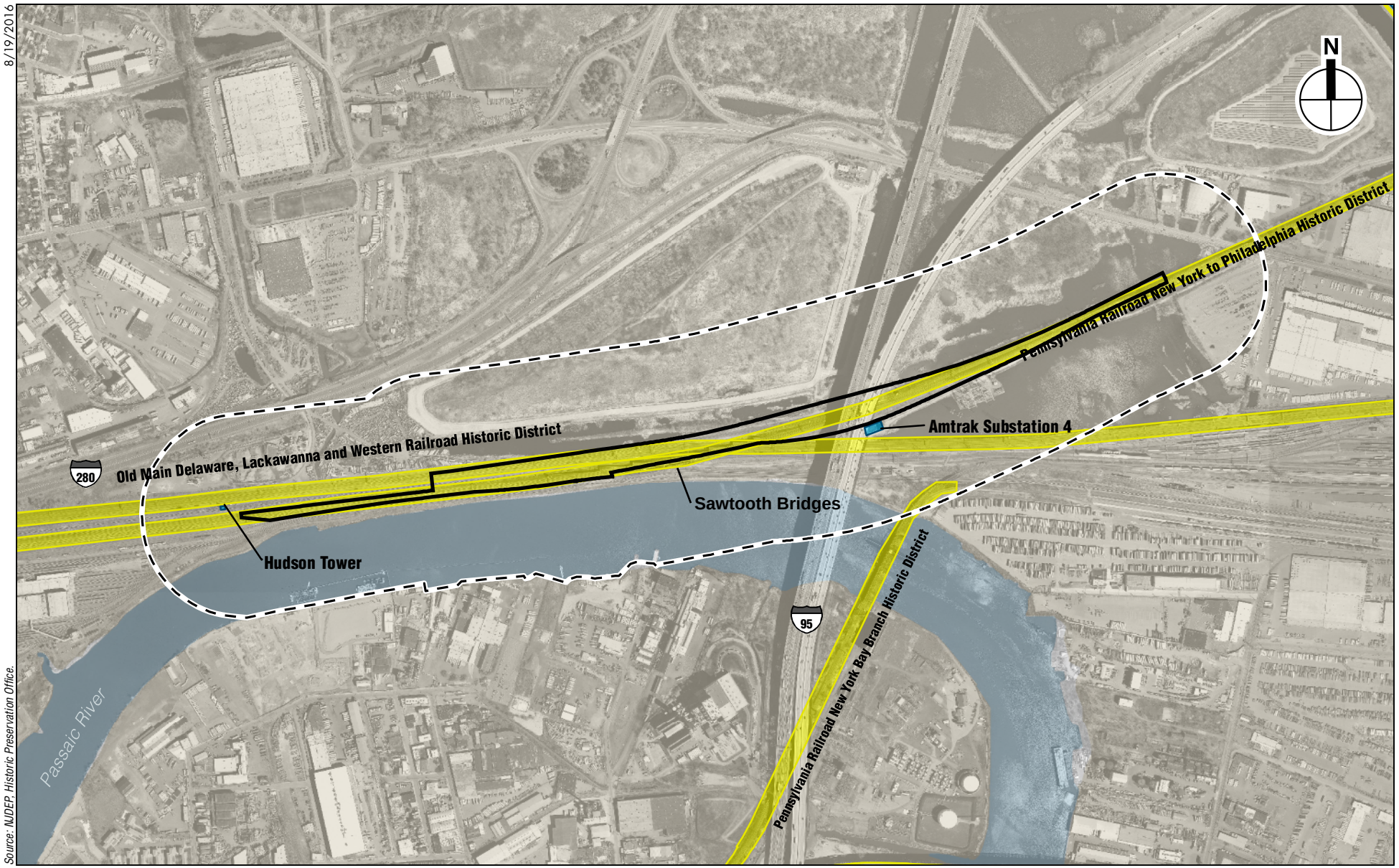
To assess the sensitivity of the archaeological APE, Amtrak's consultant prepared a Phase 1A Archaeological Documentary Study (Phase 1A) of the Proposed Project site in August 2016 (see Appendix 1).[10] The Phase 1A describes the extensive documentary research to characterize the development and occupation histories of the archaeological APE during both the prehistoric (Native American) and historic periods.

3.6.2 Existing Conditions

3.6.2.1 Archaeological Resources

The Phase 1A study concluded that if undisturbed prehistoric ground surfaces are present at great depths beneath the Proposed Project site, they would be considered archaeologically sensitive. Potential

[10] Phase 1A Archaeological Documentary Study: Sawtooth Bridges Replacement Project, dated August 2016, AKRF, Inc.



Cultural Resources

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Figure 3-5

archaeological resources at the Proposed Project site, if present, would be at depths of approximately 10 to 30 feet below the ground surface. Given the extent to which railroad-related activities likely disturbed those depths, the Phase 1A concluded that the archaeological APE has low potential to yield intact prehistoric archaeological deposits overall. However, as stated in the Phase 1A, if the soils in this area are intact, they could potentially yield archaeological resources associated with the prehistoric occupation of the Proposed Project site.

The Phase 1A investigation determined that the Proposed Project site was an inundated marshland until the construction of the first railroad tracks in the early 19th century. Based on available information, the Proposed Project site was not occupied during the historic period (including the 17th through the 20th centuries). A single map-documented structure not associated with railroad uses was near the Proposed Project site in the early 19th century. Historic maps indicate that this structure was within unfilled marsh, likely used for agricultural purposes. The Phase 1A concluded that the archaeological APE has no sensitivity for archaeological resources dating to the historic period.

3.6.2.2 Architectural Resources

There are five previously identified architectural resources in the Sawtooth Bridges architectural APE, all of which NJHPO determined eligible for the NRHP (see Figure 3-5). Based on a survey of the architectural APE performed by a qualified architectural historian, there are no additional potential architectural historic properties within the APE. The sections below describe the five previously identified architectural historic properties.

1) **Pennsylvania Railroad New York to Philadelphia Historic District** (NEC, Pennsylvania to New York). The extension of the Pennsylvania Railroad, built over the first decade of the 20th century, consisted of eight miles of electrified rail line between Midtown Manhattan and Newark, New Jersey. The same project also included the construction of New York Penn Station and a system of railroad tunnels beneath the Hudson River between New York and New Jersey (completed in 1910). The Pennsylvania Railroad also built several bridges that carry the railroad over water, marsh, and other railroads. The Pennsylvania Railroad Historic District has been subject to multiple eligibility determinations; FHWA first formally determined that the Historic District was eligible on March 3, 2003.

   The Pennsylvania Railroad constructed the Sawtooth Bridges (Amtrak Bridges 7.80 and 7.96) in 1907. Documentation on file with NJHPO describing the Pennsylvania Railroad New York to Philadelphia Historic District did not previously identify the Sawtooth Bridges as a contributing resource to the District. However, FRA determined that the Sawtooth Bridges are contributing resources to the District, and NJHPO concurred in a letter dated April 3, 2017 (see Appendix 1).

   During the late 20th century, several substantial repairs to the bridges compromised their historic integrity. However, the bridges are within the boundaries of the Historic District, date to the period of significance for the Historic District, and relate to historical themes relevant to the significance of the Historic District. The Sawtooth Bridges, which are not individually eligible for the NRHP, are the only contributing elements to the Pennsylvania Railroad New York to Philadelphia Historic District within the Proposed Project APE.

2) **Old Main Delaware Lackawanna & Western Railroad** (Morris & Essex Rail Line right-of-way from Hudson, Hoboken City, to Warren, Washington Township, and along Warren Railroad to the

Delaware River). In the early 19th century, the Old Main Delaware Lackawanna & Western (DL&W) Railroad initially transported anthracite coal from Pennsylvania's Lackawanna Valley to Hoboken where it could be distributed to eastern markets. The DL&W Line later offered passenger service, allowing inhabitants of New Jersey towns and countryside to access the ferries to New York City from Hoboken. The DL&W set standards for passenger service and safety at the turn of the century and was the first line to use telephones rather than telegraphs for train dispatching. Suburban stations had a distinctive standardized design featuring hipped roofs and porches. The NJHPO determined the railroad eligible for the NRHP on September 24, 1996. NJHPO's Geographic Information System (GIS)[11] database identifies the Hudson Tower (also determined individually eligible for the NRHP as discussed below) as a contributing resource to the Old Main Delaware Lackawanna & Western Railroad Historic District in NJHPO's GIS database. This is the only contributing resource to the Old Main DL&W Railroad Historic District identified within the Proposed Project APE.

3) **Hudson Tower** (NEC at Milepost 7.2, Kearny). NJHPO concurred with FRA's identification of the Hudson Tower as NRHP-eligible in 1997 as part of an evaluation of multiple interlocking towers along the NEC. NJHPO's evaluation of the property (on file at NJHPO's office) noted that interlocking towers represent a "significant and increasingly endangered property type," which are "commonly under-acknowledged in the development and expansion of railroads." The Hudson Tower is eligible under Criterion C "as an intact example of an early twentieth century railroad signal tower representing the application of the 'automatic safety principle' to railroad operations to increase reliability and safety." Based on NJHPO documentation, the Hudson Tower is the last remaining element of the former Manhattan Transfer Station, which was the point where workers replaced steam locomotives with electric locomotives for passage through the tunnel to New York Penn Station. This complex is significant for its association with the electrification of the railroads and for its association with the Manhattan Transfer Station, which according to NJHPO documentation served "as a 'gateway' for passengers in transit to New York and has been celebrated in popular culture throughout the twentieth century." Therefore, the Hudson Tower is also eligible under Criterion A for its association with this complex and cultural history.

4) **Substation 4** (NEC at New Jersey Turnpike, Kearny). Substation 4 is a two-and-a-half-story red brick building with large round-arched windows and doorways. The New Jersey Turnpike overpasses are almost directly above the substation building. The building has a large stone plaque set into the façade, inscribed with the words "Sub-Station 4, Pennsylvania Railroad." According to the inventory form for this structure, the building contains a single room on each of the basement and second-story levels. The first floor contains a workspace and "separate battery and wash rooms for employees." At the time of the NRHP eligibility assessment for the substation (1994), a fenced-in compound designated as Substation 41 had replaced the building's function. NJHPO determined the Substation 4 building eligible for the NRHP on September 12, 1994.

5) **Pennsylvania Railroad New York Bay Branch Historic District** (Newark and Kearny). Built in sections between 1889 and 1904 as part of the Pennsylvania Railroad's massive and comprehensive program to reach the Port of New York, the Pennsylvania Railroad New York Bay Branch Historic District (NJHPO Opinion: 4/22/2005) is eligible for the NRHP under Criterion A in the area of

[11] https://www.arcgis.com/apps/webappviewer/index.html?id=44ce3eb3c53349639040fe205d69bb79

transportation for its contribution to the state's industrial, commercial, and urban expansion. The railroad became the critical link in both local and regional rail systems, enabling the Pennsylvania Railroad to secure a dominant place in the nation's busiest port and establishing itself as the country's largest railroad during the 20th century. The Pennsylvania Railroad New York Bay Branch Historic District is also eligible under Criterion C for its significant engineering and collection of contributing bridges, culverts, yards, and surviving overhead electrified catenary system. The railroad's period of significance extends from 1889, when two predecessor railroads of the Pennsylvania Railroad New York Bay Branch Historic District received their corporate charters, to 1945, when the railroad completed the last transfer bridge at the contributing Greenville Yard Piers. The boundaries of the eligible historic district consist of the historic right-of-way. Based on the documentation on file with NJHPO, no contributing resources to the Pennsylvania Railroad New York Bay Branch Historic District are within the Proposed Project APE.

3.6.3 No Action Alternative

3.6.3.1 Archaeological Resources

Under the No Action Alternative, potentially archaeologically sensitive depths within the archaeological APE would likely remain undisturbed. Therefore, the No Action Alternative would not result in impacts to archaeological resources.

3.6.3.2 Architectural Resources

Under the No Action Alternative, the condition of the Sawtooth Bridges would continue to deteriorate. Extensive repairs to the Sawtooth Bridges would be necessary to maintain them as safe operable structures, and these repairs could diminish their historic integrity.

3.6.4 Potential Impacts of the Proposed Project

Consistent with Section 106, FRA and Amtrak have participated in an ongoing consultation process with NJHPO and other consulting parties with respect to potential effects on historic properties and the potential measures to avoid, minimize, or mitigate adverse effects to archaeological and architectural resources. Amtrak and FRA invited the following potentially-interested Federally-recognized Indian Tribes to consult and provide comments: the Delaware Nation; the Shawnee Tribe of Oklahoma; the Absentee-Shawnee Tribe of Oklahoma; the Stockbridge-Munsee Community; the Oneida Indian Nation; and the Delaware Tribe. While none of these Tribes formally accepted the invitation, the Delaware Tribe, the Delaware Nation, and the Shawnee Tribe of Oklahoma asked to remain apprised of the Proposed Project as it moves forward. The Stockbridge-Munsee Community declined to participate, stating that the project location is outside of their cultural area of interest. Furthermore, Amtrak and FRA invited 26 organizations, institutions, governmental agencies, elected officials, non-Federally-recognized Indian Tribes, and individuals to participate as Consulting Parties. The Town of Kearny accepted the invitation. Thomas Flagg, an industrial archaeologist, declined to participate. While Conrail did not formally accept the invitation, they requested ongoing consultation with respect to engineering design.

Measures to avoid, minimize, or mitigate adverse effects are set forth in a PA to be executed by FRA, NJHPO, and Amtrak (see Appendix 1). The following sections discuss the potential effects of the Proposed Project construction on archaeological and architectural resources. While the Proposed Project's effect on the Sawtooth Bridges – their demolition and replacement – would be permanent, the operation of the Proposed Project (i.e., rail service over the new bridges) would not affect cultural resources. Therefore, this assessment discusses construction effects only.

3.6.4.1 Archaeological Resources

Potential adverse effects on historic properties, including archaeological resources, under Section 106 may occur when an undertaking may alter any of the characteristics of the resource that qualify it "for inclusion in the National Register in a manner that would diminish the property's integrity." Such an effect could occur if construction were to disturb the soil at the same depth where an archaeological resource is present, resulting in physical destruction or damage to the resource. Under NEPA, the significance of an impact is assessed based on context and intensity. Context refers to the geographical, biophysical, or social area where impacts may occur. Intensity refers to the intensity of the impact and considers multiple factors including the duration, frequency, physical extent, and magnitude of the effect.

This section summarizes the conclusions and recommendations enumerated in the Phase 1A report. In its letter dated April 3, 2017, NJHPO concurred with the recommendations of the archaeological assessment (see Appendix 1).

The Phase 1A archeological survey determined that the APE has low sensitivity for prehistoric resources at depths between 10 to 30 feet and no sensitivity for historic period resources. Due to the level of subsurface disturbance that has occurred to date from the construction of the existing Sawtooth Bridges and the various other transportation infrastructure present within the Proposed Project site, there is little chance that intact archaeological resources remain below the Proposed Project site.

Because the Proposed Project has the potential to affect archaeological resources, if present, the PA includes stipulations regarding additional efforts to identify potential archaeological resources as the Proposed Project progresses. When Amtrak advances Proposed Project design, a qualified archaeologist selected by Amtrak will review additional information regarding specific sub-surface impacts of the Proposed Project. The archaeologist will determine if the Proposed Project could potentially impact archaeologically sensitive depths and identify potential monitoring locations, if needed. If Amtrak advances soil borings within the Proposed Project site, a qualified archaeologist will review those soil borings to determine if potentially sensitive alluvial deposits are present within the Proposed Project. The PA includes more detail regarding archaeological resources.

3.6.4.2 Architectural Resources

The Proposed Project would not directly or indirectly adversely affect the following historic architectural resources: Old Main DL&W Railroad, Substation 4, Hudson Tower, and the Pennsylvania Railroad New York Bay Branch Historic District. While the removal of the Sawtooth Bridges and the construction of new bridges carrying the NEC would somewhat alter the context of these resources, the overall context of these resources would not substantially change. The Proposed Project would replace existing railroad-related structures with new railroad-related structures. Amtrak would design the new bridges to be compatible with the historical character of the historic properties as set forth in the *Secretary of the Interior's Standards and Treatments for Historic Properties*. Therefore, the use, atmosphere, and overall conditions of the resources' context would remain largely the same and thus, no adverse effects would occur to these historic properties. In its letter dated April 3, 2017, the NJHPO concurred with FRA's finding of no adverse effect for these properties (see Appendix 1).

Amtrak will prepare and implement a Construction Protection Plan (CPP) to avoid construction-related damage to historic properties within close proximity (approximately 100 feet) of Proposed Project construction activities. These properties will likely include the Hudson Tower and/or Substation 4. The

CPP will describe the construction procedures of the Proposed Project in the vicinity of historic properties and measures to avoid inadvertent construction impacts to these properties.

The Proposed Project would have an adverse effect on the Pennsylvania Railroad New York to Philadelphia Historic District because it would remove the Sawtooth Bridges, which are contributing resources to the Historic District. In its letter dated April 3, 2017, NJHPO concurred with FRA's finding of adverse effect on this District (see Appendix 1). Mitigation for adverse effects on the Pennsylvania Railroad New York to Philadelphia Historic District will include Historic American Engineering Record (HAER) documentation and/or archival photographic documentation of the Sawtooth Bridges, as outlined in the PA. In addition, Amtrak, in consultation with FRA and NJHPO, will ensure that the preliminary and final plans and specifications for the proposed new bridges adhere to the recommended approaches in the *Secretary of the Interior's Standards and Treatments for Historic Properties* and are compatible with the historical character of the Pennsylvania Railroad New York to Philadelphia Historic District.

Upon completion of the Project's Design Criteria Report during preliminary engineering, Amtrak will consult with FRA and NJHPO to identify engineering constraints and opportunities for incorporating historically compatible design into the preliminary plan. Amtrak will consult with NJHPO in the development of bridge plans at the preliminary (30%), pre-final (approximately 75%), and final (100 percent) design stages (see Appendix 1 for the stipulations in the draft PA).

NJHPO requested in its concurrence letter dated April 3, 2017 that Amtrak reevaluate the period of significance for the Pennsylvania Railroad New York to Philadelphia Historic District. Since that time, NJ TRANSIT independently prepared an assessment of the end date for the period of significance for the District, and NJHPO concurred with the new period of significance of 1835 to 1969 in a letter dated June 4, 2019. Therefore, there is no need to include this reevaluation as a PA stipulation.

3.7 Floodplains and Riparian Zones

3.7.1 Regulatory Context and Methodology

Executive Order 11988: Floodplain Management requires Federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. USDOT Order 5650.2, Floodplain Management and Protection, contains policies and procedures for implementing Executive Order 11988. For actions with a significant encroachment in the floodplain, this USDOT Order requires a finding that the proposed action is the only practicable alternative and that an evaluation was conducted to identify whether other alternatives are available to avoid or reduce adverse impacts on the floodplain.

At the state level, NJDEP regulates activities within flood hazard areas and riparian zones, pursuant to NJAC 7:13-3 and NJAC 7:13-4. In accordance with NJAC 7:13-4.1, a riparian zone exists along every regulated water, except along the Atlantic Ocean, any manmade lagoon, stormwater management basin, or oceanfront barrier island, spit or peninsula. The width of the riparian zone varies depending on the characteristics of the regulated water.[12]

[12] NJDEP, Riparian Zone Model Ordinance. Published July 7, 2018. Accessed August 17, 2018. https://www.nj.gov/dep/wqmp/docs/riparian_model_ordinance.pdf

Regulated activities within floodplains and riparian zones include the:

1. Alteration of topography through excavation, grading and/or placement of fill;
2. Clearing, cutting, and/or removal of vegetation in a riparian zone;
3. Creation of impervious surface;
4. Storage of unsecured material;
5. Construction, reconstruction, repair, alteration, enlargement, elevation, or removal of a structure; and
6. Conversion of a building into a single-family home or duplex, multi-residence building, or critical building.

NJDEP issues an individual Flood Hazard Area permit to construct or reconstruct a railroad or public roadway only if one of the following requirements is satisfied:

- The travel surface of the railroad or public roadway is constructed at least one foot above the flood hazard area design elevation[13]; or
- The applicant demonstrates that it is not feasible to construct the travel surface of the proposed railroad or public roadway at least one foot above the flood hazard area design flood elevation pursuant to NJAC 7:13-12.6(e), and instead constructs the travel surface as close to this elevation as feasible.

Amtrak based this floodplain assessment for the Proposed Project on the 1% Annual Chance Flood Hazard data obtained from the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM). Neither NJDEP nor FEMA have established a delineated floodway for the portion of the Passaic River within the Proposed Project site or study area.

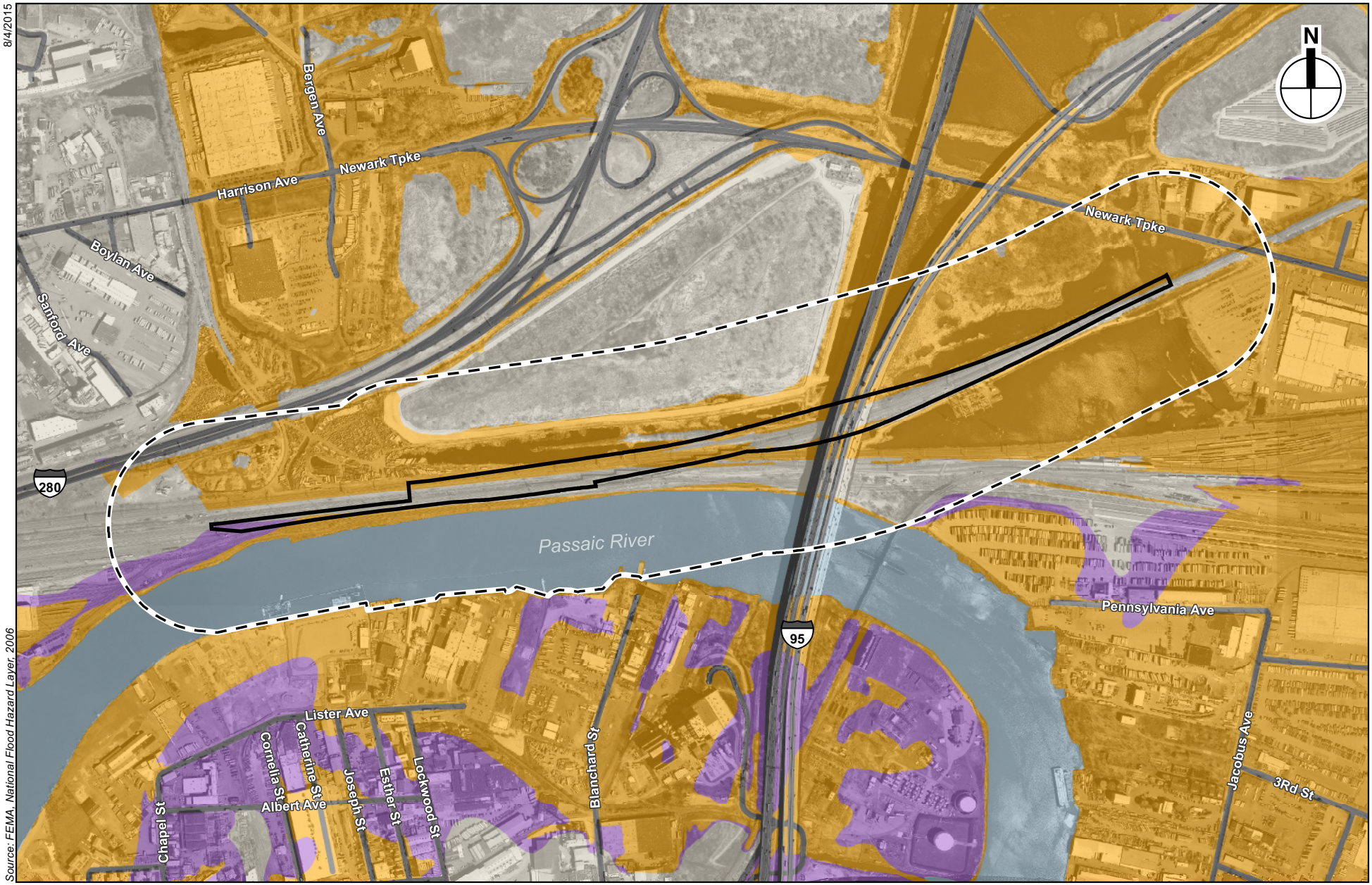
3.7.2 Existing Conditions

3.7.2.1 Floodplains

The Proposed Project site is within the tidal reaches of the Passaic River and contains numerous topographical depressions and wetland areas that provide for flood storage. The Proposed Project study area is partially within a regulated floodplain and a New Jersey-defined riparian zone. The 1% annual chance flood elevation is nine feet North American Vertical Datum of 1988 (NAVD88) (FEMA 2007a, FEMA 2007b) in areas south of the project and directly associated with the Passaic River (Zone AE). In the remaining study area, the 1% annual chance flood elevation is 10 feet NAVD88 (Zone AE) (FEMA 2005a, FEMA 2005b). Figure 3-6A shows the effective flood limits for the Proposed Project site and study area.

Although not yet adopted and subject to change, FEMA has established preliminary flood levels based on more recent information. This preliminary FEMA map represent future updates to the effective FIRMs that are "likely to occur" (FEMA 2016). This mapping indicates that the preliminary 1% annual chance flood elevation is 11 feet NAVD88 (FEMA 2013a, FEMA 2015b) in areas south of the project and directly associated with the Passaic River (Zone AE). In the remaining study area, the preliminary 1% annual chance flood elevation varies from nine to 11 feet NAVD88 (Zone AE) (FEMA 2014a, FEMA 2014b). Figure 3-

[13] The flood hazard area includes any land, and any space above that land, which lies below the flood hazard area ***design flood elevation*** (DFE), which is equal to the Federal Emergency Management Agency's (FEMA) 100-year floodplain in coastal areas and at least one foot higher than FEMA's floodplain in fluvial (non-coastal) areas.



SAWTOOTH BRIDGES REPLACEMENT PROJECT

Effective Flood Map

Figure 3-6A

7/10/2015

Proposed Project Site
Study Area
1% Annual Chance Floodplain
0.2% Annual Chance Floodplain

0 1,000 FEET

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Preliminary Flood Map

Figure 3-6B

6B illustrates the preliminary flood map for the Proposed Project study area. The NJDEP flood hazard area is one foot higher than the FEMA floodplain, since the Proposed Project site is in a fluvial (non-coastal) area.

3.7.2.2 Riparian Zone

The waters near the Sawtooth Bridges are not classified as a Category One water[14], and therefore, the 300-foot riparian zone does not apply to the Proposed Project site. Moreover, the waters on site are not: a) trout production or maintenance waters; or b) documented habitat for a threatened or endangered species that is critically dependent on the regulated water for survival and as such, the 150-foot riparian zone does not apply to the Proposed Project site. Since the 300-foot and 150-foot riparian zones do not apply to the Proposed Project site, the riparian zone from regulated waters in the study area is 50 feet, measured landward from the top of bank from the Passaic River.

3.7.3 No Action Alternative

Under the No Action Alternative, the existing Sawtooth Bridges would remain in place. The NEC right-of-way in this area is currently within the 1% annual chance floodplain and the Sawtooth Bridges are elevated above the base flood elevation. The No Action Alternative would not affect the existing floodplain and riparian zone.

3.7.4 Potential Impacts of the Proposed Project

3.7.4.1 Construction

Amtrak would avoid or minimize adverse impacts to floodplains and riparian zones during construction using best management practices that would be developed in consultation with NJDEP during the permitting phase. Construction activities would not displace water and would therefore not increase flooding.

3.7.4.2 Operation

The conceptual design minimizes impacts to floodplains by placing proposed structures in upland areas and within the existing rights-of-way to the maximum extent possible. Amtrak designed the new Sawtooth Bridges that would be within the 1% annual chance floodplain on elevated structure, rather than fill or retained embankment, to minimize placement of materials within the floodplain.

The Proposed Project would not directly affect the natural and beneficial floodplain values, nor would it provide indirect support for additional development in the floodplain. All new rail tracks would be on viaduct structures, well above the flood hazard area and would therefore be compliant with NJDEP requirements to construct the travel surface of the railroad at least one foot above the flood hazard area design elevation. The support structures for the new Sawtooth Bridge North and Sawtooth Bridge South would be within the area currently developed with rail infrastructure and would not have the potential to affect water flow. While any support structures within the wetland area would displace some water, they would not have a substantial effect on flooding.

[14] According to NJDEP, Category One waters "are protected from any measurable change in water quality because of their exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources". https://www.nj.gov/dep/transformation/c1/docs/c1-final-integrated-paper201211.pdf, accessed April 25, 2019.

3.8 Coastal Zones

3.8.1 Regulatory Context and Methodology

The Federal Coastal Zone Management Act (CZMA) of 1972 encourages coastal states to manage development within the states' designated coastal areas, reduce conflicts between coastal developments, and protect resources within the coastal zone. Requirements for federal approval of Coastal Zone Management (CZM) Programs and grant application procedures for development of the state programs are included in 15 CFR Part 923, CZM Program Development and Approval Regulations. The CZMA requires that federal activities within a state's coastal zone be consistent with that state's coastal zone management plan.

New Jersey has a federally approved CZM Program that NJDEP administers through CZM Rules defined in NJAC Section 7:7. The CZM Rules, updated on April 16, 2018, establish criteria (e.g., acreage limits, regulatory limits, seasonal limitations, and best management practices) for development in special areas (e.g., wetlands, floodplains, aquatic habitat, and regional planning centers), general water area actions (e.g., dredging, bridges, outfalls and intakes), uses (e.g., energy, transportation), and resources (e.g., water quality, fisheries, air quality). The CZM Rules regulate development within the portion of the coastal zone that falls within the Coastal Area Facility Review Act (CAFRA) zone and the Waterfront Development Area. NJDEP regulates certain development activities within the defined CAFRA zone, which extends from southern New Jersey into the southern portion of Middlesex County, varying in width throughout its course.

New Jersey's Waterfront Development Act (NJSA 12:5-3) establishes areas within the Hackensack Meadowlands District and the CAFRA zone as Waterfront Development Areas, consisting of tidal waterways up to mean high water (MHW). Outside the Hackensack Meadowlands District and the CAFRA zone, the Waterfront Development Act includes tidal waterways up to MHW and adjacent upland areas within 100 feet of MHW. For properties within 100 feet of MHW that extend inland beyond the 100-foot limit, the regulated waterfront area extends to 500 feet from MHW or to the first paved public road, railroad, or surveyable property line in existence on September 26, 1908 that parallels the waterway, whichever comes first.

3.8.2 Existing Conditions

The Proposed Project site is outside New Jersey's regulated CAFRA zone but is within the Hackensack Meadowlands District.

3.8.3 No Action Alternative

Under the No Action Alternative, the existing Sawtooth Bridges would remain in place. As such, the No Action Alternative would not affect the coastal zone.

3.8.4 Potential Impacts of the Proposed Project

All construction work and the operation of the Proposed Project would occur landward of the MHW line and therefore the Proposed Project is outside the CZMA boundary and New Jersey's regulated coastal zone. According to NJAC 7:7-2.3 (coastal wetlands), activities within the Hackensack Meadowlands District that occur in any tidal water up to MHW are subject to regulation under NJDEP's Waterfront Development rules. Amtrak would coordinate with NJDEP during the permitting phase to ensure compliance with any applicable NJAC regulations. Therefore, the Proposed Project would not result in adverse effects to the coastal zone.

3.9 Wetlands, Open Water, and Water Quality

3.9.1 Regulatory Context and Methodology

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States.

Executive Order 11990: Protection of Wetlands directs federal agencies to provide leadership and act to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance wetland quality. New activities in wetlands, either undertaken or supported by a federal agency, are to be avoided unless there is no practicable alternative and all practical measures have been taken to minimize the potential impacts to the wetlands.

Amtrak prepared the analysis in this section based on available mapping resources, detailed field surveys performed for recent adjacent projects, and supplemental surveys conducted specifically for the Proposed Project. The Proposed Project site was partially included in the study area for the Amtrak and NJ TRANSIT Portal Bridge Capacity Enhancement Project Environmental Impact Statement (EIS). As part of the Portal Bridge Capacity Enhancement Project, the project team conducted comprehensive natural resources field investigations, including extensive wetland delineations in coordination with NJDEP and USACE, and secured several NJDEP and USACE permits that are still valid as of the date of this assessment. Amtrak conducted the wetland delineation and associated surveys supporting these permits in accordance with the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989 Manual). Wetlands delineation in the field was also consistent with the guidelines outlined in the 1987 *Army Corps of Engineers Wetland Delineation Manual* (1987 Manual) and generally based on a three-parameter analysis of hydrophytic vegetation, hydric soils, and hydrology for wetland determinations. Amtrak performed supplemental preliminary field surveys and delineations for the portions of the Proposed Project site that extend beyond the Portal Bridge Capacity Enhancement Project limits. Wetlands and open water areas were also obtained from the NJDEP GIS database, which uses the 2012 land use/land cover data.

3.9.2 Existing Conditions

Appendix 2 includes wetland photo sheets associated with the supplemental field surveys. Figures 3-7, 3-8, and 3-9 depict the various wetlands and water bodies within the study area. Cedar Creek Marsh is located at the eastern end of the Proposed Project study area, both to the north and south of the existing NEC (referred to herein as "Cedar Creek Marsh North" and "Cedar Creek Marsh South"). Cedar Creek Marsh is connected by culverts that cause it to function as a single water body under normal flow conditions. Cedar Creek Marsh South drains through culverts and surface drainage to the west under the New Jersey Turnpike overpasses to an open sluiceway under one of the Sawtooth Bridges, which, in turn, drains to the south through culverts to twin tide gates situated on the bank of the Passaic River, located to the south of the Proposed Project site within the study area.

To the west of the New Jersey Turnpike overpasses are additional wetlands and open water areas as shown on wetlands mapping obtained from the NJDEP GIS database (see Figure 3-8). Open water areas within the Proposed Project study area were identified and are labeled on Figure 3-7 as "Northern Pond" and "Western Pond". Northern Pond discharges to the open sluiceway under the Sawtooth Bridges previously

10/26/2015

Tidal

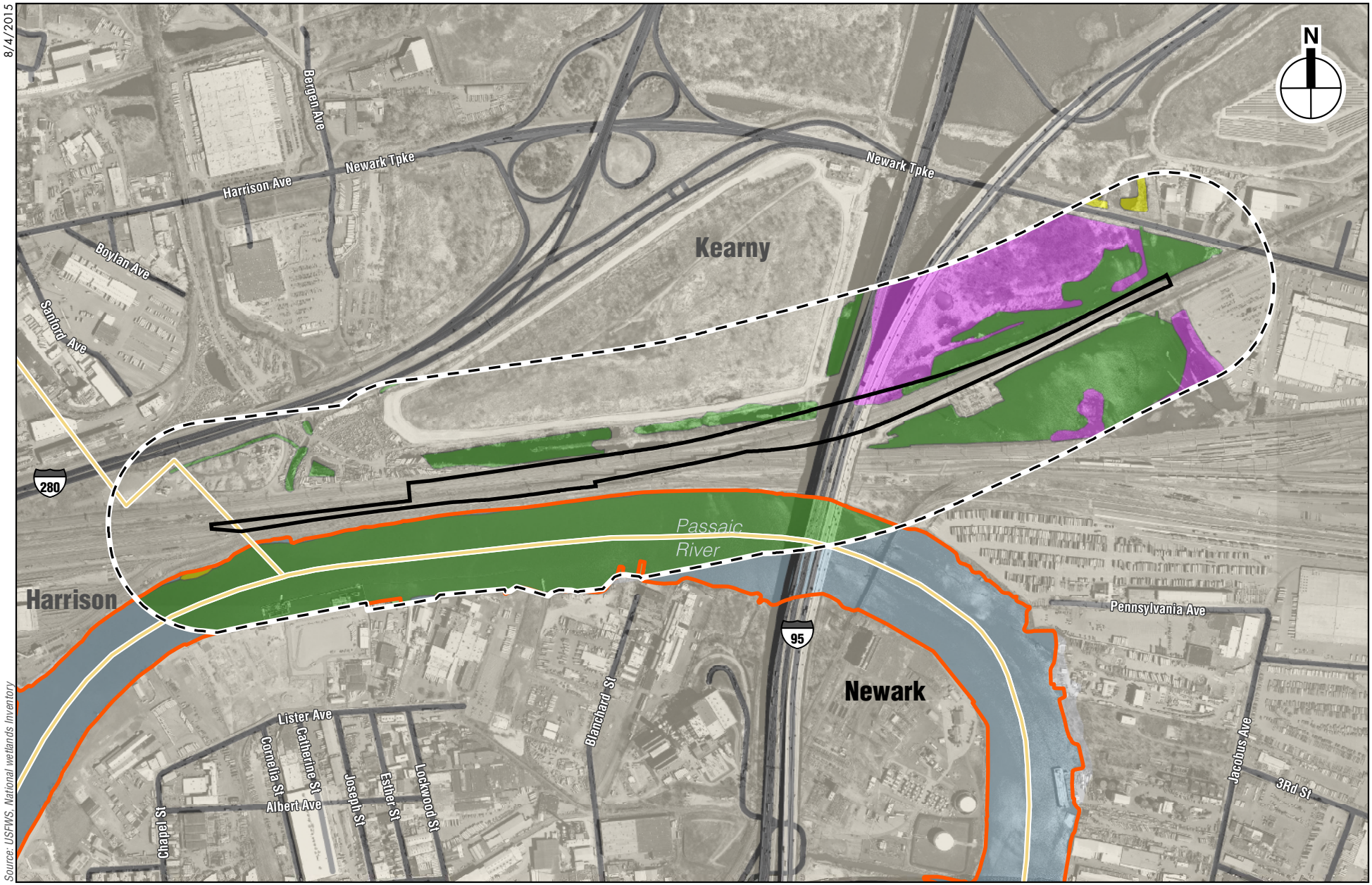
Tidally Influenced

Non-Tidal

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Waterbodies Adjacent to Sawtooth Bridges

Figure 3-7

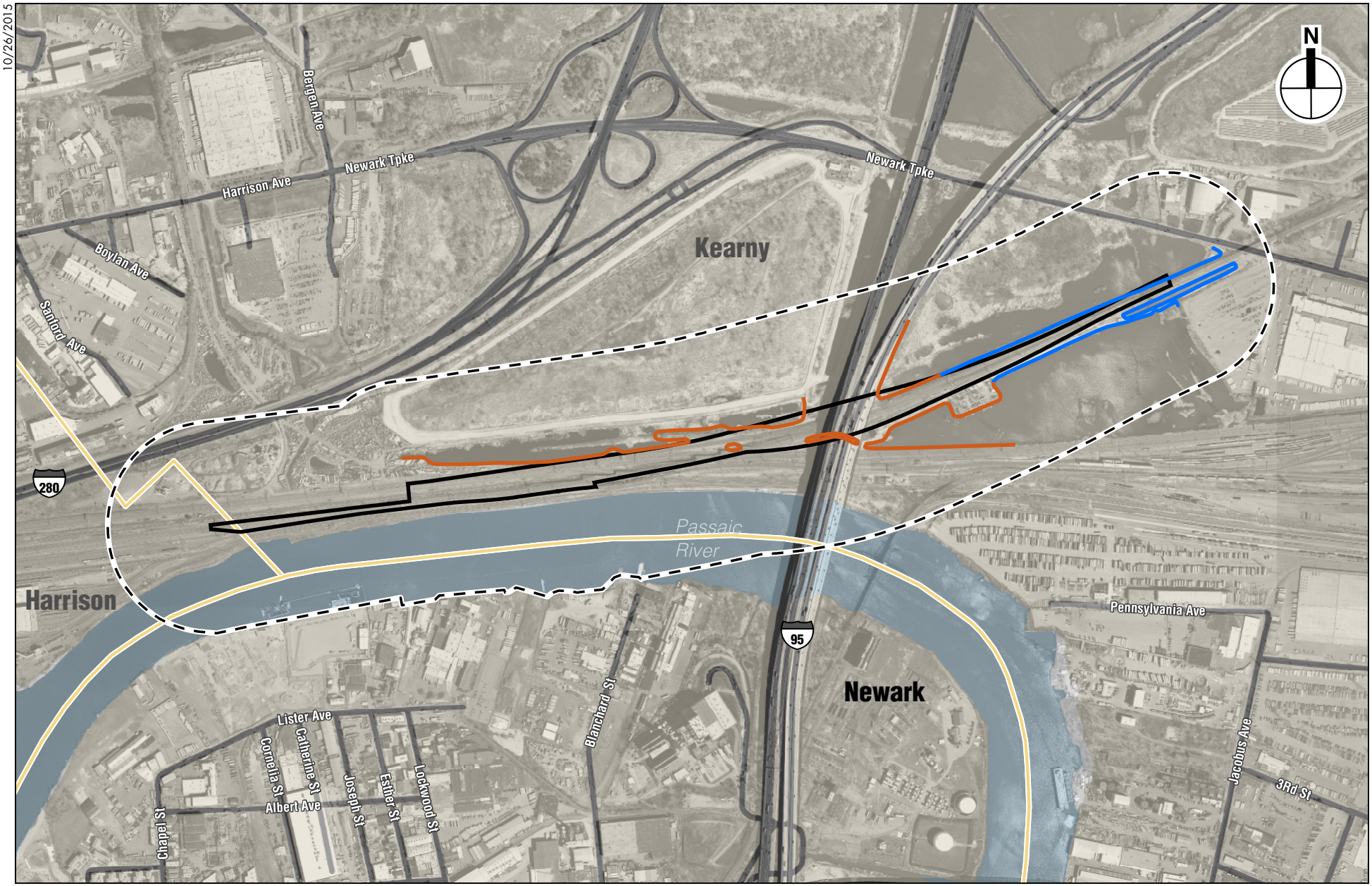


Regulatory Wetland Map

Figure 3-8

SAWTOOTH BRIDGES REPLACEMENT PROJECT

10/26/2015



Proposed Project Site
Project Study Area
Municipal Boundary
Sawtooth Wetland Boundaries
Portal Bridge Delineated Wetlands

Note:

1. Wetland boundary field verified during 7/22/15 site visit conducted by AKRF, Inc. personnel.

2. Wetlands delineated as part of Amtrak and NJ Transit's Portal Bridge Project, approved per USACE Permit No. NAN-2009-01222 and NJDEP Permit No. 0900-09-005.2 WFD 150001.

0 1,000 FEET

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Wetland Field Verification

Figure 3-9

mentioned where it discharges, along with waters from Cedar Creek Marsh, to the twin tide gates on the bank of the Passaic River.

Amtrak's consultant conducted field observations of the waterbodies on and adjacent to the Proposed Project site and deployed water level data loggers in Cedar Creek Marsh, the Western Pond, the Northern Pond, and a small surface water impoundment under the New Jersey Turnpike located between the Northern Pond and Cedar Creek Marsh North. Data obtained indicate that the Western Pond and the small surface water impoundment have no tidal influence and are not connected to any other water bodies on the site. The data indicate that Cedar Creek Marsh and the Northern Pond are hydraulically connected, and water levels fluctuate in unison under normal flow conditions. This connected drainage system discharges to the Passaic River through twin tide gates which appear to be in good working condition. The tide gates normally discharge during low tide periods and thus create an indirect tidal effect in the Northern Pond, connected drainage systems, and the Cedar Creek Marshes. Based on these field observations, Amtrak's consultants determined that none of the water bodies in the Proposed Project study area are directly tidally influenced.

NJDEP classifies the wetlands and open waters within the Proposed Project's study area as Disturbed Wetlands (modified), and include areas classified as *Phragmites*[15] dominating interior wetlands or herbaceous wetlands. The open waters of the study area include the Passaic River and various "lagoons" that are classified as perennial lakes or ponds by NJDEP. The historical development and industrialization of the Passaic River watershed has left behind contaminants in bottom sediments and on its banks, and this legacy of contamination has resulted in water quality impairments of the river and surrounding wetlands and water bodies. See the Phase I Environmental Site Assessment (ESA) in Appendix 3 for more information on the water quality on and near the Proposed Project site.

US Fish and Wildlife Service (USFWS) adheres to the Cowardin Classification system to group federal wetlands. The National Wetland Inventory (NWI) map of the area assigns the following Cowardin Classes to these wetlands (see Figure 3-8):

- E1UBL – Estuarine, Subtidal, Unconsolidated Bottom
- E1UBL6x - Estuarine, Subtidal, Unconsolidated Bottom, Oligohaline, Excavated
- E2EM5P - Estuarine, Intertidal, Emergent, *Phragmites australis*, Irregularly Flooded

Figure 3-9 shows the field-verified wetland boundaries.

Based on a review of the data resources discussed above, there are no waters of special quality or concern, or protected drinking water resources at or adjacent to the Proposed Project site.

3.9.3 No Action Alternative

Under the No Action Alternative, the Sawtooth Bridges would remain in place and would not affect waterflow and wetlands. Thus, the No Action Alternative is not anticipated to change wetlands, open waters, or water quality in the Proposed Project site.

[15] *Phragmites* are an invasive plant species that often forms a vast, dense and unbroken monoculture that have established cover reaching up to 15 feet in height across the site.

3.9.4 Potential Impacts of the Proposed Project

3.9.4.1 Wetlands

3.9.4.1.1 Construction

Construction of the Proposed Project would require access through the Cedar Creek Marsh and the Landfill 1-D lagoon, resulting in temporary disturbance of up to one acre of wetlands and open waters. Following construction, Amtrak would restore temporarily impacted wetlands and open waters to their natural condition. During the preliminary design phase, Amtrak would further define the wetland area that would be disturbed during construction and identify any mitigation measures in coordination with NJDEP, USACE, and NJSEA.

3.9.4.1.2 Operation

Based on the conceptual design, the new Morris & Essex Line Track 5 viaduct would extend north of the existing NEC into the western portion of Cedar Creek Marsh, continue under the New Jersey Turnpike, traverse the open water/wetland area at the toe of the 1-D Landfill, and reconnect with the existing Morris & Essex Line Track 5. Amtrak would realign this track into the property that is being acquired from Conrail. Based on the preliminary wetland delineation conducted in the study area and the available conceptual designs, Amtrak anticipates that the Proposed Project may affect approximately 1.04 acres of regulated wetlands. Wetlands are only present within a small portion of the Proposed Project limits (see Figure 3-8). The proposed Sawtooth Bridge North and Sawtooth Bridge South structures would not affect regulated wetlands.

In accordance with Executive Order 11990 and other applicable laws and regulations, Amtrak has minimized impacts to wetlands and open water to the extent practical at this stage of design. Due to the location of the Proposed Project site adjacent to wetlands and open water areas, coupled with the need to maintain service during construction, complete avoidance of wetlands and open water is not feasible or practical (see Chapter 2). However, Amtrak has minimized wetland and open water impacts by optimizing use of the existing right-of-way and by placing new tracks on elevated structures rather than fill or retained embankment. Amtrak will continue to seek ways to further avoid and minimize impacts to natural resources as the Proposed Project proceeds into advanced design. As stated in Chapter 1, several permits and approvals from natural resource agencies will be required (e.g. USACE Section 404). Wetland mitigation will include compensation for the loss of ecological value caused by the wetland impact from the Proposed Project. Amtrak and FRA will identify exact mitigation measures and wetland compensation ratios in collaboration with the regulatory agencies (including NJDEP, USACE, and NJSEA) during the subsequent preliminary design and permitting phase. Amtrak will implement these mitigation measures. However, at this time, Amtrak anticipates that mitigation requirements would be satisfied through a combination of restoration-in-place and through purchasing mitigation credits from an available wetland mitigation bank. These banks are established by private companies as well as public entities. As of the date of this assessment, credits are available at several NJDEP-approved wetland mitigation banks within the Hackensack Meadowlands District.[16]

3.9.4.2 Open Water and Water Quality

The Proposed Project would not cross a navigable waterway, thereby not affecting a navigable waterway. Furthermore, the Proposed Project would not affect water quality because there would be no work within

[16] NJ Department of Environmental Protection, Office of Policy Implementation. Wetland Banks. Accessed August 9, 2018. https://www.nj.gov/dep/opi/wetland-banks.html

the Passaic River and Amtrak would employ best management practices to protect the Cedar Creek Marsh and Landfill 1-D lagoon. Thus, with the incorporation of appropriate best practices measures, the Proposed Project would not result in significant adverse effects to water quality.

Amtrak would avoid adverse effects to water quality through best management practices, such as silt fences, straw bales, and ditch checks to minimize soil erosion, sedimentation, runoff, and surface instability during construction. Amtrak would place and maintain erosion control in accordance with governing regulations and permits and would thus minimize discharge of sedimentation into waterways. Amtrak would obtain a Soil Erosion and Sediment Control Plan Certification from the Hudson-Essex-Passaic Soil Conservation District prior to construction. This plan would include appropriate soil erosion and sediment control measures to ensure no adverse effects to nearby waters.

3.10 Threatened and Endangered Species

3.10.1 Regulatory Context and Methodology

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §1531 et seq.) recognizes that endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. The ESA provides for the protection of these species and the critical habitats on which they depend for survival. The Proposed Project, as a discretionary federal action, is subject to agency consultation pursuant to Section 7 of the ESA, as amended. To comply with the ESA, Amtrak completed a desktop review of federal and State databases, including US Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) database. Amtrak also submitted letters to the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and NJDEP requesting information on threatened or endangered species found within the Proposed Project site.

3.10.2 Existing Conditions

Based on the USFWS IPaC Trust Resource Report, there are no endangered species or critical habitats within the Proposed Project study area (see Appendix 2). The NJDEP Landscape Project Version 3.3 for the Piedmont Plains region lists the wetlands and open waters of the Proposed Project area and adjacent areas as foraging and/or non-breeding/sighting habitat for several bird species listed as "special concern" by NJDEP. These bird species include little blue heron (*Egretta caerulea*), glossy ibis (*Plegadis falcinellus*), snowy egret (*Egretta thula*), and northern harrier (*Circus cyaneus*). The database also lists a portion of the Proposed Project area as suitable foraging habitat for the state-threatened cattle egret (*Bubulcus ibis*), the state-threatened osprey (*Pandion haliaetus*) and the state-endangered bald eagle (*Haliaeetus leucocephalus*). The bald eagle is also federally-protected by the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Amtrak sent letters to NJDEP's Natural Heritage Program (NHP) dated August 24, 2015 and March 13, 2018, requesting information on threatened and endangered species under their jurisdiction within 0.5 miles of the Proposed Project site. Responses from NJDEP-NHP dated September 17, 2015 and April 3, 2018 regarding species of special concern and state-threatened species confirmed the information included in the database. Figures 3-10A and 3-10B present the NJDEP Habitat Assessment for threatened and endangered species within the study area.

Amtrak also sent letters to NOAA on August 24, 2015 and March 13, 2018 requesting information on threatened and endangered species, as well as Essential Fish Habitat (EFH) and Federal Wildlife

July 2016

Source: NJDEP Landscape Project data

Proposed Project Site

Rank 1 - Habitat specific requirements

Rank 2 - Special Concern

Rank 3 - State Threatened

Rank 4 - State Endangered

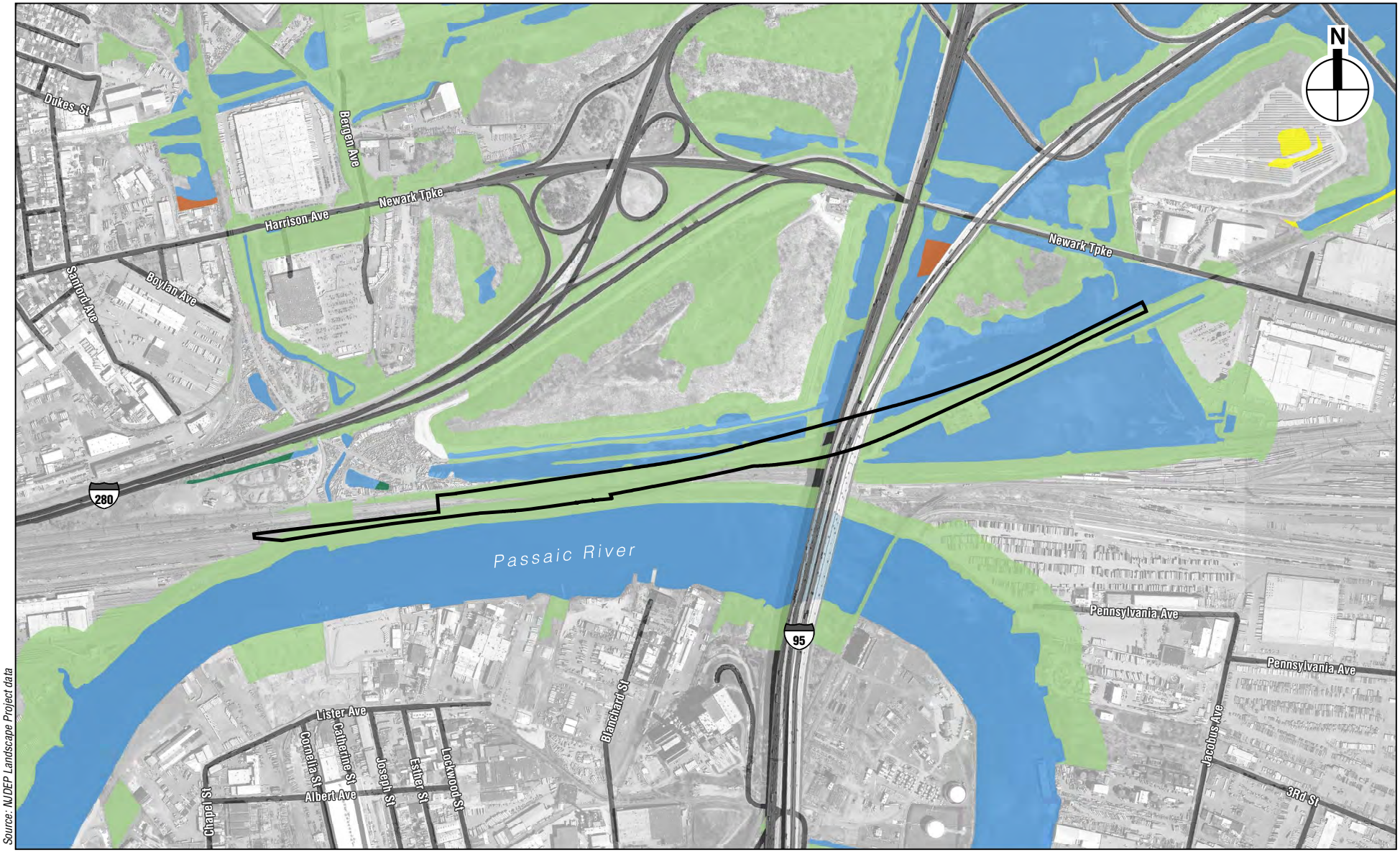
0 1,000 FEET

NJDEP Habitat Assessment for Threatened/Endangered Species and Species of Special Concern

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Figure 3-10A

July 2016



Source: NJDEP Landscape Project data

Proposed Project Site

Species not Specified

Cattle Egret

Little Blue Heron

Northern Harrier

Snowy Egret

0 1,000 FEET

NJDEP Habitat Assessment for Avian Threatened/Endangered Species and Avian Species of Special Concern

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Figure 3-10B

Coordination Act (FWCA) species within the Proposed Project site. Responses from NOAA dated September 3, 2015 and March 16, 2018 stated that "no ESA-listed species under National Marine Fisheries Service (NMFS) jurisdiction occur in the vicinity of the proposed Amtrak Sawtooth Bridges Project," and that formal ESA Section 7 consultation is therefore not necessary. Based on NMFS correspondence dated September 28, 2015 and March 16, 2018, the Passaic River is an EFH for species of concern. NMFS advises that no in-water work should occur between March 1 and June 30 of each year. Copies of correspondence with natural resource agencies that are referenced in this section are provided in Appendix 2.

3.10.3 No Action Alternative

The existing habitats within the study area are highly disturbed, and the presence of several active rail lines and highways significantly detract from the quality of available foraging habitat. The No Action Alternative would have no effect on threatened and endangered species or habitat as the existing Sawtooth Bridges and related railroad tracks would continue to coexist at the Proposed Project site with any species that are present.

3.10.4 Potential Impacts of the Proposed Project

Construction activities would occur within the non-tidal wetland areas adjacent to the existing NEC. Construction activities at the Proposed Project site would likely result in minimal effect on open water and wetland habitats considered suitable foraging and nesting habitat for the glossy ibis, little blue heron, northern harrier and snowy egret. Construction-related noise could result in displacement of foraging activity within and near the Proposed Project site. However, the existing habitats within the Proposed Project's study area are highly disturbed, and the presence of several active rail lines and highways significantly detract from the quality of available foraging habitat. Moreover, there are other suitable habitats for the above species both within and beyond the study area. These habitats may provide suitable refuges for individuals that could potentially be temporarily displaced by construction-related activities.

The Proposed Project would not affect any EFH as it would require no in-water work in the Passaic River. Operation of the Proposed Project would not significantly affect the species listed in Section 3.10.2 above since the species that are present are adapted to the rail activity and vehicular traffic that currently exists. Amtrak will continue to coordinate with NMFS and other agencies during the permitting phase. Thus, the Proposed Project would not have an adverse effect on critical habitat, endangered species, or EFH.

3.11 Air Quality

3.11.1 Regulatory Context and Methodology

This air quality assessment considers the effect of the Proposed Project on local and regional air quality during construction and operation. The assessment considers the Proposed Project to have an adverse effect on air quality if it causes or significantly exacerbates a violation of air quality standards. The assessment also considers the potential for regional emissions and evaluates the need for a general conformity determination. Amtrak reviewed federal and state air quality regulations and data to perform the analysis in this section.

3.11.2 Air Quality Standards

Pursuant to the Clean Air Act (CAA), as amended in 1990, the U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) for six major air pollutants, referred to as "criteria pollutants": carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, respirable Particulate Matter (PM) (both $PM_{2.5}$ and PM_{10}), sulfur dioxide (SO_2), and lead (see Table 3-1). The primary

standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary and secondary standards are the same for NO_2, ozone, lead, and PM, and there is no secondary standard for CO. New Jersey has adopted the NAAQS for CO, NO_2, and SO_2 but defines compliance with the standards on a running 12-month basis rather than for calendar years only. New Jersey also has standards for total suspended particulate matter (TSP) and ozone that correspond to former federal standards (i.e., standards which USEPA has revoked or replaced).

Table 3-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	Ppm	**µg/m³**	**ppm**	**µg/m³**
Carbon Monoxide				
8-Hour Average	9(1)	10,000	None	
1-Hour Average	35(1)	40,000		
Lead				
Rolling 3-Month Average	N/A	0.15	N/A	0.15
Nitrogen Dioxide				
1-Hour Average	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone				
8-Hour Average (2)	0.070	140	0.070	140
Respirable Particular Matter (PM_{10})				
24-Hour Average (1)	N/A	150	N/A	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean	N/A	12	N/A	15
24-Hour Average (3)	N/A	35	N/A	35
Sulfur-Dioxide (4)				
1-Hour Average (5)	0.075	196	N/A	N/A
Maximum 3-Hour Average (1)	N/A	N/A	0.50	1,300

Notes: ppm – parts per million (unit of measure for gases only)
µg/m³ – micrograms per cubic meter (unit of measure for gases and particles, including lead)
N/A – not applicable
All annual periods refer to calendar year.
Gaseous pollutant standards are defined in ppm. Approximately equivalent concentrations in µg/m³ are presented.
(1) Not to be exceeded more than once a year.
(2) 3-year average of the annual fourth highest daily maximum 8-hr average concentration
(3) Not to be exceeded by the annual 98th percentile when averaged over 3 years.
(4) EPA revoked the 24-hour and annual primary standards, replacing them with 1-hour average standard. Effective August 23, 2010.
(5) 3-year average of the annual 99th percentile daily maximum 1-hr average concentration.
Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards

In addition to the criteria pollutants discussed above, toxic air pollutants—also known as hazardous air pollutants (HAPs) or mobile source air toxics (MSATs) in the on-road context— are pollutants known to cause or are suspected of causing cancer or other serious health ailments. The CAA Amendments of 1990 listed 188 HAPs and addressed the need to control toxic emissions from transportation. The USEPA's 2007 MSAT rule identified a subset of seven HAPs as having significant contributions from mobile sources: benzene, 1,3-butadiene, formaldehyde, acrolein, naphthalene, polycyclic organic matter, and diesel particulate matter (DPM).

3.11.2.1 Conformity with State Implementation Plans

The CAA defines non-attainment areas (NAA) as geographic regions that the USEPA designated as not meeting one or more of the NAAQS. When the USEPA designates an area as non-attainment, the CAA requires the state to develop and implement a State Implementation Plan (SIP), which outlines how the state will achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area has achieved attainment (and classified as a maintenance area).

The conformity requirements of the CAA and regulations promulgated thereunder limit the ability of Federal agencies to assist, fund, permit, and approve transportation projects in non-attainment areas that do not conform to the applicable SIP. Conformity of Federal actions related to transportation plans, programs, and projects that are developed, funded, or approved under Title 23 USC or the Federal Transit Act (49 USC § 1601 et seq.) must be addressed according to the requirements of 40 CFR Part 93 Subpart A (Federal transportation conformity regulations); all other Federal actions are regulated under Subpart B of the same section (Federal general conformity regulations). Federal actions with FRA as the lead agency are subject to the general conformity regulations. Conforming actions are those that would not:

- Cause or contribute to any new violation of any standard in any area;
- Interfere with provisions in the applicable SIP for maintenance of any standard;
- Increase the frequency or severity of any existing violation of any standard in any area; or
- Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Pursuant to General Conformity Regulations, "a conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed" the established *de minimis* criteria. As an FRA action, the Proposed Project must conform to the SIPs to meet and maintain the NAAQS in New Jersey and the multi-state (New York–Northern New Jersey–Long Island) Air Quality Control Region (AQCR) that includes Hudson County. The applicable *de minimis* threshold is 100 tons per year for CO, $PM_{2.5}$, and nitrogen oxides (NO_x), and 50 tons per year for volatile organic compounds (VOC).

3.11.3 Existing Conditions

The Proposed Project site is within areas that USEPA designated as non-attainment for ozone, and maintenance for CO and $PM_{2.5}$. Table 3-2 presents the criteria pollutants of concern and ambient concentrations (pollutant levels) obtained from monitoring stations closest to the Proposed Project site.

No sensitive air quality receptors, such as residences, schools, or parks are located on the Proposed Project site. The nearest residence, outside the Proposed Project site and study area is across the Passaic River, in Newark, NJ and approximately 3,000 feet from the existing Sawtooth Bridges.

Table 3-2
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration[(1)]	NAAQS
CO	Jersey City, Hudson County	ppm	8-hour	1.1	9
			1-hour	2	35
SO_2	Jersey City, Hudson County	µg/m^3	3-hour	N/A	1,300
			1-hour	13.1	196
PM_{10}	Jersey City, Hudson County	µg/m^3	24-hour	36	150
$PM_{2.5}$	Jersey City, Hudson County	µg/m^3	Annual	8.1	12
		µg/m^3	24-hour	19	35
NO_2	Jersey City, Hudson County	µg/m^3	Annual	37.6	100
			1-hour	99.7	188
Ozone	Bayonne, Hudson County	ppm	8-hour	0.067	0.070

Notes [(1)] All concentrations presented are based on 2017 data. CO and PM_{10} concentrations are the first max values. SO_2 1-hour is 99th percentile. Annual $PM_{2.5}$ concentrations are the weighted annual mean (i.e., the arithmetic mean of 24-hour values weighted by calendar quarter); 24-hour average is the 98th percentile. Annual NO_2 concentrations are the arithmetic mean of 1-hour values; 1-hour is the 98th percentile. Ozone is fourth max value.

Source USEPA, Air Data, Monitor Values Report for 2017. https://www.epa.gov/outdoor-air-quality-data/monitor-values-report, accessed August 7, 2018

3.11.4 No Action Alternative

Under the No Action Alternative, air quality in the region would likely improve as a result of ongoing emission control programs. With the No Action Alternative, the Sawtooth Bridges would continue to deteriorate, and Amtrak would eventually need to take them out of service. If Amtrak discontinued service on the bridges, the vital services of Amtrak, NJ TRANSIT, PATH, and Conrail would be severely disrupted, affecting the movement of people and goods throughout the region. These disruptions would cause significant increases in vehicle use and traffic, thus causing an increase in vehicle emissions and negatively affecting regional air quality.

3.11.5 Potential Impacts of the Proposed Project

3.11.5.1 Construction

Air pollutant emissions from construction of the Proposed Project would include emissions from diesel and gasoline-powered construction equipment, diesel-powered generators, diesel trucks and locomotives involved in transporting excavated material and delivering construction materials, and worker vehicles. Based on the nature, extent, and duration of construction, and comparison to similar bridge construction projects, the emissions during construction would be below the *de minimis* levels defined in the general conformity regulations. Therefore, the construction of the Proposed Project would not interfere with the SIP for region–wide attainment of the ozone NAAQS or maintenance of the CO and $PM_{2.5}$ NAAQS, and would not require a conformity determination.

3.11.5.2 Operation

There are no sensitive uses within the Proposed Project study area. Therefore, the Proposed Project would not cause an exceedance of NAAQS at a residence or other location of concern. Moreover, most trains

using the NEC are electric and the Proposed Project alone would not affect train volumes. Therefore, Proposed Project operation would not increase emissions at the regional level.

As discussed in Chapter 4, "Indirect and Cumulative Effects", the improved movement of people would also result in a cumulative benefit to improved regional transportation services and resultant improvements to air quality and energy efficiency of the overall system. Overall, in 2015, Amtrak service was 45 percent more efficient per passenger-mile than average highway travel (nationwide) and was likely more efficient than that along the NEC where ridership was high[17].

Overall, the operation of the Proposed Project would not adversely affect air quality at the local or regional level. When considered with other improvements, the Proposed Project would result in benefits to air quality.

3.12 Noise and Vibration

3.12.1 Regulatory Context and Methodology

The noise and vibration analyses are based on guidance prepared by the Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, September 2018. The FTA guidance document sets forth methodologies for analyzing noise and vibration from commuter and intercity rail operations and as such is the standard DOT methodology for assessing potential impacts of new rail bridges and transit systems.

The FTA methodology begins with a noise screening to determine whether any noise-sensitive receptors (e.g., residences) are within a certain distance from the project site. According to the FTA screening methodology, potential impacts may occur if noise receptors are within 750 feet of the centerline of a commuter rail mainline if the pathway between the track and the receptor is unobstructed, or 375 feet from the track centerline if the pathway is obstructed, since obstructions block some noise and therefore reduce the distance the noise would travel.

The FTA vibration analysis methodology begins with a screening to determine whether any vibration-sensitive receptors are within a distance where an impact is likely to occur. Vibration-sensitive uses include: buildings where vibration would interfere with interior operations (such as vibration-sensitive research and manufacturing, hospitals with vibration-sensitive equipment, and university research operations); residences and buildings where people normally sleep (such as hotels and hospitals); institutional land uses with primarily daytime use (such as schools and churches); and concert halls and other special-use facilities.

According to the FTA screening methodology, potential impacts may occur if sensitive receptors are within 200 feet of the centerline of a commuter rail mainline. According to the FTA guidance, it is extremely rare for vibration from train operations to cause any sort of building damage, even minor cosmetic damage. However, there is sometimes concern about damage to fragile historic buildings located near the right-of-way.

3.12.2 Existing Conditions

There are no noise-sensitive land uses (residential areas, schools, places of worship, concert halls, or special-use facilities) within 750 feet of any tracks at the Proposed Project site. There ae no vibration-sensitive uses

[17] Oak Ridge National Laboratory. Transportation Energy Data Book. Ed. 36. April 2018.

within 200 feet of the Proposed Project site. Historic resources within the Proposed Project study area are exposed to vibrations from existing rail operations.

3.12.3 No Action Alternative

In the future without the Proposed Project, current noise and vibration levels would be unchanged. No new noise-sensitive or vibration-sensitive uses are planned within the study area. Therefore, the No Action Alternative would not affect noise and vibration.

3.12.4 Potential Impacts of the Proposed Project

3.12.4.1 Noise

There are no noise-sensitive land uses within the 750-foot screening distance for the Proposed Project. Therefore, there would be no adverse effect on noise from the operation or construction of the Proposed Project.

3.12.4.2 Vibration

There are no vibration-sensitive uses within the 200 feet screening distance. As discussed in Section 3.6, "Cultural Resources", Amtrak would prepare a CPP to avoid construction-related damage to historic properties, including the NRHP-eligible Hudson Tower and Substation 4. The CPP would include measures to avoid damage from vibration during construction. With the CPP in place, the Proposed Project would not result in adverse effects from construction vibration.

3.13 Contaminated and Hazardous Materials

3.13.1 Regulatory Context and Methodology

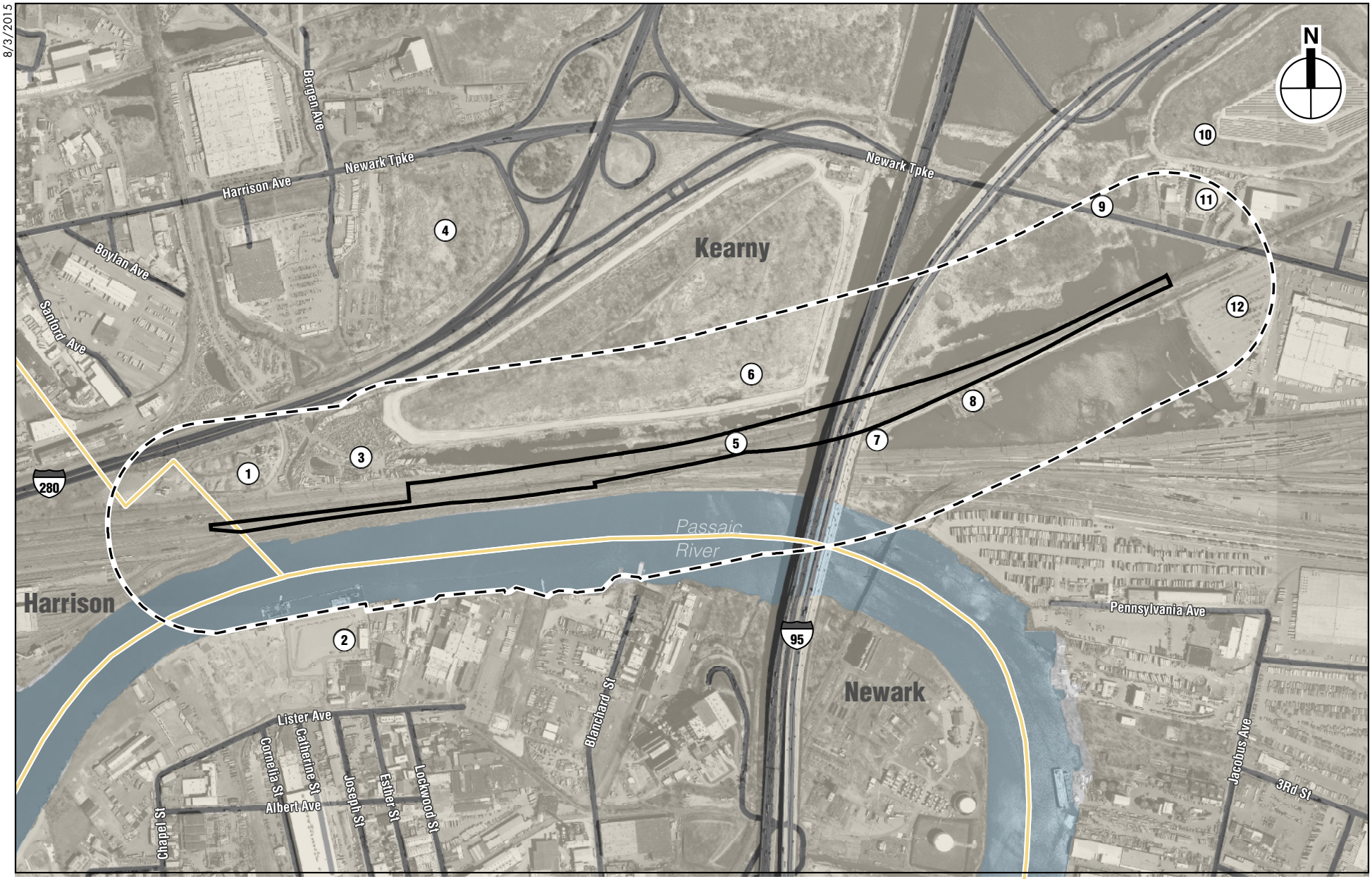
Amtrak based the assessment of hazardous waste and contaminated materials on methodology set forth in USEPA's All Appropriate Inquiries (AAI) rule (40 CFR Part 312) and applicable sections of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Phase I ESA for the Proposed Project (see Appendix 3) conforms with ASTM Standard E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*.

In addition, NJDEP has well-established procedures governing the management of potentially contaminated materials and protection of public health, safety and the environment in the Proposed Project area. To help meet these requirements, NJDEP has developed technical guidance covering a range of situations where projects may encounter or disturb historic fill or other potentially contaminated materials. NJDEP's Linear Construction Technical Guidance (LCTG, January 2012 or most current version) recognizes the unique aspects of a linear construction project – that historic fill or potentially contaminated materials are often likely to be encountered and disturbed, that the project area is limited, and therefore remediation beyond the construction footprint is not usually feasible.

3.13.2 Existing Conditions

Table 3-3 includes a summary of database research regarding potentially contaminated sites in the Proposed Project study area and beyond (see approximate distances in the table). Figure 3-11 shows the geographic locations of these potential sites of concern. Figure 3-12 depicts the soil types within the study area.

8/3/2015



Project Site

Study Area

Municipal Boundary

① *Hazardous Waste and Contaminated Materials Potential Sites of Concern*

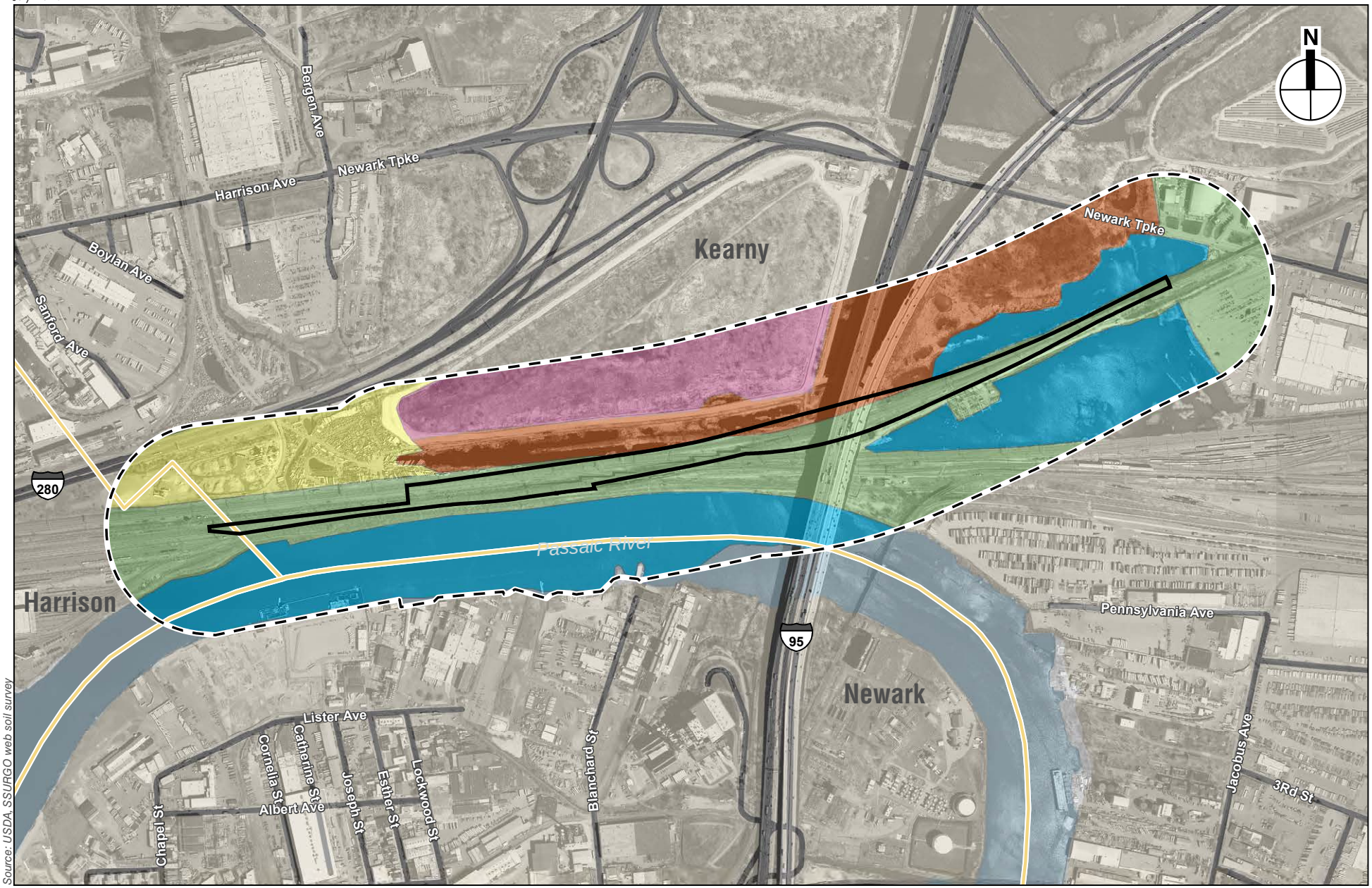
0 1,000 FEET

Hazardous Waste and Contaminated Materials
Potential Sites of Concern

Figure 3-11

SAWTOOTH BRIDGES REPLACEMENT PROJECT

July 2016



Source: USDA, SSURGO web soil survey

Proposed Project Site
Study Area
Municipal Boundary

SecA - Secaucus artifactual fine sandy loam - not prime farmland
URWETB - urban land - not prime farmland
UdrC - udorthents, refuse substratum - not prime farmland

WectA - westbrook mucky peat - not prime farmland
WATER - not prime farmland

0 1,000 FEET

Soils and Farmland
Figure 3-12

SAWTOOTH BRIDGES REPLACEMENT PROJECT

Table 3-3
Potential Sites of Concern

Site ID	Site Name & Address	Research Source	Approximate Distance/Direction from the Proposed Project Site	Site Description
1	Weldon Asphalt/Weldon Quarry Company, LLC 1100 Harrison Avenue Kearny, NJ	**Regulatory Database** RCRA NonGen, Manifest	430 feet/northwest	Currently operating facility that was listed as a generator of certain spent halogenated solvents (EPA Hazardous Wastes Number F001) in 1996 and 2006.
1	SOS Gases Inc. 1100 Harrison Avenue Kearny, NJ	**Regulatory Database** NJ SHWS, NJ HIST HWS, NJ HIST LUST, NJ LUST, NJ UST, NJ Release, NJ Eng. and Inst. Controls, NJ Brownfields, NJ Financial Assurance	430 feet/northwest	This site was listed as a facility shipping hazardous waste in 1997 and on the NJ Historic LUST database (NFA for areas of concern). The site is also listed in the NJ UST database with a 2,000-gallon diesel fuel tank installed in 1969 and removed in 1993. The NJ Release database listed this site with an explosion in 2001 related to the asphalt plant operations. No fires occurred and there was no additional information on the incident. NJ Eng. and Inst. Controls at the site include an impermeable cap to address soil contamination from VOCs, SVOCs, and metals originating from the operations of the asphalt plant.
2	Diamond Alkali Company 80 and 120 Lister Avenue Kearny, NJ	**Regulatory Database** CERCLIS, NPL, US Eng Controls, ROD, CONSENT, PRP, ICIS	1,345 feet/west-southwest beyond the Passaic River	This site was added to the National Superfund list by EPA in 1984 due to the various companies using the site to manufacture pesticides and herbicides, including those used to formulate the defoliant "Agent Orange," that has been identified as a primary polluter of the Passaic River, which borders the Proposed Project site to the south. The Diamondhead Alkali Superfund site is a potential environmental concern associated with the Proposed Project.
3	Ann Martucci, Inc (aka Mad Max) Block 284, Lots 9.03 and 11.04	**Field Survey**	Northwest-adjacent	During the site reconnaissance, this site was observed to be utilized for the storage and potential re-sale of trucks and heavy equipment/machinery. Undocumented releases associated with long-term equipment storage, and potential discharges into areas immediately adjacent to or beneath the site may have occurred during current or former operations.
4	Diamond Head Oil Refinery 1401 Harrison Turnpike Kearny, NJ	**Regulatory Database** NPL, NJ SHWS and NJ Hist SHWS	2,040 feet/north	This facility operated from 1946 to early 1979 under several company names including PSC Resources, Inc., Ag-Met Oil Service, Inc., and Newtown Refining Corporations. EPA added the site to the Superfund National Priorities List in 2002. Extensive remediation including the removal of millions of gallons of oily-contaminated water, millions of cubic yards of oily sludge, millions of tons of contaminated soil occurred in the late 1970s and early 1980s. Recent sampling was performed in 2009, and EPA is in the process of determining the need for additional action.

Site ID	Site Name & Address	Research Source	Approximate Distance/Direction from the Proposed Project Site	Site Description
5	Proposed Project Site	**Field Survey/Records Research**	Target Property	The Proposed Project area has been utilized for railroad operations since the early 1900s. Undocumented releases or the use of contaminated fill material may have affected subsurface conditions beneath the Proposed Project area.
6	MSLA 1-D Landfill 1500 Harrison Avenue Kearny, NJ	**Regulatory Database/Records Research** Historic Landfill	850 feet/northwest	Municipal waste landfill formerly operated by Municipal Sanitary Landfill Authority (MSLA). The landfill ceased operations in 1982 under an administrative order from the NJDEP. Documented releases occurred in the 1970s and 1980s into the wetland areas immediately adjacent to the Proposed Project. Violations were reported by NJDEP during a January 1989 compliance evaluation inspection, including the release of leachate into the Passaic River and deficiencies in groundwater sampling and reporting. As part of the more recent re-closure efforts, the perimeter roadway was capped and a methane recovery system was installed.
7	Pennsylvania Railroad Substation 4 Building	**Field Survey/Records Research**	South-adjacent	This historic structure was utilized as a substation building from 1910 to the mid-1930s. Due to the proximity of the Site and likelihood of the storage and use of polychlorinated biphenyls (PCB)-containing fluids in transformers within the former building, undocumented releases may have affected subsurface conditions. Due to its age, this structure may also contain hazardous building materials including asbestos containing materials and/or lead-based paint.
8	Substation 41	**Field Survey/Records Research**	South-adjacent	A critical power source for Amtrak and NJ TRANSIT that lost service during Hurricane Sandy, this site was submerged in 2012 and thus has the potential to have impacted the area adjacent to the Proposed Project.
9	Goody Products Inc. 969 Newark Turnpike	**Regulatory Database** RCRA NonGen, NJ SHWS, NJ Hist HWS, NJ UST, NJ Release, NJ Inst Control, NJ ISRA, NJ NPDES, NJ Financial Assurance	845 feet/northeast	The site is listed as a RCRA non-generator in 1990, 1992, 1994, 1996, 2006, and 2007. The site is listed as a Large Quantity Generator (LQG) in 1908 of F003 (spent halogenated solvents), F007 (spent cyanide plating bath solutions), F008 (plating bath residues from the bottom of plating baths), F009 (spent stripping and cleaning bath solutions), and U002 (propanone or acetone) with nine reported violations. The site is listed with one closed 7,500-gallon UST. A release of waste water containing zinc and oil into Dead Horse Creek was reported in 1991. The site is listed with institutional controls in place for heavy metals. The site is listed as a closed SHWS and an active Historic SHWS with on-site sources of contamination.

Site ID	Site Name & Address	Research Source	Approximate Distance/Direction from the Proposed Project Site	Site Description
10	MSLA 1-A Landfill 1800 Harrison Avenue Kearny, NJ	**Field Survey/Records Research**	315 feet/east-northeast	The MSLA 1-A landfill formerly accepted municipal waste. The landfill also operated under the names HMDC 1-A and included part of the former P & M Egan Landfill. This 13-acre capped section has operated as the PSE&G solar farm since 2011.
11	G & S Motor Equipment Company /Transformer Lab Services, Inc. 1800 Harrison Avenue Kearny, NJ	**Regulatory Database** Historic LF, NJ NPDES, ICIS, NJ&PA Manifest, NJ Release, NJ VCP, US AIRS	315 feet/east-northeast	This site is listed as a historic landfill (in association with operations of MSLA-1A). This site has numerous documented enforcement actions through Toxic Substances Control Act (TSCA), has generated extensive quantities of hazardous waste, and also has a NJPDES permit for discharge of industrial storm water in addition to a controlled emission permit associated with scrap and waste materials.
12	NJ TRANSIT Maintenance/ Bombardier Transportation/ CSX, Transportation, Inc. 1148 Newark Turnpike Kearny, NJ	**Regulatory Database** Manifest, RCRA Non-Gen, RCRA SQG, UST, NJ RELEASE	225 feet/east-northeast	These sites are clustered together at the eastern boundary of the Proposed Project and include the storage and generation of hazardous waste, and documented releases that have affected subsurface conditions in close proximity to the Proposed Project area.

In addition, the following summarizes observations from field reconnaissance.

- The reconnaissance of the Proposed Project area did not reveal the presence of suspect asbestos containing materials (ACM), but ACM could be present in encased conduits associated with aboveground or underground utilities, buried debris, or fill material used to raise grades within or immediately adjacent to the Proposed Project area. Based on the age of Amtrak Substation 41 and Pennsylvania Railroad Substation 4, the building materials used during their construction in the early 1900s or any subsequent renovations or repairs may have utilized ACM and/or lead-based paint (LBP).
- Based on the age of the railway and associated Sawtooth Bridge structures, LBP may be present on structures within or immediately adjacent to the Proposed Project area.
- The New Jersey Turnpike overpasses bisect the Proposed Project site. The bridge first opened in 1951; construction of the Western Spur was completed in 1970[18]. The New Jersey Turnpike overpasses are immediately adjacent to, and were built extending over, the railway operations encompassing the Proposed Project. Improper management of material during excavation and backfilling activities completed during construction of the I-95 overpasses and/or petroleum spills, or leaks from the ongoing use of the roadway may have impacted subsurface conditions of the Proposed Project site.
- The area beyond adjacent sites to the north and east of the Proposed Project site was historically used for industrial, transportation, utility-related and landfilling/waste disposal purposes. There are

[18] New Jersey Turnpike Authority. About NJTA. Accessed March 28, 2019. https://www.njta.com/about/who-we-are

numerous sites with extensive contamination including documented releases, leaking underground storage tanks, and hazardous waste generators, as indicated in Table 3-3.

3.13.3 No Action Alternative

Under the No Action Alternative, the Sawtooth Bridges would remain in place although Amtrak would eventually need to take them out of service. Ongoing remediation activities within the study area would continue.

3.13.4 Potential Impacts of the Proposed Project

The operation of the Proposed Project would not have the potential to affect contaminated and hazardous materials. The Proposed Project includes construction of three new viaducts and their associated foundations. As construction activities would disturb potentially contaminated soil and groundwater, Amtrak focused this assessment on construction-period effects.

Due to the potential presence of soil and groundwater contamination beneath the Proposed Project area from historic filling, use for rail operations, and documented cases of adjacent industrial use, site-specific plans would be incorporated into all contract documents. The Proposed Project would not disturb soil at the sites outside the study area, including the Diamond Alkali Company and Diamond Head Oil Refinery sites. While the historic contamination at these sites is relevant to understanding the general conditions in the area beyond the Proposed Project and contamination within the Passaic River, the Proposed Project would not disturb soils associated with direct contamination from these sites, including soils potentially contaminated with Agent Orange. Rather, the Proposed Project construction activities would disturb soil whose potential contamination is likely to be manageable using measures discussed below. The site-specific plans would ensure the safety of workers and the surrounding community, protect sensitive environmental conservation land areas, and adhere to all applicable regulatory requirements. These plans would include documentation of all known aboveground and underground utilities and storm water/tidal control conduits and be overlaid with proposed areas of disturbance shown on the final construction drawings.

All excavated soil requiring off-site disposal (or reuse) would be characterized and managed in accordance with applicable NJDEP regulatory requirements, including the testing requirements of any intended receiving facilities. Transportation of material within or leaving the Proposed Project area would be completed in accordance with all applicable federal, state, local, and agency requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.

Amtrak would conduct all construction activities and site-specific plans in collaboration with nearby responsible parties (or their authorized representatives) of known contaminated properties to confirm the latest available data is referenced to maintain safety for workers, the surrounding community, and nearby sensitive environmental receptors.

Although not anticipated, if Amtrak encounters petroleum tanks during any excavation completed for construction, Amtrak would remove them, along with any contaminated soil, in accordance with applicable requirements. Amtrak would report any evidence of a petroleum spill to NJDEP and addressed in accordance with applicable requirements. If tanks are discovered, they would be properly registered, if necessary, with the NJDEP, and/or the Kearny/Harrison Fire Department. If dewatering is necessary during construction, water would be managed and discharged in accordance with applicable local and state regulatory permitting requirements. Amtrak would perform preliminary testing and a feasibility study prior to construction to support any necessary permitting. Surfaces coated with LBP may require abatement prior

to disturbance (e.g., cutting) that could generate lead-containing dust or vapors. Prior to construction or demolition, if lead-coated surfaces would potentially be disturbed, Amtrak would perform an assessment to determine whether lead exposure would occur. Amtrak would perform any activities with the potential to disturb LBP in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction). Prior to any renovation or demolition activities with the potential to disturb suspect ACM, Amtrak would conduct an asbestos survey including the review of all known utilities and if materials tested prove to contain asbestos, Amtrak would properly remove and dispose of those materials in accordance with all applicable local, state and federal regulations. Amtrak would dispose of fluorescent lights and other electrical equipment that contain or potentially contain mercury- and/or PCBs in accordance with applicable federal, state and local regulations and guidelines during any decommissioning or demolition work for the Proposed Project.

The soil boring logs from the Proposed Project site show that historic fill will be encountered near the surface; however, other obvious indications of more significant contamination are not present (e.g. elevated field instrument readings, reports of odor, or the presence of substantial visible staining or free product). The LCTG anticipates and accounts for these conditions, as it: provides for initial notification of NJDEP of the linear construction project; provides for retention of a New Jersey Licensed Site Remediation Professional (LSRP) for oversight; ensures that appropriate parties properly characterize and manage contaminated materials in accordance with a materials management plan; identifies when to notify NJDEP and how to react if unforeseen or unexpected conditions (e.g. more signification contamination) are encountered in the project area; and outlines how to protect workers and the surrounding community during construction.

The schedule for the Proposed Project will incorporate the comprehensive and multi-step NJDEP and LSRP oversight process. The final design steps will determine if and where a net excess of fill occurs and will drive any testing needed to develop the materials management plan.

Amtrak would adhere to the following measures during Proposed Project construction:

- Prepare site-specific plans to ensure safety of workers and the surrounding community, protect sensitive environmental conservation land areas, and adhere to all applicable regulatory requirements.
- Adhere to best management practices and appropriate worker health and safety protocols, including procedures to identify and properly manage any unexpectedly encountered subsurface contamination.
- Conduct waste classification soil testing for off-site disposal of any surplus soil generated during construction.
- Report any evidence of a petroleum spill to NJDEP and address such spills in accordance with applicable requirements.
- Ensure that contractors properly maintain their equipment to avoid spills.
- If Amtrak's contractors discover previously unknown or unexpected subsurface contamination during construction, a LSRP would investigate and remediate the contamination, as required under the Site Remediation Reform Act (SRRA) (NJSA 58:10C-1 et seq.), the Technical Requirements for Site Remediation (Technical Rules) (NJSA 7:26E), and Administrative Requirement for the Remediation of Contaminated Sites (ARRCS) (NJAC 7:26C).

With adherence to the above, which Amtrak would require via contract documents, the construction of the Proposed Project would not result in significant adverse effects pertaining to contaminated and hazardous materials.

3.14 Public Health and Safety

3.14.1 Regulatory Context and Methodology

Amtrak based this environmental review on the FRA's Environmental Procedures, and therefore considers a project's potential to adversely impact public health and public safety, including any impacts due to hazardous materials. Under FRA Procedures, environmental reviews must address safety and security concerns, including short-term construction effects and long-term operational effects on residents and other users of the study area. The review should also include potential pedestrian and traffic hazards as well as transit user and employee security issues. As there are no residences or pedestrians within the study area, no air quality or noise concerns, and no vehicular traffic that interfaces with the rail corridor, this section focuses on public health and safety related to employees and rail passengers.

3.14.2 Existing Conditions

Amtrak complies with all applicable federal safety regulations and industry standards and has implemented multiple measures to ensure public safety and minimize the potential for accidents on the existing rail system. Below is a summary of the public health and safety measures currently in place:

- Positive Train Control (PTC) to prevent or avoid train collisions and derailments. The purpose of PTC is to slow or stop a train that is operating at an excessive speed or operating in a manner inconsistent with the section of track that it is traversing.
- Adequate signaling and communications to prevent any trains from entering the bridges when personnel are on site for repairs.
- Regular inspection of all bridge structural components and as-needed repairs.
- A System Safety Program Plan that provides guidance on hazard management, incident reporting, inspection, maintenance and repair of current facilities and stock, training and certification, emergency response, environmental management, drug and alcohol programs, and several security policies. One section of the System Safety Program is devoted to employee safety, with a focus on field safety.
- Initiate a Safety Management System, a company-wide program designed to improve employee safety and security.
- Amtrak Safety Training for personnel before they are permitted on site.
- Passenger Train Emergency Response Plan that is maintained, updated and subject to FRA approval. The plan includes train operations on the NEC and covers the Proposed Project site. Amtrak also conducts Passenger Train Emergency Response Training. In 2014, training was conducted for more than 3,000 first responders along Amtrak routes across the U.S. A passenger safety specialist position was created in 2014 within Amtrak's System Safety department to address passenger injuries on trains, platforms, and in stations.

3.14.3 No Action Alternative

Under the No Action Alternative, Amtrak would continue to adhere to current regulations regarding public health and safety. Amtrak would not replace the Sawtooth Bridges and service over the bridges would worsen in the future under the No Action Alternative. The Sawtooth Bridges would continue to age and

deteriorate, service and outage problems would occur more frequently, and Amtrak would eventually take the bridges out of service.

3.14.4 Potential Impacts of the Proposed Project

No significant adverse impacts related to air quality, noise or vibration would result from the operation of the Proposed Project. Current measures in place to protect employees and passengers would also continue with the Proposed Project. The replacement of the aging bridges would ensure more reliable infrastructure for continued safe rail passenger service. Moreover, faster and more reliable that would result from corridor-wide rail improvements would provide more energy-efficient passenger rail travel on the NEC, thus contributing to better air quality in the region.

Due to the potential presence of soil and groundwater contamination beneath the Proposed Project site from historic filling, rail operations, and documented cases of adjacent industrial use, site-specific plans would be incorporated into all contract documents to ensure the safety of workers. With adherence to the site-specific plans, there would be no adverse effects pertaining to contaminated and hazardous materials from construction of the Proposed Project.

Thus, with the current public health and safety plans in place coupled with site-specific plans to address potential contamination during construction, the Proposed Project would not result in adverse effects to public health and safety.

3.15 Irreversible and Irretrievable Commitment of Resources

In accordance with NEPA and CEQ's implementing procedures under Title 40, Part 1502 of the CFR, this EA includes an analysis of any irreversible or irretrievable commitments of resources that could occur if the Proposed Project is constructed. An irreversible or irretrievable commitment of resources results in the permanent loss for future or alternate use of a resource that cannot be replaced or recovered.

Construction of the Proposed Project would require the irreversible and irretrievable commitment of building materials, including construction materials such as concrete, steel, and aggregate. The Proposed Project would also consume energy in the form of fossil fuels and electricity during the construction and operation of the bridges. These materials are available and their use for the Proposed Project would not have adverse impacts on their continued availability for other purposes. In addition to materials, Amtrak would require human labor to design, build, and operate the Proposed Project. As described in previous sections, Amtrak has worked to avoid or minimize impacts to resources, and endeavors to minimize the use of irretrievable resources and to conserve and reuse resources whenever possible using best management practices.