U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

RECORD OF DECISION

Location
Newark Liberty International Airport (EWR)
Cities of Newark and Elizabeth, New Jersey

Introduction
This Finding of No Significant Impact/Record of Decision (FONSI/ROD) describes the Federal Aviation Administration's (FAA) consideration of environmental and other factors for the acceptance of a change to the Airport Layout Plan (ALP), and provision of federal financial assistance, for the AirTrain Replacement Program (Proposed Action) at EWR. This FONSI/ROD is based on the August 13, 2021 Final Environmental Assessment (FEA) for the *AirTrain Replacement Program* at EWR prepared by the Port Authority of New York and New Jersey (Port Authority). The FEA is incorporated by reference. The FEA, a Federal document adopted by the FAA, has been evaluated, signed, and dated by the Responsible FAA Official.

Project Description
The Proposed Action is the construction of a new automated people mover to replace the existing AirTrain system at EWR. It consists of the following components:

- A new elevated dual-guideway approximately 2.5 miles in length.
- Two new on-airport stations. Station 1 would be constructed on the southern end of the Proposed Action. It would serve the new Terminal One and Consolidated Rent-A-Car Facility (ConRAC) currently under construction. Station 3 would be constructed just east of the existing P4 parking garage. It would serve Terminal B, Terminal C, and the P4 Parking Garage. A space would be reserved for a future station, Station 2, between Station 1 and Station 3. Station 2 would serve a potential future Terminal B (replacing existing Terminal B).
- An expanded Rail Link Station, including new platforms and enhanced vertical circulation.
- Three pedestrian connectors that provide access between Station 3 and Terminal B, Terminal C, and the P4 Parking Garage, and an additional pedestrian connector linking Terminals B and C.
- A new Maintenance and Control Facility (MCF) with a footprint of approximately 43,500 square feet (SF) at the northern terminus.
- Utilities, substations, and a power distribution system.
- Partial demolition of the existing AirTrain system, including the MCF. All guideway, foundations, and structures within the Central Terminal Area, from the western end of Terminal A to the western end of Terminal C, would remain in place to minimize disruption to airside and terminal operations.
- Land acquisition – Approximately 28 acres of temporary construction easements on public and private property, of which approximately 14 acres would remain as permanent acquisition or easement.

Construction of the Proposed Action is expected to occur over an approximately 5-year period.

Proposed Agency Actions
The FAA actions for implementation of the Proposed Action include:

a. Approving potential application(s) for federal financial assistance through Airport Improvement Program (AIP) grants, and/or collection and use of Passenger Facility Charges (PFC). This FONSI/ROD will support the project's eligibility for future FAA financial assistance.
b. Determination under 49 United States Code (U.S.C.) §40101(d)(1) and §47105(b)(3) as to whether the Proposed Action maintains and enhances safety and security, and meets applicable design and engineering standards in FAA Advisory Circulars (AC);
c. Determinations on funding through the Federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (recodified at 49 U.S.C. §47107), and/or as needed as part of a future application to use PFCs under 49 U.S.C. § 40117 (this FONSI/ROD does not determine eligibility or availability of potential funds);
d. Determination under 49 U.S.C. § 44502(b) that the subject airport development is reasonably necessary for use in air commerce or in the interests of national defense;
e. Continued coordination with the Port Authority and appropriate FAA program offices, as required, for safety during construction (14 Code of Federal Regulations [CFR] Part 77); and
f. Approval of appropriate amendments to the EWR Airport Certification Manual, as required, pursuant to 49 U.S.C. § 44706.

Applicability of the FAA Reauthorization Act of 2018

49 U.S.C. § 47107(a)(16)(B), commonly referred to as Section 163(d) of the FAA Reauthorization Act of 2018, limits the FAA's review and approval authority for ALPs to those portions of ALPs, or ALP revisions, that:

1. Materially impact the safe and efficient operation of aircraft at, to, or from the airport;
2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or
3. Adversely affect the value of prior Federal investments to a significant extent.

The FAA has determined the project would have no impact on aircraft operations at, to, or from the airport. It would not adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations. It would also not have an adverse effect on the value of prior Federal investments to a significant extent. Therefore, the FAA lacks the legal authority to approve or disapprove changes to EWR's ALP to reflect the proposed project. The FAA's actions for this project are limited to approving potential application(s) for federal financial assistance through use of AIP grants, and/or collection and use of PFCs.

The Port Authority has indicated it intends to submit a future application to request FAA authorization to collect and use PFCs for the Proposed Action. The findings in this FONSI/ROD may be relied upon to satisfy the environmental review requirements to support a future PFC application for the Proposed Action. Should the Port Authority submit a PFC application in the future, the FAA will need to ensure the AirTrain Replacement Program, as implemented, is consistent with the Proposed Action analyzed in the FEA and this FONSI/ROD.

Purpose and Need

As discussed in Chapter 1 of the FEA, the Purpose and Need for the Proposed Action consists of three key elements:

- Provide airport users with reliable, world-class rail service.
- Accommodate existing and future ridership demand at an improved level of service.
- Provide a rail system that preserves airport land for highest and best use while minimizing disruptions to existing operations.

Alternatives

As discussed in Chapter 2 of the FEA, project goals and objectives were developed based on the Purpose and Need statements to serve as screening criteria for the assessment of alternatives. Two alternatives were carried forward for further analysis - the No Action Alternative and the Proposed Action Alternative. See Chapter 2 of the FEA for a description of the alternatives. See Table 2-1 of the FEA for project screening criteria.

1. No Action Alternative

The Council on Environmental Quality (CEQ) Regulations (40 C.F.R. Parts 1500-1508) for Implementing the Procedural Provisions of the National Environmental Policy Act of 1969 (NEPA, 42 U.S.C. §§4321-4335) state that NEPA analyses like this FEA shall "include the alternative of no action" (40 CFR §1502.14).[1] The No Action Alternative does not address the Purpose and Need of the Proposed Action. It does not provide airport users with reliable, world-class rail service, accommodate existing and future ridership demand at an improved level of service, or provide a rail system that preserves airport land for highest and best use while minimizing disruptions to existing operations.

2. Build Alternatives

The Proposed Action Alternative was developed with the objective of meeting the Purpose and Need. Alignment alternatives for the guideway were evaluated in three distinct geographic sections:

- Southern Segment Guideway Alignment;
- Central Terminal Area (CTA) Segment Guideway Alignment; and
- Northern Segment Guideway Alignment.

In addition to the guideway sections, locations for the MCF were also evaluated.

The following sections describe the alternatives examined within the three geographic segments and the MCF location alternatives. The Proposed Action consists of the Southern Segment Guideway Alignment, the Linear Alignment in the CTA Segment, and the Parallel Alignment in the Northern Segment. It was selected for implementation after evaluation of an alternative in both the Southern and Northern Segments. Each alternative was assessed to determine its ability to meet the Purpose and Need for the Proposed Action, as well as[2] technical and operational factors.

Southern Segment Guideway Alignment

The Southern Segment refers to the area running from the southernmost point of the new Terminal One to a point located just south of the existing Terminal A. No alternatives were developed for this segment because the guideway alignment is limited by existing facilities (Terminal One and ConRAC), roadways (airport access roads, ramps, and multi-lane frontage roads), the Peripheral Ditch, utilities, and the newly constructed pedestrian connector between Terminal One and ConRAC. The proposed alignment in this segment meets the goals of improving Airport connectivity for travelers while avoiding the need to demolish or relocate existing facilities.

CTA Segment Guideway Alignment

Two alignment alternatives were considered for the CTA Segment. G-1, the Loop Alignment, loops through and around the CTA, with three stations providing access to Terminal B, Terminal C, and P4 Parking Garage. G-2, the Linear Alignment, runs parallel to the CTA along the east side of the Peripheral Ditch. In the Linear Alignment, users would access Terminal B, Terminal C, and P4 Garage via

[1] CEQ amended its regulations implementing NEPA on September 14, 2020. Federal agencies have discretion to apply the amended regulations to NEPA processes that were begun before September 14, 2020 (40 CFR § 1506.13 (2020). FAA initiated the NEPA process for this action in August 2020 and is not applying the amended regulations.

[2] The Peripheral Ditch is an on-airport ditch that collects and discharges stormwater from off and on-airport.

pedestrian connectors that link to one centralized station (Station 3). The guideway dimensions for both alignment alternatives would accommodate space for a potential future station at Terminal 2.
The Linear Alignment was selected because it better addresses EWR's long-range development plan. It meets the Purpose and Need, minimizes the need for demolition of guideways and stations, and provides a link to all terminals with fewer disruptions to airport operations.

Northern Segment Guideway Alignment
Two alternative guideway alignments were considered for the Northern Segment, located between the CTA and Northeast Corridor (NEC) rail line served by NJ TRANSIT and Amtrak. NEC-1, the Parallel Alignment, is parallel and west of the existing alignment. NEC-2, the Existing Alignment, follows the existing alignment from its connection to the Rail Link Station to just south of US Route 1/9 South. NEC-2 would require shutdown of the existing AirTrain in this segment for approximately two years during construction. The NEC-1, Parallel Alignment, was selected as the preferred alternative because it allows the existing AirTrain to remain in operation during construction of the proposed new AirTrain. The Parallel Alignment will require acquisition of approximately 28 acres of temporary construction easements and 14 acres of acquisition, lease, or permanent easement of private property adjacent to northern segment of guideway and MCF. See Figure 2-9 on Page 2-19 in the FEA.

Maintenance and Control Facility Location
Two alternative locations for the MCF were considered. MCF-1, the Southern Terminus, locates the MCF at the southern terminus of the system. MCF-2, the Northern Terminus, locates the MCF at the northern terminus of the system. MCF-2 was selected because it would avoid the need to demolish 12 fuel tanks and cause extensive underground piping modifications that would be required under MCF-1.

AirTrain Technologies
The technology for the proposed AirTrain has not yet been selected. Three likely technologies could be proposed by bidders: trains with steel wheels, trains with rubber tires, and trains that are cable propelled. The steel wheel and rubber tire technologies are powered by electric motors. All of these technologies meet the Proposed Action's Purpose and Need. Analysis of potential environmental impacts during construction and operation were based on the steel wheel technology because this technology has the most potential environmental impacts. The project area is large enough to accommodate any of the three likely technologies (as discussed in Section 2.4.1).

Environmental Categories
The attached FEA with Appendices addresses the effects of the Proposed Action on the human and natural environment. The following sections summarize the impact analyses in the FEA.

1. Air Quality
Per FAA's NEPA Procedures (FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, a Proposed Action would have a significant impact on air quality if:

- The action would cause emissions to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States Environmental Protection Agency (USEPA) under the Clean Air Act, for any of the time periods analyzed; or
- Increase the frequency or severity of any such existing violations.

"Nonattainment areas" are areas where existing local air quality exceeds the NAAQS. "Maintenance areas" are former nonattainment areas that now comply with NAAQS, and are subject to a maintenance plan. Essex and Union Counties, the counties that include EWR, are in nonattainment for 8-hour ozone (2008 and 2015), and maintenance for carbon monoxide and particulate matter 2.5 (particulates that are equal to or smaller than 2.5 micrometers in diameter).

A General Conformity applicability analysis was performed to determine emissions associated with the Proposed Action for each construction year (from 2022 through 2026), and the planning horizon year (2031). The only operational source of emissions comes from supplemental busing necessary to alleviate overcrowding on the existing AirTrain during construction of the replacement AirTrain. Construction-related air emissions would be mitigated with avoidance and minimization measures. These included requiring contractors to utilize USEPA Tier 4 Final engines in 70% of non-road diesel equipment less than 100 horsepower (HP) and 100% of non-road diesel equipment greater than 100 HP, and several best management practices to reduce construction-related emissions. The net difference in emissions was calculated by subtracting the total operational and construction-related emissions of the No Action Alternative from the Proposed Action Alternative for each calendar year. The net difference in emissions of nonattainment or maintenance pollutants was compared to applicable annual *de minimis* thresholds. The analysis demonstrated that the Proposed Action Alternative does not result in significant adverse impacts on air quality because net emissions are within annual *de minimis* thresholds and, therefore, conform to the State Implementation Plan.

Based on the results of this analysis, the Proposed Action would not cause pollutant concentrations to exceed one or more of the NAAQS or increase the frequency or severity of existing violation. However, to lessen air emissions, avoidance and minimization measures and best management practices would be implemented as part of the Proposed Action. Accordingly, the Proposed Action would not result in significant adverse impacts on air quality. See Section 4.2 of the FEA for the analysis of potential air quality impacts.

2. Biological Resources (Vegetation, Wildlife, Threatened and Endangered Species, Migratory Birds)

Due to the highly developed nature of the Project Area and the relatively small footprints of disturbance, significant impacts to vegetative communities and wildlife are not anticipated. Federally listed species do not occur within or in the vicinity of the Study Area. Therefore, no significant impacts to federally listed species are anticipated. While there is essential fish habitat (EFH) in the Newark Bay complex, there are no tidal waters, estuarine waters, or estuarine wetlands associated with the project. Therefore, no impacts on EFH are anticipated. The Proposed Action would not extend into known state-protected and migratory bird breeding areas.

However, vegetative communities in the Project Area, primarily wetland areas and the Peripheral Ditch, have the potential to provide nesting and/or foraging habitat for avian species, including the black-crowned night heron and the bald eagle. To avoid direct impacts to nesting/breeding birds during construction activities, coordination with the New Jersey Department of Environmental Protection (NJDEP) regarding state-protected and migratory bird species will be conducted during design of the Proposed Action. At that time, measures necessary for avoidance of these species will be determined. These include timing restrictions for construction and preconstruction monitoring for presence of migratory/protected bird species. While no significant impacts to biological resources are anticipated and no mitigation is required, additional measures to minimize potential impacts are included in Sections 4.12 and 4.3.3 of the FEA.

3. Climate

The FAA Air Quality Handbook indicates that greenhouse gases (GHGs) are linked to an increase in the earth's average temperature. If a foreseeable increase in emissions will occur, the GHG emissions increase should be quantified and disclosed. As indicated in FAA Order 1050.1F, there are no federal or state standards or thresholds for GHGs in ambient air.

The Proposed Action will reduce GHGs by reducing the need for supplemental busing to transport passengers once the new AirTrain is operational. There may be a temporary increase in GHG emissions

due to construction activity and supplemental busing. However, once operational, the Proposed Action is expected to reduce GHGs. See Section 4.4 of the FEA for the analysis of potential climate impacts.

4. Department of Transportation, Section 4(f)

Section 4(f) of the U.S. DOT Act of 1966 (now codified at 49 U.S.C. § 303) protects publicly-owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. There are no publicly owned parks, recreational areas or wildlife and waterfowl refuges with the Project Area. A Historic Architectural Sites Survey and Effects Assessment (SEA) was conducted for the Proposed Action. Within the Study Area, or Area of Potential Effect (APE), there are three historic architectural properties (Amtrak's NEC, the Haynes Avenue Bridge over the NEC, the U.S. Route 1/9 Historic District) and two historic buildings (Newark Metropolitan Airport Administration Building and the Medical Building). The SEA did not identify any architectural historic properties that would be adversely affected by the Proposed Action. The New Jersey Historic Preservation Office (HPO) reviewed the SEA and concurred with the findings. As for archeological or cultural resources, no recorded archaeological sites are located within the Proposed Action's Study Area. Within the APE there is one area noted as having archaeological potential (Johnson/Crook Property). The Newark City Cemetery is also located near the Project Area. The results of Cultural Resource Phase 1B testing in the potentially sensitive areas, conducted in coordination with HPO, found no resources requiring Phase II testing or the need for further archaeological investigation within the APE. HPO made a determination that the Proposed Action will have *no adverse effect* on historic properties. After consultation with HPO, the FAA has determined that no Section 4(f) resources will be affected by the Proposed Action. See Section 4.5 of the FEA for the analysis of potential Section 4(f) impacts.

5. Hazardous Materials, Solid Waste, and Pollution Prevention

The Proposed Action will not have a significant adverse impact on hazardous materials, solid waste, or pollution prevention. Solid waste generated from operation of the Proposed Action is expected to be similar to the solid waste generated from the existing AirTrain. During construction and demolition, solid waste will be generated during site clearing, demolition of existing AirTrain infrastructure, and other construction activities. Although there is potential for contact with contaminated materials during construction, the Proposed Action will be designed to address and implement, where feasible and appropriate, the Port Authority's *Sustainable Building Guidelines* and comply with NJDEP requirements. It is expected that regional facilities have adequate capacity to accommodate the temporary increase in solid waste during project construction. In addition, all activities associated with the Proposed Action would comply with applicable Federal, state, and local regulations. This includes the Union County Solid Waste Management Plan, Essex County Solid Waste Management Plan, and New Jersey's Solid Waste Management Act (N.J.S.A. 13:1 E-1) regarding the identification, transportation, and disposal of hazardous and non-hazardous material. See Section 4.6 of the FEA for the analysis of potential Hazardous Materials, Solid Waste, and Pollution Prevention impacts.

6. Historic Architectural, Archaeological, and Cultural Resources

NEPA requires the evaluation of the potential impacts on historic resources under Section 106 of the National Historic Preservation Act of 1966 (Section 106 of the NHPA). Section 106 requires federal agencies to take into consideration the effects of their undertakings on resources listed in, or eligible for inclusion in, the National Register of Historic Places. As discussed in the summary of Section 4(f), a SEA was conducted for the Proposed Action. Within the Study Area or APE, there are three historic architectural properties (Amtrak's NEC, the Haynes Avenue Bridge over the NEC, the U.S. Route 1/9 Historic District) and two historic buildings (Newark Metropolitan Airport Administration Building and the Medical Building). The SEA did not identify any architectural historic properties that would be adversely affected by the Proposed Action. The HPO reviewed the SEA and concurred with those findings.

A survey of archaeologically sensitive areas (Johnson/Crook Property) within the Proposed Action's APE was conducted. The findings of the Phase 1A and Phase 1B Cultural Resources Surveys determined that there are no recorded archaeological sites within the APE, or within a one-mile radius of the APE, that would be impacted by the Propose Action. The Cultural Resources Survey noted that the Newark City Cemetery, located on Bessemer Street, is near the Proposed Action. The Newark City Cemetery will be preserved as it is currently configured and in its pre-1903 extent. The Proposed Action will not encroach on the cemetery and there is sufficient buffer to protect it from any construction or operations impact. After consultation with HPO, the FAA determined that no historic, architectural, archeological, or cultural resources will be adversely affected by the Proposed Action. The Port Authority shall coordinate with the HPO if any archaeological resources of significance are found during construction. See Section 4.7 of the FEA for the analysis of potential historic, architectural, archeological, and cultural resources impacts.

7. Natural Resources and Energy Supply

The Proposed Action will not have an adverse effect on natural resources and energy supply. The Proposed Action could result in a slight increase in energy consumption, primarily due to increased station size designed to accommodate future demand. The AirTrain Replacement system will be powered by electricity, and natural gas will be used at stations and the MCF for heating and hot water purposes. Any increase would be minimal. It would not exceed the increased fuel consumption from added busing as part of the No Action Alternative. During initial discussions with PSE&G, the electricity carrier for the existing AirTrain, PSE&G indicated that there are no significant issues with accommodating potential demand for electricity for the Proposed Action.

There will not be increased demand for natural resources under the Proposed Action for operational purposes. An increased demand for construction materials will occur during construction, but these materials are not in short supply in the region. Consumption of these materials is not expected to deplete or cause a shortage of existing supplies. No unique or rare natural resources are expected to be required for the Proposed Action. The Proposed Action is not anticipated to result in an increase in the consumption of sanitary sewer or water usage since the number of passenger stations will not be increased. Though the proposed MCF is larger than the existing MCF, it is expected to utilize more energy-efficient equipment. See Section 4.8 of the FEA for the analysis of potential Natural Resources and Energy Supply impacts.

8. Noise and Noise Compatible Land Use

Analyses were conducted to determine the potential for the Proposed Action to impact airborne noise, and/or ground-borne noise and vibration using the Federal Transit Administration's (FTA) noise and vibration significance thresholds for transit projects. Construction noise and vibration assessments were also performed for on-site and off-site (i.e., truck haul routes) sources, construction vibration-induced annoyance, and structural damage. Analysis results indicate the following:

- Operational Airborne Noise: No impacts are anticipated. There will be no exceedances of the recommended FTA Low and Intermediate Capacity Transit significance thresholds related to operation of the Proposed Action.
- Operational Ground-borne Noise and Vibration: No impacts are anticipated. There would be no exceedances of the recommended FTA Low and Intermediate Capacity Transit significance thresholds related to operation of the Proposed Action.
- Construction Noise: Noise-sensitive locations that might be impacted by on and off-site noise sources during construction were evaluated in the FEA. Construction-related truck trips along potential haul routes would not result in a perceivable change in noise levels at noise-sensitive locations during the quietest hours of the day. Therefore, noise impacts from off-site construction noise sources are not anticipated. Regarding on-site construction sources, noise levels were predicted to temporarily exceed the FTA's daytime and nighttime residential construction noise impact thresholds of 90 decibels and 80 decibels, respectively, at the Holiday Inn. Noise levels

are predicted to temporarily exceed the nighttime noise impact threshold at the Marriott Hotel. Based on the preliminary construction schedule, potential noise impacts at the Holiday Inn are limited to approximately three months. The potential for noise impacts at the Marriot Hotel are limited to approximately six weeks. To mitigate these impacts, contractors will comply with the Port Authority's *Sustainable Infrastructure Guidelines*, limit certain activities to daytime hours, and implement a Noise Control and Mitigation Plan. The Port Authority's *Sustainable Infrastructure Guidelines* and other supplemental noise minimization measures are discussed in Section 4.33 of the FEA.

- Construction Vibration Annoyance: Vibration-sensitive locations were evaluated for potential vibration-induced annoyance based on their proximity to heavy construction activities associated with the Proposed Action. Potential vibration annoyance considers vibration levels that may be perceptible during construction. Potential vibration-related annoyance was limited to the Holiday Inn and Marriott Hotels, Kintock Group,[3] and Air Traffic Control Tower. The potential temporary vibration annoyance will be minimized at these locations through the implementation of the Port Authority's *Sustainable Infrastructure Guidelines*, a Vibration Control and Monitoring Plan, and adopting alternative construction methods where feasible.
- Construction Vibration Structural: The potential for construction-related vibration-induced structural impacts was evaluated at on-airport and off-airport structures. The FTA provides guideline thresholds for structures, above which there may be a potential for cosmetic damage or damage to the structural integrity of buildings from heavy construction activities. Those thresholds vary depending on the materials the buildings are made of, including concrete, steel, timber, masonry, or a combination of those materials. The assessment in the FEA assumed that the terminal buildings and parking garages, existing NEC tracks and Rail Link Station, and existing MCF were constructed of reinforced concrete, steel or timber (no plaster). Hotels, the Kintock Group, and other office buildings were assumed to be constructed of engineered concrete and masonry materials. Outside of the terminal buildings and parking garages located on Airport property, the existing AirTrain guideway and associated infrastructure, and existing NEC tracks and Rail Link Station, the FEA identifies the potential for vibration-induced structural impacts to the Holiday Inn during construction. To avoid potential damage to on-airport structures, or the existing AirTrain guideway, existing NEC tracks and Rail Link Station, and the Holiday Inn, the Port Authority's Sustainable Infrastructure Guidelines will be implemented. In addition, the contractor will be required to prepare a Construction Vibration Control and Monitoring Plan to document methods to control vibration, including adoption of alternative construction methods where feasible. Pre-construction building surveys will be required, and response action and stop-work vibration levels will be established. See Section 4.9 of the FEA for the analysis of potential Noise and Compatible Land Use and vibration impacts, and detail on the Port Authority's *Sustainable Infrastructure Guidelines* and other supplemental vibration minimization measures.

9. Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The Proposed Action includes land acquisition. The Port Authority would temporarily acquire 28 acres of property adjacent to the airport for staging construction equipment and materials. Of the 28 acres, an estimated 14 acres of public and private property (acquisition, lease, or easements) adjacent to the northern segment of the guideway would be acquired permanently for the Proposed Action. The 14 acres would accommodate permanent structures to support the Proposed Action. No residential relocation is required. Property acquisition will be consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA). Because property acquisition would follow the requirements of the URA, no significant or adverse impacts related to property acquisition are expected.

[3] The Kintock Group provides reentry, mental health, and substance use treatment.

All census blocks within the project Study Area are considered environmental justice (EJ) communities. The Proposed Action will not cause significant impacts to these populations. During construction, one EJ residential community, the Kintock Group, may experience potential vibration annoyance impacts. As a result, targeted mitigation measures may be implemented to address potential vibration annoyance impacts to the Kintock Group during construction. Alternative construction methods will be considered to minimize potential vibration annoyance impacts. Further, for work closest to the Kintock Group facility, construction activity with the highest potential vibration impacts, such as pile driving and hoe ramming, will be limited to daytime hours.

Approximately 10 percent of the Study Area contains children under age 18. There are no schools, daycares, and/or children's health clinics in the Study Area. No work is taking place within or immediately adjacent to parklands or residential areas. The Proposed Action will not create or make more readily available products or substances that could harm children. Therefore, no significant impact to children's health and welfare is anticipated from the Proposed Action. See Section 4.10 of the FEA for the analysis of potential impacts to socioeconomics, Environmental Justice, and children's environmental health and safety risks.

10. Traffic

No disruptions to local traffic patterns are anticipated from the Proposed Action that would substantially reduce the levels of service of area roadways. Parking spaces will be eliminated for the construction of the proposed MCF and supporting infrastructure. During construction, 1,312 parking spaces will be eliminated. 217 of these spaces will be returned to normal use after construction. This results in a total permanent parking loss of 1,095 spaces. However, this loss can be absorbed by an existing parking surplus of 2,074 spaces. Therefore, changes in traffic patterns are not anticipated due to the reduction in parking supply. See Section 4.11 of the FEA for the analysis of potential traffic impacts.

11. Water Resources

Surface Water - The Proposed Action will result in unavoidable impacts to the Peripheral Ditch. The proposed AirTrain must cross this waterbody to provide service from the Rail Link Station to EWR. Fifty-two square feet (SF), or less than 0.1 acre, of State Open Water will be permanently impacted from filling/grading activities related to installation of proposed AirTrain guideway foundations. A Freshwater Wetlands Permit, Flood Hazard Area Permit, and 401 Water Quality Certification from the NJDEP will be obtained prior to construction. The Proposed Action will be designed to meet requirements of the Flood Hazard Area Control Act and Freshwater Wetlands Protection Act Rules for open water crossings (N.J.A.C. 7:7A). Measures and/or restrictions set forth in the permits will be adhered to during construction.

Stormwater - The Port Authority will continue to comply with the requirements of its current New Jersey Pollutant Discharge Elimination System (NJPDES) stormwater discharge permit. No increase in impervious area within the Project Area is anticipated. Therefore, the Proposed Action is not expected to adversely impact the quantity or quality of stormwater runoff at the Airport. Stormwater runoff volume and velocity are not expected to change significantly because of the Proposed Action. It is anticipated that the Port Authority will need an NJPDES Construction Stormwater General Authorization/Permit prior to construction.

Groundwater - No significant impacts to groundwater are anticipated. The Proposed Action does not lie over a sole source aquifer. Groundwater from aquifers under the Proposed Action is not used for drinking water. The Proposed Action will not increase impervious surfaces in the Study Area. Therefore, it will not create a barrier to infiltration that could affect groundwater recharge. Groundwater beneath the Project Area is known to contain various levels of contamination. If contaminated groundwater is

encountered during project implementation, it will be handled in accordance with applicable regulations. Similarly, stormwater runoff will be collected and treated in accordance with the Airport's NJPDES permit and in compliance with applicable regulations. If the Proposed Action requires excavation below the seasonal groundwater table elevation, dewatering using a sediment filter bag may be required. During dewatering operations, contaminated groundwater will be collected and managed in compliance with applicable law.

Wetlands - The Proposed Action will result in unavoidable impacts to wetlands and wetland transition areas. These impacts are unavoidable due to location of the wetlands near airport facilities. In total, 1,394 SF (less than 0.1 acre) of freshwater wetlands and 0.3 acres of wetland transition areas will be permanently lost from filling/grading activities related to installation of proposed AirTrain guideway foundations (i.e., piles & pile caps). Table 4-11 of the FEA summarizes the total impact to water resources. Section 4.45 of the FEA identifies measures that will minimize potential impacts to water resources. A Freshwater Wetlands Permit from the NJDEP will be obtained prior to construction. Measures and/or restrictions set forth in the permit will be adhered to during construction.

Floodplains - The Proposed Action will encroach the 100-year (base) floodplain. No practicable alternative exists that would allow the floodplains to be completely avoided. Impacts to the floodplain are limited to the placement of foundations for the guideway. The proposed foundations will permanently impact approximately 3,746 SF (less than 0.1 acre) within the NJDEP Flood Hazard Area. There is no considerable probability of loss of human life, no substantial damage in cost or extent, or notable adverse impacts on natural and beneficial floodplain values associated with the Proposed Action. Therefore, encroachment in the floodplain is not considered significant. The Proposed Action will comply with NJDEP's Bureau of Floodplain Management's net fill requirements (N.J.A.C. 7:13-2.14) after construction is completed. A Flood Hazard Area Permit from the NJDEP will be obtained prior to construction. Measures and/or restrictions set forth in the permit will be adhered to during construction. See Section 4.12 of the FEA for the analysis of potential water resources impacts.

12. Cumulative Impacts

A cumulative impact assessment was conducted for those resources that will be directly or indirectly impacted by the Proposed Action. These include air quality, hazardous materials, solid waste, and pollution prevention, noise and vibration, and water resources. To determine cumulative impacts to the environment, recent projects, ongoing projects, and reasonably foreseeable projects were identified. The potential impacts from these projects were compared to the significance thresholds in FAA Order 1050.1F and the FAA's *Environmental Desk Reference for Airport Actions* to determine whether significant cumulative impacts will occur when combined with the Proposed Action. Based on this analysis, cumulative impacts are not anticipated from implementation of the Proposed Action. See Section 4.13 of the FEA for the analysis of potential cumulative impacts.

13. Summary of All Impact Categories

The FEA addresses all environmental resource categories required by FAA Orders 1050.1F, 5050.4B, and the *Environmental Desk Reference Airport for Airport Actions*. As indicated in the preceding sections, the FAA has concluded the Proposed Action will not have significant environmental effects on any environmental resource category.

Coordination with Agencies and the General Public

As discussed in Chapter 5 of the FEA, and consistent with FAA Order 1050F, applicable agencies and the public were involved in the decision-making process for the Proposed Action. The FEA was prepared with input from Federal, state, county, and local agencies about environmental resources under their jurisdiction, or experts that may be located within or near the Proposed Action.

Federal, state, and municipal agency coordination began in January 2020. In addition, consultation under Section 106 of the NHPA was initiated with NJDEP's HPO, and Consulting and Interested Parties. Agency engagement was conducted through project briefings, correspondence, e-mail exchanges, in-person meetings, and videoconferences. This engagement is documented in Appendix J of the FEA.

A Notice of Public Availability of the Draft EA was advertised in the *Star Ledger* and the *Record* on February 11, 2021. The Draft EA was made available for a 30-day review and comment period from February 11 to March 12, 2021. The Draft EA was made available to the general public, government agencies, and involved and interested parties on the Port Authority's website (at http:/www.panynj.gov/studies-reports). A pre-recorded overview of the Draft EA was available for public viewing at the same webpage. The Port Authority accepted written comments on the Draft EA by letter and email. Thirteen comments were received during the public comment period.

Comments received from interested parties and the public focused on accessibility, regional connectivity, and funding sources. In addition, NJDEP provided comments on the environmental resource areas. Responses to comments are included in the comment summary table in Appendix L of the FEA.

Some of the comments resulted in minor clarifications and edits to the FEA. In addition to edits related to public comments, the FEA was updated to include property acquisition information obtained since the publication of the Draft EA. None of the comments or updates resulted in changes to the impact analyses in the document.

Conditions/Mitigation Measures

1. Noise/Vibration Impacts:
    - Prior to the start of construction, the contractor will prepare a Noise Control and Mitigation Plan and Vibration Control and Monitoring Plan for all affected resources. The plan will include specific mitigation measures and the Port Authority's *Sustainable Infrastructure Guidelines*. In addition to coordination with the Holiday Inn and Marriott, the Port Authority will coordinate with the Air Traffic Control Tower to identify sensitive activities that may require special consideration to minimize impacts. Similarly, the Port Authority will minimize impacts to the Kintock Group by evaluating and adopting, where appropriate, alternate construction methods for pile driving and hoe ramming activities. The duration of construction activity near the Kintock Group is anticipated to be approximately five months. Pile driving and hoe ramming activities will only occur during daytime hours. The Port Authority shall update the FAA New York Airports District Office on all efforts described herein on a regular basis.
    - Construction activities will be planned and executed to minimize noise impacts to noise-sensitive land use in proximity to the Proposed Action. Specifically, during construction, the contractor will be required to implement the general noise minimization measures provided in the Port Authority's *Sustainable Infrastructure Guidelines*, which include, but are not limited to, erecting noise barriers where practicable, limiting construction vehicle idling times to three minutes, lining/covering all debris conveyors and containers with sound absorbing materials, etc. To supplement the Port Authority's guidelines, additional noise mitigation measures would be added to construction contract documents. These include requiring the contractor to develop and implement a Noise Control and Mitigation Plan to meet project-specific noise level limits established within contract documents, construct three-sided enclosures with roofs around stationary equipment, provide community relations support to address construction-related noise issues, and construct temporary noise barriers using heavy loaded vinyl material. The Port Authority will also encourage the contractor to use specific minimization measures during pile driving, such as resilient pads. Given the proximity of the proposed foundations to the Holiday Inn and the potential need for nighttime work in this

location, the Port Authority will require additional measures to reduce noise levels at this hotel beyond the typical source and path controls, like those described above. Specifically, the Port Authority will require the contractor to provide the Holiday Inn with advanced notice of anticipated pile driving and sheet driving activities, and approximate durations. The Port Authority will also coordinate with the Holiday Inn to determine the feasibility of locating hotel patrons to south facing rooms during heavy construction activities.

2. Construction contract specifications developed for the Proposed Action shall contain the provisions of FAA AC 150/5370-10H, Standard Specifications for Construction of Airports.

3. All required regulatory permits shall be obtained prior to construction of the Proposed Action. All conditions of those permits shall be adhered to.

4. Although the Proposed Action will not result in significant adverse impacts on air quality and no mitigation is required, avoidance and minimization measures, and best management practices, will be implemented to reduce air emissions. These include, but are not limited to, having 70% of nonroad diesel construction equipment less than 100 HP meet USEPA Tier 4 Final emission standards, and 100% of nonroad diesel construction equipment equal to or greater than 100 HP meet USEPA Tier 4 Final emission standards.

5. The Port Authority will coordinate with the HPO if any archaeological resources of significance are found.

6. The Port Authority's *Sustainable Infrastructure Guidelines* will be adhered to during project construction and implementation. The contractor will endeavor to limit vibration resulting from construction equipment when work is proximate to tunnels, utilities, or other sensitive structures by pre-auguring the foundation piles, and closely monitoring peak particle velocity levels through seismograph readings. Construction vibration response action and stop-work levels will be established and incorporated into contract documents. To supplement Port Authority's guidelines, additional vibration minimization measures will be incorporated in contract documents that will require the contractor to:
   - Conduct a pre-construction survey of all buildings adjacent to operations requiring vibratory or impact pile driving equipment, and identify existing cracks and building conditions;
   - Require third-party construction compliance vibration monitoring; and
   - Be responsible for damage to structures resulting from construction of the Proposed Action.

7. The final design of the Proposed Action will ensure compliance with NJDEP's Bureau of Floodplain Management's net fill requirements (N.J.A.C. 7:13-2.14) after construction is completed. The water surface elevation for the 100-year flood discharge of the Peripheral Ditch will comply with the applicable NJDEP and Flood Hazard Area Control Act criteria and, therefore, will not create significant adverse impacts to the surrounding floodplain.

8. Any specific measure discussed in the FEA that is intended to avoid or minimize environmental effects is considered a mitigation commitment by the Port Authority. If the Port Authority finds during final design and implementation that any measure needs modification or elimination, the Port Authority will coordinate with the FAA Airports District Office prior to implementing that change.

Table 4-15 of the FEA provides a summary of impacts for all resource areas and the required mitigation. Further mitigation or minimization measures are detailed in Chapter 4 of the FEA. The FAA understands that the Port Authority will undertake the necessary actions to ensure that the above conditions and/or

mitigation or minimization measures are undertaken, and that it will monitor the implementation and effectiveness of those measures.

Federal Agency Findings

In accordance with all applicable laws, the FAA makes the following findings for the Proposed Action based on all appropriate information and analysis contained in the FEA and Appendices, and other portions of the FEA's Administrative Record:

1. **The Proposed Action is reasonably consistent with existing plans of public agencies for development of areas surrounding the airport (49 U.S.C. § 47106(a)(1)).** The FAA is satisfied that the Proposed Action is consistent with plans (existing at the time the Proposed Action is approved) of public agencies for development of areas surrounding the airport based on coordination efforts with public agencies, as indicated in Appendix J of the FEA.

2. **The interest of the communities in or near where the Proposed Action may be located were given fair consideration (49 U.S.C. §47106(b)(2)).** The FAA is satisfied that the interests of the communities in or near where the Proposed Action will be located were given fair consideration as demonstrated by the FEA, Appendix M, which includes responses to public comments.

3. **The FAA has given this Proposed Action the independent and objective evaluation required by the Council on Environmental Quality (40 C.F.R. 1506.5).** The FAA's review and ultimate decision process included the FAA's rigorous exploration, and objective evaluation, of reasonable alternatives and probable environmental consequences, regulatory agency and Native American consultations, as required, and public involvement. The FAA furnished guidance and participated in the preparation of the draft EA by providing input, advice, and expertise throughout the planning and technical analyses, along with administrative direction and legal review. The FAA has independently evaluated the FEA, and takes responsibility for its scope and content.

4. **The Proposed Action will conform to the State Implementation Plan (SIP) in accordance with Section 176 of the Clean Air Act (CAA) and its amendments (42 U.S.C. §47506(c))**. EWR is located in Essex and Union Counties, which are currently designated as non-attainment areas for 8-hour ozone. Both counties are maintenance areas for carbon monoxide and PM2.5. The Proposed Action conforms to the New Jersey SIP and complies with CAA § 176(c)(1). The Proposed Action will not: cause or contribute to any new violation of any standard in any area; 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. Specifically, the Proposed Action's total construction emissions, based on specific emissions calculations, are below the *de minimis* thresholds established by the General Conformity Rule (40 C.F.R. Parts 51 and 93) and, therefore, would conform to the SIP. According to FAA Order 1050.1F and the FAA's *Environmental Desk Reference for Airport Actions*, no mitigation is necessary and further analysis is not required to comply with the CAA or NEPA. In summary, although the Proposed Action is taking place in a non-attainment area, the FAA determined that project emissions would be below *de minimis* thresholds under General Conformity requirements. Therefore, a Conformity Determination is unnecessary and significant adverse impacts to air quality would be unlikely. The requirements of the General Conformity Rule have been met as discussed in Sections 3.5.1 and 4.2, and Appendix C of the FEA.

5. **There are no disproportionately high and adverse environmental effects on minority or low-income populations that would result from the Proposed Action (Executive Order 12989) (U.S. DOT Order 5610.2(a))**. Environmental Justice concerns are addressed in detail in Section 4.10.2 of the FEA. The minority and low-income populations that exist in the areas immediately

surrounding EWR (i.e., subject to impacts from the Proposed Action) are similar in composition to the population of the larger communities in close proximity to the airport. Furthermore, no significant impacts are associated with the Proposed Action. Pile driving and hoe ramming activities during construction would impact hotels, terminals, parking garages, the existing AirTrain guideway, Rail Link Station, and the Kintock Group. The Kintock Group, the only Environmental Justice community in this group, is predicted to experience vibration-induced annoyance during foundation construction, specifically related to impact pile driving expected to last approximately five months. No other Environmental Justice communities would be impacted by the Proposed Action and, therefore, no disproportionate impacts are anticipated. With implementation of the Port Authority's *Sustainable Infrastructure Guidelines,* and the recommended construction noise and vibration minimization measures discussed within Appendix G, no significant Environmental Justice community impacts are anticipated.

6. **Executive Order 11988, which directs federal agencies to reduce the risk of flood loss, minimize the impacts of floods on human safety, health and welfare, and restore and preserve the natural and beneficial value served by floodplains, has been followed and, as required, complied with appropriately**. The FEA contains analyses that address the likelihood of significant floodplain encroachment by the Proposed Action, as defined in FAA Order 1050.1F and Executive Order (EO) 11900. The FAA is satisfied that the Proposed Action would not be a significant encroachment on floodplains and that the implementation of the Proposed Action would comply with all the requirements of EO 11988. There is no prudent and feasible alternative that avoids floodplains. A "significant encroachment" on floodplains would not occur because the probability of loss of human life is low, the Proposed Action would be designed to minimize future extensive damage or costs, and there would be no notable adverse impacts on the floodplain's natural and beneficial features. The appropriate and currently valid Flood Insurance Rate Maps were consulted and are included in the FEA.

7. **The Proposed Action is consistent with the New Jersey Coastal Management Program in accordance with the NJ Coastal Zone Management Area (CZMA), as amended (16 U.S.C §§1451-1464). EWR is not located within the NJ CZMA.** The defining jurisdictional boundary of the NJDEP Coastal Zone Management/Coastal Permit Program rules is the Coastal Area Facility Review Act (CAFRA) Zone. The northern limits of the CAFRA Zone end in Middlesex County, south of the Study Area. The defining jurisdictional boundary of the NJDEP Waterfront Development Law is the mean high-water line (MHW). The Waterfront Development Law also regulates areas adjacent to the water. The adjacent area extends from the MHW to the first paved public road, railroad, or surveyable property line. At a minimum, the zone extends at least 100 feet but no more than 500 feet inland from the tidal water body. MHW terminates at the tide gate located on the Peripheral Ditch near the far eastern boundary of the Airport (detailed in Appendix B of the FEA). Because the Proposed Action is located more than 500 feet from the MHW, is located outside of the CAFRA Zone, and will utilize construction best management practices (BMPs) for prevention of sediment movement, no impacts to the coastal zone would occur. Therefore, no Coastal Zone Management Consistency Certification or related mitigation would be required.

Decision and Order

The FAA recognizes its responsibilities under NEPA and its implementing regulations, and its own directives. Recognizing these responsibilities, I have carefully considered the FAA's goals and objectives for the EWR *AirTrain Replacement Program* as discussed in the FEA, and I have used the environmental process to make an informed decision. This review included the Purpose and Need of the project, alternative means of achieving them, the environmental impacts of the alternatives, and the conditions necessary to preserve and enhance the human environment. This decision is based on a comparative

examination of environmental impacts, operational factors, and economic factors for each of the alternatives. The FEA provides a fair and full discussion of the impacts of the Proposed Action. The NEPA process included appropriate planning and design for avoidance and minimization of impacts, as required by NEPA, the CEQ regulations, other special purpose environmental laws, and appropriate FAA environmental directives and guidance.

The FAA has determined that environmental and other relevant concerns presented by interested agencies and the general public have been addressed in the FEA. The FAA believes that with respect to the Proposed Action, there are no outstanding environmental issues within FAA's jurisdiction to be studied or NEPA requirements that have not been met. In making this determination, the FAA must decide whether to approve the federal actions necessary for Project implementation. FAA approval signifies that applicable federal requirements relating to airport development planning have been met and permits the Port Authority to proceed with development, and possibly receive funds, for eligible items. Not approving these actions would prevent the Port Authority from proceeding with the airport development.

After careful and thorough consideration of the facts contained herein and subsequent to my review of the FEA and all of its related materials, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of NEPA and other applicable environmental requirements, will not significantly affect the quality of the human environment, or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA.

This decision does not constitute a commitment of funds under the Airport Improvement Program (AIP). However, it does fulfill the environmental prerequisites for future AIP funding determinations associated with AIP-eligible project components (49 U.S.C. §47107).

Similarly, this decision neither grants approval to use PFCs nor constitutes a commitment of PFC approval. This decision fulfills the environmental analysis prerequisites for future PFC determinations. The FAA will review any future PFC application upon receipt from the Port Authority, and make funding decisions in accordance with the established procedures and applicable statutory requirements (49 U.S.C. §40117).

Accordingly, pursuant to the authority delegated to me by the Administrator of the FAA, I find that the actions summarized in this FONSI/ROD are reasonably supported and approved. I hereby direct that action be taken, together with the necessary related and collateral actions, to carry out the agency actions noted above. Specifically:

1. Determination under 49 U.S.C. §40101(d)(I) and §47105(b)(3) that the Proposed Action maintains and enhances safety and security, and meets applicable design and engineering standards set forth in FAA ACs;

2. Determinations concerning funding through the Federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (recodified at 49 U.S.C. §47107) and/or as needed as part of a future application to use PFCs) under 49 U.S.C. §40117 (this FONSI/ROD does not determine eligibility or availability of potential funds);

3. Continued coordination with the Port Authority, the Cities of Newark and Elizabeth, and appropriate FAA program offices, as required, for safety during construction (14 C.F.R. Part 77); and

4. Approval of appropriate amendments to the EWR Airport Certification Manual, as required, pursuant to 49 U.S.C. § 44706.

Approved: DAVID A FISH Digitally signed by DAVID A FISH Date: 2021.08.13 12:54:39 -04'00'

_____

Director
Eastern Region Airports Division
Federal Aviation Administration

Right of Appeal

This ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having a substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110.

Any party seeking to stay the implementation of this ROD must file an application with the FAA prior to seeking judicial relief, as provided in rule 18(a) of the Federal Rules of Appellate Procedure.

PORT AUTHORITY NY NJ

AIR LAND RAIL SEA

Newark Liberty International Airport AirTrain Replacement Program

FINAL Environmental Assessment

May 2021

Newark Liberty International Airport
AirTrain Replacement Program

FINAL Environmental Assessment

May 2021

Submitted to:

US. Department of Transportation

Federal Aviation Administration

This Environmental Assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official.

Responsible FAA Official: Edward Clarke Knoesel Digitally signed by Edward Clarke Knoesel Date: 2021.08.13 14:25:59 -04'00' **Date**: _____

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Chapter 1—Introduction

1.1 Introduction

The subject of this Environmental Assessment (EA) is the AirTrain Replacement Program (Proposed Action or Proposed Project) at Newark Liberty International Airport (EWR or Airport). This EA has been prepared to meet the requirements of the National Environmental Policy Act of 1969 (NEPA). NEPA review is required for all federal actions, including the use of Passenger Facility Charges (PFCs)[1], which are anticipated to fund a portion of the Proposed Action. On May 6, 2021, the FAA issued their determination of their approval authority based on the requirements included in 163 of the FAA Reauthorization Act of 2018. The Proposed Action will be reflected on the EWR Airport Layout Plan.

The Council on Environmental Quality (CEQ) is responsible for developing procedures for Federal agency implementation of NEPA. These procedures were initially promulgated in 1971 as guidelines and were then issued as regulations in 1978. CEQ amended its regulations implementing NEPA on September 14, 2020. Agencies have discretion to apply the amended regulations to NEPA processes that were begun before September 14, 2020 (40 CFR § 1506.13 (2020). FAA initiated its NEPA process for this action in August 2020 and has decided not to apply the amended regulations. Therefore, the prior CEQ regulations continue to apply to this NEPA process by implementing guidelines and organizational structure based on the following FAA documents:

- FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions, for preparation of an Environmental Assessment (July 2006)
- FAA Order 1050.1F, Environmental Policies and Procedures (July 2015)
- FAA's 1050.1F Desk Reference, for the analysis of potential impacts (July 2015)

The legislation and regulatory guidance from FAA encompass by reference other applicable regulatory and legal requirements that must be followed to prepare this document. This chapter describes the Proposed Action and its location relative to the Airport. Project background and the Purpose and Need for the Proposed Action are also provided.

1.2 Background

1.2.1 Airport Setting

EWR is one of three large-hub airports within the New York – New Jersey metropolitan area and is an important gateway for domestic and international air travel. Consisting of three runways, three terminals, public

[1] The PFC Program allows the collection of PFC fees for every eligible passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition.

parking, rental car facilities, and miscellaneous support buildings, EWR is operated by the PANYNJ. The Airport is located in the southeastern portion of the City of Newark in Essex County and the northeastern section of the City of Elizabeth in Union County as shown on **Figure 1-1.**

The Airport is bounded by regional transportation routes, including Interstate-78, Interstate-95, US Highway 22, US Route 1/9, and the Northeast Corridor (NEC) rail line serving NJ Transit and Amtrak. Based on passenger enplanements, EWR was the second busiest airport in the New York – New Jersey metropolitan area and the 12th busiest airport in the nation in 2019.[2] In 2019, the Airport handled more than 46 million annual domestic and international passengers and about 825,000 short tons of cargo and mail.[3] EWR's AirTrain system provides on-airport and ground transportation connectivity for passengers transferring between terminals, public parking and rental car facilities, and the Airport's regional and intercity rail station (**see Section 1.2.3**).

1.2.2 Relevant Airport Development

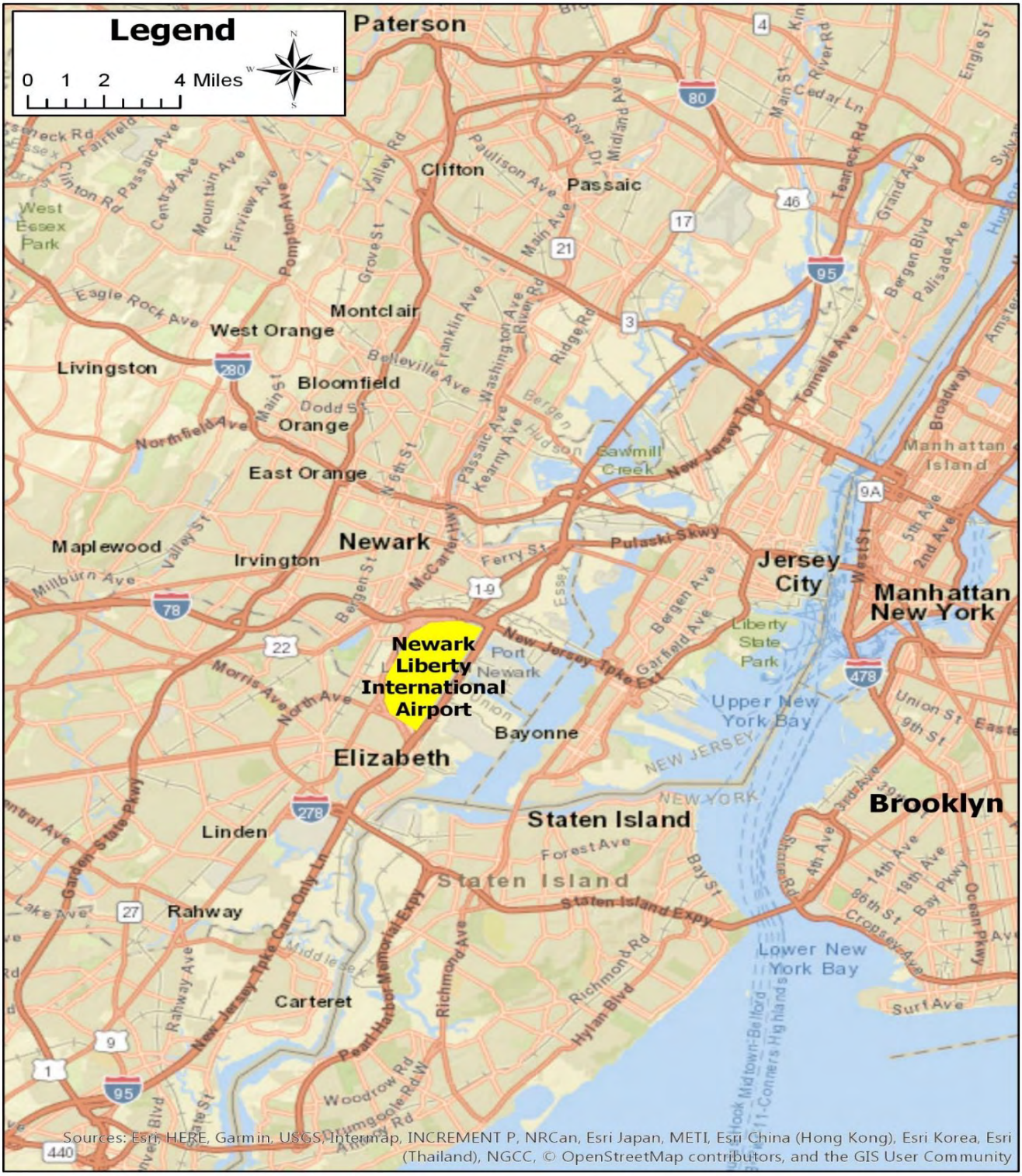
Over the last fifteen years, the PANYNJ has been modernizing and redeveloping the three passenger terminals at EWR to respond to the evolving needs of airlines, airline passengers ("passengers") and AirTrain riders ("riders"). Terminal A is being replaced with a new terminal (Terminal One), and the existing rental car facilities and public parking area P3 is being replaced with a Consolidated Rent-A-Car Facility and Parking Garage (ConRAC). Terminal One's new location is consistent with a long-term goal of maximizing the Airport's airside space to improve capacity and reduce delays. Terminal One is expected to begin limited operations in 2021 and be fully operational in 2022. ConRAC is expected to open in 2023.

The PANYNJ is evaluating the replacement of Terminal B with a new terminal (Terminal Two). At present, initial planning for Terminal Two is in progress; consequently, there is no schedule, definitive plan or funding sources identified for the project. Consistent with the replacement of Terminal A, replacement of Terminal B is driven by the need to meet current and future passenger demand at EWR. Like Terminal A, the satellite configuration of Terminal B is outdated and inefficient. Although the PANYNJ is just beginning to evaluate the potential replacement of Terminal B, for the purposes of this EA it is assumed that any terminal replacements (such as a new Terminal Two to replace Terminal B) would be consistent with the overall north-south alignment of existing Terminal C and new Terminal One as this would simplify connectivity between all terminals and expand the Airport's airside space. Should the PANYNJ ultimately advance plans for a new Terminal Two, further coordination between the PANYNJ and FAA will determine the appropriate type of NEPA review. The Proposed Action, discussed in this Final EA, will need to accommodate existing airport facilities (i.e. Terminal B and Terminal C) and current airport development (i.e., Terminal One, ConRAC) while preserving airport land for highest and best use. **Figure 1-5** shows all existing facilities, current projects, and potential future development discussed above.

[2] Airports Council International, Annual World Airport Traffic Report, 2019 Edition.

[3] PANYNJ. 2019 Airport Traffic Report. PANYNJ, May 2020.

Figure 1-1 EWR Regional Map

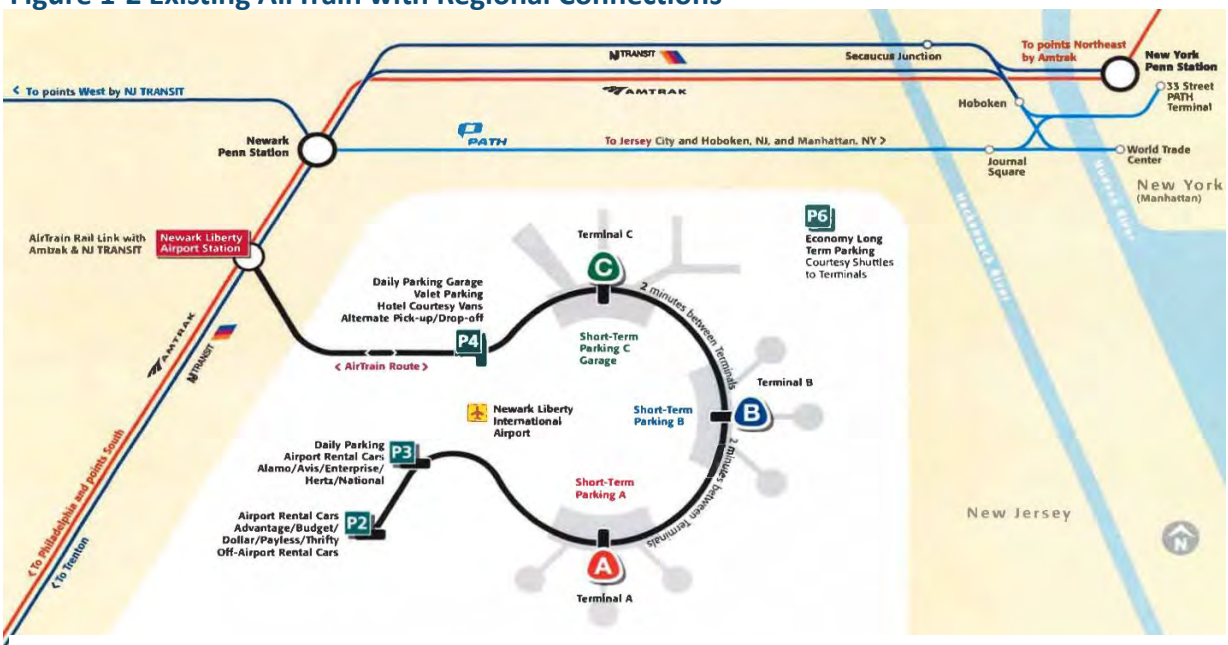


1.2.3 Existing AirTrain

Ridership and Regional Connectivity

The existing AirTrain opened in 1996, serving just the terminals and the parking areas surrounding them (referred to as the "Central Terminal Area" or "CTA"). In 2001, the AirTrain was extended to the Rail Link Station to provide EWR airline passengers and employees with a connection to Amtrak and NJ Transit regional rail service on the NEC rail line (known as the "NEC Extension" project). The NEC rail line provides access to various points in New Jersey, New York, Boston, Philadelphia, and Washington, D.C. **Figure 1-2** depicts the existing AirTrain configuration and its regional connectivity.

Figure 1-2 Existing AirTrain with Regional Connections



Source: https: //www.ewrredevelopment.com/about-AirTrain-ewr/

The existing AirTrain operates 24 hours per day, 7 days per week, and 365 days per year (with the exception of one overnight maintenance[4] shutdown on a monthly basis). During most hours, trains run the full loop and do not skip stations unless there is a service interruption related to maintenance or other operational disruptions. Shuttle service (i.e., splitting up the loop into segments) may be implemented to provide an alternative route around the blocked or failed section of the track. The round-trip time to and from the Rail Link Station and the southern-most station (P2 Station) is about 33 minutes. The existing AirTrain operates under two service modes: normal and "all other periods" for nightly maintenance. Normal hours of operation are between 5:00 a.m. to 11:30 p.m. with 9 trains in operation in a full loop. "All other periods" service is provided between 11:31 p.m. – 4:59 a.m. with three trains operating in a shuttle configuration that accommodates

[4] Preventative maintenance of the existing AirTrain is scheduled on regular intervals. Nightly maintenance is completed on switches, APM rooms, and substations and includes routine inspection and maintenance services. A broader scope of maintenance occurs monthly on switches, APM rooms, substations, platform doors, switch operating panels, and rail heating.

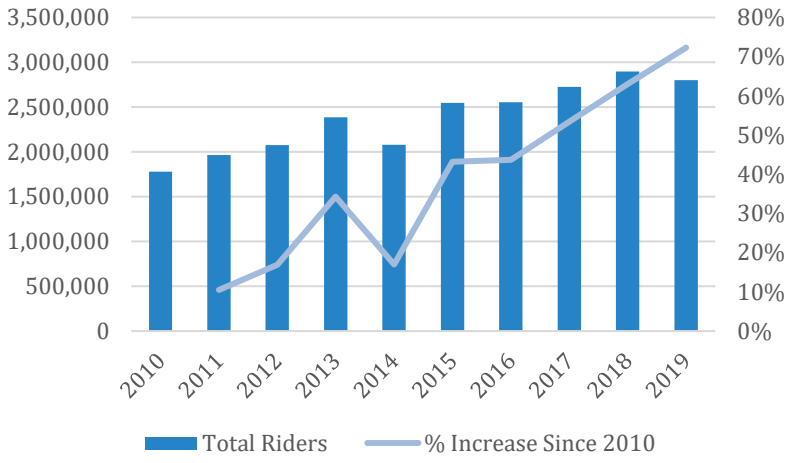
wayside guideway and station maintenance activities. During normal operations, the trains operate on the track around the entire loop (from P2 station to the Rail Link Station), at approximately four-minute headways[5]. During "all other periods" service, the reduced number of trains operate in a shuttle configuration to effectively remove operations from one side of the track. The three segments typically run between P2 Station to and from Station A; Station A to and from Station C; and Station C and Rail Link Station. The longest headway of the three segments during "all other periods" is 15 minutes. The maximum train speed for all modes is 27 miles per hour (mph).

The steady growth of AirTrain ridership at the Rail Link Station in the last decade, as shown in **Exhibit 1-1**, demonstrates the importance of the Airport's rail connectivity to the traveling public.[6] In 2019, the AirTrain averaged 33,000 riders daily and served seven stations, providing Airport employees and passengers with efficient access to the three terminals, airport parking lots, hotel shuttles, and rental car facilities.[7]

Infrastructure and Existing Facilities

AirTrain system[8] is a fully automated, driverless, rubber-tired system operating on a 3-mile long, dual-lane, elevated guideway[9] (**Figure 1-3**). An emergency walkway, located between the dual track

Exhibit 1-1 AirTrain Ridership at Rail Link Station



Note: The dip in the ridership in 2014 is due to an extended shutdown of the system for repairs.

Source: PANYNJ Airport Traffic Statistics: https://www.panynj.gov/airports/en/statistics-general-info.html

Figure 1-3 AirTrain Guideway and Train Cars

Source: Regional Plan Association – Rebuilding the AirTrain Can Spur Equitable Growth in Newark, 3/12/2019

[5] Headway refers to the time between trains.

[6] Approximately 6 NJ Transit trains stop at the Rail Link Station every hour between 6:00 a.m. and 9:00 p.m.; 4 every hour between 9:00 p.m. and midnight. NJ Transit website; and NJ Transit service continues between midnight and 6:00 a.m.: https://www.njtransit.com/train-to

[7] "EWR Newark Liberty International Airport." The PANYNJ. Accessed April 2, 2020. https://www.panynj.gov/airports/ewr-facts-info.html.

[8] The existing AirTrain system includes the following elements: 2.85 miles of dual elevated guideway, steel box-beam construction; 7 passenger stations; 22 rotary switches; a maintenance & control facility; seven power substations; and 15 six-car trains consisting of Von Roll MK III Monorail type vehicles.

[9] Elevated guideway, also referred to as grade-separated guideway, is a guideway located above the ground surface.

girders, allows for repairs and safe rider egress to the nearest station in the event of a system malfunction. The system includes 15 electrically powered, 6-car monorail trains that are 100-feet long. Each train has a design capacity of 78 riders and the platforms at stations are designed to support the full boarding and alighting[10] of the trains. The existing AirTrain is connected to the Rail Link Station at its northern end and the Maintenance Control Facility (MCF) at its southern end. The MCF was designed and constructed to the specific requirements of the existing AirTrain monorail technology. The existing AirTrain guideway alignment, stations and MCF are shown in **Figure 1-4**.

1.3 Proposed Action

As detailed in **Section 1.4**, the existing AirTrain is in need of replacement as it has reached the end of its useful life, is not expected to meet future passenger/ridership demand, and does not allow for the efficient use of Airport space in a constrained urban environment. The Proposed Action would replace the existing AirTrain with a new dual guideway automated people mover (APM) system with larger train cars that have larger passenger doors and multiple door sets to improve boarding/alighting and enhance rider experience. The proposed AirTrain would increase ridership capacity and would serve Terminals B, C, and new Terminal One as well as parking areas, new ConRAC, and an expanded Rail Link Station. The proposed AirTrain alignment will be located to not preclude future development. The proposed AirTrain would operate on the same 24/7 basis as the existing AirTrain, with a schedule designed to support peak and off-peak hour demand differences. An improved level of service would be provided to all stations, with headways no greater than approximately three minutes during peak period (a reduction of approximately one minute over the existing AirTrain). The headways would be longer in off-peak and night periods. The trains will stop at each passenger station with dwell times ranging from 30 to 45 seconds.[11] The round trip-time time from the Rail Link Station to Terminal One is expected to be under 18 minutes. Discussion of the APM technologies being considered as part of the Proposed Action is included in **Chapter 2**.

Major components of the Proposed Action include an MCF, elevated guideway, rider stations, and elevated pedestrian connectors. Associated systems and infrastructure that will be constructed include utilities, substations, train control, and a power distribution system. The Proposed Action also includes partial demolition of the existing AirTrain; land acquisition to accommodate the proposed AirTrain and right-of-way (ROW) for the proposed AirTrain guideway alignment; and acquisition of temporary construction easements for construction of the Proposed Action. All guideway, foundations and structures within the CTA from the western end of Terminal A to the western end of Terminal C would remain in place in order to minimize disruption to airside and terminal operations. The components of the Proposed Action are discussed in further detail in **Section 2.4** and in **Appendix A**. Major components of the Proposed Action are shown on **Figure 1-5**. Proposed land acquisition and proposed demolition are shown on **Figure 1-6** and **Figure 1-7**, respectively.

[10] Alighting is a common rail term that means to disembark or exit.

[11] Dwell time – the period in which a vehicle or train discharges and takes on passengers at a stop, including opening and closing doors and time spent standing. Transportation Research Thesaurus, The National Academies of Sciences, Engineering, and Medicine, 2020.

1.4 Purpose and Need

The purpose and need of the Proposed Action is to:

- Provide airport users with reliable, world-class rail service
- Accommodate existing and future ridership demand at an improved level of service
- Provide a rail system that preserves airport land for highest and best use while minimizing disruptions to existing operations

1.4.1 Provide airport users with reliable, world-class rail service

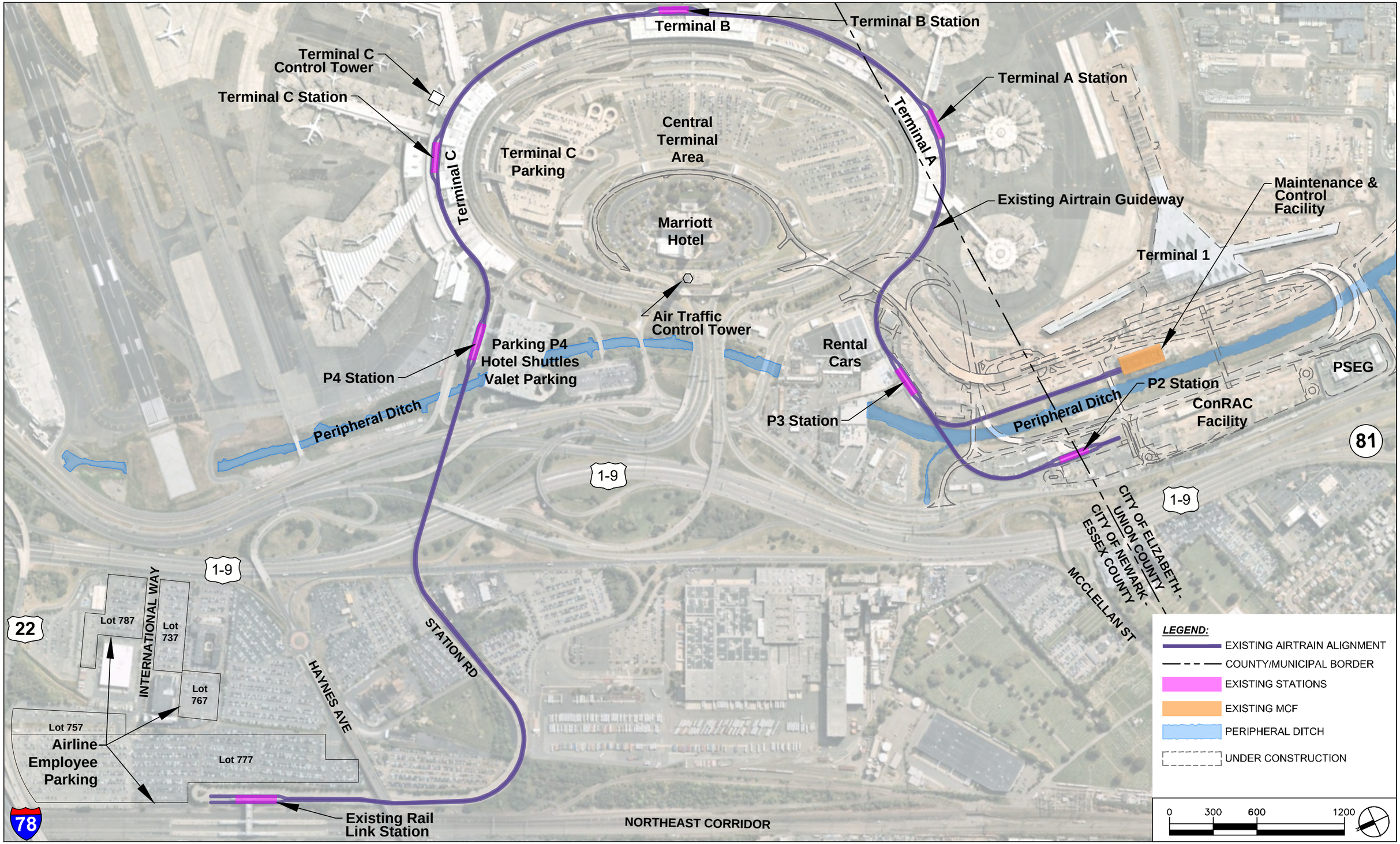
Unlike other available modes of transportation, rail service provides airport users with high capacity, dependable, convenient, and efficient on-airport transportation. A world-class rail system utilizes the modern technology riders expect, prioritizing the customer experience with convenience and comfort. The existing AirTrain – constructed in 1996 - is a successful rail system with growing patron service since inception. However, the system is aging and outdated, and is prone to extensive travel delays and service interruptions due to breakdowns and heavy maintenance demands, resulting in inconvenienced passengers and a financial burden to the PANYNJ. Existing AirTrain cars are small relative to world-class systems, with a limited number of small doors that create a congested boarding and alighting experience for passengers with luggage, leading to longer dwell times. These smaller cars cannot be replaced with larger cars as the existing AirTrain operates on a straddle beam guideway that is unique to the AirTrain technology, and is smaller and narrower than most APM systems.

The existing AirTrain was originally designed and installed by Von Roll Transport, with their "Mk III" vehicle system, representing the latest monorail technology at the time. The system's components had a 10 to 25-year design life; the infrastructure had a 50-year design life.[12] Since then, similar installations worldwide have been decommissioned due to life-expired equipment or declining patronage, leaving the EWR AirTrain to be one of the last remaining monorail systems of this type still in service. The manufacturer has since sold the Mk III design to another transit manufacturer that ceased the marketing and sales of this product.

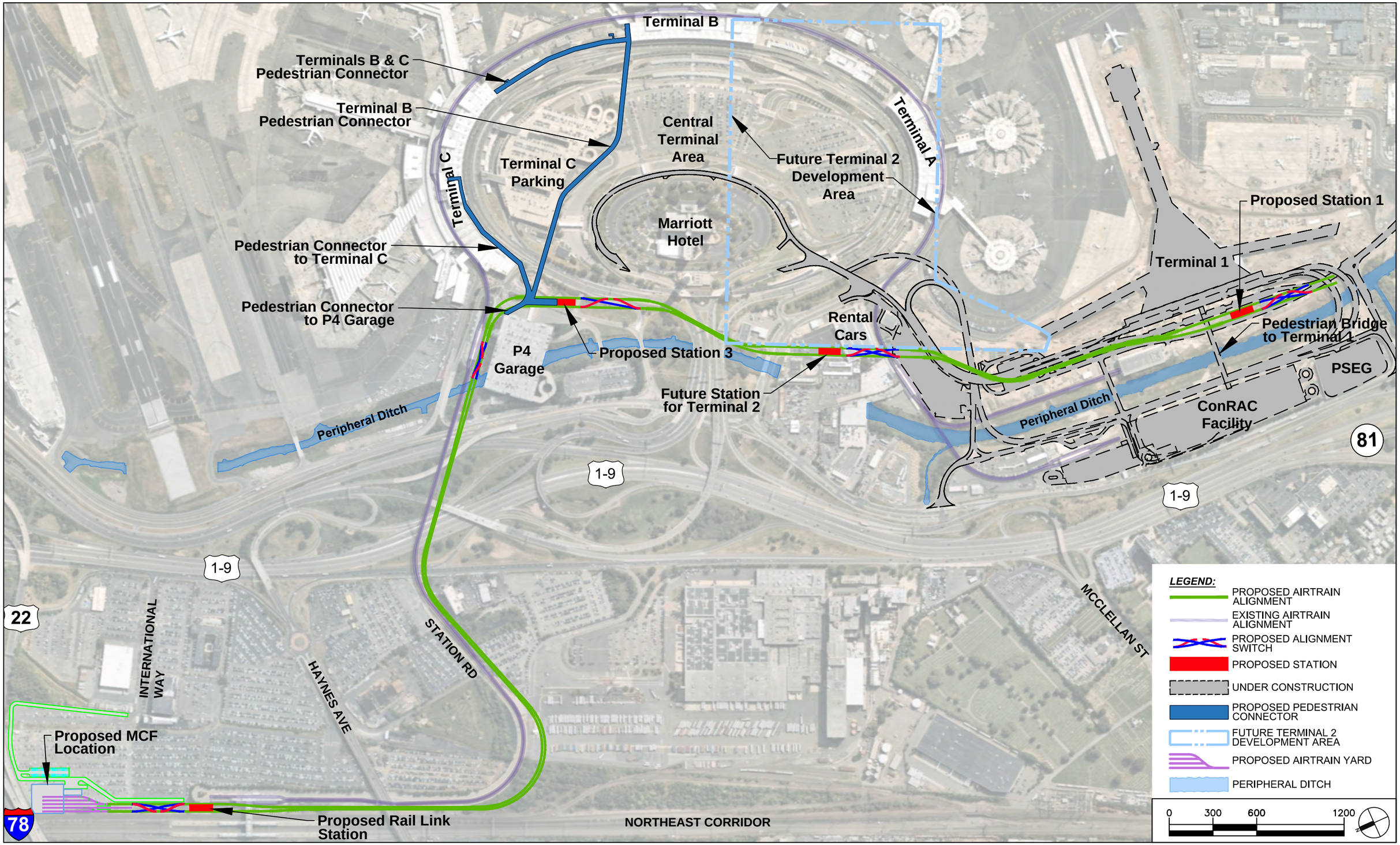
Because of the age of the system and manufacturing issues noted above, some replacement parts need to be reengineered and custom-tooled specifically for this system at a high cost and long lead-time. The train-control software provider has informed the PANYNJ that it can no longer support the software used. There are a limited number of engineers and technicians capable of working with the existing system and software as it is no longer being supported or sold, making future updates nearly impossible.

A reliable rail system provides passengers with dependable service to airport facilities and services. Routine maintenance, repair, and monitoring often require system-wide scheduled shutdowns of the existing AirTrain.

[12] Design and Constriction of Automated People Mover (APM), PA Contract EWR-114.001, December 1990.



PORT AUTHORITY NY NJ AIR LAND RAIL SEA	Source: Aerial Imagery by NearMap, 09/20/2019.	EXISTING AIRTRAIN	Figure 1-4	

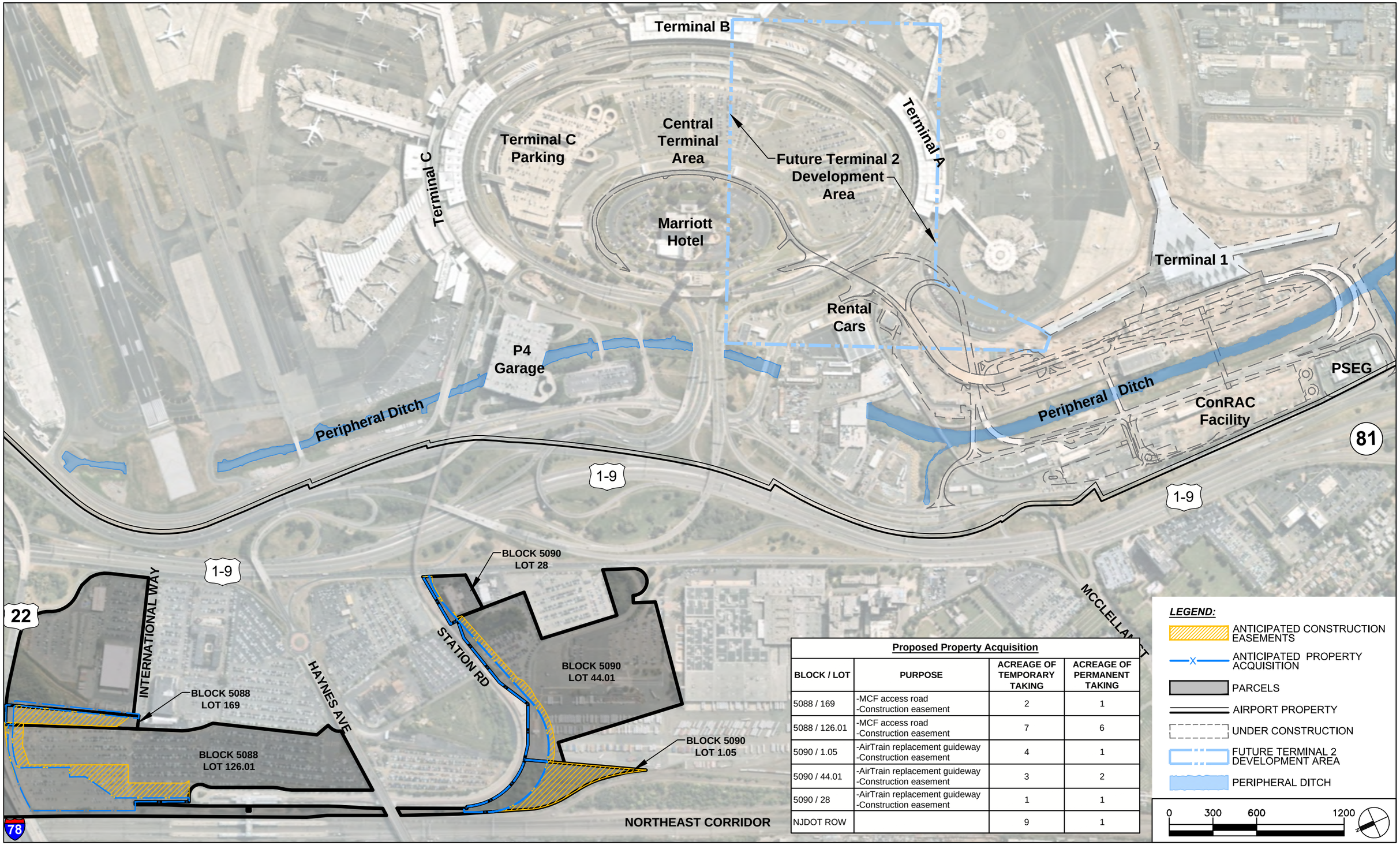


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION

Figure 1-5



Proposed Property Acquisition

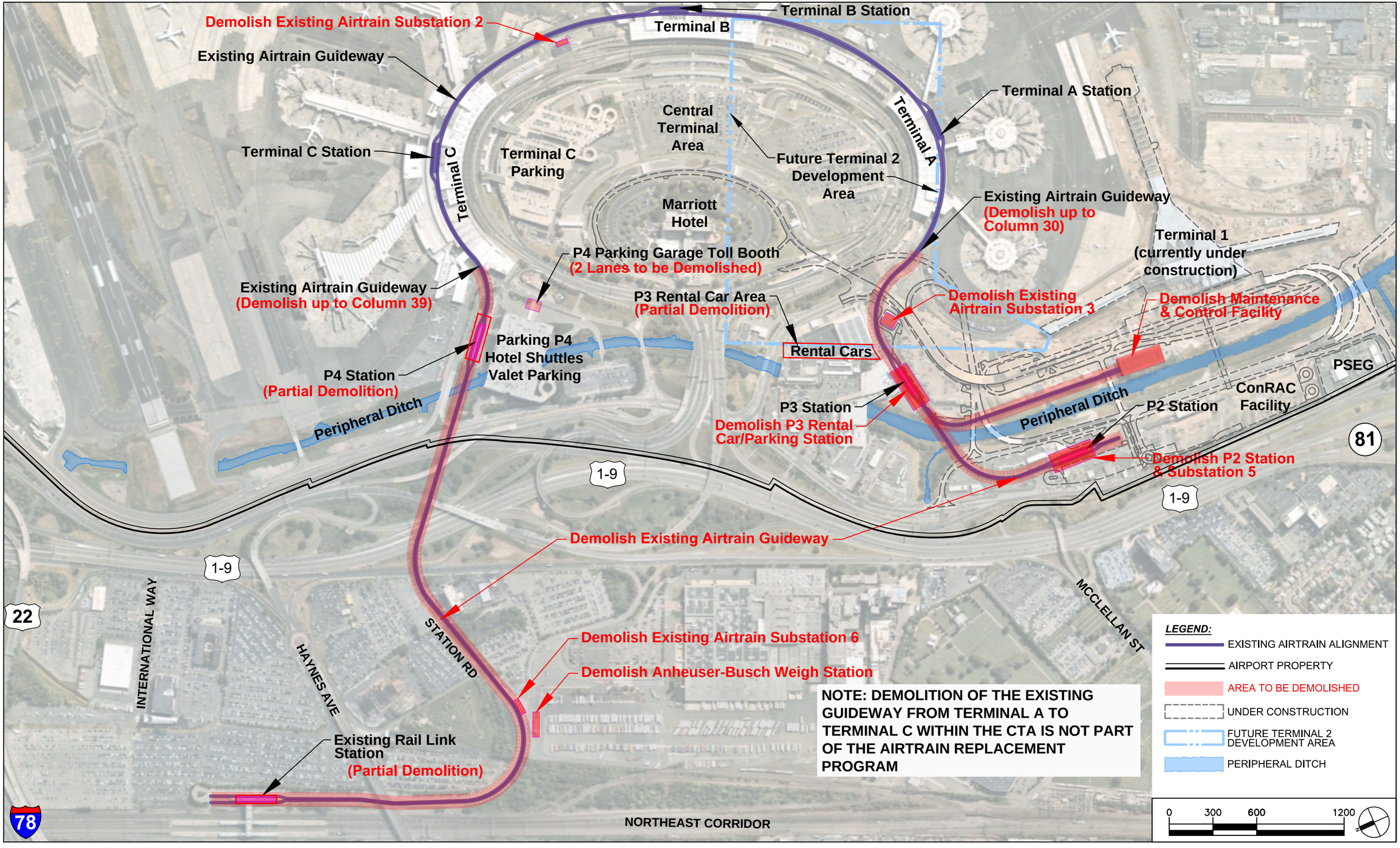
BLOCK / LOT	PURPOSE	ACREAGE OF TEMPORARY TAKING	ACREAGE OF PERMANENT TAKING
5088 / 169	-MCF access road -Construction easement	2	1
5088 / 126.01	-MCF access road -Construction easement	7	6
5090 / 1.05	-AirTrain replacement guideway -Construction easement	4	1
5090 / 44.01	-AirTrain replacement guideway -Construction easement	3	2
5090 / 28	-AirTrain replacement guideway -Construction easement	1	1
NJDOT ROW		9	1

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; City of Newark Parcel Data; Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION: ANTICIPATED LAND ACQUISITION AND TEMPORARY CONSTRUCTION EASEMENTS

Figure 1-6



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION: DEMOLITION AREAS

Figure 1-7

During these events, riders are redirected from the AirTrain stations to the terminal curb frontages where they are transported by buses. Busing operations are an inherently less efficient mode of travel because the buses must utilize the already congested airport roadway system. In the event of a train break down, every effort is made to move a disabled train to a station where the riders can disembark safely. However, there are situations where the train cannot be moved to a station and riders have to be evacuated where the train has stopped on the guideway. A rider evacuation requires extensive coordination of airport resources (e.g., airport operations, public safety), results in extended train delays throughout the system, and is a significant inconvenience to the AirTrain riders that have to be evacuated (e.g., missed flights and rail connections). **Table 1–1** below summarizes the recent performance of the existing AirTrain. Between 2013 and 2019, there were a total of 1,026 unscheduled stoppages lasting anywhere from 15 to 45 minutes, 540 unscheduled stoppages lasting more than 45 minutes, and a total of 40 service interruptions requiring rider evacuation.

As the existing AirTrain continues to age, there is potential for increased frequency of service disruptions and rider evacuations, which the PANYNJ is seeking to avoid.

Table 1-1 Existing AirTrain Performance (2013-2019)

Year	Existing AirTrain Availability % (*)	Number of Unscheduled Stoppages Lasting 15 to 45 Minutes	Number of Unscheduled Stoppages Lasting More Than 45 Minutes	Number of Service Interruptions Requiring Rider Evacuation
2013	97.73	220	113	3
2014	98.4	94	24	9
2015	96.38	173	35	4
2016	94.87	174	87	11
2017	94.25	221	220	5
2018	97.06	64	34	4
2019	98.11	80	27	4
Total		**1,026**	**540**	**40**

Source: PANYNJ AirTrain Operations Department
(*) Percentage of time that the existing AirTrain is operational in a 12-month period.

Between 2013 and 2017, the PANYNJ's net cost of repairs to the existing AirTrain's guideway was $19.6 million. In addition to the costs of these repairs, the PANYNJ invested $84 million through the Capital Asset Replacement Program (CARP) that aimed to extend the service life of portions of the existing AirTrain system by 10 to 15 years. The CARP improvements started in August 2012 have since been completed. The severity and frequency of maintenance issues and necessary repairs are anticipated to increase as the existing AirTrain ages, thus adding to both the AirTrain's downtime incidents and continued maintenance costs.

1.4.2 Accommodate existing and future ridership demand at an improved level of service

At the time of this report, air travel in the United States is severely impacted by the COVID-19 pandemic, leading to a significant decrease in flights and passengers nationwide. Aircraft operations and passenger loading factors on aircraft have been tempered since the COVID outbreak, but it is widely accepted that long-term demand will recover to the levels experienced before the impacts from COVID-19, although it is uncertain when aircraft operations and passenger loads will return to pre-COVID levels.

Furthermore, the existing AirTrain will continue to serve airport passengers and operate according to the regular pre-COVID schedule, albeit in a compromised condition due to its age, regardless of any short-term decrease in ridership. The existing system will continue to require the additional maintenance expenses and service interruptions described in **Table 1-1**.

Prior to the pandemic, EWR, like other New York regional airports, was experiencing an increase in demand for domestic and international passenger services. Despite the short-term effects of COVID-19, this demand is expected to continue, resulting in a projected increase in AirTrain ridership that could exceed capacity of the existing AirTrain. Between 2012 and 2018, the number of passengers at EWR increased from 34 million to 46 million, an increase of 35%. According to the PANYNJ's forecast, EWR will experience an average annual growth of 1.9 percent over the next 25 years, with or without the Proposed Action. Based on passenger count data from 2018, during an average day's peak hours, the existing AirTrain was at or near its capacity of 1,200 passengers per hour per direction (pphpd), resulting in a relatively poor level of service. On days where usage surged (e.g. holiday travel periods), peak hour demand increased to 1,370 pphpd - well over the system's capacity. Based on ridership projections developed as part of the project planning process, by 2030, the forecasted AirTrain demand is expected to increase to approximately 1,600 pphpd during typical peak hours. This would result in peak hour demand exceeding current capacity by approximately 33 percent.

Prior to 2020, during peak hours (between noon and 6:00 p.m.) and on peak travel days, the existing AirTrain operated at or over capacity with full trains and some passengers left waiting on the station platform for the next train. Over time, as demand further exceeds the existing AirTrain's capacity, the passenger level of service will decline. Wait times to board the AirTrain can be expected to increase due to AirTrain overcrowding. The PANYNJ would need to provide busing to accommodate travelers that cannot be served in a timely manner by the existing AirTrain, thereby adding to existing congestion on Airport roadways.

As ridership demand rebounds and continues to grow, the issue of deteriorating level of service and inefficient passenger flow, specifically relating to poor connectivity to Terminal One and ConRAC (currently under construction), and insufficient vertical circulation at the Rail Link Station, will be exacerbated. There will be no direct connection from the existing AirTrain to Terminal One upon completion of the Terminal One construction. Instead, passengers riding the existing AirTrain will have to access Terminal One by way of the existing P2 Station. From there, passengers would walk outside, through ConRAC and multiple passageways (approximately 2,300 feet) with their luggage to access Terminal One. For the majority of domestic airports with transit connections, under permanent conditions, the pedestrian walk distance from the center of a

transit station platform to the center of the central ticketing hall ranges between 330 feet and 1,265 feet. Regarding vertical circulation, at the Rail Link Station, the limited number of escalators and a single passenger elevator do not provide sufficient vertical circulation for NEC Rail surges in peak hours. During AirTrain outages, access to temporary busing requires descending to the ground floor, which must be accomplished with the single elevator and without escalators to grade. This results in extensive queuing for the elevator as well as requiring many passengers to ascend/descend three levels of stairs with their luggage using the egress staircases. Over the long run, an existing AirTrain service that results in rider delays and inefficient or inconvenient passenger flow will reduce EWR's overall operational capacity, reduce its attractiveness to passengers, and lower the Airport's competitive advantage. Diminished existing AirTrain service could increase the risk that travelers that usually access EWR by Amtrak or NJ Transit decide to access EWR by car, bus or shuttle, adding to existing roadway congestion surrounding the Airport.

1.4.3 Provide a rail system that preserves airport land for highest and best use while minimizing disruptions to existing operations

The Airport is currently undergoing significant redevelopment to maximize airside space and improve passenger terminal and landside operations. The location of passenger terminals, rental car facilities, and parking facilities are being optimized to increase the size of the airfield to reduce flight delays and increase capacity. Further, as noted in **Section 1.2.2**, the PANYNJ has commenced planning for the replacement of Terminal B. These projects are consistent with the Airport's long-term effort to preserve airport land for its highest and best use, which includes using space in the Central Terminal Area for aeronautical and passenger terminal activities.

The proposed AirTrain would need to meet the airport land preservation goals without adversely impacting the Airport's operations including airside capacity and roadway access to terminals, ConRAC and parking. Key impacts to be avoided or minimized include demolition of any new AirTrain elements that would be incompatible with the airport land preservation goals. Demolition would be expected to result in disruption to the Airport roadways, thereby exacerbating congestion on access roadways and terminal frontages. Additionally, the proposed AirTrain would need to allow the Airport to continue to provide public parking to customers – an essential service for the public as well as a significant revenue source for the Airport. Avoidance or minimization of impacts to public parking is therefore an important requirement for the new AirTrain.

Chapter 2—Alternatives Analysis

This chapter describes the alternatives identified by the PANYNJ and evaluates the capability of the alternatives to meet the Purpose and Need of the Proposed Action. During the project planning phase, a set of alternatives was identified that takes into account the Airport's airside and landside constraints, as well as provides connectivity between terminals, parking, and transportation connections. Additionally, the project planning phase considered the physical and performance specifications of the foreseeable technologies expected to be available at the time of construction.

A set of goals and objectives was developed based on the Purpose and Need. These goals and objectives (presented in **Table 2-1**) served as the screening criteria for use in evaluating the efficacy of different project alternatives. The following sections present alternatives and compare each alternative to the screening criteria.

Table 2-1 Screening Criteria

Purpose and Need	Goals and Objectives
Provide Airport users with reliable, world-class rail service	1a. Reduce travel delays and improve system reliability 1b. Provide larger cars with improved boarding/alighting and enhanced rider experience
Accommodate existing and future ridership demand at an improved level of service	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd2b. Provide similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintain level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improve passenger flow through the stations
Provide a rail system that preserves airport land for highest and best use and minimizes disruptions to existing operations	3a. Preserves airport land for highest and best use 3b. Minimize disruption to airport operations resulting from demolition and other construction impacts 3c. Minimize loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces

Alternatives that met applicable screening criteria for each purpose and need statement were considered more favorable and were moved forward for evaluation of potential environmental impacts.

2.1 No Action Alternative

Under the No Action Alternative, the existing AirTrain would remain. As shown in **Table 2-2** below, The No Action Alternative would not meet the Purpose and Need. The No Action Alternative would not adequately allow or permit the PANYNJ to provide reliable world-class rail service, accommodate demand at an improved level of service, and preserve airport land for highest and best use without adversely impacting the Airport's operations including airside capacity and roadway access to terminals, ConRAC and parking. The

obsolete, unreliable and aging existing AirTrain system would continue to deteriorate and would result in increased service disruptions. AirTrain would not accommodate demand at an improved level of service, and the goal of preserving airport land for highest and best use would not be met. However, to fulfill NEPA requirements[13], the No Action Alternative option will be carried through the alternatives evaluation to serve as a baseline for determining the significance of environmental impacts.

2.2 Build Alternatives

Development alternatives with potential to meet the Proposed Action's Purpose and Need are discussed below. Differentiators among the alternatives were evaluated based on their location ("segment") within the Proposed Action. Because the selection of an alternative within each segment has no impact on alternatives in other segments, the Preferred Alternative represents an integration of the best alternatives available. Additionally, this approach avoids the inefficiency of including numerous permutations of similar alignments in the discussion below. The four segments within which alternatives are evaluated are as follows (**Figure 2-1**):

- Southern Segment Guideway Alignment
- CTA Segment Guideway Alignment
- Northern Segment Guideway Alignment
- Maintenance and Control Facility Location

The Proposed Action assumes completion of the new Terminal One in 2022 and the ConRAC facility in 2023. Although the PANYNJ is just beginning to evaluate the potential replacement of Terminal B with future Terminal Two, for the purposes of this analysis it is assumed that the replacement location would be consistent with the overall north-south alignment of existing Terminal C and new Terminal One.

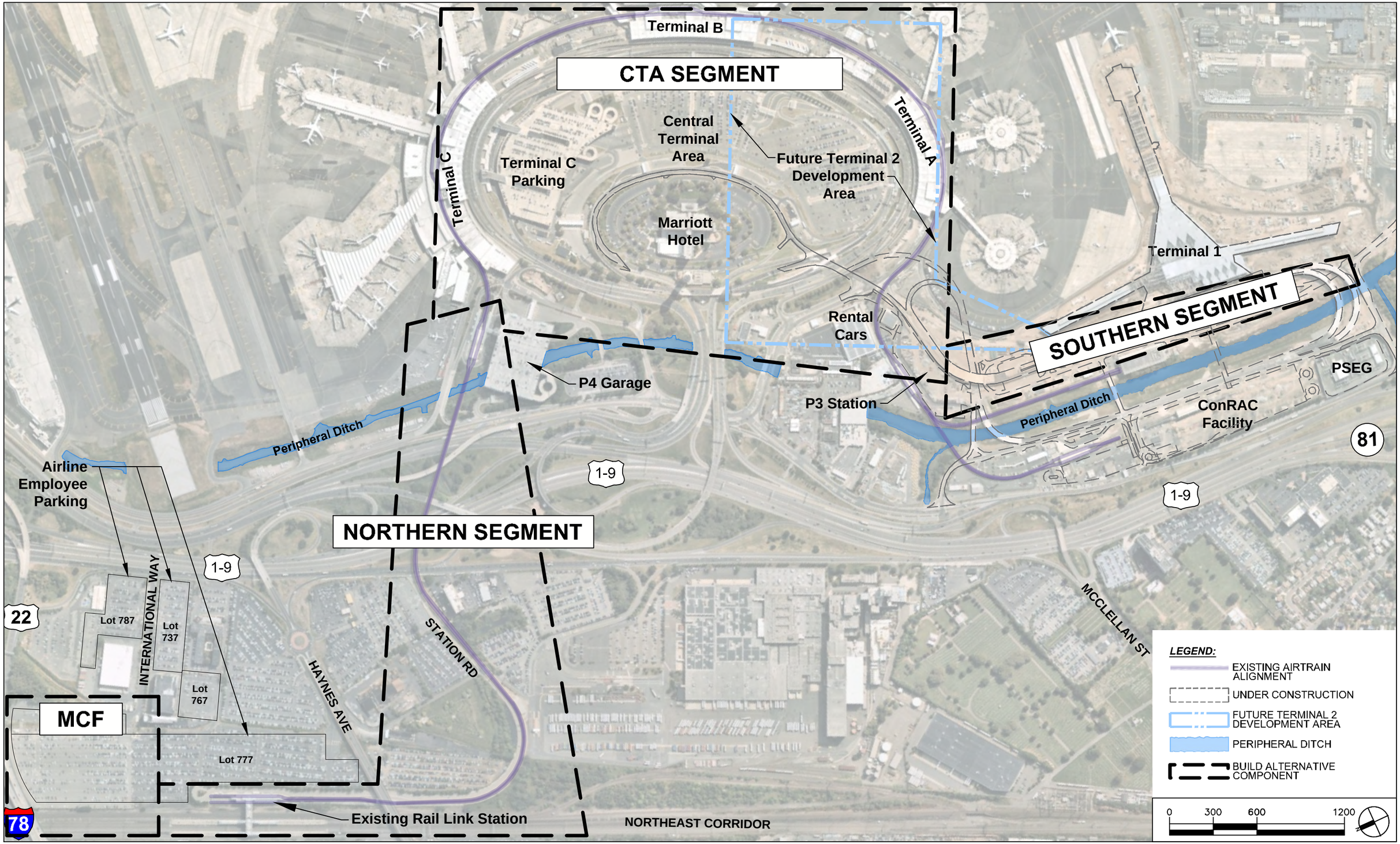
2.2.1 Southern Segment Guideway Alignment

The Southern Segment, depicted on **Figure 2-2**, refers to the area starting from the southernmost point of the guideway to just north of the Union County/Essex County boundary. No alternatives were developed for this segment because the alignment of the guideway is limited by existing facilities (Terminal One and ConRAC), roadways (airport access roads, ramps, and multi-lane frontage roads), the Peripheral Ditch, utilities, and the newly constructed pedestrian connector between Terminal One and ConRAC. As it is depicted, the Southern Segment is positioned to best provide direct access to Terminal One and the ConRAC facility, meeting the goals of improving Airport connectivity (and thereby the level of service) while avoiding the need to demolish or relocate any existing facilities or roadways.

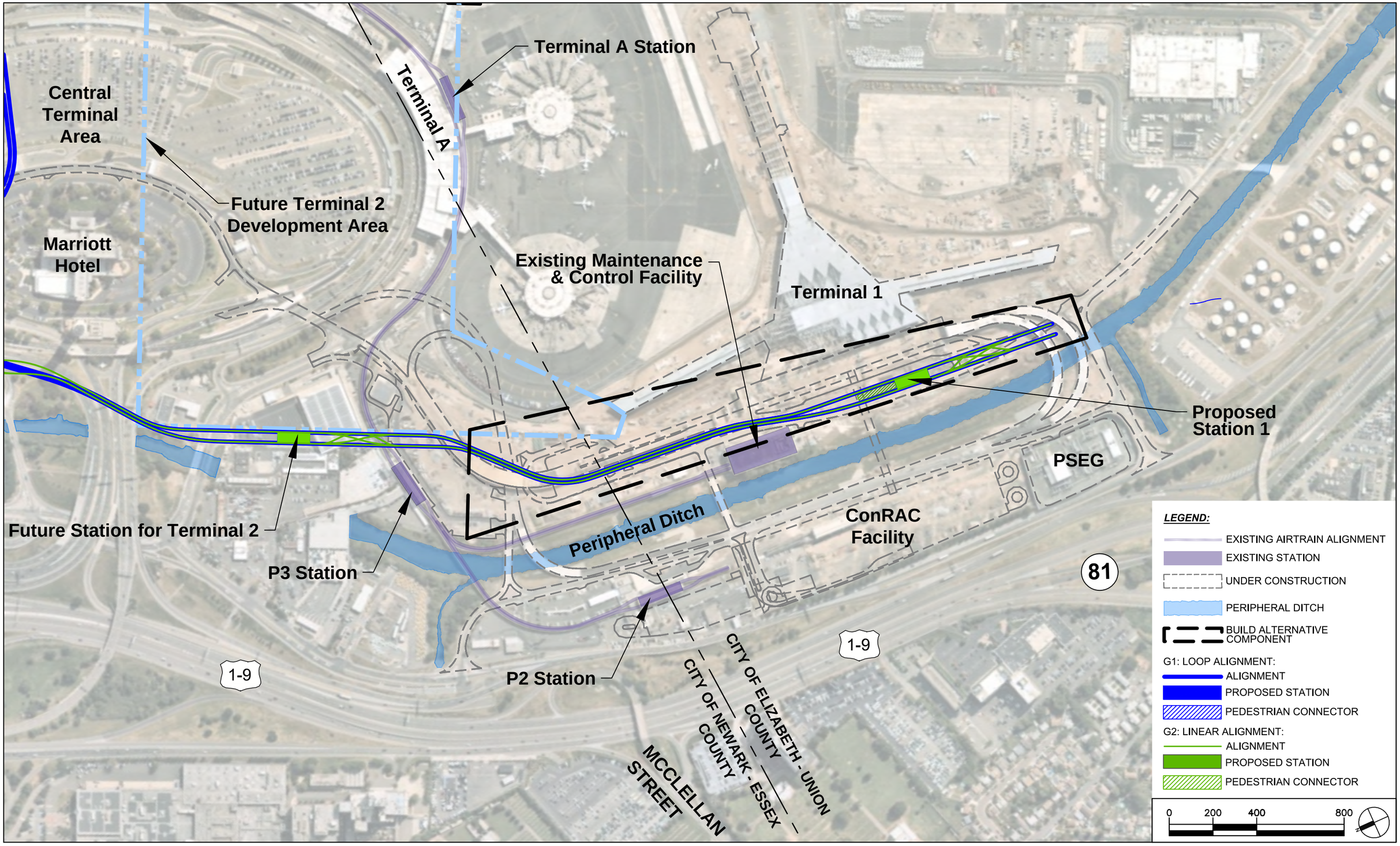
[13] Federal Aviation Administration (FAA). Order 1050.1F. Environmental Impacts: Policies and Procedures. Pg. 6-2, Section 6-2.1.f. July 16, 2015.

Table 2-2 No Action Alternative

Alternatives	Screening Criteria	Does Alternative Conform to Screening Criteria?	Purpose and Need met, Retain for Further Analysis?
No Action Alternative	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Does not meet criteria.** The existing AirTrain is outdated and prone to extensive travel delays and service interruptions due to breakdowns and heavy maintenance demands. Under the No Action Alternative, it is anticipated that the severity and frequency of existing AirTrain maintenance and repairs would increase as the system ages, resulting in a system that is less reliable with increasing maintenance costs. 1b. **Does not meet criteria.** Existing AirTrain cars are too small, with a limited number of small doors that create a congested boarding and alighting experience. These smaller cars cannot be replaced with larger cars as the existing AirTrain operates on a straddle beam guideway that is unique to the AirTrain technology and cannot be retrofitted for other technologies.	Purpose and Need not met but retained for further analysis
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Does not meet criteria.** The capacity of the existing AirTrain would be exceeded, resulting in passengers having to wait on the platform when the train is full. 2b. **Does not meet criteria.** There will be no direct connection from the existing AirTrain to Terminal One. Instead, passengers riding the existing AirTrain will have to access Terminal One by walking approximately 2,300 feet (with multiple level changes) from the existing P2 Station. 2c. **Meets criteria.** Preserves connectivity to NEC. 2d. **Does not meet criteria.** Does not address station deficiencies including limited vertical circulation at Rail Link Station.	
	3a. Preserve airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Does not meet criteria**. Adversely impacts the preservation of airport land for highest and best use such as aeronautical and passenger terminal activity. 3b. **Meets criteria**. This alternative does not cause disruption to airport operations as a result of demolition and other construction impacts. 3c. **Meets criteria**. This alternative does not impact public parking areas and therefore minimizes the loss of parking.	



PORT AUTHORITY NY NJ AIR LAND RAIL SEA	Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.	BUILD ALTERNATIVE COMPONENTS	Figure 2-1	



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

SOUTHERN SEGMENT GUIDEWAY ALIGNMENT ALTERNATIVES

Figure 2-2

2.2.2 CTA Segment Guideway Alignment Alternatives

Two alignment alternatives were considered for the CTA Segment. The first alignment alternative, Alternative G-1, or the "loop alignment", loops through and around the CTA, with three individual stations providing access to Terminal B, Terminal C, and P4 Garage. The station assigned to P4 Garage would connect directly to the garage; two pedestrian connectors would be needed to provide access to Terminals B and C from Stations B and C, respectively. Guideway dimensions will accommodate space for a future station at Terminal Two, if built.

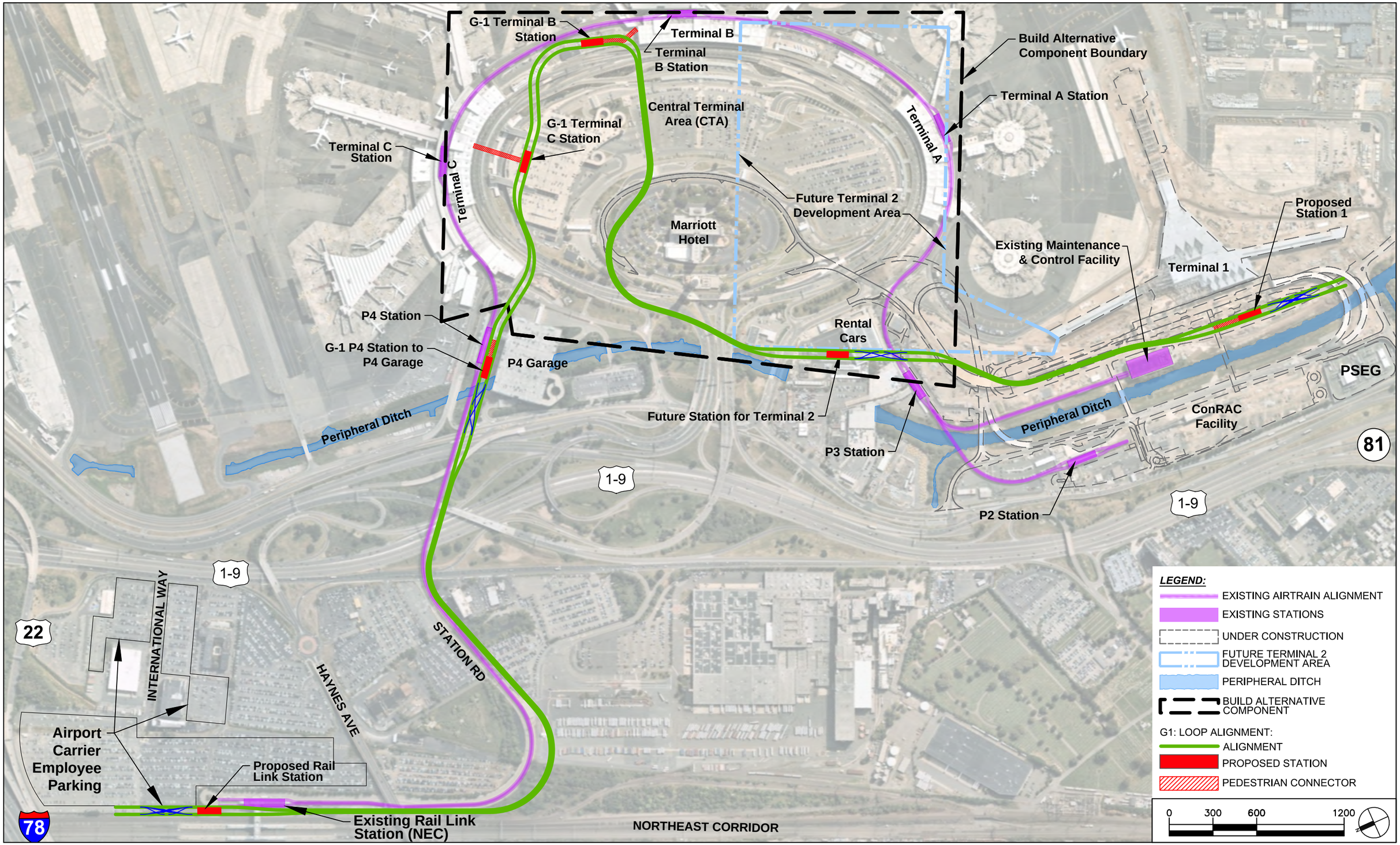
The second alignment alternative, Alternative G-2, or the "linear alignment", runs parallel to the CTA along the east side of the Peripheral Ditch. In this alternative, users would access Terminal B, Terminal C, and P4 Garage by way of pedestrian connectors that link to one centralized station (Station 3). Similar to G-1, guideway dimensions will accommodate space for a future station at Terminal Two, if built.

For both alternatives, to improve the level of service for passengers transferring between the AirTrain and terminals, moving walkways would be provided within pedestrian connectors longer than 1,000 feet. The proposed climate-controlled connectors would have a 25-foot minimum interior width and vary from 20 feet to 50 feet above grade. Each connector would be supported by steel or concrete columns in locations to minimize disruption to parking and traffic patterns during construction and following the completion of the Proposed Action.

The two alternatives are depicted on **Figure 2-3** and **Figure 2-4** and their relation to the Purpose and Need are summarized in **Table 2-3**.

CTA Segment Guideway Alignment Preferred Alternative

The G-2 Linear Alignment was selected as it would meet the Purpose and Need by minimizing the need for demolition of proposed guideways and stations, as well as by limiting impacts to public parking. The G-1 loop alignment does not meet the Purpose and Need as the construction and demolition of a significant portion of the alignment would impact a number of major roadways and result in the permanent loss of a portion of public parking.

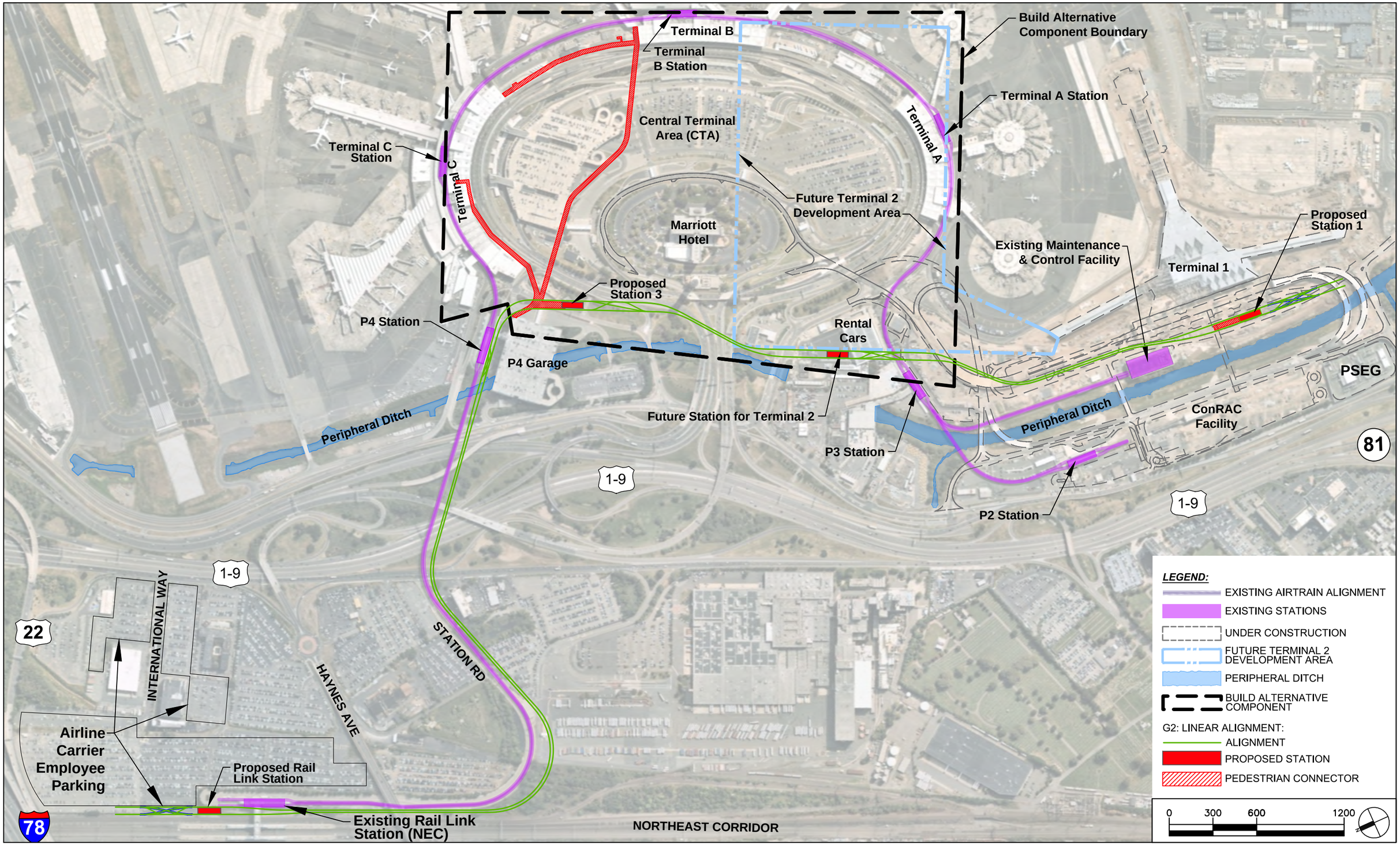


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

CTA SEGMENT GUIDEWAY - LOOP ALTERNATIVE

Figure 2-3



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

CTA SEGMENT GUIDEWAY - LINEAR ALTERNATIVE

Figure 2-4

Table 2-3 CTA Segment Guideway Alignment Alternatives

Alternatives	Screening Criteria	Does Alternative Conform to Screening Criteria?	Purpose and Need met, Retain for Further Analysis?
G-1 Loop Alignment (approximately 2.9 miles)	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Meets criteria.** The alignment allows for a new system that reduces travel delays and improves reliability. 1b. **Meets criteria.** The alignment allows for a new system that provides larger cars and enhances the rider experience.	No
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Meets criteria.** The alignment allows for a new system that provides capacity to meet demand. 2b. **Meets criteria.** For the majority of domestic airports with transit connections, the pedestrian walk distance from the center of a transit station platform to the center of the central ticketing hall ranges between 330 feet and 1,265 feet. By providing riders with a short walk to reach their destinations (425-foot pedestrian connector from Station 4 to Terminal C, 125-foot connector from Station 3 to Terminal B) this alternative improves connections to terminals. 2c. **Not Applicable.** The guideway alignment within the CTA does not alter the level of connectivity to NEC. 2d. **Meets criteria.** The alignment allows for new stations with improved vertical circulation elements that would improve passenger flow.	
	3a. Preserve airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Does not meet criteria**. Approximately 5.300 LF of the guideway runs through the CTA. Construction of the guideway alignment would require demolition of a portion of the Terminal C parking garage. Construction would disrupt the CTA roadway network during construction of approximately eight major roadway crossings for the guideway. Future development within the CTA would require demolition and relocation of the proposed AirTrain alignment. 3c. **Does not meet criteria**. Construction of the proposed action would result in a temporary loss of approximately 1,000 parking spaces during the 2-3 year construction period, and a permanent loss of 151 public parking spaces upon completion of construction.	
G-2 Linear Alignment (approximately 2.4 miles)	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Meets criteria.** The alignment allows for a new system that reduces travel delays and improves reliability. 1b. **Meets criteria.** The alignment allows for a new system that provides larger cars and enhances the rider experience.	Yes
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Meets criteria.** The alignment allows for a new system that provides capacity to meet demand. 2b. **Meets criteria.** Pedestrian connectors would allow passengers to transfer between terminals and the AirTrain. For the majority of domestic airports with transit connections, the pedestrian walk distance from the center of a transit station platform to the center of the central ticketing hall ranges between 330 feet and 1,265 feet. Pedestrian connector distances from Station 3 to P4 Garage, Terminal C, and Terminal B are 250 feet, 1,200 feet, and 2,200 feet, respectively; the pedestrian connector distance between Terminal B and C is 1,025 feet. While the connector between Station 3 and Terminal B exceeds the average pedestrian walk distance, this connection will receive the lowest percentage of use (13.6% of connections in 2025, and 11.4% of connections in 2030). Pedestrian connectors over 1,000 feet would make use of moving walkways or similar technologies to improve the level of service. 2c. **Not Applicable.** The guideway alignment within the CTA does not alter the level of connectivity to NEC. 2d. **Meets criteria.** The alignment allows for new stations with improved vertical circulation elements that would improve passenger flow	
	3a. Preserve airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Meets criteria.** Construction of the pedestrian connectors and their eventual demolition would have a relatively minor impact on the CTA roadway network because of the limited footprint of the connectors relative to roadways. 3c. **Meets criteria.** The alignment does not require demolition of parking garages or lots.	

2.2.3 Northern Segment Guideway Alignment Alternatives

The Northern Segment is located between the existing P4 Garage and the Rail Link Station.

Alternatives Removed from Consideration

The guideway in this segment lies directly adjacent to Station Road, which provides access from US Route 1/9 South to Rail Link Station, industrial complexes, and parking facilities. Any guideway alignments within this area could have direct impacts to these facilities; therefore, any guideway alignments in the Northern Segment that would result in significant local vehicular traffic impacts were eliminated from consideration as not reasonable. For example, siting the Northern Segment of the guideway to the north and east of the existing AirTrain guideway would require closure of Station Road for four to five years to accommodate the construction of the replacement AirTrain foundations and demolition of the existing AirTrain after the proposed AirTrain is in service. During this time, a temporary road would have to be constructed, which would require the PANYNJ to obtain easements from other property owners to access and service the Rail Link Station. As such, replacing the Northern Segment of the guideway to the north and east of the existing AirTrain alignment was eliminated from consideration.

Build Alternatives

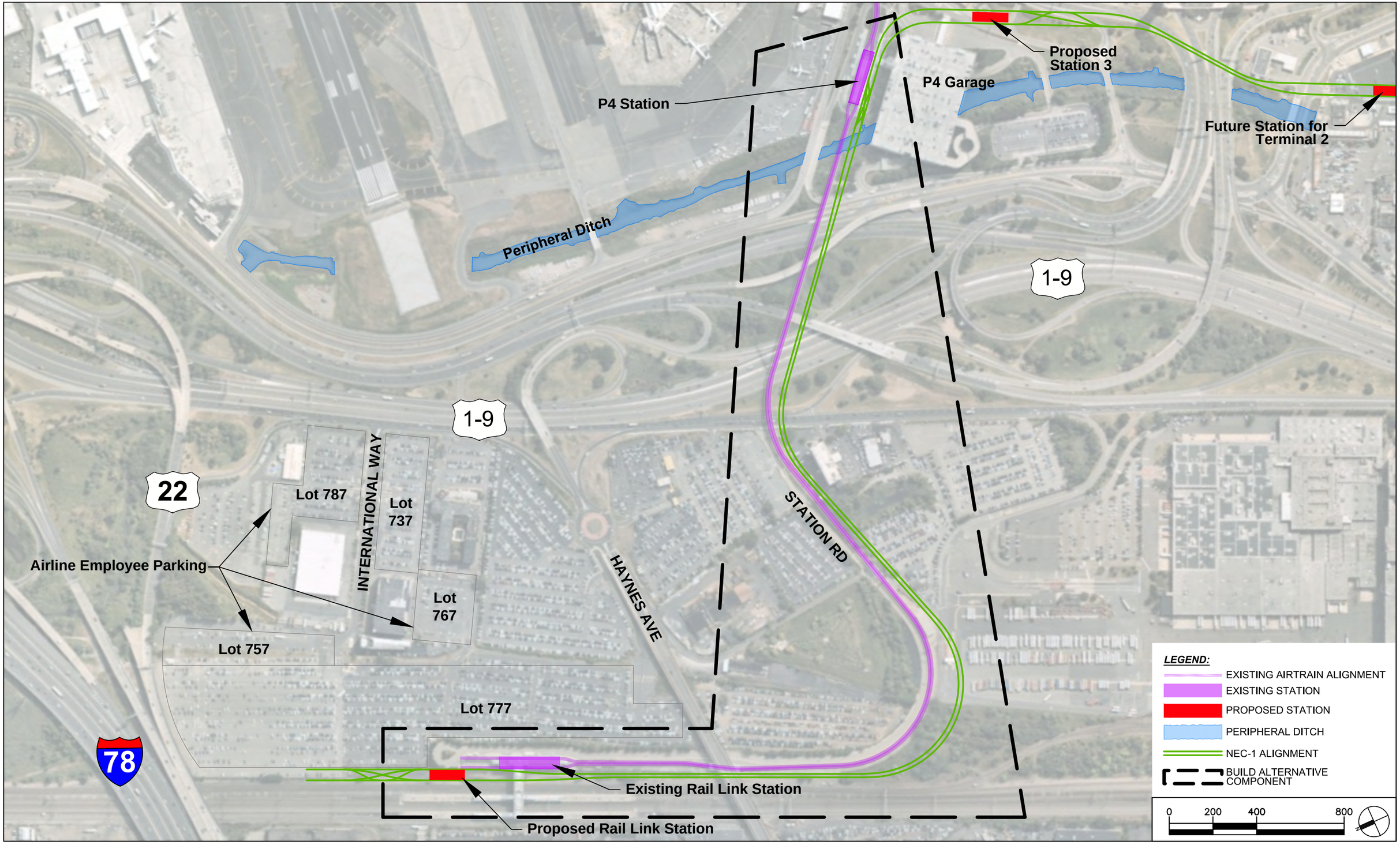
Two alternative guideway alignments were considered for the Northern Segment. The first, "NEC-1[14], Parallel Alignment", would be constructed parallel to the west of the existing alignment, allowing for the existing AirTrain to remain operational during the majority of construction. The second alternative, "NEC-2, Existing Alignment" follows the existing alignment, from its connection to Rail Link Station to just south of US Route 1/9 South. This would require the shutdown of the existing AirTrain between the P4 and Rail Link Stations for an estimated two years during construction. Passengers would have to be bused from the Rail Link Station during this time, adding to existing roadway congestion and causing rider delays.

These alternatives are depicted in **Figure 2-5** and **Figure 2-6** and their relation to the Purpose and Need are summarized in **Table 2-4**.

Northern Segment Guideway Alignment Preferred Alternative

As described in Table 2-4, NEC-2: Existing Alignment did not meet the Purpose and Need as it would significantly disrupt airport operations due to the required closure of the existing AirTrain system, resulting in the need to bus passengers traveling to/from Rail Link Station. The interruption of AirTrain service and substitution through bus service would contribute to congestion and provide unreliable and delay-prone transportation for AirTrain passengers. NEC-1: Parallel Alignment was selected as this alternative allows the existing AirTrain to remain in operation throughout the construction of the proposed AirTrain, optimizing the rider experience and avoiding travel delays from busing operations. This alternative is located off Airport property and would require property acquisitions or easements (see **Section 2.4** for further detail).

14 "NEC" stands for Northeast Corridor, where the Northern Segment will terminate at the proposed Rail Link Station.

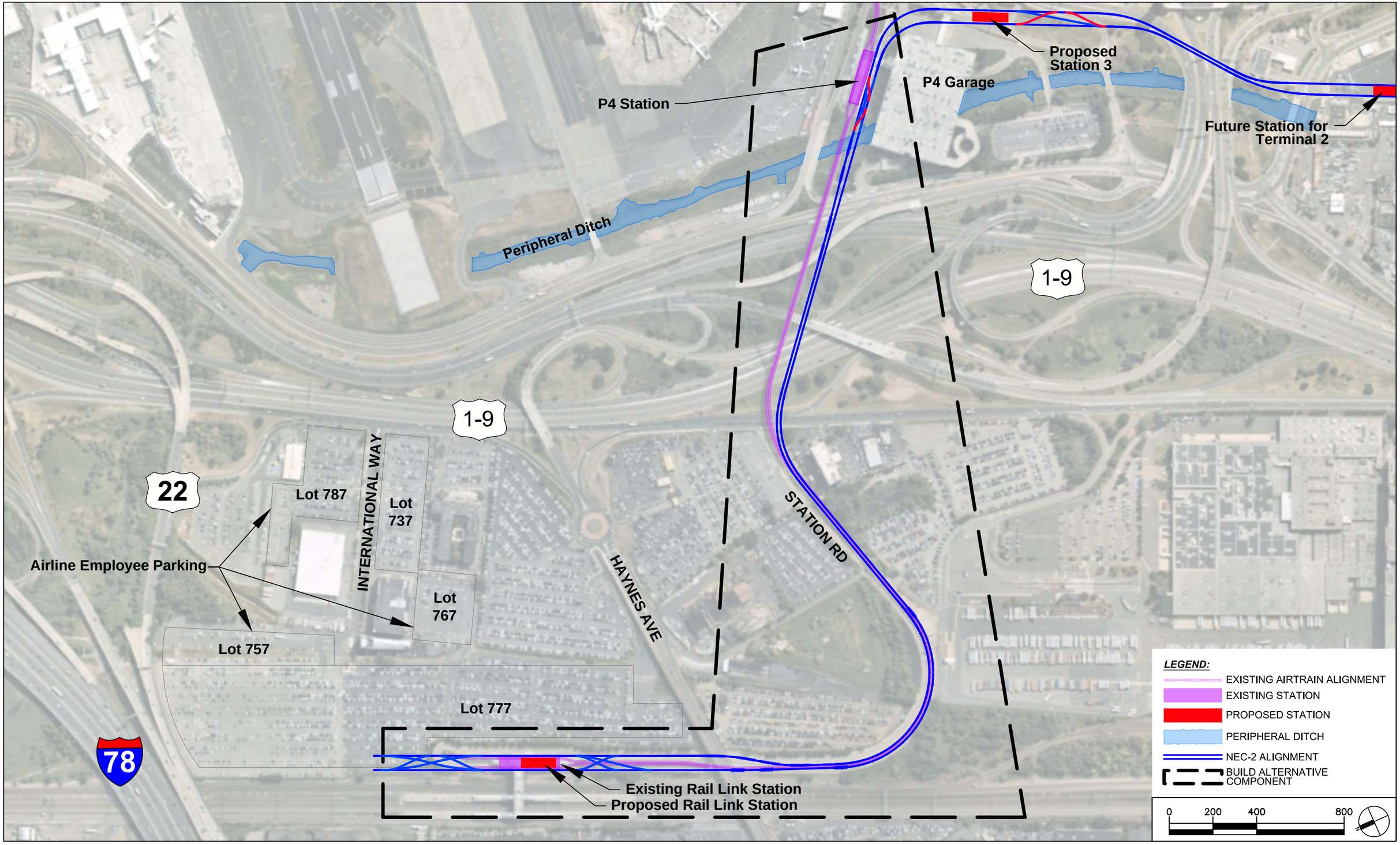


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

NORTHERN SEGMENT GUIDEWAY ALIGNMENT - NEC-1 ALTERNATIVE

Figure 2-5



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

NORTHERN SEGMENT GUIDEWAY ALIGNMENT - NEC-2 ALTERNATIVE

Figure 2-6

Table 2-4 Northern Segment Guideway Alignment Alternatives

Alternatives	Screening Criteria	Does Alternative Conform to Screening Criteria?	Purpose and Need met, Retain for Further Analysis?
NEC-1 Parallel Alignment	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Meets criteria.** The alignment allows for a new system that reduces travel delays and improves reliability. 1b. **Meets criteria.** The alignment allows for a new system that provides larger cars and enhances the rider experience.	Yes
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Meets criteria.** The alignment allows for a new system that provides capacity to meet demand. 2b. **Not applicable.** This segment of the proposed AirTrain lies outside the CTA, where terminals, ConRAC, and other landside facilities are located. 2c. **Meets criteria.** Connection to NEC rail lines would be maintained during construction. 2d. **Meets criteria.** Alignment allows for vertical circulation in Rail Link Station to be improved and allow for smooth passenger flow throughout this station.	
	3a. Preserves airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Meets criteria.** Alignment does not result in future demolition or construction that disrupts airport operations. 3c. **Meets criteria.** This alternative does not result in a loss of public parking capacity or parking revenue.	
NEC-2 Existing Alignment	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Meets criteria.** The alignment allows for a new system that reduces travel delays and improves reliability. 1b. **Meets criteria.** The alignment allows for a new system that provides larger cars and enhances the rider experience.	No
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Meets criteria.** The alignment allows for a new system that provides capacity to meet demand. 2b. **Not applicable.** This segment of the proposed AirTrain lies outside the CTA, where terminals, ConRAC, and other landside facilities are located. 2c. **Meets criteria.** Connection to NEC rail lines would be maintained during construction. 2d. **Meets criteria.** Alignment allows for vertical circulation in Rail Link Station to be improved and allow for smooth passenger flow throughout this station.	
	3a. Preserves airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on -airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Does not meet criteria**. Demolition of the existing alignment would result in a shutdown of the existing AirTrain from Station P4 to Rail Link, requiring use of buses to transport riders to/from Rail Link Station for two years during construction, resulting in potential travel delays and degraded level of service. 3c. **Meets criteria.** This alternative does not result in a loss of public parking capacity or parking revenue.	

2.2.4 Maintenance and Control Facility (MCF) Location

As stated in **Section 1.2.3**, the MCF houses the operation and maintenance-related functional space required for the AirTrain. The existing MCF is located at the southern terminus of the existing AirTrain.

Alternatives Removed from Consideration

Reuse of the existing MCF for the Proposed Action was initially considered but ruled out as a reasonable alternative to constructing a new MCF in a new location. The existing MCF was designed and constructed to the specific requirements of the existing AirTrain, which has train cars that are narrower and shorter than any currently available APM technologies that meet the Purpose and Need of the Proposed Action. The maintenance lanes, maintenance pits and elevated platforms in the existing MCF are too small and cannot be modified to accommodate available APM technologies.

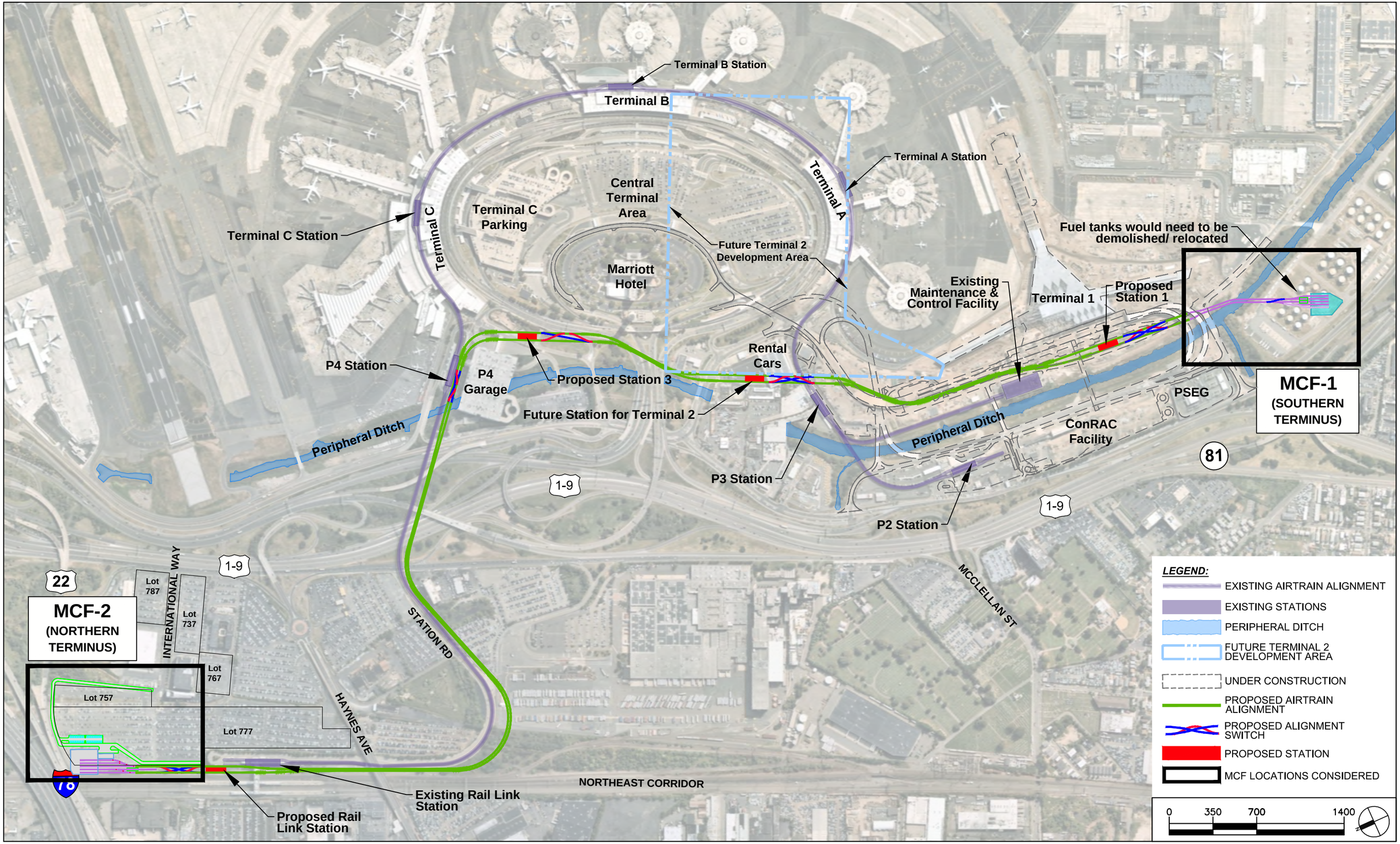
Likewise, expansion of the existing MCF within its current location is not practical due to siting constraints from surrounding infrastructure (Terminal One, ConRAC, Peripheral Ditch, roadways, and bridges). Relocation of the existing MCF is not considered cost effective as it would require significant rehabilitation and an upgrade to meet the new modern standards for guideway systems.

Build Alternatives

Two alternative locations for the MCF were considered: (1) at the southern terminus of the system (MCF-1), and (2) at the northern terminus of the system (MCF-2). These alternatives are depicted on **Figure 2-7** and their ability to meet the Purpose and Need is described in **Table 2-5**.

MCF Location Preferred Alternative

The MCF-2: Northern Terminus alternative was selected as it avoids the need to demolish twelve fuel tanks and undergo extensive underground piping modifications and construction. This alternative is located off Airport property, and would require property acquisitions or easements (see **Section 2.4** for further detail).



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

MCF LOCATION ALTERNATIVES

Figure 2-7

Table 2-5 MCF Location Alternatives

Alternatives	Screening Criteria	Does Alternative Conform to Screening Criteria?	Purpose and Need met, Retain for Further Analysis?
MCF-1 Southern Terminus	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Not Applicable.** The location of the MCF does not impact in travel delays or reliability. 1b. **Not Applicable.** The location of the MCF does not alter the size of cars or the rider experience.	No
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Not Applicable.** The location of the MCF does not change the ability to accommodate existing and future demand. 2b. **Not Applicable.** The location of the MCF does not alter the connectivity to terminals, ConRAC, and other landside facilities. 2c. **Not Applicable.** The location of the MCF does not alter the connectivity to NEC. 2d. **Not Applicable.** The location of the MCF does not affect vertical circulation elements that would improve passenger flow through the stations.	
	3a. Preserves airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Does not meet criteria**. The location of the MCF south of Terminal One would be within the existing jet fuel tank farm (located approximately 1,500' south of the existing MCF), thereby requiring demolition/relocation of up to twelve of twenty nine fuel tanks, as well as extensive underground piping modifications and construction. 3c. **Meets criteria**. This alternative minimizes loss of parking by not located the MCF within an existing parking lot.	
MCF-2 Northern Terminus	1a. Reduces travel delays and improve system reliability 1b. Provides larger cars with improved boarding/alighting and enhanced rider experience	1a. **Not Applicable.** The location of the MCF does not impact in travel delays or reliability. 1b. **Not Applicable.** The location of the MCF does not alter the size of cars or the rider experience.	Yes
	2a. Capacity to exceed 2,000 pphpd (passengers per hour per direction); expandable to 3,300 pphpd 2b. Provides similar or improved connections to terminals, ConRAC and other landside facilities 2c. Maintains level of connectivity to NEC (NJ Transit/Amtrak) 2d. Improves passenger flow through the stations	2a. **Not Applicable.** The location of the MCF does not change the ability to accommodate existing and future demand. 2b. **Not Applicable.** The location of the MCF does not alter the connectivity to terminals, ConRAC, and other landside facilities. 2c. **Not Applicable.** The location of the MCF does not alter the connectivity to NEC. 2d. **Not Applicable.** The location of the MCF does not affect vertical circulation elements that would improve passenger flow through the stations.	
	3a. Preserves airport land for highest and best use 3b. Minimizes disruption to airport operations resulting from demolition and other construction impacts 3c. Minimizes loss of public parking capacity and parking revenue from permanent loss of on-airport vehicle parking spaces	3a. **Meets criteria.** The alignment allows for the preservation of airport land for highest and best use 3b. **Meets criteria.** Construction of the MCF in this location would permanently eliminate 1,095 parking spaces from the airline employee lots (Lots 757 and 777). However, surplus parking capacity currently exists in these lots, as noted in **Section 4.10**. 3c. **Meets criteria**. The location of the MCF at the northern terminus does to impact public parking.	

2.3 Selection of Sponsor's Preferred Alternative

The Preferred Alternative is a combination of the selected alternatives for each project component discussed in **Section 2.3.1** through **Section 2.3.4**. **Figure 2-8** depicts the Sponsor's preferred alternative for the Proposed Action. To fulfill CEQ requirements, the No Action Alternative is carried through this environmental assessment to serve as a baseline against which decision makers can measure environmental impacts of undertaking the Proposed Action.

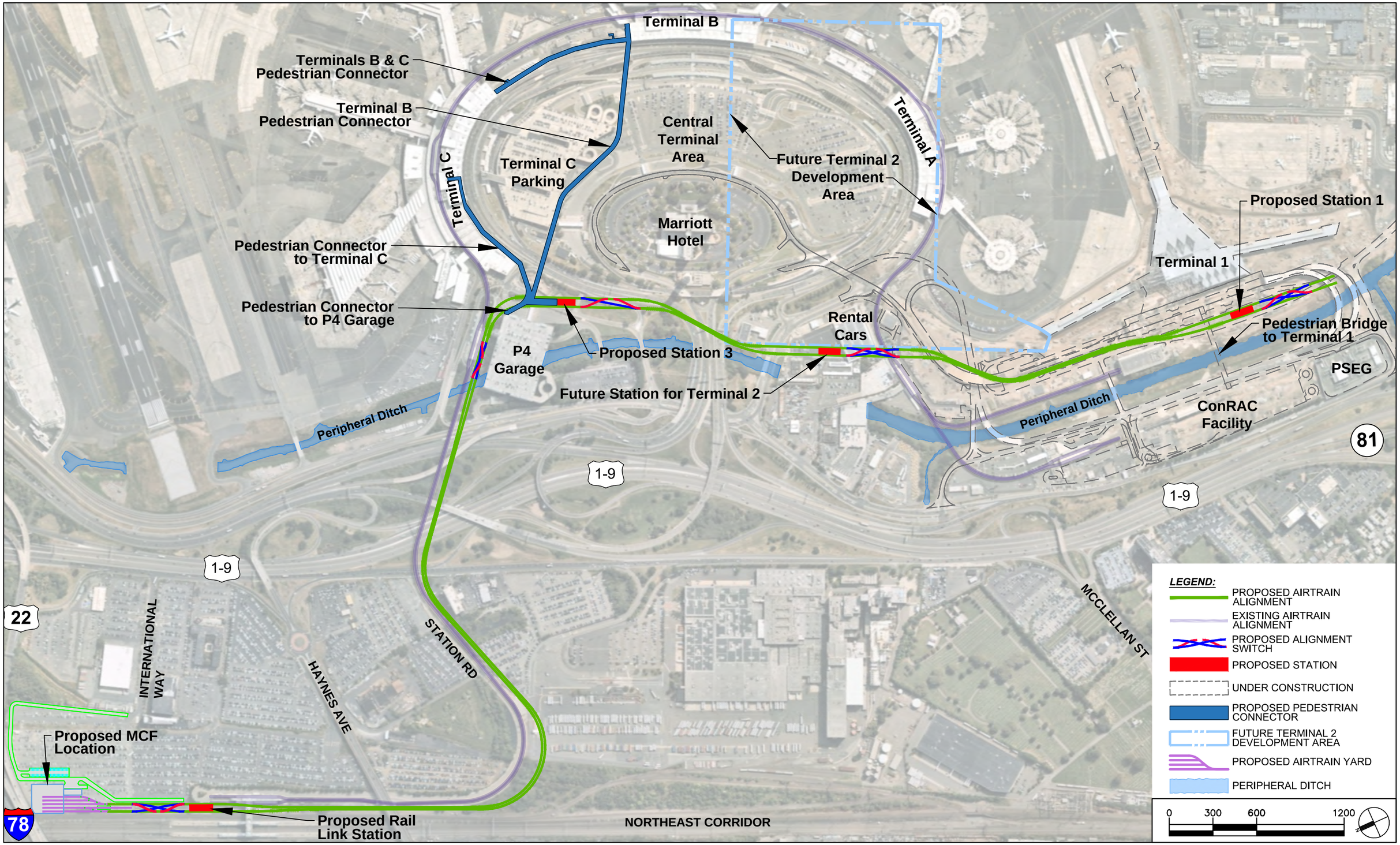
2.4 Description of Proposed Action

Major elements of the Proposed Action are summarized below, depicted on **Figure 2-8**, **Figure 2-9**, and **Figure 2-10**. These components are described in detail in **Appendix A**.

- Construction of Maintenance and Control Facility (43,500 square feet (SF) footprint and 55,900 SF overall floor space within)
- Construction of elevated guideway (approximately 2.5 miles)
- Construction of proposed stations[15]
  - Station 1 (12,000 SF)
  - Station 3 (13,000 SF)
- Construction of substations adjacent to the proposed MCF, under proposed Station 3, and at proposed Station 1
- Expansion of Rail Link Station[16] (addition of 13,000 SF)
- Construction of pedestrian connectors
  - Station 3 to/from P4 Garage (250 linear feet (LF)
  - Station 3 to/from Terminal C (1,200 LF)
  - Station 3 to/from Terminal B (2,200 LF)
  - Terminal B to/from Terminal C (1,025 LF)
- Acquisition of land (approximately 28 acres of temporary construction easements and 14 acres of acquisition, lease, or permanent easement of private property adjacent to northern segment of guideway) (**Figure 2-9**). Land is currently vacant or used for airline employee parking, hotel patrons, and truck/trailer parking.
- Partial demolition of existing AirTrain (**Figure 2-10**)

[15] Station 2 will not be constructed as part of the Proposed Action as this is tied to the replacement of Terminal B with future Terminal Two. Planning for Terminal Two has just begun, and the optimal siting for Station 2 will be determined during the design. The guideway foundations and support structure for the Proposed Action would allow enough space between the guideways to accommodate Potential Station 2.

[16] As discussed in **Appendix A**, the Proposed Action will result in a new station that is connected to the existing Rail Link Station, hence the use of "expansion" as opposed to "replacement." The existing station will remain open for passive use (pedestrians passing through and access to street level).

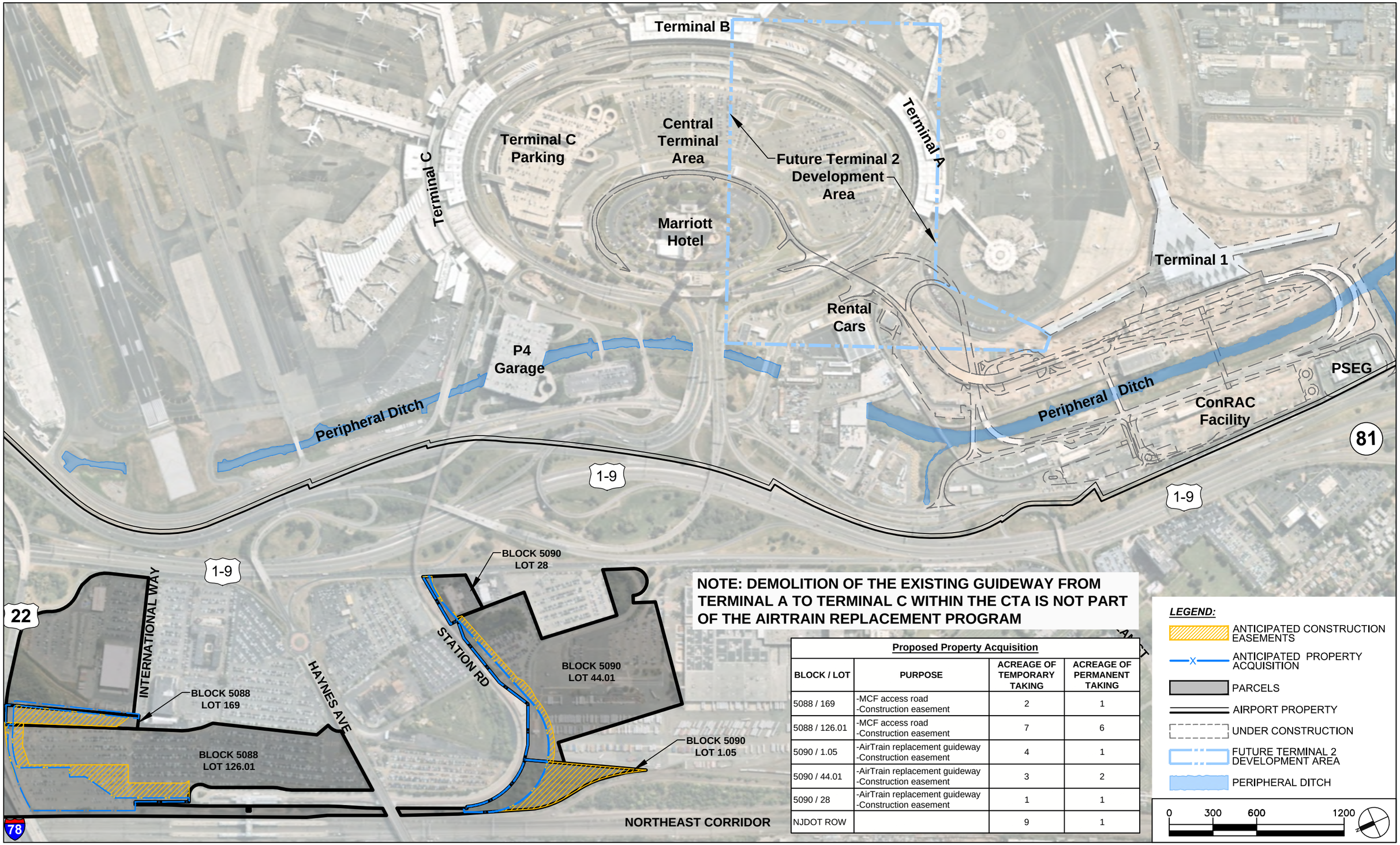


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION: AIRTRAIN REPLACEMENT SYSTEM

Figure 2-8



NOTE: DEMOLITION OF THE EXISTING GUIDEWAY FROM TERMINAL A TO TERMINAL C WITHIN THE CTA IS NOT PART OF THE AIRTRAIN REPLACEMENT PROGRAM

Proposed Property Acquisition

BLOCK / LOT	PURPOSE	ACREAGE OF TEMPORARY TAKING	ACREAGE OF PERMANENT TAKING
5088 / 169	-MCF access road -Construction easement	2	1
5088 / 126.01	-MCF access road -Construction easement	7	6
5090 / 1.05	-AirTrain replacement guideway -Construction easement	4	1
5090 / 44.01	-AirTrain replacement guideway -Construction easement	3	2
5090 / 28	-AirTrain replacement guideway -Construction easement	1	1
NJDOT ROW		9	1

LEGEND:

- ANTICIPATED CONSTRUCTION EASEMENTS
- ANTICIPATED PROPERTY ACQUISITION
- PARCELS
- AIRPORT PROPERTY
- UNDER CONSTRUCTION
- FUTURE TERMINAL 2 DEVELOPMENT AREA
- PERIPHERAL DITCH

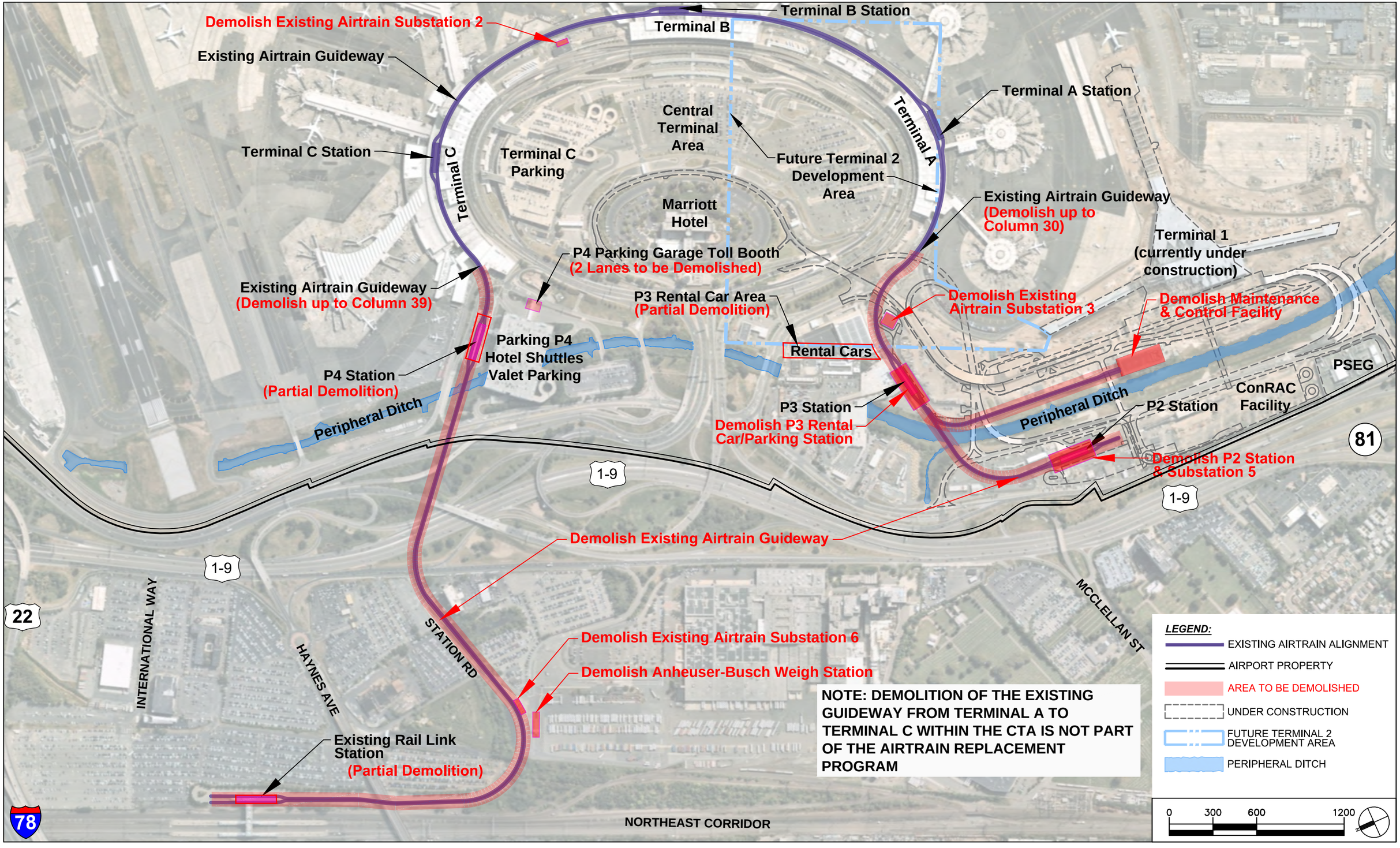
0 300 600 1200

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; City of Newark Parcel Data; Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION: ANTICIPATED LAND ACQUISITION AND TEMPORARY CONSTRUCTION EASEMENTS

Figure 2-9



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

PROPOSED ACTION: DEMOLITION AREAS

Figure 2-10

The main power for the system will be supplied by the new PSE&G substation adjacent to Terminal One by duct banks to Station 1. From there, the power will be distributed along the replacement guideway to power each station. Each proposed replacement AirTrain station will have its own utility tie-in at that station location.

2.4.1 AirTrain Technology Alternatives

The PANYNJ would procure the Proposed Action by requesting proposals for the design, construction, operation and maintenance of the proposed AirTrain (known as a Design-Build-Operate-Maintain (DBOM) procurement process) that does not preclude any Automated People Mover (APM) technology that meets the Purpose and Need. There are three reasonably foreseeable APM technologies that the PANYNJ anticipates being proposed by bidders responding to a request for proposals for the Proposed Action. These technologies are described in **Table 2-6**. To advance the environmental review process prior to the selection of a DBOM contractor, the Project Area (i.e., the area directly disturbed or impacted by the Proposed Action) has been established for this Environmental Assessment to account for the three technologies.

APM Technology Characteristics

Table 2-6 provides a comparison of the three reasonably foreseeable APM technologies for the Proposed Action. The technologies operate on fixed guideways and exclusive rights-of-way in a fully automated, driverless mode. Trains typically consist of multiple vehicles, each with multiple door sets per car.

Table 2-6 APM Technology Characteristics

APM Type	General Characteristics	Guideway
Steel Wheel APM	Similar to a subway/metro train systems; power obtained along guideway	Concrete with steel rail. Similar to highway/transit bridge construction
Rubber Tire APM	Rubber tire train running along a flat concrete surface; power obtained along guideway	Concrete with flat running surface. Similar to highway/transit bridge construction
Cable-Propelled APM	Rubber tire train pulled by a rope (cable) that runs the length of the system	Typically, steel truss with rope in center of guideway

Technology Impact on the Study Area

The width of the Proposed Action's Study Area has been established to accommodate all three technologies. Each technology would require the same number of stations, and each would require a new MCF since the existing MCF was constructed for smaller, narrower trains on a straddle beam guideway. The straddle beam guideway is unique to the AirTrain technology, which is no longer available[17].

Any differences in environmental impacts among the three technologies are anticipated to be minor. For example, compared to Rubber Tire and Cable-Propelled APMs, the Steel Wheel APM technology would require

[17] See **Section 1.4.1** for discussion of the existing AirTrain's monorail technology.

a larger curve radii, longer straight segments of guideway between curves, and longer track switches/crossovers. Despite the slight differences in the alignment geometry, all three reasonably foreseeable technologies are accommodated within the right-of-way envelope that will be available to the DBOM contractor, as shown on **Figure 2-11**, **Figure 2-12**, and **Figure 2-13**. For Cable-Propelled APM systems, the trains receive auxiliary power from an energized rail mounted along the guideway. Train motive power is provided by attachment to a steel cable that is propelled by a drive machinery room and corresponding return machinery room. It is anticipated that two or more of these rooms would be located at each station. This would result in a limited, if any, impact to that station's footprint as train size and other elements (platforms, stairs, elevators, etc.) remain similar across all technologies. Other differences between technologies include small potential variations in support column size, MCF footprint, and noise.

Environmental Assessment Approach

Each of the three reasonably foreseeable technologies would meet the project Purpose and Need. While the technologies generally are similar, because of the potential for limited instances where Steel Wheel APM technology could have relatively more robust construction requirements (such as the size of support columns and the MCF building, weight and dimension), or where other elements may slightly be different (such as potential noise impacts), Steel Wheel APM technology was used to conservatively assess potential environmental impacts. With steel wheel technology, noise level increases were predicted to be at or below Federal Transit Administration (FTA) allowable noise level increases to preclude noise impact. If either the Rubber Tire or Cable-Propelled APM technologies are selected, future noise levels are expected to be equal to or less than those predicted for the most conservative, Steel Wheel APM technology. Therefore, impacts are not expected to vary significantly between the three technologies. Additional discussion of technology and environmental impacts is located in **Chapter 4 –Environmental Consequences**.

2.4.2 Timeline for Proposed Action

Construction of the Proposed Action is expected to occur over approximately 5.5 years. While design and mobilization is expected to be performed in Year 2021, actual construction of the proposed AirTrain is expected to commence in Year 2022 with substantial completion expected in December of 2025. System testing of the proposed AirTrain is scheduled in 2025 and demolition of the existing AirTrain will occur in 2026. **Table 2-7** summarizes the time periods anticipated for completing the Proposed Action.

Table 2-7 Proposed Action Time Frame

AirTrain Replacement Program Milestone	Anticipated Schedule
Design, Site Survey, Mobilization	2021
Construction begins	Q1 2022
System wide Testing Begins	Q1 2025
Full System Rider Service	Q1 2026
Finish Demolition of Existing AirTrain components	Q4 2026

Source: PANYNJ, 2020

POTENTIAL INFRASTRUCTURE CONFIGURATION FOR TERMINAL B CONNECTIONS PRIOR TO TERMINAL 2 COMPLETION

B

C

C PARKING

A

FUTURE TERMINAL TWO DEVELOPMENT AREA

PROPOSED STATION 3

PROPOSED STATION 1

ONE

PEDESTRIAN CONNECTOR TO TERMINAL C

PEDESTRIAN CONNECTOR TO P4 GARAGE

P4 GARAGE

APPROXIMATE LOCATION OF PROPOSED STATION 2 (NOT TO PRECLUDE)

PED BRIDGE TO TERMINAL ONE

CONRAC

PSEG

RIGHT OF WAY ENVELOPE DESIGNED TO ACCOMMODATE REASONABLY FORESEEABLE APM TECHNOLOGIES

UNDER CONSTRUCTION (TYP.)

AVOIDED SUBSTATION AND AMTRAK POWERLINE STRUCTURE

PROPOSED RAIL LINK STATION

PROPOSED MCF LOCATION

EXISTING RAIL LINK STATION

LEGEND:

- PROPOSED ALIGNMENT ROW ENVELOPE
- PROPOSED STATION LOCATION
- POTENTIAL STEEL WHEEL ALIGNMENT
- CROSSOVER

0 300 600 1200

N

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

PROPOSED AIRTRAIN PROGRAM
RIGHT OF WAY ENVELOPE + STEEL WHEEL

Figure 2-11

Sk-311_29Jul20_ROW Envelope with Alignments_for EA.dwg Sep 14, 2020 dsoder
XREFS: 2015-245_EWR_082916_Overall- Terminal 1 + Roadway Network_150ct19 x-proposed- background

POTENTIAL INFRASTRUCTURE CONFIGURATION FOR TERMINAL B CONNECTIONS PRIOR TO TERMINAL 2 COMPLETION

B

C

C PARKING

A

FUTURE TERMINAL TWO DEVELOPMENT AREA

PROPOSED STATION 3

PROPOSED STATION 1

ONE

PEDESTRIAN CONNECTOR TO TERMINAL C

PEDESTRIAN CONNECTOR TO P4 GARAGE

P4 GARAGE

APPROXIMATE LOCATION OF PROPOSED STATION 2 (NOT TO PRECLUDE)

PED BRIDGE TO TERMINAL ONE

CONRAC

PSEG

RIGHT OF WAY ENVELOPE DESIGNED TO ACCOMMODATE REASONABLY FORESEEABLE APM TECHNOLOGIES

UNDER CONSTRUCTION (TYP.)

AVOIDED SUBSTATION AND AMTRAK POWERLINE STRUCTURE

PROPOSED RAIL LINK STATION

PROPOSED MCF LOCATION

EXISTING RAIL LINK STATION

LEGEND:

- PROPOSED ALIGNMENT ROW ENVELOPE
- PROPOSED STATION LOCATION
- POTENTIAL RUBBER TIRE ALIGNMENT
- CROSSOVER

0 300 600 1200

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

PROPOSED AIRTRAIN PROGRAM
RIGHT OF WAY ENVELOPE + RUBBER TIRE

Figure 2-12

POTENTIAL INFRASTRUCTURE CONFIGURATION FOR TERMINAL B CONNECTIONS PRIOR TO TERMINAL 2 COMPLETION

B

C

C PARKING

A

FUTURE TERMINAL TWO DEVELOPMENT AREA

PROPOSED STATION 3

PROPOSED STATION 1

ONE

PEDESTRIAN CONNECTOR TO TERMINAL C

PEDESTRIAN CONNECTOR TO P4 GARAGE

P4 GARAGE

APPROXIMATE LOCATION OF PROPOSED STATION 2 (NOT TO PRECLUDE)

PED BRIDGE TO TERMINAL ONE

CONRAC

PSEG

RIGHT OF WAY ENVELOPE DESIGNED TO ACCOMMODATE REASONABLY FORESEEABLE APM TECHNOLOGIES

UNDER CONSTRUCTION (TYP.)

AVOIDED SUBSTATION AND AMTRAK POWERLINE STRUCTURE

PROPOSED RAIL LINK STATION

PROPOSED MCF LOCATION

EXISTING RAIL LINK STATION

LEGEND:

- PROPOSED ALIGNMENT ROW ENVELOPE
- PROPOSED STATION LOCATION
- POTENTIAL CABLE-PROPELLED ALIGNMENT
- CROSSOVER

0 300 600 1200

N

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

PROPOSED AIRTRAIN PROGRAM
RIGHT OF WAY ENVELOPE + CABLE-PROPELLED

Figure 2-13

Chapter 3—Affected Environment

3.1 Introduction

This chapter succinctly describes the existing environmental conditions within the Proposed Action's Study Area (see **Section 3.2** below).[18] Analysis of the fourteen environmental impact categories identified in FAA Order 1050.1F is included in this chapter.

3.2 Study Area

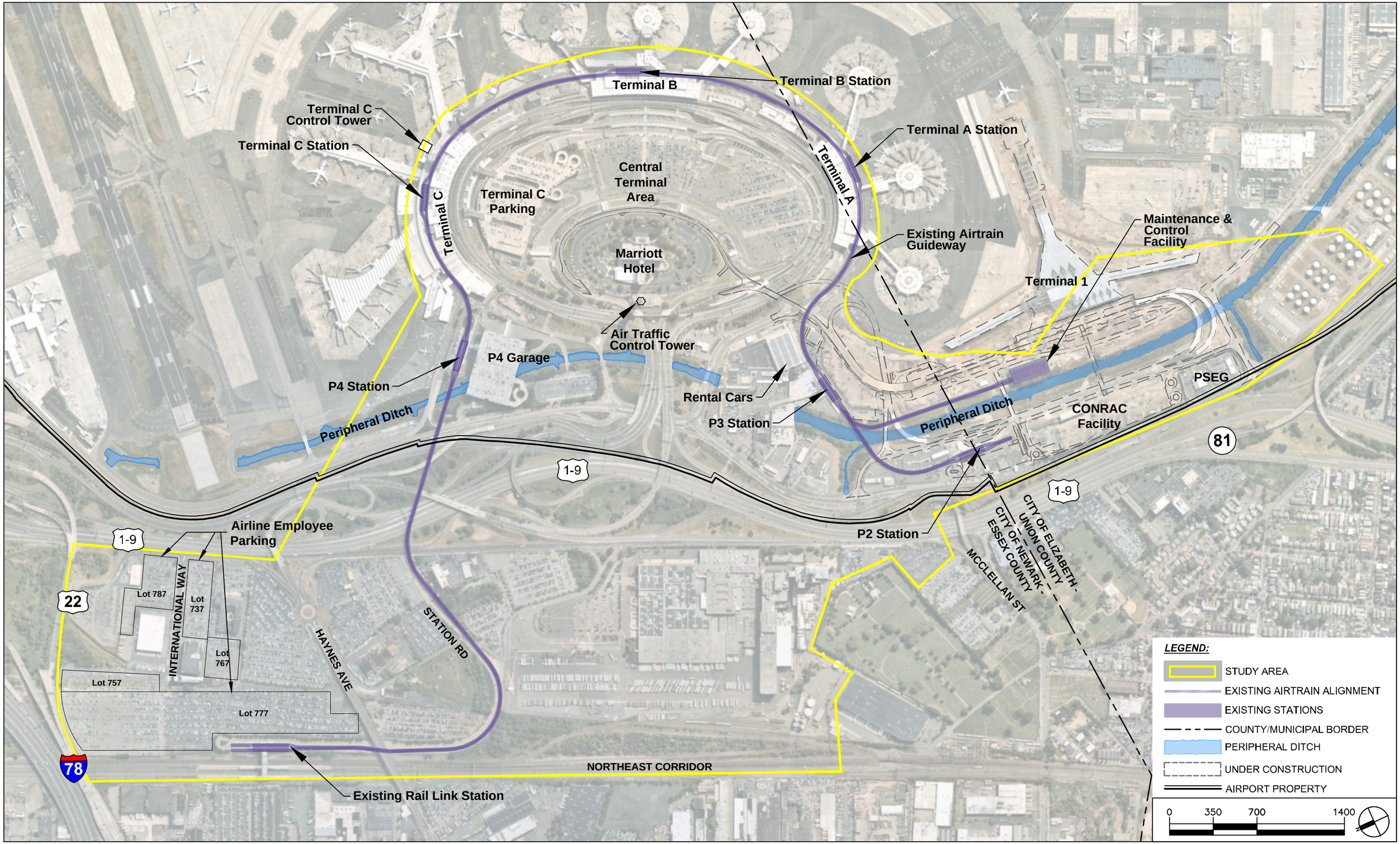
The Study Area is the potentially affected geographic area(s) evaluated in this EA. As depicted on the figures included within this chapter, the Study Area varies based on the environmental resource category being analyzed. Not all areas within the Study Area will be directly impacted or disturbed; for the purposes of this EA, "Project Area" refers to any area that is directly impacted or disturbed by the construction or operation of the Proposed Action.

The Study Area encompassing all components of the Proposed Action (i.e., operations, construction, demolition, land acquisition, material staging areas and haul routes, etc.) is shown on **Figure 3-1**. This is the Study Area in which environmental impacts associated with the Proposed Action were evaluated. If a different Study Area was utilized for a particular resource, it is noted in the applicable section of this chapter and shown on the figure for that specific resource (for example, the socioeconomic and land use Study Areas consisted of the area within a half-mile radius around the Proposed Action while the water resources Study Area consisted of the area within 150 feet around the Proposed Action). The Study Area for each resource category was designed to include both the direct impact area and the indirect effects area. The direct impact area is one that would be physically affected by a Proposed Action at the time and place of the action's construction or operation. Indirect effects are caused by a Proposed Action and are later in time or farther removed in distance, but are still reasonably foreseeable.[19] The indirect effects area is defined for each resource category that considers indirect effects. Indirect effects must be evaluated for the following resource categories: Department of Transportation, Section 4(f); Historical, Architectural, Archaeological, and Cultural Resources; Noise and Noise-Compatible Land Use; Socioeconomics; and Visual Effects.

3.3 Agency Coordination

The PANYNJ and the FAA contacted federal, state, county, and local agencies to request information about environmental resources under their jurisdiction or special expertise that may be located within or near the Proposed Action. **Appendix J** contains agency coordination correspondence. **Table J-1,** included at the front of **Appendix J,** provides a list of the agencies contacted and summarizes information received. Typically, any agency that did not respond within 30 days would be assumed to have no comments with regard to the Proposed Action. However, due to the COVID-19 pandemic, the time limit has been suspended, and any input

[18] Federal Aviation Administration (FAA). Order 1050.1F. Environmental Impacts: Policies and Procedures. Pg. 6-2. July 16, 2015.
[19] 40 CFR 1508.8(a)



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Aerial Imagery by NearMap, 09/20/2019.

PROJECT STUDY AREA

Figure 3-1

from agencies has been incorporated into this EA regardless of when it was received. Information provided by agencies supplemented the review of environmental data from online resources and field surveys previously conducted by the PANYNJ.

3.4 Resources Not Affected

Due to the Proposed Action's characteristics and the location of EWR, five of the fourteen FAA Order 1050.1F resource categories are not applicable to this analysis: coastal resources, farmlands, wild and scenic rivers, visual resources, and land use. The reasons these categories are dismissed from further consideration are presented below. The remaining *potentially affected* resource categories are discussed in **Section 3.5**.

3.4.1 Coastal Resources

Coastal Zone Management Act

Pursuant to the federal Coastal Zone Management Act (CZMA) of 1972, New Jersey has developed plans to manage the development and use of its coastal resources. Three major state laws are implemented through the Coastal Zone Management rules[20]: The Waterfront Development Law, N.J.S.A 12:5-3; the Wetlands Act of 1970, N.J.A.C. 13:9A; and the Coastal Area Facility Review Act (CAFRA), N.J.S.A. 13:19.

The defining jurisdictional boundary of the New Jersey Department of Environmental Protection (NJDEP) Coastal Zone Management/Coastal Permit Program rules is the Coastal Area Facility Review Act (CAFRA) Zone. The northern limits of the CAFRA Zone end in Middlesex County, south of the Study Area. The defining jurisdictional boundary of the NJDEP Waterfront Development Law is the mean high water line (MHW). The Waterfront Development Law also regulates areas adjacent to the water; the adjacent area extends from the MHW to the first paved public road, railroad, or surveyable property line. At a minimum, the zone extends at least 100 feet but no more than 500 feet inland from the tidal water body. Mapping showing the location of the tide gate, and tide gate photographs are included in **Appendix B**.

MHW terminates at the tide gate located on the Peripheral Ditch near the far eastern boundary of the Airport (**Appendix B**). This tide gate controls the Peripheral Ditch drainage to the Elizabeth Channel. Because the Proposed Action is located more than 500 feet from the MHW, is located outside of the CAFRA Zone,[21] and will utilize construction best management practices (BMPs) for prevention of sediment movement, no impacts to the coastal zone would occur and, therefore, no Coastal Zone Management Consistency Certification[22] or related mitigation would be required.

[20] Enforceable provisions of New Jersey's plan are set forth in the Coastal Zone Management rules at N.J.A.C. 7:7, among other regulations.

[21] NJDEP, Bureau of GIS. https://www.nj.gov/dep/gis/geowebsplash.htm

[22] Federal Consistency is the CZMA requirement that federal actions that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone must be consistent with the enforceable policies of a coastal State's federally approved Coastal Management Plant (CMP).

Coastal Barriers Resources Act and Coastal Barrier Improvement Act

Based on review of the U.S. Fish and Wildlife Service (USFWS) Coastal Barrier Resources System Mapper[23], there are no coastal barriers or components of the Coastal Barrier Resource System located near EWR. As a result, the Proposed Action will have no impact on coastal barriers.

Tidelands Conveyance

Tidelands are all lands that are *currently* or *formerly flowed* by the mean high tide of a natural waterway. The State of New Jersey claims ownership of tidelands and holds them in trust for the people of the state. Since tidelands are public lands, written permission from the state must be obtained and fees paid to use these lands. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease.[24]

The Proposed Action may require an NJDEP Tidelands Conveyance if the NJDEP Bureau of Tidelands determines that any impacted tidelands within the project limits do not have a current tidelands conveyance. Impacted tidelands include lands proposed for acquisition and areas where construction and demolition activities will occur. Based on NJDEP Bureau of Tidelands maps, the majority, if not all, of the *lands formerly flowed by the tide* that are located within the Project Area are covered by existing conveyances, primarily grants. A copy of the conveyance mapping is included in **Appendix B**. The NJDEP Bureau of Tidelands has indicated that a final determination regarding the need for tidelands conveyance will be evaluated during the regulatory permitting phase of the project. If determined to be necessary, the PANYNJ will obtain any required tideland conveyances prior to the start of construction.

3.4.2 Farmlands

Based on a review of the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (**Appendix B)**, the Study Area does not contain soils classified as prime farmland soils, unique farmland soils, or soils of statewide or local importance by the NRCS. In addition, the Study Area does not include land zoned for agricultural preservation. Therefore, the Proposed Action will not affect farmlands.

3.4.3 Wild and Scenic Rivers

No wild and scenic rivers, as defined by the Wild & Scenic Rivers Act, are present near EWR.[25] Therefore, the Proposed Action will not affect wild & scenic rivers.

[23] United States Fish & Wildlife Service, Coastal Barrier Resources System. https://www.fws.gov/CBRA/Maps/Mapper.html

[24] State of New Jersey Department of Environmental Protection, Division of Land Use Regulation. https://www.nj.gov/dep/landuse/tl_main.html

[25] National Wild and Scenic Rivers System. https://www.rivers.gov/new-jersey.php

3.4.4 Visual Effects

Visual effects are based on the extent to which a project would either produce light emissions that create annoyance or interfere with activities, or contrast with, or detract from, the visual resources and/or visual character of the existing environment.[26]

Light Emissions: It is expected that the level of light emissions produced by the proposed AirTrain will be consistent with the current level of light emissions from the existing AirTrain. Given that the Proposed Action is located in a highly developed industrial and commercial area adjacent to major highways and rail lines, light emissions associated with proposed facilities would not be expected to create an annoyance or interfere with activities in the area. Additionally, light features that are installed at the proposed facilities will be downward facing and appropriately shielded to reduce light spillage and minimize glare.

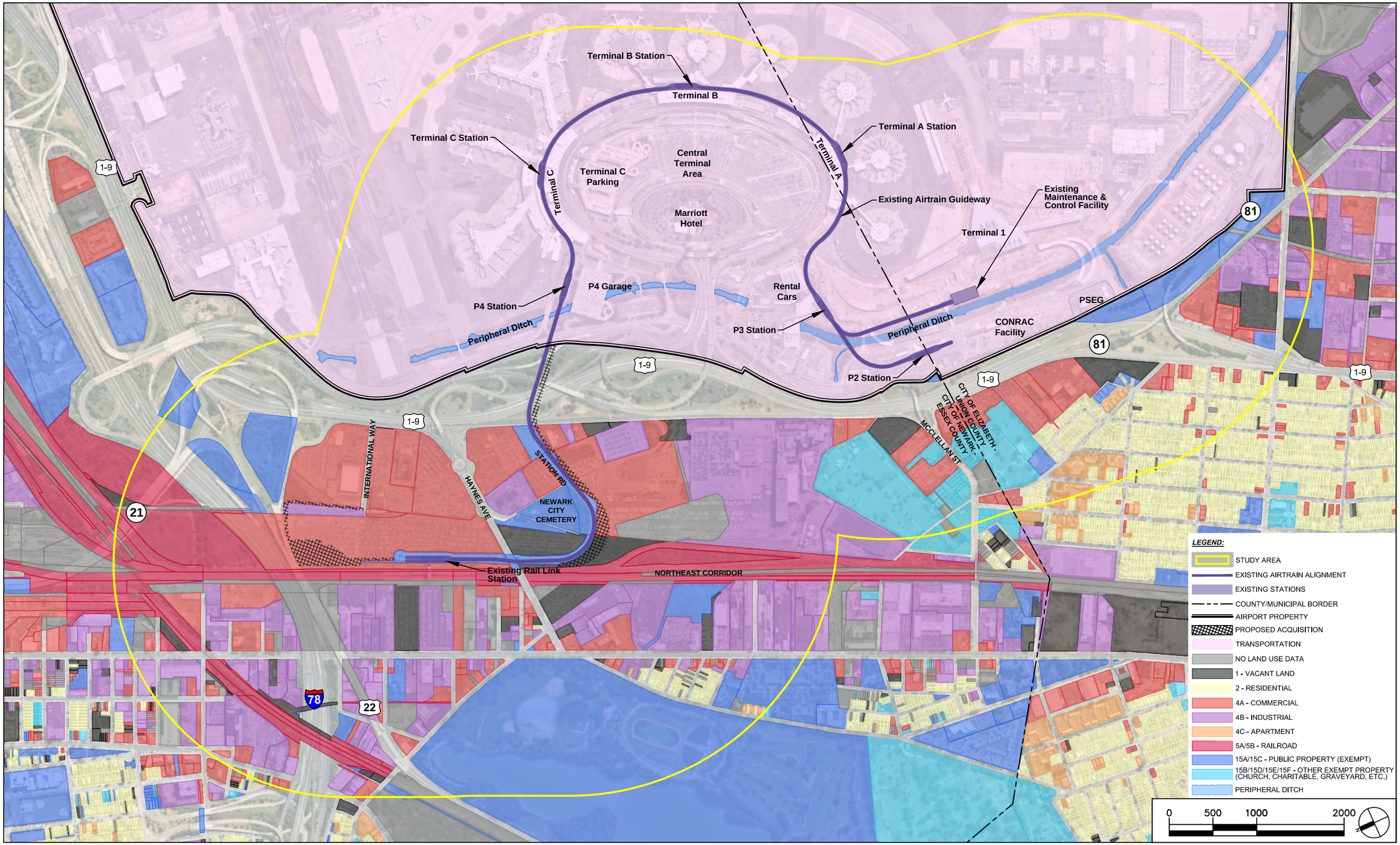
Visual Effects: The Proposed Action is located within a highly developed area and involves replacement of the existing AirTrain. During construction, equipment will temporarily be visible. However, no change to the overall visual character of the area will occur when the Proposed Action is completed. Furthermore, other than the historic architectural properties discussed in **Section 3.5.6**, no additional visual resources[27] have been identified within or adjacent to the Proposed Action. As detailed in **Section 3.5.6,** due to distance or the type of properties (e.g. railroad tracks and overpasses), the Proposed Action will have no adverse visual effects on identified historic architectural properties during construction or when the Proposed Action is completed.

3.4.5 Land Use

To evaluate compatibility of the Proposed Action with existing land uses and zoning ordinances, land uses within an area of a half-mile radius (i.e., Study Area) around the Proposed Action were examined. As shown on **Figure 3-2**, the majority of land use in the Study Area is classified as transportation, industrial, and commercial. Remaining land uses in the Study Area include railroad, cemeteries & graveyards, vacant land, residential, church and charitable, water (Peripheral Ditch), and other public property. The Proposed Action will not change current land uses. Zoning maps for the City of Newark and the City of Elizabeth are shown in **Figure 3-3** and **Figure 3-4**, respectively. Zoning within the Study Area is primarily designated as airport, airport support, manufacturing, research, and commercial. The remainder of the Study Area is zoned industrial, residential, parks and open space, cemetery, highway commercial, transportation, and redevelopment/special district. Within the City of Elizabeth, the Proposed Action would be built in an area zoned for manufacturing, research, and commercial uses. Within the City of Newark, the Proposed Action would be primarily located in areas zoned for airport and airport support uses. As shown on **Figure 3-3**, the Rail Link Station and MCF would be in an area designated by the City of Newark as a redevelopment zone and special use district (RDV-SD), but none of the land that would be acquired as part of the Proposed Action is within an area designed by the City of Newark for redevelopment. Therefore, the Proposed Action would not require changes to the zoning of the parcels that would be acquired.

[26] 1050.1F Desk Reference, page 13-1.

[27] Visual resources refers to buildings, sites, traditional cultural properties, and other natural or man-made landscape features that are visually important or have unique characteristics

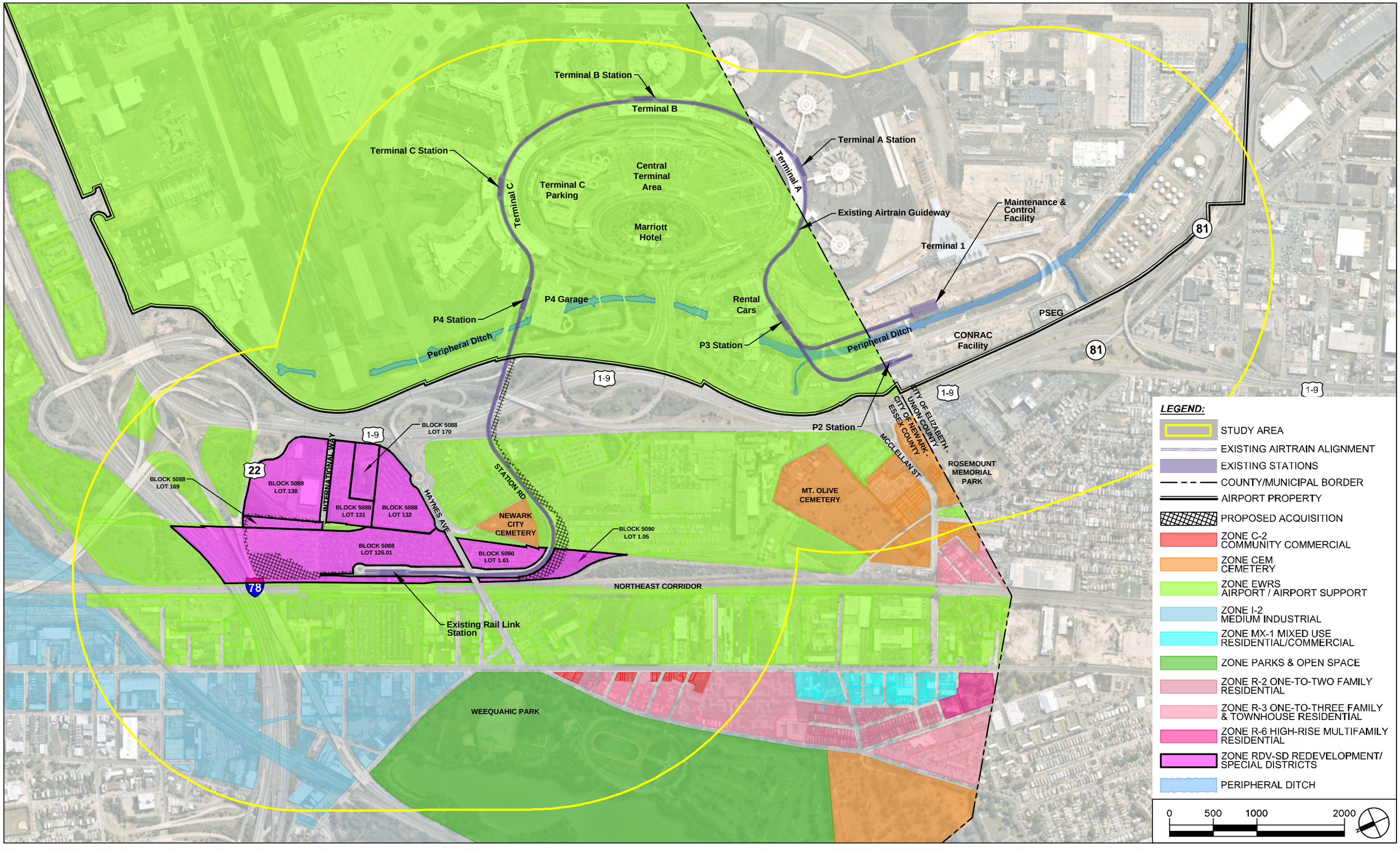


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: City of Newark Parcel Data; City of Elizabeth Parcel Data; Aerial Imagery by NearMap, 09/20/2019.

LAND USE

Figure 3-2

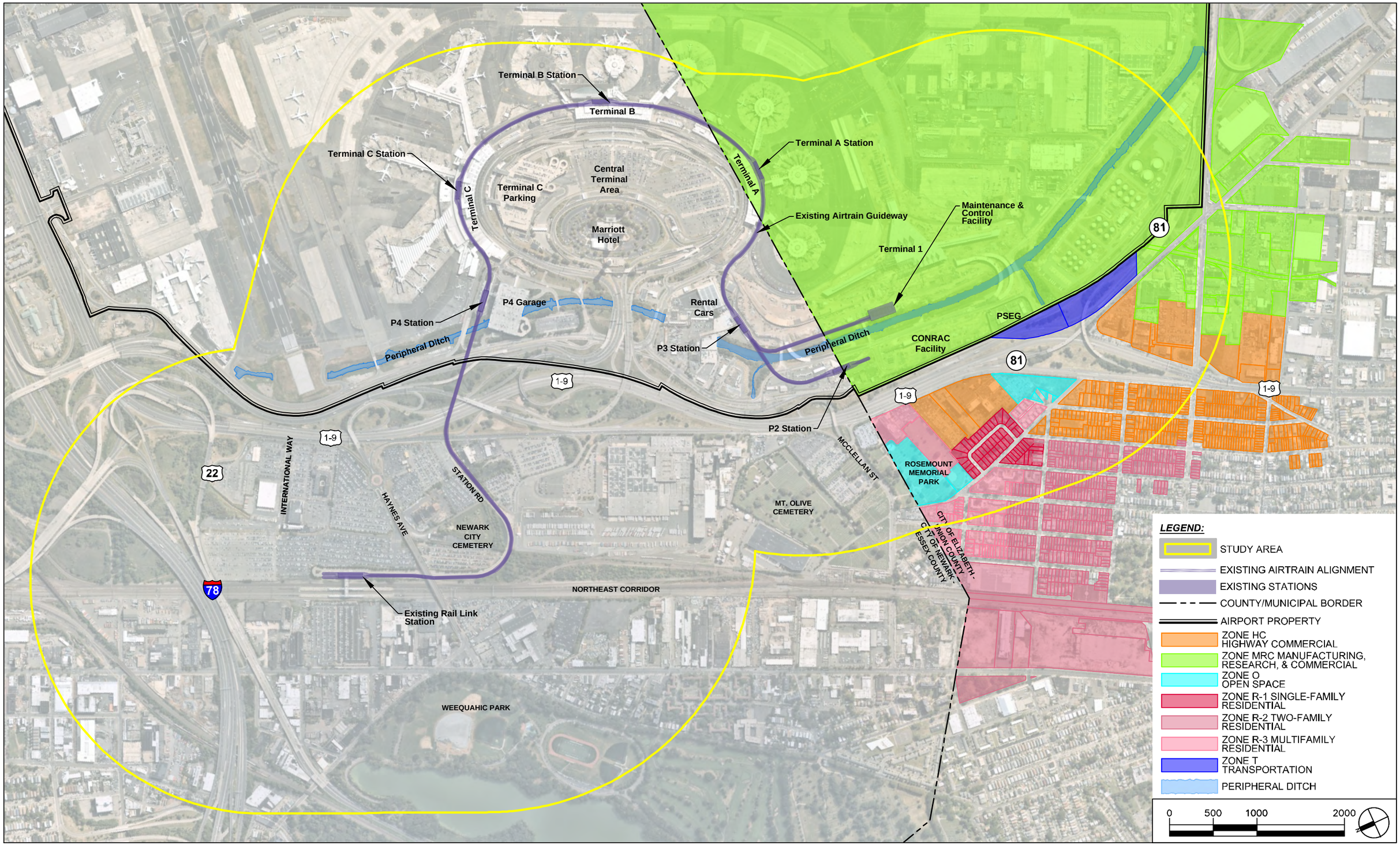


PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: City of Newark parcel data; Aerial Imagery by NearMap, 09/20/2019.

CITY OF NEWARK ZONING

Figure 3-3



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: City of Elizabeth parcel data; Aerial Imagery by NearMap, 09/20/2019.

CITY OF ELIZABETH ZONING

Figure 3-4

Green Acres Program

The State of New Jersey's Green Acres Program facilitates the State's acquisition of real property through sale, easement, or donation and/or bequests, and incorporates the land into the State's system of parks, forests, natural areas, and wildlife management areas.[28] Based on correspondence from the NJDEP dated February 24, 2020, the Study Area does not contain Green Acres lands (**Appendix J**).

Land Use Summary

The Proposed Action will not cause a change to existing land uses, require a change to current zoning ordinances, or affect any Green Acres properties. Because the Proposed Action would not change the urban nature of the existing land uses, it would not create a wildlife hazard as defined in AC 150/5200-33, *Hazardous Wildlife Attractants on or near Airports*. For the foregoing reasons, the Proposed Action would be consistent with local land use and zoning plans and considered a compatible use.

3.5 Resources Potentially Affected

3.5.1 Air Quality

An Air Quality Technical Report was prepared for the No Action and Proposed Action Alternatives and is provided as **Appendix C**. This report provides the regulatory setting, NEPA significance thresholds, emissions modeling methodology and results relating to criteria pollutant emissions[29] from the Proposed Action. As set forth in FAA Order 1050.1F and described in **Appendix C**, a proposed action would have a significant impact on air quality if the action would cause emissions to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States Environmental Protection Agency (USEPA) under the Clean Air Act (CAA), for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations. Areas in which the existing air quality exceeds NAAQS are designated by USEPA as "nonattainment" areas; areas in which the air quality used to but no longer exceeds NAAQS are designated as "maintenance" areas. Both Essex and Union counties are nonattainment for the 8-hour ozone (2008 and 2015) NAAQS and maintenance for the carbon monoxide (1971) and fine particulate matter (smaller than or equal to 2.5 micrometers) (2006) NAAQS.

Temporary construction emissions and operational emissions associated with the No Action and Proposed Action Alternatives are discussed in Chapter 4.

3.5.2 Biological Resources

A Natural Resources Technical Environmental Study[30] (TES) was prepared for the Proposed Action and is provided in **Appendix B**. The TES identifies the biological resources found within the Study Area. FAA's

[28] NJDEP Green Acres - State Land Acquisition Program. Accessed March 31, 2020. http://www.nj.gov/dep/greenacres/state.html

[29] "Criteria pollutants" include carbon monoxide (CO), ozone (O_3) (formed through precursor pollutants of volatile organic compounds (VOCs) and nitrogen oxides (NO_x)), inhalable particulate matter smaller than or equal to 10 micrometers (PM_{10}), fine particulate matter smaller than or equal to 2.5 micrometers ($PM_{2.5}$), nitrogen dioxide (NO_2), lead (Pb), and sulfur dioxide (SO_2).

[30] NV5 Inc., Newark AirTrain Replacement. *Natural Resource Technical Environmental Study*, (September 2020)

1050.1F Desk Reference defines biological resources as vegetation, wildlife and wildlife habitat, migratory birds, and threatened and endangered species and their habitat.

Vegetation

In general, the lands within the Study Area are highly developed, with significant amounts of transportation-related infrastructure improvements, as well as commercial, industrial, retail, and residential land uses (**Figure 3-1**). Any existing undeveloped lands within the Study Area have been reduced to small, isolated patches, which do not resemble the native undeveloped landscape.

Mowed lawn, paved surfaces, and buildings occupy most of the Study Area. The major exception to these land uses are the Peripheral Ditch and several wetland/pond complexes shown on **Figure 3-5**. Most of the upland vegetative communities consist of landscaped mowed lawn, small areas of grasslands, and scrub/shrub communities. There are also some sporadic upland tree and shrub areas paralleling the Peripheral Ditch.

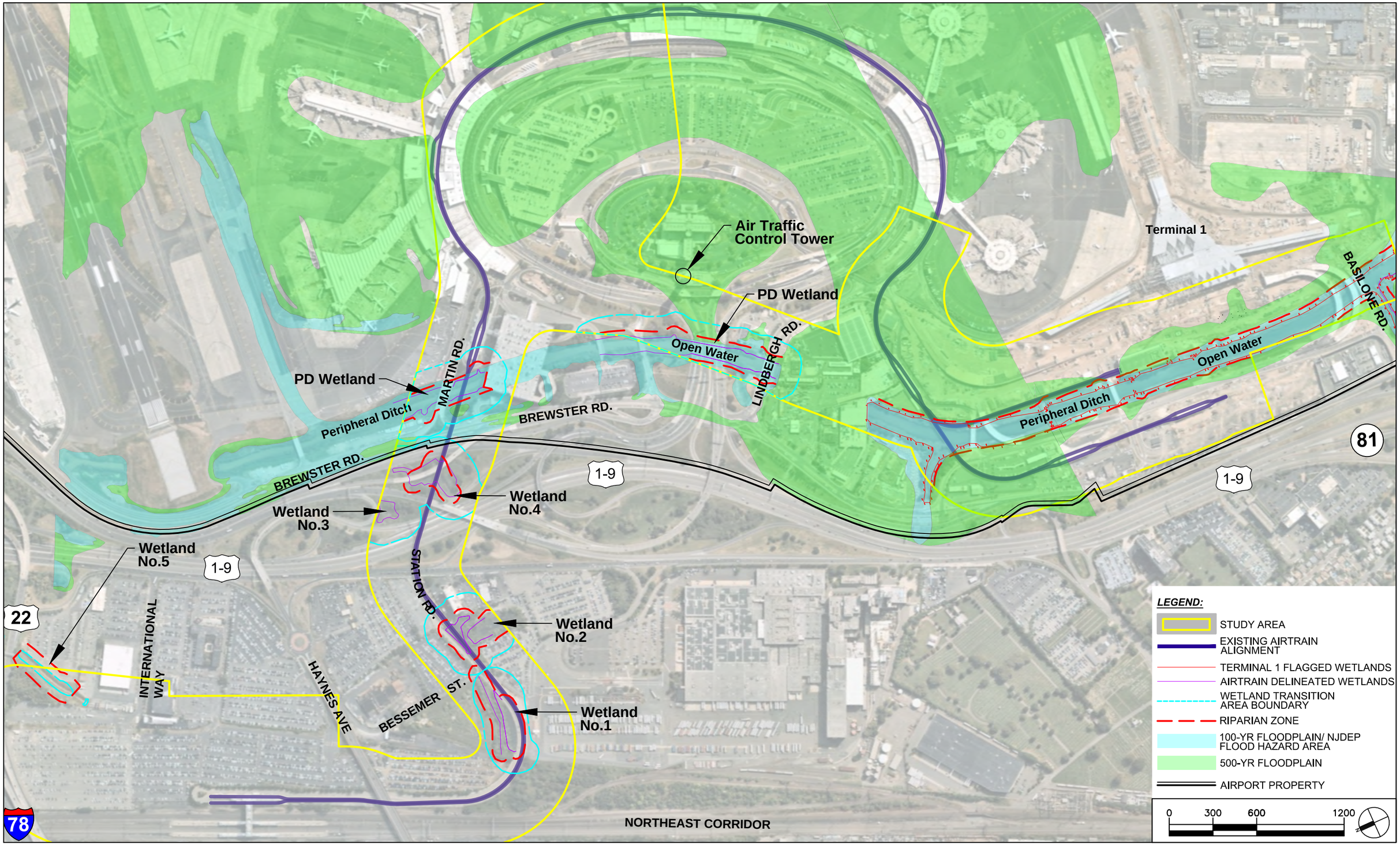
As discussed in greater detail in **Section 3.5.11**, the wetlands in the Study Area generally consist of a scrub shrub wetland fringe[31] around relatively small and somewhat linear areas of open water. The areas located along the Peripheral Ditch are dominated by typical hydrophytic vegetation, such as common reed (*Phragmites australis*) and thoroughwort (*Eupatorium serotinum*) in palustrine herbaceous areas. The palustrine scrub-shrub wetlands contain primarily groundsel-bush (*Baccharis halmifolia*), common elderberry (*Sambucus canadensis*), and northern bayberry (*Myrica pensylvanica*). The small forested wetlands along the Peripheral Ditch tributary at Basilone Road consists of red maple (*Acer rubrum*), American Elm (*Ulmus Americana*), Sweet Gum (*Liquidambar styraciflua*), and Silver Maple (*Acer saccharinum*) (**Appendix B**). None of the above listed plant species are special status species. Wetlands and waterways within the Study Area are described in further detail in **Section 3.5.11** and in the TES presented in **Appendix B**.

Wildlife

Although the commercial and airport-related development in the vicinity of the Study Area provides low quality habitat for wildlife, various species of birds and small mammals have been reportedly observed during past environmental studies conducted at the Airport.[32] The Peripheral Ditch's fringe vegetation, primarily common reed (*Phragmites australis*), provides cover for small mammals and songbirds. In addition, the Peripheral Ditch provides habitat for various waterfowl species. Species observed during wetland field investigations included red-tailed hawks (*Buteo jamaicensis*), peregrine falcons (*Falco peregrinus*), American kestrel (*Falco sparverius*) merlin (*Falco columbarius*), Cooper's hawk (*Accepiter cooperii*), Norway rats (*Rattus norvegicus*), and muskrat (*Ondatra zibethicus*). The TES identifies and discusses additional species observed during the Airport's 2010 Wildlife Hazard Assessment (i.e., Canada geese and gadwall observed along the Peripheral Ditch, Least tern colony in the southeastern portion of the Airport, red-tailed hawks nesting near the Air Traffic Control

[31] Wetland fringe refers to vegetated wetlands along the edge of open water areas

[32] Wildlife Hazard Assessment for Newark Liberty International Airport (January 2010 – December 2010).



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: NJDEP Wetlands; Aerial Imagery by NearMap, 09/20/2019.

WATER RESOURCES

Figure 3-5

tower, etc.). Of the above listed species, peregrine falcon (breeding) is a State endangered species, American kestrel is a State threatened species, and Cooper's hawk is a Species of Special Concern.

Migratory Birds

The USFWS's Information, Planning, and Consultation System (IPaC) provides a summary of migratory bird records as part of the IPaC Resources List report (**Appendix J**). The December 2019 IPaC Resource List indicates that nine migratory birds of conservation concern (BCC) could be affected by activities within or near the Study Area: bald eagle (*Haliaeetus leucocephalus*), blue-winged warbler (*Vermivora cyanoptera*), eastern whip-poor will (*Caprimulgus vociferous*), king rail (*Rallus elegans*), long-eared owl (*Asio otus*), prairie warbler (*Setophaga discolor*), red-headed woodpecker (*Melanerpes erythrocephalus*), rusty blackbird (*Euphagus carolinus*), and wood thrush (*Hylocichla mustelina*) (**Appendix J**). The TES provides additional details regarding preferred habitat for the identified BCC's (**Appendix B**).

Threatened and Endangered (T&E) Species

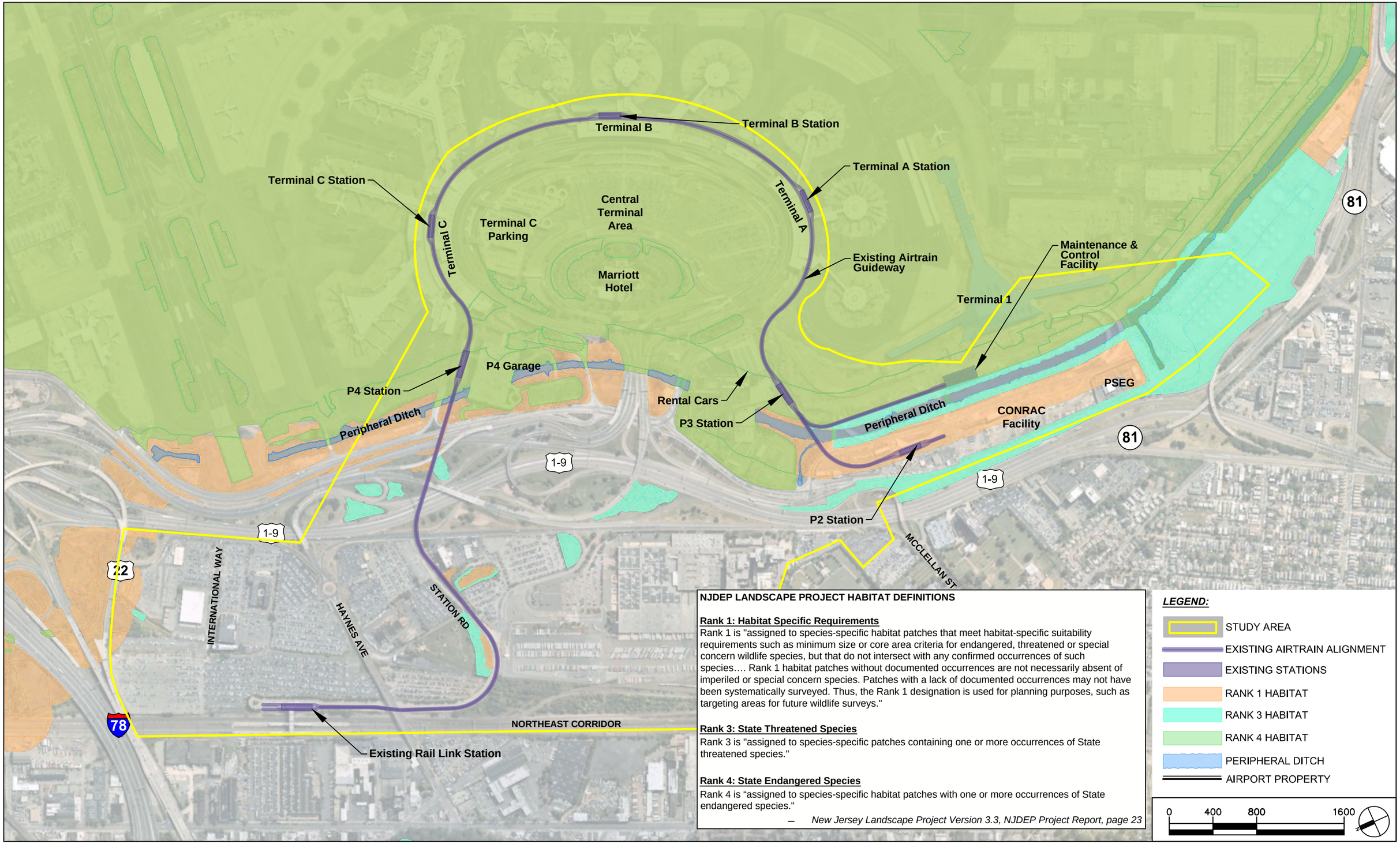
Federally Listed T&E Species - The IPaC Resource list did not identify any federally-listed species occurring within the Study Area (**Appendix J**). Furthermore, correspondence from the USFWS and the National Marine Fisheries Services (NMFS) (dated February 6, 2020 and March 12, 2020, respectively), states that no federally-listed species under their jurisdiction occur within the Study Area, which includes the Peripheral Ditch. Therefore, no further consultation pursuant to the Endangered Species Act (ESA) is required (**Appendix J**). Based on the wetland documentation included in the TES, all wetlands within the Study Area are non-tidal, freshwater wetlands or waterways. Therefore, no federally-protected marine or estuarine species are anticipated to be present within the Study Area (**Appendix B**).

State-Listed T&E Species – NJDEP Landscape Project 3.3 habitat maps were reviewed to identify documented threatened and endangered species habitats.[33] Species-specific areas of suitable habitat are classified according to five rankings, and those within the Study Area (i.e., ranks 1, 3, & 4) are shown in **Figure 3-6** and discussed in further detail in the TES (**Appendix B**).

According to the New Jersey Natural Heritage Program (NJNHP) (see **Appendix J**), eight bird species (3-threatened, 2 endangered, 3 special concern) and one state-threatened butterfly species occur within or in the immediate vicinity (i.e., within a ¼ mile) of the Study Area (**Appendix J**). There are no records of any rare plants or ecological communities located on or within ¼ mile of the Study Area.

Table 3-1 summarizes the state-listed species within, or in the vicinity of, the Study Area as reported by the NJNHP, and describes typical habitat for the identified species (**Appendix B**). **Table 3-1** also summarizes the state-listed or special concern BCC's that were documented in the December 2019 USFWS IPaC Resource List (i.e., bald eagle, red-headed woodpecker, wood thrush, long-eared owl), and includes a description of their typical habitats (**Appendix B**).

[33] New Jersey's Landscape Project, Version 3.3 https://www.state.nj.us/dep/gis/landscape.html



NJDEP LANDSCAPE PROJECT HABITAT DEFINITIONS

Rank 1: Habitat Specific Requirements

Rank 1 is "assigned to species-specific habitat patches that meet habitat-specific suitability requirements such as minimum size or core area criteria for endangered, threatened or special concern wildlife species, but that do not intersect with any confirmed occurrences of such species…. Rank 1 habitat patches without documented occurrences are not necessarily absent of imperiled or special concern species. Patches with a lack of documented occurrences may not have been systematically surveyed. Thus, the Rank 1 designation is used for planning purposes, such as targeting areas for future wildlife surveys."

Rank 3: State Threatened Species

Rank 3 is "assigned to species-specific patches containing one or more occurrences of State threatened species."

Rank 4: State Endangered Species

Rank 4 is "assigned to species-specific habitat patches with one or more occurrences of State endangered species."

– *New Jersey Landscape Project Version 3.3, NJDEP Project Report, page 23*

LEGEND:

- STUDY AREA
- EXISTING AIRTRAIN ALIGNMENT
- EXISTING STATIONS
- RANK 1 HABITAT
- RANK 3 HABITAT
- RANK 4 HABITAT
- PERIPHERAL DITCH
- AIRPORT PROPERTY

0 400 800 1600

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Source: Landscape Project Version 3.3 by NJDEP; Aerial Imagery by NearMap, 09/20/2019.

BIOTIC RESOURCES

Figure 3-6

Table 3-1 State-Listed or Special Concern Species

Common Name	Scientific Name	State Status	Typical Habitat
State-listed or special concern Birds of Conservation Concern (BCCs)			
Bald eagle	*Haliaeetus leucocephalus*	Endangered (breeding); Threatened (non-breeding)	Bald eagles are typically found in forests near open water. They are opportunistic predators that primarily consume fish and aquatic invertebrates. They build large nests that can reach 10 feet across. Nests are generally located in tall trees away from human disturbance. Although identified by USFWS as a BCC with potential to occur within or the Study Area, the NJNHP did not identify the bald eagle within, or in the vicinity of, the Study Area.
Red headed woodpecker	*Melanerpes erythrocephalus*	Threatened	Red headed woodpecker habitat consists of upland and wetland open woods with limited undergrowth and dead/dying trees. Although identified by USFWS as a BCC with potential to occur within or the Study Area, the NJNHP did not identify the red headed woodpecker within, or in the vicinity of, the Study Area.
Wood thrush	*Hylocichla mustelina*	Special Concern	Typical habitat for this song bird includes deciduous and mixed forests with large trees, moderately dense understory, and ample leaf litter. Although identified by USFWS as a BCC with potential to occur within or the Study Area, the NJNHP did not identify wood thrush within, or in the vicinity of, the Study Area.
Long-eared owl	*Asio otus*	Threatened	This species requires wooded and open habitats. Nesting and roosting sites require dense foliage to provide camouflage and protection from the elements. Open areas (fields, marshes) are generally used for hunting. Although identified by USFWS as a BCC with potential to occur within or the Study Area, the NJNHP did not identify the long-eared owl within, or in the vicinity of, the Study Area
State listed or special concern species			
Black-crowned night-heron	*Nycticorax nycticorax*	Threatened	This wading bird's typical habitat includes marshes, swamps, wooded streams, mangroves, shores of lakes, ponds, and lagoons, saltwater, brackish water, and freshwater areas. Eggs are laid in a platform nest in groves of trees near coastal marshes or on marine islands, swamps, marsh vegetation, clumps of grass on dry ground, orchards, and in many other habitats.
Cattle egret	*Bubulcus ibis*	Threatened	Small white heron, mostly found in pastures along roadsides. Typical habitat includes wet pastureland and marshes, freshwater and brackish habitat, dry fields, agricultural areas (especially irrigated ones), and garbage dumps. Cattle egrets nest in trees on islands, in lakes, swamps, along watercourses, in mangrove cays, and marshes.
Glossy ibis	*Plegadis falcinellus*	Special Concern	This wading bird's typical habitat includes marshes, swamps, lagoons, pond margins, lakes, flooded pastures; freshwater, brackish, and salt water. They usually nest with herons or other water birds, on the ground in marshes or in small trees or brushes near water along the U.S. Atlantic coast.
Least tern	*Sterna antillarum*	Endangered	The Least tern is commonly found nesting on sandy beaches along the southern coasts of the United States and along major river systems. Breeding typically occurs on seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers (AOU 1983). The least tern also utilizes sandy beaches, mudflats, and salt-pond dikes (Stiles and Skutch 1989). Nests are commonly found in shallow depressions on level ground on sandy or gravelly beaches and banks of rivers or lakes, typically in areas with sparse or no vegetation. Good nesting areas tend to be well beyond the high tide mark, have shell particles, stones, and/or debris for egg camouflage (Burger and Gochfeld 1990), are out of the way of off-road vehicles and public recreation areas, not subject to unusual predation pressure, and are adjacent to plentiful sources of small fishes. Interior populations nest mainly on riverine sandbars or salt flats that become exposed during periods of low water (Hardy 1957). According to the Airport's Wildlife Hazard Assessment, Least terns have formed a small nesting colony near the localizer antenna of Runway 22R. Least terns are a New Jersey State endangered species, which cannot be depredated. In the spring of 2011, the nesting area was reseeded with grass according to the guidelines set forth in the PANYNJ Engineering Department's "Aviation Landscape and Sustainable Design Criteria." This reseeding project caused the nesting colony to move to a small patch of pavement directly in front of the 22R localizer. The birds nested in small cracks in the pavement that accumulated small amounts of sand and gravel. In 2012, vegetation in the pavement was cut and sprayed with herbicide and the cracks were sealed to help prevent nesting. All activities are carried out in close coordination with the Endangered Species Unit of NJDEP.
Little blue heron	*Egretta caerulea*	Special Concern	A small heron that breeds in various freshwater and estuarine habitats.
Savannah sparrow	*Passerculus sandwichensis*	Threatened	Small sparrow found in open habitats such as meadows, grasslands, pastures, fields, and airports. They also occur in areas with early woody growth.
Snowy egret	*Egretta thula*	Special Concern	Small, active white heron that is found in small ponds, as well as along the ocean shore.
Upland sandpiper	*Bartramia longicauda*	Endangered	A shorebird of grasslands and inhabits native prairie and other open grassy areas in North America. During the recent Wildlife Hazard Assessment, standardized surveys were conducted at routine locations around the airfield three to four times per month. Upland sandpipers were rarely observed during these surveys. These observations were made only during migratory periods; therefore, it can be deduced that residential or breeding populations of Upland sandpipers do not exist at the Airport, including the Study Area, at this time.
Checkered white butterfly	*Pontia protodice*	Threatened	Found in a wide variety of sites including dry weedy areas, vacant lots, fields, pastures, sandy areas, railroad beds and roads. In the past, checkered white butterflies have been observed at the Airport along the Peripheral Ditch near the Turnpike and portions of the airfield have been classified as suitable habitat for the butterflies. The project will be conducted outside of the areas that have been designated as checkered white butterfly habitat and should have no effect on the butterfly populations.

Source: USFWS IPaC December 2019, NJDEP Natural Heritage Program Letter Dated March 6, 2020, TES dated April 2020.

Based on a limited field investigation and record review described in detail in the TES, the Project Area has suitable foraging habitat for several of the species identified in **Table 3-1**, but does not have suitable nesting/breeding habitat for the least tern, glossy ibis, little blue heron, snowy egret or cattle egret (**Appendix B**).

According to a New York Times article entitled *Decoding Winged Messages from Nature*, checkered white butterflies were reported at the Long-Term Parking Lot.[34] In addition, the butterfly has been observed along the Peripheral Ditch near the Turnpike as well as along the airfield itself.[35] None of these areas lies within the Project Area.

Grassland habitat on the eastern portion of Airport property, in areas between the runways and taxiways, provides habitat for the upland sandpiper and the savannah sparrow. These areas are not within the Project Area.

Although identified by USFWS as BCCs with potential to occur within the Study Area, the NJNHP did not identify bald eagles, long-eared owl, red-headed woodpecker or wood thrush within or in the vicinity of the Study Area. Therefore, nesting/breeding habitat for those species are not anticipated to occur within the Study Area.

Potential impacts to biological resources are assessed in Chapter 4.

3.5.3 Climate

According to the USEPA's climate change indicators website[36], greenhouse gases (GHGs) from human activities are the most significant driver of observed climate change since the mid-20th century.[37] Common sources of CO_2 emissions at an airport include aircraft, ground support equipment (GSE) fueled by fossil fuel, diesel or hybrid buses, trucks, other vehicles, stationary sources (heating and cooling of buildings), and emergency generators. The Air Quality Technical Report in **Appendix C** provides the regulatory setting, NEPA significance thresholds, emissions modeling methodology and results relating to GHGs[38]. As discussed in FAA Order 1050.1F and **Appendix C**, there are no federal or state standards or thresholds for GHGs in ambient air. However, the FAA *Air Quality Handbook* indicates that if a foreseeable increase in emissions will occur, the GHG emissions increase should be quantified and disclosed. Therefore, GHG emissions for the No Action and Proposed Action alternatives were quantified and are assessed further in Chapter 4.

[34] The reference to a checkered white butterfly population at the Airport's Long Term Parking Area was taken from an August 24, 1997 New York Times article by Nicholas Wade entitled "Decoding Winged Messages from Nature". The article was based on his interview with Dr. Michael Gochfeld (Robert Wood Johnson Medical School) and Dr. Joanna Burger (Rutgers University), who are considered butterfly authorities in New Jersey.

[35] Final Environmental Assessment for the Terminal A Redevelopment Program, Newark Liberty International Airport, page 4-16 (March 2017) Prepared by AECOM

[36] USEPA. Climate Change Indicators. https://www.epa.gov/climate-indicators/greenhouse-gases#ref1

[37] IPCC (Intergovernmental Panel on Climate Change). 2013. Climate change 2013: The physical science basis. Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press. www.ipcc.ch/report/ar5/wg1.

[38] GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

3.5.4 Department of Transportation Act, Section 4(f)

Under Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966, projects that receive funding or approval by any USDOT agency must avoid impacts to Section 4 (f) properties. Section 4(f) properties include parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public; publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public; and historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public. The Section 4(f) Study Area varies depending on the type of resource being considered. For the Proposed Action, a larger Study Area was used for parks and recreational areas, wildlife and waterfowl refuges, and historic architectural sites to account for indirect impacts. This Study Area is the same as the area of potential effect (APE) delineated for historic architectural resources, as described in **Appendix E** and shown on **Figure 3-10** (**Section 3.5.6**). The archaeological and cultural resources Study Area is the same as the archaeological resources APE shown on **Figure 3-9** (**Section 3.5.6**).

Parks and Recreational Areas: Based on review of aerial photos, Geographic Information System (GIS) mapping available from NJDEP, and the official websites of the City of Newark and the City of Elizabeth, there are no public parks or recreational areas located within the Study Area.

Wildlife and Waterfowl Refuges: According to the USFWS's IPaC Resource List, there are no National Wildlife Refuges within the Study Area (**Appendix J**).

Historic Architectural Sites: As detailed in **Section 3.5.6**, three historic architectural properties (Amtrak's NEC, the Haynes Avenue Bridge over the NEC, the U.S. Route 1/9 Historic District) and two historic buildings (Newark Metropolitan Airport Administration Building and the Medical Building) were identified within or near the Study Area (**Figure 3-10**).

Archaeological and Cultural Resource Sites: As detailed in **Section 3.5.6**, there are no *recorded* archaeological sites within the Proposed Action's Study Area; however, one area was identified as having archaeological potential. This area, which includes the sites of several former 19th-century buildings (referred to as the Johnson/Crook Property), has potential for the presence of historic archaeological resources (**Figure 3-9**).

Potential impacts to Section 4(f) resources, specifically historic resources, are evaluated in Chapter 4.

3.5.5 Hazardous Materials, Solid Waste, and Pollution Prevention

FAA Order 1050.1F requires evaluation of waste streams generated by a project; potential hazardous materials that could be used during construction and operation of a project and applicable pollution prevention procedures; potential to encounter existing hazardous materials at contaminated sites during construction, operation or decommissioning of a project; and the potential to interfere with any ongoing remediation of existing contaminated sites within or in the immediate vicinity of the Project Area.

Hazardous Materials

Airport operations require the storage and use of fuel and other hazardous materials. Hazardous materials such as hydraulic fluid, diesel fuel, and used oil are stored in aboveground storage tanks (ASTs), underground storage tanks (USTs), warehouses, and other buildings located on Airport property in accordance with applicable permits and regulations. Hazardous materials that can be encountered on the Airport include historic fill materials, soils impacted by spills of petroleum products, chemical waste from daily Airport activities (e.g., paint, ink, varnish, cleaners, solvents, waste rags, used Tyvek suits), and buildings and infrastructure containing materials such as lead, asbestos, mercury, and polychlorinated biphenyl (PCB)-containing materials.

Fill Materials: Contaminated historic fill[39] is present below the surface of the Project Area. Prior to Airport development, the area consisted of an extensive tidal marsh. As development of the area occurred, the tidal marsh was filled with sand, debris, and refuse. Contamination associated with historic fill at EWR is generally at low concentrations and is relatively uniform and not related to any identifiable release or spill.[40]

Most of the EWR property is part of a Classification Exception Area (CEA)[41] established by NJDEP to delineate groundwater contamination resulting from historic fill. In this case, the CEA includes the entire Airport property within the City of Newark (**Appendix J**). The NJDEP GeoWeb shows the extent of historic fill in the area of the Proposed Action (**Figure 3-7**).

Releases of Petroleum Products or Hazardous Materials: EWR is not currently under any Administrative Consent Order or regulatory compliance action pertaining to hazardous materials. A regulatory file review (**Appendix F**) did not reveal any records identifying subsurface contamination resulting from spills or other releases within the Study Area. However, chlorinated solvent contamination is present in the soil and groundwater at the fuel farm located south of the Project Area. As stated previously, low levels of contamination associated with historic fill activities are expected throughout EWR, including the Project Area.

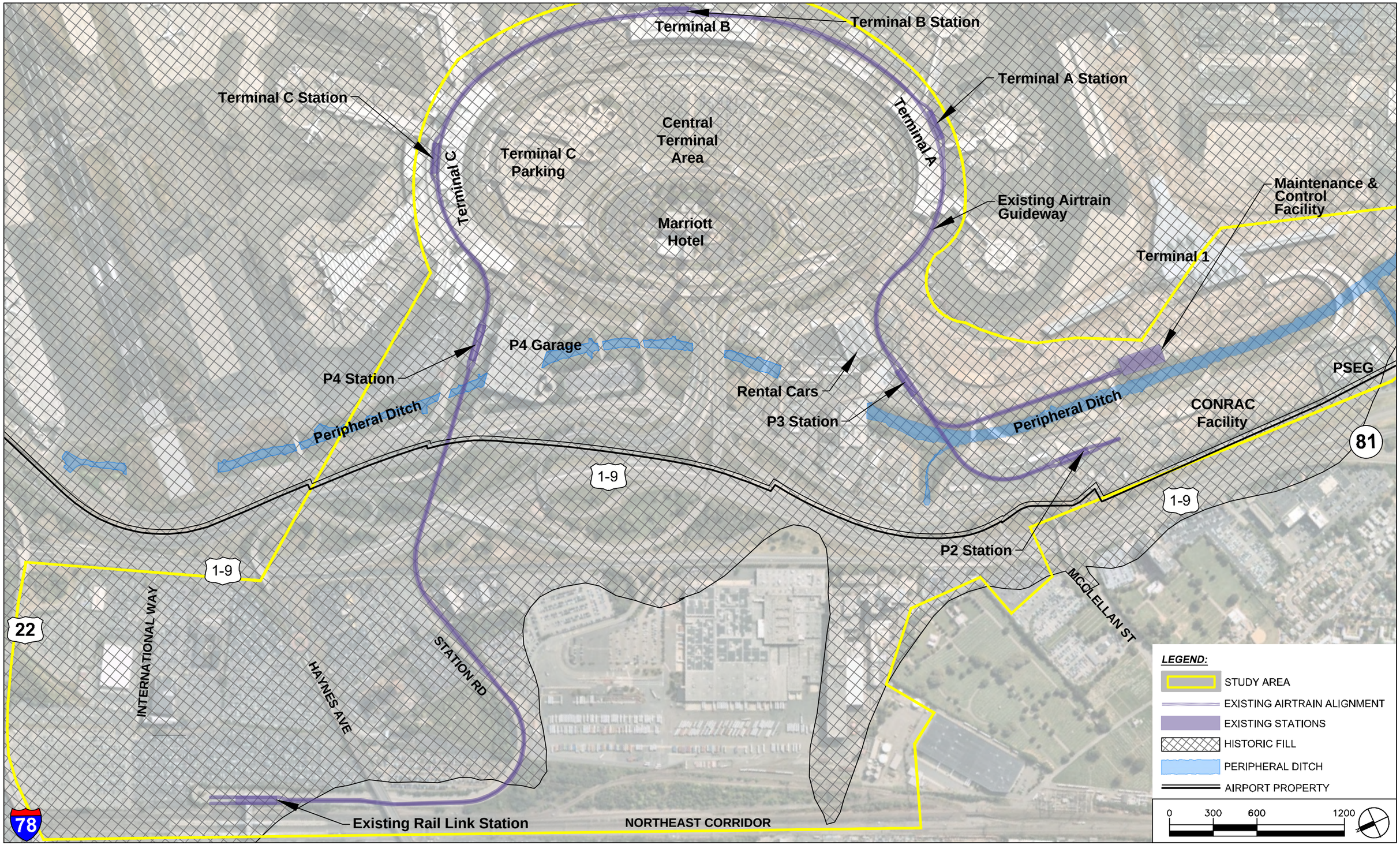
The USEPA Corrective Action Program maintains a list of Resource Conservation and Recovery Act (RCRA) Cleanup Facilities in New Jersey.[42] None of the RCRA Cleanup Facilities identified by USEPA are within the Study Area. The NJDEP's New Jersey Environmental Management System (NJEMS) sites database identifies all sites regulated by NJDEP under one or more regulatory permitting or enforcement program, or that are otherwise of some interest to a NJDEP program.

[39] Historic fill material is non-indigenous material generally deposited to raise the topographic elevation of a site, which was contaminated prior to emplacement and which includes, without limitation, construction debris, dredge spoils, incinerator residue, demolition debris, fly ash, or non-hazardous waste.

[40] Final Environmental Assessment for the Terminal A Redevelopment Program, Newark Liberty International Airport, page 4-16 (March 2017) Prepared by AECOM.

[41] Pursuant to the NJ Groundwater Quality Standards (N.J.A.C. 7:9-6), a CEA is established in order to provide notice that the constituent standards for a given aquifer classification are not or will not be met in a localized area due to natural water quality or anthropogenic influences, and that designated aquifer uses are suspended in the affected area for the term of the CEA.

[42] "New Jersey RCRA Cleanup Facilities Contacts." USEPA. Environmental Protection Agency, December 4, 2018. http://www.epa.gov/hwcorrectiveactionsites/new-jersey-rcra-cleanup-facilities-contacts.



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Source: Historic Fill by NJDEP, March 2018; Aerial Imagery by NearMap, 09/20/2019.

HISTORIC FILL

Figure 3-7

Table 3-2 lists the sites in the NJEMS database that fall within the Study Area. The NJEMS sites identified are shown on **Figure 3-8**.

Table 3-2 Sites with Remedial Activity within the Study Area

Site Name	Address	Nature of Contamination	Status
Hartz Mountain Industries	86 144 Haynes Ave., Newark NJ	Heavy metals	Active
Hertz Car Rental	EWR Bldg. 23	Aromatic hydrocarbons	Active
Hub Recycling	International Way	Heavy metals, polycyclic aromatic hydrocarbons (PAH)	Active
PSE&G Transformer @ 450 US Route 1/9	428 450 Carnegie Ave., Newark NJ	Polychlorinated biphenyl (PCB), dielectric fluid	Active

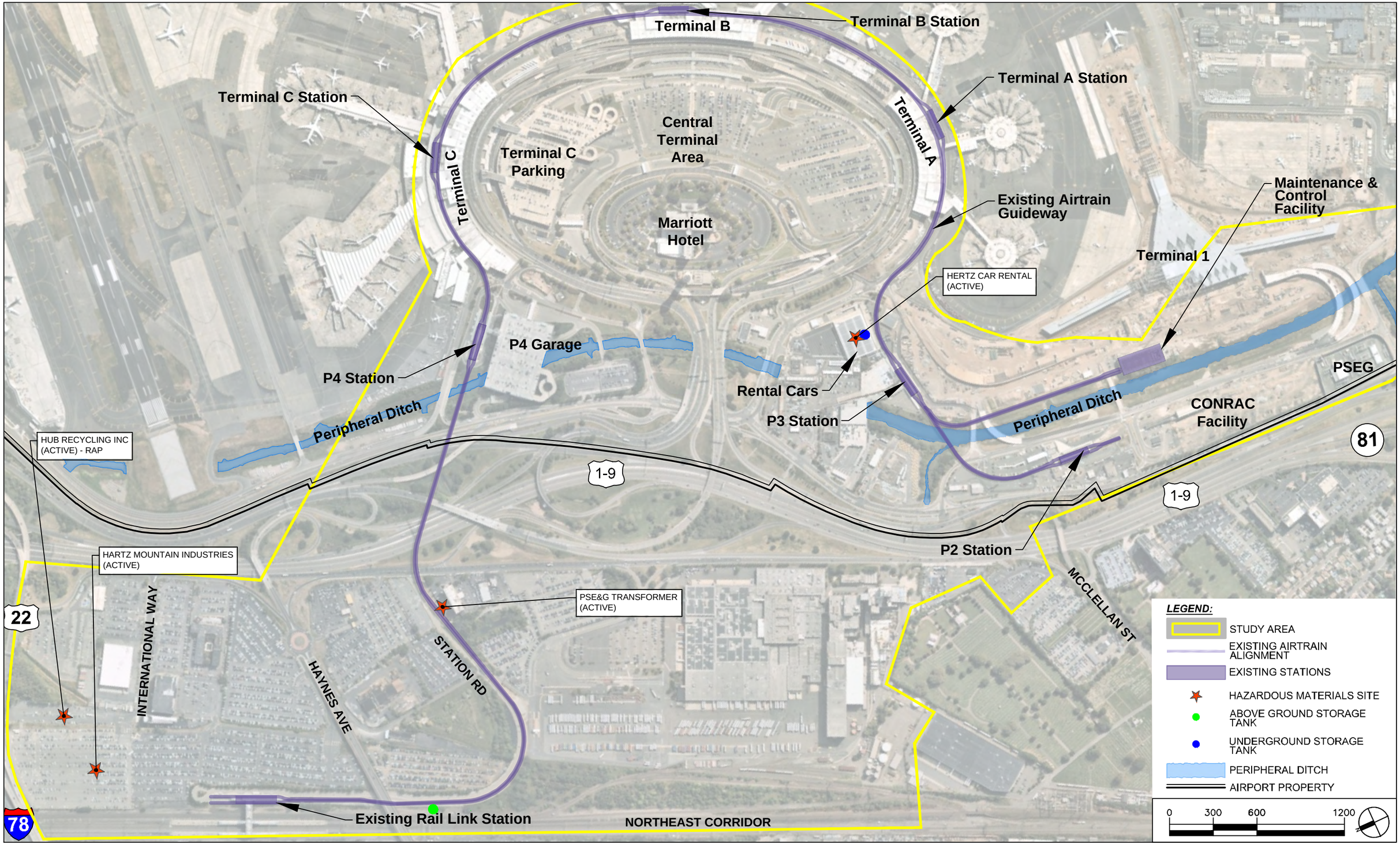
Source: NJ Department of Environmental Protection, GeoWeb – Known Contaminated Sites. January 2020.

Hazardous Waste Generation: The USEPA classifies EWR as a Large Quantity Generator (LQG) of hazardous waste (USEPA ID No. NJD 980648497), meaning that it generates 1,000 kilograms or more of hazardous waste per month, or more than 1 kilogram per month of acutely hazardous waste.[43] The types of hazardous waste that are produced at EWR include organic fluids (i.e., paint, ink, lacquer, or varnish); inorganic fluids (i.e., cleaners and solvents); and contaminated debris (i.e., waste rags, used Tyvek suits, used absorbent pads and booms). These hazardous materials are properly stored in various locations throughout the Airport in accordance with USEPA and New Jersey hazardous material regulations. Hazardous waste is transported by licensed hazardous waste haulers for disposal at off-Airport licensed facilities according to applicable regulations. Compliance is assured through measures such as routine and random inspections by USEPA and NJDEP.

Bulk Storage Tanks: Bulk storage tanks in the Study Area include three USTs at the rental car facility near the existing AirTrain P3 Station, and one propane AST located between the existing AirTrain guideway and the NEC (**Figure 3-8**). The USTs include: two 15,000- gallon USTs for unleaded gasoline; and one 6,000-gallon UST for light diesel fuel. At this time, none of these tanks will be removed or relocated as part of the Proposed Action. If, during the design phase of the project, it is determined that a tank needs to be relocated, such relocation will be handled in accordance with local, state, and federal regulations.

Hazardous Building Materials: Infrastructure and buildings within the Project Area may contain regulated materials that would require removal prior to demolition. Based on the age of the infrastructure and buildings, some of the regulated materials may include the following: PCBs contained in caulk, fluorescent light

[43] "Categories of Hazardous Waste Generators." EPA. Environmental Protection Agency, March 2, 2020. https://www.epa.gov/hwgenerators/categories-hazardous-waste-generators#large.



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Source: Hazardous Materials Sites from NJDEP GeoWeb, February 2020; Aerial Imagery by NearMap, 09/20/2019.

HAZARDOUS MATERIALS SITES

Figure 3-8

ballasts, and electrical transformers; mercury-containing fluorescent and other high-intensity light bulbs and thermostats; radioactive materials contained in smoke detectors; asbestos, and lead paint. Hazardous materials surveys will be conducted prior to demolition activities. Any hazardous materials identified will be removed and disposed of off-Airport in accordance with applicable regulations.

Solid Waste & Pollution Prevention

FAA's 1050.1F Desk Reference states that "solid waste is defined by the implementing regulations of RCRA generally as any discarded material that meets specific regulatory requirements, and can include such items as refuse and scrap metal, spent materials, chemical by-products, and sludge from industrial and municipal waste water and water quality treatment plants." In New Jersey, construction and demolition (C&D) debris is defined as solid waste Type 13C, which includes building and structural material and rubble resulting from the construction, remodeling, repair, and demolition of such things as commercial buildings, pavement, and other structures. The PANYNJ has a sustainability policy that contains guidelines for disposal of solid waste generated at the PANYNJ's facilities.[44] For example, the PANYNJ requires that contractors recycle 75% of certain demolition debris items, which currently include steel, asphalt, Portland cement concrete (PCC) and clean soil.

The PANYNJ's *Best Management Practices* requires facilities with petroleum and/or chemical bulk storage areas to comply with all applicable regulations including those involving releases, registration, handling, and storage. The PANYNJ also has a current Spill Prevention, Control and Countermeasure (SPCC) Plan for the Airport that contains appropriate spill prevention and clean up measures.[45] Tenants at the Airport that store chemicals must also comply with all applicable regulations and prepare and maintain their own SPCC plans.

Potential impacts associated with contaminated historic fill materials, solid waste, and pollution prevention are evaluated in Chapter 4.

3.5.6 Historic, Architectural, Archaeological, and Cultural Resources

Section 106 of the National Historic Preservation Act (Section 106) requires federal agencies to take into consideration the effects of their undertakings on resources listed in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Section 106 also requires tribal consultation when a federal agency project or effort may affect historic properties that are either located on tribal lands, or when any Native American tribe or Native Hawaiian organization attaches religious or cultural significance to the historic property, regardless of the property's location.

[44] PANYNJ Engineering Department. Sustainable Building Guidelines – Part 1. Last updated 1/1/2017. Reviewed/Released 2018 v1.0.

[45] PANYNJ, Spill Prevention, Control and Countermeasures Plan for Facilities at Newark Liberty International Airport, April 2005.

Archaeological & Cultural Resources

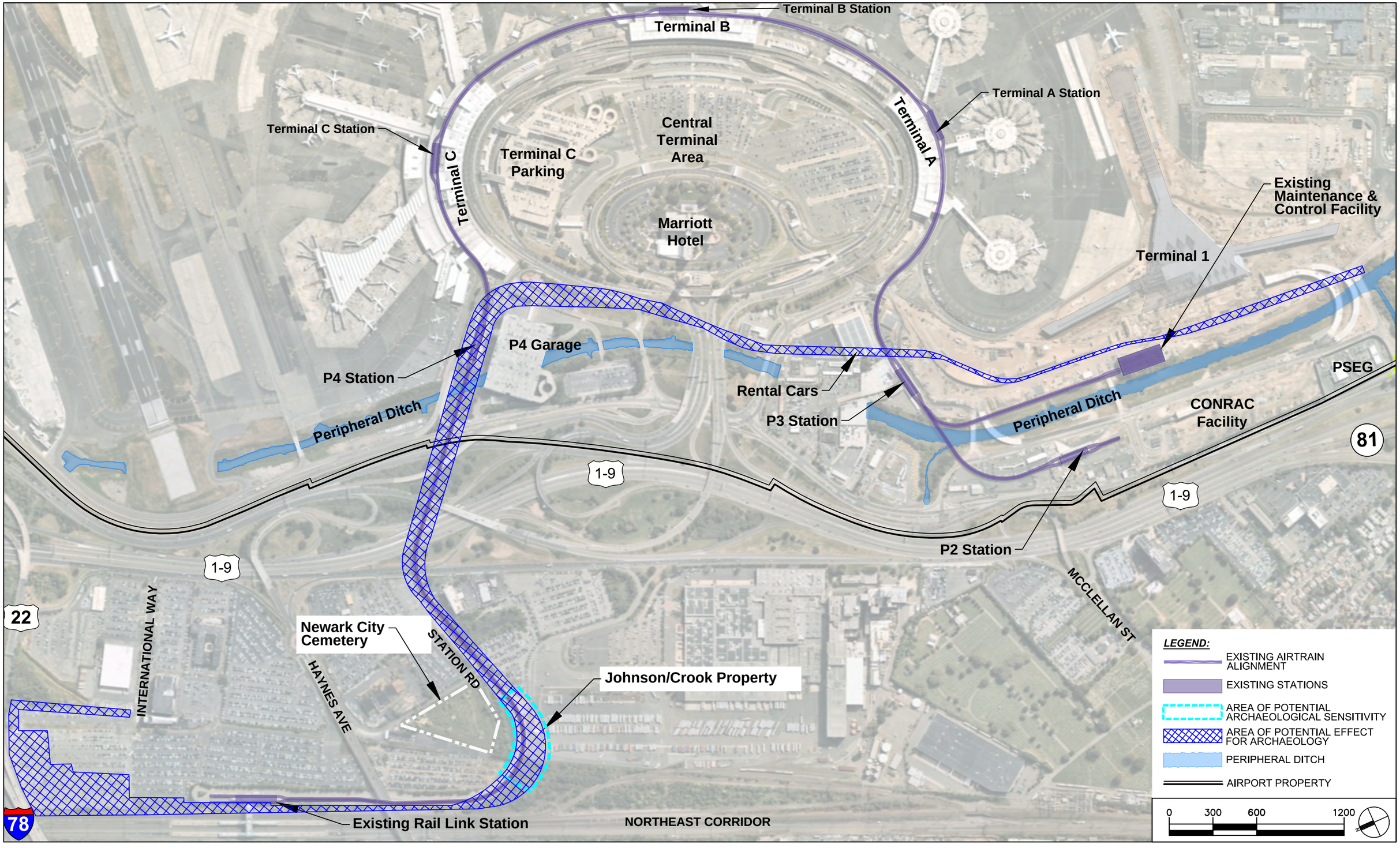
Consistent with Section 106, a Phase 1A Cultural Resources Survey was prepared in September 2020 (**Appendix D**). This report provides the regulatory setting, survey methodology, APE delineation, historical research, and an assessment of archaeological potential for the Proposed Action.

The findings of the Phase 1A Cultural Resources Survey determined that there are no *recorded* archaeological sites within the Proposed Action's APE for archaeology, nor within a one-mile radius. However, the Survey did identify one area within the APE as having archaeological potential: a small extent of fast land (i.e., dry and elevated land) that existed in the Project Area in late prehistoric and historic times. This area includes land formerly within the Newark City Cemetery and the sites of several former buildings immediately south of the cemetery (referred to as the Johnson/Crook Property). The Johnson/Cook property is assessed as having potential for the presence of historic archaeological resources (**Figure 3-9**).

Johnson Crook Property: The area to the south of the cemetery, formerly the site of a glue factory and several 19th Century dwellings, is now characterized by a large parking lot with a defunct weigh station and a wooded area that was formerly covered by railroad tracks (**Figure 3-9**). Construction of the parking lot may have involved filling activities that would not have impacted potential archaeological deposits. The Phase 1A Cultural Resources Survey recommended that a program of machine-assisted Phase 1B subsurface testing might be necessary within the APE to determine the presence or absence of any archaeological resources and that consultation would be needed with the New Jersey Historic Preservation Office (HPO) to determine the need for subsurface testing.

Newark City Cemetery: Findings of the Phase 1A Cultural Resources Survey note the importance that design of the Proposed Action ensure protection of the cemetery, both as it is currently configured and in its pre-1903 extent. The findings recommend that the area adjacent to the west side of the present-day cemetery property either be avoided or investigated for the presence of burials (**Figure 3-9**). Along the south side of the cemetery, the existing Station Road, and the drainage ditch that borders the cemetery property may provide adequate buffer from project activities. However, since uncertainties remain about the precise areas historically used for burials, consultation with the HPO will be required to determine adequate buffers and other measures to avoid any direct impacts or indirect effects such as vibration.

NJ State Historic Preservation Office (HPO) Consultation: On March 25, 2020, the PANYNJ requested that HPO review the draft Phase 1A Cultural Resources Survey (dated January 2020). A copy of the final draft of the Phase 1A Cultural Resources Survey (dated September 2020) is included in **Appendix D**. Correspondence from HPO dated May 12, 2020, stated that given the high archaeological sensitivity, a Phase 1B



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Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

ARCHAEOLOGICAL RESOURCES

Figure 3-9

archaeological survey, and if necessary Phase II archaeological survey with a HPO approved Work Plan, must be conducted within the APE (**Appendix J**). A Work Plan for Phase 1B/Phase II testing within the APE where it crosses the former Johnson/Crook property was sent by the FAA to the HPO on August 24, 2020 and approved by the HPO on September 22, 2020 (refer to **Section 5.1**, Agency Coordination). A copy of the Work Plan and approval is included in **Appendix D**. The Phase 1B archaeological testing, consisting of trenches on the Anheuser-Busch and Hartz Mountain property, was completed October 29 and November 2, 2020. No archaeological resources requiring Phase II testing or further archaeological investigation were identified within the APE. The report of Phase 1B testing, included in **Appendix D**, was submitted to the HPO for review on November 27, 2020 and approved on December 11, 2020 (**Appendix J)**. Refer to **Section 4.7**, for discussion related to potential archaeological resource impacts.

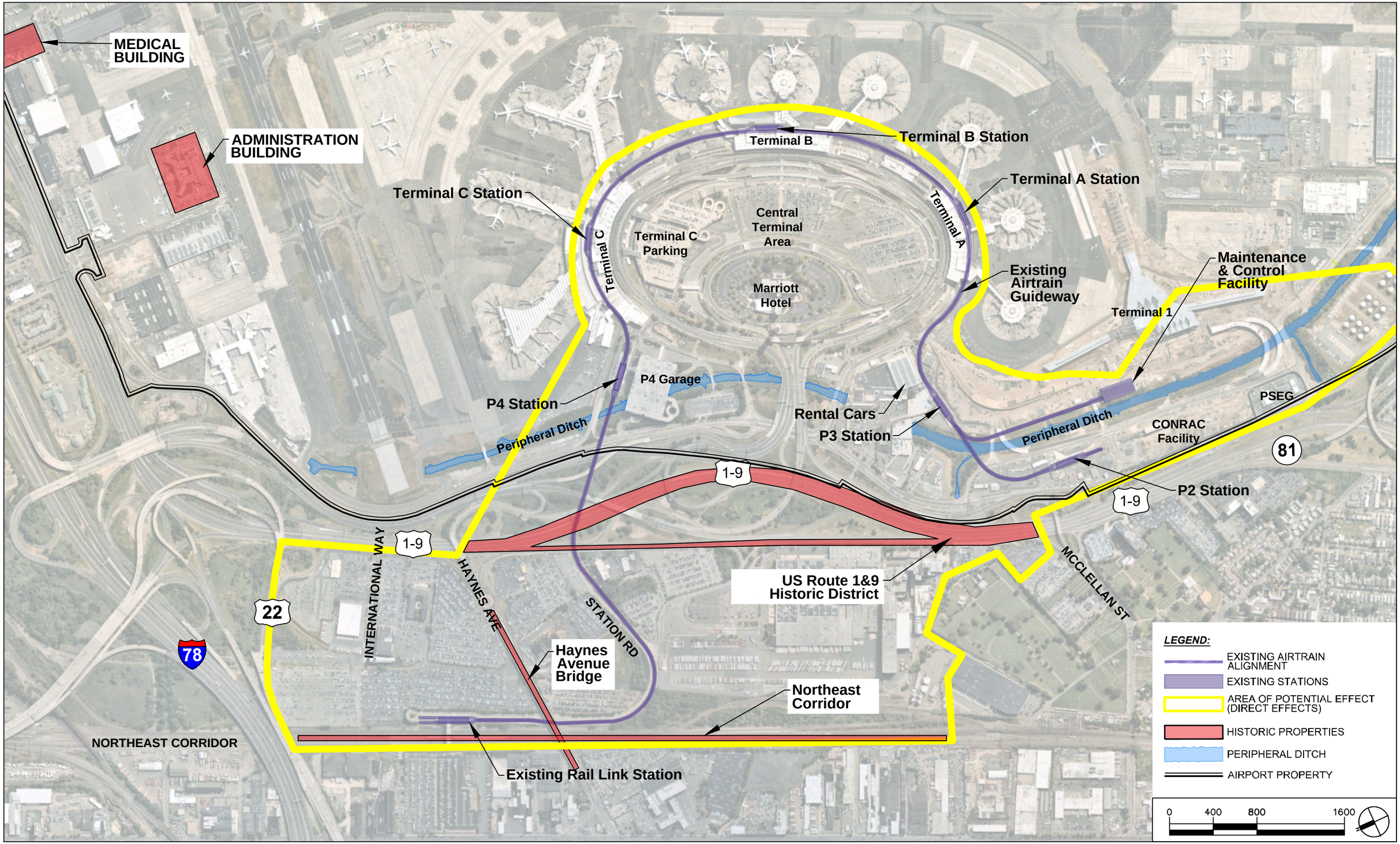
Historic & Architectural Resources

A Historic Architectural Sites Survey and Effects Assessment (SEA) was conducted for the Proposed Action. A copy of the final draft of the SEA (dated August 2020) is included in **Appendix E**. The SEA report provides the regulatory setting, survey methodology, APE delineation, historical overview, survey results, criteria for inclusion in the NRHP, and effects determination for the Proposed Action. The SEA included not only those areas subject to direct effects from the Proposed Action, but areas subject to indirect effects, such as visual effects.

There are three historic architectural resources in the Study Area that are eligible for inclusion on the National Register of Historic Places (NRHP): (1) Amtrak's NEC, (2) the Haynes Avenue Bridge over the NEC, and (3) the US Route 1/9 Historic District (**Figure 3-10**). In addition, two previously listed NRHP buildings located outside of the Study Area, but still within the Airport, were also identified: (1) Newark Metropolitan Airport Administration Building and (2) the Medical Building (**Figure 3-10**). The SEA evaluated the character of the historic resources and the Project Area, and the distance between the Proposed Action and the historic resources. All of the identified NRHP-listed resources are transportation resources and are located in a heavily developed area. According to the SEA, the Newark Metropolitan Airport Administration Building and the Medical Building are too far from the Project Area to be directly or visually affected by the Proposed Action, and the other three National Register-eligible historic resources would not be adversely affected by the Proposed Action because it will not diminish the integrity of these properties' location, design, setting, materials, workmanship, feeling, or association, which is the regulatory definition of adverse effect.

Four other properties within the Study Area were also evaluated in the SEA to determine if they are eligible for inclusion in the National Register of Historic Places: (1) EWR's Terminals A, B, and C; (2) Anheuser-Busch, Inc.; (3) Kingsland Drum and Barrel, Inc.; and (4) New Jersey Galvanizing and Tinning Works, Inc. (**Figure 3-11**).

The SEA included in **Appendix E** details the criteria and analysis used to evaluate the eligibility of the four properties for inclusion on the National Register. All of the identified resources evaluated for NRHP-eligibility are transportation resources that are located in a heavily developed area. According to the SEA, these four properties do not possess the characteristics necessary to be eligible for inclusion in the NRHP (**Appendix E**).



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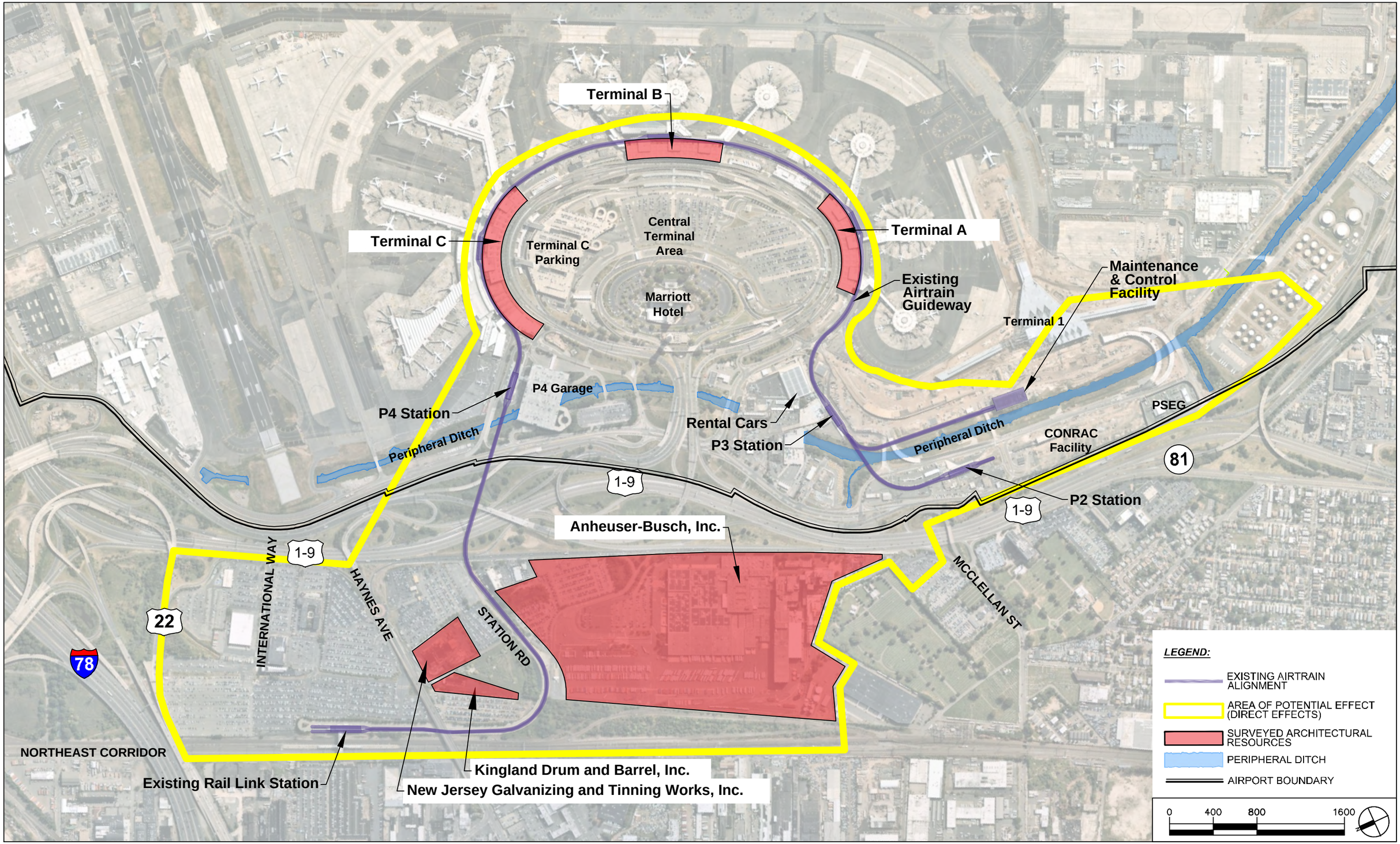
Source: NJ State Historic Preservation Office; Aerial Imagery by NearMap, 09/20/2019.

IDENTIFIED HISTORIC PROPERTIES

Figure 3-10



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Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

SURVEYED ARCHITECTURAL RESOURCES

Figure 3-11

On March 25, 2020, the PANYNJ requested that HPO review the draft SEA (dated January 2020). A copy of the final draft of the SEA (dated August 2020) is included in **Appendix E**. According to correspondence from HPO dated May 12, 2020 and reaffirmed on December 11, 2020, HPO concurred with the findings of the draft SEA (**Appendix J**). Given this information, although there will be a direct visual effect on the three National Register-eligible historic resources within the project's APE, the effect will not be adverse, and therefore, no further analysis is required.

Tribal

Based on a review of the USEPA Region 2 Tribal Program website, there are no federally recognized tribes in New Jersey.[46]

Summary

The Proposed Action has the potential to impact archaeological and cultural resources. As a result, potential impacts are discussed in Chapter 4.

3.5.7 Natural Resources and Energy Supply

Water is supplied to the Airport by the City of Newark Water Department. Sanitary wastewater from the Airport is discharged to the Passaic Valley Sewerage Commission's wastewater treatment plant.[47] Elizabethtown Gas and PSE&G supply natural gas to the existing AirTrain stations and MCF for heating. PSE&G supplies electricity at EWR from a switching station located on Airport property. Potential impacts to natural resources and energy supply from the Proposed Action are evaluated in Chapter 4.

3.5.8 Noise and Noise-Compatible Land Use

The Proposed Action would not change aircraft operations but would replace the existing AirTrain. Pursuant to Section 11.5.1 of FAA's 1050.1F Desk Reference, surface transportation impacts should be evaluated following guidelines and procedures from the most representative modal agency. Therefore, Federal Transit Administration (FTA) procedures outlined within the *Transit Noise and Vibration Impact Assessment* (FTA Report

No. 0123, September 2018) guidance document were implemented for assessing noise and vibration impacts. FTA procedures include screening and impact assessment methodologies for evaluating both airborne noise and ground-borne noise and vibration sources.

A Noise and Vibration Technical Report was prepared for the No Action and Proposed Action Alternatives and identifies the regulatory setting, FTA significance impact thresholds, and methodology for determining impacts (**Appendix G**). Study Areas were identified based on screening distances from proposed noise and vibration sources (supplemental busing access roads and the existing AirTrain guideway). Three noise sensitive receivers and one vibration sensitive receiver were identified within these Study Areas. Consistent with

[46] EPA, Region 2 Tribal Program, Accessed February 9, 2020. Accessible at: http://www.epa.gov/tribal/region-2-tribal-program

[47] In order to meet USEPA requirements for water quality, the PVSC requires the airport to operate under a sewer use permit (SUP) which establishes discharge limitations for particular parameters and specifies monitoring and sampling requirements that the airport must abide by.

FTA guidance, the existing noise environment at the Airport was evaluated by monitoring noise exposure at the three noise sensitive receiver locations within the Study Areas. **Figure 3-12** depicts the noise and vibration Study Areas and noise monitoring locations; noise levels are summarized in **Table G-5** in **Appendix G**. Noise and vibration impacts resulting from the Proposed Action are assessed in Chapter 4.

3.5.9 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

According to FAA Order 1050.1F and FAA Order 5050.4B, proposed airport development actions must be evaluated to determine if they would cause social impacts, including effects on health and safety risks to children, socioeconomic impacts, and assessments of the potential to cause disproportionate and adverse effects to low-income or minority populations. The Study Area encompasses a half-mile radius around the Project Area to capture the socioeconomic and demographic characteristics of the Project Area and surrounding land uses[48]. The Study Area includes six census tracts in the City of Newark and three census tracts in the City of Elizabeth (**Figure 3-13**).

Socioeconomic Conditions

Newark is 24.2 square miles, has a population of approximately 282.900, is the largest city in New Jersey and is the seat of Essex County. Newark is one of the top air, shipping and rail hubs in the United States. Newark has 86 census tracts, six of which are in the Study Area. The city's racial/ethnic breakdown is shown in **Table 3-3**. Sixty-five percent of the population is between the ages of 18-64 years and the median income is $37,642 with 28.0 percent below the poverty line.

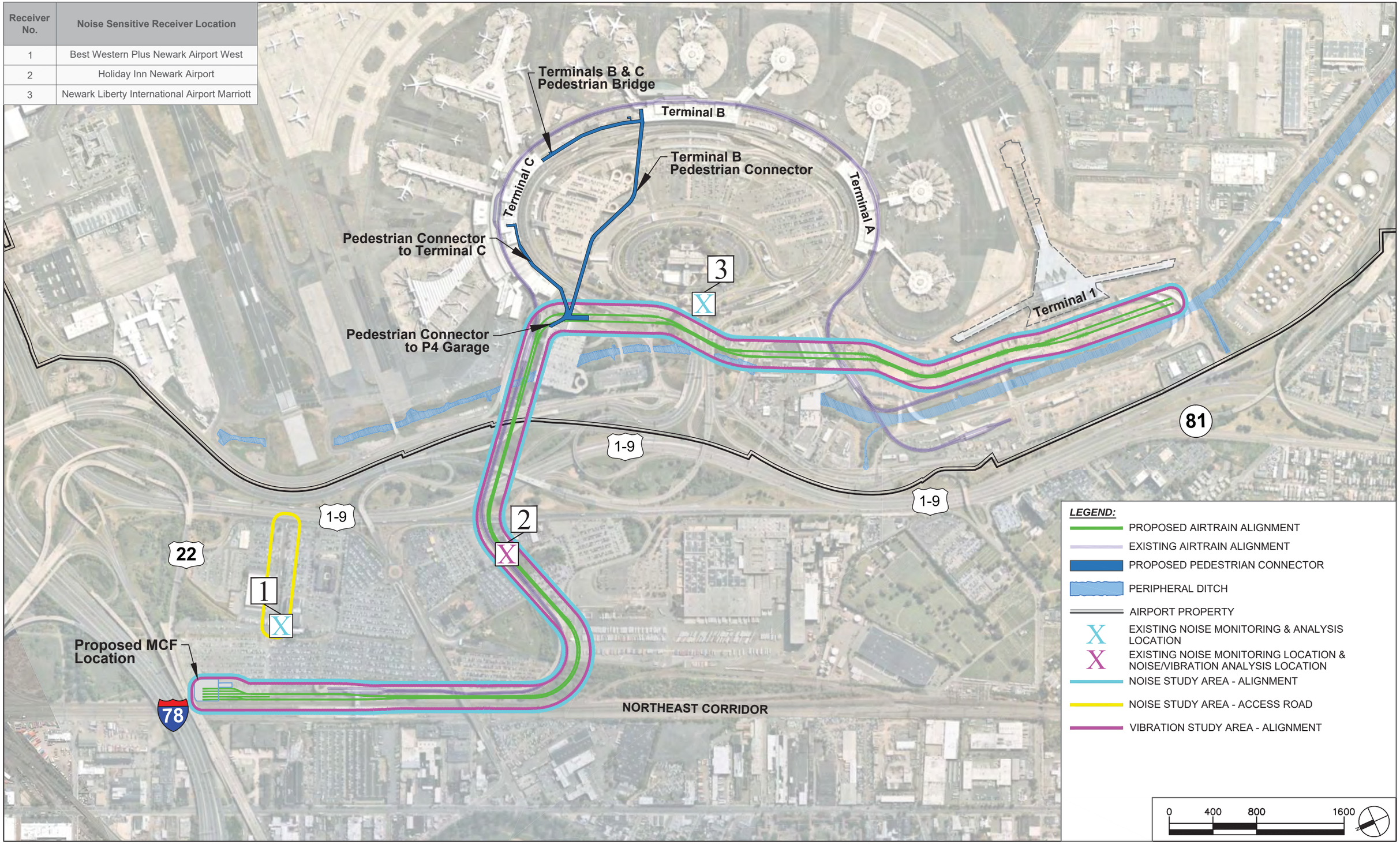
Elizabeth is 12.3 square miles, has a population of approximately 128,885, is the largest city in Union County and is the seat of Union County. Elizabeth has a large number of transportation facilities including the Port Newark-Elizabeth Marine Terminal, one of the busiest ports in the world, and EWR. Only three of the city's census tracts are in the Study Area. The city's racial/ethnic breakdown is shown in **Table 3-3**. Sixty-two percent of the population is between the ages of 18-64 years and the median income is $49,411 with 18.4 percent below poverty line.

EWR currently employs approximately 23,000 people. The Airport contributes about $33.6 billion in annual economic activity to the New York – New Jersey metropolitan region and generates more than 180,000 total jobs and more than $11 billion in annual wages.[49] Additional income and employment opportunities are generated in the region on a temporary basis whenever EWR undertakes a significant capital project (such as the Proposed Action).

[48] Environmental studies for transit systems generally use a ¼ mile radius from the Proposed Action for a study area; to capture surrounding land uses outside of Airport property, the Study Area was expanded to a radius of one-half mile.

[49] PANYNJ. 2019 Airport Traffic Report. PANYNJ, May 2020.

Receiver No.	Noise Sensitive Receiver Location
1	Best Western Plus Newark Airport West
2	Holiday Inn Newark Airport
3	Newark Liberty International Airport Marriott



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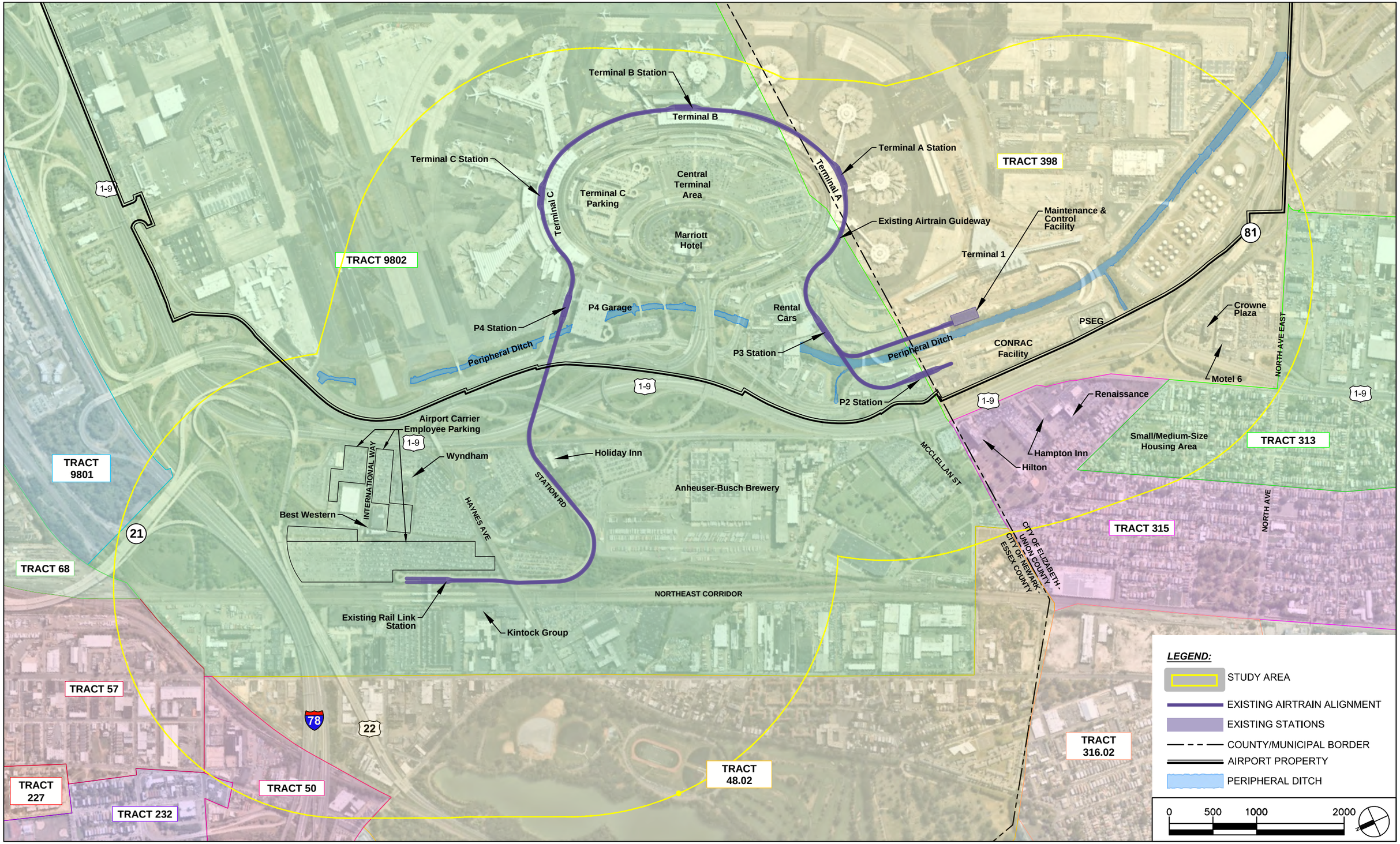
Source: Noise and Vibration Technical Report, Paul Carpenter Associates, Inc. (2020)

NOISE AND VIBRATION EXISTING CONDITIONS

Figure 3-12



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Source: U.S. Census Tracts 2010; Aerial Imagery by NearMap, 09/20/2019.

SOCIOECONOMIC STUDY AREA

Figure 3-13

Environmental Justice (EJ) Communities

In the analysis of environmental justice impacts, the terms *disproportionately high and adverse effects*, *low-income populations*, and *minority populations*[50] are defined as the following:

- *Environmental Justice Community* – A census tract where either the minority population or low-income population criteria are met.
- *Disproportionately High and Adverse Effects* – An adverse effect that: "(1) is predominantly borne by a minority population and/or low-income population, or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population."
- *Low-Income Populations* – A low-income person is defined as a person whose median household income is at or below the Department of Health and Human Services poverty guidelines. A low-income population is any readily identifiable group of low-income persons who live in geographic proximity who will be similarly affected by a proposed action.
- *Minority Populations* – A minority person is defined as a person who is Black, Hispanic or Latino, Asian American, American Indian and Alaskan Native, or Native Hawaiian and Other Pacific Islander. A minority population is any readily identifiable groups of minority persons who live in geographic proximity who will be similarly affected by a proposed action.

A population breakdown by municipality, county, and census tract is shown in **Table 3-3**. The total population for Essex and Union Counties together is approximately 1.3 million people. Thirty-five percent of the population in Essex County resides in Newark, and twenty-three percent of Union County's population resides in Elizabeth. Approximately 6.4% and 3.2% of the population residing in Newark and Elizabeth, respectively, fall within the Study Area.

Essex County and Union County averages for minority populations and low-income populations served as thresholds or criteria for identifying environmental justice communities in the Study Area. Census tracts demonstrating higher percentages of either or both of these populations are considered EJ communities. As noted in **Table 3-3**, based on comparison with County averages, each of the census tracts in the Study Area are considered EJ communities.

Table 3-3 Environmental Justice Communities in the Study Area

Political Subdivision	Total Population	Minority Population	Low-Income Population	Environmental Justice Community?
Essex County	799,767	69.5%	14.9%	Yes
City of Newark	282,090	89.4%	28.0%	Yes
Census Tract 48.02	2,982	96.1%	45.1%	Yes

[50] FHWA Order 6640.23A, FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (June 14, 2012).

Census Tract 50	2,822	96.3%	36.7%	Yes
Census Tract 57	2,427	83.8%	23.0%	Yes
Census Tract 68	5,695	77.1%	24.9%	Yes
Census Tract 9801	2,619	83.3%	*	Yes
Census Tract 9802	1,466	85.1%	*	Yes
Union County	558,067	60.2%	7.8%	Yes
City of Elizabeth	128,885	86.7%	18.4%	Yes
Census Tract 313	7,120	87.9%	10.1%	Yes
Census Tract 315	5,755	72.2%	8.7%	Yes
Census Tract 398	4,668	77.4%	28.1%	Yes

*Data is not available

Source: US Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

As shown on **Figure 3-13**, although there are very few residential properties located within the Study Area, a medium-density residential area is located between North Avenue and McClellan Street in the southern end of the Study Area in Elizabeth. The closest community residential facility (located 770 feet from the Rail Link Station) is the Newark-based Kintock Group, a non-profit transitional living facility for previously incarcerated individuals. Separating the Kintock Group and the Rail Link Station is a heavily-used four-track stretch of the NEC (used by Amtrak and NJ Transit). In 2018 the Kintock Group reported a population of approximately 350 persons with an average length of stay of four months under treatment.[51] The annual number of residents admitted to the facility during the 2017-2018 period was 2,634.

Children's Environmental Health and Safety Risks

The Study Area contains a population of 35,554, of which only 3,683, or 10 percent are children under age 18. Analysis of Children Environmental Health and Safety Risks considers the potential impacts on children's health and safety by identifying risks that may disproportionately affect children through products or substances that a child could ingest or otherwise encounter. No schools, day care centers, hospitals or clinics, parks, or recreational facilities were identified within or immediately adjacent to the Project Area.

Summary

Potential socioeconomic, children's environmental health and safety risks, and environmental justice impacts are evaluated in Chapter 4.

3.5.10 Traffic

The Proposed Action includes the construction of the MCF within airline employee parking lots (Lots 757 and 777) and will relocate existing MCF employees to the proposed MCF location. Therefore, a parking and

[51] The Kintock Group. PREA Audit Report, October 15, 2018. https://kintock.org/images/prea-report/20181101_prea_finalreport_newark.pdf

traffic assessment was completed for the Proposed Action and is included in **Appendix H**. Currently, parking lots (Lots 737, 757, 767, 777, and 787) in this area have a capacity of 5,860 spaces and, according to traffic counts, 3,786 parking spaces are utilized, resulting in a surplus parking supply of 2,074 spaces. Potential traffic impacts resulting from the Proposed Action are evaluated in Chapter 4.

3.5.11 Water Resources

As shown on **Figure 3-5**, the water resources Study Area consists of a 150-foot radius around the Project Area. Water resources found within the Study Area are described in **Appendix B**. FAA's 1050.1F Desk Reference defines water resources as surface water, wetlands, floodplains, groundwater, and wild & scenic rivers. As discussed in **Section 3.4.3**, no wild and scenic rivers are present within or near the Study Area.

Surface Water Resources

A wetlands and waterway delineation for the Proposed Action was conducted from December 2018 to February 2019. The delineation documentation is included in the Natural Resources Technical Environmental Study (TES) presented in **Appendix B**.

The Peripheral Ditch, the only watercourse within the Study Area, is a man-made stream that extends approximately 4.5 miles near the eastern, southern, and western perimeter of the Airport, before emptying into the Elizabeth Channel through a tide gate. As a result of the tide gate, the Peripheral Ditch is not considered tidal. The NJDEP classifies the ditch as a freshwater, non-trout stream (FW2-NT) and a State Open Water with no resource value or transition area, except for several fringe wetland areas along it near where the Proposed Action crosses.[52] The Peripheral Ditch receives stormwater from 75 NJDEP-permitted Airport outfalls (NJPDES NJ0134791) and from surrounding highways, roadways, and land areas immediately north and west of EWR. In total, the Peripheral Ditch drains an area of approximately 11.8 square miles (7,552 acres) in and around the Airport. The Airport utilizes a series of outfall and cross-ditch booms to entrap debris and floating pollutants that would otherwise be carried along the Peripheral Ditch. Per the above listed NJPDES Permit, EWR must monitor, on a monthly basis, three (3) outfalls (011A, 014A and 022A).

A riparian zone is a buffer around surface waters, like streams, lakes, and rivers[53]. In New Jersey, with a few exceptions, every waterway that collects runoff from at least 50 acres of land has what is known as a "riparian zone". NJDEP regulates development in riparian zones to minimize damage to life and property from flooding caused by development within flood hazard areas, to preserve the quality of surface waters, and to protect the wildlife and vegetation that exist within and depend upon such areas for sustenance and habitat. The Peripheral Ditch has a 50-foot wide riparian zone along both sides of the Ditch.[54] It should be noted that within riparian buffer limits, only impacts to vegetated riparian buffers are considered impacts from a regulatory perspective. The Peripheral Ditch and its associated riparian zone are shown on **Figure 3-5**.

[52] NJDEP. Letter of Interpretation (LOI), Terminal One Redevelopment Project, September 25, 2012.

[53] NJDEP. Division of Land Use Regulation. Riparian Zones. https://www.nj.gov/dep/landuse/fha/fha_rz.html.

[54] New Jersey Administrative Code 7:13-4.1 requires a riparian buffer of 50 feet around State Open Waters.

In addition to the Peripheral Ditch, there are open waters associated with wetlands in the Project Area (Wetlands 1, 2, 4, and 5). Similar to the Peripheral Ditch, it is anticipated that these wetlands will also have a 50-foot riparian buffer around them. The riparian buffers for Wetlands 1, 2, 4, and 5 are shown on **Figure 3-5**.

Wetlands

As shown on **Figure 3-5**, wetlands within the Study Area are located along the Peripheral Ditch (designated as PD wetlands) and at four wetland/pond complexes (designated as Wetland Nos. 1 through 4). The wetland/pond complexes, a number of which are located within the US Route 1/9 right of way (ROW), appear to function as stormwater retention basins. A fifth wetland, partially within the northwestern portion of the Study Area, was also identified but not field delineated as it is located outside the limits of the Project Area.

Wetland investigation documentation is included in **Appendix B.** The identified wetlands and their associated NJDEP-required transition area boundaries are shown on **Figure 3-5.** The transition areas are regulated areas adjacent to freshwater wetlands that are assigned by NJDEP. They can be either 50-feet or 150-feet in width. Given the presence of state-listed threatened and endangered species habitat (**Section 3.5.2**), it is anticipated that Wetland Nos. 1 through 4 within the Project Area will be classified as exceptional resource value wetlands with associated 150-foot transition areas. Segments of the Peripheral Ditch area that have narrow wetland fringes also have an associated wetland transition area while segments that are considered state open water do not (**Figure 3-5**).

Table 3-4 provides a description of wetlands in the Study Area**.** Wetland boundaries from a delineation conducted in 2018, as well as documentation from November 2011 for the Terminal A Redevelopment Program[55], were used for this assessment. Those wetland boundaries are located along the Peripheral Ditch, and its tributaries, near Terminal One as shown on **Figure 3-5**.

Floodplains

Floodplains are defined by Executive Order 11988[56], Floodplain Management, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." The Federal Emergency Management Agency (FEMA) is responsible for mapping floodplains and publishing these maps as Flood Insurance Rate Maps (FIRMs). Two sets of FIRM maps were used as the basis for determining floodplain impacts for the proposed AirTrain project: the 2007 FIRM map for the area surrounding EWR, which is currently the effective FIRM map for the area, and the appeal resolution to the 2014/2015 preliminary flood maps, which have not yet been adopted. The 2007 FIRM map show a 1-percent-annual chance

[55] NJ Department of Environmental Protection, Division of Land Use Regulation, File No. 0000-02-0043.4, dated September 25, 2012.

[56] E.O. 11988 was originally issued on May 24, 1977, and established a national policy requiring federal agencies to avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains.

Table 3-4 Wetlands in the Study Area

Wetland ID	Description	Approximate Size[1]
Peripheral Ditch (PD)	Man-made open water ditch, bordered in certain areas by a palustrine shrub/scrub wetland fringe. Common reed is predominant at the southern end and tree species bordered the wetland/upland boundary.	-
Wetland No. 1	An open water pond and a man-made ditch, both with a palustrine shrub-scrub wetland fringe. Common reed is predominant at the southern end of the wetland complex, and tree species border the wetland/upland boundary.	0.9 acre
Wetland No. 2	Retention basin with a palustrine scrub-shrub wetland and PEM wetland. The majority of the area is dominated by low woody vegetation, while the northern end of the basin is dominated by common reed. Riprap borders the water-filled retention basin.	0.7 acre
Wetland No. 3	Retention basin characterized as palustrine forested wetland along the northern, eastern, and southern boundary and a PEM wetland along the eastern border. Riprap is present in the upland areas while sandy loam surrounds the existing basin.	0.2 acre
Wetland No. 4	Characterized as palustrine forested wetland along the northern, eastern, and southern boundary and a PEM wetland along the eastern border. Riprap is present in the upland areas while sandy loam surrounds the existing basin.	1.0 acre
Wetland No. 5	Linear riverine wetland/open water. This area was originally wooded, with the majority of the area lying outside the original wetland Study Area.	0.7 acre
Total		3.5 acres

Source: NV5 Inc., *Natural Resources Technical Environmental Study* (September 2020)

[1] – Wetland acreages identified do not include acreage related to their associated transition or riparian buffer areas.

base flood elevation of 9 feet within much of the AirTrain project area while the appeal resolution maps show a revised 1-percent-annual chance base flood elevation of 11 feet and 12 feet within the same area. While ground and vegetation disturbance limits/impacts would be the same utilizing either sets of mapping, the appeal resolution maps would be used during the final design process to ensure that critical design components (i.e., electrical connections and power supplies, flood sensitive infrastructure etc.) would be installed above the higher flood elevations. As shown on **Figure 3-5**, a large portion of the Study Area is located in either an area of minimal flood risk or within the 500-year floodplain (i.e., 0.2% annual chance flood). A smaller area, primarily in and adjacent to the Peripheral Ditch, is located in the 100-year floodplain (i.e., Zone AE or 1% annual chance flood). FEMA defines a floodway as the portion of the 100-year floodplain within a channel or stream, plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. There are no defined FEMA floodway boundaries within the Study Area.

The NJDEP also regulates Flood Hazard Areas which are defined as "any land, and any space above that land, which lies below FEMA's 100-year floodplain in coastal areas and at least one foot higher than FEMA's floodplain in fluvial (non-coastal) areas". Pursuant to N.J.A.C. 7:13-2.3, a flood hazard area and a riparian zone exist along every regulated water that has a drainage area of 50 acres or more. The Peripheral Ditch would be considered a fluvial flood hazard area as it is not tidal and drains an area of approximately 11.8 square miles (7,552 acres) in and around EWR. The NJDEP Flood Hazard Area is shown on **Figure 3-5**.

In summary, based on FEMA's current official 2007 Flood Insurance Rate Maps (FIRM), portions of the project lie within FEMA's regulated 100 year coastal floodplain. Based on the 2007 FIRM mapping, these areas have a coastal flood elevation of 9 feet. In addition, 2014/2015 preliminary FEMA Flood Maps that may be officially adopted in the future have a higher coastal flood elevation of 11 feet and 12 feet. These maps will be taken into consideration during the final design phase. In addition to FEMA regulated floodplains, there are portions of the project area that lie within Flood Hazard Areas regulated by NJDEP. NJDEP also regulates riparian areas adjacent to regulated watercourses located within portions of the project area.

Groundwater

The USEPA defines a sole source aquifer as one where: 1) the aquifer supplies at least 50 percent of the drinking water for its service area, and 2) there are no reasonably available alternative drinking water sources should the aquifer become contaminated. The Study Area is underlain by the Brunswick Aquifer, which is not a sole source aquifer.[57] As previously noted in **Section 3.5.5**, the groundwater within portions of the Project Area is included under a CEA due to the presence of groundwater contaminants associated with historic fill (**Appendix J**).

Summary

Potential impacts to surface water, wetlands, floodplains, and groundwater are discussed in Chapter 4.

[57] USEPA Region 2 Water. Sole Source Aquifers. Accessed on March 14, 2020. Available at: http://www.dec.ny.gov/docs/water_pdf/ssa.pdf

Chapter 4—Environmental Consequences

This chapter considers the direct, indirect, and cumulative effects of the Proposed Action (Preferred Alternative) and the No Action Alternative on environmental resources at and around the Study Area, including construction-related (temporary) and operational (permanent) impacts.[58] An examination of each applicable environmental impact category is provided to determine if the Proposed Action causes impacts that are significant under NEPA and special purpose laws. Each environmental category has a corresponding FAA threshold level or significance factor beyond which the impact is determined to be significant.[59] Each section of this chapter includes analysis of impacts[60] and, if applicable, proposed minimization, mitigation and/or best management practices (BMPs).

Proposed AirTrain Technology

As indicated in **Chapter 2**, there are three Automated People Mover (APM) technologies that are likely to be proposed by bidders as part of the Design-Build-Operate-Maintain (DBOM) procurement process. These technologies include Steel Wheel APM, Rubber Tire APM and Cable-Propelled APM. In procuring a firm to design and build the Proposed Action, the PANYNJ will establish performance criteria that meet the Purpose and Need without predetermining which technology is adopted. The Study Area established for this EA accommodates all three technologies since their construction parameters, including guideway height and width, for the Proposed Action alignment are similar (see **Figures 2-9, 2-10,** and **2-11**). Ground disturbance related to pier installation for each of the technologies is expected to be of similar size and quantity. Additionally, there is not a significant power consumption difference between the technologies. The MCF building size is not expected to vary between the Steel Wheel or Rubber Tire APM technologies. The MCF for the Cable-Propelled APM would be smaller by about 20 percent. However, the Cable-Propelled APM technology would require additional space within each station for maintenance, operation, and propulsion equipment.

Environmental impacts are not expected to vary significantly between the three technologies under consideration, and all three technologies would meet the Purpose and Need of the Proposed Action. The only exception to this would be a potential variance in noise impacts between the three technologies. The Steel Wheel APM technology has the potential to be the noisiest technology; for this reason, Steel Wheel APM technology was used in this EA for quantifying environmental impacts related to noise impacts. With steel wheel technology, noise level increases were predicted to be at or below Federal Transit Administration (FTA) allowable noise level increases to preclude noise impact (see **Appendix G**). If either the Rubber Tire or Cable-Propelled APM technologies are selected, future noise levels are expected to be equal to or less than those predicted for the most conservative, Steel Wheel APM technology. Therefore, impacts are not expected to vary significantly between the three technologies. An assessment of the impacts resulting from different proposed AirTrain technologies is provided in the discussion of each environmental category.

[58] FAA Order 1050.1F states that the environmental consequences analysis should include consideration of the "direct effects and their significance, the indirect effects and their significance, and cumulative effects and their significance."

[59] FAA Order 1050.1F, Exhibit 4-1, Significance Determination for FAA Actions, pg. 4-4.

[60] Analysis of impacts was based on conceptual plans as project design has not been finalized.

4.1 Construction Overview

In accordance with FAA Orders 1050.1F and 5050.4B, the environmental impacts resulting from construction activities must be assessed when preparing an EA. Impacts resulting from the construction of the Proposed Action will not be permanent, lasting only for the duration of construction activities. To minimize impacts from construction activities, the Proposed Action will incorporate the recommended guidelines and specifications for materials and methods used in airport development projects found within FAA Advisory Circular 150/5370-10H, *Standards for Specifying Construction of Airports*. In addition, the Proposed Action will incorporate the guidelines contained in the PANYNJ's *Sustainable Infrastructure Guidelines*, which aims to optimize infrastructure project design through sustainable engineering practice with the goal of cost savings, extending the lifecycle of a project, and reduction in operational costs.

As discussed in **Chapter 2**, construction, including demolition, of the Proposed Action is expected to occur over approximately 5.5 years. Some key points concerning construction of the Proposed Action include:

- The primary construction shift generally will be from 7:00 am to 4:00 pm, Monday through Saturday, with the exception of holidays. However, some construction and demolition activities will occur during 12-hour weekend schedules (Saturday and Sunday), between the hours of 6:00 pm and 6:00 am, at all piers adjacent to Airport roadways and US Route 1/9, with the exception of the Station 3 piers, at which construction activities were assumed to occur during weekday nighttime periods from 10 pm to 7 am.
- In general, work would include partial demolition of the existing AirTrain (see **Appendix A** for more details regarding demolition extents), excavation, filling, grading, construction of the proposed AirTrain, and establishment of temporary construction staging areas.
- The following facilities and services are assumed to be impacted during construction of the Proposed Action (**Figure 4-1**).
    - The Proposed Action will temporarily result in the closure of a car wash at the gas station located south of the CTA and a temporary reduction in the number of available gas station parking spaces for customers and employees. The gas station will return to normal operations once construction in that area is complete.
    - Valet parking at Lot P4 will temporarily be relocated to the P3 Parking Lot or to Terminal A Short-Term Parking. Less than 100 vehicles associated with valet operations will be relocated over the course of any given day. The vehicles will utilize Express Road to travel between Lots P3 and P4. The limited number of relocated vehicles would not represent a significant increase in traffic per NJDOT guidelines, and therefore, no significant impact is anticipated. Valet parking will return to normal operations once construction in that area is complete.
- Construction of the Proposed Action would not change flight procedures or Airport operations.
- The existing AirTrain will continue to be in service during construction of the proposed AirTrain until the proposed AirTrain is fully operational.

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Lea+Elliott; Aerial Imagery by NearMap, 09/20/2019.

FACILITIES AND SERVICES AFFECTED BY THE PROPOSED ACTION

Figure 4-1

It is expected that demolition activities, as described in **Appendix A**, will continue through 2026. Proposed demolition areas are identified in **Figure 2-10**. A Draft Conceptual Construction Schedule for the Proposed Action is presented in **Appendix I**.

Figure G-6 in **Appendix G** shows potential construction staging areas and material haul routes. The haul routes will utilize local roadways, and do not require closure of those roadways to local traffic. It is anticipated that construction vehicles will use the haul routes during off-peak hours, minimizing any effects on local traffic. Air quality and noise impacts relating to vehicle traffic on material haul routes are assessed as part of the Air Quality Technical Report (**Appendix C**) and the Noise and Vibration Technical Report (**Appendix G**), and summarized in **Section 4.2** (Air Quality) and **Section 4.9** (Noise and Noise-Compatible Land Use).

Construction of the Proposed Action will disturb more than one acre of land. Therefore, the Proposed Action will require a NJDEP Construction Activity Stormwater General Permit (**Appendix J**). In addition, soil erosion and sediment control certifications from the Hudson-Essex-Passaic and Somerset-Union Soil Conservation Districts will be obtained.

Proper soil erosion control measures and BMPs will be implemented during construction and demolition activities to minimize sedimentation into nearby waterbodies and freshwater wetlands. The erosion control measures will be implemented throughout the construction process until the site is permanently stabilized to ensure the protection of any exposed soils and downstream areas. Disturbed areas associated with temporary construction and demolition activities will be returned to their pre-construction condition.

Construction-related impacts and recommended BMPs are addressed within the applicable environmental resource sections of this chapter.

4.2 Air Quality

The Air Quality Technical Report (**Appendix C**) describes the methodology for computing air emissions associated with the No Action and Proposed Action Alternatives[61] and the results of such computations. A description of the emission sources, the methods for computing emissions, and assessed years are summarized in **Table 4-1.**

[61] The Air Quality Technical Report refers to No Action and Proposed Action "scenarios". For the purposes of this report, "scenarios" and "alternatives" are interchangeable.

Table 4-1 Air Emissions Analysis

Emission Source	Emission Source Description	Assessed Years	Computer Model(s) Used to Calculate Emissions
No Action			
Supplemental Busing	Additional emissions due to new transit bus operations necessary to support over-crowded existing AirTrain	2022-2026 and 2031	USEPA's MOVES2014b
Proposed Action			
Supplemental Busing	Additional emissions due to new transit bus operations necessary to support over-crowded existing AirTrain	2022-2026	USEPA's MOVES2014b
	Decrease in emissions due to elimination of supplemental busing after January 30, 2026	2026 and 2031	
Construction and Demolition	Additional emissions due to construction equipment, fugitive dust, concrete/material delivery/haul trucks and contractor's commuting vehicles traveling to/from the site	2022-2026	USEPA's NONROAD2008a/MOVES2014b AP-42

Source: Air Quality Technical Report, Paul Carpenter Associates, Inc. (2020)

Emissions resulting from the sources described in **Table 4-1** above are presented in **Table 4-2** and **4-3**. A detailed discussion of each source's emissions is presented in **Appendix C**. Impacts are assessed to address compliance with the General Conformity Rule and NEPA regulations.

A General Conformity applicability analysis was performed to determine if emissions of nonattainment/maintenance pollutants resulting from the Proposed Action would exceed applicable thresholds established by the USEPA (known as *de minimis* thresholds). Proposed actions that do not exceed *de minimis* levels for nonattainment/maintenance pollutants are considered to meet requirements of the General Conformity Rule and no further analysis is required.

NEPA requires evaluation of whether emissions of all criteria pollutants from a proposed action would result in significant impacts.

4.2.1 No Action

Table 4-2 provides a summary of the emissions that will occur for each year of the No Action Alternative based on the source presented in **Table 4-1**.

Table 4-2 No Action Alternative Emissions by Year (tons/year)

Year	CO	NOx	VOC	SO_2	$PM_{2.5}$	PM_{10}
2022	0.45	1.20	0.10	<0.01	0.04	0.12
2023	0.43	1.15	0.10	<0.01	0.04	0.13
2024	0.45	1.18	0.10	<0.01	0.04	0.14
2025	0.43	1.13	0.09	<0.01	0.04	0.15
2026	0.44	1.16	0.09	<0.01	0.04	0.16
2031	0.42	1.09	0.07	0.01	0.04	0.20
De Minimis Thresholds	*100*	*50*	*50*	*100*	*100*	*100*

Source: Air Quality Technical Report, Paul Carpenter Associates, Inc. (2020)

4.2.2 Proposed Action

Table 4-3 provides a summary of the net emissions that will occur for each year of the Proposed Action Alternative based on the sources presented in **Table 4-1**. Detailed calculations are presented in **Appendix C**.

General Conformity and NEPA Assessment

The annual net difference in emissions was calculated by subtracting the total operational and construction-related emissions of the No Action Alternative from the Proposed Action Alternative for each calendar year. As detailed in **Table 4-3** and **Appendix C**, the net emissions are within annual *de minimis* thresholds; therefore, according to USEPA, the Proposed Action Alternative meets requirements of the General Conformity Rule and no further analysis is required.

Indirect Source Review

Pursuant to FAA's 1050.1F Desk Reference, a Proposed Action must follow any applicable State indirect source review (ISR) regulations. At this time, ISR requirements have not been established for the State of New Jersey.

4.2.3 Mitigation Measures

For the periods analyzed, the Proposed Action would not cause pollutant concentrations to exceed one or more of the NAAQS or to increase the frequency or severity of existing violation, as established by the USEPA under the CAA. Accordingly, the Proposed Action would not result in significant adverse impacts on air quality and no mitigation is required. However, in order to lessen air emissions, avoidance and minimization measures and best management practices would be implemented as part of the Proposed Action (**Table 4-4**). The implementation of emissions avoidance and minimization measures are reflected in the emissions modeling results previously identified in **Table 4-3**. The emission reductions achieved with these minimization measures would be additional to those achieved by the operation benefits of the Proposed Action (e.g., reduced vehicular emissions). The BMPs are already in-place by the PANYNJ and will be applied where appropriate.

Table 4-3 Proposed Action Alternative Net Emissions by Year (tons/year)

Year	Source	CO	NOx	VOC	SO_2	$PM_{2.5}$	PM_{10}
De Minimis Thresholds		*100*	*50*	*50*	*100*	*100*	*100*
2022	Operational – Supplemental Busing Emissions (Proposed Action)	0.45	1.20	0.10	<0.01	0.04	0.12
2022	Operational – Supplemental Busing Emissions (No Action)	-0.45	-1.20	-0.10	-<0.01	-0.04	-0.12
2022	Construction – AirTrain Guideway, MCF, Pedestrian Connectors (Off Road Equipment)	2.61	8.16	0.63	0.15	2.30	19.11
2022	Construction – AirTrain Guideway, MCF, Pedestrian Connectors (On Road Vehicles)	11.96	13.54	1.34	0.07	0.62	1.45
2022 Total		**14.57**	**21.70**	**1.97**	**0.22**	**2.92**	**20.56**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***
2023	Operational – Supplemental Busing Emissions (Proposed Action)	0.43	1.15	0.10	<0.01	0.04	0.13
2023	Operational – Supplemental Busing Emissions (No Action)	-0.43	-1.15	-0.10	-<0.01	-0.04	-0.13
2023	Construction – AirTrain Guideway, MCF, Pedestrian Connectors (Off Road Equipment)	4.47	12.63	0.98	0.23	2.58	19.40
2023	Construction – AirTrain Guideway, MCF, Pedestrian Connectors (On Road Vehicles)	15.91	17.93	1.69	0.09	0.80	2.00
2023 Total		**20.38**	**30.56**	**2.67**	**0.32**	**3.38**	**21.40**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***
2024	Operational – Supplemental Busing Emissions (Proposed Action)	0.45	1.18	0.10	<0.01	0.04	0.14
2024	Operational – Supplemental Busing Emissions (No Action)	-0.45	-1.18	-0.10	-<0.01	-0.04	-0.14
2024	Construction – AirTrain Guideway, Pedestrian Connectors (Off Road Equipment)	0.71	1.64	0.13	0.02	0.69	5.96
2024	Construction – AirTrain Guideway, Pedestrian Connectors (On Road Vehicles)	1.49	1.78	0.16	0.01	0.08	0.21
2024 Total		**2.20**	**3.42**	**0.29**	**0.03**	**0.77**	**6.17**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***
2025	Operational – Supplemental Busing Emissions (Proposed Action)	0.43	1.13	0.09	<0.01	0.04	0.15
2025	Operational – Supplemental Busing Emissions (No Action)	-0.43	-1.13	-0.09	-<0.01	-0.04	-0.15
2025[1] Total		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***
2026	Operational – Supplemental Busing Emissions (Proposed Action)	0.04	0.10	0.01	<0.01	<0.01	0.01
2026	Operational – Supplemental Busing Emissions (No Action)	-0.44	-1.16	-0.09	-<0.01	-0.04	-0.16
2026	Construction – Existing AirTrain Guideway Demolition[2] (Off Road Equipment)	0.03	0.10	0.01	<0.01	0.22	2.10
2026	Construction – Existing AirTrain Guideway Demolition[2] (On Road Vehicles)	0.19	0.24	0.02	<0.01	0.01	0.03
2026[2] Total		**-0.18**	**-0.72**	**-0.05**	**0.00**	**0.14**	**1.98**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***
2031	Operational – Supplemental Busing Emissions (No Action)	-0.42	-1.09	-0.07	-0.01	-0.04	-0.20
2031 Total		**-0.42**	**-1.09**	**-0.07**	**-0.01**	**-0.04**	**-0.20**
Exceeds CAA De Minimis?		***No***	***No***	***No***	***No***	***No***	***No***

[1] – Proposed AirTrain testing and substantial completion expected on December 25, 2025

[2] – Demolition of existing AirTrain guideway

Source: Air Quality Technical Report, Paul Carpenter Associates, Inc. (2020)

Table 4-4 Minimization Measures and Best Management Practices

Minimization Measures	Best Management Practices
Contractor requirements for reducing construction emissions associated with the Proposed Action: • Equipment Less Than 100 HP; 70% of non-road diesel construction equipment that is less than 100 horsepower shall meet USEPA Tier 4 Final emission standards; and • Equipment Greater Than 100 HP; 100% of nonroad diesel construction equipment equal to or greater than 100 horsepower shall meet USEPA Tier 4 Final emission standards.	• Use of ultralow-sulfur diesel fuel to power construction equipment; • Limiting idling times to less than three minutes on diesel and gasoline powered engines pursuant to N.J.A.C. 7:27-14 and N.J.A.C. 7:27-15; • Use of electric-powered equipment instead of diesel to the extent feasible; • Use of the lowest-practical engine size (lowest horsepower) for the task; • Prohibition on tampering to boost horsepower or to defeat emission controls; • Random inspections; • Submittal of a Diesel Emissions Compliance Plan for the PA-NYNJ's review and approval; • Diesel-powered generators are limited to situation where commercial electric power may not readily be available; • Locating diesel-powered exhausts away from sensitive receptors; • Limiting on-site equipment to operating speeds of five mph to reduce dust and particulate pollutants from tires and brakes; • Spraying suppressing agent on any debris pile; • Utilizing water or appropriate liquids for dust control during demolition, land clearing, grading, and on materials stockpile or surface; • Covering open-body trucks when transporting materials; • Removing demolition debris promptly; and • Truck haul routes would be determined to minimize impact to sensitive receptors such as residential areas, hospitals, schools, daycare facilities, senior citizen housing, and convalescent facilities. Truck haul routes are shown in **Figure G-6** of **Appendix G**. • Stationary permitting requirements for construction equipment will be required pursuant to N.J.A.C. 7:27-8.2(c) 1-21 and N.J.A.C. 7:27(d) 15; and • Odors related to construction activities detected off-site that are injurious to human health or would result in citizen complaints are prohibited pursuant to N.J.A.C. 7:27-5.2.

Compliance with the measures and practices listed in **Table 4-4** will be included as part of the Contractor's agreement with the PANYNJ and enforced through various means, such as inspections, audits, and routine field oversight.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to air quality. There will not be a considerable difference in the amount of construction activities or supplemental busing operations between the three technologies. Therefore, impacts to air quality would generally remain the same regardless of which technology is selected.

4.3 Biological Resources

Coordination was conducted with the USFWS, NMFS, NJDEP, and NJNHP to determine the Proposed Action's potential to impact biological resources.

4.3.1 No Action

The No Action Alternative will not change existing on-site or off-site conditions or habitats. As a result, there are no impacts to biological resources.

4.3.2 Proposed Action

Vegetation & Wildlife

Given that the proposed AirTrain will be elevated above grade, direct impacts related to permanent vegetative habitat loss is limited to only those areas proposed for guideway foundation installation (proposed AirTrain). The proposed AirTrain stations and MCF are not expected to significantly impact vegetative communities or wildlife as they will be located in developed areas. Indirect impacts to vegetation due to shading are anticipated to be minimal based on the relatively narrow width of the track and the height of the elevated rail, which will be high enough to allow sunlight at certain times of the day. Additionally, since areas disturbed during demolition of the existing AirTrain will be restored to their pre-construction condition, loss of habitat associated with the proposed AirTrain would be offset by the restoration of some previously vegetated areas currently occupied by the existing AirTrain infrastructure.

As detailed in the Natural Resources Technical Environmental Study (TES), due to the highly developed nature of the Project Area and the relatively small footprints of disturbance, significant impacts to vegetative communities and wildlife are not anticipated (**Appendix B**). The affected habitats, which also provide foraging habitat for a number of the protected species found within the project limits, include grassland, forested/scrub shrub area and wetland/open water areas, including the Peripheral Ditch. These will only be partially impacted due to construction of the proposed guideway foundations and underlying piles, which are small in size in comparison to the habitat patches where the foundations would be installed. Impact areas were assessed based on the heavier steel-wheeled APM. The area of actual cumulative permanent impacts to wetlands within the project limits, for example, is only approximately 1,394 SF. with cumulative temporary

impacts of approximately 1,699 SF. The area of impacts to open water areas in the Peripheral Ditch is approximately 53 SF. The majority of these areas will continue to remain viable habitat after construction of the guideways, provided that all BMP's associated with construction and construction staging and access are followed (i.e., matting where necessary to reduce vegetation impact, selective removal of woody vegetation to allow for piling installation and foundation/pile cap construction in order to minimize forested/scrub shrub impacts etc.) and erosion and sedimentation control measures (i.e., silt fencing, tracking pads etc.) are implemented. No significant adverse impact to biota is anticipated because a large part of the specific habitat patches mentioned would remain, there are similar habitat patches nearby outside of the affected habitat, and actual habitat loss will be offset after demolition of the existing AirTrain is completed and the area restored. Although impacts to the Peripheral Ditch and delineated wetlands are not expected to be significant, they are still subject to state and federal environmental protection requirements. A detailed discussion of impacts, permitting requirements, and proposed mitigation and/and minimization measures for onsite wetlands and the Peripheral Ditch are provided in **Section 4.12.**

Migratory Birds & Threatened and Endangered Species

As previously discussed in **Section 3.5.2**, no federally listed species occur within, or in the vicinity of, the Study Area. Therefore, no impact to federally listed species would occur. While there is essential fish habitat (EFH) in the Newark Bay complex, given that there are no tidal waters, estuarine waters or estuarine wetlands associated with the project, no impacts on EFH are anticipated as a result of the Proposed Action. Additionally, proper soil erosion control measures and BMPs will be implemented during construction and demolition activities to minimize sedimentation into nearby waterbodies, including the Newark Bay complex.

As noted in the TES, the Proposed Action would not extend into known state-protected and migratory bird breeding areas. However, vegetative communities in the Project Area, primarily wetland areas and the Peripheral Ditch, have the potential to provide nesting and/or foraging habitat for avian species, including the black-crowned night heron and the bald eagle. To avoid direct impacts to nesting/breeding birds during construction activities, coordination with the NJDEP regarding state-protected and migratory bird species will be conducted during design of the Proposed Action. At that time, measures necessary for avoidance of these species, including timing restrictions for construction, would be determined.

The bald eagle may use the Peripheral Ditch and its fringe wetlands as foraging habitat. Since direct impacts related to the loss of foraging habitat as a result of the Proposed Action are expected to be minor (approximately 53 square feet) and given the proximity of the Newark Bay complex (a much larger foraging area of similar quality), no significant adverse impact on bald eagle populations is anticipated.

Black-crowned night herons may utilize the wetland areas and the Peripheral Ditch located within the Project Area for nesting and foraging. However, given that the impact to these areas is relatively small (as discussed in **Section 4.12**), and minimization measures will be implemented to avoid displacing nests, no significant direct or indirect impact to the black-crowned night heron is anticipated, particularly since the existing alignment and proposed alignment are close to each other.

As shown on **Figure 4-6**, the proposed AirTrain will generally be constructed immediately adjacent to the existing AirTrain alignment with the exception that the proposed AirTrain will no longer loop around the CTA. As compared to the existing AirTrain alignment, the proposed alignment will result in the guideway being located in closer proximity to habitat associated with the Peripheral Ditch near proposed Station 3. Given the proposed alignment in this area as compared to existing conditions, one potential scenario is that black-crowned night herons returning from foraging to their rookeries outside of the Project Area could become temporarily disoriented resulting in an occasional bird-strike to the AirTrain. According to the information in the TES, this potential situation is a low possibility due to the fact that the proposed guideway will be close to the existing guideway alignment. If bird strikes do occur, they would likely be temporary since black-crowned night herons returning from their rookeries would eventually become accustomed to the new guideway alignment.

Although the proposed AirTrain's elevated infrastructure will create additional shade in the vegetated portions of the Project Area, this would only be temporary until the existing AirTrain is demolished. Following completion of the Proposed Action, the amount of shade in the Project Area would be consistent with current shade conditions. Although the areas shaded by the proposed AirTrain guideway will be slightly different from those areas shaded by the existing AirTrain guideway, due to the height and width of the guideway, the shading is not expected to result in a significant impact to biological resources. Given the average height of both the existing and proposed AirTrain over undeveloped vegetated area, the height of the guideway is high enough to let light reach the ground at least during a portion of each day, even in the scenario where the proposed alignment is built but the existing guideways have not yet been demolished. There may be small patches where more shade tolerant vegetation could become established, but conditions similar to what currently exists would be re-established once the existing AirTrain infrastructure is removed.

Temporary impacts associated with noise and vibration from construction and demolition activities could affect state-protected and migratory birds. Noise and vibration impacts would be addressed by implementation of timing restrictions as well as BMPs to limit construction access disturbance.

4.3.3 Mitigation

As discussed above, no significant impact to biological resources is anticipated and no mitigation is required. However, to minimize impacts to state-protected and migratory bird species, the PANYNJ will coordinate with the NJDEP during design of the Proposed Action. At that time, measures necessary for avoidance of these species will be determined. Measures to minimize impacts to state-protected and migratory birds during construction are anticipated to include:

- Compliance with construction timing restrictions
- Preconstruction monitoring for presence of migratory/protected bird species in areas proposed for disturbance/construction
- Minimization measures to reduce impacts to critical habitat areas, such as active or potential breeding areas and wetlands/open water areas
- Construction BMPs

Biological resource impacts will be minimized with the incorporation of the recommended measures identified above and those included within **Section 4.12**.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to biological resources. There would not be a considerable difference in ground disturbance, habitat alteration, or guideway height and width between the three technologies. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.4 Climate

The FAA Air Quality Handbook indicates that if a foreseeable increase in emissions will occur, the GHG emissions increase should be quantified and disclosed. As discussed in FAA Order 1050.1F and **Appendix C**, there are no federal or state standards or thresholds for GHGs in ambient air. The GHG emissions analysis followed the same methodologies as the air quality analysis (see **Section 4.2**). A detailed description of emissions from each source is provided in **Appendix C**.

4.4.1 No Action

Table 4-5 provides a summary of the emissions that will occur for each year of the No Action Scenario based on the source presented in **Table 4-1**.

Table 4-5 No Action Alternative CO_{2e} Emissions by Year (metric tons/year)

Source	2022	2023	2024	2025	2026	2031
No Action						
Operational – Supplemental Busing	345	372	428	454	509	669

Source: Air Quality Technical Report, Paul Carpenter Associates, Inc. (2020)

4.4.2 Proposed Action

Table 4-6 provides a summary of emissions for the No Action and Proposed Action as well as the net emissions based on the sources presented in **Table 4-1**. Detailed calculations are provided in **Appendix C**.

Table 4-6 CO_{2e} Emissions by Year (metric tons/year)

Source	2022	2023	2024	2025[1]	2026[2,3]	2031
No Action						
Operational – Supplemental Busing	345	372	428	454	509	669
Proposed Action						
Operational – Supplemental Busing[3]	345	372	428	454	42	0
Net operational emissions (Proposed Action – No Action)	**0**	**0**	**0**	**0**	**-467**	**-669**
Construction (Off-Road Equipment Emissions)	21,001	30,775	3,283	0	302	0
Construction (On-Road Vehicle Emissions)	6,963	9,940	1,026	0	156	
Total Project Emissions (Net Operational Emissions and Construction Emissions)	**27,964**	**40,715**	**4,309**	**0**	**-9**	**-669**

1 – Proposed AirTrain testing and substantial completion expected on December 25, 2025

2 – Demolition of existing AirTrain

3 – Assessment based on proposed AirTrain commencing January 30, 2026

Source: Air Quality Technical Report, Paul Carpenter Associates, Inc. (2020)

4.4.3 Mitigation Measures

The Proposed Action would cause a temporary increase in CO_2 emissions during construction due to the use of construction equipment and travel by contractors but will result in a decrease in emissions once the system is operational. Since no significance thresholds are established for this category, no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to climate. There will not be a considerable difference in the amount of construction activities or supplemental busing operations between the three technologies. The impacts to this category would generally remain the same regardless of which technology is selected.

4.5 Department of Transportation, Section 4(f)

As detailed in **Section 3.5.4**, no publicly owned parks, recreational areas, or wildlife and waterfowl refuges are located within the Study Area; however, historic sites were identified.

4.5.1 No Action

The No Action Alternative will not change existing conditions within the Project Area. As a result, there are no impacts to Section 4(f) resources.

4.5.2 Proposed Action

Historic Architectural Sites: As detailed in **Section 3.5.6,** a Historic Architectural Sites Survey and Effects Assessment (SEA) was conducted for the Proposed Action. The SEA did not identify any architectural historic properties that would be adversely affected by the Proposed Action. On March 25, 2020, the PANYNJ requested that the New Jersey Historic Preservation Office (HPO) review the draft SEA (dated January 2020). According to correspondence from HPO dated May 12, 2020 and reaffirmed on December 11, 2020, HPO concurred with the findings of the draft SEA (**Appendix J**). Given this information, no significant adverse direct or indirect impacts on architectural historic properties are anticipated. A copy of the final draft of the SEA (dated August 2020) is included in **Appendix E.**

Archaeological and Cultural Resource Sites: There are no *recorded* archaeological sites within the Proposed Action's Study Area. However, one area which includes the sites of several former 19th Century buildings (referred to as the Johnson/Crook Property) has potential for the presence of historic archaeological resources (**Figure 4-2**, **Section 4.7**). In addition, the Newark City Cemetery is immediately adjacent to the Proposed Action. As discussed in **Section 3.5.6**, a Work Plan for Phase 1B/II testing within the APE where it crosses the former Johnson/Crook property was sent by the FAA to the HPO on August 24, 2020 and approved by the HPO on September 22, 2020 (refer to **Section 5.1**, Agency Coordination). A copy of the Work Plan is included in **Appendix D**. The Phase 1B archaeological testing, consisting of trenches on the Anheuser-Busch and Hartz Mountain property, was completed October 29 and November 2, 2020. No archaeological resources requiring Phase II testing or further archaeological investigation were identified within the APE. The report of Phase 1B testing, which is included in **Appendix D**, was submitted to the HPO for review on November 27, 2020 and approved on December 11, 2020. Any avoidance or minimization measures recommended by HPO for work in the vicinity of the cemetery will be implemented as part of the Proposed Action. As a result, no significant adverse direct impacts or indirect effects to Section 4(f) resources are anticipated.

In their correspondence dated December 11, 2020, the HPO made a determination that the Proposed Action will have *no adverse effect* on historic properties (**Appendix J)**.

4.5.3 Mitigation Measures

As described above, no significant impact to Section 4(f) resources are anticipated and no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to Section 4(f) resources.

The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.6 Hazardous Materials, Solid Waste, and Pollution Prevention

According to FAA Order 1050.1F, the impacts to solid waste collection, control, and disposal due to airport construction projects must be assessed. Airport construction projects, such as the AirTrain Replacement Program, do not normally generate significant amounts of perishable or nonperishable waste, but rather wastes associated with construction activities.

4.6.1 No Action

The No Action Alternative does not involve construction or demolition activities. As a result, there are no impacts to hazardous materials, solid waste, or pollution prevention.

4.6.2 Proposed Action

As documented in **Section 3.5.5**, four remediation sites were identified within the Study Area (**Figure 3-8**). Construction and demolition activity associated with the Proposed Action will be coordinated with any ongoing remediation activities at the identified remediation sites. The NJDEP Site Remediation Program was contacted for comments and input regarding the Proposed Action. Their response stated that the Proposed Action will not have any site remediation issues as proposed (**Appendix J**).

As detailed in **Section 3.5.5**, infrastructure within the Project Area may contain regulated materials that would require removal prior to demolition. Because the existing AirTrain infrastructure was constructed in the mid-1990s, the presence of hazardous building materials (e.g., asbestos, lead paint, PCB-containing materials) is not anticipated. However, hazardous materials surveys will be conducted prior to demolition activities and any regulated materials identified will be removed and disposed of off-Airport in accordance with applicable regulations. Facilities are available to properly dispose of any hazardous waste that may be encountered.

Contaminated groundwater and soil from historic fill beneath the surface of the Study Area may be encountered during the Proposed Action's construction and demolition activities. If required by NJDEP, health and safety plans (HASPs) will be developed to reduce the potential for worker or public contact with any contamination found in either the soil or groundwater. HASPs would be approved by the NJDEP and would address both the known contamination issues (e.g., the need for air monitoring if excavating in known solvent contaminated soil) as well as contingency items (e.g., if unknown tanks or drums are encountered). HASPs would be developed in accordance with U.S. Occupational Health and Safety Administration (OSHA) regulations and guidelines.

Because implementation of the Proposed Action would not increase the quantity of hazardous materials present in the environment, and may require the removal and remediation of some hazardous materials (i.e., existing AirTrain infrastructure demolition) and subsurface areas (i.e., contaminated historic fill), existing levels of hazardous materials may be reduced. Any removal and remediation of hazardous materials in the Project Area will be conducted in accordance with all regulatory requirements.

Solid Waste & Pollution Prevention

Solid waste generated from operation of the proposed AirTrain is expected to be similar to the solid waste currently generated from the existing AirTrain. Because the Proposed Action will not create additional AirTrain passengers, other than those already forecasted, any increase in solid waste associated with the Proposed Action will be temporary and associated with construction. During construction and demolition, solid waste would be generated by site clearing, existing AirTrain infrastructure demolition, and other construction activities. The Proposed Action will be designed to address and implement, where feasible and appropriate, the PANYNJ's current S*ustainable Building Guidelines* as described in **Section 3.5.5**.

Consistent with the PANYNJ's sustainability policy, C&D debris generated by the Proposed Action (i.e., project-related demolition and construction) will be recycled to the greatest extent possible. Disposal of C&D debris will be in accordance with the Union County Solid Waste Management Plan, the Essex County, Solid Waste Management Plan, and with New Jersey's Solid Waste Management Act (N.J.S.A 13:1 E-1).

It is expected that regional facilities have adequate capacity to accommodate the temporary increase in solid waste (i.e., C&D debris). In addition, all activities associated with the Proposed Action would comply with applicable Federal, state, and local regulations regarding the identification, transportation, and disposal of hazardous and non-hazardous material.

Based on the discussion above, the Proposed Action would not have a significant adverse impact on hazardous materials, solid waste or pollution prevention.

4.6.3 Mitigation Measures

As described above, no significant impacts related to hazardous materials, solid waste, or pollution prevention are anticipated and no mitigation is required. Hazardous materials impacts will be minimized with the incorporation of the recommended measures identified below and use of BMPs:

- **Health and Safety Plan (HASP)** – A project-specific HASP, applicable to all excavation activities, may be prepared as recommended by NJDEP to establish policies and procedures to protect workers and the public from potential hazards posed by hazardous materials that might be in soil and groundwater. The plan would be prepared according to Federal and State OSHA regulations and submitted to NJDEP for approval, prior to starting construction and demolition activities.
- **Dust Abatement Program** – Project contract specifications would include a dust abatement program to minimize potential public health impacts associated with exposure to dust (**Table 4-4**).
- **Potential to Encounter Contaminated Soils or Groundwater during Construction** –Contract specifications would require that a contingency plan be prepared in the event that evidence of potential soil or groundwater contamination (e.g., discoloration, sheen, and odors), debris, or buried storage containers are encountered during design or construction of project components.
- **Recycling and Disposal of Oil and Other Solvents**—Oil and other solvents used during maintenance of construction equipment will be recycled or disposed of in accordance with applicable regulatory requirements. All hazardous materials will be transported, handled and disposed of in accordance with applicable regulatory requirements.

- **Potential Accidental Release of Hazardous Material**s—In the event of an accidental release of hazardous materials during construction or demolition, containment and clean-up will occur in accordance with applicable regulatory requirements.
- **Hazardous Materials Handling**—Consistent with requirements of the Stormwater Pollution Prevention Plan, the construction and demolition contractor will be required to implement construction BMPs for handling hazardous materials onsite. The use of BMPs would minimize negative effects on groundwater and soils.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to hazardous materials, solid waste, and pollution prevention. The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. The impacts to this category would generally remain the same regardless of which technology is selected.

4.7 Historic, Architectural, Archaeological, and Cultural Resources

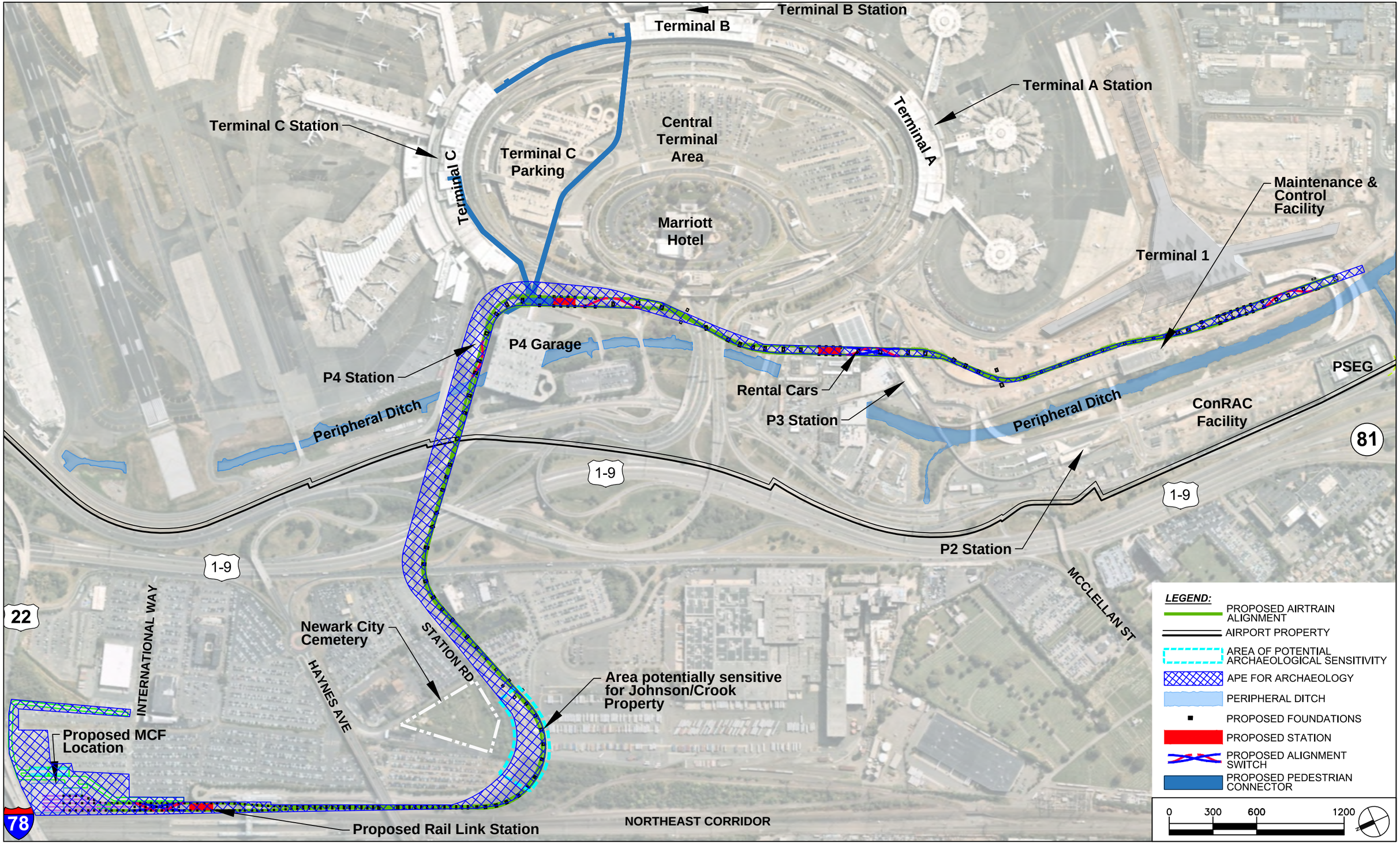
As documented in **Appendix E** and discussed in **Section 3.5.6**, the Proposed Action would have no adverse effect on NRHP listed historic architectural resources. Additionally, findings of the Phase 1A Cultural Resources Survey indicate that there are no *recorded* archaeological sites within the Proposed Action's Study Area. However, one area which includes the sites of several former 19th Century buildings (referred to as the Johnson/Crook Property) has potential for the presence of historic archaeological resources (**Figure 4-2**).

4.7.1 No Action

The No Action Alternative would not result in development and no ground disturbance would occur. As a result, there would be no impact to historic, architectural, archaeological or cultural resources.

4.7.2 Proposed Action

As detailed in **Section 3.5.6**, one area which includes the land originally belonging to the Newark City Cemetery and the sites of several former 19th Century dwellings and buildings immediately south of the cemetery (referred to as the Johnson/Crook Property) have the potential for the presence of historic archaeological resources (**Figure 4-2**). Because of prior disturbance, it was determined that the portion of the Newark City Cemetery that is closest to – but not impacted by -the proposed elevated guideway alignment is not likely to have sensitive for archaeological resources. The Johnson/Crook Property has low to moderate archaeological sensitivity (**Figure 4-2**). Therefore, ground disturbance during construction and demolition activities has the potential to impact archaeological resources. As detailed in **Section 3.5.6**, HPO requested a Phase 1B archaeological survey be conducted in the APE. Consistent with HPO's request, a Work Plan to conduct the requested surveys was submitted by FAA to the HPO on August 24, 2020 and approved by the HPO on September 22, 2020 (**Appendix J**). A copy of the Work Plan and approval is included in **Appendix D**.



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Aerial Imagery by NearMap, 09/20/2019.

IMPACTS TO POTENTIAL ARCHAEOLOGICALLY SENSITIVE AREAS

Figure 4-2

The Phase 1B archaeological testing, consisting of trenches on the Anheuser-Busch and Hartz Mountain property, was completed October 29 and November 2, 2020. No archaeological resources requiring Phase II testing or further archaeological investigation were identified within the APE. The report of Phase 1B testing, which is included in **Appendix D**, was submitted to the HPO for review on November 27, 2020 and approved on December 11, 2020. As a result, no adverse archaeological or cultural resource impacts are anticipated.

Newark City Cemetery – The cemetery, which reportedly contains thousands of historic burials, is not registered as an archaeological site with HPO. As shown on **Figure 4-2**, the present-day cemetery is located outside the direct impact APE. However, the land lying to the west of the present-day cemetery is part of the original cemetery property; therefore, this area may have been used for burials prior to 1903, when the land was acquired by the railroad. The proposed AirTrain alignment is along the far western boundary of the original cemetery parcel, within the rail yard. Given the previous disturbance by the railroad yard, no adverse archaeological resource impacts are anticipated as a result of the Proposed Action in this location. On the south side of the cemetery, the Proposed Action would be located south of the existing AirTrain, and approximately 100 feet south of the southeastern corner of the present-day cemetery. In this location, the Proposed Action would be farther from the present-day cemetery than is the existing AirTrain. As a result, no adverse impact to the present-day cemetery is anticipated.

Johnson/Crook Property – Portions of Block 5090, Lots 1.05 and 44.01 (south and southwest of the existing AirTrain, **Figure 2-9**) were identified in the Phase 1A Survey Report as having archaeological potential within the APE. This area was formerly the site of a glue factory, several dwellings, and a hospital, and is currently occupied by a large parking lot with a weigh station and a wooded area formerly covered by railroad tracks. Since construction of the parking lot may not have involved significant subsurface disturbances and instead, may have involved filling activities that would not have impacted potential archaeological deposits, subsurface testing was undertaken. No archaeological resources requiring further investigation were identified within the APE.

If construction-related activities, such as excavation, result in the discovery of a historic property or artifacts, then those construction activities would be suspended until the FAA, in consultation with the HPO, determines what actions must be taken to address the potential for adverse effects.

In their correspondence dated December 11, 2020, the HPO made an overall determination that the Proposed Action will have *no adverse effect* on historic properties (**Appendix J)**.

4.7.3 Mitigation Measures

As described above, no significant impact to historic, architectural, archaeological or cultural resources are anticipated and no mitigation is required. A plan to manage unanticipated discoveries of archaeological resources will also be in place during construction and demolition activities and will include the protocol for stopping work in the event that human remains are discovered.

AirTrain Technology Impacts

As stated above, the Proposed Action would not result in a significant impact to historic, architectural, archaeological, and cultural resources. The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.8 Natural Resources and Energy Supply

4.8.1 No Action

The No Action Alternative is not expected to result in increased energy consumption. The only foreseeable exception would be the addition of busing to accommodate future AirTrain ridership demand, which could result in an increase in fuel consumption.

4.8.2 Proposed Action

The Proposed Action could result in a slight increase in energy consumption primarily due to increased station size designed to accommodate future demand. Any increase would be minimal and would likely not exceed the increased fuel consumption from added busing as part of the No Action Alternative noted above. During initial discussions with PSE&G, the electricity carrier for the existing AirTrain, PSE&G indicated that there are no significant issues with accommodating any potential increased demand for electricity for the proposed AirTrain. The recently constructed PSE&G substation will be able to accommodate the proposed AirTrain with its existing capacity. The Proposed Action would tie into existing PSE&G duct banks near Terminal One to power the system. Coordination with PSE&G will continue to occur during the design phase of the Proposed Action.

There would be no increased demand for natural resources under the Proposed Action for operational purposes. An increased demand for construction materials would occur during construction, including demand for materials such as steel, gravel, concrete, sand, aggregate, asphalt, and other materials. These materials are not in short supply in the region and consumption of these materials is not expected to deplete or cause a shortage of existing supplies. No unique or rare natural resources are expected to be required for the Proposed Action. The Proposed Action is not anticipated to result in any increase in the consumption of sanitary sewer or water usage since the number of passenger stations will not be increased and the MCF, though larger than the existing MCF, is expected to utilize more energy-efficient equipment than the current MCF.

Based on the above discussion, the Proposed Action will not have an adverse effect on natural resources and energy supply.

4.8.3 Mitigation Measures

As noted above, no significant impact related to natural resources and energy supply is anticipated and no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to natural resources. There is not a significant difference for power consumption for the AirTrain between the various technologies. The MCF building size is not expected to vary between the Steel Wheel or Rubber Tire APM technologies. The MCF for the Cable-Propelled APM would be smaller by about 20 percent. However, the Cable-Propelled APM technology would require additional space within each station for maintenance, operation, and propulsion. Therefore, overall energy and electricity demands for the facilities associated with each of the three technologies are not expected to vary significantly. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.9 Noise and Noise-Compatible Land Use

The Noise and Vibration Technical Report (**Appendix G**) contains the methodology and noise and vibration assessment results relating to the No Action and Proposed Action Alternatives. The sources of potential noise and vibration impacts discussed in **Appendix G** are summarized in **Table 4-7**.

4.9.1 No Action

Supplemental busing would be necessary to transport existing AirTrain overflow riders from the Rail Link Station to various locations at the Airport when the system is expected to reach capacity. Supplemental busing would be provided on two routes and include travel along International Way, Station Road, US Route 1/9, Brewster Road, Martin Road, Pitcairn Road as well as on-Airport roadways (see **Figure G-2, Appendix G**). These supplemental bus routes were screened as FTA "access roads". The Best Western Plus Newark Airport West hotel (the Best Western) is within the FTA's 100-foot access roads screening distance of the route along International Way, requiring assessment of airborne noise impacts. Supplemental busing under the No Action Alternative would result in a noise exposure level of 55 dBA Ldn at the Best Western, which is 10 dB less than existing noise exposure levels at this hotel (66 dBA Ldn on weekdays and 65 dBA Ldn on weekends). Therefore, supplemental busing has no cumulative effect on the total noise level at the Best Western, and No Action Alternative noise exposure levels with supplemental busing would remain the same as under the existing condition (**Table G-6**, **Appendix G**). No noise impacts will occur as a result of the operation of the No Action Alternative.

Table 4-7 Sources of Potential Noise and Vibration Impacts

Source	Source Type	Source Description
No Action		
Supplemental busing	Airborne Noise	Additional operational noise due to new transit bus source necessary to support overcrowded existing AirTrain
Proposed Action		
Proposed AirTrain, Supplemental busing	Airborne Noise	Proposed AirTrain and supplemental busing necessary to transport overflow AirTrain riders until the new system is put into revenue service
Proposed AirTrain	Ground-borne Noise and Vibration	Proposed AirTrain alignment is closer to existing sensitive noise receivers than the existing AirTrain alignment
Construction	Onsite Airborne Noise	Proximity to construction activities
Construction	Offsite Airborne Noise	Proximity to hauling, delivery, and disposal operations associated with construction activities
Construction	Vibration – Structural Damage	Proximity to construction activities such as pile driving, vibratory compaction, demolition, drilling, and excavation
Construction	Vibration - Annoyance	Proximity to construction activities such as pile driving, vibratory compaction, demolition, drilling, and excavation

Note: Airborne noise is defined as any sound that is transmitted by the air. Ground-borne noise refers to the noise generated by ground-borne vibration. Source: Noise and Vibration Technical Report (**Appendix G**), Paul Carpenter Associates, Inc. (2020)

4.9.2 Proposed Action

Noise and vibration impacts from the Proposed Action Alternative are summarized below and presented in more detail in **Appendix G**.

Proposed AirTrain and Supplemental Busing (Airborne Noise): The proposed AirTrain system was conservatively screened as an FTA Low and Intermediate Capacity Transit steel wheel system. The Holiday Inn Newark Airport hotel (the Holiday Inn) is within the FTA's recommended 125-foot steel wheel screening distance of the proposed AirTrain; consistent with FTA guidance, potential airborne noise impacts were assessed at this hotel. Although not within applicable FTA recommended screening distances, the Newark Liberty International Airport Marriott hotel (the Marriott) was also included in the operational airborne noise assessment of the proposed AirTrain, as the greatest shift in the alignment, relative to the existing condition, would occur adjacent to this hotel (approximately 890 feet closer). Noise levels under the Proposed Action Alternative would not exceed the recommended FTA significance thresholds related to operation of the proposed AirTrain. In addition, when the existing AirTrain reaches capacity, supplemental busing would also be necessary under the Proposed Action Alternative during construction and testing of the proposed AirTrain. Since the proposed AirTrain has greater capacity than the existing AirTrain, supplemental busing would no longer be needed once the proposed AirTrain is brought into service. Similar to the No Action Alternative, busing-related noise exposure levels at the Best Western would be 10 dB less than existing noise exposure levels; therefore, supplemental busing has no cumulative effect on the total noise level at the hotel (**Table G-8 and G-9**, **Appendix G**), and no noise impacts will occur as a result of supplemental busing under the Proposed Action Alternative.

Proposed AirTrain (Ground-borne Noise and Vibration): Similar to airborne noise, the proposed AirTrain system was conservatively screened as an FTA Intermediate Capacity Transit steel wheel system for the ground-borne noise and vibration assessment. The recommended ground-borne noise and vibration screening distances are land-use dependent, as discussed within the Noise and Vibration Technical Report (**Appendix G**). The Holiday Inn is classified as Vibration Land Use Category 2 (residences and buildings where people normally sleep), in which the applicable recommended screening distance for an Intermediate Capacity Transit steel wheel system is 100 feet. The Holiday Inn is within the FTA's recommended 100-foot Intermediate Capacity Transit steel wheel screening distance of the proposed AirTrain; consistent with FTA guidance, potential ground-borne noise and vibration impacts were assessed at this hotel.

Ground-borne noise is expressed in terms of decibels (dB) while ground-borne vibration is expressed in terms of vibration velocity levels in units of VdB. The criteria used to evaluate ground-borne noise and vibration impacts depend on the number of events of the same source per day (defined as frequent, occasional, or infrequent) and the FTA Vibration Land Use Category. The Holiday Inn is considered a Vibration Land Use Category 2 and is subject to frequent events (i.e., more than 70 vibration events of the same source per day); therefore, FTA's recommended significance thresholds for ground-borne vibration and noise are 72 VdB and 35 dB, respectively.

Estimated ground-borne vibration and noise levels at the Holiday Inn are 66 VdB and 31 dB, respectively; therefore, ground-borne noise and vibration impacts are not anticipated as a result of the Proposed Action (**Table G-10**, **Appendix G**).

Construction (Onsite Airborne Noise): Figure 4-3 presents all FTA noise sensitive receiver locations considered for the construction noise assessment, as well as locations of predicted temporary construction noise impacts resulting from activities in specific work sub-areas[62]. **Table G-13, Appendix G** summarizes FTA construction noise impact thresholds, and **Table 4-8** and **Table G-14, Appendix G** provides further detail regarding the construction activity causing the impacts, the time of day in which potential impacts may occur, and the approximate impact duration. As illustrated in **Figure 4-3**, noise levels were predicted to temporarily exceed the FTA's daytime and nighttime residential (includes hotels) construction noise impact thresholds of 90 dBA and 80 dBA, respectively, at the Holiday Inn and the nighttime residential threshold at the Marriott hotel.

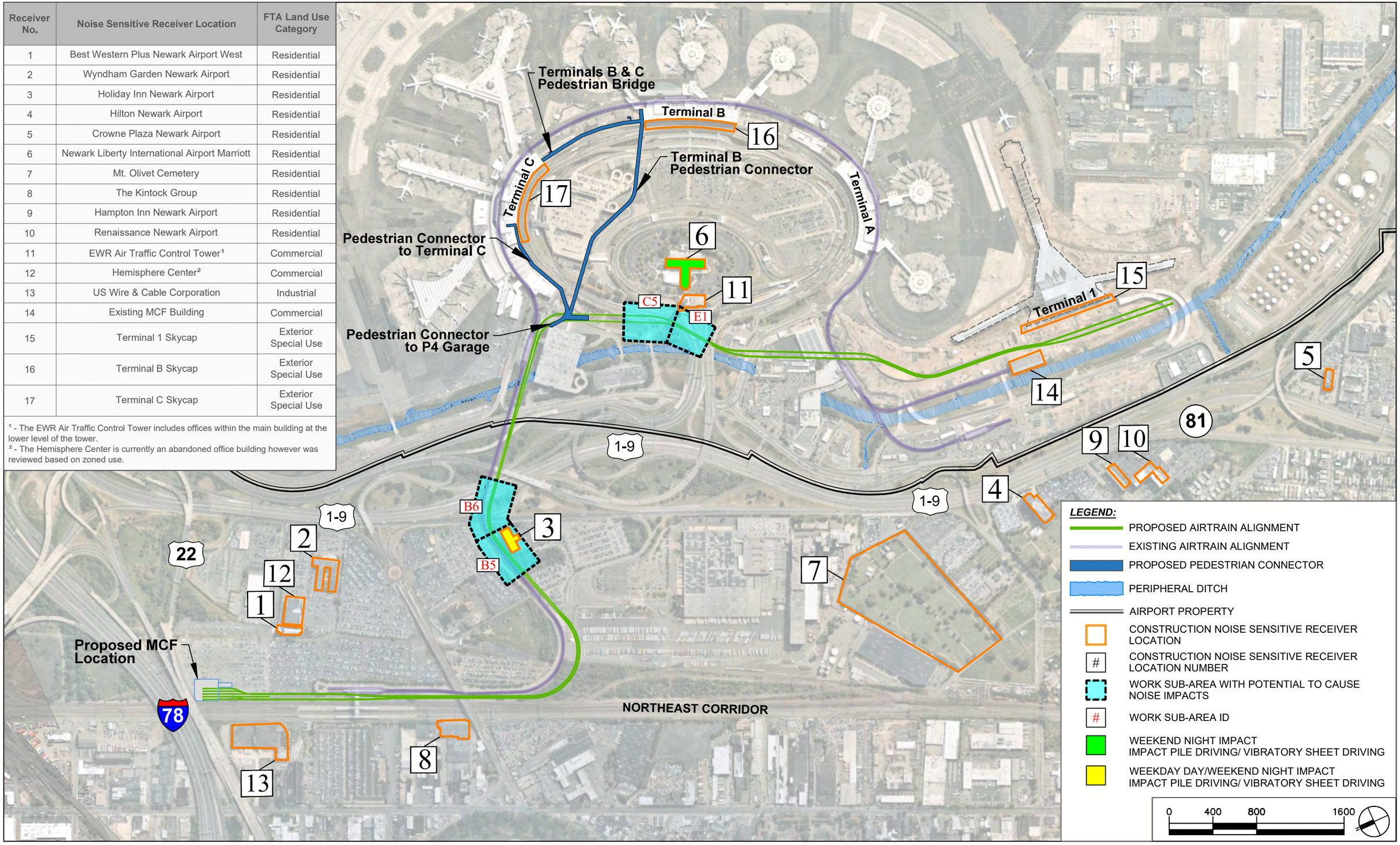
In addition to the potential noise impacts to the interior occupants of the sensitive noise land uses identified in **Table G-14, Appendix G**, there is a potential for temporary increases in noise levels perceived by personnel working at exterior skycap locations at Terminal One, Terminal B, and Terminal C. Since FTA does not address this type of land use in its guidance, skycap locations were addressed quantitatively by identifying maximum potential noise levels during construction activities. According to the foregoing analysis, Terminal One skycap personnel may experience noise levels potentially as high as 74 dBA for approximately 5 months during guideway construction activities within adjacent Work Sub-areas F3, F4, and F5 (see **Figure G-5**, **Appendix G** for "sub-areas"); and Terminal B skycap personnel may experience noise levels potentially as high as 99 dBA for approximately 10 months during construction periods of pedestrian connectors. Terminal C skycap personnel may experience noise levels potentially as high as 72 dBA during 12-hour weekend construction activities associated within adjacent Work Subareas C3 and C5 (see **Figure G-5**, **Appendix G** for "sub-areas") and noise levels potentially as high as 97 dBA during construction periods of pedestrian connectors.

Construction (Offsite Airborne Noise): Multiple potential truck haul routes have been identified for the delivery and haul-away of materials and construction debris and access to staging areas, which would route truck traffic (offsite mobile sources) past noise sensitive receivers, including several nearby hotels. FTA guidance does not specifically address offsite mobile sources; therefore, as explained in detail in **Appendix G**, mobile source noise levels resulting from construction-related truck traffic were calculated using the Federal Highway Administration's Traffic Noise Model 2.5 (TNM2.5). It was determined that truck trips along potential haul routes would not result in perceivable changes (i.e., 3 dB) in noise levels at noise-sensitive receiver locations during the quietest hours of the day (**Table G-15**, **Appendix G**). Therefore, noise impacts from offsite construction-related airborne noise are not anticipated.

[62] Guideway construction was divided into several "sub-areas". See **Figure G-5** for reference.

Receiver No.	Noise Sensitive Receiver Location	FTA Land Use Category
1	Best Western Plus Newark Airport West	Residential
2	Wyndham Garden Newark Airport	Residential
3	Holiday Inn Newark Airport	Residential
4	Hilton Newark Airport	Residential
5	Crowne Plaza Newark Airport	Residential
6	Newark Liberty International Airport Marriott	Residential
7	Mt. Olivet Cemetery	Residential
8	The Kintock Group	Residential
9	Hampton Inn Newark Airport	Residential
10	Renaissance Newark Airport	Residential
11	EWR Air Traffic Control Tower[1]	Commercial
12	Hemisphere Center[2]	Commercial
13	US Wire & Cable Corporation	Industrial
14	Existing MCF Building	Commercial
15	Terminal 1 Skycap	Exterior Special Use
16	Terminal B Skycap	Exterior Special Use
17	Terminal C Skycap	Exterior Special Use

[1] - The EWR Air Traffic Control Tower includes offices within the main building at the lower level of the tower.
[2] - The Hemisphere Center is currently an abandoned office building however was reviewed based on zoned use.



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Noise and Vibration Technical Report, Paul Carpenter Associates, Inc. (2020)

POTENTIAL CONSTRUCTION NOISE ASSESSMENT AND IMPACT LOCATIONS

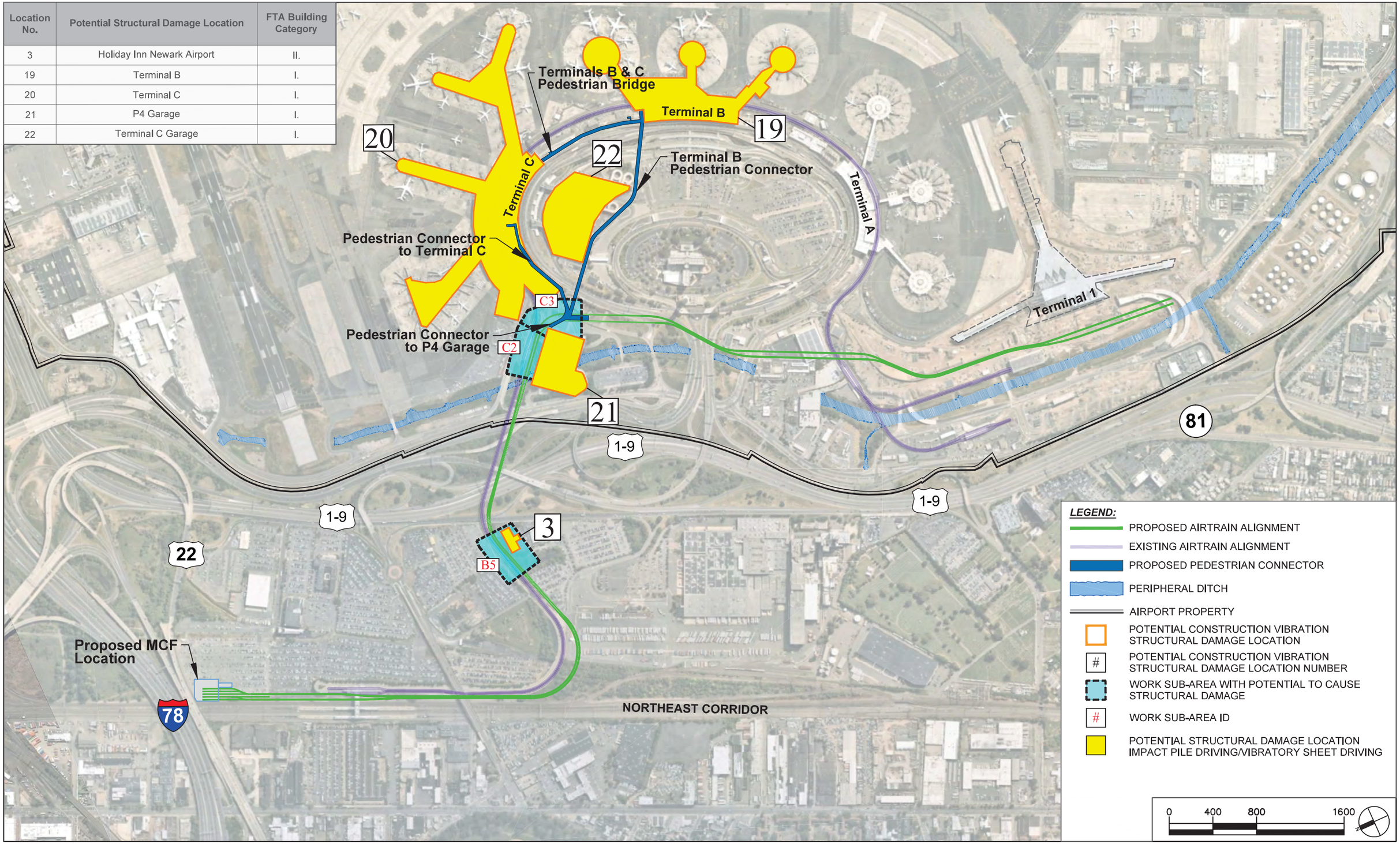
Figure 4-3

Construction Vibration (Structural Damage): FTA guidance provides structural damage thresholds (i.e., vibration levels above which there is a potential for structural damage), which are established based on FTA building categories (categorized based on the materials used to construct a building) and the distance from the vibration source (see **Table G-16, Appendix G** for FTA recommended structural damage criteria). Conservative assumptions related to soil condition and size of equipment are also considered. These recommended thresholds were used in this analysis to identify locations where there is the potential for vibration-induced structural damage during heavy construction activities such that those locations should be further evaluated during a project's final design phase. The existing AirTrain guideway and stations as well as the Rail Link Station and nearby NEC tracks, Airport terminals, existing parking garages, and existing MCF were assumed to be Building Category I structures (see **Table G-16, Appendix G** for definition), which are defined by FTA guidance as buildings constructed of reinforced concrete, steel or timber (no plaster). Hotels, the Kintock Group residential building and other office buildings were assumed to be Category II structures, which are defined by FTA guidance as buildings constructed of engineered concrete and masonry (no plaster). Construction activities as part of the Proposed Action that have the potential to damage structures due to vibration include impact pile driving and vibratory sheet driving, which are primarily associated with pedestrian connectors and guideway construction. **Figure 4-4** illustrates structures predicted to potentially exceed the FTA Building Category I structural damage threshold of 0.5 inches/second (in/sec), including Terminal B, Terminal C, P4 Parking Garage, Terminal C Parking Garage, existing AirTrain guideway, Rail Link Station, and existing NEC tracks as well as structures predicted to potentially exceed the FTA Building Category II structural damage threshold of 0.3 in/sec, including the Holiday Inn hotel. Results are summarized in **Table 4-9 and Table G-17, Appendix G**.

Construction Vibration (Annoyance): As discussed in the Ground-borne Noise and Vibration section above, FTA recommended criteria for evaluating the potential for annoyance due to construction-related vibrations are based on the vibration land use categories, frequency of vibration events, as well as conservative assumptions related to soil condition and size of equipment used (see **Table G-8, Appendix G** for vibration annoyance criteria). For the construction vibration annoyance assessment, impact pile driving and hoe ramming activities were assumed to generate frequent vibration events due to the number of strikes necessary to drive piles and break concrete and other materials. Sheeting installation with a vibratory hammer was assumed to generate infrequent vibration events since installation of each sheet would be considered one vibration event, and no more than 30 sheets per day was assumed in a single work area. Vibration-sensitive land uses that would potentially experience construction-induced vibration annoyance include the Holiday Inn, the Marriott, the Kintock Group, and the Air Traffic Control Tower (**Table G-18**, **Appendix G**). **Figure 4-5** illustrates the locations where vibration levels would potentially exceed FTA vibration annoyance thresholds for frequent events (impact pile driving and hoe ramming) of 72 VdB and 75 VdB for residential and institutional land use, respectively, as well as locations where vibration levels would potentially exceed the FTA vibration annoyance threshold for infrequent events (e.g. vibratory sheet driving) of 80 VdB at residential land use, as a result of conservative analysis assumptions.

Based on the report in **Appendix G**, structural damage thresholds would potentially be exceeded during impact pile and vibratory sheet driving activities related to construction of the proposed AirTrain guideway substructure and pedestrian bridges, and annoyance thresholds would potentially be exceeded during impact pile

Location No.	Potential Structural Damage Location	FTA Building Category
3	Holiday Inn Newark Airport	II.
19	Terminal B	I.
20	Terminal C	I.
21	P4 Garage	I.
22	Terminal C Garage	I.



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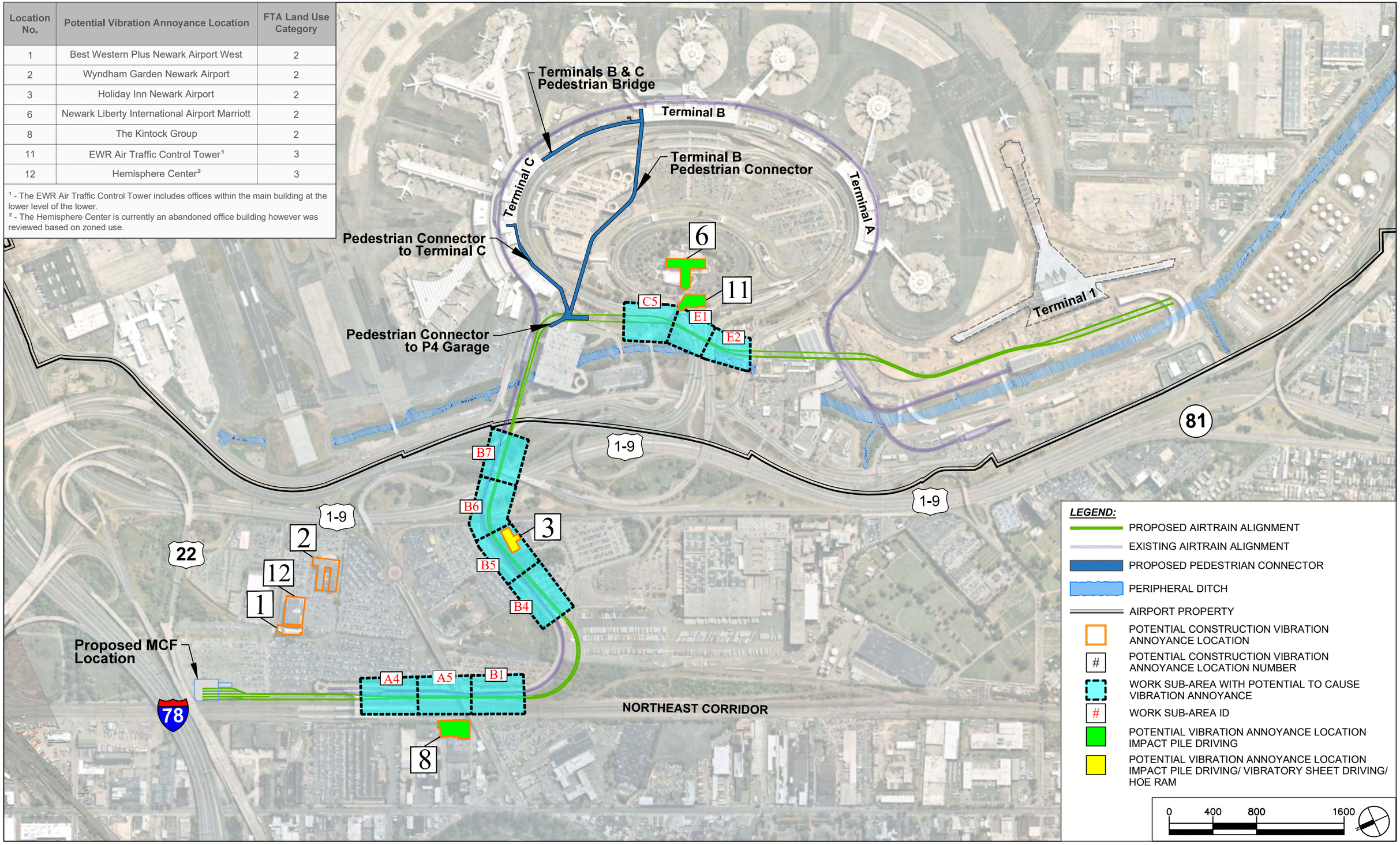
Source: Noise and Vibration Technical Report, Paul Carpenter Associates, Inc. (2020)

POTENTIAL CONSTRUCTION VIBRATION STRUCTURAL DAMAGE LOCATIONS

Figure 4-4

Location No.	Potential Vibration Annoyance Location	FTA Land Use Category
1	Best Western Plus Newark Airport West	2
2	Wyndham Garden Newark Airport	2
3	Holiday Inn Newark Airport	2
6	Newark Liberty International Airport Marriott	2
8	The Kintock Group	2
11	EWR Air Traffic Control Tower[1]	3
12	Hemisphere Center[2]	3

[1] - The EWR Air Traffic Control Tower includes offices within the main building at the lower level of the tower.
[2] - The Hemisphere Center is currently an abandoned office building however was reviewed based on zoned use.



PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: Noise and Vibration Technical Report, Paul Carpenter Associates, Inc. (2020)

POTENTIAL CONSTRUCTION VIBRATION ANNOYANCE LOCATIONS

Figure 4-5

and vibratory sheet driving activities related to construction of the proposed AirTrain guideway and demolition of the existing AirTrain guideway. Strategies to reduce noise and vibration during construction are provided in the PANYNJ's Sustainable Infrastructure Guidelines, and recommended construction noise and vibration minimization measures are discussed within **Appendix G**.

4.9.3 Mitigation Measures

No significant operational noise and vibration impacts are anticipated; therefore no noise and vibration mitigation measures are required for the operation of the Proposed Action. However, based on the FTA Construction General Noise Assessment performed consistent with FTA guidance, potential construction-related noise impacts at the Holiday Inn have been identified resulting from guideway construction during impact pile driving and vibratory sheet driving activities when occurring in work sub-areas B5 and B6, and at the Marriott when these activities occur within sub areas C5 and E1. It is important to note that potential impact to these structures have been identified during an initial review of construction-related vibration based on conservative assumptions such as soil condition, size of equipment and structure type. Based on reasonable assumptions about the types and numbers of construction equipment, as well as the Draft Conceptual Schedule (**Appendix I)**, potential noise impacts may occur during a period of six weeks to three months, as presented in **Table 4-8**.

In addition to environmental measures imposed on contractors, construction work would be planned and executed in a manner to minimize noise impacts to the noise-sensitive land use in close proximity to the Project Area. The following minimization measures to reduce noise during construction are provided in the PANYNJ's Sustainable Infrastructure Guidelines:

- Require all debris conveyors and containers to be lined or covered with sound absorbing materials,
- Require all pneumatic support equipment to have intake and exhaust mufflers recommended by the manufacturer,
- Require all impact devices to be equipped with acoustically attenuating shields or shrouds recommended by the manufacturer,
- Require all internal combustion equipment to have mufflers and shield paneling recommended by the manufacturer,
- Require idling time for both on-road and off-road equipment and vehicles to be limited to three minutes,
- Minimize the use of equipment that generates more than 80 dBA of noise and use such equipment only during daylight hours (i.e., not at night in residential areas),
- Use an approved sound-level meter for self-monitoring and proactively correct conditions where the noise generated by specific pieces of equipment exceeds allowable levels,
- Use noise barriers to contain noise where practicable.

Supplementing the minimization measures in the PANYNJ's Sustainable Infrastructure Guidelines, additional noise minimization measures would be incorporated in documents that will require the contractor to:

- Establish construction noise level limits at noise-sensitive receiver locations. The PANYNJ historically implements more stringent construction-related noise level limits than FTA's guidance for envi-

ronmental impact assessment. Construction-related noise level limits will be established for those receivers within FTA screening distances as well as beyond, including the Best Western, Wyndham Garden Newark Airport hotel, the Holiday Inn, EWR Air Control Tower (Lower Main Office Building and Elevated Control Tower), the Marriott, and the Kintock Group.

- Require contractor to develop and implement a Noise Control and Mitigation Plan based on proposed equipment and methods, which will include expected noise levels and noise control measures that will be implemented to meet the project-specific noise level limits established within contract documents,
- Regarding impact pile driving, as part of the Noise Control and Mitigation Plan, the PANYNJ will encourage the use of noise minimization measures such as reducing the impact sound of the ram hitting the pile cap by placing a resilient pad in the anvil chamber and reducing the discharge sound of the hammer's air exhaust by installing a rectangular steel enclosure lined with acoustically absorptive material to provide both sound absorption and a limp mass noise barrier,
- Construct temporary noise barriers using a heavy loaded vinyl material of at least 2 lbs/SF with an STC (Sound Transmission Class) rating of 30 or higher,
- Construct localized three-sided enclosures with roofs (i.e., noise tents) around stationary equipment such as compressors and generators, with the open side facing away from noise sensitive receiver locations,
- Ensure all equipment is well maintained with effective mufflers,
- Require the use of silencers on combustion engines, and
- Provide community relations support to address construction-related noise issues.
- Due to the close proximity of proposed foundations to the Holiday Inn, as close as 29 feet from the hotel to the nearest proposed guideway foundation location, coupled with required potential nighttime work near this hotel, reducing noise levels below FTA's recommended impact thresholds would require additional measures beyond typical source and path controls. Specifically, the PANYNJ would require the contractor to provide advanced notice of anticipated pile driving and sheet driving activities and approximate durations, specifically when work is to be performed at piers B31 through B37. When possible, to further ensure noise levels are reduced, the PANYNJ would coordinate with hotel operators on measures to reduce noise levels below FTA recommended construction noise impact thresholds by employing measures such as, but not limited to, locating hotel patrons to south facing rooms during such activities – particularly during the estimated five to six week period for the pile driving and sheet piling activities associated with the three foundations nearest to the hotel. Discussions and coordination with Holiday Inn about the project are on-going and it is expected that mutually agreeable measures to limit this impact (as well as potential vibration impact) will be identified. Also, mitigation measures will be included in contract specifications documents. Prior to the start of construction, the contractor will prepare a Noise Control and Mitigation Plan which will include specific mitigation measures as well as incorporate the PANYNJ's Sustainable Infrastructure Guidelines.

Based on the FTA Construction General Vibration Assessment performed pursuant to FTA's guidance, there is potential for construction-related structural damage at the Holiday Inn, Terminal B, Terminal C, P4 parking garage and Terminal C parking garage during impact pile driving and vibratory sheet driving activities in areas listed in **Table 4-9**. The PANYNJ's Sustainable Infrastructure Guidelines require limiting vibration resulting from construction equipment when work is close to tunnels, utilities, or other sensitive structures through the use of other acceptable methods of construction, such as pre-augering the foundation piles and closely monitoring peak particle velocity compliance through seismograph readings. Supplementing the minimization

measures in the PANYNJ's Sustainable Infrastructure Guidelines, additional vibration minimization measures would be incorporated in documents that will require the contractor to:

- Establish construction vibration structural damage response action and stop-work levels,
- Conduct a pre-construction survey of all buildings adjacent to operations requiring vibratory or impact pile driving equipment, and identify existing cracks and building conditions,
- Require the development and implementation of a Vibration Control and Monitoring Plan, which documents expected vibration levels during driving activities and methods to control vibration,
- Require third-party construction compliance vibration monitoring, and
- Require contractor to be responsible for damage to structures resulting from construction of the project.

Prior to the start of construction, the contractor will prepare a Noise Control and Mitigation Plan and Vibration Control and Monitoring Plan for all affected resources which will include specific mitigation measures as well as incorporate the PANYNJ's Sustainable Infrastructure Guidelines. In addition to coordination with the Holiday Inn and the Marriott, the PANYNJ will coordinate with the Air Traffic Control Tower to identify sensitive activities that may require special consideration to minimize impacts during the approximately three months of construction activity is anticipated near the Air Traffic Control Tower. Similarly, the PANYNJ will minimize impacts to the Kintock Group by evaluating and adopting, where appropriate, alternate construction methods for pile driving and hoe ramming activities. The duration of construction activity near the Kintock Group is anticipated to be approximately five months and pile driving and hoe ramming activities will occur only during day hours.

AirTrain Technology Impacts

There will not be a considerable difference in the amount of supplemental busing operations among the three APM technologies (Steel Wheel, Rubber Tire, and Cable-Propelled). Therefore, the noise impacts resulting from supplemental busing activities would generally remain the same regardless of which technology is selected. **Table G-9** in **Appendix G** summarizes predicted noise levels associated with supplemental busing, applicable to all three APM technologies, and demonstrates that future noise exposure levels would not change, relative to the existing condition, with supplemental busing. As detailed within **Appendix G**, there would be no vibration-related impacts from supplemental busing.

Steel wheel technologies have the potential to be louder than the other two technologies as they are generally noisier through curves because they produce "wheel squeal", especially if the steel track and wheels are not maintained properly. To provide a conservative analysis in this EA, the potentially loudest technology (i.e., Steel Wheel APM) was assessed for noise impacts. As stated above, the proposed AirTrain (assuming Steel Wheel APM) was not found to exceed FTA noise thresholds. **Table G-8** within **Appendix G** summarizes predicted future noise exposure levels related to the Steel Wheel APM and demonstrates that noise level increases would be below FTA allowable noise level increases to preclude noise impact. If either the Rubber Tire or Cable-Propelled APM technologies are selected, future noise levels are expected to be equal to or less than those predicted for the most conservative, Steel Wheel APM technology. Therefore, impacts are not expected to vary significantly between the three technologies.

Table 4-8 Construction Noise: Summary of Potential Impacts

Receiver No.	Receiver Location (FTA Land Use Category)	Construction Phase (Task)	Work Sub-Areas	Pier Nos.	Construction Activity	Time Of Day of Potential Impact	Approximate Duration of Potential Impact
3	Holiday Inn (Residential)	Guideway Construction (Substructure)	B5	B31, B32, B33	Impact Pile Driving Vibratory Sheet Driving	Weekday Daytime	6 weeks
		Guideway Construction (Substructure)	B6	B34, B35, B36, B37	Impact Pile Driving Vibratory Sheet Driving	Weekend Nighttime	3 months
6	Marriott (Residential)	Guideway Construction (Substructure)	C5 E1	C18, C19, E1, E2	Impact Pile Driving Vibratory Sheet Driving	Weekend Nighttime	6 weeks

Source: Paul Carpenter Associates, Inc. (2020).

Table 4-9 Construction Vibration General FTA Assessment Results – Potential Structural Damage

Receiver No.	Structure	FTA Building Category	Construction Activity	Nearest Work Sub-Areas (Piers)
3	Holiday Inn	II.	Impact Pile Driving	B5 (B31, B32, B33)
			Vibratory Sheet Driving	B5 (B31 & B32)
19	Terminal B	I.	Impact Pile Driving	Pedestrian Bridges connecting Station 3 and Terminals B and between Terminals B and C (Columns within 52 feet of Terminal B)
			Vibratory Sheet Driving	Pedestrian Bridges connecting Station 3 and Terminal B and between Terminals B and C (Columns within 32 feet of Terminal B)
20	Terminal C	I.	Impact Pile Driving	C2, C3, Pedestrian Bridges connecting Station 3 to Terminal C and between Terminals B and C (C4, C5, C6), (C7 & C8), (Columns within 52 feet of Terminal C)
			Vibratory Sheet Driving	C2, C3, Pedestrian Bridges connecting Station 3 to Terminal C and between Terminal B and C (C6), (C7), (Columns within 32 feet of Terminal C)
21	P4 Parking Garage	I.	Impact Pile Driving	C2, C3, Pedestrian Bridge connecting Station 3 and P4 (C4, C5, C6), (C7 & C8), (Columns within 52 feet of P4 Garage)
			Vibratory Sheet Driving	C2, C3, Pedestrian Bridge connecting Station 3 and P4 (C6), (C7), (Columns within 32 feet of P4 Garage)
22	Terminal C Parking Garage	I.	Impact Pile Driving	Pedestrian Bridge connecting Station 3 and Terminal B
			Vibratory Sheet Driving	

Source: Paul Carpenter Associates, Inc. (2020).

Construction activities are not expected to vary significantly between the three technologies. Therefore, noise and vibration impacts resulting from construction activities would generally remain the same regardless of which technology is selected.

4.10 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

4.10.1 Socioeconomics

Socioeconomic impacts are evaluated for direct and indirect impacts. Direct impacts are the more immediate impacts caused by a proposed action. These may include relocation of businesses and residences, increase or decrease in the tax base for taxing authorities, surface transportation impacts, and employment impacts caused by a Proposed Action.

Indirect impacts are those caused by a proposed action that will take place later in time or are further removed in distance, but are still reasonably foreseeable.[63] These include regional economic impact, changes in land use, and employment related to construction.

4.10.1.1 No Action

The No Action Alternative will not have direct or indirect socioeconomic impacts. It will not cause any residential loss or relocation, business loss or relocation, surface transportation changes, or loss or gain of employment.

4.10.1.2 Proposed Action

Direct Impacts

Relocation of Residences - The Proposed Action will not result in the relocation of residences.

Property Acquisitions and Easements - The proposed AirTrain would be located primarily on Airport property. For the portion of the Proposed Action to be located off-Airport property, the PANYNJ anticipates acquiring approximately 14 acres of public and private property (acquisition, lease, or easements) adjacent to the northern segment of the guideway, and obtaining temporary construction easements covering 28 acres of land (**Figure 2-9**). The 14 acres of land proposed for acquisition would accommodate permanent structures to support the proposed AirTrain (i.e., MCF and supporting infrastructure). The areas considered for acquisition are parts of larger parcels and are either vacant or used for airline employee parking, hotel patrons, and truck/trailer parking. As discussed in further detail in **Section 4.11**, the amount of land that would be acquired from the parking lot owner, Hartz Mountain, would not adversely impact airline employee parking in this parking lot because the acreage being acquired would leave sufficient parking for airline employees. Therefore, parking operations at this site would not be impacted and airline employee parking would not have to be relocated to another area. For the Holiday Inn property (Block 5090, Lot 28), the Proposed Action

[63] As defined in FAA Order 1051.F desk reference, pg. 0-3. Refer to 40 CFR § 1508.8a

would require an aerial easement, and hotel patrons would still be able to park under the proposed AirTrain in the existing parking lot. The Proposed Action would displace approximately three parking spaces due to the location of the columns. The hotel has surplus parking capacity therefore, no hotel patrons would be displaced. For the Anheuser-Busch property (Block 5090, Lot 44.01), the Proposed Action has the potential to impact approximately 16 truck/trailer parking spaces. However, there are surplus parking spaces for the trucks/trailers, and this loss would not displace any users of the Anheuser-Busch-owned parking lot.

Table 4-10 presents parcel information for lands proposed for acquisition and temporary construction easements. The ownership of two sub-parcels of vacant land (Block 5088, Lot 126.01 and Block 5090, Lot 1.05) remains subject to confirmation. Since these sub-parcels are not developed, acquisition of them would not result in any disruption or relocation of activities.

Table 4-10 Summary of Proposed Land Acquisition and Temporary Construction Easements

Property Owner	Land Use	Block	Lot	Temporary Construction Easement (acres)	Permanent Acquisition (acres)
International Way, LLC	Parking Lot	5088	169	2	1
Hartz Mountain Waver	Parking Lot	5088	126.01	7	6
Ownership TBD	Vacant	5088	126.01	1	1
Hartz Mountain Waver	Vacant	5090	1.05	4	1
Ownership TBD	Vacant	5090	1.05	1	1
Anheuser-Busch	Parking Lot and Weigh Station	5090	44.01	3	2
BK Ventures, LLC	Parking Lot	5090	28	< 1	< 1
NJDOT Right of Way	Vacant	NA	NA	9	1
		Proposed AirTrain		***~ 28***	***~ 14***

Source: Lea+Elliott, Inc. 2019.

The PANYNJ will coordinate with all property owners of the lands proposed for acquisition or easement. All property owners and other stakeholders in the vicinity of the Study Area were notified in writing prior to issuing the draft EA for public review, and also when the draft EA is available for review and comment.

Although not anticipated, should any of the proposed property acquisitions not be voluntary, the PANYNJ has the authority to exercise the power of eminent domain. Eminent domain is the power of the government to take private property and convert it into public use. In the unlikely event that eminent domain is required, the PANYNJ would comply with applicable laws.

Business Relocation – As described above, the proposed land acquisition will reduce the total number of available parking spaces. For Hartz Mountain's airline employee parking operation, no significant impacts are

expected because the remaining lot is large enough to accommodate existing airline employee parking demand, therefore, no cars will be displaced. For the Holiday Inn property, approximately three parking spaces would be lost. For the Anheuser-Busch property, approximately 16 truck/trailer parking spaces would be lost. In both these latter instances, there is surplus parking available on each property to compensate for any loss of parking from the Proposed Action, and therefore, no significant impacts are expected.

Employment – The Proposed Action will not result in a significant increase or decrease in the number of AirTrain employees.

Disruption or division of an established community – The Proposed Action does not involve disruption or division of an established community. No work is proposed within or immediately adjacent to any residential communities.

Disruption of Local Traffic Patterns – No disruptions to local traffic patterns that would substantially reduce the levels of service of area roadways as a result of the Proposed Action are anticipated (**Section 4.11**).

Loss in Community Tax Base – The Proposed Action is not expected to result in a significant impact to tax revenue. The specific impact would be determined by the terms of acquisition (e.g., easement or fee acquisition), and any necessary amendments to the PANYNJ's Airport lease with the City of Newark.

Indirect Impacts

Regional Economic Impact – During peak operations, the existing AirTrain does not have the capacity to meet demand, and experiences reliability and maintenance issues, which is critical for connectivity within the Airport as well as regional connectivity through the link to the NEC tracks. The Proposed Action will accommodate existing and future travel demand at an improved level of service.

Changes in Land Use – As detailed in **Section 3.4.5**, no changes in land use are anticipated.

Construction Employment - The Proposed Action is expected to generate about 12,380 jobs and $957 million in direct wages.[64]

Summary

No residential relocation, loss in community tax base, disruption of established communities, or change in land use will occur, and current parking operations and local traffic patterns would not be significantly affected or disrupted. Therefore, no significant adverse socioeconomic impacts are anticipated as a result of the Proposed Action.

4.10.1.3 Mitigation Measures

There are no significant direct or indirect socioeconomic impacts anticipated as a result of the Proposed Action and no mitigation is required.

[64] PANYNJ Board Resolution, October 19, 2019

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to socioeconomics. The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.10.2 Environmental Justice

An environmental justice (EJ) analysis considers the potential of Federal actions to cause disproportionately high and adverse impacts on low-income and/or minority populations based on a review of the individual and cumulative impacts from other categories examined within this EA. As shown in **Table 3-3**, all census blocks within the Study Area are considered environmental justice communities. The significant impacts identified from the No Action and Proposed Action are evaluated to determine if they have a disproportionately high or adverse impact on low-income and minority populations or if they have special or unique impacts to low-income or minority populations.

4.10.2.1 No Action

The No Action Alternative would have no impact on EJ populations because there would be no development or change to the physical characteristics of the Study Area.

4.10.2.2 Proposed Action

- **Air quality**: There is not a significant rise in emissions due to the Proposed Action (**Section 4.3**). Dust during construction can potentially impact human health. BMPs will be utilized, including watering and stabilizing erodible soils, to minimize dust during construction. As discussed in **Section 4.3**, the Proposed Action will not result in significant adverse impacts on air quality.
- **Climate:** The proposed AirTrain provides a mass transit option for travelers, minimizing GHG emissions associated with vehicle transportation. As discussed in **Section 4.4**, the Proposed Action will reduce GHGs by reducing the need for supplemental busing to transport passengers. The Proposed Action will also minimize emissions of greenhouse gases through compliance with the PA-NYNJ's sustainable building guidelines.
- **Hazardous materials, solid waste, and pollution prevention:** The Proposed Action would not increase the quantities of hazardous materials present in the Study Area. Although there are potential impacts associated with encountering contaminated soil and groundwater during construction and demolition activities, with the minimization measures and use of the BMPs described in the hazardous materials section (**Section 4.6**), these impacts will not be significant.
- **Noise/Vibration:** Pile driving and hoe ramming activities during construction would impact hotels, terminals, parking garages, the existing AirTrain guideway, Rail Link Station, and the Kintock Group. While all census blocks within the Study Area are considered environmental justice communities, the Kintock Group is the only EJ community in this group that could potentially experience vibration-induced annoyance during foundation construction, specifically related to impact pile driving expected to last approximately five months. Since pile driving and hoe ramming activities in this area will be limited to daytime hours, impacts are not anticipated to be significant. Alternate construction methods will be considered, where appropriate, to minimize the impact from the pile driving and hoe ramming activities. When combined with the implementation of the contractor's Vibration Control

and Monitoring Plan, which will implement PANYNJ's Sustainable Infrastructure Guidelines, and the recommended construction noise and vibration minimization measures discussed within **Appendix G**, no significant impacts to the Kintock Group are anticipated.

- **Traffic:** No disruptions to local traffic patterns that would substantially reduce the levels of service of area roadways as a result of the Proposed Action are anticipated (**Section 4.11**).
- **Water Resources:** Although there are impacts to water resources, the impacts are not within an EJ area. And, with the minimization measures and the BMPs described in the water resource section (**Section 4.12**), these impacts would not be significant.
- **Property Acquisition/Displacements:** The Proposed Action will require permanent property acquisition of approximately 14 acres. The majority of this land is currently vacant or used for airline employee parking, hotel patrons, and truck/trailer parking. No residential relocation is required.

With implementation of the measures identified above, these impacts will not have a disproportionately high or adverse impact on low-income or minority populations. There is no impact determined to be special or unique to these populations

4.10.2.3 Mitigation Measures

No significant environmental justice impacts are anticipated and no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to EJ communities. The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. Therefore, with the exception of noise and vibration, the impacts to this category would generally remain the same regardless of which technology is selected. As discussed in **Section 4.9**, noise and vibration impacts are expected to be below FTA thresholds regardless of the technology selected. Therefore, impacts to EJ communities are not expected to be significant regardless of the technology selected.

4.10.3 Children's Environmental Health & Safety Risks

According to FAA's 1050.1F Desk Reference, risks to health or to safety include those that are attributable to products or substances that children would likely come into contact with or ingest.

4.10.3.1 No Action

This alternative does not have any impacts to children because there will be no development or change to the physical characteristics in the Project Area.

4.10.3.2 Proposed Action

As discussed in **Section 3.5.9**, approximately 10 percent of the Study Area contains children under age 18. There are no schools, daycares, and/or children's health clinics in the Study Area and no work is taking place within or immediately adjacent to any parklands or residential areas. The Proposed Action will not create or

make more readily available products or substances that contact or ingestions through air, food, drinking water, recreational waters, or soil could harm children. Therefore, no significant impact to children's health and welfare is anticipated from the Proposed Action.

4.10.3.3 Mitigation Measures

No significant impact to children's health and welfare is anticipated and no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to children's health and welfare. The alignments for the three technologies may vary slightly, however the Study Area used for this analysis encompasses the variations in the alignments. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.11 Traffic

The Parking and Traffic Assessment (**Appendix H**) contains the methodology and results of parking and traffic impacts resulting from the Proposed Action. The results are summarized below.

4.11.1 No Action

The employee parking lots have a total supply of 5,860 spaces in the vicinity of the Rail Link Station. According to traffic counts, 3,786 spaces were utilized, resulting in a surplus parking supply of 2,074 spaces. The No Action Alternative would not build within the existing lots and will not relocate any traffic to this area; therefore, no impacts are anticipated.

4.11.2 Proposed Action

As part of the Proposed Action, parking spaces will be eliminated for the construction of the proposed MCF and supporting infrastructure. During construction, 1,312 parking spaces will be eliminated; however, upon completion of construction 217 of these spaces will be returned to normal use. This results in a total permanent parking loss of 1,095 spaces. However, this loss of 1,095 spaces can be absorbed by the existing parking surplus of 2,074 spaces. The resulting 979 parking surplus is anticipated to provide adequate parking capacity; therefore, no impacts to parking supply are anticipated.

The Proposed Action will relocate the MCF adjacent to the Rail Link Station. Employees will access the proposed MCF by way of the intersection of US 1/9 southbound and International Way, which is under the jurisdiction of NJDOT. Based on the NJDOT Access Code, changes in traffic are considered 'significant' if there is an increase of 100 or more vehicles trips in a single hour. The proposed MCF building is anticipated to have a maximum of 60 parking spaces to accommodate employees and visitors and will not be open to the general public. Employees are anticipated to work in shifts with a maximum of 36 employees on staff at any given time. In the unlikely event that all 36 employees change shifts within a single hour, a maximum of 72 trips would be added to the intersection of US 1/9 southbound and International Way, which does not constitute a significant increase in trips pursuant to the NJDOT Access Code. Therefore, no disruptions to local

traffic patterns are anticipated that would substantially reduce the levels of service of area roadways as a result of the Proposed Action.

4.11.3 Mitigation Measures

No significant impact to parking or traffic is anticipated and no mitigation is required.

AirTrain Technology Impacts

As stated above, the Proposed Action will not result in a significant impact to traffic. The location of the MCF building and stations are consistent between technologies and traffic patterns and volumes would not vary between the technologies. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.12 Water Resources

As detailed in **Section 3.5.11**, the Proposed Action has the potential to impact surface waters, wetlands, floodplains and groundwater resources.

4.12.1 No Action

No development would occur with this alternative. As a result, there would be no impacts to water resources.

4.12.2 Proposed Action

4.12.2.1 Surface Waters

The Proposed Action would result in unavoidable impacts to the Peripheral Ditch since the proposed AirTrain must cross this waterbody to provide service from the Rail Link Station to EWR. In total, 52 square feet (SF) or less than 0.1 acre of State Open Water will be permanently impacted from filling/grading activities related to installation of proposed AirTrain guideway foundations (i.e., piles & pile caps). The Proposed Action will also result in minor permanent impacts to the 100-year floodplain (i.e., 3,746 SF or less than 0.1 acre), and the NJDEP-regulated riparian zone (0.1 acres) that is associated with the Peripheral Ditch (**Figure 4-6**). Coordination with the NJDEP to obtain authorization for this proposed crossing will occur during design of the Proposed Action.

The Peripheral Ditch provides habitat for wildlife in the area as discussed in **Section 4.3**, the habitat loss that would occur is not considered significant, and as discussed below no significant impacts with regard to stormwater storage or treatment are anticipated. Significant adverse impacts to the existing stream hydraulics of the Peripheral Ditch are not anticipated as a result of the Proposed Action (**Appendix B**).

A Freshwater Wetlands Permit, a Flood Hazard Area Permit, and a 401 Water Quality Certification from the NJDEP will be obtained prior to construction. The Proposed Action will be designed to meet requirements of the Flood Hazard Area Control Act and the Freshwater Wetlands Protection Act Rules for open water

crossings (N.J.A.C. 7:7A). Measures and/or restrictions set forth in the permits will be adhered to during construction.

Stormwater - The PANYNJ would continue to comply with the requirements of its current New Jersey Pollutant Discharge Elimination System (NJPDES) stormwater discharge permit under the Proposed Action. Since the Proposed Action is essentially a replacement project (i.e., existing AirTrain will be demolished) no increase in impervious area within the Project Area is anticipated. As such, the Proposed Action will not adversely impact the quantity or quality of stormwater runoff at the Airport. Stormwater runoff volume and velocity would not change significantly because of the Proposed Action. A minor adjustment to the location of catch basins and storm sewer lines in the Project Area may be required due to the slight relocation of the proposed AirTrain guideway alignment. However, in general, the storm sewer system at the Airport would continue to collect and convey stormwater as it does currently. Since disturbance associated with the Proposed Action is anticipated to exceed one acre, it is anticipated that a NJPDES Stormwater Construction General Authorization/Permit will be required. No significant adverse impact to the Peripheral Ditch or its associated riparian buffers is anticipated as a result of the Proposed Action because the area of impacts is relatively small and the Proposed Action will be designed to meet all relevant state water quality standards. If requested by the NJDEP, measures to reduce Peripheral Ditch and riparian buffer impacts in the form of new or supplemental plantings will be incorporated into the design of the Proposed Action.

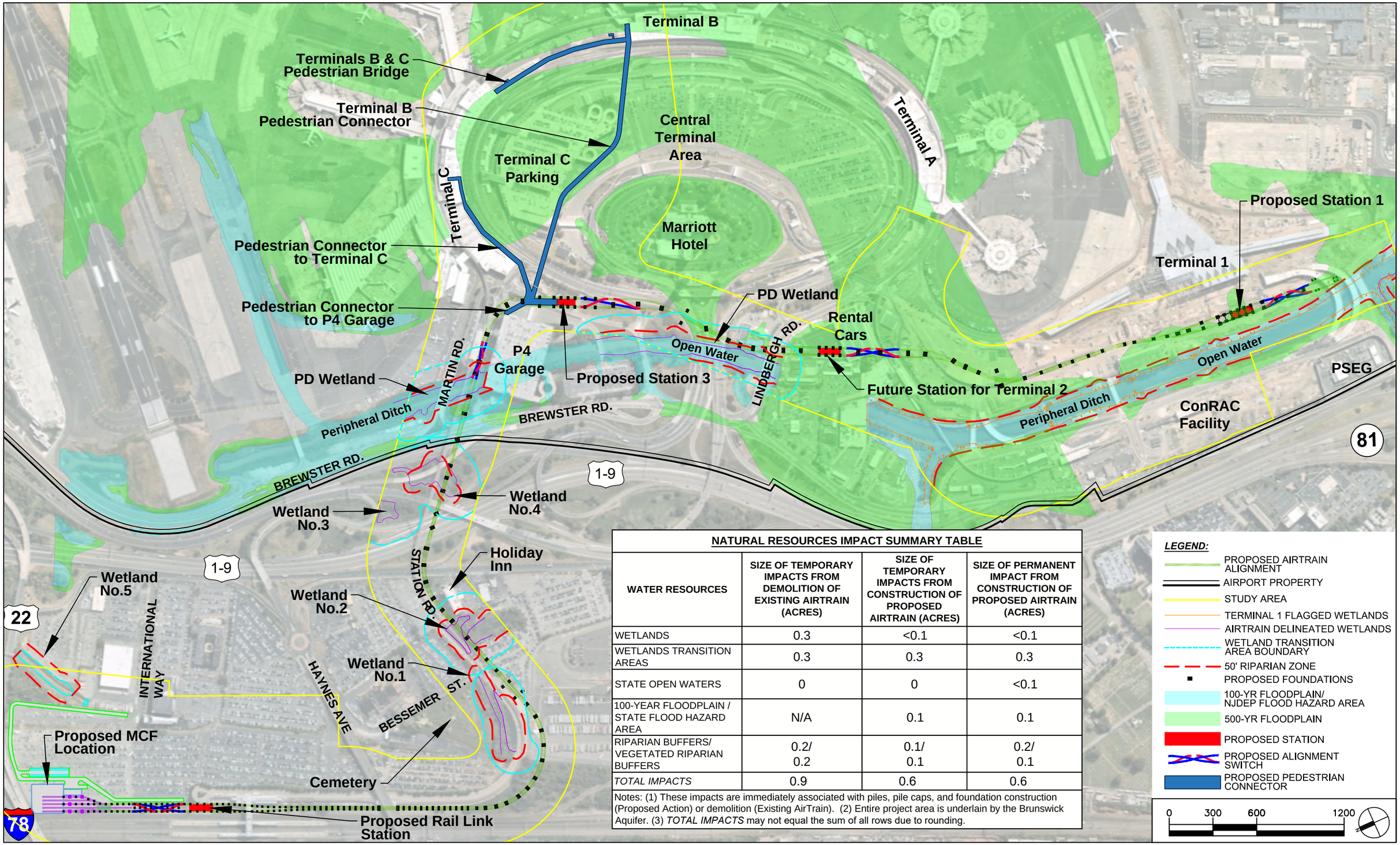
4.12.2.2 Groundwater

The USEPA defines a sole source aquifer (SSA) as one that supplies at least 50 percent of the drinking water for its service area; and there are no reasonably available alternative drinking water sources should the aquifer become contaminated.[65] The Proposed Action does not lie over a SSA, and groundwater from aquifers under the Proposed Action is not used for drinking water.[66] Further, the Proposed Action would not increase impervious surfaces in the Study Area. Therefore, the Proposed Action would not create a barrier to infiltration that could affect groundwater recharge. The Proposed Action would not draw on groundwater resources during any phase of construction or operation.

As discussed in **Section 4.6**, the fill and groundwater beneath the Project Area are known to contain various levels of contamination. During project implementation, if contaminated soil and groundwater are encountered, they would be removed and disposed of in accordance with applicable regulations. Similarly, stormwater runoff would be collected and treated in accordance with the Airport's NJPDES permit and in compliance with all applicable regulations. If installation of the pile caps and foundations requires excavation below the seasonal groundwater table elevation, dewatering using a sediment filter bag may be required. During dewatering operations, contaminated groundwater would be collected and managed in compliance with applicable law. Given the information included above, no significant impact to groundwater is anticipated.

[65] USEPA. Sole Source Aquifers. Available at: https://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#What_Is_SSA

[66] Newark City water comes from the Pequannock Water Service, and water for Elizabeth City is purchased from the NJ American Raritan System and Newark Water Department



NATURAL RESOURCES IMPACT SUMMARY TABLE

WATER RESOURCES	SIZE OF TEMPORARY IMPACTS FROM DEMOLITION OF EXISTING AIRTRAIN (ACRES)	SIZE OF TEMPORARY IMPACTS FROM CONSTRUCTION OF PROPOSED AIRTRAIN (ACRES)	SIZE OF PERMANENT IMPACT FROM CONSTRUCTION OF PROPOSED AIRTRAIN (ACRES)
WETLANDS	0.3	<0.1	<0.1
WETLANDS TRANSITION AREAS	0.3	0.3	0.3
STATE OPEN WATERS	0	0	<0.1
100-YEAR FLOODPLAIN / STATE FLOOD HAZARD AREA	N/A	0.1	0.1
RIPARIAN BUFFERS/ VEGETATED RIPARIAN BUFFERS	0.2/ 0.2	0.1/ 0.1	0.2/ 0.1
TOTAL IMPACTS	0.9	0.6	0.6

Notes: (1) These impacts are immediately associated with piles, pile caps, and foundation construction (Proposed Action) or demolition (Existing AirTrain). (2) Entire project area is underlain by the Brunswick Aquifer. (3) *TOTAL IMPACTS* may not equal the sum of all rows due to rounding.

LEGEND:

- PROPOSED AIRTRAIN ALIGNMENT
- AIRPORT PROPERTY
- STUDY AREA
- TERMINAL 1 FLAGGED WETLANDS
- AIRTRAIN DELINEATED WETLANDS
- WETLAND TRANSITION AREA BOUNDARY
- 50' RIPARIAN ZONE
- PROPOSED FOUNDATIONS
- 100-YR FLOODPLAIN/ NJDEP FLOOD HAZARD AREA
- 500-YR FLOODPLAIN
- PROPOSED STATION
- PROPOSED ALIGNMENT SWITCH
- PROPOSED PEDESTRIAN CONNECTOR

0 300 600 1200

PORT AUTHORITY NY NJ
AIR LAND RAIL SEA

Source: NJDEP Wetlands; Aerial Imagery by NearMap, 09/20/2019.

WATER RESOURCES IMPACTS

Figure 4-6

4.12.2.3 Wetlands

The Proposed Action will result in unavoidable impacts to wetlands and wetland transition areas. These limited impacts are unavoidable due to location of the wetlands relative to the Airport's facilities. The Proposed Action is based on design approaches and construction techniques that minimize the number of columns located in sensitive areas by maximizing span length where feasible. As shown in **Table 4-11**, in total, 1,394 SF (less than 0.1 acre) of freshwater wetlands and 0.3 acres of wetland transition areas will be permanently lost from filling/grading activities related to installation of proposed AirTrain guideway foundations (i.e., piles & pile caps) (**Figure 4-6**). As shown in **Table 3-4**, the Project Area currently consists of four wetland areas totaling approximately 3.5 acres. Of the 3.5 acres of existing wetland area, 3.1 acres, or approximately 90%, will remain upon completion of the Proposed Action.

The wetland impacts will not result in habitat fragmentation[67] as the impacts from the Proposed Action would be small compared to the overall sizes of the wetlands, and no wetland functions and values would be totally eliminated, including habitat functions, as a result of the Proposed Action. The implementation of soil erosion and sediment controls during and after construction of the Proposed Action will minimize discharge of sediment to the wetlands. Given this information, no significant indirect impacts to wetlands are anticipated.

A Freshwater Wetlands Permit and a Flood Hazard Area Permit from the NJDEP will be obtained prior to construction. Measures and/or restrictions set forth in the permits will be adhered to during construction.

4.12.2.4 Floodplains

The Proposed Action will encroach[68] within the limits of the 100-year (base) floodplain **(Figure 4-6)**. Pursuant to Executive Order 11988, Floodplain Management, all Federal agencies are required to avoid impacts to floodplains to the degree practicable and to minimize impacts that cannot be avoided. When it is not practicable to avoid developing within a floodplain, the USDOT Order 5650.2, Floodplain Management and Protection, prescribes policies and procedures to implement Executive Order 11988.

Since the Proposed Action must cross the Peripheral Ditch to access existing terminals at the Airport, no practicable alternative exists that would allow the floodplains to be completely avoided. The proposed AirTrain travels on an elevated guideway, so impacts to the floodplain are limited to the placement of foundations for the guideway. The proposed foundations would permanently impact approximately 3,746 SF (0.1 acre) within the NJDEP Flood Hazard Area of the Proposed Action. This would be compensated for, at least partially, by the removal of the existing AirTrain guideway infrastructure after the proposed AirTrain has been constructed. The MCF would be located outside of the regulated areas.

According to USDOT Order 5650.2, encroachment in a floodplain is considered significant if construction would result in one or more of the following:

[67] Habitat fragmentation occurs when habitat is reduced in size and the distance between remaining habitat patches increase.

[68] Encroach is defined as activities or construction within a floodway including fill, new construction, substantial improvements, and other development

- *A considerable probability of loss of human life*. Given that, the proposed AirTrain will be elevated on its guideway and would be designed to ride above the 100-year flood elevation and the support infrastructure would be designed to withstand floodwaters, there would be little chance of the proposed AirTrain cars being caught up in floodwaters associated with a 100-year flood. Based on these factors there is low potential for loss of human life associated with the Proposed Action.
- *Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility*. As with any structure built within a floodplain or in surface waters, the supporting infrastructure is required to be built to standards that can withstand the forces associated with those areas. The pertinent design approach/processes include consideration of the effect those forces would have on the infrastructure in terms of cost to construct, cost to maintain and functional lifetime of the support infrastructure. Standard design approaches are developed to design structures that maximize the life of the structure and minimize the construction and maintenance costs. The proposed AirTrain would be designed to minimize future damage.
- *A notable adverse impact on "natural and beneficial floodplain values"*. Given the minor permanent impacts (3,746 SF or less than 0.1 acre) proposed within the FEMA 100-year floodplain, which are associated with the proposed AirTrain guideway foundations, and the minimal change in alignment, it is not anticipated that there would be any significant increase in adverse impacts on the natural and beneficial floodplain values than what is associated with the existing AirTrain.

The final design of the Proposed Action would ensure compliance with NJDEP's Bureau of Floodplain Management's net fill requirements (N.J.A.C. 7:13-2.14) after construction is completed. The water surface elevation for the 100-year flood discharge of the Peripheral Ditch would comply with the applicable NJDEP and Flood Hazard Area Control Act criteria and therefore would not create significant adverse impacts to the surrounding floodplain.

Summary of Water Resource Impacts

Given the highly developed nature of the Project Area and the relatively small impact disturbance associated with the Proposed Action, impacts to water resource are minimal, as summarized in **Table 4-11.**

Table 4-11 Total Water Resources Impacts

Water Resources	Temporary Impacts from Demolition of Existing AirTrain (acres)	Temporary Impacts from Construction of Proposed AirTrain (acres)	Permanent Impacts from Construction of Proposed AirTrain (acres)
Wetlands	0.3	<0.1	<0.1
Wetland Transition Areas	0.3	0.3	0.3
State Open Waters	0	0	<0.1
100-year floodplain/ State Flood Hazard Area	N/A	<0.1	0.1
Riparian Buffers/ Vegetated Riparian Buffers[1]	0.2/ 0.2	0.1/ 0.1	0.2/ 0.1

Source: NV5 Inc., *Natural Resources Technical Environmental Study* (September 2020)

Note: Estimated impacts are based on conceptual drawings. Impact acreages are subject to minor change as design of the Proposed Action progresses.

[1] It should be noted that within riparian buffer limits, only impacts to vegetated riparian buffers are considered impacts from a regulatory perspective

Construction activities related to the removal of trees and vegetation and construction vehicles tracking soil onto the roadways can temporarily increase the potential for soil erosion, causing a potential increase in suspended solids in runoff and local receiving waters. As discussed in Section 4.12.2.1, it is anticipated that the Proposed Action will require a general NJPDES permit for construction stormwater. Proper soil erosion control measures and BMPs will be implemented during construction and demolition activities to minimize sedimentation into nearby waterbodies and freshwater wetlands. The erosion control measures will be implemented throughout the construction process until the site is permanently stabilized to ensure the protection of any exposed soils and downstream areas.

Additional impacts could occur from contaminated stormwater runoff due to potential leaks or spills of fuel or hydraulic fluid used in construction equipment. Water pollution control measures, including those contained in FAA Advisory Circular 150/5370-10H, Standards for Specifying Construction of Airports, will be enforced during proposed construction activities so that any potential construction material spills are minimized. Specifically, construction material will not be stockpiled in or near any waterbodies. If materials require stockpiling for significant durations, they will be covered with an impermeable liner to eliminate runoff and leachate during precipitation.

4.12.3 Mitigation Measures

Potential and adverse impacts to water resources can be avoided or minimized through careful design and proper construction practices. To minimize potential impacts to water resources, the following minimization measures are recommended:

- Grading, excavation, and filling activities will be limited to what is necessary for construction of the Proposed Action.
- An erosion and sediment control plan will be prepared. The plan will include temporary protection measures such as silt fence, inlet protection, compost socks, temporary diversion swales, and sediment traps / ponds to mitigate the potential impacts of construction activities.
- BMPs will be followed to avoid accidental spills of fuel oils, chemicals, concrete leachate, and sediments into aquatic habitats. These practices include proper storage, use, and cleanup of all construction-related chemicals.
- Construction entrances and exits will be stabilized to prevent tracking onto roadways (most of the construction entrances and exits will consist of paved surfaces).
- Disturbed areas will be restored to prevent soil erosion following completion of construction/demolition activities.

The Proposed Action will result in less than 0.1 acre of permanent wetland impacts. The NJDEP freshwater wetland permits require mandatory compensatory mitigation[69] for wetland impacts greater than 0.1 acre. Therefore, compensatory mitigation for the Proposed Action is not anticipated to be required, subject to

[69] Compensatory mitigation refers to the restoration, establishment, enhancement, and/or preservation of wetlands, streams, or other aquatic resources conducted specifically for the purpose of offsetting authorized impacts to these resources

NJDEP concurrence. In general, impacts to wetlands will be minimized below significant impact thresholds with the incorporation of the minimization measures outlined above.

AirTrain Technology Impacts

As stated above, with the incorporation of mitigation and minimization measures, the Proposed Action will not result in a significant impact to water resources. The Study Area established for water resources accommodates all three technologies since their construction parameters and alignments are similar. Therefore, ground disturbance related to pier installation in wetland and other water resource areas are expected to be of similar size and quantity. Therefore, the impacts to this category would generally remain the same regardless of which technology is selected.

4.13 Cumulative Impacts

A cumulative impact assessment was conducted only for those resources that would be directly or indirectly impacted by the Proposed Action including air quality; hazardous materials, solid waste, and pollution prevention; noise and vibration; and water resources. To determine cumulative impacts to the environment, recent projects, ongoing projects, and reasonably foreseeable projects were identified. The potential impacts from these projects were compared to the significance thresholds identified within FAA Order 1050.1F and the Desk Reference for each category to determine whether significant cumulative impacts would occur when combined with the Proposed Action. **Tables 4-12**, **4-13**, and **4-14** identify past, present, and reasonably foreseeable projects, and their associated impacts. As identified in **Tables 4-12**, **4-13**, and **4-14**, significant cumulative impacts are not anticipated with the incorporation of mitigation and minimization measures and use of BMPs.

AirTrain Technology Impacts

As described in each environmental category, impacts are not expected to vary significantly between the three technologies. Cumulative impacts are not expected to vary significantly regardless of the technology selected.

4.14 Summary of Impacts and Applicable Mitigation Measures

Table 4-15 includes a summary of impacts, and if applicable, required mitigation for each of the environmental resource categories identified in FAA Order 1050.1F.

4.15 List of Anticipated Permits, Approvals, or Reviews

Various laws, policies, and programs impose requirements with which the Proposed Action would need to demonstrate compliance. All permits, approvals, or reviews would be obtained prior to construction. The permits or approvals that may be required for the Proposed Action are summarized in **Table 4-16**.

Table 4-12 Potential Cumulative Impacts - Past Projects

Project Title	Project description	Timeframe of Action	Potential Cumulative Impacts
AirTrain Base Guideway – Mid-Life Overhaul	Repairs and corrective maintenance on the guideway structural elements of the existing AirTrain. Included, but not limited to, the guideway infrastructure, columns and base plates, and the guideway running surface.	Completed in 2018.	No impact since the AirTrain Base Guideway project will replace existing AirTrain infrastructure.
Early Action Guideway Foundations	Prior to finalizing the AirTrain Alignment ROW, 37 foundations for the AirTrain Program were constructed in the southernmost portion of the alignment in order to minimize future impact and disruption to the Terminal One frontage and roadway operations.	Completed in 2018, 2019, and 2020.	Construction of the guideway foundations occurred concurrently with the work associated with the Terminal A Redevelopment Program. **Air Quality:** The emissions from the construction of the 37 foundations were quantified to determine their potential to exceed *de minimis* thresholds. As detailed in **Appendix M**, emissions would not exceed *de minimis* thresholds.
Infrastructure Renewal – Electrical Distribution	Enhancements to the new PSE&G substation and service to comply with the PA-NYNJ's stricter security standards as well as the augmented infrastructure design for system redundancy. Includes construction of electrical duct banks, rehabilitation of bridges to support the duct banks, associated civil and utility works, roadway improvements, and security improvements.	An EA/FONSI was approved for this project in January 2015. Completed in 2018.	No impact. The Electrical Distribution project replaced existing utilities and infrastructure.
Infrastructure Renewal – Aviation Fuel System Modifications, Phase I	Decommissioning of approximately 120,000 feet of aged single-wall distribution pipe and replacement with 29,000 feet of environmental code compliant double wall piping with leak detection. Upgrade inventory control and tank gauging systems and provide for airside tanker refueling operations as well as additional bulk storage capacity.	An EA/FONSI was approved for this project in January 2014. Completed in 2018.	No impact. The Aviation Fuel System Modification project replaced existing utilities and infrastructure.

Table 4-13 Potential Cumulative Impacts - Present Projects

Project Title	Project description	Timeframe of Action	Potential Cumulative Impacts
Terminal A Redevelopment Program	Replacing the deteriorated and outdated Terminal A with a new Terminal One. The new Terminal One is being built to the USGBC LEED Silver standards, will accommodate current and future air passengers at acceptable levels service, will enhance airfield capacity and improve operations, and will improve landside access and parking at the terminal.	An EA/FONSI was approved for this project on May 10, 2017. Construction of Terminal One began in 2018 and is expected to be completed in 2022. Terminal One will partially open in 2021, and be fully operational in 2022.	Construction of Terminal One would overlap with construction of the Proposed Action during CY 2022 only. During CY 2022, work associated with the Terminal A Redevelopment Program would mainly include interior and airside construction activities, gate construction, pavement work, and demolition of Terminal A. Some aspects of the Terminal One construction was designed to accommodate the Proposed Action to avoid impacts to surrounding roadways twice (both during construction of Terminal One and then again during construction of the Proposed Action). **Air Quality:** Based on the emissions results from the Terminal A Redevelopment Program EA and the Proposed Action, emissions would not exceed significance thresholds. Further, BMPs will ensure that air quality impacts will be minimized. No significant cumulative impacts are anticipated. **Hazardous Materials, Solid Waste, and Pollution Prevention:** Both the Terminal A Redevelopment Program and Proposed Action will experience a temporary increase in solid waste during construction and have the potential to encounter hazardous materials during construction due to the prevalence of historic fill on Airport property. However, the use of minimization measures and BMPs will ensure that impacts to hazardous materials will be minimized below significant impact thresholds. Although both the Terminal A Redevelopment Program and the Proposed Action are anticipated to generate wastes during construction/implementation, none are anticipated to create appreciably different quantities or types of solid waste that would exceed local capacity for collection and disposal. As a result, no significant cumulative impacts to hazardous materials, pollution, and solid waste are anticipated. **Noise and Vibration:** The Proposed Action identified the potential for significant noise and vibration (vibration annoyance and structural damage) during construction of elements of the Proposed Action. Terminal One construction activities scheduled in CY 2022 primarily include interior and airside construction activities and will not enhance noise levels resulting from construction of the Proposed Action. Demolition of Terminal A infrastructure will occur during CY 2022, however demolition activities will not occur within close proximity of the Proposed Action and sensitive receptors, such as the Terminal One skycap personnel, will be shielded by existing buildings. No significant cumulative impacts are anticipated to occur from the simultaneous construction of the Proposed Action and the Terminal A Redevelopment Program in 2021. **Water Resources:** The Terminal A Redevelopment Program EA identifies a loss of approximately 0.7 acres of effective floodplain storage volume and impacts to approximately 1 acre of state open waters (Peripheral Ditch). These impacts are below significance thresholds and will be mitigated through the use of BMPs and ongoing coordination with relevant agencies during permitting. The impacts resulting from the Proposed Action will be similarly mitigated below significance thresholds, therefore significant cumulative impacts to water resources are not anticipated.
Relocating three large tenants (Federal Express, United Parcel Service and Chelsea Kitchen) who will get impacted by the construction of the Terminal A Redevelopment Program	On December 4, 2017, a Written Re-evaluation/Record of Decision (WR/ROD) was issued for the May 2017 Terminal A Redevelopment Program EA.	A technical report was prepared to assess environmental impacts associated with relocating three large tenants (Federal Express, United Parcel Service and Chelsea Kitchen) affected by the Terminal A Redevelopment Program to other new facilities at the Airport. The WR/ROD concluded that the scale of environmental impacts associated with relocating these tenants was less than the overall impacts associated with the Terminal A Redevelopment Program and, thus, no new mitigation measures is necessary and that the mitigation of 2017 EA and FONSI/ROD remains the same.	

Project Title	Project description	Timeframe of Action	Potential Cumulative Impacts
Consolidated Rent-A-Car Facility (**ConRAC**) and Parking Garage Terminal A Redevelopment Program	Consolidation of all 10 rental agencies at EWR within a 2.7 million-square-foot development on Airport property, adjacent to Terminal One. Incorporates retail operations with customer wayfinding and traffic circulation, provides vehicle fleet storage and enhanced security, and offers many sustainability elements including a solar roof, electric vehicle charging stations, LED efficient lighting, and water reclamation and air quality systems.	A Written Reevaluation/Record of Decision (WR/ROD) was developed to include the ConRAC into the EA for Terminal One; it was approved on April 29, 2019. Construction of a new ConRAC facility began in 2019 and is expected to be completed by 2022.	The footprint and construction schedule of the ConRAC facility will overlap with the Proposed Action. Specifically, Station 1 of the existing AirTrain and some of the guideway has been demolished to make room for ConRAC. The construction schedule is expected to overlap during 2022. **Air Quality:** Based on the emissions results from the WR/ROD and the Proposed Action, emissions would not exceed significance thresholds. Further, BMPs will ensure that air quality impacts will be minimized. No significant cumulative impacts are anticipated. **Hazardous Materials, Solid Waste, and Pollution Prevention:** Both the ConRAC/Terminal A Redevelopment Program and the Proposed Action will experience a temporary increase in solid waste during construction and have the potential to encounter hazardous materials during construction due to the prevalence of historic fill on Airport property. However, the use of minimization measures and BMPs will ensure that impacts to hazardous materials will be minimized below significant impact thresholds. Although both projects are anticipated to generate wastes during construction/implementation, none are anticipated to create appreciably different quantities or types of solid waste that would exceed local capacity for collection and disposal. As a result, no cumulative impacts to hazardous materials, pollution, and solid waste are anticipated. **Noise and Vibration:** The Proposed Action identified the potential for significant noise and vibration (vibration annoyance and structural damage) during construction of elements of the Proposed Action. However, the use of mitigation measures and BMPs will ensure that impacts these temporary noise impacts will be minimized below significant impact thresholds. ConRAC construction activities scheduled in CY 2022 primarily include interior and airside construction activities and will not enhance noise levels resulting from construction of the Proposed Action. No significant cumulative impacts are anticipated to occur from the simultaneous construction of the Proposed Action and the ConRAC/Terminal A Redevelopment Program in 2022. **Water Resources:** The WR/ROD for the ConRAC facility indicates that there are no additional significant water resource impacts in relation to the ConRAC facility. The work associated with the remainder of the Terminal A Redevelopment Program EA identifies a loss of approximately 0.7 acres of effective floodplain storage volume and impacts to approximately 1 acre of state open waters (Peripheral Ditch). These impacts are below significance thresholds and will be mitigated through the use of best management practices and ongoing coordination with relevant agencies during permitting. The impacts resulting from the Proposed Action will be similarly mitigated below significance thresholds, therefore significant cumulative impacts to water resources are not anticipated.
Rehabilitation of CTA Entrance and Frontage Bridges	Rehabilitation work, includes: • Bridges N1 and N2 (bridge decks, expansion joints, bearings and bearing supports); • Bridge N18 (longitudinal joint and steel faced curbs); • Bridge N20 (bridge deck Spans 6-7A, 7A-8A and 8A to Abutment, expansion joints and concrete safety walks); and Bridges N21 and N22 (drainage troughs and concrete safety walks).	To be completed in 2021	No impacts are anticipated. Construction for the Proposed Action will not commence until 2022 at which time this work will be completed; therefore, any construction impacts will not overlap with this project. Project rehabilitates existing bridge infrastructure.

Table 4-14 Potential Cumulative Impacts – Reasonably Foreseeable Future Projects

Project Title	Project description	Timeframe of Action	Potential Cumulative Impacts
Terminal B Redevelopment Project	The new Terminal Two would replace the existing outdated Terminal B. This project has entered the planning phase.	N/A; preliminary planning underway.	A timeline for this project has not been established; however, if the project will be constructed during the Proposed Action's 5.5 year construction period, coordination will need to occur to avoid impacts relating to operation and construction of the future facility. **Air Quality:** Emissions relating to construction of the Terminal B Redevelopment Program would be anticipated; operational impacts could occur but are anticipated to be minimal as the Future Terminal Two Development would house operations already occurring at Terminal B. If construction of the Future Terminal Two Development is scheduled to take place within the construction schedule for the Proposed Action, further analysis would occur to verify emissions would not exceed significance thresholds. Further, BMPs will ensure that air quality impacts will be minimized. No significant cumulative impacts are anticipated. **Hazardous Materials, Solid Waste, and Pollution Prevention:** The Terminal B Redevelopment Program would experience a temporary increase in solid waste during construction and has the potential to encounter hazardous materials during construction due to the prevalence of historic fill on Airport property. Similarly, the Proposed Action has the potential to encounter hazardous materials during construction and implementation. However, the use of minimization measures and BMPs will ensure that impacts to hazardous materials will be minimized below significant impact thresholds. Although both projects are anticipated to generate wastes during construction/implementation, none are anticipated to create appreciably different quantities or types of solid waste that would exceed local capacity for collection and disposal. As a result, no cumulative impacts to hazardous materials, pollution, and solid waste are anticipated. No significant cumulative impacts are anticipated. **Noise and Vibration:** It is anticipated that the Terminal B Redevelopment Program will temporarily increase noise levels during construction; similar to the Terminal A Redevelopment program, it is anticipated that this will not result in significant impacts. The Proposed Action identified the potential for significant noise and vibration (vibration annoyance and structural damage) during construction of elements of the Proposed Action. However, the use of minimization measures and BMPs will ensure that impacts these temporary noise impacts will be minimized below significant impact thresholds. If construction of the Future Terminal Two Development is scheduled to take place within the construction schedule for the Proposed Action, further analysis would occur to verify noise levels of the Proposed Action will not be enhanced beyond significance thresholds. No significant cumulative impacts are anticipated. **Water Resources:** The Terminal Two development area is directly adjacent to the Peripheral Ditch, which is designated as a State Open Water, and portions of the area are located within the 100-year floodplain and 500-year floodplain. Impacts to surface waters are expected to be minor, similar to the Terminal A Redevelopment Program. However, at a minimum, minimization through the use of best management practices and ongoing coordination with relevant agencies during permitting could be expected. The impacts from the Proposed Action will be mitigated below significance thresholds, therefore significant cumulative impacts to water resources are not anticipated.

Table 4-15 Summary of Impacts and Required Mitigation

Impact Category	Proposed Action Alternative		No Action Alternative	
	Impact	Mitigation Required	Impact	Mitigation Required
Air Quality	No significant impact.	No mitigation required. Avoidance and minimization measures and BMPs are to be employed during construction to minimize any effect on air quality (refer to Section 4.2, **Table 4-4**)	No significant impact.	No mitigation required.
Biological Resources	No significant impact.	No mitigation required. Avoidance measures to be employed may include construction timing restrictions, preconstruction monitoring, and construction BMPs. Refer to Section 4.3.3.	No significant impact.	No mitigation required.
Climate	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Coastal Resources	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Department of Transportation, Section 4(f)	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Farmlands	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Hazardous Materials, Solid Waste, and Pollution Prevention	No significant impact.	No mitigation required. BMPs to be employed, including preparation of a Health and Safety Plan, a dust abatement program, and a contingency plan for unanticipated contamination. Refer to Section 4.6.3.	No significant impact.	No mitigation required.
Historic, Architectural, Archaeological, and Cultural Resources	No significant impact	No mitigation required. Minimization of impacts through avoidance and establishment of a contingency plan for unanticipated discoveries. Refer to Section 4.7.3.	No significant impact.	No mitigation required.
Land Use/Zoning	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Natural Resources and Energy Supply	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Airborne Noise and Noise-Compatible Land Use	No significant impact. Potential construction noise impacts.	During construction, BMPs to be employed, including preparation of a Noise Control and Mitigation Plan and adherence to Port Authority's Sustainable Infrastructure Guidelines, along with supplemental recommended construction noise minimization measures discussed in Section 4.9.3 and **Appendix G**.	No significant impact.	No mitigation required.
Vibration	No significant impact. Potential construction vibration impacts.	During construction, BMPs to be employed, including preparation of a Vibration Control and Monitoring Plan and adherence to Port Authority's Sustainable Infrastructure Guidelines, along with supplemental recommended construction vibration minimization measures discussed in Section 4.9.3 and **Appendix G**.	No significant impact.	No mitigation required.
Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety	No significant impact. Potential vibration annoyance impact to one environmental justice community during construction	Pile-driving and hoe-ramming construction activities near the Kintock Group will be limited to day hours. Alternate construction methods will be considered, where appropriate, to avoid potential impacts. A Vibration Control and Monitoring Plan will be prepared and Port Authority's Sustainable Infrastructure Guidelines will be implemented where applicable.	No significant impact.	No mitigation required.
Traffic	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Visual Effects	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.
Water Resources	No significant impact.	Less than 0.1 acre of permanent wetland impacts will occur. Therefore, per NJDEP guidance, compensatory mitigation for the Proposed Action is not anticipated to be required, subject to NJDEP concurrence. Avoidance and minimization through careful design and proper construction practices will be employed, including preparation of an erosion and sediment control plan, stabilization of construction entrances/exits, and more. Refer to Section 4.12.3.	No significant impact.	No mitigation required.
Cumulative Impacts	No significant impact.	No mitigation required.	No significant impact.	No mitigation required.

Table 4-16 Anticipated Permits, Approvals, or Reviews

Agency	Anticipated Permits, Approvals, or Reviews
NJDEP	• Freshwater Wetlands Permit (Individual Freshwater Wetland Permit anticipated). • Flood Hazard Area Permit. • Section 401 Water Quality Certification. • NJPDES Stormwater Construction General Permit. • Tidelands Conveyance Review to determine if any impacted lands within the Project Area do not have a current tidelands conveyance or if tideland conveyance is needed for crossing *land formerly flowed by the tide*. • Emergency generators will require NJDEP Emergency Generator General Permits (GP-005).
Hudson-Essex-Passaic and Somerset-Union Soil Conservation Districts	Soil Erosion and Sedimentation Control Plan (SWPPP) Approval.

Chapter 5—Public Involvement

Consistent with FAA Order 1050.1F, the PANYNJ continues to involve the public in the decision-making process for the Proposed Action. The PANYNJ is committed to ensuring that stakeholders are informed about the Proposed Action, its benefits, and potential impacts.

5.1 Agency Coordination

Federal, state, and municipal agency coordination on the AirTrain Replacement Program began in January 2020. In addition, Section 106 (of the National Historic Preservation Act) consultations were initiated with the NJDEP's HPO and Consulting and Interested Parties. Agency engagement was conducted through project briefings, letter correspondence, email exchanges, meetings in person, and WebEx conferences. **Table 5-1** through **Table 5-6** provide dates of the outreach as well as response date(s). Coordination correspondence is summarized and provided in **Appendix J.**

Table 5-1 Summary of Coordination with Federal Agencies

Agency	Address	Date Submitted to Agency	Agency Response Date
United States Department of the Interior Fish and Wildlife Service (USFWS)	New Jersey Field Office 4 E. Jimmie Leeds Road, Suite 4 Galloway, New Jersey 08205-4465	1/31/2020	2/6/2020
Karen Greene Supervisor and EFH Coordinator, Mid-Atlantic Field Office Greater Atlantic Regional Fisheries Office NOAA Fisheries Service	55 Great Republic Drive Gloucester, MA 01930	1/23/2020	3/12/2020

5.2 Draft EA Notifications and Distribution

The Notice of Public Availability (NOA) of the Draft EA was made in the *Star-Ledger* and the *Record* on February 11, 2021. A copy of the document was available for review by the general public, government agencies, and interested parties for a period of 30 days on the PANYNJ's website at http://www.panynj.gov/studies-reports. The review and comment period was from February 11, 2021 to March 12, 2021. A copy of the NOA is included in **Appendix L**.

5.3 Public and Agency Participation

Thirty-three interested or involved federal, state, and local agencies as well as interested parties were sent letters notifying them that the Draft EA was available for their review. A copy of the mailing and notification letter are included in **Appendix L**.

Although there could not be a public meeting to discuss the Draft EA due to the restrictions on public gatherings due to the COVID-19 pandemic, a pre-recorded presentation was posted on the PANYNJ's website to provide an overview of the Draft EA contents. A copy of the presentation slides is provided in **Appendix L**.

5.4 Public and Agency Comments

The PANYNJ accepted written comments on the Draft EA by letter and email. As required by FAA guidance, all comments received from the public, interested parties, or involved agencies within the 30-day public comment period were considered in preparing the Final EA. A total of 13 comment letters/emails were received during the comment period. Responses to comments received are provided in **Appendix L**. The comments received from interested parties and the public generally focused on accessibility, regional connectivity, and funding sources. In addition, NJDEP provided comments which focused on the environmental resource areas. Responses to comments received are included in the comment summary table included in **Appendix L**.

5.5 Final EA

The Draft EA has been revised to include comments received and issues raised through the public involvement process. In addition, the EA has been updated to reflect additional property acquisition information obtained since the publication of the Draft EA. It has been determined that the ownership of certain limited portions of the alignment in the Proposed Action (totaling less than two acres) is subject to further review. The confirmation of property ownership will not expand the total Project Area nor does it change the impacts of the Proposed Action as these parcels are included in the review conducted for the EA. Should the PANYNJ ultimately need to acquire these parcels, no impact on land use would occur as the land is currently vacant and undeveloped. Finally, all calculations of total permanent and temporary land acquisition areas in the EA are inclusive of the parcels for which ownership has not yet been confirmed.

The Final EA will be submitted to the FAA for their review and determination of whether to issue a Finding of No Significant Impact (FONSI), a FONSI/Record of Decision (FONSI/ROD), or to prepare an Environmental Impact Statement (EIS). Once the FAA makes their determination, the public and government agencies will be notified of the availability of the Final EA for review.

Table 5-2 Summary of Coordination with State Agencies

Agency	Address	Date Submitted to Agency	Agency Response Date
Office of Permit Coordination and Environmental Review New Jersey Department of Environmental Protection (NJDEP)	401 East State Street, Mail Code 401-071 P.O. Box 420 Trenton, New Jersey 08625-0420	1/23/2020 (to Megan Brunatti)	2/24/2020 (from Ruth Foster)
New Jersey Natural Heritage Program Office of Natural Lands Management NJDEP	401 East State Street, Mail Code 501-04, P.O. Box 420 Trenton, New Jersey 08625-0420	2/27/2020 (to Natural Heritage Program)	3/6/2020 (from Robert Cartica)
Katherine P. Marcopul, Administrator NJ State Historic Preservation Office (HPO) NJDEP	January 23, 2020 letter routed through Office of Permit Coordination. February 5, 2020 and March 25, 2020 letters sent to: 501 East State Street, Mail Code 501-04B P.O. Box 420 Trenton, NJ 08625-0420	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter) 2/5/2020 (Section 106) 3/25/2020 (Section 106) 8/24/20 (to Vincent Maresca from FAA, Phase 1B/II Work Plan) 11/27/2020 (to Vincent Maresca from FAA, Phase 1B Report)	Memorandum (dated 2/20/2020) received as part of 2/24/2020 correspondence from Ruth Foster, Office of Permit Coordination May 12, 2020 (email from Katherine P. Marcopul, Section 106) September 22, 2020 (email from Katherine P. Marcopul, Phase 1B/II Work Plan approval) December 11, 2020 (email from Katherine P. Marcopul, Phase 1B Report approval and a determination that the Proposed Action will have *no adverse effect* on historic properties)
Randy Bearce Bureau of Tidelands Management NJDEP	Routed through Office of Permit Coordination Additional correspondence via email: Randy.bearce@nj.dep.gov	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter) 3/2/2020 (email correspondence with Randy Bearce)	2/24/2020 (from Ruth Foster, Letter from Office of Permit Coordination) 3/11/2020 (email correspondence with Randy Bearce)
Division of Land Use Regulation NJDEP	Routed through Office of Permit Coordination	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter)	2/24/2020 (from Ruth Foster Letter from Office of Permit Coordination)
Bureau of Air Planning NJDEP	Routed through Office of Permit Coordination	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter)	2/24/2020 (from Ruth Foster, Letter from Office of Permit Coordination)
Division of Fish and Wildlife NJDEP	Routed through Office of Permit Coordination	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter)	2/24/2020 (from Ruth Foster, Letter from Office of Permit Coordination)
Site Remediation Office of the Brownfield Redevelopment NJDEP	Routed through Office of Permit Coordination	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter)	2/24/2020 (from Ruth Foster, Letter from Office of Permit Coordination)
Green Acres Program NJDEP	Routed through Office of Permit Coordination	1/23/2020 (to Megan Brunatti, Office of Permit Coordination letter)	2/24/2020 (from Ruth Foster, Letter from Office of Permit Coordination)
Bureau of Inland Regulation NJDEP	401 East State Street Trenton, NJ 08625	1/15/2020 In-person project briefing with high-level project update, including NEPA activities	No response received
RJ Palladino, AICP/PP Senior Program Manager, NJ Transit Planning	One Penn Plaza East, 8th Floor Newark, NJ 07105-2246	1/30/2020 Letter 2/19/2020 In-person project briefing with high-level project update, including NEPA activities	No response received

NJ Department of Transportation (NJDOT)	David J. Goldberg Transportation Complex 1035 Parkway Avenue Trenton, NJ 08625	2/3/2020 In-person project briefing with Shukri Abuhuzeima, Executive Regional Manager and staff. Briefing covered high-level project update, including NEPA activities. 2/24/2020 Letter to Diane Gutierrez-Scaccetti, Commissioner	3/31/2020 (from Jay Jimenez)
Ms. Mary. D. Ameen, Executive Director North Jersey Transportation Planning Authority	1 Newark Center, Suite 17 Newark, NJ 07102	2/4/2020 Letter	No response received
Gregory Lattanzi, Ph.D. Archaeological Society of New Jersey c/o New Jersey State Museum Bureau of Archaeology & Ethnography	PO Box 530 Trenton, NJ 08625-0530	4/1/20 Letter	No response received

Table 5-3 Summary of Coordination with County Agencies

Agency	Address	Date Submitted to Agency	Agency Response Date
The Honorable Joseph N. DiVincenzo Jr. Office of the County Executive, County of Essex	465 Dr. Martin Luther King Jr. Boulevard Hall of Records - Room 405 Newark, New Jersey 07102	2/24/2020 Letter 5/5/2020 Letter (Section 106)	No response received
Honorable Brendan W. Gill Freeholder President-At-Large Board of Chosen Freeholders, County of Essex	465 Dr. Martin Luther King Jr. Blvd., Hall of Records - Room 502 Newark, New Jersey 07102	5/5/2020 Letter (Section 106)	No response received
Honorable Alexander Mirabella Freeholder Chairperson Board of Chosen Freeholders, County of Union	10 Elizabethtown Plaza Elizabeth, NJ 07207	5/5/2020 Letter (Section 106)	No response received
The Honorable Edward Oatman Union County Administration	10 Elizabethtown Plaza Elizabeth, New Jersey 07202	2/24/2020 Letter 5/5/2020 Letter (Section 106)	No response received
Ms. Kathy Kakaletris, Administrator Union County Office of Cultural and Heritage Affairs	633 Pearl Street Elizabeth, NJ 07202	3/31/2020 Letter (Section 106)	No response received

Table 5-4 Summary of City Agency Coordination

Agency	Address	Date Submitted to Agency	Agency Response Date
Honorable Ras J. Baraka, Mayor City of Newark	920 Broad Street Newark, New Jersey 07102	1/27/2020 In-person project briefing with high-level project update, including NEPA activities 2/24/2020 Letter 5/5/2020 Letter (Section 106)	No response received
Eric S. Pennington, Business Administrator City of Newark	920 Broad Street Newark, New Jersey 07102	2/24/2020 Letter 5/5/2020 Letter (Section 106)	No response received
Christopher Watson, City Planning Officer Department of Economic and Housing Development Office of Boards and Commissions Planning and Zoning Division City of Newark	920 Broad Street, Room 112 Newark, NJ 07102	3/6/2020 Phone call project briefing with high-level project update, including NEPA activities	No response received
Mr. Richard Partyka, Chairperson Newark Landmarks and Historic Preservation Commission	920 Broad Street, Room 112 Newark, NJ 07102	4/3/20 Letter (Section 106)	No response received
Ms. Elizabeth Del Tufo, President Newark Preservation & Landmarks Committee	PO Box 1066 Newark, NJ 07101	4/3/20 Letter (Section 106)	No response received
Honorable J. Christian Bollwage, Mayor City of Elizabeth	50 Winfield Scott Plaza Room 204 Elizabeth, New Jersey 07201	1/23/2020 WebEx meeting to provide a high-level project update, including NEPA activities 2/24/2020 Letter 5/5/2020 Letter (Section 106)	No response received

Table 5-5 Summary of Other Outreach

Agency	Address	Date Submitted to Agency	Agency Response Date
Staff from United States Senate and House of Representatives, New Jersey State Legislature, Essex and Union Counties, and Cities of Newark and Elizabeth	N/A (WebEx Meeting)	1/28/2020 WebEx meeting to provide a high-level project update, including NEPA activities, to municipal, statewide, and federal (e.g., Senate Office) officials and staffers.	No response received
Byron Comati Vice President - Corporate Planning Amtrak	30th Street Station 2955 Market Street, 3N-207 Philadelphia, PA 19104	1/31/2020 Letter 3/16/2020 WebEx meeting to provide a high-level project update, including NEPA activities.	No response received
Ryan M. Hill, PE, Director - Design & Construction Consolidated Rail Corporation	1000 Howard Boulevard Mt. Laurel, NJ 08054	2/3/2020 Letter 3/3/2020 WebEx meeting to provide a high-level project update, including NEPA activities.	No response received
Holiday Inn Newark Airport	450 U.S. Route 1&9 Newark, NJ 07114	1/10/2020 In person meeting to provide a high-level project update, including NEPA activities. 4/4/2020 WebEx meeting to provide a high-level project update	
Anheuser-Busch	200 U.S. Route 1&9 Newark, NJ 07114	1/13/2020 WebEx meeting to provide a high-level project update, including NEPA activities.	
Hartz Mountain	400 Plaza Drive Secaucus, NJ 07094	11/15/2019 In person meeting to provide a high-level project update, including NEPA activities.	
Kintock Group	50 Fenwick Street Newark, NJ 07114	First quarter of 2021 (anticipated)	
Air Traffic Control Tower	Newark Liberty International Airport Newark, NJ 07114	1/12/2021 WebEx meeting to provide a high-level project update, including NEPA activities	

List of Abbreviations/Acronyms

AADT	Annual Average Daily Traffic
ADT	Average Daily Traffic
ALP	Airport Layout Plan
APE	Area of Potential Effect
APM	Automated People Mover
AST	Above ground storage tanks
BCC	Bird of conservation concern
BMPs	Best Management Practices
C&D	Construction and Demolition Debris
CAA	Clean Air Act
CAFRA	Coastal Area Facility Review Act
CARP	Capital Asset Replacement Program
CEA	Classification Exception Area
CEQ	Council on Environmental Quality
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
CONRAC	Consolidated Rent-A-Car Facility
COVID-19	Coronavirus Disease 2019
CTA	Central Terminal Area
CWA	Clean Water Act
CY	Calendar Year
CZMA	Coastal Zone Management Act
db	Decibel
dbA	A-weighted decibels
DBOM	Design-Build-Operate-Maintain
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
ENSP	Endangered and Nongame Species Program
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
EWR	Newark Liberty International Airport
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps

FONSI	Finding of No Significant Impact
FT	Feet
ft^2	Square feet
FTA	Federal Transit Administration
FWS	U.S. Fish and Wildlife Service
GHG	Greenhouse Gases
GIS	Geographic Information System
HASP	Health & Safety Plan
HFCs	Hydrofluorocarbons
HP	horsepower
HPO, NJHPO	New Jersey Historic Preservation Office
IPaC	Information, Planning and Conservation System
JD	Jurisdictional Determination
kWh	Kilowatt Hours
lb	Pound
LEED	Leadership in Energy and Environmental Design
LOS	Level of Service
LQG	Large Quantity Generator
MCF	Maintenance and Control Facility
MHW	Mean high water line
MOVES2014b	Motor Vehicle Emission Simulator, version 2014b
MT	Metric tons
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEC	Northeast Corridor
NEPA	National Environmental Policy Act
NF_3	Nitrogen triflouride
N.J.A.C.	New Jersey Administrative Code
NJ	New Jersey
NJDEP	New Jersey Department of Environmental Protection
NJDOT	New Jersey Department of Transportation
NJEMS	New Jersey Environmental Management System
NJHPO, HPO	New Jersey Historic Preservation Office
NJNHP	New Jersey Natural Heritage Program
NJPDES	New Jersey Pollutant Discharge Elimination System
NMFS	National Marine Fisheries Services
NO_2	Nitrogen dioxide
NOx	Oxides of Nitrogen
NOA	Notice of Public Availability
NPDES	National Pollutant Discharge Elimination System

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NV5	NV5, Inc.
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PANYNJ	Port Authority of New York & New Jersey
PCB	Polychlorinated biphenyl
PEM	Palustrine emergent wetland
PFCs	Passenger Facility Charges
PM_{10}	Particulate Matter of 10 Microns in diameter or smaller
$PM_{2.5}$	Particulate Matter of 2.5 Microns in diameter or smaller
Q	Quarter of calendar year
RCRA	Resource Conservation and Recovery Act
RDV-SD	Redevelopment zone and special district
ROD	Record of Decision
ROW	Right of Way
SVOC	Semi-volatile Organic Compound
SF	Square foot
SF_6	Sulfur hexafluoride
SO_2	Sulfur dioxide
SOx	Sulfate
SPCC	Spill Prevention Control and Countermeasure
ST, tons	Short tons
SWPPP	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
TES	Technical Environmental Study
TIA	Traffic Impact Assessment
URA	Uniform Relocation Assistance and Real Property Acquisition Policies Act
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGBC	United States Green Building Council
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WR	Written Evaluation

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