4. AFFECTED ENVIRONMENT

Chapter 4 describes the environmental and social settings of the TTN proposed terminal replacement project. Information pertaining to the affected environment was obtained through on-site investigations, a review of published information, agency correspondence, and discussions with Airport personnel and public officials. The information presented herein serves as a basis for the assessment of environmental, social, and economic consequences (refer to Chapter 5) associated with the Proposed Action.

The study area evaluated for the following resources consists of the limit of disturbance boundary for the proposed terminal and ARFF facility, as shown on Figure 3-11 and in some cases, resources are evaluated within the entire airport property.

The following resources are not relevant to the Proposed Action due to their absence within the project area as well as their absence in the surrounding area, and therefore no further analysis was conducted.

- Coastal Zones
- Coastal Barriers
- Section 4(f)
- Farmland
- Wild and Scenic Rivers

4.1. AIR QUALITY

This section sets forth the existing conditions of air quality within the TTN region. Additional documentation of air quality standards, requirements, existing conditions, and analysis methodology are discussed in more detail in the *Trenton-Mercer Airport New Terminal Environmental Assessment Air Quality Technical Memorandum* prepared by Harris, Miller, Miller, & Hanson, Inc. (HMMH) (see Appendix E).

4.1.1. Regulatory Setting

Air quality is regulated at the federal level by the Clean Air Act (CAA), which is administered by the U.S. Environmental Protection Agency (USEPA) in coordination with state and local governments.

4.1.1.1 National Ambient Air Quality Standards

The USEPA is responsible for enforcing the CAA (42 U.S.C. §§ 7401 to 7671q). The CAA as enacted in 1970 and amended in 1977 and 1990 is the comprehensive federal law regulating air pollutant emissions from stationary and mobile sources. The CAA requires the USEPA, under 40 CFR Subchapter C, to establish National Ambient Air Quality Standards (NAAQS) that apply throughout the United States and its territories. Under the authority granted by the CAA, USEPA has established NAAQS for six contaminants referred to as criteria pollutants: Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Ozone (O_3), Particulate Matter (PM), Sulfur Dioxide (SO_2), and Lead (Pb).

Ozone is a secondary pollutant, meaning that it is formed from reactions of "precursor" compounds under certain conditions; therefore, O_3 is addressed through analysis of its precursors—volatile organic compounds (VOC) and oxides of nitrogen (NOX). The NAAQS are categorized into primary standards and secondary standards. Primary standards are intended to protect the human health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards are environmental-based and intended to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Table 1 of the Technical Memorandum presents the NAAQS that are currently in effect for criteria air pollutants.

The CAA assigns primary responsibility to individual states to assure compliance with the NAAQS. Air quality regions that meet the NAAQS for a criteria pollutant are designated as being in attainment. Areas with poor air quality that do not meet the NAAQS for one or more criteria pollutant are designated by the USEPA as nonattainment areas. Nonattainment designations under the CAA for O_3 are categorized into levels of severity—marginal, moderate, serious, severe, or extreme—based on the level of concentrations above the standard, which is also used to set the required attainment date. When a nonattainment area is redesignated as an attainment area, the CAA requires that a maintenance plan be put in place for a period between 10 to 20 years to ensure continued compliance with the corresponding NAAQS. Therefore, a former nonattainment area is also defined as a maintenance area.

The CAA also specifies future dates for achieving compliance with the NAAQS for nonattainment areas; these states must produce a State Implementation Plan (SIP) that defines mitigation strategies and timelines for attaining the NAAQS. Nonattainment areas that attain the NAAQS for a specific criteria pollutant are designated maintenance areas, and area maintenance plans are required to demonstrate continuing attainment of the NAAQS.

4.1.1.2 General and Transportation Conformity

The CAA requires federal agencies to ensure that actions proposed to occur in a designated nonattainment or maintenance area conform to the appropriate SIP, also known as General Conformity. The General Conformity Rule requires that a proposed action comply with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. Under the General Conformity regulations, compliance is presumed if a proposed action would not cause emissions that exceed de minimis levels defined for the criteria pollutants. If the proposed action's emissions exceed the de minimis levels, a conformity determination would be required. The General Conformity Rule applies to all federal actions except for certain highway and transit programs that must comply with the Transportation Conformity Rule contained in 40 CFR Part 93, Subpart A. The Transportation Conformity Rule is not applicable to this project as the project does not require any approvals from the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) and would not include any funding subject to Title 23 U.S.C. Therefore, only General Conformity applies to this project.

4.1.2. Attainment Status

Air quality in the TTN area (i.e., Mercer County) is designated by USEPA as in attainment for all criteria pollutants except the 2008 and 2015 eight-hour ozone standard and the $PM_{2.5}$ standard based on recent air monitoring data collected by the state agency. USEPA classifies the areas into categories based on the severity of non-attainment based on air quality. The classifications are, in increasing order of severity: Marginal, Moderate, Serious, Severe, and Extreme. Specifically, the TTN area is designated as a marginal non-attainment area for the 2008 and 2015 eight-hour ozone standard and maintenance area for the 2006 $PM_{2.5}$ standard.

Since the area is designated as both non-attainment and maintenance with the current USEPA air quality standards, the Proposed-Action Alternative for this project was analyzed for comparison with the General Conformity requirements of the CAA to ensure the net change in air emissions are below applicable air quality standards.

4.2. BIOLOGICAL RESOURCES

Biotic resources refer to the various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, mammals, etc.), including state and federally listed threatened and endangered species, in a particular area. It also encompasses the habitats supporting the various flora and fauna, including rivers, lakes, wetlands, forests, and other ecological communities. Airport projects can affect these ecological communities and thereby affect vegetation and wildlife populations.

4.2.1. Ecological Communities

Most of the Airport and adjacent areas have been significantly disturbed by past Airport construction and the surrounding residential and commercial development. Most of the habitat at the Airport consists of maintained grassland, wetlands, and drainages, interspersed with paved surfaces. All habitats identified at the Airport are common and secure within the region.

In 1994, the New Jersey Division of Fish and Wildlife's (NJDFW) Endangered and Nongame Species Program (ENSP) adopted a landscape level approach to rare species protection called the Landscape Project. The Landscape Project has been designed to provide peer reviewed, scientifically-sound information that is easily accessible and can be integrated with planning, protection, and land management programs at every level of government, as well as non-governmental organizations and private landowners. The ENSP has developed landscape maps that identify critical rare species habitats based on land use classifications, documented rare species locations, and habitat models linked to each of the rare, threatened, or endangered species.

The habitat patches are assigned a Rank of 1 through 5, based on the status of the species present as follows:

Rank 5: Presence of one or more federally-listed threatened or endangered species.
Rank 4: Presence of one or more state-listed endangered species.
Rank 3: Presence of one or more state-listed threatened species.
Rank 2: Presence of one or more non-listed state priority species.

Rank 1: Habitat patches with minimum habitat specific suitability size requirement for threatened or endangered or priority species, but do not intersect with any confirmed occurrence.

In general, this ranking system is created by review of aerial photography and habitat type extracted from the New Jersey Department of Environmental Protection (NJDEP) Land Use/Land Cover (LU/LC) geographic information system data layer. Each habitat patch, identified by aerial photograph review, is delineated, and assigned a unique identification number. Habitat patches are classified or ranked based upon the status of the particular species that is assumed or known to be present.

According to NJDEP Landscape Project, the TTN property has been determined to contain Rank 1 and Rank 2 habitats, with only Rank 1 habitats occurring within the proposed project area (see **Figure 4-1**). A majority of the Airport, including portions of the proposed project area, is unmapped by Landscape Project.

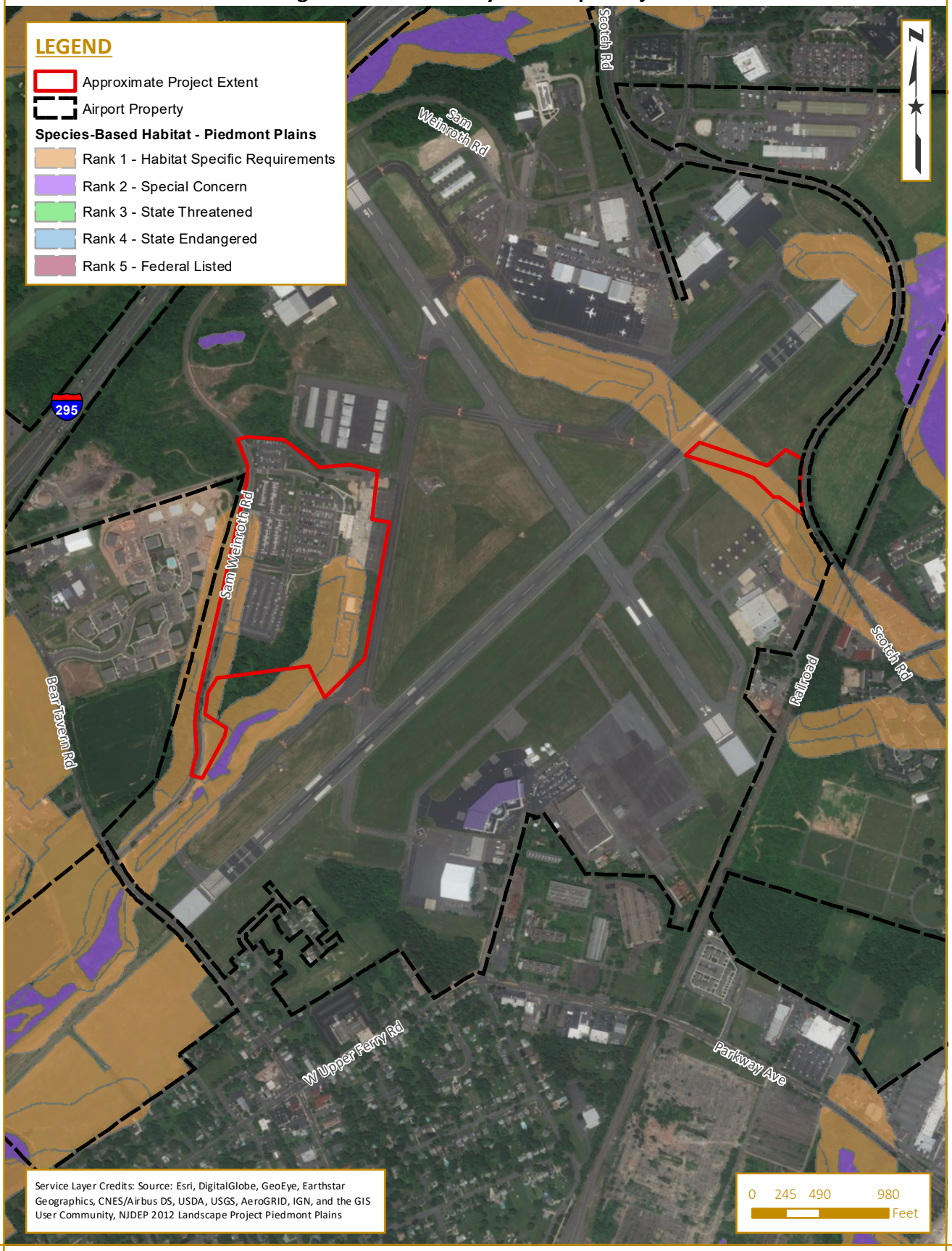
The study area consists of a variety of habitats, including previously disturbed, developed lands; regularly and periodically maintained lawns; secondary growth upland forest; woody old field; early successional fields; and freshwater wetlands. Land surrounding the Airport consists of mixed deciduous and oak-pine forests interspersed with residential and commercial development and agricultural lands.

Secondary growth forests are located primarily to the south, west and north of the existing airport terminal. The mixed forest and understory provide habitat for a variety of wildlife species including, but not limited to, white-tailed deer (*Odocoileus virginianus*), small mammals, bats, birds, raptors, wild turkeys (*Meleagris gallopavo*), and insects. Woody old fields are located to the west and north of the existing airport terminal. The woody old field habitats of the airport provide habitat for white-tailed deer, small mammals, birds, wild turkeys, and insects. Most of the grasslands within the study area are regularly or periodically maintained. These areas are periodically mowed to conform with routine airport maintenance requirements. Maintained grasslands provide habitat for white-tailed deer, small mammals, bats, birds, insects, and reptiles.

Freshwater wetlands identified within the study area include forested, scrub-shrub, and emergent wetland types (see Section 4.8.1 below for more detail). Wetlands provide habitat for a variety of wildlife, including but not limited to, white-tailed deer, bats, other small mammals, amphibians, reptiles, birds, and insects.

Correspondence from the NJDEP Office of Natural Lands Management, dated January 22, 2019, states that the New Jersey Natural Heritage Program (NHP) Database and the NJDEP NJDFW Landscape Project (Version 3.3) has records of potential vernal pool habitat in the immediate vicinity of the project site. Potential vernal pool habitat areas were identified by Rutgers University Center for Remote Sensing and Spatial Analysis (CRSSA); however, not all potential vernal pool habitat sites/areas have been field verified by the NJDEP. The NJDEP GeoWeb indicates that the potential vernal pool habitat on Airport property is located north of the existing terminal building (Vernal Pool Habitat ID 1563).

Figure 4-1: New Jersey Landscape Project



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There are no other habitats located on the Airport that are designated as "critical habitat" for any state or federally listed threatened or endangered species, or species of special concern. State or federally listed threatened or endangered species or species of special concern are discussed in the next section. Further information regarding state and federally regulated waterways, floodplains, and wetlands is presented in Sections 4.14.

4.2.2. Federally Protected Species

The U.S. Fish and Wildlife Service (USFWS) protects federally-listed endangered and threatened wildlife and plant species and their habitat under the 1973 Endangered Species Act (ESA). The ESA of 1973 directs all federal agencies to work to conserve federally-listed endangered and threatened species and to use their authorities to further the purposes of the ESA. Section 7 of the ESA, titled "Interagency Cooperation," is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any federally-listed species. Endangered species are those which are in imminent danger of extinction throughout their range or a significant portion of its range because of a loss or change in habitat, over-exploitation, predation, disease, inadequacy of existing regulatory mechanisms, or other natural or manmade factors affecting its continued existence. Assistance is needed to prevent future extinction. Threatened species are those which are likely to become endangered within the foreseeable future throughout all or a significant portion of their range if conditions surrounding them begin or continue to deteriorate. Candidate species are species for which the USFWS has sufficient information on the biological vulnerability and threats to support issuance of a proposal list, but issuance of a proposed rule is currently precluded by higher priority listing actions. Candidate species do not receive substantive or procedural protection under the ESA; however, USFWS does encourage federal agencies and other appropriate parties to consider these species in the planning process.

The USFWS's Information, Planning and Consultation (IPaC) System is a project-planning tool that streamlines the environmental review process by identifying federally-listed threatened and endangered species, critical habitat, migratory birds, and other natural resources that are known or expected to be on or in the vicinity of a project area, and thus potentially impacted by a project. Through IPaC, an Official Species List was obtained from the USFWS on August 21, 2020, and is included in Appendix C. Based on the Official Species List, the USFWS did not identify critical habitats within the Airport park; however, the list did identify the Indiana bat (*Myotis sodalis*, federally Endangered) and Northern long-eared bat (NLEB; *Myotis septentrionalis,* federally Threatened) as federal species that should be considered in effects analysis. Species listed by the USFWS are included in Table 4-2.

According to the *New Jersey Municipalities with Hibernation or Maternity Occurrence of Indiana Bat or Northern Long-Eared Bat*, prepared by USFWS New Jersey Field Office and last revised April 25, 2017, the project area is not located within a municipality identified as maternity or hibernation habitat for the NLEB or Indiana bat.

During summer months, NLEBs and Indiana bats roost singly or in colonies beneath bark, in cavities, or in crevices of both live and dead trees, typically greater than 3 inches in diameter. Suitable roosting habitat for NLEBs and Indiana bats is potentially present in the forested and treed

areas on and in the vicinity of the Airport property. NLEBs and Indiana bats may also transit other portions of the Airport property for foraging or other transient purposes.

A final 4(d) rule, published in the *Federal Register* on January 14, 2016, describes measures necessary to provide for the conservation of the NLEB. Tree removal within 150 feet of a known occupied maternity roost tree from June 1 through July 31 or within 0.25 mile of a hibernaculum at any time is considered an "incidental take" and is prohibited.

In August 2015, a summer acoustic study was conducted at the Airport in support of a separate and independent project, the runway obstruction removal project, to determine the presence or probable absence of federally listed bat species, specifically Indiana bat and NLEB. The level of effort for the survey was based on the maximum area of land disturbance that could be expected as a result of the obstruction removal project. As such, the 2015 study assumed that the proposed project would require the removal of individual or groups of trees that affect navigable airspace within an approximate 130 acres of forested habitat. Please note that the approximate 3.5 acres of tree clearing required for the terminal replacement project completely overlaps with the proposed obstruction removal project study area, which was based on the maximum area of possible land disturbance. Also note that the amount of tree clearing proposed as part of the obstruction removal project has since been significantly reduced to only include critical obstructions, which has been determined to be approximately 31 acres collectively of forested habitat, generally located at the departure and approach ends of each runway.

An informal habitat assessment conducted as part of the study determined that potential habitat in the area was characterized as being low to moderate quality for NLEBs and not likely to support Indiana bats. Most of the habitat consisted of early to mid-successional forest with a high amount of clutter in the understory and a limited number of potential roost trees. Observations of the surrounding area indicated this type of habitat was plentiful outside the Airport.

Automated and qualitative analysis of approximately 90 hours of acoustic data (i.e., eight detector nights) were collected during the summer bat acoustic survey for the obstruction removal project. Automated acoustic analysis determined the likely presence of eight species within the project vicinity, including the federally endangered Indiana bat and the federally threatened NLEB; however, qualitative analysis of the 16 suspected *Myotis* spp. calls confirmed only one of these calls as being from a *Myotis* species. Both the software and qualitative analysis indicate the call likely came from a little brown bat (*Myotis lucifugus*). Based on the habitat and acoustic survey data collected, it was determined that the habitat is unlikely to support Indiana bats and that any potential impacts to NLEB resulting from the obstruction removal project would be negligible to both the local and overall population.

As stated in a letter, dated October 8, 2015, the USFWS New Jersey Field Office concurred that the loss of foraging and roosting habitat due to the separate obstruction removal project was anticipated to be insignificant or discountable since no NLEBs or Indiana bats were detected during the acoustic study. The USFWS also agreed that the proposed obstruction removal project was not likely to adversely affect NLEB and Indiana bat. Although the activities associated with the obstruction removal project are not likely to adversely affect federally-listed species, the USFWS has indicated that the project may impact other bat species that are currently being reviewed for listing under the ESA, specifically little brown bat (*Myotis lucifugus*) and tri-colored bat (*Perimyotis*

subflavus); therefore, the USFWS recommends a time-of-year restriction on tree clearing activities for any trees ≥5" diameter at breast height from April 1 through September 30 to prevent incidental death or injury to other adult bat species and/or their pups.

Coordination with the USFWS New Jersey Field Office was conducted in October 2019 to determine whether additional presence/absence studies would be required. Results of the coordination are discussed in Section 5.2.2. All USFWS correspondence is included in **Appendix C**.

4.2.3. State Protected Species

The State of New Jersey Endangered and Nongame Species Conservation Act (N.J.S.A. 23:2A-13 *et seq*) includes the listing of state endangered animal species (N.J.A.C. 7:25-4:13) and a Nongame Species list, including threatened species (N.J.A.C. 7:25 4.179(a)). As part of this Act, all New Jersey animals appearing on the federal list are also included on this State list. Endangered plants in New Jersey have been identified in accordance with the *Endangered Plant Species List Act* (N.J.S.A. 13:1B-15.151 *et seq*). Under New Jersey legislation, an endangered species is one that has had its prospects of survival or recruitment in jeopardy or likely to be so within the foreseeable future due to the destruction, drastic modification, or severe curtailment of its habitat; over-utilization for scientific, commercial, or sporting purposes; reduced in significant numbers by disease, pollution, or predation; or other natural or manmade factors affecting its survival within the state (N.J.S.A. 23:2A-3). Nongame species protected by New Jersey include any wildlife for which a legal hunting or trapping season has not been established or which has not been classified as an endangered species by statute or regulation by New Jersey (N.J.S.A. 23:2A-3).

Database searches of the New Jersey NHP and Landscape Project (Version 3.3) were conducted to ascertain whether state or federally-listed threatened or endangered species, critical habitat, or rare natural communities have been recorded onsite, in the immediate vicinity (within 0.25 mile), or within one mile of the project site as per the Endangered and Nongame Species Conservation Act (N.J.S.A. 23:2A-1et seq.) and the ESA of 1973 (16 U.S.C. 1531 et seq.), respectively. Database searches were conducted for the terminal replacement project study area and the ARFF relocation project study area. These study areas include each project area limits of disturbances, as well as immediate adjacent areas that contain environmentally sensitive areas, such as wetlands.

As stated in a letter, dated January 22, 2019 (NHP File #19-4007437-15901), the NHP does not have any records of rare plants, threatened or endangered wildlife species or wildlife habitat, or Natural Heritage Priority Sites within the terminal replacement project study area (referred to as "Area 1" on corresponding NHP letter response). However, the NHP does have foraging records of great blue heron (*Ardea herodias*), a State-listed Species of Special Concern, which is identified to the south of the proposed terminal replacement limit of disturbance. The NHP does not have any records of nesting for this species. New Jersey Species of Special Concern are identified by the State as species that warrant special attention because of evidence of population decline or inherent vulnerability to environmental deterioration or habitat modification that would result in the species becoming threatened if conditions surrounding the species begin or continue to deteriorate. Species listed as special concern are provided this special attention via regulatory protections on certain lands owned/managed by the State of New Jersey, including State Parks and Green Acres encumbered open space parcels. Since the subject parcels are not subject to these jurisdictions, no further analysis of NJ Special Concern Species is required.

Lastly, as discussed in Section 4.1.1, the NHP has records of potential vernal pool habitat in the immediate vicinity of the terminal project site. Refer to **Table 4-2** for a list of species identified by the NHP and **Appendix C** for a copy of the NHP letter response for the terminal replacement project study area (referred to as "Area 1" on corresponding NHP letter response). The potential habitat areas for the rare wildlife species on and in the immediate vicinity of the project area are shown on **Figure 4-2**.

A separate database search was also requested from the NHP for the proposed ARFF study area (referred to as "Area 2" on corresponding NHP letter response). As stated in a letter, dated June 7, 2019 (NHP File #19-4007437-16838), the NHP does not have any records of rare plants, wildlife, or ecological communities; threatened or endangered wildlife species or wildlife habitat; Natural Heritage Priority Sites; or other animal species tracked by the New Jersey Endangered and Nongame Species Program on the project site. Refer to **Table 4-2** for a list of species identified by the NHP and **Appendix C** for a copy of the NHP letter response for the ARFF project study area (referred to as "Area 2" on corresponding NHP letter response).

4.2.4. Biotic Resources Summary

Most of the Proposed Action project areas consist of maintained airfield grasslands, previously disturbed and developed areas, and forested areas. **Table 4-1** provides acreages of the land uses and covertypes on the proposed terminal and ARFF project areas.

Table 4-1: Land Uses and Covertypes on Project Area

Land Use or Covertype	Project Area Acreage	
	Terminal	ARFF
Maintained Grass (including airfield)	8.5	4
Forested	5.25	N/A
Roads, buildings, and other paved or impervious surfaces	22.25	0.1
Total	36	4.1

Source: McFarland-Johnson, Inc.

Both federal and state threatened and endangered species are located on or within the vicinity of the project areas. **Table 4-2** lists the species, their federal and state status, and how they are associated with the project areas. See Section 5.7 for further information regarding potential impacts to state and federally listed threatened and endangered species.

Table 4-2: Threatened and Endangered Species On, In the Immediate Vicinity Of, and Within One Mile of the Trenton-Mercer Airport

Common Name	*Scientific Name*	State/Federal Status	Record Type	Record Location	Record Source
Bald Eagle	*Haliaeetus leucocephalus*	State Endangered / Delisted[1]	Foraging	Terminal: Within 1-Mile ARFF: N/A	NJDEP NHP[2]
Cooper's Hawk	*Accipiter cooperii*	Special Concern/Not Listed	Breeding Sighting	Terminal: Vicinity ARFF: N/A	NJDEP NHP[2]
Eastern Meadowlark	*Sturnella magna*	Special Concern/Not Listed	Breeding Sighting	Terminal: Within 1-Mile ARFF: Within 1-Mile	NJDEP NHP[2,3]
Grasshopper Sparrow	*Ammodramus savannarum*	Threatened/Not Listed	Breeding Sighting	Terminal: Within 1-Mile ARFF: Within 1-Mile	NJDEP NHP[2,3]
Great Blue Heron	*Ardea herodias*	Special Concern/Not Listed	Foraging	Terminal: Project Site ARFF: Vicinity	NJDEP NHP[2,3]
Indiana Bat	*Myotis sodalis*	Endangered/Endangered	Potential	On Project Site[4]	USFWS IPaC[5]
Northern Long-Eared Bat	*Myotis septentrionalis*	Not Listed/Threatened	Potential	On Project Site[4]	USFWS IPaC[5]
Wood Thrush	*Hylocichla mustelina*	Special Concern/Not Listed	Breeding Sighting	Terminal: Vicinity ARFF: N/A	NJDEP NHP[2]

Source: NJDEP and USFWS

Notes:[1] *Federally protected under the Bald and Golden Eagle Protection Act*

[2] *NJDEP Natural Heritage Program Letter, dated January 22, 2019 (NHP File #19-4007437-15901)*

[3] *NJDEP Natural Heritage Program Letter, dated June 7, 2019 (NHP File #19-4007437-16838)*

[4] *Species may be present in the area of a Proposed Action.*

[5] *USFWS Official Species List, dated August 21, 2020 (Consultation Code: 05E2NJ00-2020-SLI-0096).*

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4.3. CLIMATE

Climate change is a global phenomenon that can have local impacts.[1] Scientific measurements show that Earth's climate is warming, with concurrent impacts including warmer air temperatures, increased sea level rise, increased storm activity, and an increased intensity in precipitation events. Increasing concentrations of greenhouse gas (GHG) emissions in the atmosphere affect global climate.[2] [3] GHG emissions result from anthropogenic sources, including the combustion of fossil fuels. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and fluorinated gases.[4] CO_2 is the most important anthropogenic GHG because it is a long-lived gas that remains in the atmosphere for up to 100 years.

4.3.1. Regulatory Setting

Although no federal standards have been set for GHG emissions, it is well established that GHG emissions can affect climate. Based on guidance from the FAA Order 1050.1F Desk Reference, state and local policies and programs that address climate change are discussed in this section. The guidance recommends consideration of: (1) the potential effects of a proposed action or its alternatives on climate change as indicated by its GHG emissions; (2) the implications of climate change for the environmental effects of a proposed action or alternatives.

4.3.2. Affected Environment

Research has shown there is a direct correlation between fuel combustion and greenhouse gas (GHG) emissions. Implementation of the Proposed Action would not increase the number of flights or type of aircraft using the airfield compared to the No Action because it would only affect the landside systems. The Proposed Action would not increase or change the number of passengers that would utilize the Airport in the future, it would only change how they access the Airport and terminal facilities. Any new roadway lengths and surface vehicle changes (i.e., vehicle miles

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[1] As explained by the USEPA, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States." U.S. Environmental Protection Agency, Climate Change Division, Office of Atmospheric Programs, Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 2-3, 2009, https://www.epa.gov/ghgemissions/technical-support-document-endangerment-and-cause-or-contribute-findings-greenhouse (accessed September 28, 2018).

[2] Intergovernmental Panel on Climate Change, Fifth Assessment Report, 2014, https://www.ipcc.ch/report/ar5/syr/ 9 (accessed September 28, 2018).

[3] U.S. Global Change Research Program, Global Climate Change Impacts in the United States, 2009, http://www.globalchange.gov/what-we-do/assessment/previous-assessments/global-climate-change-impacts-in-the-us-2009 (accessed September 28, 2018).

[4] U.S. Environmental Protection Agency, Overview of Greenhouse Gases, http://www3.epa.gov/climatechange/ghgemissions/gases.html (accessed May 11, 2017).

traveled) are expected to be minimal compared to the No Action. As a result, operational emissions, associated airfield emissions sources, parking, and traffic were not inventoried or evaluated as part of this EA.

To understand New Jersey's contribution to climate change, the NJDEP has prepared greenhouse gas inventories to assess the key drivers and recent trends in these data.[5] The inventory is a sector-based inventory including, but not limited to transportation, residential, commercial, industrial, land use, and electricity used in state. The most recent analysis was published in 2020 which included annual GHG emissions up to 2018. For 2018, New Jersey produced approximately 105.1 million metric tons (MMT) of CO_2 equivalents (CO_2e). It should be noted that it was also estimated the state's land sector (forests and associated land cover) sequestered the equivalent of 8.1 $MMTCO_2e$ resulting in net greenhouse gas emissions of 97.0 $MMTCO_2e$ for 2018.

4.4. COASTAL RESOURCES

The federal Coastal Barrier Resources Act provides for review of federally funded projects undertaken within the Coastal Barrier Resources System (CBRS). The CBRS contains undeveloped coastal barriers along the coasts of the Atlantic Ocean, Gulf of Mexico, and Great Lakes.

The Airport is not located within a CBRS, and the Coastal Barrier Resources Act would not apply to any proposed improvements at the Airport.

4.5. SECTION 4(F) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966 protects publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance from development unless there are no feasible alternatives.

There are no Section 4(f) resources located within the terminal and ARFF project areas, However, publicly owned parks and conservation lands are located within the vicinity of the Airport. For public parks, recreation areas, significant historic sites, and refuges, impacts as changes to access, visual, and noise levels resulting from the Proposed Action were chosen since these have the potential to result in substantial impairment to the property's activities, features, or attributes that qualify it for protection under Section 4(f). Therefore, public parks, recreation areas, significant historic sites, and refuges located within a 0.5-mile radius from the project areas was chosen to evaluate Section 4(f) resources. Public parks, recreation areas and refuges outside of that boundary were excluded because there would be no appreciable changes to access, visual, or noise level at this distance. The viewshed analysis can be referenced in Section 5.11 and noise analysis in Section 5.8 and **Appendix E**.

Most publicly owned parks in the vicinity of the project areas are located east of the Airport and owned by the Ewing Township. Other publicly owned parks include recreation fields associated with the Fisher Middle School located to the east of the Airport. The Mountain View Golf Course,

[5] https://www.nj.gov/dep/climatechange/docs/nj-scientific-report-2020.pdf

owned by Mercer County, is located west of the Airport and Interstate 295. These parks and recreational areas all serve the surrounding residential areas.

Municipally owned parks within 0.5 mile from the terminal and ARFF project areas include the following shown in **Table 4-3** and **Figure 4-4**.

Table 4-3: Parklands Within ½ Mile of Project Areas

Park	Distance from Nearest Project Area (miles)	
	ARFF	Terminal
Veterans Memorial Park	0.12	0.70
Rambling Creek Park	0.50	1.0
Fisher Middle School	0.50	1.0
Mountain View Golf Course	0.85	0.3

Source: McFarland-Johnson, Inc.

There are no wildlife or waterfowl refuges in the immediate vicinity of the Airport. The nearest refuge is the Charles H. Rogers Wildlife Refuge located 14 miles to the northeast. In addition, an impact to historic sites of national, state, or local significance on or near the Airport may be considered a use under Section 4(f).

Section 4(f) resources are not located within the project areas. In addition, the Proposed Action does not propose the physical or constructive use of any Section 4(f) resource nor result in substantial impairment to the property's activities, features, or attributes that qualify it for protection under Section 4(f). The Proposed Action is located on Airport property, mostly used for aviation purposes, and will not have impacts on Section 4(f) resources. Historic resources are discussed further in Section 4.8.

4.6. FARMLANDS

The Farmland Protection Policy Act (FPPA), 7 C.F.R. § 658 1994, requires federal agencies to consider project alternatives that will minimize unnecessary and irreversible conversion of farmland to nonagricultural uses. For the purposes of the FPPA, farmland refers to soils classified as prime farmland, unique farmland, and land of statewide or local importance. According to the U.S. Natural Resource Conservation Service (NRCS) Web Soil Survey, accessed on January 29, 2019, approximately 60.2% of the Proposed Action is classified as not prime farmland, 28% is classified as Farmland of statewide importance, and 11.8% is classified as Prime Farmland. Farmland soil classification on Airport property is shown on **Figure 4-2**. There are no actively farmed soils within the Airport property.

The FPPA does not apply to land already committed to “urban development or water storage”. Most of the Airport property has already been previously committed to urban development or current airport utilization and development and would not be subject to the FPPA regulations.

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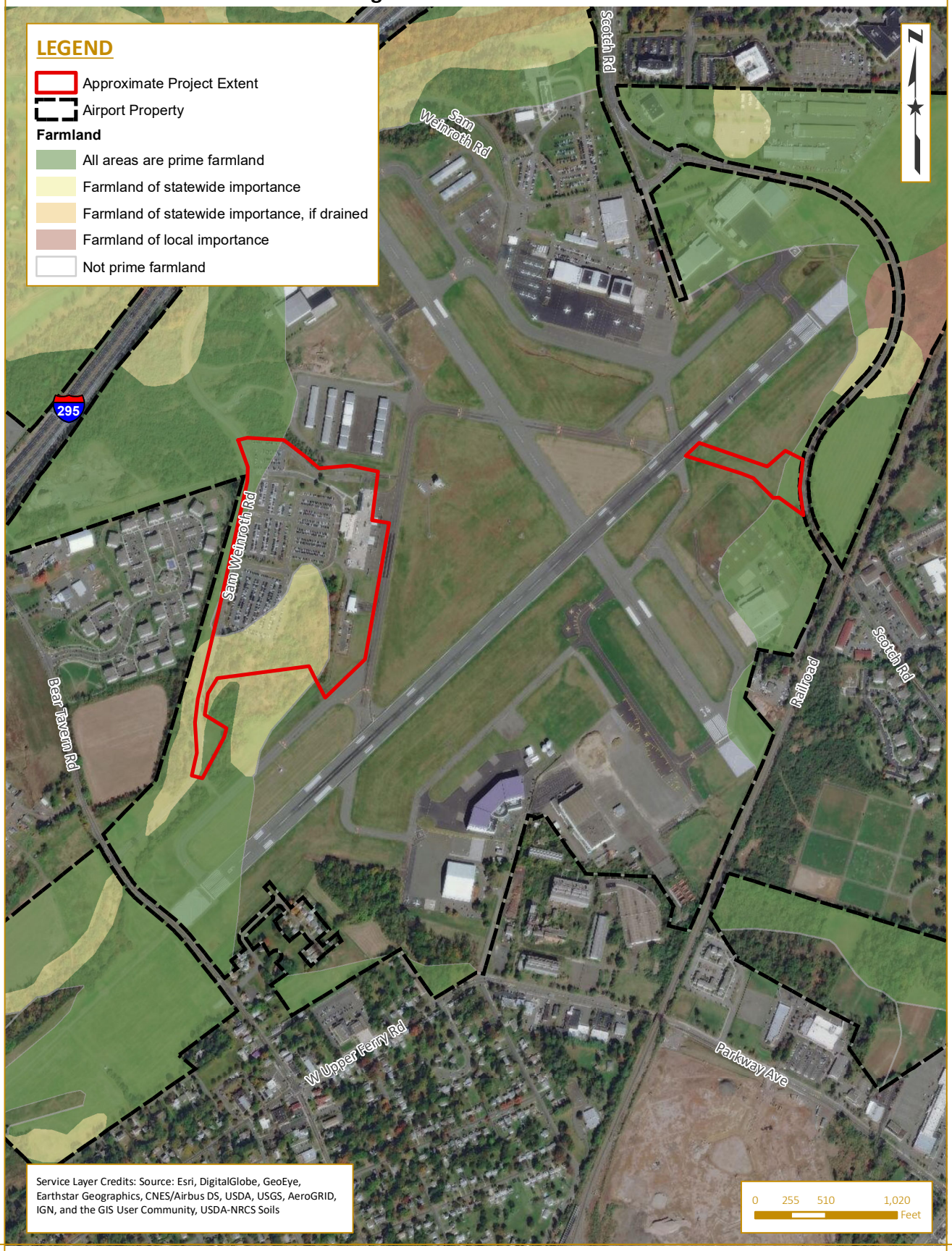
Figure 4-2: Farmland Soils



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In New Jersey, local municipalities also have the authority to regulate certain activities in agriculture zones under the Municipalities Planning Code (P.L. 805, Act No. 247, as amended). However, there are no zoned agricultural areas in the project areas.

4.7. HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

This section identifies existing contaminated sites on or within the immediate vicinity of the project areas and local disposal capacity for solid and hazardous wastes generated form the Proposed Action or alternative(s).

Hazardous materials, solid waste, and pollution prevention are governed by many statues, Executive Orders (EO), and FAA orders. Federal statutes, mostly overseen by the USEPA, include but are not limited to, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), enacted in 1980, which was created to provide federal authority to respond to releases of hazardous substances which may be harmful to public health or the environment; the Resource Conservation and Recovery Act (RCRA) (1976) regulates the generation, storage, treatment, and disposal of waste, the Pollution Prevention Act (1990) requires pollution prevention and source reduction control so that wastes will have less effect on the environment while in use and after disposal; and the Oil Pollution Act (1990), which requires oil storage facilities to develop oil spill response plans. The CEQ Memorandum on *Pollution Prevention and the National Environmental Policy Act* (January 12, 1993) provides guidance to federal agencies to consider and incorporate pollution prevention measures early in the NEPA process.

In addition to federal statutes, NJDEP has established technical and administrative requirements to remediate a contaminated site and ensure that the remediation is protective of public health and the environment (N.J.A.C. 7:26E – Technical Requirements for Site Remediation and N.J.A.C. 7:26C – Administrative Requirements for the Remediation of Contaminated Sites).

4.7.1. Hazardous Materials – Phase I Environmental Site Assessment

A hazardous or contaminated environmental condition is the presence or likely presence of any hazardous substances or petroleum products (including products currently in compliance with applicable regulations) on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The above is investigated by a Phase I Environmental Assessment (ESA) and Phase II (ESA). An explanation of each is provided below.

Phase I ESA – A diligent inquiry (records review and evaluation of documents) of a property regarding past history through current use. The due diligence review is used to gather information to evaluate if there are or may have been any conditions or activities that resulted in releases and/or discharges of petroleum or hazardous materials or chemicals at the property, now or in the past. These release/discharge conditions are collectively known as recognized environmental conditions (RECs). A Phase I ESA is meant to identify RECs at the property which may or may not require environmental investigations (i.e., Phase II ESA).

Phase II ESA - Environmental investigations of RECs found during the Phase I ESA process. A Phase II ESA further evaluates into these RECs with field sampling activities to confirm absence/presence

of contamination at the property. A Phase II ESA investigations may include a combination of soil, groundwater, and vapor intrusion sampling and analysis. The findings of the sampling investigations of the Phase II ESA are used to develop an action plan on how to make the property comply with environmental standards.

A Phase I ESA was completed by Urban Engineers, Inc. (Urban) in May 2019. The Phase I ESA involved the review of historic aerial photographs, correspondence with local, state, and federal agencies, site reconnaissance, and interviews with employees at the Airport. Urban also utilized the services of Environmental Data Resources, Inc. (EDR) to investigate potential recognized environmental conditions (RECs) and other environmental concerns. The EDR report is an environmental regulatory agency records review based on publicly available information from state and federal agencies. The complete Phase I ESA report is provided in **Appendix F** (pages F-1 to F-661). The RECs identified in the Phase I ESA were further investigated as part of a Phase II ESA. The purpose of the Phase II ESA is to evaluate the presence, or absence of, petroleum products or hazardous substances in the subsurface of the site. This is accomplished by sampling and analysis of the underlying soil and/or groundwater. A summary of the methods and results of the Phase II ESA are presented in Section 4.7.2. The Phase I ESA identified five RECs and include the following:

REC No. 1 – Fueling, Maintenance and Aircraft Operations

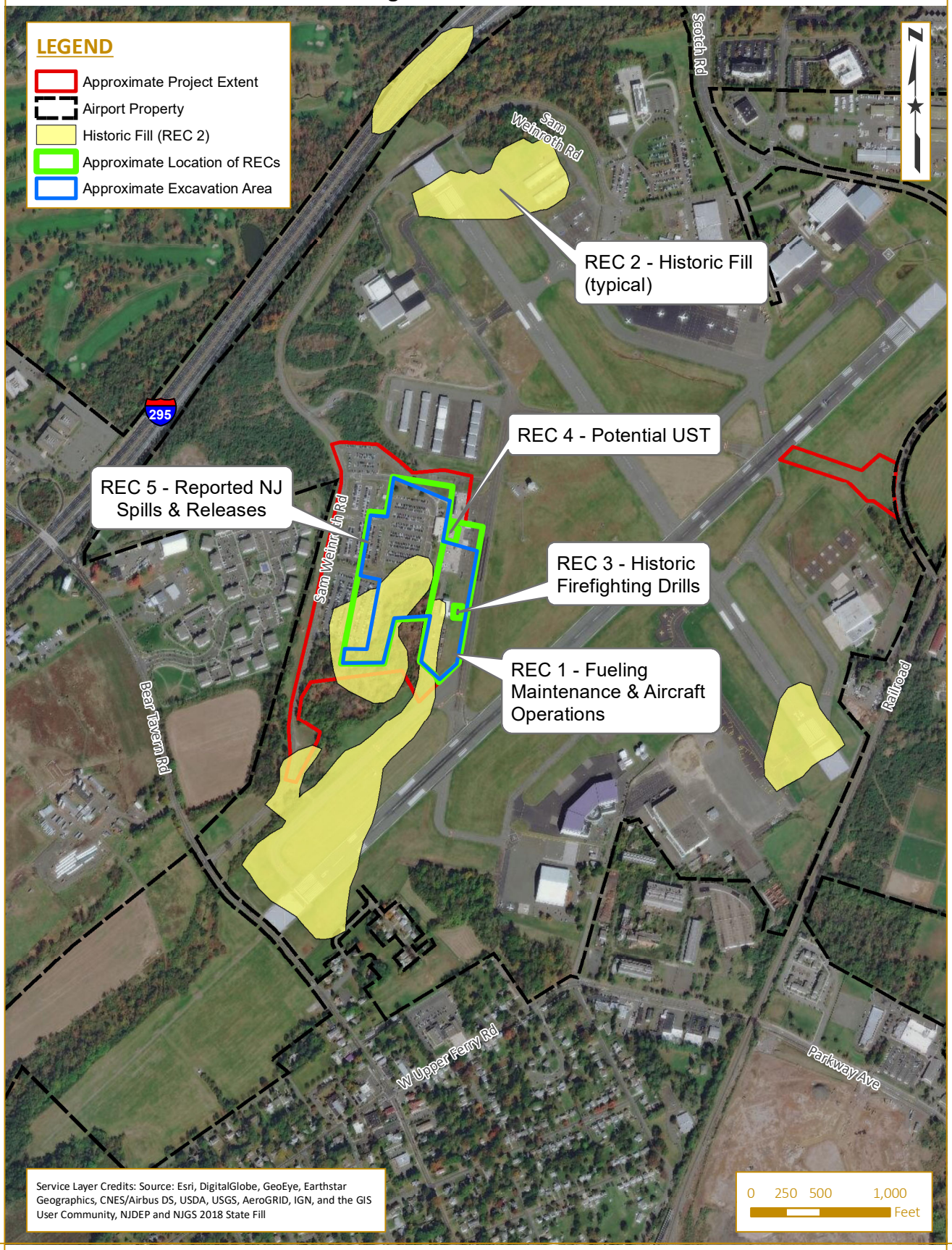
Based on the documented fuel spills and the ongoing fueling, maintenance, washing and deicing operations that occur at TTN within the West Area in combination with the lack of a containment system beneath the TTN apron and the ARFF, there is a potential that releases have impacted the subsurface at the TTN Terminal and Existing ARFF Area (West Area). Due to the number of potential spills over time, Urban recommended conducting a Phase II ESA that consists of soil sampling and analysis in areas of proposed earth disturbance in the vicinity of the apron and taxiways. A field sampling and analysis plan was prepared on July 16, 2020 and provided the basis for the soil and groundwater characterization performed as part of the Phase II ESA. Figure 3A of the Phase II ESA **(Appendix F)** provides the sample locations throughout the terminal project area, inclusive of fueling, maintenance and aircraft operations.

REC No. 2 – Historic Fill

The N.J.A.C. 7:26 *Administrative Requirements for the Remediation of Contaminated Sites* stipulates that the disturbance of soils considered to be historic fill material must be preceded by sampling and analysis as directed in N.J.A.C. 7:26E-4.7. Historic fill must be characterized on a per project basis. Under NJ rules in Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-1 et seq), historic fills specifically refer to non-indigenous materials of undocumented origins placed on a site to raise its topographic elevation. The NJ Historic Fills Mapping is for informational purposes only and show areas where such fill covers over 5 acres. **Figure 4-3** illustrates the historic fill mapping and the proposed limits of excavation for the Proposed Action.

The Airport was opened to the public in 1929 and further developed to allow testing of the WWII Avenger Torpedo Bomber. A portion of the Airport parking area and runway ends 6, 16, and 34 and other elevated airport facilities footprints were filled with materials to either provide better support for foundations or to raise the ground elevations to a consistent level. This page intentionally left blank.

Figure 4-3: Historic Fill



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Due to the presence of historic fill on part of the West Area, there is a potential for subsurface contamination in the area of historic fill. Urban recommended performing soil sampling in the areas of historic fill as part of the Phase II ESA recommended in REC No. 1.

REC No. 3 – Historic Firefighting Drills

Aqueous film forming foam (AFFF) has been previously used at TTN in the vicinity of the existing ARFF as part of firefighting training operations. The following interview record was included in the May 2019 Phase I ESA:

Stuart Steele, ARFF Fire Chief: Chief Steele confirmed that from at least 2005 to 2018 the fire department used the airside pavement to practice fire drills, which included using fire suppressing foams. In mid-2018 they were instructed that they could longer perform these drills on-site and had to move to an off-site facility.

AFFFs are commercial surfactant solutions used for several decades by the U.S. military, civilian airports, and other facilities to extinguish hydrocarbon fires. AFFF is a highly effective firefighting agent intended for high-hazard flammable liquid fires. These products are typically formed by combining hydrocarbon foaming agents with fluorinated surfactants. When mixed with water, the resulting solution achieves the interfacial tension characteristics that produce an aqueous film that spreads across the surface of a hydrocarbon fuel to extinguish the flame and to form a vapor barrier between the fuel and atmospheric oxygen to prevent re-ignition.

Per-and polyfluoroalkyl substances, also known as PFAS, are a group of manmade chemicals that have been manufactured and used in a variety of industries since the 1950s. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), collectively called PFAS, are two man-made chemicals that were commonly used in household and industrial products, and historically in firefighting foams. PFOA and PFOS are persistent in the environment and have been increasingly tested for and found in groundwater, often in drinking water wells. In the environment, some PFAS break down slowly, if at all, allowing bioaccumulation (concentration) to occur in humans and wildlife.

Since fire suppressing foams (that may have contained PFAS) were used during fire drills adjacent to the ARFF between 2005 and 2018, Urban recommended conducting a Phase II ESA that consists of soil and groundwater sampling and analysis in areas of proposed earth disturbance in the vicinity of the ARFF testing locations.

In October 2020, TTN equipped its Aircraft Rescue and Firefighting (ARFF) trucks with “No-Foam” testing equipment for the purpose of eliminating this source of PFAS. According to the manufacturer, this system provides certified ARFF testing without the use of foam. As a result, the potential for future discharges of PFAS associated with equipment testing has been eliminated.

REC No. 4 – Potential Underground Storage Tank

Due to the potential presence of a 4,000-gallon fuel oil underground storage tank (UST) approximately 30 feet south of the terminal building and lack of records documenting the removal or closure of this tank there is a potential this UST exists within the subject property. Urban

recommended performing a ground penetrating radar (GPR) survey to locate the potential UST onsite south of the terminal building.

REC No. 5 – Reported NJ Spills & Releases

The Phase I ESA noted the Delphi Interiors and Lighting Systems/General Motors Corporation (NJDEP PI #011336) site and the Naval Air Warfare Center (NJDEP PI #006048) site, located 0.25-0.5 miles south-southeast of the project areas, listed as RCRA and Superfund sites. These are separate spill/discharge cases not associated with the proposed action or the airport. The Naval Air Warfare Center property has been transferred to Mercer County and the airport; however, ongoing responsibility for the site cleanup remains with the U.S. Navy. RCRA sites are facilities that generate, transport, store, treat, and/or dispose of hazardous waste. Sites listed under the CERCLA, informally known as Superfund, are abandoned or uncontrolled hazardous waste sites. Superfund Enterprise Management Systems Archive (SEMS-ARCHIVE) sites identified in the Phase I ESA indicate that assessment at the site has been completed and that the USEPA has determined no further steps will be taken to list the site on the National Priorities List (NPL). The NPL is the list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants through the United States. The Phase I ESA findings determined that based on the distances and locations downgradient from the project areas, it is not likely the RCRA and Superfund sites impacted the project areas. According to the NJ Spills and Releases database, 14 hazardous material incidents and two hazardous material releases were reported in the project areas. However, specific locations were not revealed during the file review.

Due to the reported NJ Spills and Releases noted during the records review, there is a potential that historic spills and releases occurred in the project area; however, the locations of these hazardous material incidents and hazardous material releases were not revealed during the file review or interviews. Therefore, similar to REC Nos. 1 and 2, Urban recommended conducting a Phase II ESA that consists of soil sampling and analysis in areas of proposed earth disturbance associated with the TTN terminal expansion and ARFF project.

The approximate location of Phase I RECs are shown on **Figure 4-3**.

4.7.2. Hazardous Materials – Phase II Environmental Site Assessment

Urban conducted a Phase II ESA for TTN. The subject area includes the existing terminal building and ARFF building as well as the locations of the proposed terminal and ARFF buildings, located within the TTN property, in Trenton, New Jersey. The Phase II ESA was performed to further investigate the Phase I RECs identified above. The complete Phase II ESA report is provided in **Appendix F,** from page F-662 to F-1500.

The following general tasks were performed as part of the Phase II ESA as outlined in the TTN Terminal and ARFF Building Field Sampling Plan (July 16, 2020):

1. Geophysical Survey (September 1, 2020)
1. Soil Sampling/Analysis (September 2 through September 9, 2020)
2. Groundwater Well Installation and Sampling/Analysis (September 17, 2020)

The sampling procedures and laboratory analysis performed is described in Section 3.0 of the Phase II ESA. Analyses included: volatile organics, semi-volatile organics, PCBs, metals, pesticides, petroleum hydrocarbons, and PFAS.

The specific RECs and the Phase II conclusions and recommendations associated with each is provided below.

Rec No. 1 - Fueling, Maintenance and Aircraft Operations:

When sampled, the constituents were analyzed under the then current Impact to Groundwater (IGW) standards. Since that time, NJDEP migrated to the Migration to Groundwater Soil Remediation Standard (MGW) NJAC 7:26D There were no exceedances of the NJDEP non-residential direct contact (NRDC) standard for any of the constituents analyzed within the proposed terminal expansion area (Samples S-1 to S-20 and GW-1 to GW-4). No further action is required.

Two metals (Aluminum and Manganese) were detected above the NJDEP MGW screening levels throughout the proposed terminal expansion area. These are non-health based (secondary standards) compounds and are typically naturally occurring with concentrations within normal ranges for ambient background. No further action is required.

The metal Beryllium had uniform concentrations in excess of the (MGW) screening level throughout the proposed terminal expansion area. Follow-up Synthetic Precipitation Leaching Procedure (SPLP) analysis was performed, and Beryllium was found to be within the NJDEP leachate criterion. The concentrations are within the range of the mean total beryllium concentrations for US soils as noted in Ambient Metals in NJ (Sanders, 2003) and is likely naturally occurring. No further action is required.

The semi-volatile organic compound benzo(a)pyrene (BaP) was detected in Sample S-20B (4 feet below grade) at a concentration 0.360 mg/kg. There is no promulgated standard for MGW for BaP.No further sampling required at this time. A site-specific soil and material handling plan shall be prepared and included within the construction documents.

The above recommendations can be done concurrently with the design development and/or construction phases of the new terminal development project.

REC No. 2 – Historic Fill

The conclusions and recommendations provided above for Rec No. 1 also apply to the historic fill areas associated with the proposed terminal expansion area. See recommendations provided under REC No. 1.

Poly aromatic hydrocarbons (PAHs) were detected at concentrations exceeding their NJDEP NRDC and MGW standards in the vicinity of the proposed new ARRF area. PAHs are often detected in areas that contain asphalt, historic fill or within the footprint and vicinity of subgrade utility corridors. The proposed ARFF building is located in an area that was a previously the realigned Scotch Road (circa 1958), an historic fill area due to the road realignment, and currently houses at least two sub-grade utility corridors (gas and communications). The PAH exceedances appear to be isolated to sample location ARFF-1, as the remaining five sample locations did not have PAH

concentrations in excess of the NRDC or Mstandards. Additional sampling and analysis is recommended around ARFF-1 to adequately delineate the extent of PAH impact in this area. This is an isolated area of PAH impact and not widespread. Further delineation will be conducted as part of the design development process and mitigation (i.e., removal and permitted disposal) of the isolated area will be addressed during the construction phase in accordance with NJDEP regulations.

Arsenic was detected in two (ARFF-2B and ARFF-5B) samples at concentrations above NJDEP direct contact and impact to groundwater standards/screening levels. Arsenic can be attributed to historic fill or slightly higher naturally occurring background concentrations. Additional sampling and analysis is recommended around ARFF-2 and ARFF-5 to adequately delineate the extent of arsenic impact in this area.

Similar to PAHs, these are isolated areas of elevated arsenic concentrations, and the additional sampling will bound the isolated areas. Further delineation will be conducted as part of the design development process and mitigation (i.e., removal and permitted disposal) of the isolated area will be addressed during the construction phase in accordance with NJDEP regulations.

The isolated areas of PAH and arsenic concentrations above NJDEP direct contact and impact to groundwater standards do not pose an immediate or direct threat to human or ecologic health and will be mitigated during the construction phase. A soil and material handling plan will be developed and included as part of the construction documents and specifications with the focus on protecting construction worker exposure.

The above recommendations will be done concurrently with the design development and/or construction phases of the new terminal development project.

REC No. 3 – Historic Firefighting Drills

PFAS detections in the soil were generally confined to the samples collected in the immediate vicinity of the existing ARFF. Samples collected in the western parking lots and along the tree-line were non-detect for PFAS (S-10 was an exception). Refer to Table 4-2 of the Phase II ESA (Appendix F) for the samples with PFAS detections. There are currently no NJDEP or federal standards or screening levels for PFAS in soil. Therefore, the PFAS soil analytical results were used as an indicator of the potential radial impact of PFAS around the existing ARFF. The PFAS soil results assist in determining the placement of additional monitoring wells for PFAS groundwater sampling and analysis. The regulated PFAS compounds PFNA, PFOA, and PFOS exceed their respective NJDEP groundwater quality criterion. Since all of the sampled wells have exhibited concentrations of PFAS in excess of their groundwater criterion the area of impact cannot be adequately delineated. It is expected that monitoring well GW-1 (no sample collected due to a dry well) is within the immediate area of previous AFFF usage during training exercises. Additional groundwater characterization and reporting is recommended and planned to adequately delineate the nature and extent of PFAS impact.

Additional “source area well(s)” (up gradient and down gradient wells) will need to be established and monitored to further delineate the nature and extent of PFAS impact in the vicinity of the existing ARFF. Based on water measurements collected during the Phase II ESA, the general direction of groundwater flow is southwesterly, and the gradient is 0.04 ft/ft. The additional up-

gradient and down gradient wells will be positioned to account for this groundwater flow direction. In addition, the flow direction and gradient will be used in the development and refinement stormwater runoff studies/designs.

The Phase I and II ESA findings have identified PFAS compounds as contaminants of concern as they relate to NEPA hazardous material, solid waste, and pollution prevention. NJDEP has a mandated and prescribed regulatory path for notifying, assessing, remediating, and reporting groundwater impact cases. Section 5.7 of the Phase II ESA summarizes the NJDEP regulatory process.

The prescribed NJDEP regulatory path includes an early stage (within the 1st year of notification) human and ecological receptor evaluation. Although the Phase I and II ESAs conducted for this NEPA environmental assessment have positively identified the contaminants of concern, continued evaluation will be done independent of the NEPA evaluation and conducted by a NJDEP Licensed Site Remediation Professional (LSRP) and reviewed by NJDEP. PFAS mitigation strategies, if needed, will be determined by the LSRP and NJDEP independent of this NEPA evaluation. The continued evaluation is completed independent of the NEPA evaluation because NEPA lacks the regulatory remediation authority that the NJDEP Technical Requirements for Site Remediation and Administrative Requirements for the Remediation of Contaminated Sites mandate. The above recommendations will be done concurrently with the design development and/or construction phases of the new terminal development project. A flow chart of the site remediation program process for the Proposed Action is included in Appendix F.

As noted previously, TTN has also implemented measures to eliminate PFAS discharges from equipment testing. Future discharges from equipment testing are not expected.

REC No. 4 – Potential Underground Storage Tank

No UST-associated piping or subsurface UST-like anomalies (via the ground penetrating radar and radio frequency scanning) were detected in the area south of the terminal building. In addition, samples collected boring locations S-7 and S-8 (vicinity of suspect UST) did not exhibit concentrations of substances typically associated with UST releases. No further action required.

A UST fill-port/vent pipe was noted within the fenced area of Sheriff's dog kennel (just north of the existing ARFF building). We were unable to access this area, but it is assumed a UST is present at this location. UST closure in accordance with NJDEP Underground Storage Tank Rules, NJAC 7:14b-9 is recommended prior to or as part of the terminal expansion project.

There is no indication from the samples collected in the vicinity of the noted fill-port/vent pipe that petroleum-based impact exists; therefore, there is no immediate or direct threat to human or ecologic health. The above UST closure recommendation will be done concurrently with the design development and/or construction phases of the new terminal development project.

REC No. 5 – Reported NJ Spills & Releases

The Phase II ESA found no evidence of spills at the proposed ARFF location, therefore no further remedial investigation action is recommended. A soil management plan would be developed in the event unexpected contamination is encountered during construction.

The above recommendations can be done concurrently with the design development and/or construction phases of the new terminal development.

4.8. HISTORIC, ARCHITECTURAL, AND ARCHEOLOGICAL, AND CULTURAL RESOURCES

According to Protection of Historic Properties, 36 C.F.R. § 800 2004, a historic property is "any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP)." To be eligible for the National Register, a property must be at least 50 years old, or meet the Section 106 criteria for significance. Section 106 of The National Historic Preservation Act (NHPA) requires that federal agencies, such as the FAA, consider the effects of their actions on historic properties via consultation with the State Historic Preservation Office (SHPO).

The NJDEP GeoWeb was reviewed for information on historic and or archeological sites on or in the vicinity of the Airport. The NJDEP GeoWeb indicated that two separate facilities had cultural and/or architectural surveys performed to determine if they were eligible for listing on the state or national historic register.

A Phase IA Historical and Archaeological Survey and Reconnaissance-Level Historic Architectural Survey for the Proposed Action was conducted by Richard Grubb & Associates. The full Phase IA report is provided in Appendix D. The area of potential affect (APE) for archaeology encompasses approximately 3.56 acres of the preferred alternative for the proposed ARFF facility and 22.01 acres of the preferred alternative for the proposed terminal building expansion, including roadway redesign, and appurtenances. The APE for architecture includes the area in which the project may directly or indirectly cause changes in the character or use of above-ground NRHP-eligible or -listed historic properties, and therefore extends beyond the actual construction limits of the project.

According to the Phase IA Survey, the APE for archaeology has been disturbed from prior airport development and was determined to have a low sensitivity for prehistoric and historic archaeological sensitivity. In addition, the Phase IA Survey identified five buildings/structures located within the APE more than 50 years of age. The buildings/structures were characterized as common and unremarkable examples and a common example of ongoing airport development, and therefore, an intensive-level survey for these buildings/structures was not recommended.

Consultation with the NJ SHPO office was conducted (SHPO project # 19-0726) and based on the above information, no archaeological investigation was recommended and intensive-level survey for the properties identified was not recommended. NJ SHPO concurred with the assessment and recommendations of the Phase IA Survey. Correspondence with NJ SHPO is included in Appendix D. No further surveys are recommended, and the Proposed Action is not expected to affect any historic, architectural, and archeological, and cultural resources.

4.9. LAND USE

When considering improvement projects that meet airport development goals, it is important early in the planning process to identify potential impacts to existing land uses on airport property and in the surrounding area and to determine how potential airport projects will affect future land

use and development patterns. This will enable the project to incorporate measures into the future design and layout of airport developments that will avoid or minimize land use conflicts as well as improve existing conflicts when practicable.

Some land uses that are considered more susceptible to impacts from airport development include, but are not limited to, residential areas, schools, religious institutions, hospitals, and certain public places such as parks, recreational areas, and cemeteries, where quiet is an expected part of the user experience. Alternatively, there are some land uses that can negatively impact the operation of the airport and are considered incompatible with airport activity. These land uses can include park and recreational areas, golf courses, landfills, open water areas, and other land uses that have the potential to serve as wildlife attractants, and commercial and industrial facilities that generate high-voltage electricity, utilize bright lights, or create a significant amount of glare, smoke, or steam.

FAA AC 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports* provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. Potential wildlife attractants and congregation areas can include areas such as shopping malls, agricultural fields, livestock operations, golf courses, parks, waste handling facilities, waterbodies, wetlands, and water management facilities.

The Mountain View Golf Course, owned by Mercer County, is located on Airport property west of Interstate 295. Typically, golf courses attract hazardous wildlife, particularly Canada geese and some species of gulls. Wetlands and streams are located on and in the vicinity of the Airport. In addition, Delaware River is located approximately 1.5 miles south of the Runway 6 end. The river and wetlands serve as major wildlife attractants for a variety of bird species that can be hazardous to aircraft operations, such as gulls, wading birds, shorebirds, and waterfowl.

TTN is located in a moderately developed area of Mercer County and is surrounded by a mix of residential, agriculture, recreational, industrial, and commercial land uses. Land use located to the east of the Airport is a mix of commercial, industrial, residential and transportation, including the CSX freight rail line which runs in a north-south direction. Located to the south and west of the Airport, land use consists of a mix of residential, commercial and agriculture. Recreational and forested areas are located to the west and northwest. The project area is zoned Industrial Park (IP-1). Immediately adjacent to the terminal area and off-airport is zoned Multi-Family (R-M).

Adjacent to the Airport is the Parkway Avenue Redevelopment Area (PARA). The Parkway Avenue Redevelopment Plan, dated January 8, 2013, seeks to enhance the commercial and residential markets in Ewing by focusing on creating multimodal facilities. Development within the Township is guided by the existing Township Master Plan, the Town Zoning Codes, and the Town Subdivision Codes. In addition, Ewing has established an airport hazard zone, which regulates development within the Airport runway subzones and runway end subzones as defined in Article IV §215-38 of the Town Zoning Code. The Delaware Valley Regional Planning Commission, Regional Aviation Committee, also reviews aviation projects within the 12 counties from four states, including Mercer County. **Figure 4-4** depicts the land use and **Figure 4-5** depicts the zoning in the vicinity of the Airport.

4.9.1. Industrial and Commercial Activities Characteristics

Within the township of Ewing, the Airport is located within the industrial park zone. Immediately east of the Airport there are several retail stores off Scotch Road. Southeast of Airport property, along W Upper Ferry Road, there are several small businesses including gas stations, several

restaurants, a Ballroom, an animal hospital, banks, and other small commercial businesses. To the south along Bear Tavern Road there is a new luxury rental unit complex, a NJDOT Maintenance Yard, and the New Jersey Water Supply Authority. To the west of the Airport is the Mountain View Golf Course. North of the Airport along Scotch Road there are several businesses including hotels, health offices, and commercial offices.

Additional industrial and commercial properties within one mile of Airport property consist of, but are not limited, to the following:

- Capital Health Medical Center
- PEAC Health & Fitness
- Ewing Sports
- Surface Technology
- Crest Ultrasonics Corporation
- Cenlar FSB
- Schafer Sports Center
- Rick Bus Company
- River Horse Brewing Company
- Firkin Tavern
- Traction Tire
- West Trenton True Value hardware
- Washing Well Laundromat
- OceanFirst Bank
- USDOT Office
- I.E. Shaffer & Company

Figure 4-4: Land Use

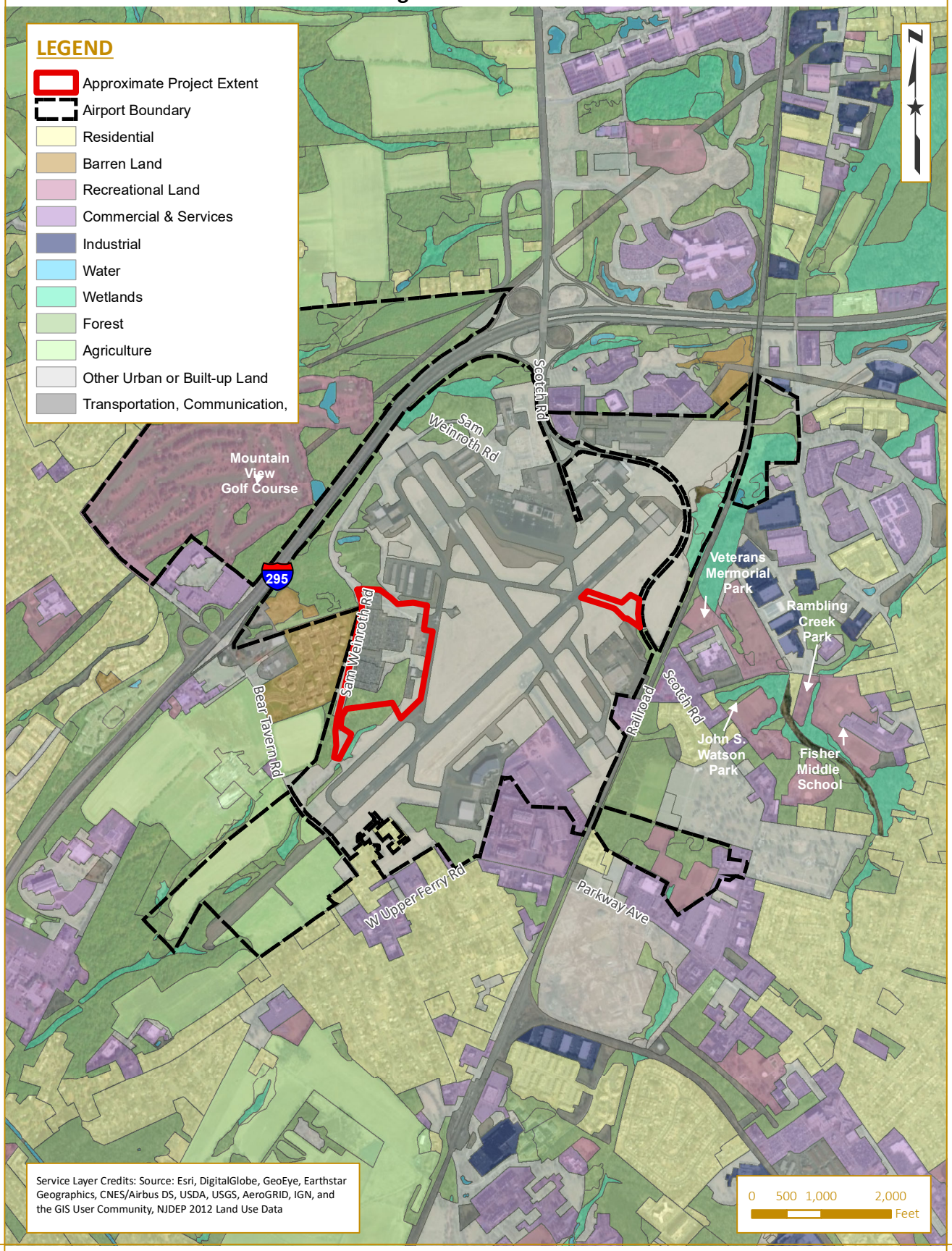

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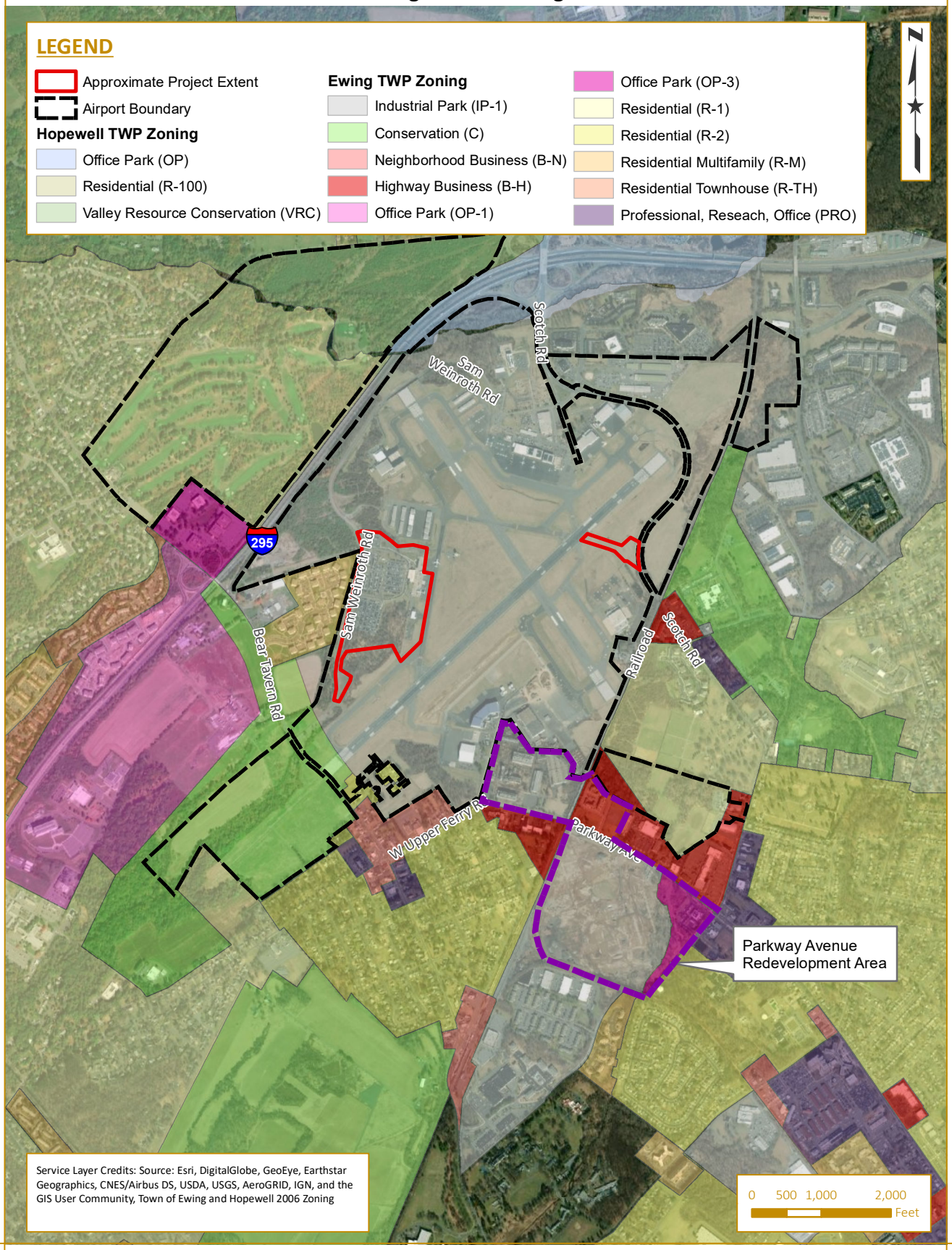
Figure 4-5: Zoning



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4.9.2. Residential Areas, Schools, Places of Worship, Outdoor Areas

Residential areas, schools, elderly care facilities, and publicly owned outdoor areas are found in the immediate vicinity of the Airport. Fisher Middle School on Lower Ferry Road, The Goddard School and Ewing Church on Scotch Road are within one mile of the Airport, to the east. West Trenton Presbyterian Church on Grand Avenue, Our Lady of God Counsel Church on West Upper Ferry Road, and a residential area are located within one mile of the Airport to the southeast. A new luxury apartment rental complex between Bear Tavern Road and Sam Weinroth Road, Greene 750, is adjacent to the southwestern boundary of the Airport. Further to the southwest, Lore Elementary School is located on Westwood Drive, with surrounding residential development. Parks and recreational areas in the vicinity of the Airport are discussed in Section 4.3.A luxury apartment complex was recently constructed off Bear Tavern Road, within 200 feet of the existing terminal entrance and parking areas along Sam Weinroth Road. There are no other residential, schools, places of worship, or outdoor recreational areas within close proximity to the existing terminal and parking area.

4.9.3. Future Planned Uses

The Naval Air Warfare Center (30 acres) and General Motors (80 acres) sites are located along Parkway Avenue, less than a quarter mile from TTN, with the Naval Air Warfare Center having direct access to the Airport. Both the Ewing Township Master Plan and the PARA proposed redevelopment within this area aim to create a transit village to encourage development where infrastructure and transportation service currently exist. Planned future development of the Parkway Avenue area would improve the marketability of the surrounding area and benefit TTN. Goals for this area would include a future multi-use area shared by the Airport, adjacent train, and commercial development.

The Airport reviews developments in conjunction with Mercer County Planning and Ewing Township for compatibility with Airport function and use.

4.10. NATURAL RESOURCE AND ENERGY SUPPLY

Sections 1502.16(e) and (f) of the CEQ regulations require that federal agencies consider energy requirements, natural depletable resource requirements, and the conservation potential of alternatives and mitigation measures in the Environmental Consequences section of NEPA documents. Additionally, EO 13834, *Efficient Federal Operations*, instructs federal agencies to meet energy and environmental performance statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment.

The Terminal's design will be developed in accordance with FAA Order 1053.1, *Energy and Water Management Program for FAA Buildings and Facilities*), to encourage the development of facilities that exemplify the highest standards of design, including principles of sustainability.

Electricity and natural gas are currently provided to the existing terminal by Public Service Electric and Gas Co (PSE&G). PSE&G electricity and natural gas are also available along Scotch Road, near the ARFF site. The existing terminal and ARFF site are serviced by treated municipal water from

Trenton Water Works. Two 13.2 kilovolt (kV) electrical service feeds are anticipated to sufficiently meet the entire building's electrical load requirements with redundancy. A new natural gas feed will be extended from Sam Weinroth Road to service the new terminal building.

4.11. NOISE AND NOISE-COMPATIBLE LAND USE

Aircraft noise emissions, inherent to the operation of an airport, can adversely impact land use compatibility between an airport and surrounding properties, particularly in the presence of noise-sensitive receptors. Residences, places of worship, hospitals, schools, parks, and amphitheaters are receptors that are sensitive to elevated noise levels. Noise levels inherent to airports are generally compatible with most industrial, commercial, and agricultural land uses. Therefore, it is important to measure or model existing noise levels and then predict future noise levels to determine if impacts would occur to any noise-sensitive land uses near the airport. Then, abatement measures can be incorporated into airport development plans to avoid or minimize the impacts. 14 CFR part 150, *Airport Noise Compatibility Planning* and the *Aviation Safety and Noise Abatement Act of 1979,* established a system under FAA to measure noise and determine the exposure of people to noise which includes noise intensity, duration, frequency, and time of occurrence; and to identify land uses normally compatible with various noise exposures.

HMMH prepared a Noise Technical Memorandum to assess the potential for impacts associated with the Proposed Action. Chapter 5, Section 5.8, provides additional details regarding noise related to the Proposed Action. In addition, detailed information including the noise analysis, noise contour maps are included in the Noise Technical Memorandum, Appendix E.

Aircraft Operational Noise

For aviation noise analysis, the FAA developed specific guidance and requirements for the assessment of aircraft noise. This guidance is specified in FAA Order 1050.1F. The FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of Yearly Day Night Average Sound Level (DNL), the FAA's primary noise metric. DNL account for the noise levels of all individual aircraft events, the number of times those events occur, and the period of day/night in which they occur. The noise metric logarithmically averages aircraft sound levels at a location over a complete 24-hour period, with a 10-decibel (dB) adjustment added to those noise events occurring from 10:00 p.m. and up to 7:00 a.m. the following morning. The 10-dB adjustment has been added because of the increased sensitivity to noise during normal nighttime hours and because ambient (without aircraft) sound levels during nighttime are typically about 10-dB lower than during daytime hours. In practice, DNL is computed for an average annual day (AAD) of operations for the year of interest. DNL is a cumulative noise metric with respect to the number aircraft operations. In other words, as the number of aircraft operations increase proportionally, with all else remaining constant such as individual aircraft performance and noise characteristics, runway use and flight paths, the DNL values will increase.

Noise compatibility or non-compatibility of land use is determined by comparing the aircraft DNL values at a site to the values in the land use compatibility guidelines in 14 CFR part 150, Appendix

A, Table 1.[6] FAA generally considers all land uses exposed to less than 65 dB DNL to be compatible. However, FAA recognizes that special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including, but not limited to, noise sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question. For example, the land use categories in the guidelines are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where other noise is very low, and a quiet setting is a generally recognized purpose and attribute.

For this project, no noise-sensitive area has been identified that would require special consideration beyond the land use compatibility guidelines in 14 CFR part 150, Appendix A, Table 1. Further, the Town of Ewing's Noise Ordinance does not apply to aircraft noise via Chapter 240-3 and including of exemptions listed at New Jersey Administrative Code (N.J.A.C). 7:29-1.5.[7] Therefore, further analysis 14 CFR part 150, Appendix A, Table 1 will be used to determine noise land use compatibility or non-compatibility.

For an action occurring on or in the vicinity of a single airport, the desk reference directs the use of the Aviation Environmental Design Tool (AEDT) for detailed noise modeling (§11.1.4 of FAA Order 1050.1F Desk Reference). This software package models aircraft operations to determine predicted noise exposure, enabling an evaluation of anticipated effects that the Proposed Action or its alternatives would have on the noise setting. The No Action Alternative model, which represents existing conditions, must also be used to produce DNL 65 dB, DNL 70 dB, and DNL 75 dB contours. Details of the noise modeling process are presented in Noise Technical Memorandum, **Appendix E**.

Figure 4-6 presents the average annual DNL 65 dB, DNL 70 dB, and DNL 75 dB contours for calendar year 2019. For this EA, calendar year 2019 was used for the affected environment, using a complete year of records from FAA. FAA reported 106,219 operations. As discussed previously, aircraft operations have decreased in 2020 during as a result of the pandemic. Therefore 2020 noise levels are anticipated to be less than that shown here. The modeling includes aircraft arriving and departing the airport along with use of the existing four terminal gates. The 65 dB DNL contour, and the contours at higher levels, are primarily on airport property, Overall, seventeen individual residential units have been identified within the 65 dB DNL and 70 dB DNL contours and an additional three between the 70 dB DNL and 75 dB DNL contours. All of twenty of the residences within the 65 dB DNL and higher contours are to the south of the airport in an area north of West Upper Valley Rd, south of Runway 6/24, along Bear Tavern Rd and several side streets. All of the residences within the 65 dB DNL and higher contours are approximately 1,000 ft or less from Runway 6/24 and most of the residences abut the airport property line. US Census data indicates

[6] 14 CFR part 150, Appendix A, Table 1 "Land Use Compatibility With Yearly Day-Night Average Sound Levels" is available at https://ecfr.federalregister.gov/current/title-14/chapter-I/subchapter-I/part-150/appendix-Appendix%20A

[7] Town of Ewing's Noise Ordinance https://ecode360.com/9390418
N.J.A.C. 7:29-1.5 https://www.state.nj.us/dep/rules/rules/njac7_29.pdf

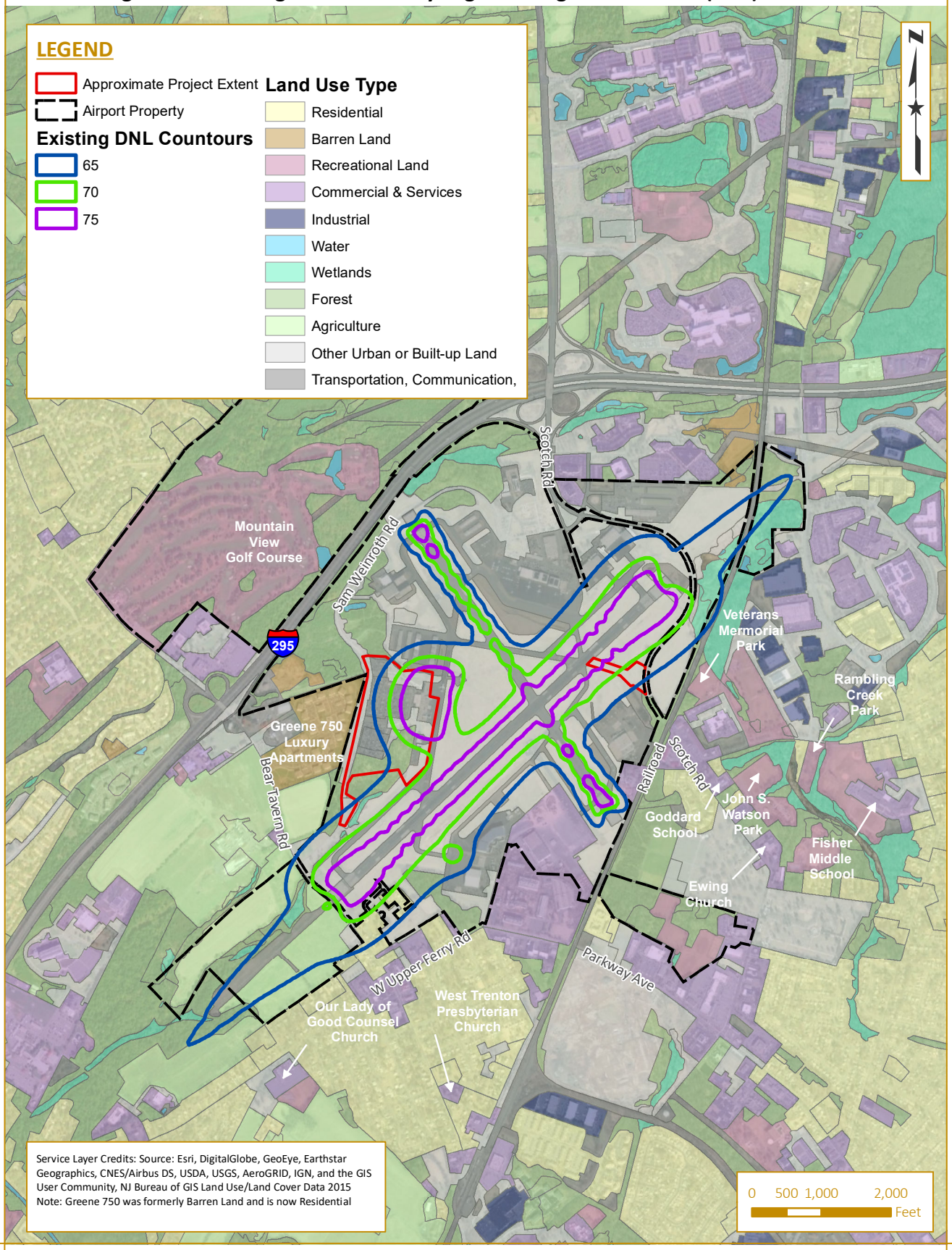
that the average household in the area has 2.6 people per residence. Therefore, fifty-three people are estimated to live within the 65 dB DNL contour, with eight of those also being within the 70 dB DNL contour.

Construction Noise

Construction of the Proposed Action would result in temporary elevated noise levels at nearby noise sensitive receptors related to heavy vehicles hauling materials and debris to and from the work site and on-site construction activities. An increase in noise levels from construction activities has the potential to adversely affect noise sensitive land uses around the Project. Noise sensitive receptors can be located indoors or outdoors and include but are not limited to residences, hotels, motels, schools, places of worship, health care facilities, and parks.

Sensitive receptors were identified in the immediate vicinity of the Proposed Action, near the existing terminal area and the location of the new ARFF building and include single- and multi-family residences, institutional facilities, recreational facilities, a cemetery, and two hotels. The nearest receptor to proposed work within the existing terminal area is the Greene 750 apartment complex, located directly west of the Airport. Residences in the complex are located within 200 feet of the existing terminal and parking areas and will have direct line of site to construction activities. Noise sensitive receptors are also located east of the Airport, near the work area where the new ARFF building will be constructed. The closest residential receptor is located approximately 1,500 feet southeast of the work area and includes residences within the Scotch Road apartment complex. Additionally, Veterans Park is located within 1,200 feet northeast of the ARFF work area. A Noise Technical Memorandum was prepared by HMMH which assesses noise impacts associated with the construction of the Proposed Action. The memorandum includes the construction noise analysis in its entirety and is located within Appendix E.

Figure 4-6: Existing Conditions Day-Night Average Sound Level (DNL) Contours



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4.12. SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIORNMENTAL HEALTH AND SAFETY RISKS

4.12.1. Socioeconomics

This section provides information on the socioeconomic characteristics of the area surrounding the Airport. The most recent statistics from the U.S. Census Bureau's American Factfinder were used to examine the population profile, characteristics, and trends for the region.

According to the American Factfinder American Community Survey, population has remained relatively stable in Ewing, with the population increasing from 35,707 in 2000 to 36,437 in 2017. Hopewell experienced a population increase of approximately 13 percent between 2000 and 2017. Mercer County also experienced a population increase between 2000 and 2010 of approximately four percent, with a slightly smaller increase between 2010 and 2017 of almost two percent.

Table 4-4 below is a brief compilation of demographic profiles for the town of Ewing, Hopewell, Mercer County, and Census Tracts 37.05 and 37.07. The airport property was located in Tract 37.05 until redistricting in 2020 and is now a part of Tract 37.07. As shown on the table, the socioeconomic characteristics included are population, racial/ethnic composition, median household income, travel time to work, and population in the labor force.

Table 4-4: Demographics

	Township of Ewing	Township of Hopewell	Mercer County	US Census Block Data
Population	36,057	18,224	368,762	1,402 (37.07)
White	23,100 / 64.1%	15,641 / 85.8%	241,383 / 65.5%	937 / 66.8% (37.07)
Hispanic or Latino	3,026 / 8.4%	917 / 5.0%	63,371 / 17.2%	165 / 11.7% (37.07)
Black or African American	10,697 / 29.7%	920 / 5.0%	79,230 / 21.5%	339 / 24.2% (37.07)
Asian	1,912 / 5.3%	1,781 / 9.8%	42,844 / 11.6%	46 / 3.3% (37.07)
Native Hawaiian or other Pacific Islander	0	209 / 1.1%	706 / 0.2%	0 (37.07)
American Indian/ Alaska Native	442 / 1.2%	1	1,982 / 0.5%	4 / 0.3% (37.07)
Other	727 / 2.0%	302 / 1.7%	11,032 / 3.0%	63 / 4.5% (37.07)
Minority Percentage	35.9%	14.2%	34.5%	33.2% **(37.07)**
Median Household Income	$97,610	$132,813	$79,990	$82,354 (37.05)

	Township of Ewing	Township of Hopewell	Mercer County	US Census Block Data
Mean Travel Time to Work (minutes)	22.5	29.5	28.0	19.4 (37.05)
In Labor Force (above 16 years old)	30,880/63.4%	14,967/64.1%	193,843/64.8%	3,489/64.5% (37.05)
Population Below Poverty Level	8.8%	2.4%	10.9%	7.9% (37.05)

Source: 2018 ACS Estimates.
US Census Block Data Source: Population data from Data.census.gov, Block 2003, Block Group 2, Census Tract 37.07 (2020) and Census Tract 37.05 (2018), Mercer County, New Jersey.

Note: Census data is collected by race and ethnicity. Members of the "Hispanic or Latino" ethnicity may also identify the racial category they belong to. As such, the data presented in the rows may exceed the total population figure for the given geographical area. Further, the data presented in the "Total Minority Population" row is a summation of the non-white racial makeup of the area to avoid duplication of the data.

Throughout New Jersey, the most ethnically and racially diverse areas are located in the state's largest cities, especially in close proximity to the New York and Philadelphia metropolitan areas. . Since the Draft EA, Census Block Data became available for the project area and was reviewed. The Census Block Data shows that minorities in the project area comprise a comparable percentage of the population to Mercer County, Hopewell Township, and Ewing Township.

4.12.2. Environmental Justice

In accordance with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, federal agencies are required to incorporate environmental justice into their planning processes.

The USEPA and the NJDEP define environmental justice (EJ) as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. Meaningful Involvement means that:

- people have an opportunity to participate in decisions about activities that may affect
- their environment and/or health
- the public's contribution can influence the regulatory agency's decision
- their concerns will be considered in the decision-making process
- The decision makers seek out and facilitate the involvement of those potentially affected

According to the EPA Environmental Justice Screening and Mapping Tool (Version 2018) accessed on March 13, 2019, low income and minority populations are generally located southeast of the Airport and in Trenton, approximately over a mile to two miles from the project area. The mapping did not identify any areas of concern in the vicinity of the project areas for populations that are potentially sensitive to environmental justice. This tool identified that the project area has a 20% minority population and a 10% low-income population. This places these indexes for the project area below the average for the state of New Jersey (30% and 27%), and the United States of America (USA) (38% and 12%). As shown in Table 4-4, the project area is not within a potential environmental justice area. Census block data was reviewed for the study area. Because the minority and low-income populations are comparable to the reference communities, the data shows that an Environmental Justice population is not present in the study area.

4.12.3. Children's Health and Safety Risks

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, defines the risks to children's safety that are attributable to products or substances that the child is likely to touch or ingest such as: the air the child breathes; the food the child eats; the water the child drinks or uses for recreation; and the soil used to grow food.

There are no schools, daycares, parks, and/or children's health clinics in the project areas. Children's population statistics show that Ewing's younger population is consistent with Mercer County and New Jersey, with the exception of a higher percentage of 15- to 19-year-old persons and smaller percentages of 5- to 14-year-old persons (see Table 4-5).

Table 4-5: Children's Population Statistics

	New Jersey	Mercer County	Township of Ewing
Total Population	8,908,520	369,811	36,057
Under 5 years	517,694 / 5.9%	20,928 / 5.7%	1,819 / 5%
5 to 9 years	517,905 / 6.1%	19,894 / 5.8%	1,329 / 3.7%
10 to 14 years	573,092 / 6.3%	23,839 / 6.2%	1,704 / 4.7&
15 to 19 years	556,312 / 6.4%	26,639 / 7.4%	3,895 / 10.8%

Source: 2018 ACS Estimates.

4.13. VISUAL EFFECTS

A visual effect refers to the potential effects due to light emissions, as well as the potential effects to visual resources and character of the existing environment. There are no special purpose laws, permits, or certificates for light emissions or their visual effects. However, light emissions or resulting visual effects from any proposed development action have the potential to affect nearby residential areas or properties covered under Section 4(f) of the USDOT Act, the Land and Water Conservation Fund Act, and Section 106 of the National Historic Preservation Act.

The Airport is situated in somewhat of a valley landscape with the area to the west slightly higher in elevation and the east slightly lower in elevation. A majority of the airfield is surrounded by aviation-related structures and facilities with some forested areas near the proposed terminal and parking.

4.13.1. Light Emissions

TTN is classified as a Part 139 Class I airport (scheduled Large Air Carrier Aircraft) and is required to follow the Airport Safety guidelines as stated in Certification of Airports, 14 C.F.R. § 139. These guidelines include lighting and signage utilized both on the ground and in the air as well as other airport procedures. Light emissions are typically one of the greatest concerns for residents in neighborhoods, as well as users of other parcels adjacent to an airport that could be directly impacted by a change in lighting.

The current level of light emissions from airside and landside sources associated with the project area include the following:

Airside lighting:

- Terminal apron box shield/downward facing lighting provided to light the aircraft parking areas.
- Terminal building airside lighting directed down with box shielded fixtures provided to light the areas between the building and aircraft for ground operations employees.
- ARFF facility box shield/downward facing lighting for airside parking area.
- Baggage claim facility box shield/downward facing lighting in and around the entrances of the facility.

Landside lighting:

- Terminal building lighting.
- Parking lot box shield/downward facing lighting.
- Parking garage lighting mounted on the top floor slab of the structure and extending up to 25 ft above the top floor of the parking structure with box shield/downward facing lighting.
- Access roadway box shield/downward facing lighting.
- ARFF facility box shield/downward facing lighting for landside parking area and security lighting on building.

The Proposed Action lies within the developed portion of Airport property consisting of the existing terminal facilities, ARFF, and parking areas. The current terminal area is well lit with high mast lighting used to light the parking and movement areas for both vehicles and aircraft. The new terminal building's lighting would be designed to accentuate architecture, provide safety and security to passengers and Airport staff, enhance navigation within the terminal, and provide a comfortable and enjoyable experience for the public. Lighting associated with the terminal building would incorporate energy efficient technologies, and wherever feasible, use natural lighting.

The proposed ARFF area currently consists of vacant maintained airfield. The ARFF project area currently has no light emissions associated with it. The railroad, which extends along the Airport property southeast of the ARFF project area, is higher in elevation than the surrounding commercial, municipal and residential land uses, and would serve as a buffer for potential light emissions. In addition, wooded areas are located along the railroad corridor and around the wetland area south of the ARFF project area.

4.13.2. Visual Resources and Character

TTN is located in a moderately developed area consisting of a mix of residential, commercial, recreation, industrial, and agriculture land uses. There are no unique visual resources near the terminal or ARFF project areas. The nearest visual resources, including historic and eligible historic sites, near the project areas consist of the following:

- Aeronautical Turbine Laboratory Complex Historic District - located south of the Airport near West Upper Ferry Road (> 0.50 mile south of ARFF project area)
- Delaware & Bound Brook (Reading) Railroad Historic District - located along the railroad corridor, east of the Airport (0.10 mile southeast of project area)
- First Presbyterian Church - located to the east on Scotch Road (> 0.50 mile south of ARFF project area)
  Cemetery of Ewing - located to the east on Scotch Road (> 0.50 mile southeast of ARFF project area)

The newly constructed luxury apartment complex (*Greene 750 at Bear Tavern*) located across from the Airport terminal has views of the terminal area through trees located along Sam Weinroth Road. The Google Earth image below shows the existing view from the third floor (elevation 239 FT) of apartment building #10 at Greene 750 at Bear Tavern. Potential visual impacts as a result of the Proposed Action are discussed in Section 5.11.2.

Additional information on the historic sources can be found in the Phase IA Historical and Archaeological Survey and Reconnaissance-Level Historic Architectural Survey report provided in Appendix D.

Exhibit 4-1: View from Apartment Building #10

Source: Google Earth

4.14. WATER RESOURCES

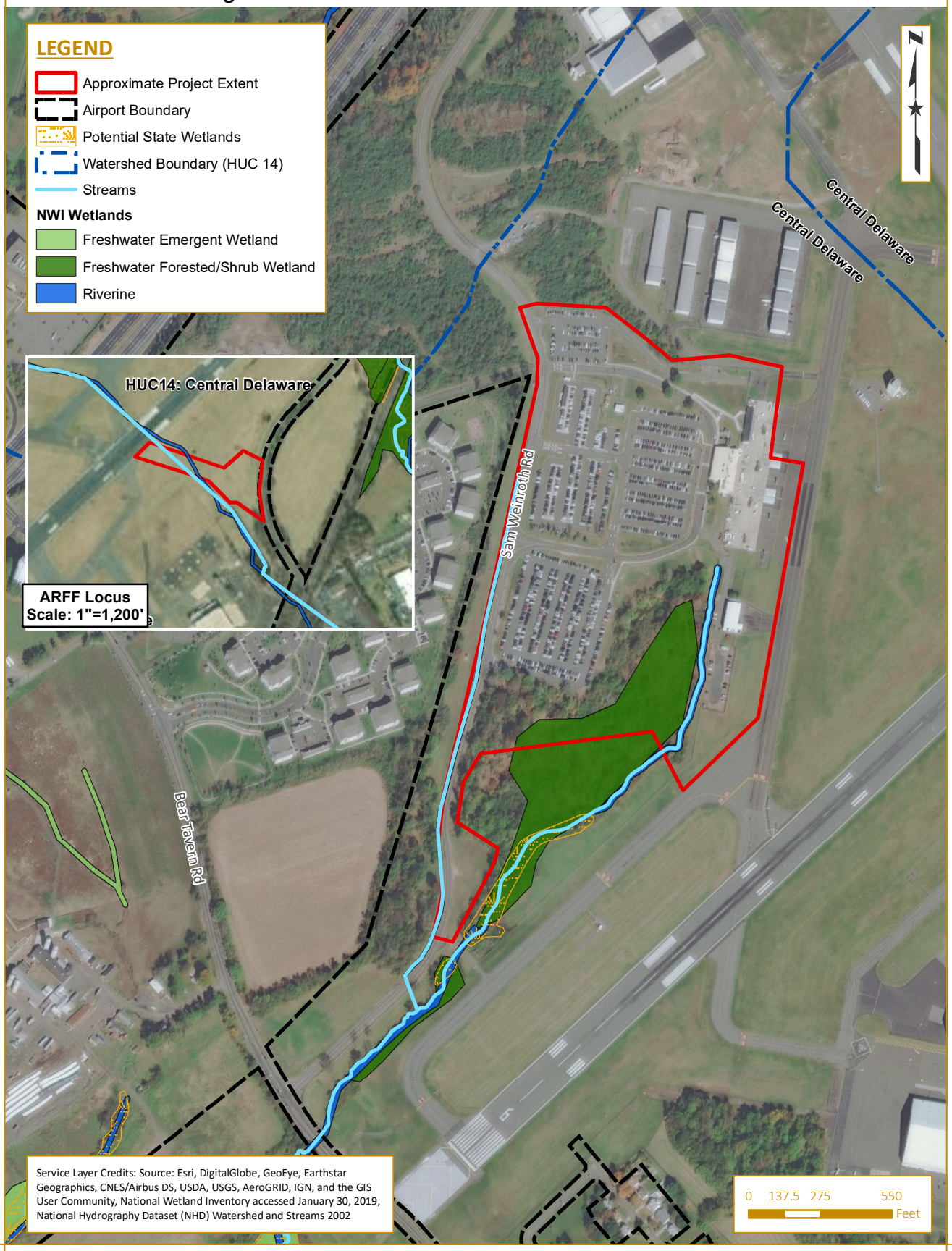
This section discusses potential affects to water resources including groundwater, wetlands, surface waters (streams, rivers, ponds, and lakes), and floodplains.

4.14.1. Wetlands

Federal

The United States Army Corps of Engineers (USACE) regulates activities in wetlands that have a significant nexus to traditional navigable waters (TNWs) under Section 404 of the Clean Water Act (CWA). The USACE requires that an area have hydrophytic vegetation, hydric soils, and wetland hydrology present in order to be considered a wetland. The National Wetland Inventory (NWI) mapping is typically used to determine the potential presence of federal wetlands prior to any site reconnaissance. NWI mapping indicates potential wetland areas identified by the USFWS using aerial photography. These maps do not have any regulatory consequence, but rather indicate areas that may meet federal wetland criteria. Locations of NWI-mapped wetlands are depicted in Figure 4-7.

Figure 4-7: State & Federal Wetlands and Surface Waters



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On April 21, 2020, the USEPA and USACE published the Navigable Waters Protection Rule in the Federal Register to finalize a revised definition of "waters of the United States" ("WOTUS") under the Clean Water Act. The rule streamlined the definition of WOTUS to include four simple categories of jurisdictional waters, provides clear exclusions for water features that have not been traditionally regulated, and provides regulatory definitions for terms previously undefined. The Navigable Waters Protection Rule regulates the nation's navigable waters and the core tributary systems that provide perennial or intermittent flow into them. This final rule became effective on June 22, 2020. In this final rule, WOTUS is interpreted to encompass the territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. Further, this final rule defines "adjacent wetlands" as wetlands that abut a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water; are inundated by flooding from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water in a typical year; are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by a natural berm, bank, dune, or similar natural feature; or are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrological surface connection to the territorial sea or traditional navigable water, tributary, or lake, pond, or impoundment of a jurisdictional water in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature.

As described in further detail below, New Jersey has taken assumption of CWA Section 404 jurisdiction.

State

The USEPA authorized the state of New Jersey to administer the CWA Section 404 Permitting Program in delegable waters, as defined at N.J.A.C. 7:7A-1.4. In non-delegable waters, including but not limited to, Delaware River, Greenwood Lake and Hackensack Meadowlands Development Commission jurisdictional waters, the USACE retains jurisdiction under federal law. The state also protects wetlands under its own Freshwater Wetlands Protection Act, N.J.S.A. 13:9B, which is implemented under the New Jersey Freshwater Wetlands Protection Act (NJFWPA) Rules at N.J.A.C. 7:7A. The NJDEP regulates activities in freshwater wetlands, wetland transition areas, and state open waters under the NJFWPA (N.J.S.A. 13:9B-1).

A wetland is defined by the NJFWPA (N.J.S.A. 13:9B-3) as:

> *An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.*

Wetlands generally include swamps, marshes, bogs, and similar areas. The NJDEP has adopted the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (January 1989) as the technical basis for delineating wetlands in New Jersey. This manual was prepared by the Federal

Interagency Committee for Wetland Delineation (FICWD) consisting of representatives from the US Army Corps of Engineers, US Environmental Protection Agency, the USFWS, and the United States Department of Agriculture (USDA) Soil Conservation Service. In accordance with this methodology, the following three parameters are diagnostic of wetlands: 1) the land is dominated by hydrophytes; 2) the substrate is undrained hydric soil; and 3) the substrate is saturated with groundwater or flooded for a significant part (1 week or more) of the growing season each year. All three parameters must be present for an area to be identified as wetland unless abnormal circumstances are determined to be present.

Wetlands are classified according to their resource value as determined by the New Jersey Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-3.2). Each wetland resource value classification has a corresponding transition area, or upland buffer, that must be maintained between the wetland and adjacent development to protect the integrity and viability of the wetland ecosystem (N.J.A.C.7:7A-3.3). There are three different resource value classifications: exceptional, ordinary, and intermediate:

Exceptional resource value wetlands are the highest quality wetlands and require a 150-foot transition area. Wetlands of exceptional resource value are defined by the state as freshwater wetlands which discharge into Freshwater 1 (FW1) waters and Freshwater 2-Trout Production (FW2-TP) waters, or which are documented habitats for endangered or threatened species [N.J.A.C. 7:7A-3.2(b)]. Exceptional value areas are subject to a higher burden of proof during the permit review process requiring the necessity of weighing the project impact against a compelling public need, extraordinary hardship, or the lack of any other alternative available to the project sponsor.

Ordinary resource value wetlands are typically viewed as the lowest quality wetlands and do not require a transition area. Wetlands of ordinary resource value include ditches, swales, detention facilities, and certain isolated wetlands. In order to be classified as ordinary resource value, an isolated wetland must be smaller than 5,000 square feet and more than 50 percent of the area within 50 feet of the wetland boundary must consist of maintained lawn or landscaping, impervious surfaces, active railroad rights-of-way, or gravel parking/storage areas or roads [N.J.A.C. 7:7A-3.2(f)].

Intermediate resource value wetlands include all freshwater wetlands not defined as exceptional or ordinary. These wetlands are subject to a standard 50-foot transition area. The NJDEP has the final authority to determine the resource value classification of wetlands. The NJDEP developed land use/land cover baseline mapping, which serves as a resource-management tool and a comprehensive inventory of the New Jersey's freshwater wetlands. The mapping provides resource agencies with a statewide planning tool for early detection and assessment of changes in wetlands. Mapping is based primarily on aerial interpretation; therefore, field investigations are required to determine the presence or absence of wetlands; limit and extent of any onsite wetlands; and character of identified wetlands.

NJDEP Wetlands Mapping indicates the presence of a Palustrine forested wetland and scrub-shrub wetland associated with a perennial stream (unnamed tributary to the Delaware River) to the southwest of the existing terminal building and parking lots. NJDEP Wetlands Mapping also indicates the presence of Palustrine forested, scrub-shrub, managed-maintained, and herbaceous

wetlands northeast and east of Scotch Road (i.e., northeast of the proposed ARFF facility). These wetlands are associated with the West Branch Shabakunk Creek. Another tributary associated with the West Branch Shabakunk Creek is also mapped to the west-southwest of Scotch Road. Locations of NJDEP-mapped wetlands is provided in Figure 4-7.

A wetland delineation was completed for the proposed terminal replacement study area in November-December 2018 and for the proposed ARFF relocation study area in December 2018, May 2019, and June 2019 by Amy S. Greene Environmental Consultants, Inc. Vegetation, soils, and hydrology were examined for evidence of wetland characteristics according to the methodology outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee on Wetland Delineation, 1989). Use of this methodology is required by the NJDEP Division of Land Use Regulation in accordance with the NJFWPA. Wetlands were identified within both Airport study areas, a majority of which are not identified by NJDEP Wetlands Mapping. Locations of delineated wetlands are shown on Figure 4-8.

Wetlands identified within and immediately adjacent to the proposed terminal replacement project area consist of Palustrine forested, scrub-shrub, and emergent wetlands, as well as manmade emergent wetland ditches and swales adjacent to Sam Weinroth Road. These wetlands ultimately drain to the unnamed tributary to the Delaware River, which has received a surface water quality classification of Freshwater 2, Non-Trout and Category 2 by the NJDEP. In accordance with the New Jersey Freshwater Wetlands Protection Act rules (N.J.A.C. 7:7A), a majority of the wetlands identified within the proposed terminal replacement project area will likely be classified as Intermediate Resource Value subject to a standard 50-foot wetland transition area or buffer. By definition, the manmade wetland ditches or swales identified within or adjacent to the proposed terminal project area will likely be classified as ordinary resource value and will not be subject to a standard transition area (N.J.A.C. 7:7A-3.2).

The resource value classifications and boundaries of delineated wetlands are subject to review and verification by the NJDEP. These are formally established when the NJDEP issues a Letter of Interpretation (LOI) for a site. A LOI is obtained by submitting an application to the NJDEP Division of Land Use Regulation in accordance with the requirements found at N.J.A.C. 7:7A-3. Applications for LOIs were prepared and submitted to the NJDEP for the ARFF Study Area and Terminal Replacement Study Area to verify the limits and resource values of onsite freshwater wetlands. The LOI for the ARFF Study Area was issued by the NJDEP on September 18, 2020 (NJDEP File #1102-12-0002.5 FWW190001). The LOI verified the limits and resource value classifications of the onsite wetlands and state open waters, as delineated by the project team. Specifically, wetlands (Wetlands "HH" and "II") associated with the Tributary to the West Shabakunk Creek are classified as Intermediate Resource Value with a standard 50-foot wetland transition area. State open waters associated with tributary are not subject to wetland transition areas. The onsite isolated wetlands (Wetlands "XX" and "YY") are classified as Ordinary Resource Value and are not subject to standard wetland transition areas. The LOI for the Terminal Replacement Study Area was issued by the NJDEP on March 24, 2021. The LOIs are included in Appendix H.

Detailed information regarding the delineated wetlands and their locations are presented in the Applications for Letter of Interpretation, Regulatory Line Verification in Appendix H.

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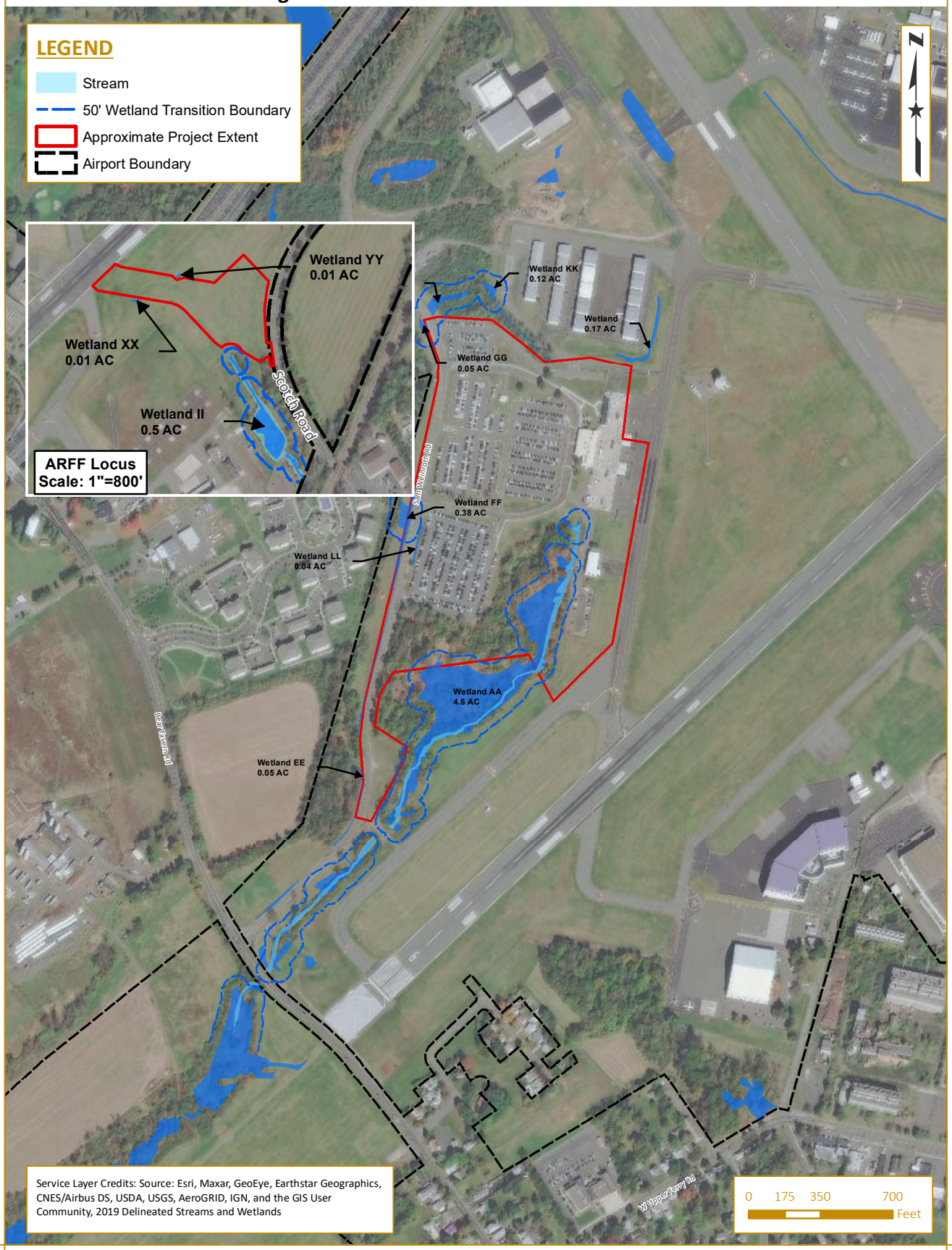
Figure 4-8: Delineated Streams and Wetlands



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4.14.2. Floodplains

Floodplains are low-lying land areas typically associated with bodies of water that are likely to become inundated during a flooding event. Floodplains serve an important function in retaining stormwaters to protect against downstream flooding, property damage, and potential loss of life.

The size of a floodplain will vary according to the magnitude of the storm event, as determined by the storm reoccurrence interval. For example, a five-year storm has a magnitude that can be expected once every five years or statistically has a 20-percent chance of occurring during any given year. FEMA utilizes a 100-year storm reoccurrence interval for flood preparation. Flooding related to a 100-year storm statistically has a 1-percent chance of occurring during any given year. A regulatory floodway is the channel of a watercourse and the adjacent land areas that must be reserved in order to discharge a base flood without cumulatively increasing the peak water surface elevation more than a designated height. It is important to note that reoccurrence intervals can change when there are significant changes in flow patterns in an area or changes in land use due to development, such as converting forested land to a residential development.

(EO 11988, *Floodplain Management,* directs all federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid the direct and indirect support of floodplain development wherever there is a practicable alternative.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program under the National Flood Insurance Act of 1968 (NFIP), as well as overseeing the federal floodplain management programs and flood hazard mapping. Federal flood hazard areas are identified on community specific Flood Insurance Rate Maps (FIRM). No FEMA mapping exists for the onsite portions of the unnamed tributary to the Delaware River and the West Branch Shabakunk Creek.

The state of New Jersey protects residents and property from flood events through its Flood Hazard Area Control Act (FHACA) at N.J.S.A. 58:16A-50. The Act is implemented under the FHACA Rules at N.J.A.C. 7:13, which tends to be more stringent than federal standards with regard to development in flood hazard areas (FHA) and riparian zones adjacent to surface waters throughout the state. Specifically, the FHACA Rules regulate the alteration of topography through excavation, grading, and/or placement of fill; the creation of impervious surface; the storage of unsecured material; and construction, reconstruction, repair, alteration, enlargement, elevation, and removal of structures in the flood hazard area. The FHACA Rules also regulate the clearing, cutting, and/or removal of vegetation in a riparian zone, the land and vegetation within and adjacent to a regulated water. In order to minimize flooding impacts as the result of uncontrolled development, the NJDEP has instituted a 0% net-fill change in the maximum total percentage of flood storage volume displacement lawfully allowed, including offsite credits (N.J.A.C. 7:13-11.4). The FHACA Rules are designed to be highly descriptive, and to a certain extent, prescriptive to mitigate the adverse impacts to flooding and the environment that can be caused by development.

As mentioned above, the FHACA Rules regulates activities within regulated waters, as defined at N.J.A.C. 7:13-2.2, as well as within two independent, but often overlapping areas associated with the regulated water: the flood hazard area and the riparian zone. A flood hazard area exists along

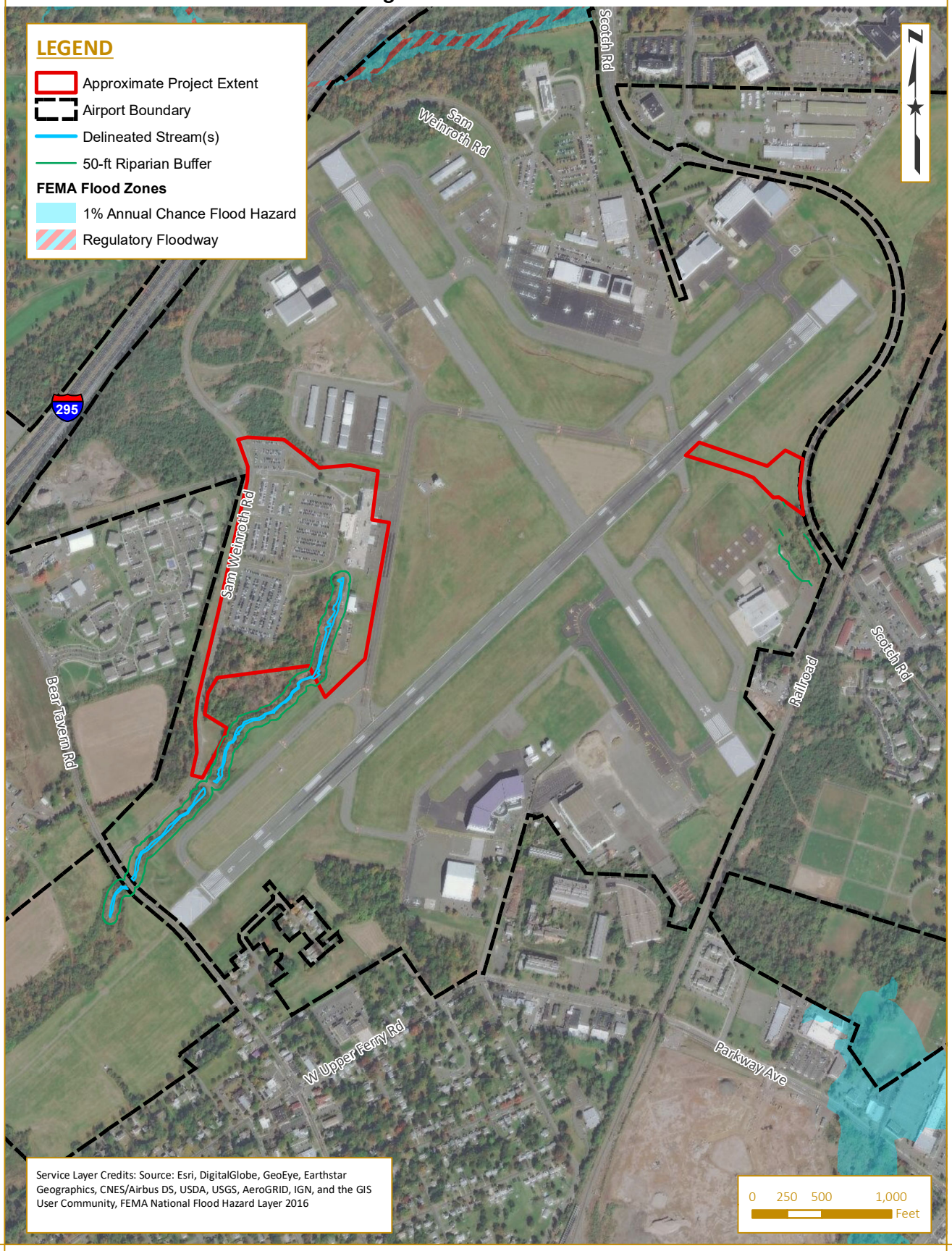
every regulated water that has a drainage area of 50-acres or more. The flood hazard area consists of a flood fringe and a floodway, except within and along tidal waters in which the entire flood hazard area consists of a flood fringe. New Jersey flood hazard areas are based upon peak flood water elevations equal to the FEMA 100-year flood elevation plus an additional amount of water in fluvial areas that accounts for future flow increases due to development or other factors. In New Jersey, the FHACA Rules designate six methods that can be used to determine the flood hazard areas for a particular site or study area. The NJDEP was contacted for flood hazard maps for the streams located within the Airport boundary. NJDEP staff provided a FEMA GIS composite from the Mercer County FIS, along with state maps for Ewing Creek. Since no NJDEP flood hazard area delineation and no FEMA floodplain mapping exists for the onsite regulated waters, the flood hazard area of the unnamed tributary to the Delaware River and the West Branch Shabakunk Creek was determined using Method 5 (Approximation Method) in accordance with N.J.A.C. 7:13-3.5. The regulated riparian zones and flood hazard areas are shown on Figure 4-9, Flood Zones.

A riparian zone exists along each side of a regulated water and includes the water itself. The portion of the riparian zone located outside of a regulated water is measured landward from the top-of-bank. The width of the riparian zone is dependent upon the classification of the regulated water or other related factor(s), as described at N.J.A.C. 7:13-4.1(c) of the FHA Rules. A 300-foot riparian zone is assigned to any regulated water designated as a Category 1 (C1) water, as well as all upstream tributaries within the same HUC-14 watershed as the C1 water. A 150-foot riparian zone is allocated to streams designated as trout production waters and all upstream waters; trout maintenance waters and all upstream waters located one stream mile of the trout maintenance water; and any segment of water flowing through an area that contains a threatened or endangered species and/or documented habit for threatened or endangered species of flora or fauna that are critically-dependent on the regulated water for survival, as well as all upstream waters located within one stream mile of such habitat. For all other regulated waters, the width of the riparian zone is 50-feet.

Unnamed tributaries to the Delaware River are located within the western portion of the airport property, the main tributary of which originates near the existing airport terminal entrance road. The upper reach of this tributary is located within the proposed terminal project area. A second tributary is situated along the north side of Sam Weinroth Road. This feature flows southwest and eventually converges with the main tributary. The West Branch Shabakunk Creek and associated tributaries are located within the eastern portion of the Airport property in the vicinity of the proposed ARFF project area. The West Branch Shabakunk Creek flows in a southeasterly direction, eventually discharging to the Assunpink Creek. According to the New Jersey Surface Water Quality Standards (N.J.A.C. 7:9B), the unnamed tributaries to the Delaware River and West Branch Shabakunk Creek have received a surface water quality classification of Freshwater 2, Non-Trout and C2 by NJDEP.

The NJDEP Natural Heritage Program letter, dated January 22, 2019, and June 7, 2019, has no documented habitat for any threatened or endangered plant or animal species that are critically dependent on the regulated water for survival on or within 1 mile downstream of either project areas. Additionally, the project site is not located upstream of a Category 1 (C-1) water within the same HUC-14.

Figure 4-9: Flood Zones



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Based on the above, the riparian zone for the unnamed tributary to the Delaware River and West Branch Shabakunk Creek and its tributaries is anticipated to be 50 feet from the top-of-bank. Because the portion of the unnamed tributary to the Delaware River parallel to Sam Weinroth Road appears to be manmade, the drainage area should be determined. If the tributary drains less than 50-acres, the feature should not contain a regulated riparian zone; however, the NJDEP would make the final determination on whether this feature is regulated under the FHACA Rules (N.J.A.C. 7:13).

The NJDEP will issue a Flood Hazard Area Verification for an entire site or a portion of a site, which provides a formal determination of one or more of the following: the flood hazard area design flood elevation, flood hazard area limit, floodway limit, and/or riparian zone limit. A request for a Flood Hazard Area Verification was prepared and submitted to the NJDEP for the ARFF Study Area to verify the flood hazard area limit, the riparian zone limit, and flood hazard area design flood elevation. As stated in the approval letter, dated May 12, 2020 (NJDEP File No. 1102-12-0002.5 LUP 200001), the NJDEP concurs with the limit of the flood hazard area, which was established using Method 5 (Approximation Method) and the flood hazard area design flood elevation is a depth of six feet above the stream's invert. The NJDEP also concurs that the riparian zone extends 50 feet from the stream's top of bank. A copy of the Flood Hazard Area Verification is included in Appendix C. A Flood Hazard Area Verification has not yet been obtained for the Terminal Replacement Study area. A Verification will be requested concurrently with the Flood Hazard Area permit application for the project.

4.14.3. Surface Waters

The TTN Airport property is located in the Central Delaware Watershed Management Area (WMA ID #11) as defined by the Division of Watershed Management of NJDEP. The WMA is characterized by agriculture and extensive suburban development. More specifically, the property is situated in two watersheds and three subwatersheds. The northernmost and western portions of the Airport property, which includes the proposed terminal project area, lies within the Alexauken Creek/Moore Creek/Jacobs Creek Watershed. The eastern and southeastern portions of the Airport property, which includes the proposed ARFF project area, are situated within the Assunpink Creek (below Shipetaukin Creek) Watershed. Additionally, the northern portion of the Airport property is located in the Jacobs Creek (below/including Woolsey Brook) Subwatershed; the eastern portion is located in the Shabakunk Creek Watershed; and western portion is located in the Mercer (Calhoun Stream to Jacobs Creek) Subwatershed. Unnamed tributaries to the Delaware River are located within the western portion of the Airport property. The main tributary originates near the existing airport terminal entrance road and flows southwest, ultimately discharging to the Delaware River. The upper reach of this tributary is located within the proposed terminal project area. A second tributary, identified as a "ditch" by NJDEP streams mapping, is situated along the north side of Sam Weinroth Road. This feature flows southwest, then south through a culvert under Sam Weinroth Road until converging with the main tributary.

The West Branch Shabakunk Creek and associated tributaries are located within the eastern portion of the Airport property, in the vicinity of the proposed ARFF project area. The West Branch Shabakunk Creek flows in a southeasterly direction, eventually discharging to the Assunpink Creek.

All of the streams on and in the vicinity of the TTN property are classified by the NJDEP as Freshwater 2 Non-Trout (FW2-NT) and Category 2 pursuant to the Surface Water Quality Standards, N.J.A.C. 7:9B. Refer to **Figure 4-7** for watershed and streams locations on and in the vicinity of the TTN property.

Under Section 303(d) of the Federal Clean Water Act, each state is required to identify and make public information on impaired waterbodies. New Jersey is required to list impaired waterbodies as part of the water quality planning process pursuant to the Water Quality Planning Act (N.J.S.A. 58:11A-7). New Jersey uses chemical and biological stream monitoring to determine these impaired waters. Waterbodies cannot be removed from the 303(d) list until the water quality standards are met.

The Clean Water Act requires that each impaired (non-attaining for pollutants) waterbody is given a priority ranking of high (H), medium (M), or low (L) with the goal of lowering the Total Maximum Daily Load (TMDL) of the particular pollutant. The prioritization process considers various environmental, social, and political factors. Prioritization criteria include source and parameters of impairment; additional data needs; TMDL complexity and nature; waterbody use and cultural or historic importance; efficiency concerns; watershed management activities; sensitive species concerns; and public interest.

The NJDEP's 2014 Final 303(d) List of Water Quality Limited Waters identifies portions of the West Branch Shabakunk Creek as containing pollution impairment levels sufficient for listing on the 303(d) list. Contaminants include arsenic, as well as mercury in fish tissue, both of which have a low priority ranking. No impacts to, or direct discharge to, the West Branch Shabakunk Creek are proposed. The onsite portion of the unnamed tributary to the Delaware River is not identified in the Final 303(d) list. Any impacts to surface waters, including associated riparian zone, flood hazard areas, wetlands, and wetland transition areas, must be authorized through one or more permit authorized by the NJDEP under the FWPA Rules (N.J.A.C. 7:7A) and the FHACA Rules (N.J.A.C. 7:13).

Delaware & Raritan Canal Commission

The Delaware and Raritan Canal Commission (DRCC) was created pursuant to the Delaware and Raritan Canal State Park Law of 1974 (N.J.S.A. 13:13A-1 et seq.). The DRCC administers a land-use regulatory program in central New Jersey where new development could have drainage, visual or other ecological impact on the Delaware and Raritan (D&R) Canal State Park. "Major Projects" are projects that result in the cumulative coverage, since January 11, 1980, of ¼-acre of land with impervious surface, or the disturbance of one (1) acre or more of land. Major projects must be reviewed and approved by the DRCC to ensure conformance with the objectives of the Master Plan and the specific standards of the DRCC Review Zone Regulations (N.J.A.C. 7:45).

The DRCC has jurisdiction over the entire state-owned D&R Canal and its Review Zone, including Zones A and B. The Review Zone includes the Canal Park, lands within 1,000 feet of the canal, and watersheds of all streams that enter the canal park. Zone A is defined as "the area within 1,000 feet on either side of the center line of the Canal, except in Princeton Township where the west bank of Carnegie Lake shall be the boundary of Zone A, and where the Raritan River is within 1,000 feet, its furthest bank being the boundary" (N.J.A.C. 7:45-1.3). Zone B is the balance of the Review

Zone, as delineated by DRCC maps. Trenton-Mercer Airport and the Proposed Action is situated within DRCC Review Zone B.

The new terminal project would automatically be considered a "major project," as defined at N.J.A.C. 7:45-1.3; therefore, approval from DRCC would be required, which would include review of stormwater runoff quantity and water quality impact (N.J.A.C. 7:45-8), as well as evaluation of stream corridor impacts (N.J.A.C. 7:45-9). The stream corridor is defined as "Any water course that flows into the Park, its tributaries, the 100-year floodplain associated with the water course and its tributaries, and all of the land within a 100-foot buffer adjacent to the 100-year flood line associated with the water courses and their tributaries." A stream corridor "starts from the point that the water course enters the Park, upstream to the point that the water course or its tributaries drain less than 50 acres." The DRCC agreed to accept the NJ Flood Hazard Area in place of the 100-year floodplain for establishing the DRCC stream corridor limits.

The DRCC regulates activities in the stream corridor, which is defined as "Any water course that flows into the Park, its tributaries, the 100-year floodplain associated with the water course and its tributaries, and all of the land within a 100-foot buffer adjacent to the 100-year flood line associated with the water courses and their tributaries." Sufficient information to determine the 100-year floodplain within the project areas was not available. Therefore, the buffer used to determine the stream corridor was based on the FHA in accordance with NJDEP Flood Hazard Area Control Rules. Correspondence with the DRCC regarding the use of the FHA is provided in Appendix C. Coordination with the DRCC was performed to verify the boundaries of the stream corridor in the vicinity of each project and pre-application meetings for the terminal and ARFF project areas were conducted. Further details of DRCC coordination are provided in Chapter 5, Section 5.11.3.

4.14.4. Groundwater

Groundwater serves as an important potable water supply for many individual households, small communities, and larger municipalities. Potential impacts from airport development projects can include reduced groundwater recharge and potential contamination through chemical, toxin, or other pollutant releases.

The NJDEP protects the quality of the state's groundwaters and their designated uses under the *Ground Water Quality Standards* (GWQS) (N.J.A.C. 7:9C) rule. The GWQS are implemented primarily through the New Jersey Pollutant Discharge Elimination System (NJPDES) discharge to ground water permit program and the Site Remediation Program.

Federal groundwater protection is provided under the Safe Drinking Water Act (SDWA), recently amended in 1996. The SDWA was established to protect drinking water and its sources, including rivers, lakes, reservoirs, springs, and groundwater wells. The USEPA Sole Source Aquifer (SSA) program was established under the SDWA. According to the USEPA, a SSA is defined as one that supplies at least 50 percent of the drinking water for its service area, and wherein which there is no reasonably available alternative drinking water sources should the aquifer become contaminated. The SSA program allows for USEPA review of federally funded projects that have the potential to affect designated SSAs and their source areas.

According to the NJDEP GeoWeb (http://www.nj.gov/dep/gis/geowebsplash.htm), Airport areas outside of the airfield are designated as groundwater recharge areas. A majority of the

groundwater recharge rates surrounding the Airport are 8-10 in/year and 11-15 in/year. A few areas on the outskirts of the Airport property have a groundwater recharge rate of 1-7 in/year. The western portion of Airport property is located over the Coastal Plain SSA while the eastern portion of the Airport property is not located over an SSA. The Coastal Plain SSA is depicted on Figure 4-10. An USEPA request for a Sole Source Aquifer project review was submitted. The results of the USEPA review are detailed in Section 5.12.4.

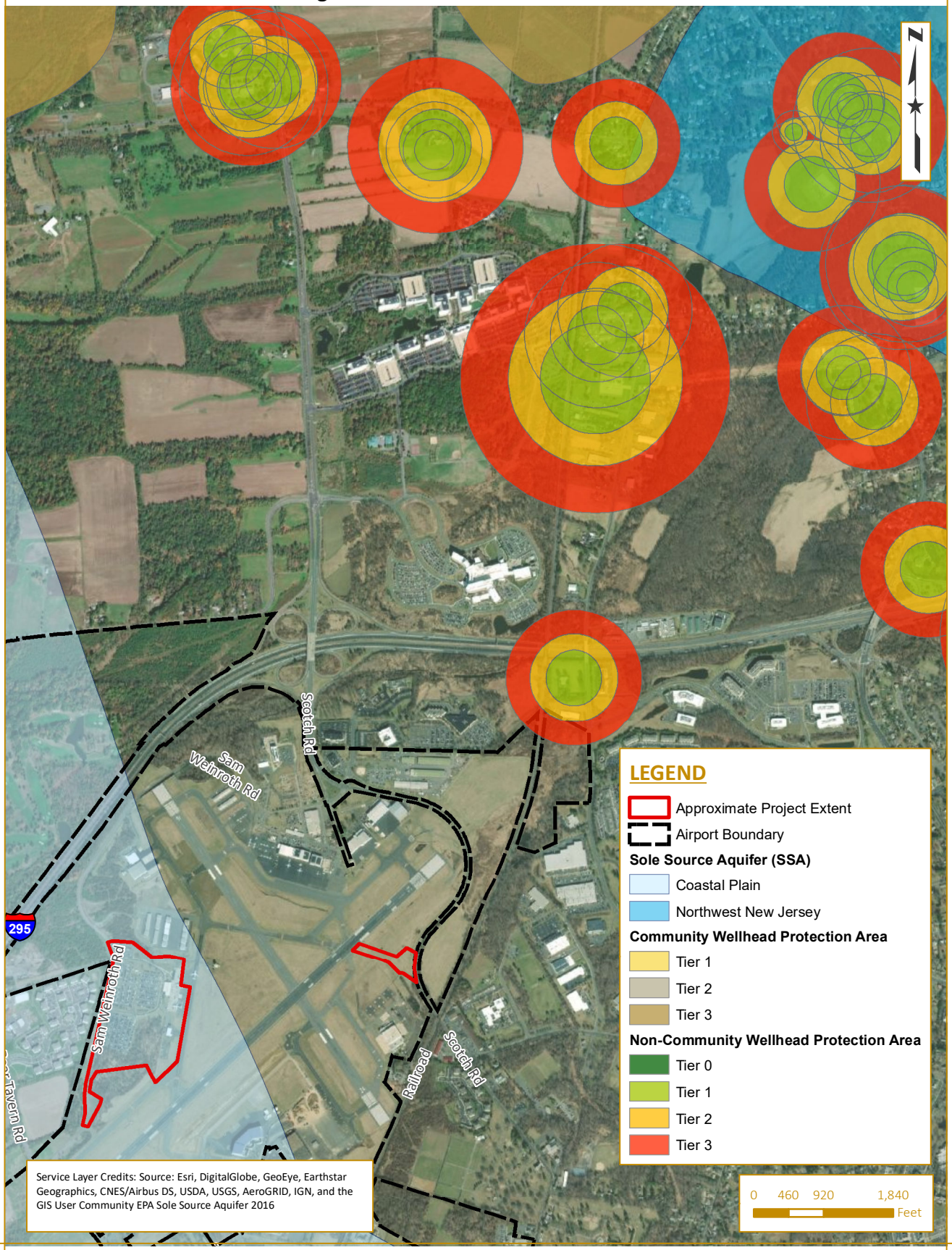
According to the NJDEP GeoWeb, there are no community or non-community water supply wells on Airport property. However, a non-community well and Non-Community Wellhead Protection Area is located immediately northeast of the Airport property. A "noncommunity" water system is a public water system used by individuals other than year around residents for at least sixty days of the year and can include schools, restaurants, motels. A Wellhead Protection Area (WHPA) for a Public Non-Community Water Supply Well (PNCWS) in New Jersey is a calculated area around a well that delineates the horizontal extent of ground water captured by the well pumping at a specific rate over a two-, five-, and twelve-year period. WHPAs are depicted on Figure 4-10. The Greene 750 apartment complex west of the terminal project area is connected to municipal water supply.

As discussed in Section 4.7.1, AFFF may have been previously used at TTN in the vicinity of the existing ARFF as part of firefighting training operations. The Airport currently uses non-PFAS containing foam for firefighting drills and equipment testing. A Phase II ESA was conducted and included the existing terminal building, ARFF building as well as the locations of the proposed terminal and ARFF buildings. PFAS exceedances were detected in groundwater monitoring wells conducted during the Phase II ESA.

The Phase I and II ESA has identified PFAS compounds as contaminants of concern as they relate to NEPA hazardous material, solid waste, and pollution prevention. NJDEP has a mandated and prescribed regulatory path for notifying, assessing, and reporting groundwater impact cases. Section 5.7 of the Phase II ESA summarizes the NJDEP regulatory process. The continued evaluation is completed independent of the NEPA evaluation because NEPA lacks the regulatory remediation authority that the NJDEP Technical Requirements for Site Remediation mandate.

Section 5.5 of this EA further discusses the next steps to address PFAS exceedances and compliance with federal and state regulations.

Figure 4-10: Groundwater Resources



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4.14.5. Wild and Scenic Rivers

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. Rivers may be classified by Congress, or in certain situations the Secretary of the Interior, as wild, scenic, or recreational.

Based on a review of the National Park Service Wild and Scenic Rivers Program website, there are no federally designated wild and scenic rivers on or adjacent to the Airport. The Lower Delaware River is the nearest designated river to the project area. The nearest portion of this designated river is located approximately 2.4-miles west-northwest of the project area. The Lower Delaware River is classified as recreational but is also recognized for providing a wealth of natural, cultural, and historic features of national significance.

The proposed project would not impact any federally designated wild and scenic rivers.

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