

3. Environmental Overview

3.1. INTRODUCTION

The operation and development of an airport has the potential to affect neighboring land uses, natural, and human environments, which are of fundamental concern in the airport planning process. Therefore, it is imperative to identify the resources and potential impacts on the environment and the surrounding community during the initial stages of the planning process. This allows airport planners and engineers to incorporate measures in accordance with federal, state, and local rules and regulations to avoid, minimize or mitigate potential impacts on the environment.

The National Environmental Policy Act (NEPA), signed into law on January 1, 1970, requires all federal agencies consider the potential impacts their projects and policies have on the environment. In 1978, the Council on Environmental Quality (CEQ) issued regulations (40 CFR Parts 1500-1508) to implement NEPA. The Federal Aviation Administration (FAA), an agency of the United States Department of Transportation (USDOT), has issued Order 1050.1F, *Environmental Impacts: Policies and Procedures* (Effective Date July 17, 2015), which ensures all FAA actions comply with NEPA. The FAA also issued Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions (Effective April 28, 2006). FAA Order 5050.4B guides NEPA compliance specifically for major federal actions at public-use airports.

FAA Orders 1050.1F, 1050.1F, *Desk Reference*, and 5050.4B identify environmental categories that must be considered in relation to a proposed action to determine whether a significant impact would result and determine what actions would be appropriate to avoid or minimize an impact's effect. FAA Order 1050.1F specifies the threshold of significance for each of the categories addressed.

The following is a list of environmental impact categories identified in Order 1050.1F that may be relevant to FAA actions:

- Biological Resources (including fish, wildlife, and plants)
- Water Resources (including Wetlands, Surface Waters, Wild and Scenic Rivers, Floodplains, and Groundwater)
- Coastal Resources
- Department of Transportation Act, Section 4(f) via Section 106
- Historical, Architectural, Archeological, and Cultural Resources
- Farmlands
- Land Use
- Noise and Noise-Compatible Land Use
- Visual Effects (including Light Emissions)
- Air Quality
- Hazardous Materials, Solid Waste, and Pollution Prevention

- Natural Resources and Energy Supply
- Climate
- Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks

This chapter provides a summary of potential areas of environmental concern related to proposed future development at Delaware Coastal Airport – GED (Airport). The type and magnitude of impact is dependent upon the proposed project specifics, project alternatives, and the selected preferred alternatives. Future Airport development undertaken in accordance with this Master Plan Update (MPU) will be reviewed in further detail, including evaluation of potential cumulative impacts, in subsequent environmental documentation to satisfy the requirements of NEPA and any other applicable local, state, or federal rules or regulations prior to project implementation. The information provided in this chapter is based on data collected during field investigations, consultation with Airport Staff, and information obtained from appropriate local, state, and federal agencies.

3.2. BIOLOGICAL RESOURCES

Biological 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.

3.2.1. Ecological Communities

The majority of the habitat within the Airport Operations Area (AOA) consists of maintained grasslands, interspersed with paved airfield surfaces and buildings. The dominant ecological community present on undeveloped portions of the Airport property is most characteristically described as mixed-hardwood forest. Surrounding airport property is predominately a mix of residential, agricultural, forested, and commercial lands.

According to Delaware’s National Vegetation Classification System, the dominant vegetated communities present on airport property are most characteristically described as Cultivated Lawn, Unknown Forest Community, Northeastern Old Field, and Southern Red Oak/Heath Forest. These ecological communities are considered common within the region and the State. Further information regarding flora and fauna species associated with these ecological communities is presented in Section 3.2.2.

3.2.2. Flora and Fauna

The AOA consists primarily of grasslands dominated by grasses and forbs.

Common flora and fauna observed on airport property are shown in **Table 3-1**. All are commonly found in coastal portions of Delaware.

Table 3-1: Delaware Coastal Flora and Fauna

Documented Flora Species	
Red Maple (<i>Acer rubrum</i>)	Arrow Wood (<i>Viburnum dentatum</i>)
Sweet Gum (<i>Liquidambar styraciflua</i>)	Tulip Tree (<i>Liriodendron tulipifera</i>)
Swamp White Oak (<i>Quercus bicolor</i>)	Black Gum (<i>Nyssa sylvatica</i>)
American Holly (<i>Ilex opaca</i>)	Various grasses
Pepper Bush (<i>Clethra alnifolia</i>)	Highbush Blueberry (<i>Vaccinium corymbosum</i>)
American Beech (<i>Fagus grandifolia</i>)	Honeysuckle (<i>Lonicera sp.</i>)
Sweet Bay Magnolia (<i>Magnolia virginiana</i>)	White Oak (<i>Quercus alba</i>)
Pin Oak (<i>Quercus palustris</i>)	Hickory (<i>Carya sp.</i>)
Documented Fauna Species	
White-tailed Deer (<i>Odocoileus virginianus</i>)	Red-bellied Woodpecker (<i>Melanerpes carolinus</i>)
Cottontail Rabbit (<i>Sylvilagus floridanus</i>)	Spring Peeper (<i>Pseudacris crucifer</i>)
Raccoon (<i>Procyon lotor</i>)	Wood Frog (<i>Rana sylvatica</i>)

Source: McFarland Johnson field observations.

3.2.3. Threatened and Endangered Species

The Endangered Species Act (ESA) directs all federal agencies to work to conserve 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 listed species. Endangered species are those which are in danger of extinction throughout their range or a significant portion of their range. Threatened species are those which are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Candidate species are species for which the United States Fish and Wildlife Service (USFWS) has sufficient information on the biological vulnerability and threats to support the 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 Delaware Department of Natural Resources and Environmental Control (DNREC) protects all federally listed threatened and endangered species, as well as State designated endangered species, under Title 7 of the Delaware Code Chapter (Del.C) 6- *Endangered Species*. The regulatory provisions designed to implement the Wetlands Act are outlined in 7 DNREC § 3916- *Endangered Species*.

In a letter dated July 23, 2020, the DNREC Species Conservation and Research Program (SCRP) indicated that they had no records of state-rare or federally listed plants, animals, or natural communities in the vicinity of the Airport. A copy of this correspondence has been included in **Appendix C**.

According to the USFWS Information for Planning and Consultation (IPaC) tool, the project is located within the known range of the monarch butterfly (*Danaus plexippus*), a Candidate

species for potential listing under the ESA. Candidate species do not receive formal federal protection and “Effect Determinations” for the monarch butterfly are not currently required under the ESA. A copy of the Official Species List from the USFWS was obtained on April 18, 2023, and is included in **Appendix C**.

As specific airport development alternatives are identified and considered, the potential to affect State or federally-listed rare, threatened, and endangered species will be re-assessed on an individual basis and in consultation with the DNREC, USFWS, and FAA.

3.3. WATER RESOURCES

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

3.3.1. 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 Environmental Protection Agency (EPA) Sole Source Aquifer (SSA) program was established under the Safe Drinking Water Act (SDWA). According to the EPA, an SSA is defined as one that supplies at least 50 percent of the drinking water for its service area, and wherein there are no reasonably available alternative drinking water sources should the aquifer become contaminated. According to the EPA’s Interactive Map of SSAs¹, the Airport is not located over an SSA.

The Delaware Wellhead Protection Plan (WHPP) set in place by the DNREC and approved by the EPA in 1990, serves to protect critical wellhead areas and land from activities or substances that might harm the groundwater derived from those wells. According to the Delaware Environmental Navigator (DEN)², there is a Wellhead Protection Area referred to as Sussex County Industrial Park, located on the eastern portion of the GED. Another Wellhead Protection Area, Georgetown Water, is located partially on the western portion of the GED.

Future proposed projects may take measures in design and construction to avoid, minimize or mitigate any possible adverse impacts to groundwater in accordance with Best Management Practices (BMPs) and in accordance with all local, state, and federal guidelines and regulations.

¹<https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b>. Accessed 8/27/2021.

²<http://opendata.firstmap.delaware.gov/datasets/delaware-well-head-protection-areas?geometry=-75.445%2C38.679%2C-75.282%2C38.702>. Accessed 8/25/2021.

3.3.2. Wetlands

The United States Army Corps of Engineers (USACE) regulates activities in wetlands that have a significant nexus to Traditional Navigable Waters of the United States (TNWs) under Section 404 of the Clean Water Act (CWA). The USACE requires that an area have hydrophytic vegetation primacy, hydric soils, and wetland hydrology present in order to be considered a wetland.

The State of Delaware regulates most impacts to wetlands that are tidally influenced and non-tidal wetlands greater than 400 contiguous acres within the state under 7 Del.C. Ch. 66-*Wetlands* (Wetlands Act). The regulatory provisions designed to implement the Wetlands Act are outlined in 7 DNREC § 7502- *Wetland Regulations*.

Section 401 of the CWA provides states with the authority to ensure that federal agencies do not issue permits or licenses that violate their water quality standards. The DNREC implements Section 401 compliance through a certification process called Water Quality Certification (WQC). The DNREC is responsible for providing WQC reviews for USACE Section 404 Individual Permits, as well as for certain USACE Nationwide Permits (NWPs) for specific projects that are located in environmentally sensitive areas.

In addition, Executive Order (EO) 11990 - *Protection of Wetlands*, states that federal agencies shall provide leadership and shall act to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance natural and beneficial values of wetlands in carrying out the agency's responsibilities. Under EO 11990, wetlands are defined as those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

According to the USFWS National Wetlands Inventory (NWI), there are several small freshwater forested/shrub wetlands present around the outer edge of GED property (**Appendix C**). Similarly, the DEN indicates there are several small wetlands sporadically located around the outskirts of the GED property as well as wetlands adjacent to GED borders (**Appendix C**).

A wetland and waterways delineation of Airport owned property was performed by McFarland Johnson in July and August 2020. The wetland delineation was conducted through field investigations of vegetation, soils, and hydrology in accordance with the 1987 *United States Army Corps of Engineers Wetlands Delineation Manual* (1987 USACE Manual) and The Department of the Army's 2010 *Atlantic and Gulf Coast Plain Regional Supplement*.

A total of 23 wetlands were identified during the site reconnaissance, with 12 wetlands assumed to meet USACE jurisdictional standards and 11 wetlands considered non-jurisdictional.

Wetland A drains directly into Peterkins Branch, a relatively permanent waterway (RPW) through a culvert under Park Avenue. Peterkins Branch, in turn, drains into the Indian River, a Traditional Navigable Waterway (TNW) approximately 6.15 miles southeast of the project site, qualifying Wetland A as a Water of the United States (WOTUS).

Several wetlands within the PSA demonstrate conveyance into/connection to Wetland A and are therefore presumed to be WOTUS: C, F, G, I, J, K, and M.

Four wetlands, D, E, V, and W are connected/contiguous to Wetland C and are therefore also presumed to be WOTUS.

Based on this information, Wetlands A, C, D, E, F, G, I, J, K, M, V, and W either abut, are adjacent to, or discharge into a surface or subsurface conveyance that discharges to an RPW that drains directly to a TNW, and therefore should be regulated by the USACE under Section 404 of the CWA. Wetlands B, H, L, N, O, P, Q, R, S, T, and U have no significant nexuses to a TNW and should not be considered as regulated by the USACE.

3.3.3. Surface Waters

The USACE regulates surface waters under Section 10 of the Rivers and Harbors Appropriation Act (RHA) that are considered to be a TNW as defined specifically there within. The USACE also regulates surface water bodies through Section 404 of the CWA that have a significant nexus to a TNW as defined in Section 10 of the RHA or a TNW as defined in Section 404 of the CWA. A significant nexus is generally defined as having more than an insubstantial or speculative effect on the chemical, physical, or biological integrity of a downstream TNW. Surficial open waterbodies, including streams, ponds, and lakes, are delineated by their Ordinary High-Water Mark (OHWM) as defined in Title 33, Code of Federal Regulations, Part 328 (33 CFR 328).

The State of Delaware regulates most impacts to all tidal waters as well as non-tidal lakes, non-isolated ponds, bays, inlets, rivers, and perennial and intermittent streams, under the 7 Del.C. Ch. 72- *Subaqueous Lands* (Subaqueous Lands Act). The regulatory provisions designed to implement the Subaqueous Lands Act are outlined in 7 DNREC § 7504- *Regulations Governing the Use of Subaqueous Lands*.

As previously mentioned, a wetlands and waterways delineation of Airport-owned property was performed by McFarland Johnson in July and August 2020. The USACE OHWM for any streams or other water bodies located within the project study areas were field delineated in accordance with the definitional criteria as presented in 33 CFR 328.

No surface waters were identified during the field delineation.

3.3.4. Wild and Scenic Rivers

The National Wild and Scenic Rivers Act (Public Law 90-542) protects several of the nation's free-flowing rivers that exhibit exceptional natural, cultural, and recreational values. There are no federally designated wild, scenic, or recreational rivers on or adjacent to the Airport.

3.3.5. 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 storm waters to protect against downstream flooding, property damage, and potential loss of life.

EO 11988, *Floodplain Management*, directs all federal agencies to avoid the direct and indirect support of floodplain development wherever there is a practicable alternative.

The area or magnitude of a floodplain will vary according to the magnitude of the storm event as determined by the storm interval occurrences. For example, a five-year storm has a magnitude that can be expected once every five years. The Federal Emergency Management Agency (FEMA) utilizes a 100-year storm interval for flood preparation. Flooding related to a 100-year storm statistically has a one-percent chance of occurring during any given year, also known as a 100-year floodplain. The 100-year period was selected as having special significance for floodplain management because it is the maximum level of flooding that can reasonably be expected and planned for during the expected life span of a project.

According to the most current FEMA Flood Insurance Mapping (FIRM), the majority of Airport property is located in Zone X (other areas) which is determined to be outside the 500-year floodplain or 0.2 percent annual chance floodplain (FIRM 10005C0325L). A small portion of the eastern side of the Airport is located in Zone AE which is determined to be an area with a 1% annual chance of flooding where Base Floodplain Elevations (BFE) have been defined. The FEMA Floodplain Map, in **Appendix C**, shows the location of flood zones in the vicinity of the Airport.

As specific Airport developments are identified and analyzed as part of this MPU and through future NEPA documentation requirements, their potential to encroach upon a FEMA-defined floodplain will be evaluated. Also, for the 1 percent or 100-year floodplain, coordination with local floodplain management will need to occur as they would need to permit development in these areas.

3.4. COASTAL RESOURCES

The federal Coastal Barrier Resources Act provides for the 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 will not apply to any proposed improvements at the Airport.

The Coastal Zone Management Act (CZMA) is a federal program that provides for the management and protection of all of the nation's ocean and Great Lakes coasts. The management authority in Delaware is delegated to the DNREC through the federal approval of the Delaware Coastal Management Program (DCMP). The DCMP establishes State consistency requirements and conducts consistency reviews of all federally funded or permitted projects within Delaware's federal coastal zone. The entire State of Delaware is designated as a federal coastal zone in accordance with CZMA.

Given that the Airport is located within the federal coastal zone, consistency reviews of all federally funded or permitted projects will be conducted by the DNREC to ensure compliance with 15 CFR Part 930 Sub Parts D and F, and Executive Order 12372 - *Intergovernmental Review of Federal Programs*.

The State of Delaware also regulates heavy industrial activities and new and existing manufacturing activities within the State designated coastal zone under 7 Del.C. Ch. 70 (Coastal Zone Act Program). Based on a review of the DNREC Coastal Zone Act Program Mapping, the GED is not located within a Delaware Coastal Zone. The Airport is over six miles away from the

nearest section of the state coastal zone.³

3.5. DEPARTMENT OF TRANSPORTATION 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 publicly owned wildlife and waterfowl refuges on or immediately adjacent to airport property.

According to the Delaware Division of Historical and Cultural Affairs (HCA) Cultural and Historical Resources Information System (CHRIS), accessed on August 6, 2020, there is a publicly owned park, referred to as Layton Park directly adjacent to the western border of the GED.

An impact on publicly owned parks and recreation areas or historic sites of national, state, or local significance on or near the Airport may be considered a use under Section 4(f). As specific developments are identified and analyzed as part of this AMPU and through future NEPA documentation requirements, their potential to effect parkland, historic sites, or other resources protected under Section 4(f) will be assessed on an individual basis.

3.6. HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

According to 36 CFR Part 800, an 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 (NHRP).” 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 HCA’s Delaware State Historic Preservation Office (Del SHPO).

A review of HCA’s CHRIS was conducted on August 6, 2020, and indicated the potential of historical, archeological, and/or culturally sensitive areas located on airport property. There are 35 buildings and/or structures determined eligible for the National or State Register on the GED, with the majority of them located within the All American Engineering Test Facility/Sussex County Airport Historic District on the southern portion of the property. Correspondence with Jenifer Anderson-Reno from the HCA confirmed that multiple surveys have been done previously to assess the historical, architectural, archaeological, and cultural resources of the District, but neither the District nor any of the individual resources identified within the District, are listed in the National Register. Further, archaeological sites have been documented within the historic district as well. Due to the sensitivity and confidentiality of the information, the historic, archaeological, and cultural resources identified will not be detailed in or appended to this AMPU.

The presence of historical, archaeological, and cultural resource sites on or adjacent to Airport property may have an effect on the development of project alternatives, and as required by

³<https://dnrec.alpha.delaware.gov/coastal-zone-act/>

NEPA, specific project documentation will be provided to the HCA for evaluation prior to any future project undertakings.

3.7. FARMLANDS

The Farmland Protection Policy Act (FPPA), 7 CFR Part 658, 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 July 23, 2020, the vast majority of Airport owned property is considered Prime Farmland or Farmland of Statewide Importance. The FPPA does not apply to land already committed to “urban development or water storage.” Airport property is previously committed to urban development or current airport utilization and development and would not be subject to the FPPA regulations. Airport property not currently developed, including undeveloped lands that the Airport might acquire in the future, would be subject to the provisions of the FPPA.

The State of Delaware enacted the Agricultural Lands Preservation Act (Title 3 Del.C. Ch. 9) on July 8, 1991, to encourage the conservation, protection, and improvement of agricultural lands in the State.

The mapping of the designated farmland soils is shown in **Appendix C**.

3.8. LAND USE

When considering improvement projects that meet the Airport development goals, it is important early in the planning process to identify potential impacts on 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 on existing conflicts when possible.

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. There is a park, churches/religious institutions, and some residences in the vicinity of the Airport that are considered noise sensitive. Conversely, there are some land uses that can negatively impact the operation of an 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.

The Airport property has a land use designation of public services and is currently zoned as Light Industrial (LI-2) by the Town of Georgetown. Other adjacent land uses include low-density residential, agriculture, commercial, industrial, institutional, and municipal town centers. There is a publicly owned park, referred to as Layton Park, directly adjacent to the western border of the

GED. See **Chapter 2 Sections 6.2 and 6.3** for more land use and zoning information.

3.9. 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. Churches, hospitals, schools, amphitheaters, and residential districts are receptors that are sensitive to elevated noise levels. Recreational areas and some commercial uses are moderately sensitive to elevated noise levels. Therefore, it is important to predict any change in noise levels associated with airport development, to determine the significance, if any, of the impact on noise-sensitive land uses. Abatement measures can then be incorporated into airport development plans to avoid or minimize the impacts.

In order to evaluate the noise impacts of aviation activity on surrounding areas, the FAA has developed the Aviation Environmental Design Tool (AEDT), Version 3B. The noise modeling component within AEDT identifies locations that are exposed to specific levels of aircraft-generated noise and is based on algorithms that use aircraft-specific data to estimate noise accounting for specific operation modes, thrust settings, source-receiver geometry, acoustic directivity, and other environmental factors. Inputs into AEDT can include aviation activity forecasts and runway configurations for various scenarios, as well as terrain and weather information. This computer model calculates cumulative aircraft noise at ground level expressed in decibels (dB), using the Day-Night Average Level (DNL). The DNL is the yearly day-night average sound level. All operations that occur between 10:00 pm and 6:59 am, also known as nighttime operations, incur an additional 10 dB weight within the model. Decibels are measured in A-weighted units, which approximate the range of human hearing. The FAA considers the 65 dB DNL level to be the threshold of impact for noise-sensitive areas. In order to help put the 65 dB DNL into perspective, the typical ambient noise level in suburban residential areas is 55 dB DNL.

Table 3-2 shows the typical noise levels associated with specific areas commonly encountered every day. **Table 3-3** presents the Day-Night average noise levels (DNL, dB), that are used by the FAA to evaluate land use compatibility with respect to airports.

Table 3-2: Typical Outdoor Day-Night Noise Levels

DNL Day-Night Noise Level (dB)	Location
50 dB	Small town residential area or quiet suburban area
55 dB	Suburban residential area
60 dB	Urban residential
65 dB	Noise urban residential area
70 dB	Very noisy urban residential area
80 dB	City noise (downtown of a major metropolitan area)
80 dB	Third-floor apartment in a major city next to a freeway

Source: “Noise Fundamentals Training Document, Highway Noise Fundamentals”, U.S. Department of Transportation, Federal Highway Administration.

Table 3-3: Land Use Compatibility

Land Use	Yearly Day-Night Average Noise Level (DNL, dB)		
	Compatible Below 65	Compatible Between 65 and 70	Compatible Between 70 and 75
Residential	YES	NO*	NO*
Mobile Home Parks	YES	NO	NO
Transient Lodgings	YES	NO*	NO*
Schools	YES	NO*	NO*
Hospitals/Nursing Homes	YES	YES*	YES*
Churches/Auditoriums	YES	YES*	YES*
Governmental Services	YES	YES	YES*
Transportation/Parking	YES	YES*	YES*
Offices/Business/Professional	YES	YES	YES*
Wholesale and Retail	YES	YES	YES*
Utilities	YES	YES	YES*
Communications	YES	YES	YES*
Manufacturing	YES	YES	YES*
Photographic/Optical	YES	YES	YES*
Agriculture and Forestry	YES	YES*	YES*
Livestock Farming	YES	YES*	YES*
Mining/Fishing	YES	YES	YES
Outdoor Sports Arenas	YES	YES*	YES*
Outdoor Music Shells	YES	NO	NO
Nature Exhibits/Zoos	YES	YES	NO
Amusements/Parks/Camps	YES	YES	YES
Golf Courses/Stables	YES	YES	YES*

*Measures must be incorporated into the design of the structure or use that will allow this activity to continue at the indicated noise exposure level

Source: 14 CFR 150, Airport Noise Compatibility Planning.

A review of aerial photography, along with land use and zoning maps of the area, indicates that most of the land surrounding the Airport is not considered to be noise sensitive. However, the residential community to the west of the Airport would be considered noise sensitive. Further evaluation during the alternative analysis phase of the MPU will reveal whether or not noise impacts are anticipated, relative to the proposed development alternatives.

3.10. VISUAL EFFECTS

A visual effect refers to the potential effects due to light emissions, as well as the potential effects on visual resources and character.

3.10.1. Light Emissions

Airport improvements may include the installation of additional lighting or a change in the location of lighting on airport property to accommodate the construction of the infrastructure improvements. These installations can alter the existing lighting conditions both on-airport and in the vicinity of an airport. Light emissions are typically one of the greatest concerns for residents in neighborhoods, as well as users of other incompatible land uses, adjacent to an airport that could be directly impacted by a change in lighting.

Changes to airfield lighting, approach lights, and/or obstruction removal may affect residential properties near the airport. Further analysis of light emissions will be conducted during the preparation of subsequent NEPA documents. The NEPA documents will consider the specifics of the proposed project and potential impact on the community.

3.10.2. Visual Resources and Character

The visual resources/character surrounding the Airport can be described as residential communities to the west, commercial land to the north, industrial properties to the east, and developable land to the west and east as well. There are no buildings, sites, traditional cultural properties, and other natural or manmade landscape features that are visually important or have unique characteristics in the vicinity of the Airport. Any potential development at the Airport would be in character with the surrounding area and would not negatively affect the visual character of the surrounding area.

3.11. AIR QUALITY

A potential increase in vehicle exhaust emissions, caused by development related increases in aircraft activity and automobile traffic, may affect air quality. However, the air quality impact attributable to potential development is expected to be negligible at the Airport.

Under Section 176(c) of the Clean Air Act (CAA) Amendments of 1977, the FAA is responsible for ensuring that federal airport actions conform to the State Implementation Plan (SIP), which protects against regional air pollution impacts. The criteria and procedures for implementing this conformity are detailed in Title 40 of the Code of Federal Regulations, Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans*. Many federal actions on an airport are considered to be general conformity actions. Presently, the general conformity rules only apply in areas that have been determined by the United States Environmental Protection Agency (EPA) to be in nonattainment or maintenance for the CAA's National Ambient Air Quality Standards (NAAQS) of the six priority pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead). Areas with pollutant concentrations that exceed the NAAQS are designated as "nonattainment". After air pollutant concentrations in a nonattainment area are reduced to levels below the NAAQS, the EPA re-designates the area to be "maintenance"— a designation that is maintained for a period of 20 years. To comply with NEPA, the FAA may be required to prepare detailed air quality analysis for proposed projects whose air quality emissions have the potential to cause violations of the NAAQS for the six criteria pollutants.

The Airport is located in Sussex County, DE. According to the EPA, the area around and inclusive

of the Airport is designated as non-attainment for the eight-hour ozone NAAQS for the 2008 standards since July 20th, 2012. The ozone non-attainment areas are classified by the following five (5) different levels of severity from least to greatest: marginal, moderate, serious, and extreme. GED is classified as marginal, which means there are fewer and/or less stringent mandatory air quality control requirements than areas classified with more severe issues. National ambient air quality standards can be seen in **Table 3-4**.

Table 3-4: National Ambient Air Quality Standards

Pollutant	Primary / Secondary	Averaging Period	Standards	Form
O ₃	Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

Notes: ppm = parts per million, ozone (O₃). Source: EPA, *National Ambient Air Quality Standards (NAAQS)* at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>, December 2019.

Given the air quality status at the Airport, future proposed airport developments may have an impact on air emissions. As specific future developments are identified and analyzed through NEPA documentation requirements, their potential to affect air quality will be further assessed on an individual basis.

3.12. HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

3.12.1. Hazardous Waste

The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901 et seq., Subtitle C provides the federal regulatory authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste. The State of Delaware was delegated by the EPA to carry the primary responsibility of the RCRA Subtitle C hazardous waste program since December 14, 1983. The DNREC’s Hazardous Waste Program is authorized under the 7 Del.C. Chapter 63-*Hazardous Waste Management*. The regulatory provisions designed to implement the Hazardous Waste Program are outlined in 7 DNREC § 1302- *Regulations Governing Hazardous Wastes*.

A Hazardous Waste/Contaminated Material (HWCM) screening was conducted to determine the potential for the presence of HWCM on or in the vicinity of airport property. The screening involved the review of DNREC’s Delaware Environmental Navigator (DEN), EPA’s EnviroMapper of online environmental mapping databases, and the Nationwide Environmental Title Research (NETR) Online Environmental Database. An environmental regulatory agency records review of this nature is based on publicly available information from State and federal agencies and indicates the potential of chemical, hazardous, or petroleum materials at the Airport.

According to the HWCM screening, there are five (5) underground storage tanks (UST) and eight (8) above-ground storage tanks (ASTs) on airport property. The Airport visually monitors and inspects the ASTs in accordance with permit requirements. The EPA’s Toxics Release Inventory (TRI) indicated there have been two toxic chemical releases on airport property, associated with manufacturer Justin Tanks Inc. and D & B Industrial Group, both of which were dealt with accordingly and are deemed inactive. **Table 3-5** details facilities associated with hazardous waste on airport property.

Table 3-5: GED Reported Hazardous Waste

Entity	UST	AST	Hazardous Waste Generator
Delaware State Fire School Sussex Division	Yes	--	--
Universal Forest Products Shoffner Ind, LLC	--	Yes	--
TAFQ	Yes		--
DeCrane Aerospace/PATS Aircraft Systems Manufacturing	--	Yes	--
PATS Aircraft, LLC (dba ALOFT)	--	Yes	Yes
Delmaco Manufacturing, Inc.	--	Yes	Yes
Justin Tanks Inc	Yes	--	Yes
Sussex County Airport Above-Ground Storage Tanks	--	Yes	--
Georgetown Air Services, LLC	--	Yes	Yes
American Aero Space	--	Yes	--
Delmarva Aircraft Inc	Yes	--	--
Emergency Operations Center	Yes	--	--
D & B Industrial Group (Multi-Tech Inc)	--	--	Yes
Universal Forest Products Shoffner Ind, LLC	--	Yes	--

Source: DNREC, EPA, NETR, 2021.

3.12.2. Solid Waste

An increase in the number of airport users and activity may increase the quantity of refuse generated. However, any increase in solid waste attributable to development at the Airport is expected to be negligible and will not overburden the capacity of local solid-waste facilities.

All landfills located in the State of Delaware that accept residential and municipal solid waste are owned and operated by the Delaware Solid Waste Authority (DSWA). DSWA currently operates three landfills in Delaware that accept construction and demolition (C&D) debris, residential solid waste, municipal solid waste, white goods (appliances), tires, asbestos, and household yard wastes. The nearest DSWA landfill to the Airport is the Jones Crossroads Landfill located on Landfill Lane in Georgetown, DE, approximately 9 miles away.

In addition, the Delaware Recycling Center (DRC) assists DSWA with recycling efforts for the State of Delaware. DSWA teamed with two companies, ReCommunity and Revolution Recovery to facilitate Delaware’s recycling needs.

According to DSWA’s 2010 Statewide Solid Waste Management Plan, as of 2010, the Jones Crossroads Landfill had an estimated lifetime to 2048 with a permitted design capacity of 29.5 million tons, of which 4.2 million tons have been utilized. The other DSWA-operated landfills, Cherry Island Landfill (Wilmington, DE) and Sandtown Landfill (Felton, DE), have estimated life expectancies through 2039 and 2050, respectively.

Based on the capacities and estimated life spans of the Jones Crossroads Landfill, adequate space for the disposal of solid waste attributable to future airport development is available.

3.12.3. Stormwater

Airport development projects may potentially affect surface and groundwater quality. The implementation of stormwater management measures, designed to avoid or minimize the impacts on water quality during a project's construction and operation phase, is required for many types of development projects. The specific stormwater management measures required are dependent upon the magnitude of the impact.

Stormwater discharges can be segregated into two categories, the first is associated with discharges during construction through to site stabilization and the second is associated with discharge during the operation of the project.

Under Delaware Sediment and Stormwater Regulations (7 DNREC § 5101- *Sediment and Stormwater Regulations*) construction projects that result in disturbances of less than 5,000 square feet (SF) are exempted from regulation. Construction projects that result in a disturbance of 5,000 SF or greater require the preparation and approval of a Sediment and Stormwater Management Plan. Those projects that exceed 1 acre of disturbance are required to acquire a permit to discharge stormwater from the construction activity which involves the submission of a Notice of Intent (NOI) and the preparation and approval of a Sediment and Stormwater Management Plan. Delaware Sediment and Stormwater Regulations also require certain facilities to maintain separate industrial stormwater discharge permit(s) for stormwater discharges associated with operational industrial activities, and certain other non-stormwater discharges. Air transportation facilities, including GED, are considered to be sites that involve industrial activities under Delaware Sediment and Stormwater Regulations.

Sussex County is currently embarking on a project involving improvements to the Eli Walls Tax Ditch in the southwest area of the Airport and extending to a point outside of airport property. The project will involve a realignment of the ditch and an expansion to its overbank floodplain areas. The overall goal of the project is to produce a comprehensive stormwater management banking protocol to account for future development projects that occur at the Airport, including those that are ultimately recommended and implemented as part of this Master Plan Update.

Historically, stormwater management for projects within the Airport Operations Area has been addressed on a project-by-project basis. This approach has led to a lack of system connectivity and the implementation of inefficient stormwater treatment facilities. With the promulgation of the revised Delaware Sediment and Stormwater Regulations in February 2019, the County has determined that a system-wide stormwater management approach would best address the future needs of the Delaware Coastal Airport.

Sussex County has begun the process of creating an Airport Stormwater Master Plan that will focus on the future growth and expansion of the Delaware Coastal Airport. The master plan will address airport stormwater discharges to the two primary receiving conveyance systems: the Eli Walls Tax Ditch and the Peterkins Branch. Stormwater management strategies will focus on both quality and quantity management for discharges during project construction as well as future airport operations. Proposed stormwater Best Management Practices (BMPs) will be designed to

create stormwater quality credits that can be used for future airport projects as defined in this Master Plan Update. Sussex County is also working with the State of Delaware to establish a Stormwater Offset District that will establish stormwater quantity credits that can be used to account for future airport expansion projects. Completion of the Airport Stormwater Master Plan is expected by summer 2023.

3.13. NATURAL RESOURCES AND ENERGY SUPPLY

Use of energy supplies and natural resources is closely linked to the construction of airport improvements and operations. Energy and natural resources are relatively abundant in this Mid-Atlantic Region of the U.S. and planned growth at the Airport is not of sufficient magnitude to alter regional energy demand or limit natural resource availability.

However, anticipated growth and development at the Airport may increase the use of energy and natural resources. Future airport development projects will be evaluated for potential effects on these resources through sufficient NEPA documentation. Methods to reduce potential energy uses will also be developed and considered during the review process for each proposed project.

3.14. CLIMATE

Climate change is a global phenomenon that has been attributed to increasing concentrations of greenhouse gases (GHGs) in the atmosphere. GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Under EO 13693, *Planning for Federal Sustainability*, federal agencies must make efforts to measure, report, and reduce their GHG emissions from direct and indirect activities.

The FAA has not identified a significance threshold for GHG emissions as there is no current accepted method of determining the level of significance applicable to airport projects given the small percentage of emissions they contribute. Any increase in emissions of GHGs as the result of a proposed action at the Airport would be considered negligible in comparison with U.S. annual emissions and therefore would not have a significant impact on global climate change.

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

Under the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Part 1502.1), federal agencies are required to consider the effects on the area population's health, safety risks to children, and socioeconomic impacts. Under 40 CFR 1508.14, the CEQ requires that the human environment be considered for federal projects to address the relationship of people with their natural and physical environments.

3.15.1. Socioeconomics

Principal impacts to be considered include the displacement of families or businesses, effects on

neighborhood characteristics, dividing or disrupting established communities, changing ground transportation patterns, disruption of orderly planned community developments; or creating measurable changes in employment. If land acquisition is necessary for proposed Airport development alternatives, it would be accomplished in accordance with 49 CFR Part 24, *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (Uniform Act) and FAA Advisory Circular 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*. The Uniform Act standardizes real property acquisition policies and requires the uniform and equitable treatment of persons relocated due to a federally assisted project.

Proposed projects will be evaluated for the potential effects on the community economy, social structure, and necessary community health and safety services as specific alternatives are developed during the design process.

3.15.2. Environmental Justice

EO 12898 - *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* directs federal agencies to consider the potential effects of federal actions, including those involving federally obligated airports, to cause a disproportionate and adverse effect upon low-income or minority populations. A breakdown of the economic and demographic environment of the Airport's local community is located in **Chapter 2 Section 1.2**.

An environmental justice (EJ) screening of the area within a 5-mile radius of the Airport property was conducted using the EPA's environmental justice mapping and screening tool EJSCREEN. EJSCREEN evaluates seven select demographic indicators calculated from the Census Bureau's American Community Survey 2016-2020. These demographic indicators include:

- **Percent Minority**- Percent minority as a fraction of the population, where a minority is defined as all but Non-Hispanic White Alone.
- **Percent Low-income**- Percent of individuals whose ratio of household income to the poverty level in the past 12 months was less than 2 (as a fraction of individuals for whom the ratio was determined)
- **Percent in Linguistic Isolation**- Percent of households in which no one age 14 and over speaks English "very well" or speaks English only (as a fraction of households).
- **Percent Less Than High School Education**- Percent of individuals aged 25 and over with less than a high school degree.
- **Percent Under Age 5**- Percent of individuals under age 5 as a fraction of the population.
- **Percent Over Age 64**- Percent of individuals over age 64 as a fraction of the population.
- **Demographic Index**- The Demographic Index in EJSCREEN is a combination of percent low-income and percent minority, the two demographic factors that were explicitly named in Executive Order 12898 on Environmental Justice. For each Census block group, these two numbers are simply averaged together. The formula is as follows:
Demographic Index = (% minority + % low-income) / 2.

A review of the EPA's EJSCREEN data indicates that the Airport and surrounding vicinity have a slightly higher minority population (50% minority population, 70th percentile in the state and 67th percentile nationally) than when compared to the State of Delaware and the USA as a whole. Similarly, the Airport and surrounding vicinity have a higher percentage of low-income

households (56%, 26th percentile in the state and 30th percentile nationally). Detailed maps depicting each of the demographic indicators above are available in **Appendix C**.

Given that the Airport is in an area with a moderate level of minority and low-income populations when compared with the USA, future proposed airport developments may have an impact on these populations. As specific future developments are identified and analyzed through NEPA documentation requirements, their potential to affect minority and low-income populations will be assessed on an individual basis.

3.15.3. Children's Environmental Health and Safety Risks

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed to make identification and assessment of environmental health and safety risks that may disproportionately affect children a high priority. Federal agencies are encouraged to ensure that their policies, programs, and activities address any disproportionate risks children may incur from environmental health and safety risks. These risks are generally attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or to which they may be exposed.

The Airport development alternatives under consideration will not disproportionately affect children, or products and substances they are likely to come in contact with. The closest receptors to the Delaware Coastal Airport include the Layton Park to the west of the Airport and Taxiway A, the Sports at the Beach Complex located within the Runway 22 approach, the Sussex Academy of Arts & Sciences, located approximately ¼ mile to the west of the Airport, the Georgetown Little League Fields located approximately ½ mile west of the Airport, the Delmarva Christian High School located approximately 1 mile south of the Airport on the Runway 4 Approach, and the Georgetown Elementary School located approximately 1 ¼ mile to the west of the Airport.