DRAFT
ENVIRONMENTAL ASSESSMENT FOR INSTALLATION DEVELOPMENT

DOVER AIR FORCE BASE
DOVER, DELAWARE

Prepared on behalf of:

Dover Air Force Base
436th Airlift Wing
331 Main Gateway
Dover Air Force Base, Delaware 19902

JUNE 2022

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DRAFT FINDINGS OF NO SIGNIFICANT IMPACT (FONSI) ENVIRONMENTAL ASSESSMENT

INSTALLATION DEVELOPMENT
DOVER AIR FORCE BASE, DELAWARE

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with future installation development at Dover AFB, Delaware, from Fiscal Year (FY) 2023 through 2028.

The purpose of the Proposed Action is to construct, repair, renovate, and maintain existing assets and infrastructure at Dover AFB from FY 2023 through 2028 to support current and future mission requirements by maintaining and providing needed infrastructure in a manner that:

- Meets current USAF requirements for functional space, consistent with Air Force Manual 32-1084, *Civil Engineering Facility Requirements* (15 January 2020).

- Meets applicable DoD antiterrorism/force protection (AT/FP) criteria, consistent with Unified Facilities Criteria (UFC) 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (19 August 2020).

- Provides reliable utilities and an efficient transportation system to support Dover AFB, consistent with Air Force Manual 32-1084.

- Supports and enhances the morale and welfare of personnel assigned to the installation, their families, and civilian staff, consistent with DoD Instruction 1015.10, *Military Morale, Welfare, and Recreation (MWR) Programs*.

The Proposed Action is needed as many of the facilities at Dover AFB are outdated and deteriorating providing unsafe working conditions. In addition, the deteriorating facilities no longer allow the 436 AW and other tenant units to successfully complete their missions. Aging facilities, the assignment of new or modified missions, and changes in daily activities contribute to the deterioration of infrastructure at Dover AFB.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the Proposed Action and provides environmental protection measures to avoid or reduce adverse environmental impacts. The EA considers all potential impacts of the Proposed Action, and the No-Action Alternative.

PROPOSED ACTION (PREFERRED ALTERNATIVE)

Dover AFB's capacity for future development or mission expansion is determined by examining current supply, demand, and capacity of land uses, facilities, utility systems, or land that could support the mission, quality of life of current and future users of the installation. The Proposed

Action includes the construction of new facilities and infrastructure, renovation of existing facilities, and the demolition of facilities that can reasonably be anticipated to be implemented from FY 2023 through 2028. The Proposed Action would support mission growth and quality of life for installation users. Projects included in the Proposed Action are included below.

Table 1. Projects Included in the Proposed Action

Project Number	Project	Description
	Infrastructure Construction Projects	
1	Relocate the Base Running Track	Construction of a new running track along Evreux Street adjacent to the existing baseball diamond
2	Repair/Construct South Ramp	South Ramp would be repaved and expanded to allow additional parking for aircraft.
3	Repair/Construct Taxiway Hotel	The Taxiway Hotel would be repaired, and new portions would be constructed to ensure applicable aircraft can utilize access to the Hazardous Cargo Pad.
4	Relocate Gate 5	The exiting Gate 5 would be relocated to accommodate more parking in the munitions area.
5	Reconfigure North Gate and Main Gate	*Option A:* The reconfiguration of the Main Gate and North Gate would include a traffic circle.
		Option B: The reconfiguration of the Main Gate and North Gate would include a serpentine approach.
	Renovation and Repair Projects	
6	Repair Perimeter Security Fencing	Damaged portions of the security fence would be replaced with updated fencing.
7	Tree Trimming	Tree trimming will occur in areas where vegetation is overgrown or in areas where tree height jeopardizes aircraft safety.
8	Repair B635	Building 635 will be renovated to provide lifecycle heating, ventilation, and air conditioning (HVAC), electrical, and infrastructure improvements
9	Repair B721	Building 721 will be renovated to provide lifecycle heating, ventilation, and air conditioning (HVAC), electrical, and infrastructure improvements
10	Renovate Building 789	Building 789 will be renovated to house the Logistics Readiness Squadron (LRS) Parts Store.
	Facility Construction Projects	
11	Construct Security Forces Squadron (SFS) Indoor Training Facility	A SFS Indoor Training Facility, approximately 20,000-ft^2 will be constructed.

Project Number	Project	Description
12	Construct Multi-Phase Hangar Complex	Three new aircraft hangars will be constructed and will replace the existing hangars.
13	Construct New Ammunition Storage Facilities	Three 2,200-ft^2 earth-covered magazines one "Navy Box" facility will be constructed as the ammunition storage facility.
	Demolition Projects	
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	The existing ammunition storage facilities will be demolished.
15	Demolition of Facility 716	Building 716 will be demolished.

NO-ACTION ALTERNATIVE

Under the No Action Alternative, the Preferred Alternative would not occur and none of the projects described above would be implemented and conditions at Dover AFB would remain as they currently are to date. Without the construction, renovation, infrastructure, and demolition projects included in the Proposed Action, Dover AFB would be unable to adequately and efficiently support continuing and new mission requirements assigned to the 436 AW and other tenant units and organizations on the base. In addition, Dover AFB would continue to use facilities that are outdated and do not meet safety requirements.

SUMMARY OF FINDINGS

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements. The USAF has concluded that no significant adverse effects would result to the following resources as a result of the Preferred Alternative: noise, land use, air quality, water resources, safety, hazardous materials and wastes, biological resources, cultural resources, earth resources, socioeconomics, and environmental justice. The following best management practices are being implemented to ensure impacts to resources are negligible or minor:

- The use of silt fences, straw bales, and mats that would be implemented to reduce soil erosion and sedimentation and to protect water quality.
- All active construction areas would be fenced to deter unauthorized persons from entering the site.
- Contractors would be required to submit safety plans prior to construction activities commencing.
- Construction workers would be required to perform daily inspections of equipment and store all fuels and other materials in appropriate containers.
- Construction vehicles and equipment would be locked or secured when not in use.

- In the case of inadvertent discovery of archeological materials or human remains during construction, all work will cease upon discovery and the cultural resources manager be notified and implement a series of step to address the discovery.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, I conclude that the Preferred Alternative, future installation development at Dover AFB, Delaware, from Fiscal Year (FY) 2022 through 2028, would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

_____ _____

Commander 436th Mission Support Group Date

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LIST OF ABBREVIATIONS AND ACRONYMS

$\mu g/m^3$	Microgram(s) per cubic meter
436 AW	436th Airlift Wing
ACP	Architectural Compatibility Guide
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
APZ	Accident Potential Zone
AST	Aboveground storage tank
AT/FP	Antiterrorism/Force Protection
BMP	Best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CWA	Clean Water Act
CZ	Clear Zone
dBA	A-weighted decibel(s)
dB	Decibel(s)
DNL	Day/night noise level
DNREC	Delaware Department of Natural Resources and Environmental Control
DoD	Department of Defense
EA	Environmental Assessment
ESA	Endangered Species Act
ft	Foot (feet)
ft^2	Square foot (feet)
FY	Fiscal Year
GHG	Greenhouse gas
HVAC	Heating, ventilation, and air conditioning
IPAC	Information Planning and Conservation
LRS	Logistics Readiness Squadron
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969

NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
$PM_{2.5}$	Particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	Particulate matter less than or equal to 10 microns in diameter
ppb	Part(s) per billion
ppm	Part(s) per million
QD	Quantity distance
SFS	Security Forces Squadron
SIP	State Implementation Plan
SO_2	Sulfur dioxide
tpy	Ton(s) per year
UFC	Unified Facilities Criteria
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground storage tank
VOC	Volatile organic compound

1. PURPOSE OF AND NEED FOR THE ACTION

The 436th Airlift Wing (436 AW) at Dover Air Force Base (AFB) and Headquarters Air Mobility Command (AMC) have prepared this Environmental Assessment (EA) for future installation development at Dover AFB, Delaware, from Fiscal Year (FY) 2023 through 2028. The EA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500–1580; and U.S. Air Force (USAF) policy and procedures (32 CFR Part 989).

1.1 INTRODUCTION

Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figures 1 and 2). Most of the installation is located within the corporate limits of the city of Dover, with the remainder located in Kent County.

The 436 AW hosts several essential groups to fulfill its global airlift mission, including the 436th Mission Support Group, the 436th Operations Group, the 436th Maintenance Group, and the 436th Medical Group. In total, the 436 AW is comprised of 18 squadrons and 12 divisions. Dover AFB is the largest and busiest air freight terminal in the Department of Defense (DoD). The base supports the operations of C-5M Super Galaxy and C-17 Globemaster III transport aircraft. The 436 AW provides strategic airlift in support of the USAF's Global Reach and Global Power mission. It also serves as the active-duty host unit for other tenant units and organizations at Dover AFB. There are 17 tenant units at Dover AFB including the 512th Airlift Wing of the Air Force Reserve Command, Detachment 3 – 373d Training Squadron, the Air Force Mortuary Affairs Office, the Joint Personnel Effects Depot, the Armed Forces Medical Examiner, the AMC Museum, and the Civil Air Patrol (Dover AFB 2016).

Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission. Each year, existing structures are demolished, new buildings are constructed, and infrastructure is upgraded and improved. Dover AFB uses space optimization, historic preservation, and sustainable design as principles in installation development to enhance livability, reduce energy consumption, improve mission capability, and increase connection to the local community and the natural environment (Dover AFB 2015).

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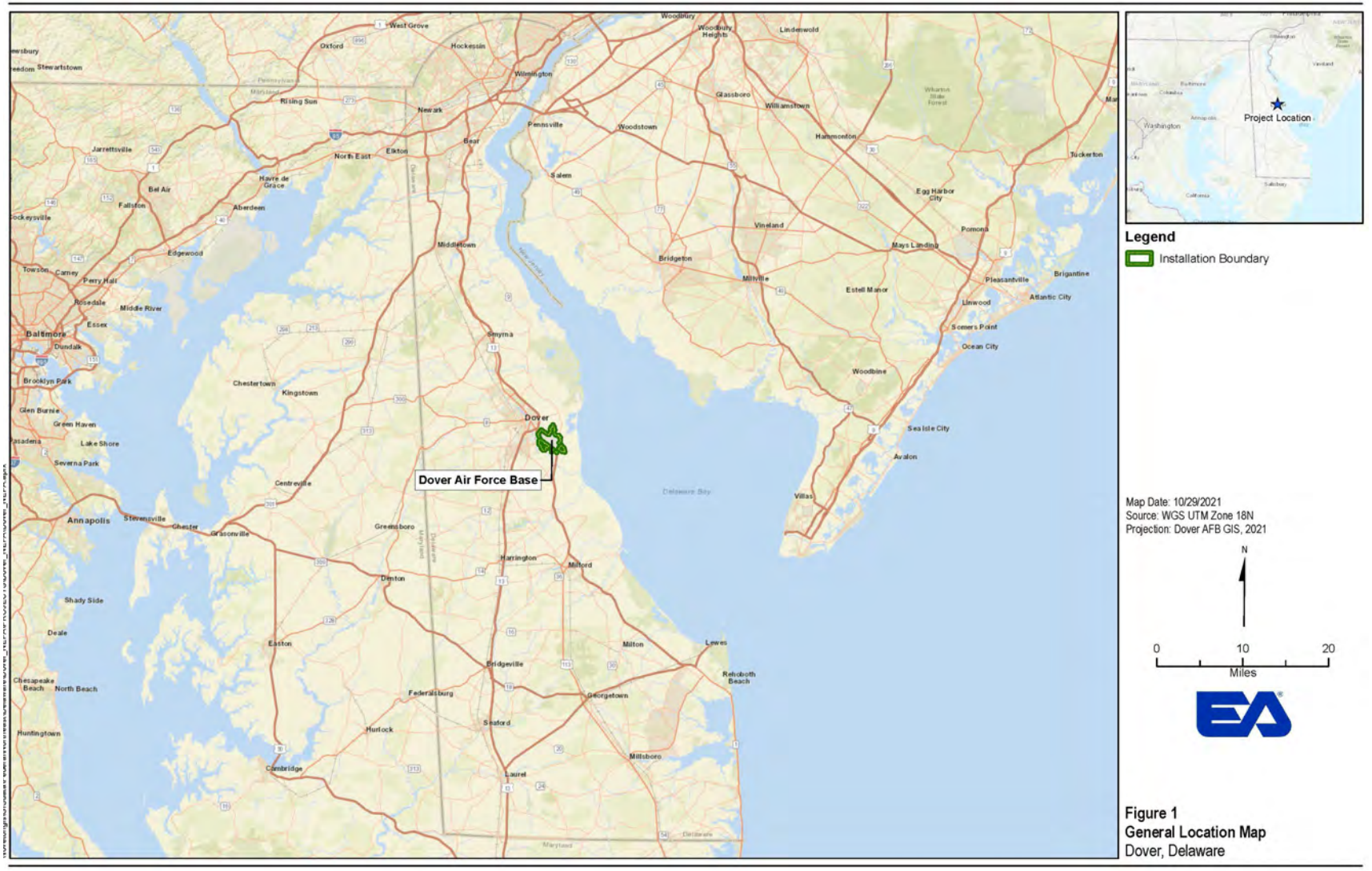


Figure 1
General Location Map
Dover, Delaware

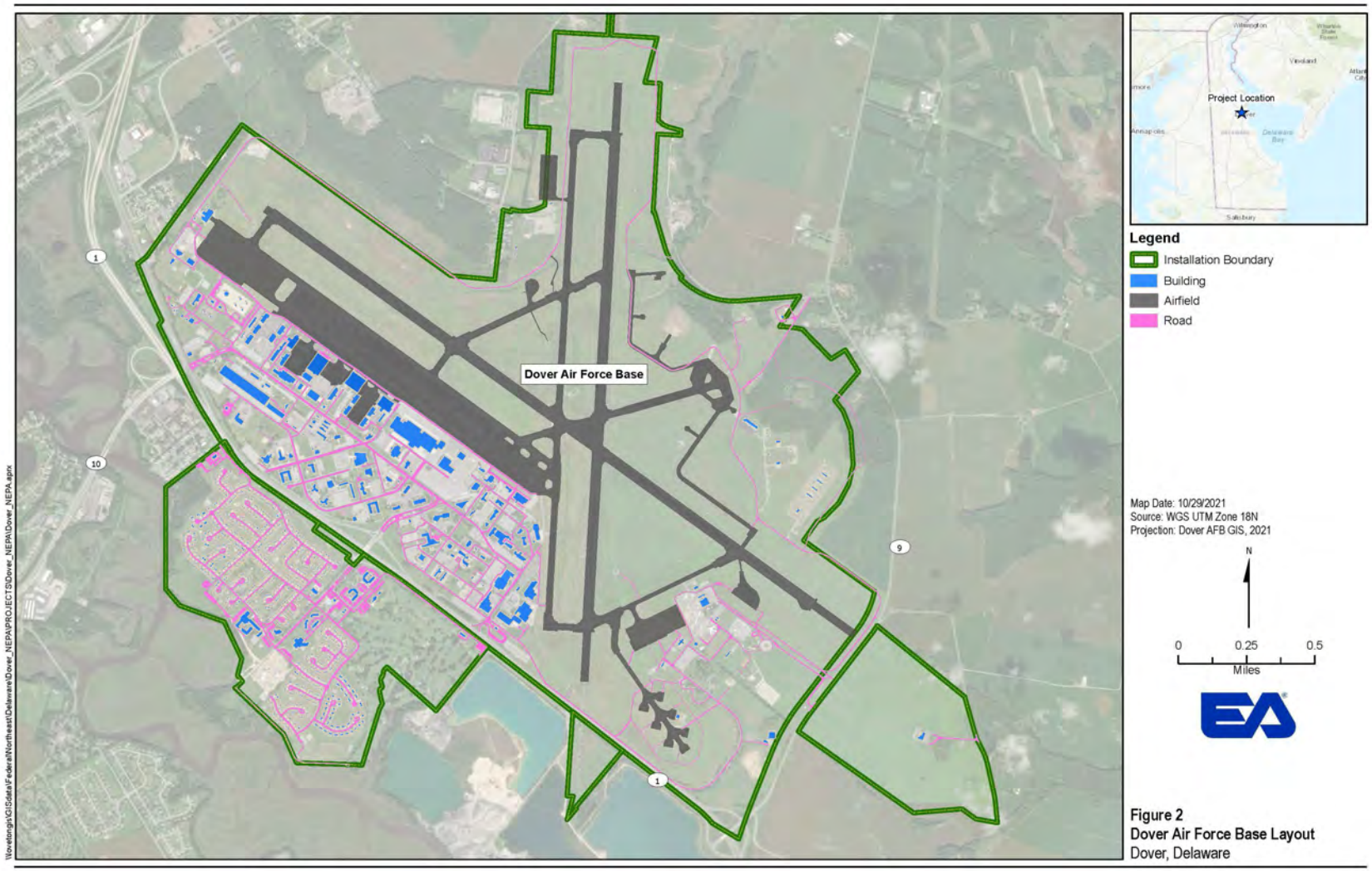


Figure 2
Dover Air Force Base Layout
Dover, Delaware

1.2 PURPOSE OF THE ACTION

The purpose of the Proposed Action is to construct, repair, renovate, and maintain existing assets and infrastructure at Dover AFB from FY 2023 through 2028 to support current and future mission requirements by maintaining and providing needed infrastructure in a manner that:

- Meets current USAF requirements for functional space, consistent with Air Force Manual 32-1084, *Civil Engineering Facility Requirements* (15 January 2020).
- Meets applicable DoD antiterrorism/force protection (AT/FP) criteria, consistent with Unified Facilities Criteria (UFC) 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (19 August 2020).
- Provides reliable utilities and an efficient transportation system to support Dover AFB, consistent with Air Force Manual 32-1084.
- Supports and enhances the morale and welfare of personnel assigned to the installation, their families, and civilian staff, consistent with DoD Instruction 1015.10, *Military Morale, Welfare, and Recreation (MWR) Programs*.
- Follows applicable standards for resilient built installation infrastructure in the *DoD Climate Adaptation Plan* (1 September 2021).

1.3 NEED FOR THE ACTION

The Proposed Action is needed as many of the facilities at Dover AFB are outdated and deteriorating providing unsafe working conditions. In addition, the deteriorating facilities no longer allow the 436 AW and other tenant units to successfully complete their missions. Aging facilities, the assignment of new or modified missions, and changes in daily activities contribute to the deterioration of infrastructure at Dover AFB.

Table 1 includes a specific purpose and need for each individual project included in the Proposed Action.

Table 1. Purpose and Need for Each Project

Project	Purpose and Need
Infrastructure Construction Projects	
Relocate the Base Running Track	The purpose of relocating the base running track is to enhance community and recreation support. The new location is more efficient for required physical fitness testing as staff that administers tests are currently located in Building 423. This also removes excess traffic from the existing location that currently is adjacent to a new hangar.
Repair/Construct South Ramp	The South Ramp would be repaired/constructed because a parking area is needed for applicable aircraft.

Project	Purpose and Need
Repair/Construct Taxiway Hotel	The Taxiway Hotel would be repaired, and new portions would be constructed to ensure applicable aircraft can utilize access to the Hazardous Cargo Pad.
Relocate Gate 5	The purpose of relocating Gate 5 is to provide controlled entry to the base for munitions cargo and to provide a holding and inspection area, exit road, and security barriers. The existing gate does not have an assigned inspection area and the holding and parking areas for trucks is very limited.
Reconfigure North Gate and Main Gate	The purpose of reconfiguring North Gate and Main Gate is to slow down the traffic approaching the Active Vehicle Barrier in order to give enough time to activate the vehicle barrier to stop any unauthorized vehicles from entering the base. This is required due to compliance issue related to Security Forces response.
Renovation and Repair Projects	
Repair Perimeter Security Fencing	Damaged portions of the security fence would be replaced with updated fencing to meet AT/FP requirements.
Tree Trimming	Tree trimming will occur in areas where vegetation is overgrown or in areas where tree height jeopardizes aircraft safety. This will ensure continued flight safety requirements are met.
Repair B635	The purpose of renovating Building 635 is to provide lifecycle heating, ventilation, and air conditioning (HVAC), electrical, and infrastructure improvements to the facility as the building is outdated and in need of upgrades.
Repair B721	The purpose of renovating Building 721 is to provide lifecycle HVAC, electrical, and infrastructure improvements to the facility as the building is outdated and in need of upgrades.
Renovate Building 789	The purpose of renovating Building 789 is to house the Logistics Readiness Squadron (LRS) Parts Store which is currently located in Building 639.
Facility Construction Projects	
Construct Security Forces Squadron (SFS) Indoor Training Facility	The purpose is to construct a new indoor training facility for use by the SFS. Security Forces is currently using an abandoned hangar that is not up to code or does not support the mission.
Construct Multi-Phase Hangar Complex	The purpose is to construct three new aircraft hangars which would replace existing hangars. This would expand Dover AFB mission capabilities in the form of allowing more work to be done away from weather elements. The existing two hangars are not up to code and will be demolished prior to construction.
Construct New Ammunition Storage Facilities	The purpose is to construct a new ammunition storage facility to replace the existing, aging structures.
Demolition Projects	
Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	The purpose is to demolish the existing ammunition storage facilities that are in poor condition.

Project	Purpose and Need
Demolition of Facility 716	The purpose is to demolish Building 716 because the facility is outdated and cannot be reutilized in the current condition.

1.4 DECISIONS TO BE MADE

The decision to be made is the selection of an alternative for Dover AFB to support future installation development. The decision options are:

1. Continue with current operations (the No Action Alternative);

2. Select an alternative and prepare a Finding of No Significant Impact; or

3. Prepare an Environmental Impact Statement (EIS) if the alternatives would result in significant environmental impacts.

1.5 INTERGOVERNMENTAL COORDINATION/CONSULTATIONS

1.5.1 Interagency Coordination and Consultations

The Intergovernmental Coordination Act and EO 12372, Intergovernmental Review of Federal Programs, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, which was rescinded, required the USAF to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning. It was used for the purpose of agency coordination and to implement scoping requirements (i.e., to determine the scope of issues to be addressed in detail in a NEPA document). Through the interagency coordination and consultation process, Dover AFB will notify relevant federal, state, and local agencies about the Proposed Action and alternatives. The coordination and consultation process provides Dover AFB the opportunity to cooperate with and consider state and local views in implementing the Proposed Action or alternatives. Consultation letters containing a description of the Proposed Action and alternatives were submitted to federal, state, and local agencies. These consultation letters provided the means to comment on the Proposed Action and alternatives. Federal, state, and local agencies will also receive a copy of the Draft EA and will have the opportunity to comment on the document. The comment period will last for 30 days. Agency responses will be incorporated into the analysis of potential environmental impacts as part of the development of the EA. Appendix A contains the list of agencies that were consulted with regarding this action.

1.5.2 Government to Government Consultations

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (6 November 2000), directs federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. To comply with legal mandates, federally recognized tribes that are affiliated historically with the Dover AFB geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal coordination process is distinct from NEPA consultation or

the Interagency/Intergovernmental Coordination for Environmental Planning processes and requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. AFI 90-2002 requires government to government consultation. Communication occurs between the Tribal Historic Preservation Officer for the tribe and the Installation Tribal Liaison Officer at Dover AFB. The Native American tribal governments that were coordinated with regarding this action are listed in Appendix A.

1.6 PUBLIC AND AGENCY REVIEW OF THE ENVIRONMENTAL ASSESSMENT

Following development of the EA and prior to signature of the Finding of No Significant Impact (if applicable), a Notice of Availability will be published in the *Delaware State News*. The Notice of Availability will initiate a 30-day public review period. If public comments are received, they will be incorporated into the analysis, as appropriate, and included as an appendix to the Final EA.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

Dover AFB's capacity for future development or mission expansion is determined by examining current supply, demand, and capacity of land uses, facilities, utility systems, or land that could support the mission, quality of life of current and future users of the installation. The Proposed Action includes the construction of new facilities and infrastructure, renovation of existing facilities, and the demolition of facilities that can reasonably be anticipated to be implemented from FY 2023 through 2028. The Proposed Action would support mission growth and quality of life for installation users. The list of projects included in the Proposed Action is included in Table 1. Locations of each project are included in Figure 3. A brief description of each project is provided below.

All new facilities would be designed in accordance with the following applicable criteria, standards, and guidelines:

- AMC Civil Engineering Squadron Design Guide – This guide provides the basic criteria to organize, evaluate, plan, program, and design AMC civil engineer facilities.

- Dover AFB Architectural Compatibility Guide (ACP) – The purpose of the ACP is to define design standards for buildings, site development, and streetscapes that serve to integrate the visual character throughout the base. This guidance helps to ensure a consistent and coherent architectural character throughout Dover AFB.

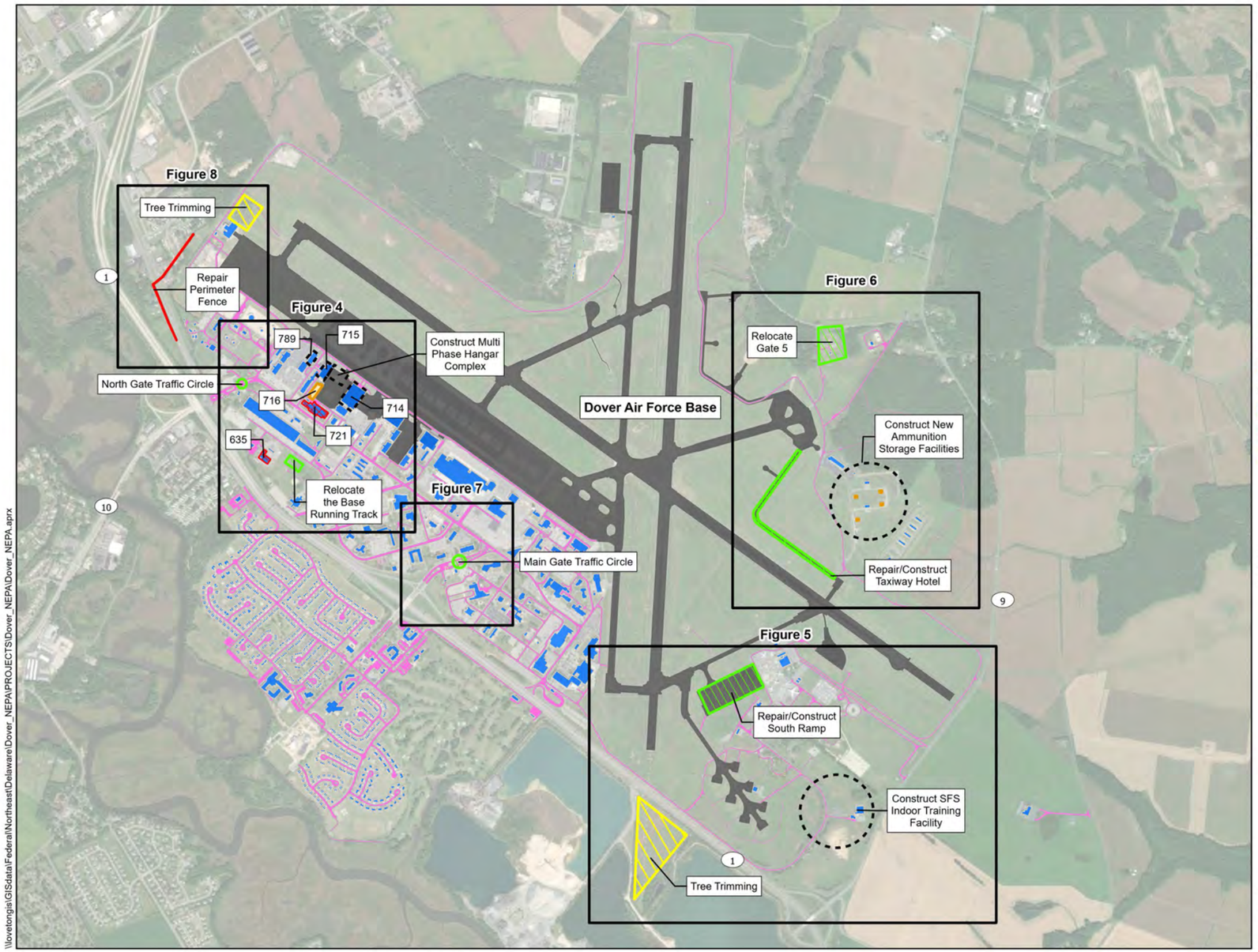
- DoD Minimum Antiterrorism Standards for Buildings – The purpose of this standard is to establish minimum engineering standards that incorporate antiterrorism-based mitigating measures where no identified threat or level of protection has been determined in accordance with UFC 4-020-01.

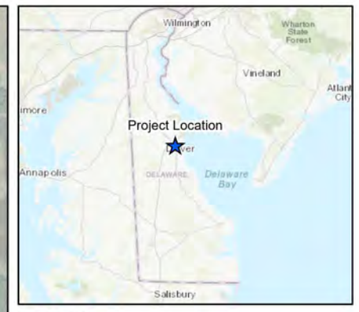
- USAF Installation Force Protection Guide – The purpose of this document is to provide general guidance on force protection issues for the planning, design, and construction of USAF installations and facilities to reduce the vulnerability of USAF personnel to terrorist attacks. Force protection refers to measures designed to protect personnel, facilities, and equipment that support national defense missions.

- Air Installation Compatible Use Zone (AICUZ) Guidance - Guidance includes Air Force Handbook 32-7084*, AICUZ Program Manager's Guide*; Air Force Instruction 32-706, *AICUZ Program*, and DoD Instruction 4165.57, *AICUZ*. Overall, these guidance assists the USAF in promoting compatible development within AICUZ area of influence and protects USAF operational capability from the efforts of land use which are incompatible with aircraft operations.

- Unified Facilities Criteria 3-260-01, *Airfield and Heliport Planning and Design* - This manual provides standardized airfield, heliport, and airspace criteria for the layout,

design, and construction of runways, taxiways, aprons, and landing zones, and facilities to meet sustained operations.





Legend

- Building
- Airfield
- Road

Projects by Category

- Demolition Project
- Facility Construction Project
- Infrastructure Construction Project
- Renovation and Repair Project
- Tree Trimming

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 0.25 0.5
Miles

Figure 3
Locations of Proposed Action
Dover, Delaware

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Construction and demolition activities would generally involve ground disturbance by heavy construction equipment such as excavators, backhoes, bulldozers, graders, wheel rollers, and dump trucks. The disturbances would occur within designated staging areas and the locations of each individual project. (Figure 3). All new construction and renovations would comply with applicable building, fire, and safety codes, and would be in accordance with the Dover AFB Wing-approved community of plans. Stormwater generated by the new facilities would be conveyed to Dover AFB's existing regional stormwater management system rather than being managed on site. Dover AFB's existing stormwater system is composed of human-made drainage ditches, weirs, check dams, and engineered wetlands. The system is designed in such a way that stormwater generated on the base is treated, and its velocity is slowed, prior to being discharged into receiving water bodies near the installation. Managing stormwater in this way would comply, as applicable, with the Energy Policy Act of 2005 (Public Law 109-58) and Executive Order 13423 (*Strengthening Federal Environmental, Energy, and Transportation Management*). Landscaping consisting of native vegetation would be used where appropriate to enhance the visual quality of the new facilities and the installation.

2.1.1 Infrastructure Construction Projects

Project 1: Relocate the Base Running Track
This project would include the construction of a new running track along Evreux Street adjacent to the existing baseball diamond (Figure 4). The running track would be standard track size (one-quarter mile) and sited on an open grass field. Relocating the track to this area would be more efficient for required physical fitness testing as staff and administrators are currently located in Building 423. (Dover AFB 2015).

Project 2: Repair/Construct South Ramp
This project would include repairing and constructing the South Ramp which is located on the south side of the airfield adjacent to the Aircraft Museum (Figure 5). The South Ramp is currently used for transient aircraft parking. The existing ramp would be repaved and expanded to allow additional parking for aircraft. The South Ramp is a secondary-ranked pavement area, in poor condition and in need of timely repairs in order to arrest its rate of deterioration. In addition to pavement repairs, another project requirement is to accommodate three C-17 aircraft parking positions and mitigate two existing permanent waivers related to spots 5 and 6 violating the Runway 01 clear zone (DOV5041P) and non-standard lines for C-5 and C-17 taxi training between rows D and E (DOV5062P). To mitigate DOV5041P, the existing apron would be reduced to not less than 1,036 feet (ft) in length and increased to not less than 660 ft in width. The existing apron would be rehabilitated by demolition of existing pavements and reconstruction with portland cement concrete. The pavement geometry and markings would be revised to accommodate movement and parking of three C-17 aircraft. Aircraft tiedowns and ground points would be provided at each position. A new taxiway connector between the South Ramp and Taxiway Foxtrot would be constructed. In addition, new high mast apron lighting and a new jet blast deflector fence behind each parking position would be installed.

Project 3: Repair/Construct Taxiway Hotel
This project would include repairing portions of Taxiway Hotel which is located on the east side of the runway (Figure 6). Taxiway Hotel is an essential asset for Dover AFB as it provides a

second apron access taxiway to and from the Hazardous Cargo Pad and it significantly improves the efficiency of airfield operations. However, Taxiway Hotel is in poor condition and largely unused (Dover AFB 2021b). Approximately 1,450 linear ft of Taxiway Hotel would be reconstructed between the Hazardous Cargo Apron extending directly toward Runway 14-32. Approximately 2,200 linear ft of Taxiway Hotel running parallel to Runway 14-32 would be demolished. Paved shoulders and taxiway edge lighting would be provided to bring the taxiway in compliance with current standards. A new 450-linear-ft section of taxiway pavement would allow Taxiway Hotel to continue directly to Runway 14-32. The new intersection of Taxiway Hotel and Runway 14-32 requires runway pavement at the intersection to be upgraded to Type A medium traffic, similar to Taxiway Hotel. The runway pavement would be upgraded to portland cement concrete pavement to support aircraft turning action. A new 850-linear-ft connector taxiway would be constructed between Taxiway Hotel and Taxiway Delta.

Project 4: Relocate Gate 5

This project would include the construction of a new access gate (Gate 5) for the munitions area in the vicinity of Building 1219 located in the northeast portion of the base (Figure 6). The new access gate would include a truck holding area, inspection lanes for trucks, inspection canopy, access road to the base and an exit road for trucks. Building 129 would be renovated to be utilized as a possible gatehouse. The holding area, approximately 30,000 square feet, inspection lanes, approximately 10,000 square feet and exit road, approximately 11160 square feet, would be constructed with Portland Cement Concrete. The existing access road, approximately 1,000 feet would be replaced with asphalt and widened as needed to comply with the design standards. Security gates would be installed at the truck entrances and exit. A security fence would be installed as required for protection from unauthorized vehicles and personnel.

The trucks conveying munitions cargo to the base would use Gate 5 for entry and exit. The trucks would be inspected at this Entry Control Facility before entering the base. The holding area serves the purpose of providing safe parking for trucks waiting for inspection. The covered inspection area with the amenities for truck inspection would provide a shelter from adverse weather and a safe place to perform the inspection efficiently. The exit road serves the rejected trucks as well as the regular exit traffic. The security barriers at the entrance and exit would prevent unauthorized trucks and other vehicles from entering the base..

Project 5: Reconfigure North Gate and Main Gate

This project would modify the entrances at Main Gate and North Gate at Dover AFB (Figures 4 and 7). The objective is to alter the approach between the security check stations and the active vehicle barrier. The project would comply with UFC 4-022-01/02 and UFC 3-250-01. This project would create a device to slow down the traffic approaching the Active Vehicle Barrier in order to give enough time to activate the vehicle barrier to stop any unauthorized vehicles from entering the base.

Option A: The reconfiguration of the Main Gate and North Gate would include a traffic circle.

Option B: The reconfiguration of the Main Gate and North Gate would include a serpentine approach.

2.1.2 Renovation and Repair Projects

Project 6: Repair Perimeter Fencing
This project includes replacing damaged areas of the perimeter fence with updated fencing. Damaged fencing would be removed and replaced with green vinyl-clad chain-link fencing. The area proposed for replacement is located adjacent to the existing running track in the west end of the base (Figure 8).

Project 7: Tree Trimming
This project includes trimming trees to the appropriate height to ensure continued flight safety requirements are met. Proposed locations include the forested area on the northwestern end of the runway and the forested area at the southern end of the runway adjacent to Bay Road (Route 1) (Figures 5 and 8).

Project 8: Repair Building 635
Building 635 is located just northwest of the baseball playing field and proposed running track (Figure 4). This project would renovate the interior of the building focusing on replacing the outdated HVAC system and electrical system. Some reconfiguration of infrastructure within the building would also occur. No exterior expansion or demolition would occur.

Project 9: Repair Building 721
Building 721 is located along Atlantic Street near the existing aircraft hangar (Figure 4). This project would renovate the interior of the building focusing on replacing the outdated HVAC system and electrical system. Some reconfiguration of infrastructure within the building would also occur. No exterior expansion or demolition would occur.

Project 10: Renovate Building 789
Building 789 is located adjacent to the east end of the aircraft parking area along 1st Street (Figure 4). This project would renovate the 16,000-square-foot (ft^2) building to become the LRS New Parts Store which is currently operating out of Building 639. Some reconfiguration of infrastructure within the building would occur.

2.1.3 Facility Construction Projects

Project 11: Construct SFS Indoor Training Facility
This project includes the construction of an approximately 20,000-ft^2 SFS Indoor Training Facility. The facility would be constructed in the open mowed area in the southern portion of the base in proximity to Building 1400 and Building 1403 (Figure 5). During construction, the equipment staging area would be approximately 400 ft^2. The indoor training facility would be used by Security Forces.

Project 12: Construct Multi-Phase Hangar Complex
This project includes the construction of a hangar complex located along the northeastern portion of the flightline between Buildings 714 and 715 (Figure 4). Hangars 714 and 715 would be demolished and three stand-alone hangars large enough to allow for the aircraft to be fully enclosed would be constructed. Each hangar would be approximately 84,500 ft^2 (Dover AFB 2015). The configuration of the hangars would allow aircraft to be towed straight in and out of

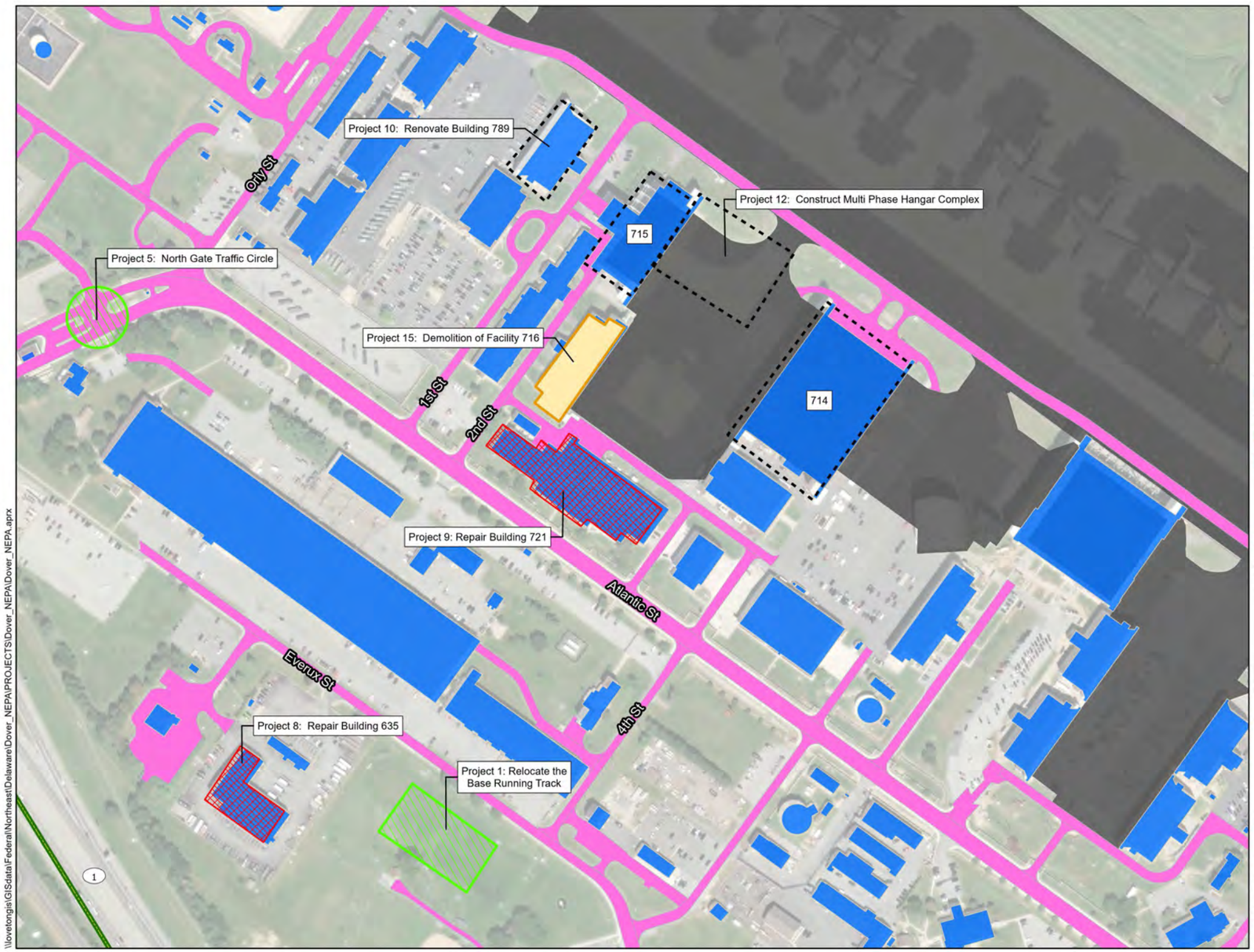
the facility. During construction, the staging area would be approximately 2,000 ft^2. Construction of the hangar complex is proposed to be implemented in a phased approach. Each hangar would take approximately 2 years to construct.

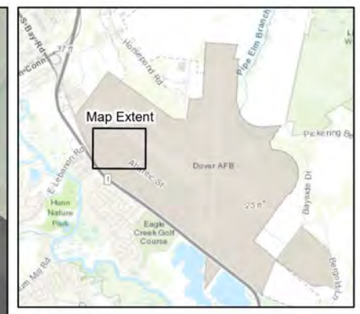
Project 13: Construct New Ammunition Storage Facilities
This project would include the construction of four new ammunition storage facilities. The facilities would be located within the vicinity of the current ammunition storage facilities along the eastern portion of the base (Figure 6). New ammunition storage facilities are needed to accommodate munitions storage and safety requirements as the existing structures are deteriorating (Dover AFB 2015). The new facilities would include three 2,200-ft^2 earth-covered magazines with smaller, compartmentalized storage capabilities and one "Navy Box" facility. The construction of each magazine would take approximately 1 year, and the "Navy Box" would take approximately 2 years.

2.1.4 Demolition Projects

Project 14: Demolition of Facilities 1201, 1203, 1204, 1206, and 1207
This project includes the demolition and removal of Facilities 1201, 1203, 1204, 1206, and 1207. These buildings are located within the eastern portion of the base (Figure 6). The buildings are currently used for munitions storage and are deteriorating and do not meet safety standards. Following demolition, the sites would be stabilized and returned to a permeable condition until needed for future development.

Project 15: Demolition of Facility 716
This project includes the demolition and removal of Building 716. Building 716 is located along the northeastern portion of the flightline on 2nd Street adjacent to Building 715 (Figure 4). Building 716 served as the Jet Engine Maintenance Shop and was in poor condition. The building is currently vacant and the relocation of personnel has already occurred since the building was deteriorating. The building also needs to be demolished as it is in the footprint of the Phase I of the Hangar Complex. Following demolition, the sites would be stabilized and returned to a permeable condition until needed for future development. The Jet Engine Maintenance Shop was moved to Building 719.





Legend

- Installation Boundary
- Building
- Airfield
- Road

Projects by Category

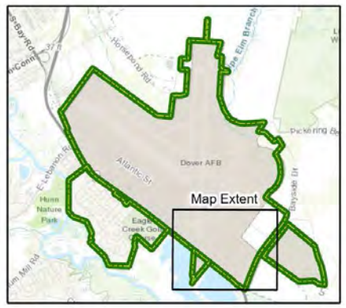
- Demolition Project
- Facility Construction Project
- Infrastructure Construction Project
- Renovation and Repair Project

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 250 500
Feet

Figure 4
Locations of Projects 1, 5, 8, 9, 10, 12, and 15
Dover, Delaware



Legend

- Installation Boundary
- Building
- Airfield
- Road

Projects by Category

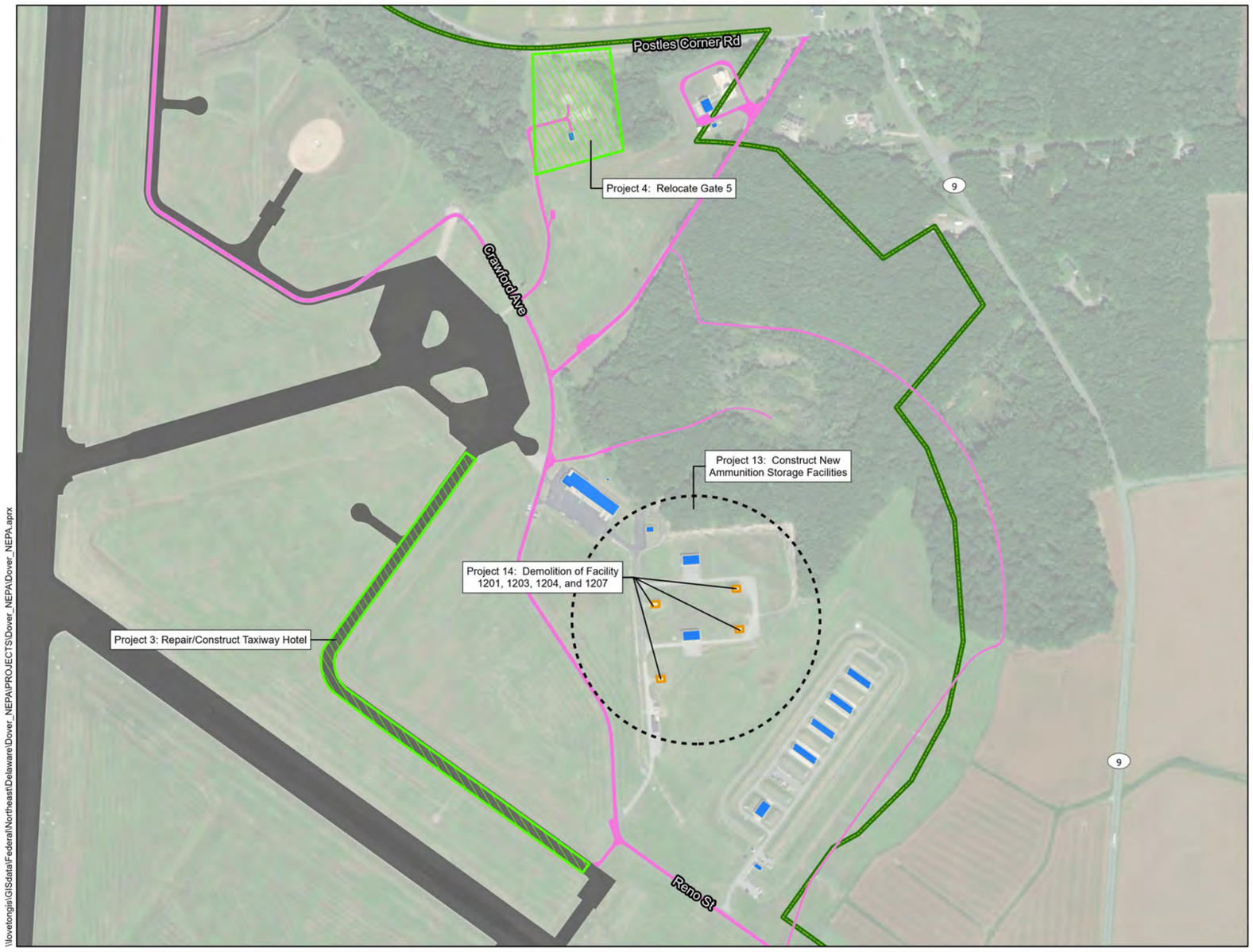
- Facility Construction Project
- Infrastructure Construction Project
- Tree Trimming

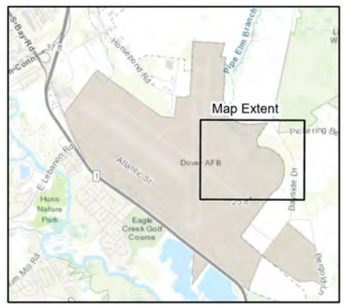
Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 500 1,000
Feet

Figure 5
Locations of Projects 2, 7, and 11
Dover, Delaware





Legend

- Installation Boundary
- Building
- Airfield
- Road

Projects by Category

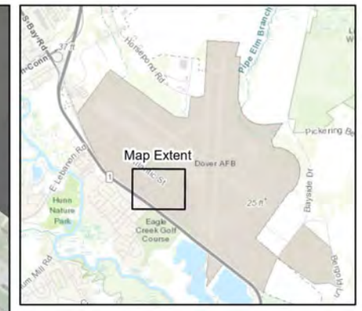
- Demolition Project
- Facility Construction Project
- Infrastructure Construction Project

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 500 1,000
Feet

Figure 6
Locations of Projects 3, 4, 13, and 14
Dover, Delaware



Legend

- Installation Boundary
- Building
- Airfield

Projects by Category

- Infrastructure Construction Project

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 250 500
Feet

Figure 7
Location of Project 5
Dover, Delaware

Figure 8
Locations of Projects 6 and 7
Dover, Delaware

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2.2 SELECTION STANDARDS

The NEPA and CEQ regulations mandate the consideration of reasonable alternatives for the Proposed Action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the Proposed Action. Per the requirements of 32 CFR Part 989, the USAF Environmental Impact Analysis Process regulations, selection standards are used to identify alternatives for meeting the purpose and need for the USAF action.

The Proposed Action alternatives must meet the following selection standards:

- Meets current USAF requirements for functional space, consistent with Air Force Manual 32-1084, *Civil Engineering Facility Requirements* (15 January 2020).
- Meets applicable DoD AT/FP criteria, consistent with UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (19 August 2020).
- Provides reliable utilities and an efficient transportation system to support Dover AFB, consistent with Air Force Manual 32-1084.
- Supports and enhances the morale and welfare of personnel assigned to the installation, their families, and civilian staff, consistent with DoD Instruction 1015.10, *Military Morale, Welfare, and Recreation (MWR) Programs*.
- Meets the overall purpose and need, and the project-specific purpose and need.
- Makes as much use as possible of existing land and facilities, avoid creating or maintaining redundant space or infrastructure, and avoid or minimize operational inefficiencies.
- Consistent with known human-made and natural constraints (safety distances, runway, wetlands). The constraints may vary depending on the project.

2.3 SCREENING OF ALTERNATIVES

This section describes the potential alternatives considered for each project and how each was assessed relative to the selection standards. Project alternatives that met all selection standards were considered reasonable and retained for consideration in this EA. Alternatives that did not meet one or more of the selection standards were considered unreasonable and were not retained for consideration in the EA. Table 2 includes alternatives considered for each project.

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Table 2. Alternatives Considered

Project	Project Description	Alternative Considered	Selection Standard Not Met	Reason for Dismissal
Infrastructure Construction Projects				
1	Relocate Base Running Track	Construct a recreational campus that would include a single Mixed-Use Facility to allow for development of a Multi-Use Track and Sports Field.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	The proposed site is small and has many new developments already constructed; therefore, there is not enough available area for a running track.
2	Repair/Construct South Ramp	Maintain Taxiway Echo access with taxilanes on the east side of the apron.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	This alternative would require mobile lighting on the back of aircraft due to inadequate lighting conditions during nighttime operations. Access to the apron from Taxiway Echo would be affected during inclement weather.
		Maintain Taxiway Echo access with taxilanes on the west side of the apron.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	This alternative would impact Runway 01 glideslope critical area when aircraft use the western primary peripheral taxilane. Access to the apron from Taxiway Echo would be affected during inclement weather.
3	Repair/Construct Taxiway Hotel	Rehabilitate Taxiway Hotel in its existing geometry	Consistent with known human-made and natural constraints (safety distances, runway, wetlands). The constraints may vary depending on the project.	Taxiway Hotel is currently only 500 ft from the Runway 14-32 centerline and this option maintains the non-standard condition of the taxiway within the clear area (Dover AFB 2021b)

Project	Project Description	Alternative Considered	Selection Standard Not Met	Reason for Dismissal
		Rehabilitate the portion of Taxiway Hotel perpendicular to Runway 14-32 and demolish the portion of the taxiway that is parallel to the runway. Construct an extension of Taxiway Hotel and Taxiway Alpha.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	The amount of pavement required for this option results in the highest increase of impervious area on the airfield.
4	Relocate Gate 5	Relocate Gate 5 to a property Dover AFB was trying to purchase.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	The land purchase was not approved by USAF Headquarters.
5	Reconfigure North Gate and Main Gate	Reconfigure North Gate and Main Gate with a serpentine approach.	Meets selection criteria	Alternative carried forward in analysis.
Renovation and Repair Projects				
6	Repair Perimeter Fencing	No proposed alternatives	N/A	
7	Tree Trimming	Tree removal	Meets the overall purpose and need, and the project-specific purpose and need.	Tree removal would create adverse impacts to vegetation, and wildlife, including bat species due to habitat loss
8	Repair Building 635	Construct a new building	Makes as much use as possible of existing land and facilities,	Constructing a new Building 635 was eliminated from further consideration. Due

Project	Project Description	Alternative Considered	Selection Standard Not Met	Reason for Dismissal
			avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	to financial limitations, it was more feasible to repair the building than to construct a new facility.
9	Repair Building 721	Construct a new building.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	Constructing a new Building 721 was eliminated from further consideration. Due to financial limitations, it was more feasible to repair the building than to construct a new facility.
10	Renovate Building 789	Construction of a new LRS New Parts Store.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	Constructing a new LRS Parts Store was eliminated from further consideration. Due to financial limitations, it was more feasible to renovate Building 789 than to construct a new facility.
Facility Construction Projects				
11	Construct SFS Indoor Training Facility	Utilize Building 716 for the Indoor Training Facility	Meets the overall purpose and need, and the project-specific purpose and need.	The location of Building 716 is not supportive to the Security Forces Training area near the firing range; Building 716 is also the location for the newly enclosed hangars which is limited to the close proximity to the airfield. In addition, Building 716 space is needed for the new hangar complex.
		Utilize Building 613 for the Indoor Training Facility	Meets the overall purpose and need, and the project-specific purpose and need.	Building 613 is not configured to support a training facility.

Project	Project Description	Alternative Considered	Selection Standard Not Met	Reason for Dismissal
12	Construct Multi-Phase Hangar Complex	Moving Mobile Tail Enclosure to Hangar 715 and demolishing H714 replacing with one fully enclosed hangar.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	While repairs to infrastructure such as electrical, HVAC, and flooring can occur at a cost, the hangars were not designed for the existing Dover aircraft. The configuration of Hangar 715 prohibits supporting fully enclosed aircraft.
		Demolishing Hangar 714 and constructing one hangar large enough to accommodate two aircraft fully enclosed.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	While repairs to infrastructure such as electrical, HVAC, and flooring can occur at a cost, the hangars were not designed for the existing Dover aircraft. The configuration of Hangar 715 prohibits supporting fully enclosed aircraft.
		Demolishing Hangars 714 and 715 and constructing one hangar large enough to accommodate three aircraft fully enclosed (Dover AFB 2021c).	Meets the overall purpose and need, and the project-specific purpose and need. Provides reliable utilities and an efficient transportation system to support Dover AFB, consistent with Air Force Manual 32-1084.	There are concerns of potential failure to a building component impacting all three hangars if constructing one large facility. Construction of one facility would also impact the flying mission for 2 years during the construction period.
13	Construct New Ammunition Storage Facilities	Repair existing ammunition storage facilities.	Meets the overall purpose and need, and the project-specific purpose and need.	Repairing the existing facilities would cost more than constructing a new facility. Repairing the buildings would impact storage requirements during renovation.
Demolition Projects				
14	Demolition of Facilities 1201,	Repair facilities.	Makes as much use as possible of existing land and facilities, avoids creating or maintaining	The cost of the repair of the munition storage facilities will exceed the replacement value. In addition, the existing

Project	Project Description	Alternative Considered	Selection Standard Not Met	Reason for Dismissal
	1203, 1204, 1206, and 1207		redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	configuration cannot support the current mission and equipment.
15	Demolition of Facility 716	Repair facility	Makes as much use as possible of existing land and facilities, avoids creating or maintaining redundant space or infrastructure, and avoids or minimizes operational inefficiencies.	The cost of the repair Building 716 will exceed the replacement value. In addition, the location of Building 716 is included in the space needed for the new hangar complex.

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2.4 DETAILED DESCRIPTIONS OF THE ALTERNATIVES

2.4.1 Alternative 1 - Proposed Action Alternative

Under the Proposed Action Alternative, the projects described in Section 2.1 would be implemented.

2.4.2 Alternative 2 – No-Action Alternative

Under the No Action Alternative, none of the projects described in Section 2.1 would be implemented and conditions at Dover AFB would remain as they currently are to date. Without the construction, renovation, infrastructure, and demolition projects included in the Proposed Action, Dover AFB would be unable to adequately and efficiently support continuing and new mission requirements assigned to the 436 AW and other tenant units and organizations on the base. In addition, Dover AFB would continue to use facilities that are outdated and do not meet safety requirements. For these reasons, the No Action Alternative cannot be considered a reasonable alternative. However, CEQ regulations require consideration of the No Action Alternative for all Proposed Actions. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared. The No Action Alternative will be evaluated in the EA as an alternative considered.

2.5 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

As none of the other alternatives that were considered would meet the purpose and need, the following alternatives have been eliminated from further consideration:

- Construct a recreational campus that would include a single Mixed-Use Facility to allow for development of a Multi-Use Track and Sports Field.
- Maintain Taxiway Echo access with taxilanes on the east side of the apron.
- Maintain Taxiway Echo access with taxilanes on the west side of the apron.
- Rehabilitate Taxiway Hotel in its existing geometry.
- Rehabilitate the portion of Taxiway Hotel perpendicular to Runway 14-32 and demolish the portion of the taxiway that is parallel to the runway. Construct an extension of Taxiway Hotel and Taxiway Alpha.
- Relocate Gate 5 to a property Dover AFB was trying to purchase.
- Tree removal
- Construct a new Building 721.
- Construct a new LRS New Parts Store.

- Utilize Building 715 for the Indoor Training Facility.
- Utilize Building 613 for the Indoor Training Facility.
- Move Mobile Tail Enclosure to Hangar 715 and demolish H714 replacing with one fully enclosed hangar.
- Demolish Hangar 714 and constructing one hangar large enough to accommodate two aircraft fully enclosed.
- Demolish Hangars 714 and 715 and constructing one hangar large enough to accommodate three aircraft fully enclosed.
- Repair existing ammunition storage facilities.
- Repair Building 716.

These alternatives are not carried forward for analysis in this EA.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 SCOPE OF THE ANALYSIS

This chapter describes the current conditions of the environmental resources, either human-made or natural, that would be affected by implementing the Preferred Alternative or the No Action Alternative.

3.2 AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) LAND USE/NOISE

3.2.1 Affected Environment

Definition of Resource

The Air Installation Compatible Use Zone (AICUZ) is a DoD program designed to promote development compatible with military flight operations. The DoD developed the AICUZ program in response to increased urban development around military airfields. Incompatible land usage may result in complaints or increased safety concerns over the effects of aircraft operations leading to operational changes, which could ultimately affect the flying mission. The purpose of the AICUZ program is to promote public health and safety through local adoption of compatible land use controls and to protect the operational capability of the air installations. DoD Instruction 4165.57 establishes the AICUZ program. AICUZ studies are advisory planning documents the USAF prepares to assist local governments in land-use planning near installations and manage development. Installations use these studies to provide land-use recommendations for communities to incorporate into their planning regulations to prevent encroachment (USAF 2020).

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity to the individual. Noise levels are usually measured and expressed in decibels (dB) that are weighted to better reflect human hearing (A-weighted sound level [dBA]). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB; sound levels above 120 dB begin to be felt inside the human ear as discomfort. Most people are exposed to sound levels of 50 to 55 dBA or higher on a daily basis. The day/night noise level (DNL) accounts for the increased annoyance of some noise events occurring between 10:00 p.m. and 7:00 a.m. by adding a 10-dB “penalty” to the average A-weighed noise level measured during a 24-hour day. USAF AICUZ guidelines reflect land use recommendations for noise zones exposed to noise levels at or above 65 dB DNL.

Land use describes the natural or developed condition of a given parcel of land or area and the type of functions and structures it supports. Examples of land uses include residential, industrial, agricultural, and recreational. Land use designations are generally assigned by land-management agencies and organizations and used as a tool to characterize, manage, understand, and organize the functions and relationships of land within their jurisdiction or under their control. USAF

AICUZ guidelines reflect land use recommendations for the Clear Zones (CZs) and Accident Potential Zones (APZs) I and II.

Existing Conditions

The primary source of ambient noise at Dover AFB is aircraft operations. It is estimated that approximately 35,500 aircraft operations occur at Dover AFB each year. An aircraft operation is defined as one takeoff/departure, one approach/landing, or a half closed pattern. Approximately 121 daily aircraft operations occur at Dover AFB. Of these, approximately 26 percent of the daily aircraft flight operations occur at night (10:00 p.m. – 7:00 a.m.) (Dover AFB 2010). The majority of aircraft at Dover AFB include C-5 and C-17 aircraft; however, additional types of transient military and civilian aircraft conduct operations at the base. A secondary source of noise on the base is traffic. The base has an extensive road network and is traversed by Route 1, a divided four-lane highway. When no aircraft operations or stationary engine testing are taking place, vehicle traffic is likely to be the dominant source of noise in the vicinity of the base.

In 2010, Dover AFB completed an AICUZ Study Update where aircraft noise contours were developed. The USAF developed the NOISEMAP program to predict noise impacts in the vicinity of an airfield due to aircraft flight, maintenance, and ground run-up operations. Table 3 shows the total off-base area and off-base population within the DNL 65 dBA and greater noise exposure area. A total of 19,321 acres and 2,784 persons are included in the off-base DNL 65 dBA contour, most of them within the 65-69 dBA contours (Dover AFB 2010). Noise contours are shown on Figure 9.

Table 3. Off-Base Area and Population Within DNL 65 dBA and Greater Noise Exposure Area

DNL Noise Zone	Off-Base Area (acres)	Off-Base Population
65-69 dBA	11,252	1,952
70-74 dBA	5,032	610
75-79 dBA	2,076	171
80+ dBA	961	51
Total	**19,321**	**2,784**

Source: Dover AFB 2010

Dover AFB was originally established in a relatively undeveloped area in Kent County, Delaware. Over the years, development has increased northwest of the base in the city of Dover, in residential areas west of the base, and southwest in the town of Magnolia. Existing land use in the vicinity of Dover AFB is shown in Figure 9. Existing land use adjacent to the base is primarily a mix of commercial, residential, and open space. Land to the northeast, east, and south of the base is largely undeveloped, agricultural, or conservation areas, with pockets of residential use within the municipalities of Camden, Magnolia, Frederica, Little Creek, and Bowers Beach.

Areas around airports are exposed to the possibility of aircraft accidents even with well-maintained aircraft and highly trained aircrews. Designation of safety zones around the airfield and restriction of incompatible land uses can reduce the public's exposure to safety hazards. The AICUZ program has designated three safety zones within Dover AFB: CZ, APZ I, and APZ II (Figure 9). A CZ is an obstruction-free surface on the ground symmetrically centered on the

extended runway centerline beginning at the end of the runway and extending outward 3,000 ft (Figure 9). The CZ width is 3,000 ft (1,500 ft to either side of the runway centerline). The CZ has the highest accident potential of the three zones. Due to the high accident potential, the USAF has adopted a policy of acquiring real estate interest in the CZ through purchase or easement when feasible.

APZ I is an area that possesses a somewhat lower accident potential than the CZ. APZ I begins at the outer end of the CZ and is 5,000 ft long and 3,000 ft wide (Figure 9). Land use compatibility guidelines for APZ I are flexible to allow reasonable economic use of the land, such as industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agriculture. However, uses that concentrate people in small areas are not acceptable.

APZ II has less accident potential than APZ I. APZ II begins at the outer end of APZ I and is 7,000 ft long and 3,000 ft wide (Figure 9). Acceptable land uses include those of APZ I, as well as low-density single-family residential and those personal and business services and commercial/retail trade uses of low intensity or scale of operation. High-density functions such as multi-story buildings, places of assembly, and high-density offices are not considered appropriate. A total of 3,370 acres off base are located within the Dover AFB CZ and APZs (Dover AFB 2010). Table 4 includes the acreage of each land use type located within these zones off base and Figure 9 shows the location of these zones.

Table 4. Existing Land Use with the Dover AFB Clear Zones and Accident Potential Zones (Off Base)

Land Use Category	Total Acreage
Residential	51
Commercial	3
Industrial	385
Public	17
Recreational/Open/Agricultural/Low Density	2,914
Total	**3,370**

Source: Dover AFB 2010

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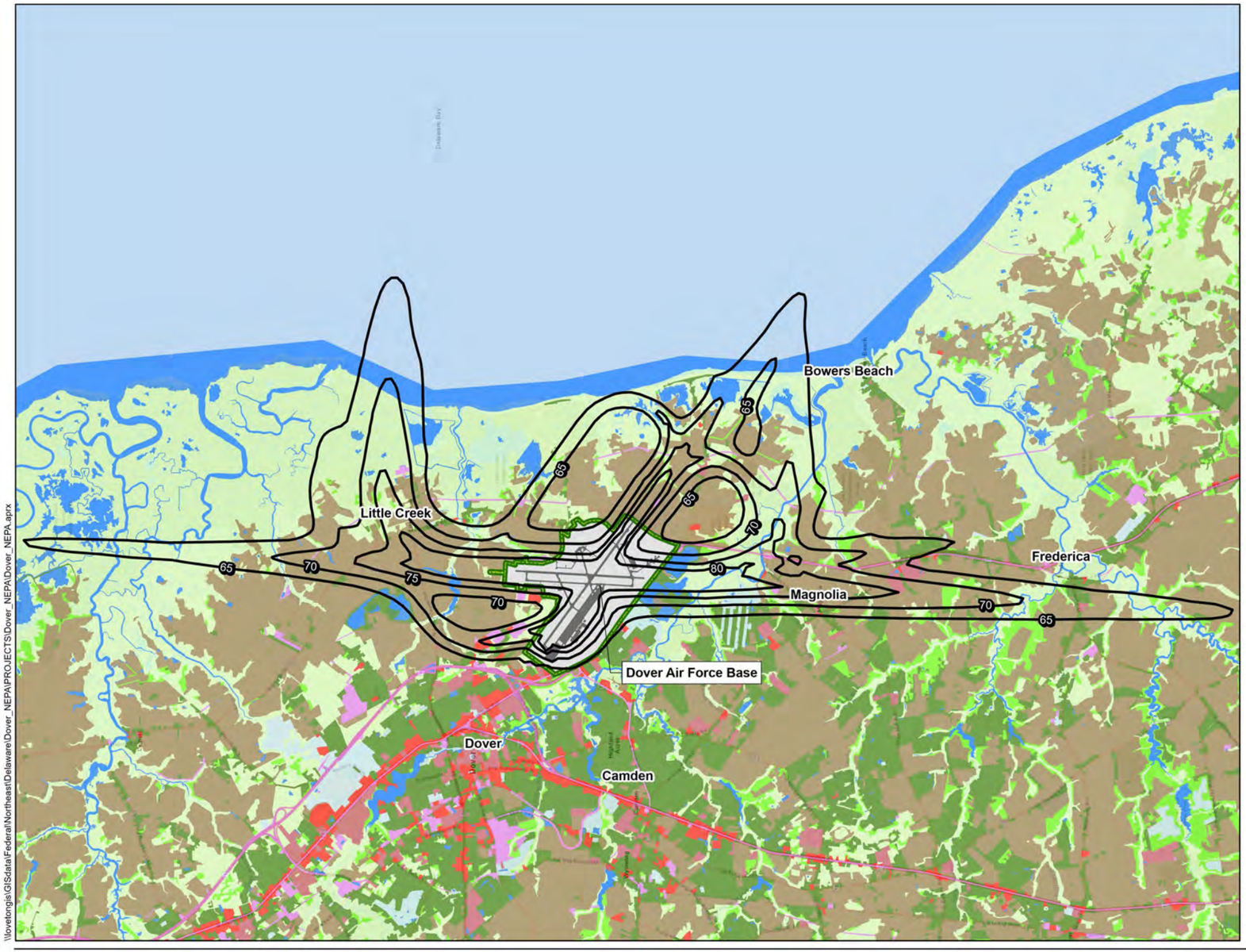

Legend

- Noise Contour
- Airfield
- Installation Boundary

2017 Land Use Classification

- Open/Argriculture
- Commercial
- Forested
- Wetland
- Industrial
- Public
- Water
- Recreational
- Residential

Map Date: 10/29/2021
Source: Dover AFB GIS, 2021
Delaware First Map, 2017
Projection: WGS UTM Zone 18N

N

0 1 2
Miles

Figure 9
Noise Contours
Dover, Delaware

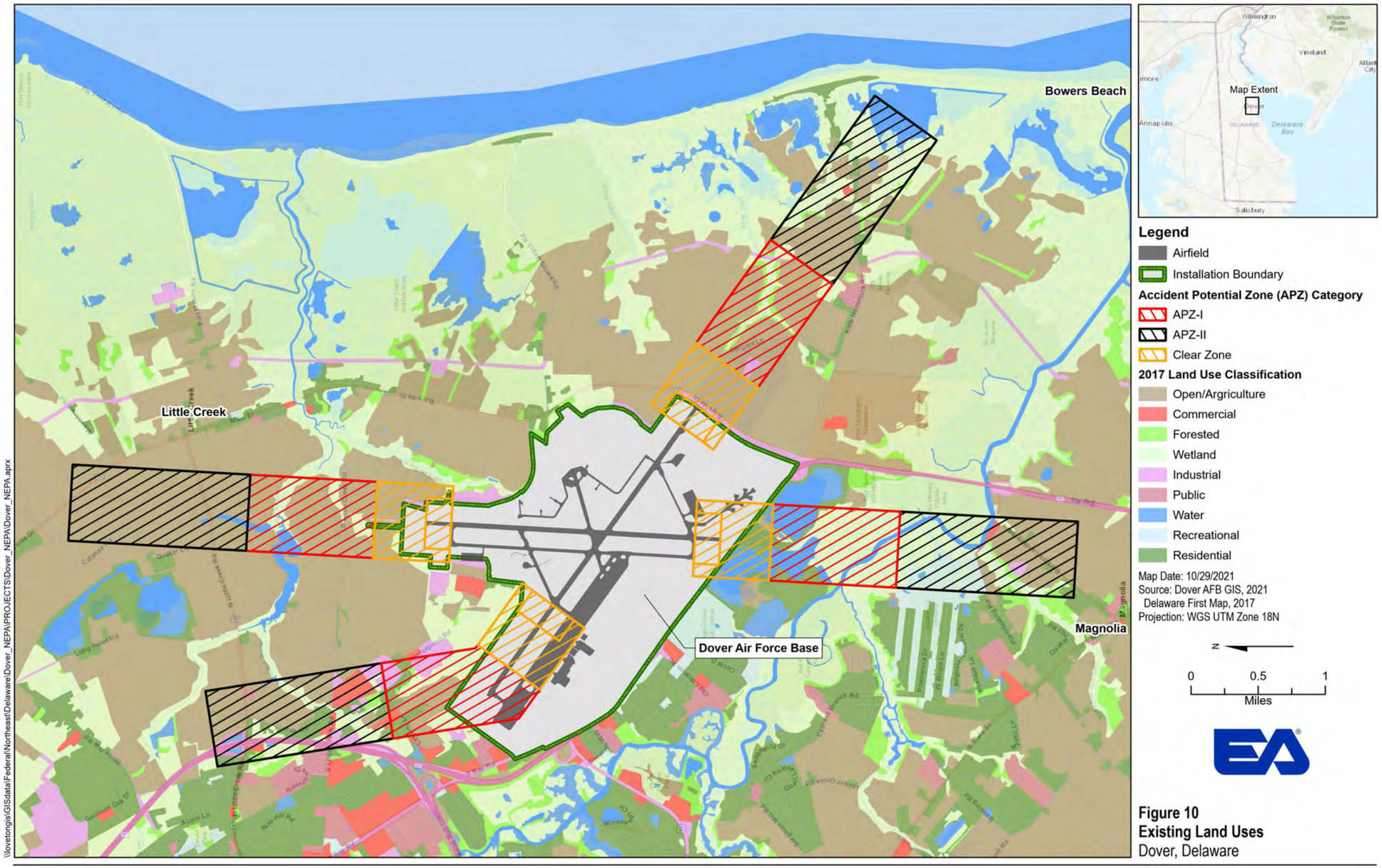

Figure 10
Existing Land Uses
Dover, Delaware

3.2.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no change to the existing land use or ambient noise levels in the vicinity of Dover AFB. Conditions would remain the same.

Alternative 1 – Proposed Action Alternative

Short-term impacts to noise are expected during the construction period for each project. All projects would be located within Dover AFB; therefore, impacts from construction and demolition would be localized and would not impact residential communities or other noise-sensitive receptors. The duration of noise impacts would vary by project depending on the length of the construction phase. In addition, the intensity of noise impacts would vary based on type of construction equipment used. Table 5 includes the typical noise associated with construction equipment used for small to medium-sized construction projects. Construction impacts by project are summarized in Table 6.

Following construction, ambient noise levels would return to pre-project levels. Operation of new facilities including the south ramp, taxiway hotel, Gate 5, hangar complex, and munition storage facilities may contribute to noise at the base; however, impacts would be negligible as aircraft operation would remain the primary source of ambient noise. No impact to noise is expected following the demolition of buildings, tree trimming, fence repairs, reconfiguration of North and Main Gate, or the use of the running track. Operation impacts by project are summarized in Table 6.

Table 5. Construction Equipment Noise Levels at Various Distances

Construction Type	Construction Equipment	L_{max} (dBA) at 50 ft	L_{eq} (dBA) at Various Distances[(a)]			
			100 ft	250 ft	500 ft	1,000 ft
Wall Construction	Auger Drill Rig	85	79	71	65	59
	Compressor	80	74	66	60	54
	Crane	85	79	71	65	59
	Concrete Mixer Truck	85	79	71	65	59
	Flat Bed Truck	84	78	70	64	58
	Welder	73	67	59	53	47
Excavation	Backhoe	80	74	66	60	54
	Blasting	94	88	80	74	68
	Excavator	85	79	71	65	59
	Dump Truck	84	78	70	64	58
	Rock Drill	85	79	71	65	59
	Paver	85	79	71	65	59
	Roller					
	Grader	85	79	71	65	59
Demolition	Backhoe	80	74	66	60	54
	Compressor	80	74	66	60	54
	Dump Truck	84	78	70	64	58
	Front End Loader	80	74	66	60	54

Construction Type	Construction Equipment	L_{max} (dBA) at 50 ft	L_{eq} (dBA) at Various Distances[(a)]			
			100 ft	250 ft	500 ft	1,000 ft
	Mounted Impact hammer	90	84	76	70	64

Notes:
(a) Distance attenuation formula: Leq = Lmax – 20*log(Distance/50)
Source: Federal Highway Administration 2006

Table 6. Summary of AICUZ Land Use/Noise Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term, negligible impacts during construction. No long-term impact.
2	Repair/Construct South Ramp	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
3	Repair/Construct Taxiway Hotel	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
4	Relocate Gate 5	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, negligible impacts during construction. No long-term impact.
	Reconfigure North Gate and Main Gate *Option B*	Short-term, negligible impacts during construction. No long-term impact.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Short-term, negligible impacts during construction. No long-term impact.
7	Tree Trimming	Short-term, negligible impacts during construction. No long-term impact.
8	Repair Building 635	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
9	Repair Building 721	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
10	Renovate Building 789	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
12	Construct Multi-Phase Hangar Complex	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
13	Construct New Ammunition Storage Facilities	Short-term, negligible impacts during construction. Long-term, negligible impacts during operation.
Demolition Projects		

14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, negligible impacts during construction. No long-term impact.
15	Demolition of Facility 716	Short-term, negligible impacts during construction. No long-term impact.

3.3 AIR QUALITY

3.3.1 Affected Environment

Definition of Resource

Air quality is defined by ambient air concentrations of specific pollutants determined by the U.S. Environmental Protection Agency (USEPA) to be of concern related to the health and welfare of the general public and the environment. If present in ambient air above certain established concentrations, certain air pollutants may pose a threat to human health and welfare. Factors influencing air quality in a region include the types and sizes of air pollution sources and the quantities of atmospheric pollutants emitted, as well as surface topography and level of development, the size of the topological "air basin," and prevailing meteorological conditions.

The Clean Air Act (CAA) (42 U.S. Code 7401-7671q), as amended, gives USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) that set safe concentration levels for the six *criteria* pollutants: $PM_{10/2.5}$, SO_2, CO, NO_2, O_3, and Pb (Table 7). Areas that meet the NAAQS for a criteria pollutant are designated "attainment." Areas where a criteria pollutant level exceeds the NAAQS are "nonattainment" areas. A maintenance area is one that has been re-designated from nonattainment status after submitting a clean ambient monitoring data set to USEPA and has an approved maintenance plan under Section 175 of the CAA. Each state has the authority to adopt standards stricter than those established under the federal program; however, Delaware accepts the Federal NAAQS (Table 4).

Pollutant emissions contribute to the ambient air concentrations of *criteria* pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by transforming in the atmosphere to form *criteria* pollutants. Primary pollutants, such as carbon monoxide (CO), sulfur dioxide (SO_2), lead (Pb), and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as ozone (O_3), nitrogen dioxide (NO_2), and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. Suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}) and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM_{10} and $PM_{2.5}$ can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants that condense into fine aerosols. In general, emissions of pollutants that are considered "precursors" to secondary pollutants in the atmosphere (such as volatile organic compounds [VOCs] and oxides of nitrogen [NOx], which are considered precursors for O_3) are regulated to control the level of the secondary pollutant in ambient air.

In areas currently designated as nonattainment or maintenance, federal agencies are required to determine whether a Proposed Action would increase annual emissions of criteria pollutants by more than *de minimis* amounts General Conformity (40 CFR 93.150–93.160). To ensure that federal actions do not interfere with a state's timely attainment of the NAAQS, the CAA requires that federal agencies demonstrate that their actions conducted in nonattainment and maintenance areas conform to the State Implementation Plan (SIP). According to the implementing regulation, promulgated by USEPA, proposed federal action emissions must be specifically identified in the SIP, must have emissions below *de minimis* levels identified in the regulations, or must offset any resulting increases in emissions.

Table 7. National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3-month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Notes:

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed 1 October 2015, and effective 28 December 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current

(2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is a USEPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

$\mu g/m^3$ = Microgram(s) per cubic meter
ppb = Part(s) per billion
ppm = Part(s) per million
Source: USEPA 2021a

Existing Conditions

Dover AFB is located within Kent County, Delaware. Kent County is currently designated as an attainment area for all six criterial pollutants, $PM_{10/2.5}$, NO_2, SO_2, CO, Pb, and O_3. Hence, federal actions in this county would generally be exempt from the General Conformity Rule. However, Delaware is part of the Northeast Ozone Transport Region as designated in the CAA and, therefore, is treated as moderate nonattainment for ozone. Thus, the area in which the Proposed Action will occur is regulated as a moderate nonattainment for ozone.

Dover AFB is classified as a major source of VOC and SO_2 and has been issued a Title V permit (AQM-001/00001) which sets limitations on the stationary sources of VOCs in paint and sulfur content in fuel. There are various stationary combustion sources on installation that have the potential to emit, including the installation's boilers and generators. VOCs are emitted primarily from handling of organic liquids (i.e., refueling activities). Miscellaneous particulate matter sources at Dover AFB include abrasive blasting units and woodworking equipment. Other stationary sources of emissions at Dover AFB include paint booths, wash racks, and the Corrosion Control Facility.

Greenhouse Gas Emissions and Climate Change

Global climate change refers to a change in the average weather on the earth. Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions arise from natural processes and human activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide, methane, and nitrous oxide. GHGs are primarily produced by the burning of fossil fuels and through industrial and biological processes. Pursuant to Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, CEQ rescinded its 2019 Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions and is reviewing, for revision and update, the 2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. When addressing climate change, agencies should consider the potential effect of a proposed action on climate changes as indicated by assessing GHG emissions and the effects of climate change on a proposed action and its environmental impacts.

3.3.2 Environmental Consequences

3.3.2.1 Method for Evaluating Impacts

De minimis emissions thresholds under General Conformity were used as reference benchmarks for evaluating potential air quality impacts. The criteria pollutant emissions were quantified using the construction and operational characteristics of the proposed project, and their potential

to approach the general conformity *de minimis* thresholds as specified in 40 CFR 93.153. The analysis uses *de minimis* thresholds as the metric for identifying adverse environmental impacts. In moderate nonattainment area for ozone within the Ozone Transportation Region, *de minimis* thresholds for NOx and VOCs are 100 tons per year and 50 tons per year, respectively. Fugitive dust and combustion emissions from construction equipment used at construction sites and vehicle traffic to/from construction sites were calculated and compared with USEPA General Conformity *de minimis* thresholds. GHG emissions were quantified as well and compared with the reference point of 25,000 metric tons per year, which is the threshold for reporting in the USEPA Mandatory Reporting Rule of Greenhouse Gases.

3.3.2.2 Impact Indicators and Significance Criteria

The proposed projects would be considered to impact air quality if construction activities add significant new emissions of criteria pollutants and greenhouse gases to existing conditions where the construction sites are located. Significance of air quality impacts were determined by exceedance of USEPA General Conformity *de minimis* thresholds or the USEPA Mandatory Reporting Rule of Greenhouse Gases reporting threshold as described in Section 3.2.2.1. Impacts to air quality may be short term (i.e., temporary impacts occurring during construction activities) or long term (i.e., a permanent impact from emissions of installed equipment as part of the alternative), and may also be considered direct ("…those emissions of a criteria pollutant or its precursor that are caused or initiated by the Federal action and occur at the same time and place as the action.") or indirect (i "…those emissions of a criteria pollutant or its precursors that: (1) are caused by the Federal action, but may occur later in time and/or may be further removed in distance from the action itself but are still reasonably foreseeable; and (2) the Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency"). Table 8 lists air quality impact indicators and significant criteria.

Table 8. Air Quality Indicators and Significance Criteria

Impact Indicator	Significance Criteria
Increased vehicle and equipment criteria pollutants emissions and generation of fugitive dust during construction	Exceedance of USEPA General Conformity *de minimis* thresholds
Increased vehicle and equipment greenhouse gases emissions during construction	Exceedance of USEPA Mandatory Reporting Rule of Greenhouse Gases reporting threshold which is 25,000 metric tons[1]

3.3.2.3 Assumptions

The following assumptions were considered in assessing impacts to air quality.

- The air quality impacts of the proposed projects were determined by estimating anticipated emissions of criteria pollutant and GHG emissions from construction

[1] The final guidance CEQ issued on 1 August 2016, titled ''Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews" (CEQ, 2016), which established a significant criteria for GHGs, was withdrawn effective 5 April 2017.

equipment usage, and fugitive dust emissions from the truck traffic and personal vehicle usage for workers' commute.

- The Air Force Air Conformity Applicability Model (ACAM) Version 5.0.17b, which is an air-emissions estimating model that performs an analysis to assess the potential air quality impacts associated with Air Force actions, was used to estimate anticipated emissions of criteria pollutants and greenhouse gases.

- The total emissions for the proposed projects were compared with *de minimis* thresholds for each year of planned construction schedule.

No Action Alternative

Under the No Action Alternative, there would be no increase in air emissions in the vicinity of Dover AFB. Conditions would remain the same; therefore, no impact to air quality is expected.

Alternative 1 - Proposed Action Alternative

The total estimated emissions were calculated for the construction activities associated with proposed projects and are provided and compared with reference thresholds in Table 9. The analysis conducted was a conservative estimate of emissions, intended to capture the greatest potential for impacts. The model input data and all relevant emissions calculation information is provided in Appendix B.

Table 9. Total Estimated Emissions for Proposed Action Alternative

Year	NO_X	VOC	CO	PM_{10}	$PM_{2.5}$	SO_2	CO_{2e}(1)
	tpy	tpy	tpy	tpy	tpy	tpy	tpy
2022	1.306	0.227	1.420	0.053	0.053	0.004	400.6
2023	10.937	1.824	11.423	90.418	0.436	0.031	3086.8
2024	4.900	0.858	6.310	16.104	0.201	0.015	1452.1
2025	6.802	1.221	9.065	31.531	0.265	0.022	2150.7
2026	4.305	0.771	5.894	13.427	0.174	0.013	1283.2
2027	4.841	0.888	6.356	15.527	0.195	0.016	1533.7
2028	1.493	0.268	1.749	8.205	0.057	0.005	490.6
2029	0.738	0.129	1.073	0.025	0.025	0.002	236.1
2030	1.475	0.257	2.145	0.051	0.050	0.005	472.1
2031	1.475	0.257	2.145	0.051	0.050	0.005	472.1
2032	1.475	0.257	2.145	0.051	0.050	0.005	472.1
2033	1.475	0.257	2.145	0.051	0.050	0.005	472.1
2034	1.475	0.257	2.145	0.051	0.050	0.005	472.1
2035	0.738	0.129	1.073	0.025	0.025	0.002	236.1
Reference Threshold(2)	100	50	100	100	100	100	27,500(3)

Notes:
(1) CO_2e – carbon dioxide equivalent
(2) 40 CFR 93.153 and 40 CFR 98
(3) 27,500 short tpy is equivalent to 25,000 metric tpy
tpy – tons per year

These temporary, direct, and indirect, impacts do not exceed the established benchmarks and are not expected to violate any of the federal and state standards as their estimated emissions were all below the reference thresholds. There would be no expected long-term effects on air quality due to the proposed action alternative. Therefore, the impacts on air quality from the implementation of the proposed action alternative would be negligible and would not be expected to affect the climate.

Short-term, direct, and indirect, adverse impacts would occur to the air quality during the construction period for the proposed action alternative. Emissions from construction activities would be minor and no exceedance of reference thresholds is anticipated; thus, construction would not result in significant air quality impacts. Air quality impacts by project are summarized in Table 10.

Table 10. Summary of Air Quality Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term, negligible impacts during construction. No long-term impact.
2	Repair/Construct South Ramp	Short-term, negligible impacts during construction. No long-term impact.
3	Repair/Construct Taxiway Hotel	Short-term, negligible impacts during construction. No long-term impact.
4	Relocate Gate 5	Short-term, negligible impacts during construction. No long-term impact.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, negligible impacts during construction. No long-term impact.
	Reconfigure North Gate and Main Gate *Option B*	Short-term, negligible impacts during construction. No long-term impact.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Short-term, negligible impacts during construction. No long-term impact.
7	Tree Trimming	Short-term, negligible impacts during construction. No long-term impact.
8	Repair Building 635	No short-term impact during construction. No long-term impact.
9	Repair Building 721	No short-term impact during construction. No long-term impact.
10	Renovate Building 789	No short-term impact during construction. No long-term impact.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term, negligible impacts during construction. No long-term impact.
12	Construct Multi-Phase Hangar Complex	Short-term, negligible impacts during construction. No long-term impact.

Project Number	Project Description	Impact
13	Construct New Ammunition Storage Facilities	Short-term, negligible impacts during construction. No long-term impact.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, negligible impacts during construction. No long-term impact.
15	Demolition of Facility 716	Short-term, negligible impacts during construction. No long-term impact.

3.4 WATER RESOURCES

3.4.1 Affected Environment

Definition of Resource

Water resources include groundwater, surface water, and floodplains. Surface water includes lakes, rivers, streams, and oceans that may be used as sources of potable water, provide habitat for aquatic and amphibious species, support commerce via navigation, and offer recreational opportunities.

The nation's waters are protected under the statutes of the Clean Water Act (CWA). The goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's water so that they can support "the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water." Under the CWA Section 402, it is illegal to discharge any point and/or nonpoint pollution sources into any surface water without a National Pollutant Discharge Elimination System (NPDES) permit. USEPA is charged with administering the NPDES permit program; however, the State of Delaware has legal authority to implement and enforce the provisions of the CWA, while USEPA retains oversight responsibilities.

Groundwater includes the subsurface hydrologic resources of the physical environment and is described in terms of depth to aquifer or water table, quality, and surrounding geologic consumption. Stormwater runoff is generated when precipitation from rain and snowmelt events flows over land or impervious surfaces and does not percolate into the ground. This water flows either directly into surface waterways or storm sewers or can pond and cause flooding in some areas depending on the soil type and topography of the area.

In October 2004, the DoD issued UFC on low impact development (UFC 3-210-10) and most recently updated on 1 March 2020. UFC 3-210-10 describes stormwater management strategies designed to maintain the hydrologic functions of a site and mitigate the adverse impacts of stormwater runoff from DoD construction projects. All DoD construction projects are required to be compliant with these low impact development building designs. Following UFC 3-210-10, Section 438 of the Environmental Independence Security Act of 2007 (42 U.S. Code 17094) has also been implemented by the DoD. This goes further with stricter stormwater runoff requirements for federal development projects. Section 438 requires federal agencies to develop facilities having a footprint that exceeds 5,000 ft^2 (465 square meters) in a manner that maintains or restores the pre-development site hydrology to the maximum extent technically feasible.

Agencies can meet the pre-development hydrology requirements in two ways: (1) managing on site the total volume of rainfall from the 95th percentile storm, or (2) managing on site the total volume of rainfall based on a site-specific hydrologic analysis through various engineering techniques.

In Delaware, land-disturbing activities in excess of 5,000 ft^2 occurring on federally controlled property or initiated by or for a federal proponent must obtain coverage under the USEPA's NPDES General Storm Water Permit Program. A General Storm Water Permit requires the preparation of a Sediment and Stormwater Plan that specifies effluent limits and best management practices (BMPs). The Permit also requires contractors to file a Notice of Intent certifying that they have met the Permit's eligibility requirements and that they will comply with the Permit's effluent limits and other requirements (USEPA 2017). Adherence to these requirements regulates stormwater discharges from the time construction begins through the project's lifespan to prevent additional degradation of existing flooding conditions and water quality.

Floodplains are low-lying areas adjacent to rivers, stream channels, or coastal waters. Areas within a floodplain are subject to periodic or infrequent inundation. Local topography, the frequency of precipitation events, and the size of the watershed upstream of the floodplain influence the risk of flooding. The Federal Emergency Management Agency evaluates flood potential and defines the 100-year floodplain. The 100-year floodplain is defined as an area that has a 1 percent or greater chance of inundation in any given year. To reduce risk to human health and safety, development within the 100-year floodplain is often limited to passive uses (i.e., recreation and preservation activities) through federal, state, and local regulations. Executive Order 11988, *Floodplain Management*, requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with proposed actions and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative.

Existing Conditions

Surface Water

There are no natural surface water features on the main portion of the base. Pipe Elm Branch of the Little River is the closest stream to the main base. Pipe Elm Branch runs in a northeastern direction just outside the northeast part of the base and merges with the Little River (Figure 11). The Little River runs in a generally easterly direction a little over 1 mile north of the base before draining to the Delaware Bay. The St. Jones River is located along the southern boundary of Dover AFB and flows in a northwest-southeast direction. There are four large ponds located southeast of the Dover AFB golf course (Figure 11). These ponds are associated with a quarry operation located south of Route 1 (Dover AFB 2014).

Groundwater

The Cheswold Aquifer provides potable water supply to Dover AFB. Other groundwater features in the vicinity of Dover AFB include the Columbia Aquifer of the upper Chesapeake Group, the Frederica Aquifer of the upper Chesapeake Group, and the Piney Point Aquifer of the Piney Point Formation (Dover AFB 2014).

As part of the DoD Environmental Restoration Program, 12 contaminant plumes have been identified in shallow groundwater underlying the base; however, the contaminated groundwater is not used for potable water at the base. No contaminants have ever been reported in the potable water supply at Dover AFB (Dover AFB 2014).

Stormwater

The existing stormwater management system at Dover AFB consists of human-made drainage ditches, weirs, check dams, and engineered wetlands. Stormwater generated on the base is treated, and its velocity is slowed prior to being discharged into receiving water bodies near the installation. Stormwater in the vicinity of Gate 5 drains to Pipe Elm Branch. Stormwater in the vicinity of the Ammunition Storage Area drains to the Lewis Ditch. The remainder of the installation drains to an unnamed stream that crosses the golf course and discharges to the St. Jones River. The Lewis Ditch, Pipe Elm Branch, and St. Jones River ultimately drain to the Delaware Bay, approximately 2 miles east of the base (Dover AFB 2014).

Dover AFB has an NPDES permit that includes provisions for stormwater control planning, characterization, monitoring, and reporting for specific industrial sectors. In addition, Dover AFB implements a Stormwater Pollution Prevention Plan that outlines stormwater management through good housekeeping practices, preventative maintenance, sediment and erosion control, and spill prevention.

Floodplains

Figure 11 shows the floodplain within Dover AFB. The northern end of Runway 01/19 is located within the 100-year floodplain of Pipe Elm Branch. This area is classified as Zone AE – areas where base flood elevation has been determined to be 10 ft, and Zone X – areas with 0.2 percent Annual Chance Flood Hazard, 1 percent annual chance flood with average depth less than 1 ft, or areas with drainage areas of less than 1 square mile. A portion of the Dover AFB golf course south of Route 1 is located within the 100-year floodplain of the Saint Jones River. This area is classified as Zone AE and Zone X. The remaining portions (majority of) the base is located outside of the 100-year floodplain.

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Figure 11
Water Resources
Dover Air Force Base
Dover, Delaware

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3.4.2 Environmental Consequences

No Action Alternative
Under the No Action Alternative, conditions and operation of Dover AFB would remain the same. There would be no impact to water resources on the installation.

Preferred Alternative
None of the proposed projects are located within the vicinity of surface water features within Dover AFB. There would be no long-term impact to water resources from any of the proposed projects. During construction, specifically for projects with ground disturbance, short-term impacts to water resources would occur. These projects would include the infrastructure construction projects (Projects 1, 2, 3, 4, and 5), facility construction projects (Projects 11, 12, and 13), and demolition projects (Projects 14 and 15). Impacts would result from potential soil erosion and sedimentation which could create water quality impacts such as increased turbidity. Dover AFB would require the implementation of a Stormwater Prevention and Pollution Plan (SWPPP) if ground disturbing activities are in excess of the state requirements but below USEPA requirements to implement a SWPPP. The SWPPP would include BMPs such as the use of silt fences, straw bales, and mats that would be implemented to reduce soil erosion and sedimentation. Impacts to water quality during construction would be short term and negligible. There would be no short-term impacts to water quality from the renovation and repair projects (Projects 6, 7, 8, 9, and 10).

There would be no long-term or short-term impacts to groundwater associated with the proposed projects. None of the projects would require an increased withdrawal of groundwater or require the installation of new wells within the installation.

During construction, short-term, minor impacts to stormwater are expected. Soil erosion would occur during the ground-disturbing projects listed above, which could increase sedimentation in the stormwater management system. To reduce impacts to stormwater, BMPs including the use of silt fences, mats, and hay bales would be outlined in the SWPPP and implemented. The construction of the base running track, south ramp, taxiway hotel, Gate 5, reconfiguration of North and Main Gate, indoor training facility, and munitions storage facilities would also increase the amount of impervious surface on the base. Approximately 60 acres of land would be converted from pervious to impervious area. The increase in impervious area would increase the amount of stormwater entering the system, creating long-term, minor, adverse impacts. The renovation and repair projects and construction of the multi-phase hangar would have no long-term impact to stormwater. Following demolition of buildings (Projects 14 and 15), if the exposed area is seeded with grass, long-term impacts to stormwater would be beneficial as there would be a decrease in impervious area in these locations. The projects would impact different receiving outfalls throughout Dover AFB. Outfall 3 would be impacted the most by receiving stormwater associated with Projects 3, 4, 12, and 15. Outfall 7 would receive stormwater from Projects 1 and 5. Both Outfalls 3 and 7 have region controls established to manage combined stormwater runoff before being discharged to the receiving water body. Outfalls 9, 25, and 26 would also receive stormwater associated with various projects. Project 11 would discharge to Outfall 9. Project 13 and 14 located in the ammunition storage area would discharge to Outfall

25. Project 2 would discharge to Outfall 26 (formerly Outfall 8). Outfalls 9, 25, and 26 do not have established regional controls.

None of the projects are located within the 100-year floodplain; therefore, no short- or long-term impacts to floodplains would occur. Table 11 includes the summary of impacts from the proposed action.

Table 11. Summary of Water Resources Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 7). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
2	Repair/Construct South Ramp	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 26). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
3	Repair/Construct Taxiway Hotel	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 3). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
4	Relocate Gate 5	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 3). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 7). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
	Reconfigure North Gate and Main Gate *Option B*	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 7). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	No short- or long-term impacts to surface water, groundwater, stormwater, or floodplains.
7	Tree Trimming	No short- or long-term impacts to surface water, groundwater, stormwater, or floodplains.

Project Number	Project Description	Impact
8	Repair Building 635	No short- or long-term impacts to surface water, groundwater, stormwater, or floodplains.
9	Repair Building 721	No short- or long-term impacts to surface water, groundwater, stormwater, or floodplains.
10	Renovate Building 789	No short- or long-term impacts to surface water, groundwater, stormwater, or floodplains.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 9). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
12	Construct Multi-Phase Hangar Complex	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 3). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
13	Construct New Ammunition Storage Facilities	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 25). Long-term, minor impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 25). Long-term, beneficial impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.
15	Demolition of Facility 716	Short-term, negligible impacts to surface water. Short-term, minor impacts to stormwater (Outfall 3). Long-term, beneficial impacts to stormwater. No short-term impacts to groundwater or floodplains. No long-term impacts to surface water, groundwater, or floodplains.

3.5 SAFETY AND OCCUPATIONAL HEALTH

3.5.1 Affected Environment

Definition of Resource

Human health and safety at Dover AFB include workers safety, public safety, proper handling and storage of explosives and munitions, terrestrial and aerial clearance requirements for aircraft operation; and AT/FP requirements for facilities. Occupational Safety and Health Administration (OSHA) and USEPA issues standards for the health and safety of workers.

Existing Conditions

Construction Site Safety
Installation development on Dover AFB is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission. Each year, existing structures are demolished, new buildings are constructed, and infrastructure is upgraded and improved. All construction activities are conducted in a manner that does not pose any safety or health risks to workers, personnel, and bystanders. All staff including contractors performing the construction activities are required to submit and abide by a health and safety plan and are responsible for following OSHA regulations.

Explosive and Munitions Safety
Designated areas to store or transport explosive materials have been designated at Dover AFB as explosive safety quantity distance (QD) zones. QD zones include explosives storage facilities, hazardous cargo parking areas, suspect vehicle parking areas, and build-up and preload areas. QD zones are designed to keep the installation population and civilian community safe from the potential detonation of stored or transported explosive materials. Locations of QD zones include much of the aircraft parking apron north of the cantonment area, the majority of the area extending from the northeastern boundary of the main base to the northern edge of Runway 14/32 and the eastern edge of Runway 01/19, and a smaller area located immediately southeast of Taxiway Echo. Use of the QD zones are limited to mission necessary functions including industrial, storage, and maintenance operations.

Antiterrorism/Force Protection
Dover AFB is a fenced, access-controlled facility. There are two entrances available for access to the base. The main gate is located on 13th Street, just off Route 1 on the southwest side of the base. This entrance is used by the majority of base personnel and visitors. A commercial gate is located off of Route 1 near the southern end of Runway 01/19 and is used for delivery trucks and other commercial vehicles. Areas within the base including the area north of Atlantic Street, which includes warehouses, maintenance facilities, and the aircraft parking aprons, are further restricted. The general public can access the AMC Museum through an entrance gate on Route 9 during normal business hours.

All inhabited new construction and major renovation work funded under the Military Construction process must include DoD AT/FP standards (per UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, 19 August 2020). Standoff distance must be coupled with appropriate building hardening to provide the necessary level of protection to personnel. These standards apply to all covered new and existing DoD buildings.

3.5.2 Environmental Consequences

No Action Alternative
Projects 14 and 15 include the demolition of the munition storage facilities and Building 716. These buildings are proposed for demolition because the buildings are outdated and in poor condition. Under the No Action Alternative, the buildings would continue to be used creating long-term, minor, adverse impacts to the safety or personnel at Dover AFB. Renovation and

repair projects (Projects 6, 7, 8, 9, and 10) would also create long-term, minor, adverse impacts to health and safety under the No Action Alternative. The perimeter fencing would remain damaged and pose a risk to base access. In addition, excessive tree height would pose aircraft safety risk during takeoff and landing. Buildings 635, 721, and 789 would remain in poor condition causing safety risks to base staff.

Preferred Alternative

Construction projects create safety risks for both installation staff and construction workers. However, these risks are reduced because USAF and OSHA safety practices and BMPs would be implemented during the construction period. All active construction areas would be fenced to deter unauthorized persons from entering the site. Contractors would be required to submit safety plans prior to construction activities commencing. In addition, construction workers would be required to perform daily inspections of equipment and store all fuels and other materials in appropriate containers. Construction vehicles and equipment would be locked or secured when not in use. With these practices implemented, impacts to health and safety during the construction period would be short term and negligible.

Many of the buildings and taxiways proposed to be demolished or repaired are outdated and in poor condition. The demolition and repair of these buildings and taxiways (Projects 2, 3, 8, 9,10, 14, and 15) would create long-term, beneficial impacts to health and safety. The repair of the south ramp and taxiway hotel (Projects 2 and 3) would include repairing of taxiways and would allow additional room for planes to maneuver. This would increase the overall safety of the aircraft mission. Projects 8, 9, and 10 would have benefits to safety from the upgrade and renovation of the existing buildings. Building HVAC and electrical systems would be brought up to code and would provide a safe working environment to complete the overall mission. The relocation of Gate 5 (Project 4) would provide long-term safety benefits by enhancing security of trucks with munitions entering Dover AFB. In addition, the new location would provide required holding area for trucks to ensure safety for both the public and Dover AFB.

The removal of buildings associated with Projects 14 and 15 would benefit safety from removing facilities that create safety hazard. Following demolition, new munition storage facilities would be constructed (Project 13) and would create long-term, beneficial impacts by establishing controlled safe storage of equipment. Repair of the perimeter fencing (Project 6) would increase the overall base security and safety. Tree trimming (Project 7) would also increase aircraft safety. In addition, the reconfiguration of the Main Gate and North Gate (Project 5) would also have long-term, beneficial impacts as the slowing of traffic allows the vehicle barrier to stop unauthorized vehicles from entering the base. The construction of the indoor training facility (Project 11) and relocation of the running track (Project 1) would create long-term, beneficial impacts to the health of base personnel. Table 12 includes the summary of impacts from the proposed action.

Table 12. Summary of Safety and Occupational Health Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		

Project Number	Project Description	Impact
1	Relocate Base Running Track	Short-term negligible impacts. Long-term, beneficial impacts.
2	Repair/Construct South Ramp	Short-term negligible impacts. Long-term, beneficial impacts.
3	Repair/Construct Taxiway Hotel	Short-term negligible impacts. Long-term, beneficial impacts.
4	Relocate Gate 5	Short-term negligible impacts. Long-term, beneficial impacts.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term negligible impacts. Long-term, beneficial impacts.
	Reconfigure North Gate and Main Gate *Option B*	Short-term negligible impacts. Long-term, beneficial impacts.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Short-term negligible impacts. Long-term, beneficial impacts.
7	Tree Trimming	Short-term negligible impacts. Long-term, beneficial impacts.
8	Repair Building 635	Short-term negligible impacts. Long-term, beneficial impacts.
9	Repair Building 721	Short-term negligible impacts. Long-term, beneficial impacts.
10	Renovate Building 789	Short-term negligible impacts. Long-term, beneficial impacts.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term negligible impacts. Long-term, beneficial impacts.
12	Construct Multi-Phase Hangar Complex	Short-term negligible impacts. Long-term, beneficial impacts.
13	Construct New Ammunition Storage Facilities	Short-term negligible impacts. Long-term, beneficial impacts.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term negligible impacts. Long-term, beneficial impacts.
15	Demolition of Facility 716	Short-term negligible impacts. Long-term, beneficial impacts.

3.6 HAZARDOUS MATERIALS AND WASTE

3.6.1 Affected Environment

Definition of Resource

Hazardous materials and hazardous waste refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act and the Solid Waste Disposal Act, as amended by Resource Conservation and Recovery Act. Hazardous materials include any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, a serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous wastes that are regulated under the Resource Conservation and Recovery Act include any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that exhibit one or more of the hazardous characteristics of ignitibility, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR Part 261, *Identification and Listing of Hazardous Waste*.

Air Force Policy Directive 32-70, *Environmental Quality*, and the Air Force Instruction 32-7000 series incorporate the requirements of all federal regulations and other Air Force Instructions and DoD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

Existing Conditions

Issues at Dover AFB associated with hazardous materials and wastes typically center around waste streams, underground storage tanks (USTs), aboveground storage tanks (ASTs), and the storage, transport, use, and disposal of fuels, lubricants, and other industrial substances.

Hazardous materials and petroleum products are used throughout Dover AFB to support vehicle, equipment, and aircraft mission functions. Uses include fluid and filter changes, brake repair, tune-ups, body repair, minor painting, parts repair, engine maintenance, and hydraulics. There are 131 ASTs on Dover AFB that store diesel fuel, jet fuel additives, aviation gas, used oil, hydraulic fluid, glycol, and used cooking oils. There are five USTs that store motor gasoline, diesel fuel, and jet fuel additives. There are no other ASTs or USTs in the vicinity of other proposed projects.

Hazardous and petroleum wastes are generated throughout Dover AFB due to maintenance, testing, and repair of vehicles, equipment, and aircraft. Hazardous wastes include batteries, scrap metal, used fuel, brake fluid, sludge, oil, paint, solvents, aerosol, absorbent pads, used tires, fuel filters, light bulbs, and solvent-contaminated solids. Hazardous waste is collected at Satellite Accumulation Points and is later transferred to 90-day Hazardous Waste Accumulation Sites. Hazardous wastes are managed by the 436 AW Hazardous Waste Management Plan.

A survey for asbestos-containing material at Dover AFB was completed in 1989. Based on the survey, Dover AFB prepared an Asbestos Management and Operations Plan to protect personnel who live and work on Dover AFB from exposure to asbestos fibers, and to ensure that the installation remains in compliance with federal, state, and local regulations pertaining to asbestos. It specifies procedures for the testing, removal, encapsulation, enclosure, and repair

activities associated with asbestos-containing material abatement projects. In accordance with the Asbestos Management and Operation Plan, materials suspected of being asbestos-containing material are addressed on an as-needed basis prior to disturbance of the material. Asbestos-containing material must be removed by licensed private contractors and disposed of at permitted facilities outside the installation. All buildings and structures at Dover AFB built prior to 1978 may contain lead-based paint. Painted surfaces are inspected prior to disturbance if there is potential of lead-based paint. Lead-based paint abatement is performed by licensed private contractors when required.

Table 13 includes the year of building construction for buildings proposed to be demolished or repaired. Buildings constructed prior to 1978 have the potential to contain lead-based paint.

Table 13. Construction Year of Buildings Associated with Proposed Projects

Project Number	Facility	Construction Year
8	Building 635	1956
9	Building 721	1975
10	Building 789	1957
14	Building 1201	1966
14	Building 1203	1943
14	Building 1204	1943
14	Building 1206	1956
14	Building 1207	1956

3.6.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no construction, demolition, or repair of facilities throughout Dover AFB. There would be no change in the number of hazardous materials used or the amount of hazardous materials generated. Therefore, no impacts to hazardous materials and waste would occur.

Preferred Alternative

During the construction phase of each project, hazardous materials would be used and would include oils, lubricants, concrete, paints, and other products typically used during small to medium-sized construction projects. In general, hazardous materials would be used in their entirety and little waste would be generated from these materials during the construction activities. To reduce the risk of spills and misuse of the hazardous materials, all construction contractors would be required to manage hazardous materials in accordance with federal, state, and USAF regulations and procedures. BMPs would be implemented to reduce the risk of hazardous materials polluting soil, groundwater, or surface water. During project activities, contractors would be required to perform daily inspections of equipment, maintain appropriate spill-containment materials on site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the construction site. Overall impacts would be short term and negligible.

Small amounts of hazardous wastes would also be generated during the construction phase of each project. In general, the majority of the project would generate small amounts of hazardous material and would create short-term, negligible impacts. Construction projects including Projects 1, 2, 3, 4, 5, 11, 12, and 13 would require excavation of soils. There is potential that contaminated soils may be excavated. Excavated soil that cannot be reused on site would be stockpiled and tested to determine proper disposal requirements. Soil stockpiles would be analyzed for contaminants and disposed of at a facility permitted to accept hazardous waste. The demolition projects (Projects 14 and 15) and building repair projects (Projects 8, 9, and 10) would generate greater amounts of hazardous wastes. Hazardous wastes could include asbestos-containing materials, lead-based paint, fluorescent and high-intensity discharge lamps, and electronic wastes. A hazardous waste determination in accordance with Delaware's Regulations Governing Hazardous Waste would be conducted. Contractors would be required to create a hazardous waste Satellite Accumulation Point at or near the point of generation, and all hazardous waste would be collected and disposed of by a hazardous waste disposal contractor. Short-term, minor impacts to hazardous materials and wastes would occur for demolition projects.

Building repair projects (Projects 8, 9, and 10) and building demolition projects (Projects 14 and 15) have the potential of containing lead-based paints and asbestos. For these projects, an inspection of paint surfaces would occur prior to any construction activities. If lead-based paint is detected, abatement would occur by a licensed contractor. In addition, an inspection for asbestos would occur prior to construction activities. Asbestos and lead-based paint would be handled in accordance with applicable state, federal, and USAF regulations and procedures, including those in Dover AFB's Asbestos Management and Operations Plan. If asbestos or lead-based paint is detected and removed, long-term beneficial impacts to hazardous materials and wastes would occur.

In the long term, general operation and missions related to the new facilities would remain the same and there would not be an increase in use of hazardous materials and wastes. Proper storage, handling, and disposal methods of hazardous materials and waste would continue. Therefore, no long-term impacts are expected. Table 14 includes the summary of impacts from the proposed action.

Table 14. Summary of Hazardous Materials and Waste Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
2	Repair/Construct South Ramp	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
3	Repair/Construct Taxiway Hotel	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.

Project Number	Project Description	Impact
4	Relocate Gate 5	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
	Reconfigure North Gate and Main Gate *Option B*	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Short-term, negligible impacts. No long-term impacts.
7	Tree Trimming	Short-term, negligible impacts. No long-term impacts.
8	Repair Building 635	Short-term, minor adverse impacts due to potential of lead base paint and asbestos. No long-term impacts.
9	Repair Building 721	Short-term, minor adverse impacts due to potential of lead base paint and asbestos. No long-term impacts.
10	Renovate Building 789	Short-term, minor adverse impacts due to potential of lead base paint and asbestos. No long-term impacts.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
12	Construct Multi-Phase Hangar Complex	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
13	Construct New Ammunition Storage Facilities	Short-term, negligible impacts due to potential of contaminated soil. No long-term impacts.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, minor adverse impacts due to potential of lead base paint and asbestos. No long-term impacts.
15	Demolition of Facility 716	Short-term, minor adverse impacts due to potential of lead base paint and asbestos. No long-term impacts.

3.7 BIOLOGICAL/NATURAL RESOURCES

3.7.1 Affected Environment

Definition of Resource
Biological resources include vegetation, wildlife, threatened and endangered species, wetlands, and their associated habitats. Specific concerns relating to biological resources consist of declines in species diversity, impacts on threatened and endangered species, and degradation of wetlands and riparian zones.

Federal status as a threatened or endangered species is derived from the Endangered Species Act (ESA) of 1973. Under the ESA, species may be designated as federally endangered or federally threatened depending on the likelihood of the species becoming extinct throughout all or a significant portion of its range (U.S. Fish and Wildlife Service [USFWS] 2021). A status of federal candidate can also be applied under the ESA. Candidate species receive no statutory protection under the ESA, but USFWS encourages conservation efforts for these species because they may warrant future protection under the ESA (USFWS 2021). Section 7(a)(2) of the ESA requires federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. Federal agencies are required to consult with USFWS or the National Marine Fisheries Service if an action may affect a listed species. In addition to federal protection, certain species are given protection under state law. Species may be designated as state threatened or endangered and not federally protected.

The Migratory Bird Treaty Act of 1918 established federal responsibilities for protecting nearly all migratory species of birds, eggs, and nests. Bird migration is defined as the periodic seasonal movement of birds from one geographic region to another, typically coinciding with available food supplies or breeding seasons. More than 1,000 species are protected under the Migratory Bird Treaty Act. USFWS is responsible for administering the provisions of the act and maintaining a list of bird species protected under the Act.

Wetlands are considered sensitive habitats and are subject to federal regulatory authority under Section 404 of the CWA, Section 10 of the Rivers and Harbors Act of 1899, and Executive Order 11990, *Protection of Wetlands*. Jurisdictional wetlands are defined by USACE as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Wetlands generally include swamps, marshes, bogs, and similar areas. Wetland functions include water quality improvement, groundwater recharge and discharge, filtering of pollutants, nutrient cycling, and erosion protection. In accordance with Executive Order 11990, which extends to non-jurisdictional wetlands as well, construction within wetlands is to be avoided, where practicable. Actions that include construction in a wetland require a Finding of No Practicable Alternative to be prepared and approved by Headquarters, Air Materiel Command. All appropriate permits must be obtained from applicable regulatory agencies to address impacts on wetland areas and determine potential mitigation, if required.

Existing Conditions

Vegetation

Natural habitat at Dover AFB is limited due to the development of the base to support the mission. Mowed, maintained lawn is the dominant vegetation throughout the base with interspersed ornamental landscaped shrub and tree plantings. There are approximately 130 acres of forested or wetland communities at Dover AFB. These areas are mostly located along the northern and northeastern portion of the base. Table 15 includes habitat descriptions and vegetation documented during a site visit in November 2022 in the vicinity of each proposed project.

Table 15. Vegetation in the Vicinity of Each Proposed Project

Project Number	Project Description	Vegetation
Infrastructure Construction Projects		
1	Relocate Base Running Track	Mowed, maintained lawn. Willow oak (*Quercus phellos*)
2	Repair/Construct South Ramp	Mowed, maintained lawn.
3	Repair/Construct Taxiway Hotel	Mowed, maintained lawn.
4	Relocate Gate 5	Mowed, maintained lawn. Forested area – sweetgum (*Liquidambar styraciflua*), autumn olive (*Elaeagnus umbellate*), red maple (*Acer rubrum*), wax myrtle (*Morella cerifera*), Ashe juniper (*Juniperus ashei*), southern arrowwood (*Viburnum dentatum*), and persimmon (*Diospyros virginiana*)
5	Reconfigure North Gate and Main Gate *Option A*	Mowed, maintained lawn.
	Reconfigure North Gate and Main Gate *Option B*	Mowed, maintained lawn.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Mowed, maintained lawn. Small forested/shrub area – include American holly (*Ilex opaca*), white pine *(Pinus strobus*), cherry sp. (*Prunus* sp.), trumpet vine (*Campsis radicans*), English ivy *(Hedera helix*), Bradford pear (*Pyrus calleryana*)
7	Tree Trimming	Mowed maintained lawn. Small stand of mature white pine (*Pinus strobus*).
8	Repair Building 635	No vegetation, project completed inside building
9	Repair Building 721	No vegetation, project completed inside building
10	Renovate Building 789	No vegetation, project completed inside building
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Mowed, maintained lawn.

Project Number	Project Description	Vegetation
12	Construct Multi-Phase Hangar Complex	Paved, no vegetation
13	Construct New Ammunition Storage Facilities	Mowed, maintained lawn.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Mowed, maintained lawn.
15	Demolition of Facility 716	Paved, no vegetation

Wildlife

Dover AFB does not provide high-quality habitat for wildlife because the base consists mostly of mowed lawn, buildings, and paved areas. Wildlife species likely to occur at Dover AFB include generalist species that are adapted to urban environments. Potential species include American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), white-tailed deer (*Odocoileus virginianus*), Eastern gray squirrel (*Sciurus carolinensis*), Eastern cottontail (*Sylvilagus floridanus*), red fox (*Vulpes vulpes*), house mouse (*Mus musculus*), and shrew (*Cryptotis* sp.). A recent study was completed at Dover AFB by DNREC to identify bat species occurring on the base. Results from the acoustic studies are still preliminary and have not been hand-vetted to confirm the presence of each species. Potential bat species occurring at Dover AFB include the big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycertis noctiagans*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinerus*), evening bat (*Nycticeius humeralis*), Indiana bat (*Myotis sodalis*), little brown myotis (*Myotis lucifugus),* northern long-eared myotis (*Myotis septenrionalis*), and tri-colored bat (*Perimyotis subflavous*).

Wetlands

A base-wide survey was conducted in 2009 to review waters of the United States and wetland boundaries confirmed in 2004. A total of 67.77 acres of waters of the United States and wetlands were identified during the 2009 delineation and confirmed to be jurisdictional by USACE (Figure 11).

A wetland delineation of the locations within and immediately adjacent to the proposed projects was performed on 27 January 2022 (Figure 11). One wetland that was previously identified in the 2009 delineation was confirmed to be located within the vicinity of the proposed Gate 5 location (Project 4) (Figure 12). This wetland is approximately 0.063 acres and is classified as a palustrine emergent wetland. One additional wetland was identified east of the existing Ammunitions Storage Facility and is within the boundary of Project 13 (Figure 13). This wetland is approximately 0.33 acres (14,515 square feet) and is classified as a palustrine emergent wetland (Figure 11).

Threatened and Endangered Species

A 2011-2012 survey identified no federally listed threatened, endangered, candidate species, or critical habitat at Dover AFB. In a letter dated 13 March 2012, USFWS concurred that except for a few transient individuals, no proposed or federally listed endangered or threatened species are known to exist on Dover AFB. The bat survey completed recently by DNREC indicated the potential for the federally endangered Indiana bat. The acoustic data has not been hand-vetted at this time, so confirmation of this species will be determined in the future.

Table 16 shows the federally listed animal and plant species known or believed to occur in Kent County, as indicated on the USFWS website as well as species previously identified at Dover AFB (USFWS 2022). The USFWS Information Planning and Conservation (IPAC) report (Appendix C) states the project site falls within the habitat range of the monarch butterfly (candidate species). Monarch butterflies require milkweed species for adults to lay eggs and for caterpillars to complete their life cycles. Adult monarchs also need the right nectar-producing plants in bloom for needed energy. Flowering plants occur at Dover AFB; however, large meadow areas with milkweed are currently not present on the base. The USFWS IPAC report states that no designated critical habitat occurs at Dover AFB (Appendix C). A total of 16 migratory birds were identified as potentially occurring within Dover AFB on the USFWS IPAC report (Table 17). Dover AFB and specifically the areas surrounding the proposed projects do not support habitat for the identified migratory birds.

Table 16. Federally Listed Species Occurring in Kent County, Delaware

Group	Common Name	Scientific Name	Status
Plant	Small Whorled Pogonia	*Isotria medeoloides*	Threatened
Plant	Seabeach Amaranth	*Amaranthus pumilus*	Threatened
Plant	Canby's Dropwort	*Oxypolis canbyi*	Endangered
Plant	Swamp Pink	*Helonias bullata*	Threatened
Clam	Dwarf Wedgemussel	*Alasmidonta heterodon*	Endangered
Insect	Monarch Butterfly	*Danaus plexippus*	Candidate
Mammal	West Indian Manatee	*Trichechus manatus*	Threatened
Birds	Red Knot	*Calidris canutus rufa*	Threatened

Source: USFWS 2022

Table 17. Migratory Birds Potentially Occurring at Dover AFB

Common Name	Scientific Name	Habitat
American oystercatcher	*Haematopus palliatus*	Shorelines, salt marshes
Bald eagle	*Haliaeetus leucocephalus*	Estuaries, rivers, lakes
Black skimmer	*Rynchops niger*	Shorelines
Blue-winged warbler	*Vermivora cyanoptera*	Open woodlands, shrublands
Bobolink	*Dolichonyx oryzivorus*	Fields, marshes
Gull-billed tern	*Gelochelidon nilotica*	Shorelines, marshes
Hudsonian godwit	*Limosa haemastica*	Shorelines, marshes
King rail	*Rallus elegans*	Fresh and brackish marsh
Lesser yellowlegs	*Tringa flavipes*	Fresh and brackish wetlands
Prairie warbler	*Setophaga discolor*	Second-growth forests, pine stands

Common Name	Scientific Name	Habitat
Prothonatory warbler	*Protonotaria citrea*	Wooded swamps
Ruddy turnstone	*Arenaria interpres*	Shorelines, mudflats
Rusty blackbird	*Euphagus carolinus*	Flooded woods, swamps, marshes
Short-billed dowitcher	*Limnodromus griseus*	Tidal marshes, mudflats
Willet	*Tringa semipalmata*	Shorelines
Wood thrush	*Hylocichla mustelina*	Woodlands near swamps or water

Delaware Department of Natural Resources and Environmental Control (DNREC) Division of Fish and Wildlife manages state-listed species in Delaware. Currently, the state endangered animals list includes 21 birds (7 include breeding populations only), 8 reptiles, 3 amphibians, 9 mammals, 7 fish, 7 mollusks, and 31 insects (DNREC 2022). Plant species are assigned a conservation status but are not protected by state regulation; the current list includes 583 plants (McAvoy 2018).

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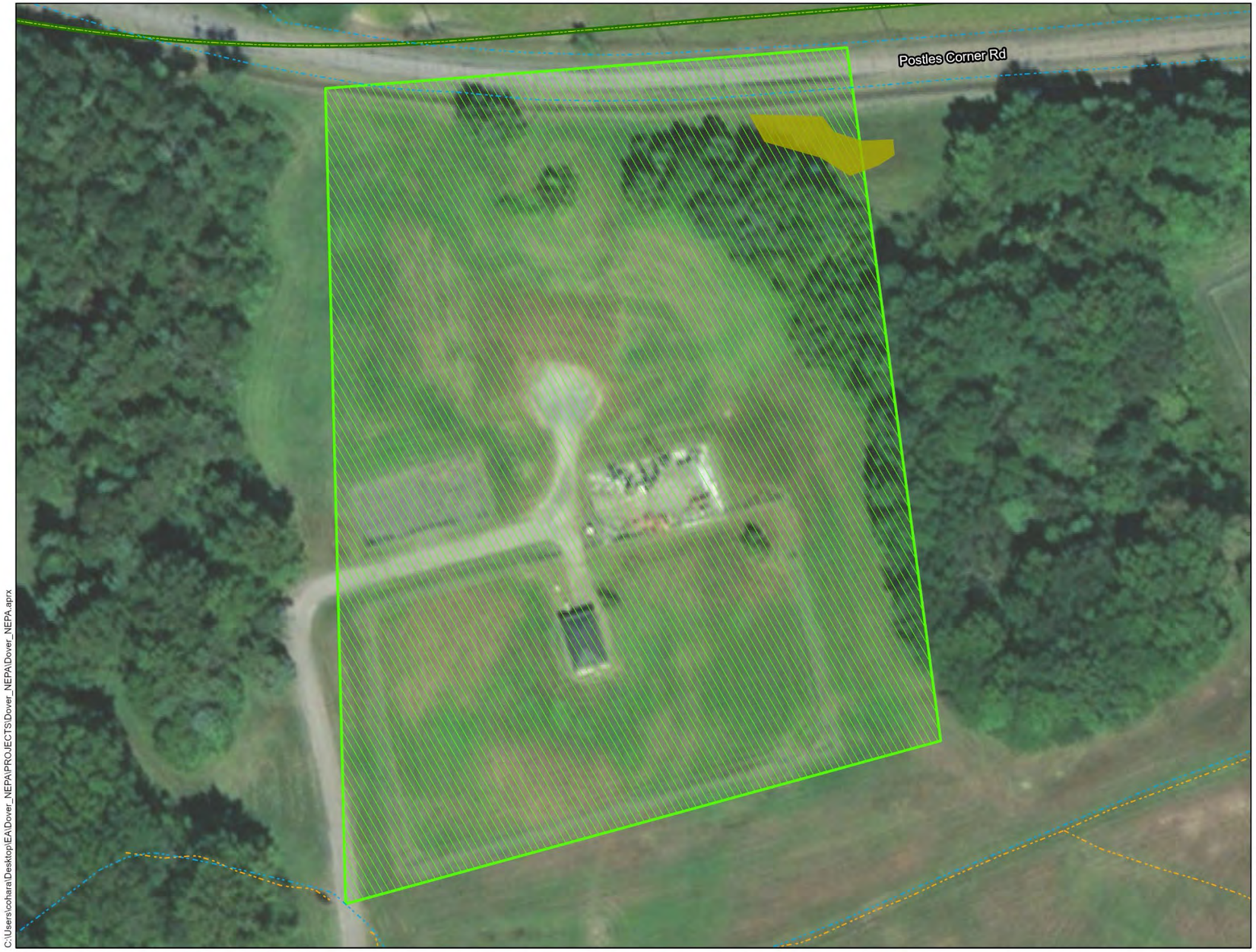

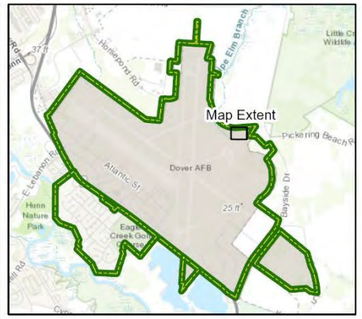

Legend

- Intermittent stream
- Surface Water Open Drainage
- Installation Boundary
- Wetland

Projects by Category

- Infrastructure Construction Project

Map Date: 4/26/2022
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 50 100
Feet

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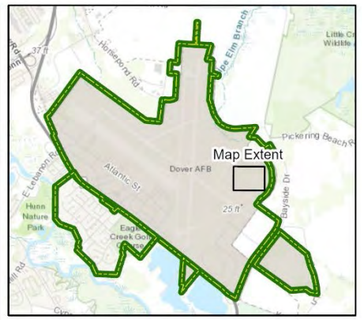
Figure 12
Wetlands Located within Project 4 (Relocate Gate 5)
Dover Air Force Base
Dover, Delaware



Legend

- Installation Boundary
- Wetland
- Surface Water Open Drainage

Projects by Category

- Demolition Project
- Facility Construction Project

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 100 200
Feet

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Figure 13
Wetlands Located within Projects 13 and 14 (Ammunition Storage Area)
Dover Air Force Base
Dover, Delaware

3.7.2 Environmental Consequences

No Action Alternative
Under the No Action Alternative, there would be no impact to biological resources within Dover AFB. Present conditions would continue.

Preferred Alternative

Vegetation
Projects 6, 8, 9, 10, and 12 would have no short-term or long-term impact to vegetation. Projects 8, 9, and 10 include renovation of existing buildings and all construction would be located inside the buildings. All construction associated with Project 12 is located on paved areas where vegetation does not occur. Project 6 includes repair the perimeter fence and would not include the removal or alteration of vegetation.

Short-term, negligible impacts to vegetation would occur during construction of Projects 2, 3, 5, 13, 14, and 15. Vegetation impacts would be located within mowed, maintained lawn areas. Construction equipment would cause damage to grass, and some grass would be removed during construction. Following construction, damaged and bare areas would be reseeded and re-established. No long-term impacts to vegetation are expected.

Short-term, minor, adverse impacts to vegetation would occur during construction of Projects 1, 4, 7, 11, and 13. The running track, indoor training facility, and munitions facilities would be located in areas of mowed, maintained grass; however, impacts would be minor because the area where vegetation would be removed would be a larger footprint. Vegetation removal associated with Gate 5 would also include shrubs and trees. Following construction, damaged and bare areas would be reseeded and re-established. Short-term impacts to vegetation associated with tree trimming would result from damage to vegetation if larger equipment is used. Long-term impacts to vegetation would be minor and adverse. Projects 4, 11, and 13 would include permanent removal of vegetation. Areas would be covered with buildings or other impervious structures. Tree trimming can impact trees in the long-term as it effects tree physiology. Tree trimming can reduce the tree's energy capture ability, draws down the stored energy reserves, and alters the growth pattern of the tree.

Wildlife
Similar to impacts to vegetation described above, Projects 6, 8, 9, 10, and 12 would have no short-term or long-term impact to wildlife as wildlife habitat does not occur within the project area.

Short-term, negligible impacts to wildlife would occur during the construction period of Projects 1, 2, 3, 4, 5, 11, 13, 14, and 15. Negligible impacts would result from the presence and noise associated with construction equipment. The project areas do not provide high quality wildlife habitat. In addition, wildlife that do occur within the vicinity of the project areas are adapted to urban environment and the noise associated with aircraft at Dover AFB. There would be no long-

term impacts following the construction period as noise levels and use would return to present conditions.

Short-term and long-term, minor, adverse impact to wildlife would occur due to Project 7. Tree trimming would occur in small forested areas that provide habitat to wildlife. There is potential for bats to use the tree trimming area for roosting. During construction, wildlife would be impacted due to the presence and noise of construction equipment and workers. Trimming of trees would alter the habitat for some wildlife. Nesting and roosting habitat and food sources for birds and small mammals would be removed. Tree trimming would occur between November 15th and March 31st to reduce impacts to roosting bats and nesting birds in the spring and fall.

Wetlands

There would be no impacts to wetlands from Projects 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, and 15 as there are no wetlands in the vicinity of the project areas. Short-term, negligible impacts to wetlands would occur from Projects 4, 13, and 14. A wetland area is located within the Gate 5 project area (Figure 12). This wetland would be avoided in the project design. A wetland area is also located within the project area for the demolition of the existing ammunition storage facilities and the construction of the new ammunition storage facilities (Figure 13). This wetland would also be avoided in the project design and layout of the new facilities. To reduce impacts to wetlands during the construction period, the wetland areas would be marked so construction equipment do not enter the wetlands. Impacts would be negligible during construction. Following construction, no long-term impacts are expected to occur.

Threatened and Endangered Species

If the Indiana bat is confirmed to occur on Dover AFB, short and long-term minor adverse impacts to this species would occur during tree trimming (Project 7). In the summer and fall, Indiana bats primarily use wooded or semi-wooded habitats, usually near water for roosting and foraging. In general, Indiana bats roost under exfoliating bark of trees such as shagbark hickory (*Carya ovata*), maples, green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), and oaks. To reduce impacts to bats, trees identified as having relatively high value as potential Indiana bat roost trees would be avoided. In addition, tree trimming activities would only occur from November 15th through March 31st when Indiana bats are hibernating. This would avoid direct impacts to bats that may be roosting within the tree trimming areas in the spring and fall.

There would be no short-term or long-term impacts to threatened and endangered species from the remaining projects as no other listed species occur within the project areas. In addition, there would be no impact to migratory birds as the project areas do not have habitat to support them. Table 18 includes the summary of impacts from the proposed action.

Table 18. Summary of Biological Resources Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term and long-term, minor adverse impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.
2	Repair/Construct South Ramp	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.
3	Repair/Construct Taxiway Hotel	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.
4	Relocate Gate 5	Short-term and long-term, minor adverse impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. Short-term, negligible impacts to wetlands. No long-term impact to wetlands. No short-or long-term impacts to threatened and endangered species.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.

Project Number	Project Description	Impact
	Reconfigure North Gate and Main Gate *Option B*	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	No impact to vegetation, wildlife, wetlands, and threatened and endangered species.
7	Tree Trimming	Short-term and long-term, minor adverse impacts to vegetation. Short-term and long-term, minor adverse impacts to wildlife. No impact to wetlands. Short-term and long-term, minor adverse impacts to threatened and endangered species.
8	Repair Building 635	No impact to vegetation, wildlife, wetlands, and threatened and endangered species.
9	Repair Building 721	No impact to vegetation, wildlife, wetlands, and threatened and endangered species.
10	Renovate Building 789	No impact to vegetation, wildlife, wetlands, and threatened and endangered species.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term and long-term, minor adverse impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.
12	Construct Multi Phase Hangar Complex	No impact to vegetation, wildlife, wetlands, and threatened and endangered species.
13	Construct New Ammunition Storage Facilities	Short-term and long-term, minor adverse impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. Short-term, negligible impacts to wetlands. No long-term impact to wetlands. No short-or long-term impacts to threatened and endangered species.

Project Number	Project Description	Impact
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. Short-term, negligible impacts to wetlands. No long-term impact to wetlands. No short-or long-term impacts to threatened and endangered species.
15	Demolition of Facility 716	Short-term, negligible impacts to vegetation. No long-term impacts to vegetation. Short-term, negligible impacts to wildlife. No long-term impacts to wildlife. No impact to wetlands. No short-or long-term impacts to threatened and endangered species.

3.8 CULTURAL RESOURCES

3.8.1 Affected Environment

Definition of Resource

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural resources.

Historic properties are districts, sites, buildings, structures, and objects that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the NRHP; they also include records and human remains that are related to and located within such properties. Consideration of effects on historic properties is mandated both by NEPA and by Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108). Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties and to afford the State Historic Preservation Office and the Advisory Council on Historic Preservation an opportunity to comment on such undertakings.

Existing Conditions

Established in December 1941 on the site of a public airfield, Dover AFB is located in an area of Delaware that is rich with both prehistoric and historic cultural resources. Archaeological surveys were conducted on a large percentage of the open land at Dover AFB. Archaeological surveys identified 15 sites on base, five of which have been determined as eligible for listing in the NRHP, including archaeological sites 7K-D-1 (St. Jones Adena Site), 7K-D-5 (Short Farm Site), 7K- D-26, 7K-D-129 (John Wesley Cemetery), and 7K-D-143 (School House #14 or

Comegy's School). No new discoveries of Native American graves or other culturally sensitive areas have been identified on Dover AFB (Dover AFB 2020).

Many of the existing buildings at Dover AFB are now over 50 years old; therefore, the process of surveying buildings on base is an ongoing effort. Many World War II- and Cold War-related facilities have been evaluated, resulting in the listing of the World War II hangar and Building 1301 in the NRHP. Now serving as the AMC Museum, Building 1301 is preserved as a proud vestige of Dover AFB's history. The Dover AFB Middle School/Major George S. Welch School (Building 3100) was determined eligible for listing in the NRHP, but is slated for demolition or partial demolition. Buildings 1203 and 1204 are considered World War II-era facilities. The buildings were built in 1942 and were originally used as a Weapons Storage Igloo. These buildings were evaluated in 1987 and were determined to not be eligible for listing on the NRHP (Dover AFB 2020).

Archaeological surveys have been completed in portions of Dover AFB and artifacts have been recovered. There is potential for additional artifacts to be discovered in areas where archaeological surveys have not been conducted.

3.8.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impacts to cultural resources. There would be no construction, demolition, or ground disturbance that would impact archeological resources or historic resources.

Preferred Alternative

None of the proposed projects would impact archaeological resources. Although during construction ground disturbance would occur, none of the projects are located within the vicinity of a known archeological resource. In the case of inadvertent discovery of archeological materials or human remains during construction, demolition, or renovation activities, the standard operating procedures for the protection of archaeological resources outlined in the base's Integrated Cultural Resources Management Plan would be followed. This procedure requires that all work cease upon discovery, and Security Forces and the cultural resources manager be notified and implement a series of steps to address the discovery.

None of the proposed projects would impact historic properties. None of the facilities proposed for demolition or renovations are listed as eligible under the NRHP.

Currently, there are no known resources of significance to Native American tribes at Dover AFB; therefore, no impacts on such resources are anticipated. However, if there is an inadvertent discovery of archaeological resources during construction, activities would cease and Native American tribes would be contacted. Table 19 includes the summary of impacts from the proposed action.

Table 19. Summary of Cultural Resource Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	No impact.
2	Repair/Construct South Ramp	No impact.
3	Repair/Construct Taxiway Hotel	No impact.
4	Relocate Gate 5	No impact.
5	Reconfigure North Gate and Main Gate *Option A*	No impact.
	Reconfigure North Gate and Main Gate *Option B*	No impact.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	No impact.
7	Tree Trimming	No impact.
8	Repair Building 635	No impact.
9	Repair Building 721	No impact.
10	Renovate Building 789	No impact.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	No impact.
12	Construct Multi Phase Hangar Complex	No impact.
13	Construct New Ammunition Storage Facilities	No impact.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	No impact.
15	Demolition of Facility 716	No impact.

3.9 EARTH RESOURCES

3.9.1 Affected Environment

Definition of Resource

Earth resources includes the geology, topography, and soils located within the project area. Topography describes the physical surface characteristics of land such as slope, elevation, and general surface features. Long-term geological, erosional, and depositional processes typically influence topographic relief of an area. The geology of an area includes bedrock materials and mineral deposits. The principal geologic factors influencing the stability of structures are soil

stability, bedrock depth, and seismic properties. Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, liquefaction potential, and its potential to erode, all determine the ability of the ground to support structures and facilities.

Existing Conditions

Dover AFB lies within the Atlantic Coastal Plain Physiographic Province. The province is underlain by a wide, wedge-shaped belt of Cretaceous to recent layered sedimentary deposits of sand, gravel, silt, clay, limestone, chalk, and marl dipping to the southeast. Near-surface geologic layers underlying Dover AFB, from youngest to oldest, are recent sediments, the Pleistocene Columbia Formation (which contains only the Calvert Formation in this area), the Miocene Chesapeake Group, and the Eocene Piney Point Formation. The Columbia Formation consists of fluvial deposits and is the dominant surficial formation in Delaware. The Calvert Formation consists of three silty layers (known as the upper, middle, and lower units) that are separated by two sand layers (known as the upper and lower sands). The Eocene Piney Point Formation consists of fine to medium glauconitic (from the mica group) sand with shells.

Soils

Dover AFB is predominantly classified as urban land (Up) and Udorthents (0 to 10 percent slopes). Soils in the vicinity of the Gate 5 Relocation project include Unicorn loam (2 to 5 percent slopes). Soils in the vicinity of the tree clearing area include Woodstown loam, (0 to 2 percent slopes, Mid-Atlantic Coastal Plain) and Greenwich loam (0-2 and 2-5 percent slopes). Soils along the northern site of the munitions storage area are classified as Tent silt loam (0 to 2 percent slopes).

No portion of Dover AFB is currently in agricultural use; however, Woodstown loam and Greenwich loam are both classified as prime farmland and Tent silt loam is classified as farmland of statewide importance. Due to extensive construction-related soil disturbance over the base's 72-year history, these soils likely do not retain the qualities and characteristics that make them suitable for farming.

Topography

The local relief at Dover AFB is typically associated with stream channel development and/or erosion. Surface elevations range from a low of approximately 10 ft above mean sea level along the banks of the St. Jones River to approximately 30 ft above mean sea level in the northwest portion of Dover AFB, in the vicinity of Buildings 919 and 946. The Dover AFB airfield elevation is approximately 30 ft above mean sea level.

3.9.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no impact to earth resources as conditions would remain the same and there would be no construction, demolition, or renovation projects implemented.

Preferred Alternative

Projects 8, 9, and 10 would have no impact to earth resources. Projects 8, 9, and 10 include renovations of the interior of buildings and no ground disturbance is expected.

None of the projects would have impacts to geology. Construction would not include blasting or changes to the geologic strata underlying Dover AFB. In addition, none of the projects would alter the topography within the vicinity of each project. Overall, Dover AFB is relatively flat. Although excavation and grading would occur for some of the construction projects, no change in topography would occur. For the demolition projects, after removal of the buildings, the land would be graded to be relatively flat similar to surrounding areas.

Construction and demolition activities associated with Projects 1, 2, 3, 4,5, 11, 12, 13, 14, and 15 would require excavation and grading of soil. Soils removed from the site would be reused on site. If soils cannot be reused, soils would be stockpiled, tested, and disposed of in accordance with federal, state, local, and USAF regulations and as directed by Civil Engineering Environmental. During construction there is potential for soil erosion to occur. To reduce impacts, BMPs would be implemented including the use of silt fences, hay bales, and mats. Implementation of BMPs would reduce soil runoff and sedimentation. Short-term, minor, adverse impacts to soils are expected. An increase in impervious area would result from paving associated with the running track, south ramp, taxiway hotel, Gate 5, and reconfiguration of the North and Main gate, and construction of new buildings. Following construction, disturbed and bare areas would be seeded and re-established. Long-term impacts would be negligible. Projects 6 and 7 would have short-term, negligible impacts to soils. Tree trimming and repairing the perimeter fence would not require excavation or grading of soils. There is potential that soils could be moved if the use of construction equipment is needed. There would be no long-term impacts to soils from projects 6 and 7. Table 20 includes the summary of impacts from the proposed action.

Table 20. Summary of Earth Resources Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
2	Repair/Construct South Ramp	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
3	Repair/Construct Taxiway Hotel	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.

Project Number	Project Description	Impact
4	Relocate Gate 5	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
5	Reconfigure North Gate and Main Gate *Option A*	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
	Reconfigure North Gate and Main Gate *Option B*	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	No impact to geology. No impact to topography. Short-term, negligible impacts to soils. No long-term impacts to soils.
7	Tree Trimming	No impact to geology. No impact to topography. Short-term, negligible impacts to soils. No long-term impacts to soils.
8	Repair Building 635	No impacts to earth resources.
9	Repair Building 721	No impacts to earth resources.
10	Renovate Building 789	No impacts to earth resources.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
12	Construct Multi-Phase Hangar Complex	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
13	Construct New Ammunition Storage Facilities	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.

Project Number	Project Description	Impact
15	Demolition of Facility 716	No impact to geology. No impact to topography. Short-term, minor, adverse impacts to soil. Long-term, negligible impacts to soils.

3.10 SOCIOECONOMIC RESOURCES/ENVIRONMENTAL JUSTICE

3.10.1 Affected Environment

Definition of Resource

This section describes the socioeconomic characteristics of the communities surrounding Dover AFB. The study area for this section is comprised of three 2020 U.S. census tracts immediately adjacent to the installation boundary. This is the area in which impacts potentially resulting from implementation of the proposed action would most likely be experienced by the resident population.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to consider disproportionately high adverse effects on the human or environmental health to minority and low-income populations resulting from implementation of a proposed action. As such, agencies are required to ensure any potential effects are identified and addressed.

Existing Conditions

Table 21 includes population, demographic, and poverty data for the Census Tracts surrounding Dover AFB. Census Tract 410 is located to the northwest of the base, Census Tract 432.02 is located to the east of the base, and Census Tract 412 is located to the west of the base. Data for Delaware and Kent County are included for comparison purposes.

The socioeconomic study area (Census Tracts) includes approximately 8 percent of Kent County's total population. Tract 410, northwest of Dover AFB, is the most populous tract, while Tract 432.02, east of the base, is the least populous (Table 21).

The racial and ethnic composition of the socioeconomic study area is presented in Table 21. Whites make up approximately 49 percent of the study area population. This is a smaller percentage than the state (60 percent) and Kent County (59 percent). Minorities in the study area include approximately 51 percent of the population, which exceeds the proportions found in the state (40 percent) and Kent County (41 percent).

According to CEQ guidance on EO 12898, "minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis […] Based on the data presented in Table 21, Census Tracts 410 and 412 would be considered an

environmental justice community of concern because the minority population exceeds 50 percent.

Table 21. Socioeconomic Data for Areas Surrounding Dover AFB

Location	Population	Race						
		White	Black/African American	American Indian/Alaska Native	Asian	Native Hawaiian/Pacific Islander	Other Race (Includes Two or More Races	Total Minority
Delaware	989,948	597,763	218,899	5,148	42,699	412	125,027	39.6
Kent County, DE	181,151	107,685	46,998	1,149	4,429	125	20,765	40.6
Census Tract 410	7,443	2,743	3,078	67	263	7	4,707	63.2
Census Tract 412	4,368	1,852	1,492	21	296	0	707	57.6
Census Tract 432.02	3,722	2,944	294	23	24	4	433	17.8

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3.10.2 Environmental Consequences

No Action Alternative
Under the No Action Alternative, there would be no impact to socioeconomics or environmental justice as present conditions would remain the same.

Preferred Alternative
There would be no impact to socioeconomics within the vicinity of Dover AFB. Implementation of each project would not require the addition of new staff within the base. There would be no population increase, change in demographics, or economic loss in the community as a result of the construction, demolition, and renovation projects at Dover AFB.

During the construction phase of each project, a beneficial impact to the local economy would occur. It is likely that local contractors would be used during construction over the next 5 years. The local economy including Dover and Kent County would benefit from contractors using nearby restaurants, gas stations, etc.

Census Tracts 410 and 412 are considered an environmental justice community of concern due to the percent of minorities within the population. All projects would occur within Dover AFB and all impacts associated with the projects would be localized and would not disproportionately impact environmental justice communities. Table 22 includes the summary of impacts from the proposed action.

Table 22. Summary of Socioeconomics/Environmental Justice Impacts by Project

Project Number	Project Description	Impact
Infrastructure Construction Projects		
1	Relocate Base Running Track	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
2	Repair/Construct South Ramp	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
3	Repair/Construct Taxiway Hotel	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
4	Relocate Gate 5	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
5	Reconfigure North Gate and Main Gate *Option A*	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
	Reconfigure North Gate and Main Gate *Option B*	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
Renovation and Repair Projects		
6	Repair Perimeter Fencing	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
7	Tree Trimming	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
8	Repair Building 635	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.

Project Number	Project Description	Impact
9	Repair Building 721	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
10	Renovate Building 789	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
Facility Construction Projects		
11	Construct SFS Indoor Training Facility	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
12	Construct Multi-Phase Hangar Complex	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
13	Construct New Ammunition Storage Facilities	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
Demolition Projects		
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.
15	Demolition of Facility 716	Short-term, beneficial impacts to socioeconomics. No impact to environmental justice communities.

3.11 OTHER NEPA CONSIDERATIONS

3.11.1 Unavoidable Adverse Effects

This EA identifies any unavoidable adverse impacts that would be required to implement the Proposed Action and the significance of the potential impacts to resources and issues. Title 40 of the *Code of Federal Regulations* §1508.27 specifies that a determination of significance requires consideration of context and intensity. Unavoidable short-term, adverse impacts associated with the construction phase of the Proposed Action would include: temporary intermittent noise during construction, increases in criteria pollutant emissions, increase in sedimentation and erosion, increase safety risks, increase use of hazardous materials, increase generation of hazardous wastes, and vegetation and wildlife disturbance. However, these effects are considered minor and would be confined to the project areas. Use of BMPs would minimize potential impacts. Unavoidable long-term, adverse impacts associated with implementation of the Proposed Action would include intermittent noise associated with mission activities, increased stormwater due to an increase in impervious surfaces, and permanent removal of vegetation. For the Proposed Action to be accomplished, these impacts would occur. The action is required to continue to provide infrastructure that is adequate to meet the needs of the 436 AW and tenant units.

3.11.2 Relationship of Short-Term Uses and Long-Term Productivity

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. The short-term effects would be those associated with the construction period

for the various construction, demolition, and renovation projects proposed. The long-term enhancement of productivity would be those effects associated with the mission activities within each project area. The Proposed Action represents an enhancement of long-term productivity for the mission of the 436 AW. The short-term negative effects during construction would be negligible to minor compared to the positive benefits of the installation development over the next five years at Dover AFB. Immediate and long-term benefits would be realized for mission support after completion of the Proposed Action.

3.11.3 Irreversible and Irretrievable Commitments of Resources

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action. The short-term irreversible commitments of resources that would occur would include planning and engineering costs, building materials and supplies and their cost, use of energy resources during construction, labor, generation of air emissions, and creation of temporary construction noise. The long-term irretrievable commitments of resources that would occur is the loss of soil and vegetation due to excavation, grading, and paving.

3.11.4 Cumulative Impacts

Cumulative impacts are "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions"(40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over time by various agencies (federal, state, and local) or private parties.

The scope of the cumulative effects analysis involves both the timeframe and geographic extent in which effects could be expected to occur, as well as a description of what resources could potentially be cumulatively affected. For the purposes of this analysis, the temporal span of the proposed action is six years. The geographic extent consists of the base and surrounding census tracts.
The following past, present, and future actions at Dover AFB were considered the cumulative impact analysis:

- Demolition of the existing Dover AFB Middle School and Welch Elementary School - This project would include the demolition of the school's sidewalks and parking areas. Following demolition, a new two story combined elementary and middle school, athletic fields, parking lots, and grounds maintenance storage building would be constructed. Construction of these facilities began in 2020.
- Construction of a fully enclosed fuel cell hangar - This project includes the construction of a fully enclosed fuel cell hangar that would be designed to allow repairs to fuel intake systems and capable of housing the C-5M Super Galaxy, the largest aircraft in the USAF. Construction of the hangar began in 2020.

Table 23 includes a summary of the potential long-term cumulative impacts on resources from the proposed action when combined with past, present, and reasonably foreseeable future projects.

Table 23. Cumulative Impacts

Resource	Cumulative Impact
AICUZ Land Use/Noise	No cumulative impacts. Existing noise levels around Dover AFB would continue to be dominated by aircraft. There would be no changes to land use on or off the base.
Air Quality	No cumulative impacts. An increase in air emissions is expected from the proposed action; however, impacts would be short-term and the area would still be in attainment for criteria air pollutants.
Water Resources	Negligible cumulative impacts. The proposed action would have an increase in impervious surfaces throughout the base resulting in an increase in stormwater runoff. Although a cumulative increase in stormwater is anticipated, the increase is not likely to result in significant adverse impacts on water resources.
Safety	Beneficial cumulative impacts. The long-term impacts associated with the proposed action would be beneficial due to the renovation and demolition of unsafe, outdated facilities. When considered along with the beneficial impacts to safety from the school and new hangar, cumulative impacts would be beneficial.
Hazardous Materials and Waste	No cumulative impacts. There would be no long-term impacts pertaining to hazardous substances from the proposed action.
Biological Resources	Negligible cumulative impacts. The proposed action would have a long-term negligible impact to vegetation and wildlife through disturbance. However, no valuable habitat would be lost, no wetlands would be impacted, and no protected species would be affected.
Cultural Resources	No cumulative impact. The proposed action would have no adverse impacts on cultural resources on or outside Dover AFB.
Earth Resources	Negligible cumulative impacts to soils. No cumulative impact to geology or topography. The proposed action would have no impact to geology or topography. The proposed action would result in a loss of soil and an increase to impervious areas. The construction of a new school and airport hangar would also include an increase in impervious area. The cumulative loss of soil in the rural area is not expected to be significant.

Socioeconomics/Environmental Justice	No cumulative impacts. The proposed action would have no long-term adverse impacts to socioeconomics or the potential to impact an environmental justice community.

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4. LIST OF PREPARERS

Dover Air Force Base
Joe Kowalski, Environmental Compliance Chief
Tami Calhoun, Natural and Cultural Resource Manager
Brandon Cartwright, Programmer
Steven Seip, Engineering Flight Chief

USACE – Philadelphia District
Sterling Johnson, Project Manager
Michael Mohn, Technical Point of Contact
Dan Sirkis, Contracting Officer Representative

EA Engineering, Science, and Technology, Inc., PBC
Jeannette Matkowski, Project Manager
Kat Cerny-Chipman, NEPA Specialist
Kristen Rigney, Environmental Scientist
Sunhee Park, Air Quality Specialist
William Broberg, Environmental Scientist
Dan Savercool, Principal

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5. PERSONS AND AGENCIES CONSULTED/COORDINATED

Dover Air Force Base
Installation Development Environmental Assessment
Consultation and Coordination List

Federal Agencies

U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
Attn: Genevieve LaRouche, Project Leader
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
(410) 573-4599

U.S. Environmental Protection Agency
Region 3 Regional Office
1650 Arch Street
Philadelphia, PA 19103-2029
800-438-2474

Federally Recognized Indian Tribes

Delaware Nation
Erin Paden
Historic Preservation Director
P.O. Box 825
Anadarko, OK 73005
405-247-2448, Ext 1403
epaden@delawarenation-nsn.gov

Delaware Tribe Historic Preservation Office
Larry Heady
Delaware Tribal Historic Preservation Officer
125 Dorry Lane
Grants Pass, OR 97527
lheady@delawaretribe.org

Stockbridge-Munsee Community Band of Mohican Indians of Wisconsin
Bonney Hartley, Historic Preservation Manager/NAGPRA
W13447 Camp 14 Road
Bowler, WI 54416
413-884-6048

State Agencies

Delaware Department of Natural Resources and Environmental Control
Division of Watershed Management
Attn: Terry Deputy, Director
285 Beiser Blvd., Suite 102

Dover, DE 19904
302-739-9921

Delaware Department of Natural Resources and Environmental Control
Division of Air Quality
Attn: Richard Walford
100 W. Water Street, Suite 6A
Dover, DE 19904
302-739-9402
Richard.walford@deleware.gov

Delaware Department of Natural Resources and Environmental Control
Division of Waste and Hazardous Substances
Attn: Timothy Ratsep, Director
Richardson and Robbins Building
89 Kings Highway
Dover, DE 19901
302-739-9400

Delaware Department of Natural Resources and Environmental Control
Division of Fish and Wildlife
Attn: David Saveikis, Director
Richardson and Robbins Building
89 Kings Highway
Dover, DE 19901
302-739-9910

Delaware State Historic Preservation Office
21 The Green
Dover, DE 19901
302-736-7400

Delaware Coastal Management Program
Attn: Kimberly Cole

100 W. Water Street, Suite 7B
Dover, DE 19904
302-739-9283
kimberly.cole@state.de.us

Delaware Department of Transportation
Central District – Planning Division
P.O. Box 778
Dover, DE 19903

Local Agencies

City of Dover
Attn: Dave Hugg, Interim City Manager
City Hall
PO Box 475
Dover, DE 19903
(302) 736-7005
dhugg@dover.de.us

City of Dover
Department of Planning and Inspections
Attn: Dave Hugg, Director
City Hall
PO Box 475
Dover, DE 19903

Kent County Department of Planning
Attn: Sarah E. Keifer, Director
555 Bay Rd Dover, DE 19901
(302) 744-2471
planning@co.kent.de.us

Delaware Office of State Planning Coordination
Attn: David Edgell, Director
Haslet Armory
122 Martin Luther King Jr. Blvd. South
Dover, DE 19901
302-739-3090

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6. REFERENCES

Delaware Department of Natural Resources and Environmental Control (DNREC). 2022. Delaware's Endangered Species. Available [online]: https://dnrec.alpha.delaware.gov/fish-wildlife/conservation/endangered-species/. Accessed on 11 February 2022.

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https://www.epa.gov/sites/default/files/2017-03/documents/2017_cgp_final_appendix_b_-_areas_of_permit_coverage_508.pdf> Accessed 24 January 2022.

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Appendix A

Interagency/Intergovernmental Coordination and Public Participation

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Example Consultation Letters

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DEPARTMENT OF THE AIR FORCE
436TH CIVIL ENGINEER SQUADRON (AMC)
Dover Air Force Base, Delaware 19902

24 March 2022

MEMORANDUM FOR DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

FROM: 436 AW/CV

Subject: Installation Development Environmental Assessment for Dover Air Force Base, Delaware

Delaware Department of Natural Resources and Environmental Control
Division of Air Quality
Attn: Richard Walford
100 W. Water Street, Suite 6A
Dover, DE 19904

Dear Mr. Walford:

Dover Air Force Base (AFB) is preparing an Environmental Assessment (EA) to evaluate impacts for the future installation development from Fiscal Year 2022 through 2028. Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figure 1). Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission.

The purpose of the project is to construct, repair, renovate, and maintain existing assets and infrastructure at Dover AFB from FY 2022 through 2028 to support current and future mission requirements by maintaining and providing needed infrastructure. The project is needed as many of the facilities at Dover AFB are outdated and deteriorating providing unsafe working conditions. In addition, the deteriorating facilities no longer allow the 436 AW and other tenant units to successfully complete their missions.

Proposed Action

The Proposed Action includes the construction of new facilities and infrastructure, renovation of existing facilities, and the demolition of facilities that can reasonably be anticipated to be implemented from FY 2022 through 2028. The Proposed Action would support mission growth and quality of life for installation users. The list of projects included in the Proposed Action is included in Table 1. Locations of each project are included in Figure 2.

Table 1. Projects Included in the Proposed Action

Project Number	Project	Description
	Infrastructure Construction Projects	
1	Relocate the Base Running Track	Construction of a new running track along Evreux Street adjacent to the existing baseball diamond
2	Repair/Construct South Ramp	South Ramp would be repaved and expanded to allow additional parking for aircraft.
3	Repair/Construct Taxiway Hotel	The Taxiway Hotel would be repaired, and new portions would be constructed to ensure applicable aircraft can utilize access to the Hazardous Cargo Pad.
4	Relocate Gate 5	The exiting Gate 5 would be relocated to accommodate more parking in the munitions area.
5	Reconfigure North Gate and Main Gate	*Option A:* The reconfiguration of the Main Gate and North Gate would include a traffic circle.
		Option B: The reconfiguration of the Main Gate and North Gate would include a serpentine approach.
	Renovation and Repair Projects	
6	Repair Perimeter Security Fencing	Damaged portions of the security fence would be replaced with updated fencing.
7	Tree Trimming	Tree trimming will occur in areas where vegetation is overgrown or in areas where tree height jeopardizes aircraft safety.
8	Repair B635	Building 635 will be renovated to provide lifecycle heating, ventilation, and air conditioning (HVAC), electrical, and infrastructure improvements
9	Repair B721	Building 721 will be renovated to provide lifecycle heating, ventilation, and air conditioning (HVAC), electrical, and infrastructure improvements
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	Facility Construction Projects	
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12	Construct Multi-Phase Hangar Complex	Three new aircraft hangars will be constructed and will replace the existing hangars.
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	Demolition Projects	

Project Number	Project	Description
14	Demolition of Facilities 1201, 1203, 1204, 1206, and 1207	The existing ammunition storage facilities will be demolished.
15	Demolition of Facility 716	Building 716 will be demolished.

Thank you in advance for your comments. Please return your comments to me at the mailing address above or by email at joseph.kowalski.8@us.af.mil. If you have questions, please contact me at 302-677-4753 or by email.

Sincerely,

JOSEPH S. KOWALSKI III
Chief, Environmental Compliance
436 Civil Engineering Squadron

Attachments:

Figure 1 – Dover AFB
Figure 2 – Proposed Locations of Projects

DEPARTMENT OF THE AIR FORCE
436TH CIVIL ENGINEER SQUADRON (AMC)
Dover Air Force Base, Delaware 19902

24 March 2022

MEMORANDUM FOR U.S ENVIRONMENTAL PROTECTION AGENCY

FROM: 436 AW/CV

Subject: Installation Development Environmental Assessment for Dover Air Force Base, Delaware

U.S. Environmental Protection Agency
Region 3 Regional Office
1650 Arch Street
Philadelphia, PA 19103-2029
800-438-2474

Dear Ms. LaRouche:

Dover Air Force Base (AFB) is preparing an Environmental Assessment (EA) to evaluate impacts for the future installation development from Fiscal Year 2022 through 2028. Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figure 1). Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission.

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15	Demolition of Facility 716	Building 716 will be demolished.

Thank you in advance for your comments. Please return your comments to me at the mailing address above or by email at joseph.kowalski.8@us.af.mil. If you have questions, please contact me at 302-677-4753 or by email.

Sincerely,

JOSEPH S. KOWALSKI III
Chief, Environmental Compliance
436 Civil Engineering Squadron

Attachments:

Figure 1 – Dover AFB
Figure 2 – Proposed Locations of Projects

DEPARTMENT OF THE AIR FORCE
436TH CIVIL ENGINEER SQUADRON (AMC)
Dover Air Force Base, Delaware 19902

24 March 2022

MEMORANDUM FOR U.S FISH AND WILDLIFE SERVICE

FROM: 436 AW/CV

Subject: Installation Development Environmental Assessment for Dover Air Force Base, Delaware

Ms. Genevieve LaRouche
Project Leader
U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Dear Ms. LaRouche:

Dover Air Force Base (AFB) is preparing an Environmental Assessment (EA) to evaluate impacts for the future installation development from Fiscal Year 2022 through 2028. Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figure 1). Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission.

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Based on the review of the USFWS Information Planning and Conservation report, the project site falls within the habitat range of the monarch butterfly (*Danaus plexippus*) (candidate species). Due to the industrial setting of Dover AFB, there is no habitat to support the monarch butterfly within the project areas. Based on past survey work completed at Dover AFB, no other threatened, endangered, proposed, or candidate species are known to or may occur in the project area. No critical habitat has been designated or proposed for Dover AFB.

Because the project area is not within suitable habitat nor will any potential suitable habitat be disturbed, no listed species would be directly or indirectly impacted. Furthermore, there are no impacts to trees and/or wetlands or other native habitat that supports the above listed species. Dover AFB has therefore determined the proposed project will have no effect on listed species and further consultation with your office is not necessary. Your written concurrence with this determination of no effect is, however, requested.

Thank you in advance for your comments. Please return your comments to me at the mailing address above or by email at joseph.kowalski.8@us.af.mil. If you have questions, please contact me at 302-677-4753 or by email.

Sincerely,

JOSEPH S. KOWALSKI III
Chief, Environmental Compliance
436 Civil Engineering Squadron

Attachments:

Figure 1 – Dover AFB
Figure 2 – Proposed Locations of Projects

DEPARTMENT OF THE AIR FORCE
436TH CIVIL ENGINEER SQUADRON (AMC)
Dover Air Force Base, Delaware 19902

24 March 2022

MEMORANDUM FOR DELAWARE TRIBE HISTORIC PRESERVATION OFFICE

FROM: 436 AW/CV

Subject: Installation Development Environmental Assessment for Dover Air Force Base, Delaware

Delaware Tribe Historic Preservation Office
ATTN: Larry Heady, Delaware Tribal Historic Preservation Officer
125 Dorry Lane
Grantis Pass, OR 97527

Dear Mr. Heady:

Dover Air Force Base (AFB) is preparing an Environmental Assessment (EA) to evaluate impacts for the future installation development from Fiscal Year 2022 through 2028. Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figure 1). Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission.

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The Department of Defense American Indian and Alaska Native Policy recognizes the "importance of…addressing tribal concerns, past, present, and future" and states that "these concerns should be addressed prior to reaching decisions on matters that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands."

With this letter, Dover AFB invites the Delaware Tribe to provide input regarding this NEPA analysis and to initiate government-to-government consultation so you can express your comments, concerns, and suggestions. These consultations conducted pursuant to Section 106 of the National Historic Preservation Act, 36 CFR Part 800, and Executive Order 13175, will provide an opportunity to exchange information, ask questions, and advise Dover AFB of any concerns or suggestions you may have regarding the proposed projects. After the draft EA is completed, we will send you a copy for your further review and comments.

Thank you in advance for your comments. Please return your comments to me at the mailing address above or email to tami.calhoun.2@us.af.mil. If you have questions, please contact me at 302-677-5691 or by email.

Sincerely,

TAMI CALHOUN
Natural and Cultural Resource Manager
436 Civil Engineering Squadron

Attachments:

Figure 1 – Dover AFB
Figure 2 – Proposed Locations of Projects

DEPARTMENT OF THE AIR FORCE
436TH CIVIL ENGINEER SQUADRON (AMC)
Dover Air Force Base, Delaware 19902

24 March 2022

MEMORANDUM FOR DELAWARE STATE HISTORIC PRESERVATION OFFICE

FROM: 436 AW/CV

Subject: Installation Development Environmental Assessment for Dover Air Force Base, Delaware

Delaware State Historic Preservation Office
21 The Green
Dover, DE 19901

To Whom it May Concern:

Dover Air Force Base (AFB) is preparing an Environmental Assessment (EA) to evaluate impacts for the future installation development from Fiscal Year 2022 through 2028. Dover AFB is approximately 3,827 acres and is located approximately 2 miles southeast of downtown Dover, Delaware (Figure 1). Installation development is an ongoing process at Dover AFB. Because mission needs largely dictate land and facility support requirements, installation development is centered around the capabilities of existing infrastructure and facilities to meet the needs of the existing and projected mission.

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15	Demolition of Facility 716	Building 716 will be demolished.

The proposed project would include the demolition of Buildings 1201, 1203, 1204, 1206, and 1207. The proposed project would also include the renovation of Buildings 635, 721, and 789. Many of the existing buildings at Dover AFB are over 50 years old; therefore, the process of surveying buildings on base is an ongoing effort. The buildings proposed for demolition and renovation are not listed or eligible to be listed on the National Register of Historic Places and would have no effect to historic properties. Dover Air Force Base requests your concurrence with this determination.

Thank you in advance for your comments. Please return your comments to me at the mailing address above or email to tami.calhoun.2@us.af.mil. If you have questions, please contact me at 302-677-5691 or by email.

Sincerely,

TAMI CALHOUN
Natural and Cultural Resource Manager
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Figure 2 – Proposed Locations of Projects

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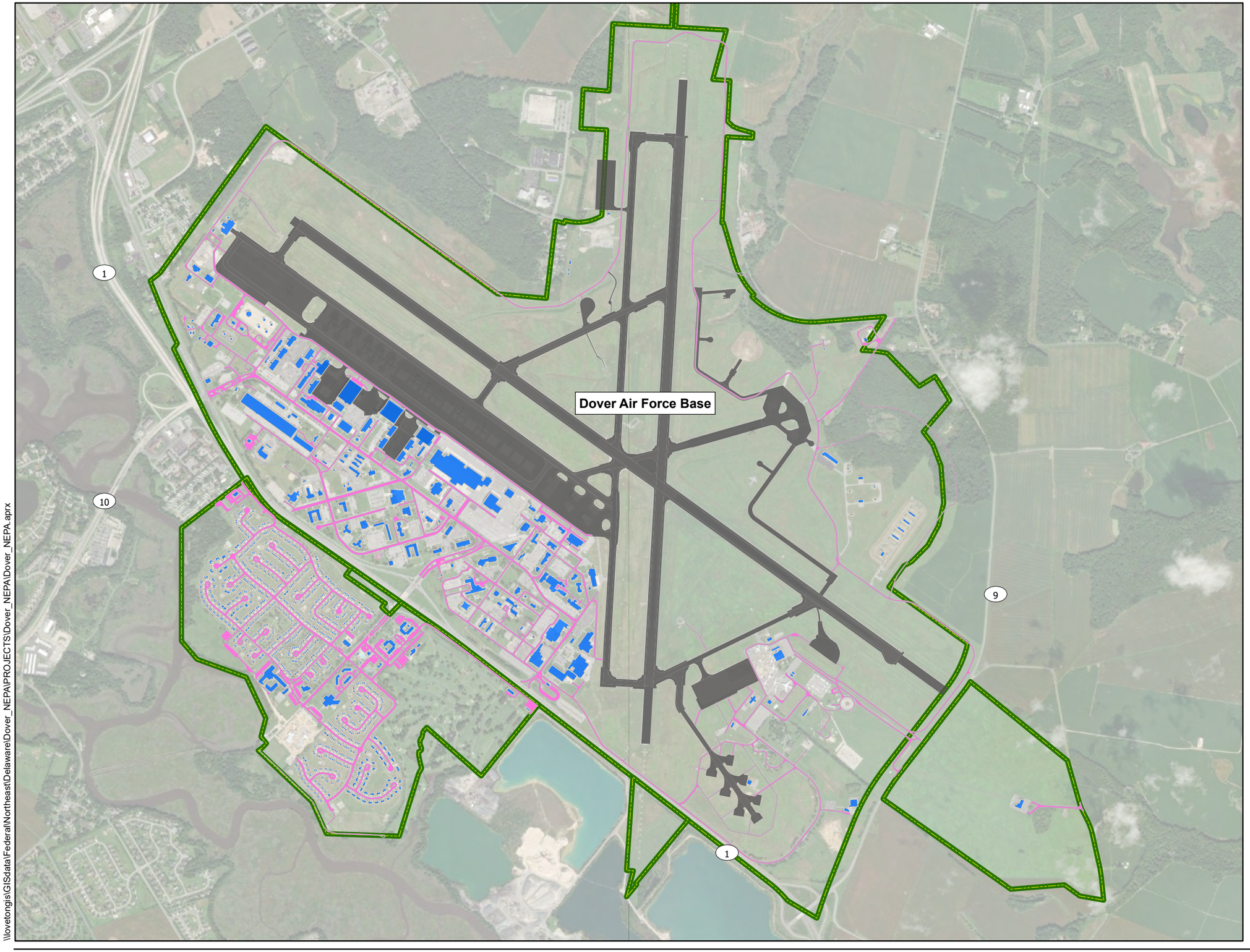
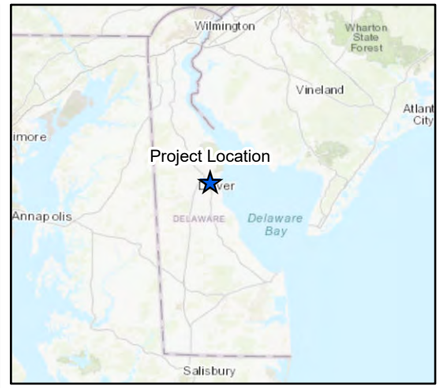




Legend

- Installation Boundary
- Building
- Airfield
- Road

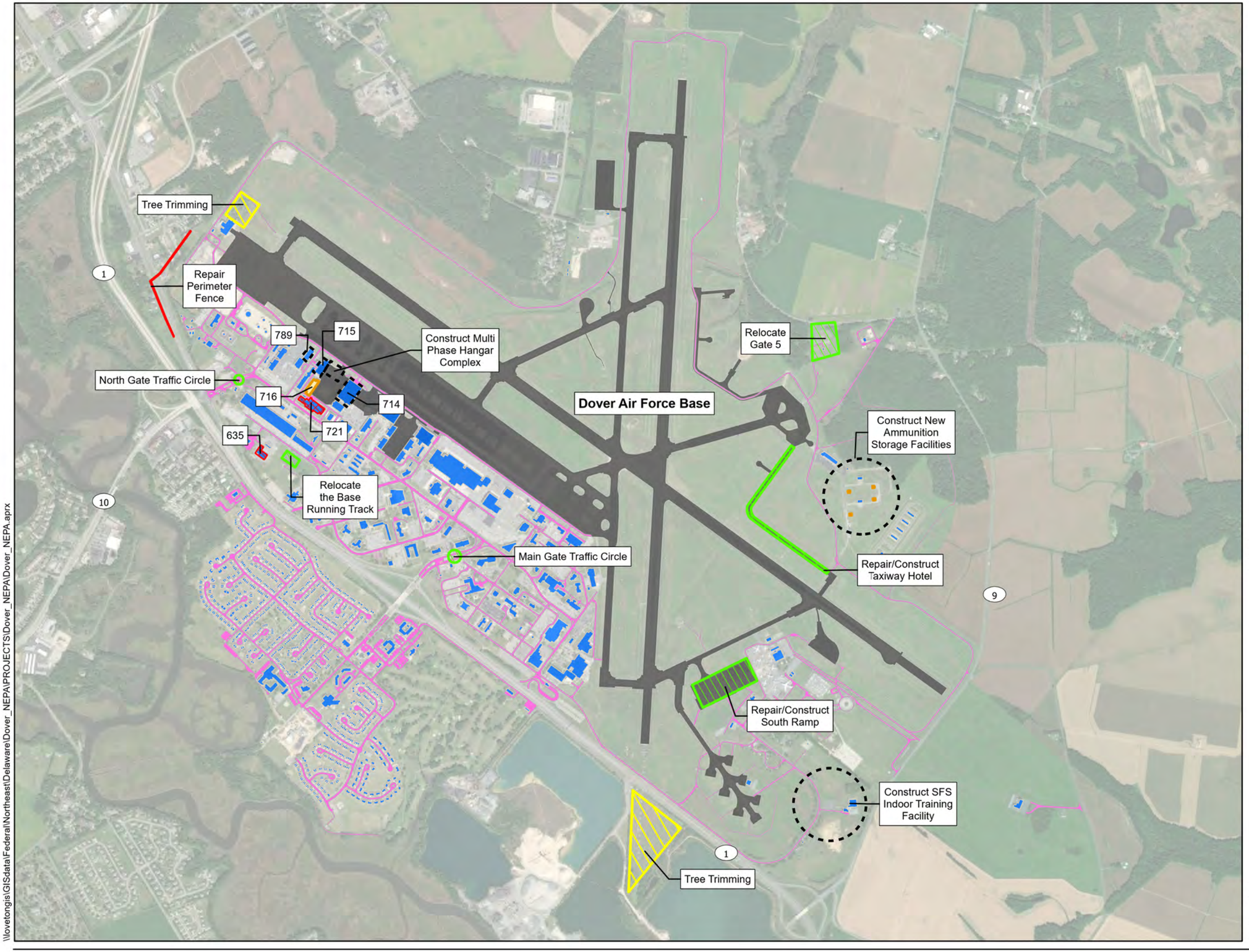
Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

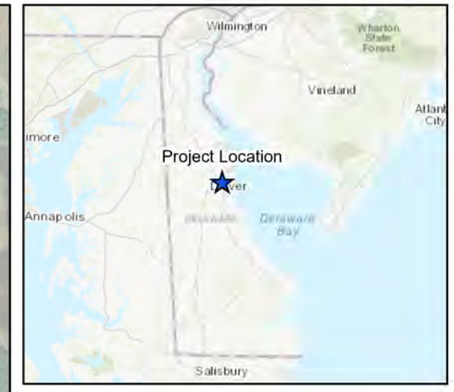
N

0 0.25 0.5
Miles

Figure 1
Dover Air Force Base Layout
Dover, Delaware

\\lovetongis\GISdata\Federal\Northeast\Delaware\Dover_NEPA\PROJECTS\Dover_NEPA\Dover_NEPA.aprx





Legend

- Building
- Airfield
- Road

Projects by Category

- Demolition Project
- Facility Construction Project
- Infrastructure Construction Project
- Renovation and Repair Project
- Tree Trimming

Map Date: 10/29/2021
Source: WGS UTM Zone 18N
Projection: Dover AFB GIS, 2021

N

0 0.25 0.5
Miles

Figure 2
Locations of Proposed Action
Dover, Delaware

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Agency Response Letters

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From: Walford, Richard J. (DNREC) <Richard.Walford@delaware.gov>
Sent: Monday, April 4, 2022 3:55 PM
To: KOWALSKI, JOSEPH S III GS-13 USAF AMC 436 CES/CEIE <joseph.kowalski.8@us.af.mil>
Cc: French, Joanna (DNREC) <Joanna.French@delaware.gov>; Mann, Amy (DNREC) <Amy.Mann@delaware.gov>
Subject: [Non-DoD Source] Dover Air Force Base Environmental Assessment

Good Afternoon Mr. Kowalski,

Thank you for the Letter for the Environmental Assessment for Future Installation Development at the Dover Air Force Base. I do not have any questions at this time. If any existing equipment that is covered by Division of Air Quality permit requirements (7 **DE Admin. Code** 1100) is retired and removed, or if new equipment is planned which will require applications for permitting, please notify our office. Thank you again for the helpful information.

Rich

Richard J. Walford
Environmental Engineer
Phone: 302-739-9430
Email: richard.walford@delaware.gov
100 W. Water Street, Suite 6A, Dover, DE 19904
dnrec.delaware.gov

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Appendix B

Air Force Air Conformity Applicability Model (ACAM) Model Input Data

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AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact(s) associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: DOVER AFB
State: Delaware
County(s): Kent
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Installation Development at Dover Air Force Base, Delaware

c. Project Number(s) (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

Dover AFB's capacity for future development or mission expansion is determined by examining current supply, demand, and capacity of land uses, facilities, utility systems, or land that could support the mission, quality of life of current and future users of the installation. The Proposed Action includes the construction of new facilities and infrastructure, renovation of existing facilities, and the demolition of facilities that can reasonably be anticipated to be implemented from FY 2023 through 2028. The Proposed Action would support mission growth and quality of life for installation users. The list of projects included in the Proposed Action is as following:

Project 1: Relocate the Base Running Track
Project 2: Repair/Construct South Ramp
Project 3: Repair/Construct Taxiway Hotel
Project 4: Relocate Gate 5
Project 5: Reconfigure North Gate and Main Gate
Project 6: Repair Perimeter Fencing
Project 7: Tree Trimming
Project 8: Repair Building 635
Project 9: Repair Building 721
Project 10: Renovate Building 789
Project 11: Construct SFS Indoor Training Facility
Project 12: Construct Multi Phase Hangar Complex
Project 13: Construct New Ammunition Storage Facilities
Project 14: Demolition of Facility 1201, 1203, 1204, 1206, and 1207
Project 15: Demolition of Facility 716

f. Point of Contact:

Name: Sunhee Park
Title: Environmental Engineer
Organization: EA Engineering, Science and Technology, Inc., PBC
Email: spark@eaest.com
Phone Number: 410-584-7000

2. Air Impact Analysis: Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

_____ applicable
__X__ not applicable

Total net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the USAF Air Emissions Guide for Air Force Stationary Sources, the USAF Air Emissions Guide for Air Force Mobile Sources, and the USAF Air Emissions Guide for Air Force Transitory Sources.

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are "Clearly Attainment" (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are "Near Nonattainment" (i.e., within 5% of any NAAQS). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

The action's net emissions for every year through achieving steady state were compared against the Insignificance Indicator and are summarized below.

Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.227	250	No
NOx	1.306	250	No
CO	1.420	250	No
SOx	0.004	250	No
PM 10	0.053	250	No
PM 2.5	0.053	250	No
Pb	0.000	25	No
NH3	0.001	250	No
CO2e	400.6		

2023

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.824	250	No
NOx	10.937	250	No
CO	11.423	250	No
SOx	0.031	250	No
PM 10	90.418	250	No
PM 2.5	0.436	250	No
Pb	0.000	25	No
NH3	0.005	250	No

CO2e	3086.8		

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.858	250	No
NOx	4.900	250	No
CO	6.310	250	No
SOx	0.015	250	No
PM 10	16.104	250	No
PM 2.5	0.201	250	No
Pb	0.000	25	No
NH3	0.003	250	No
CO2e	1452.1		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	1.221	250	No
NOx	6.802	250	No
CO	9.065	250	No
SOx	0.022	250	No
PM 10	31.531	250	No
PM 2.5	0.265	250	No
Pb	0.000	25	No
NH3	0.005	250	No
CO2e	2150.7		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.771	250	No
NOx	4.305	250	No
CO	5.894	250	No
SOx	0.013	250	No
PM 10	13.427	250	No
PM 2.5	0.174	250	No
Pb	0.000	25	No
NH3	0.004	250	No
CO2e	1283.2		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.888	250	No
NOx	4.841	250	No
CO	6.356	250	No
SOx	0.016	250	No
PM 10	15.527	250	No

PM 2.5	0.195	250	No
Pb	0.000	25	No
NH3	0.004	250	No
CO2e	1533.7		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.268	250	No
NOx	1.493	250	No
CO	1.749	250	No
SOx	0.005	250	No
PM 10	8.205	250	No
PM 2.5	0.057	250	No
Pb	0.000	25	No
NH3	0.001	250	No
CO2e	490.6		

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.129	250	No
NOx	0.738	250	No
CO	1.073	250	No
SOx	0.002	250	No
PM 10	0.025	250	No
PM 2.5	0.025	250	No
Pb	0.000	25	No
NH3	0.001	250	No
CO2e	236.1		

2030

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.257	250	No
NOx	1.475	250	No
CO	2.145	250	No
SOx	0.005	250	No
PM 10	0.051	250	No
PM 2.5	0.050	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	472.1		

2031

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.257	250	No
NOx	1.475	250	No

CO	2.145	250	No
SOx	0.005	250	No
PM 10	0.051	250	No
PM 2.5	0.050	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	472.1		

2032

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.257	250	No
NOx	1.475	250	No
CO	2.145	250	No
SOx	0.005	250	No
PM 10	0.051	250	No
PM 2.5	0.050	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	472.1		

2033

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.257	250	No
NOx	1.475	250	No
CO	2.145	250	No
SOx	0.005	250	No
PM 10	0.051	250	No
PM 2.5	0.050	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	472.1		

2034

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.257	250	No
NOx	1.475	250	No
CO	2.145	250	No
SOx	0.005	250	No
PM 10	0.051	250	No
PM 2.5	0.050	250	No
Pb	0.000	25	No
NH3	0.002	250	No
CO2e	472.1		

2035

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF AIR ANALYSIS (ROAA)

NOT IN A REGULATORY AREA			
VOC	0.129	250	No
NOx	0.738	250	No
CO	1.073	250	No
SOx	0.002	250	No
PM 10	0.025	250	No
PM 2.5	0.025	250	No
Pb	0.000	25	No
NH3	0.001	250	No
CO2e	236.1		

2036 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.000	250	No
NOx	0.000	250	No
CO	0.000	250	No
SOx	0.000	250	No
PM 10	0.000	250	No
PM 2.5	0.000	250	No
Pb	0.000	25	No
NH3	0.000	250	No
CO2e	0.0		

None of estimated annual net emissions associated with this action are above the insignificance indicators, indicating no significant impact to air quality. Therefore, the action will not cause or contribute to an exceedance on one or more NAAQSs. No further air assessment is needed.

Sunhee Park _____ _____

Sunhee Park, Environmental Engineer

2/16/2022
DATE

Appendix C

USFWS Information Planning and Conservation (IPAC) report

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Kent County, Delaware

Local office

Chesapeake Bay Ecological Services Field Office

(410) 573-4599
(410) 266-9127

177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate

This species only needs to be considered if the following condition applies:

- The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html).

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
American Oystercatcher Haematopus palliatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black Skimmer Rynchops niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Blue-winged Warbler Vermivora pinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30

Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Gull-billed Tern *Gelochelidon nilotica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31
Hudsonian Godwit *Limosa haemastica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
King Rail *Rallus elegans* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

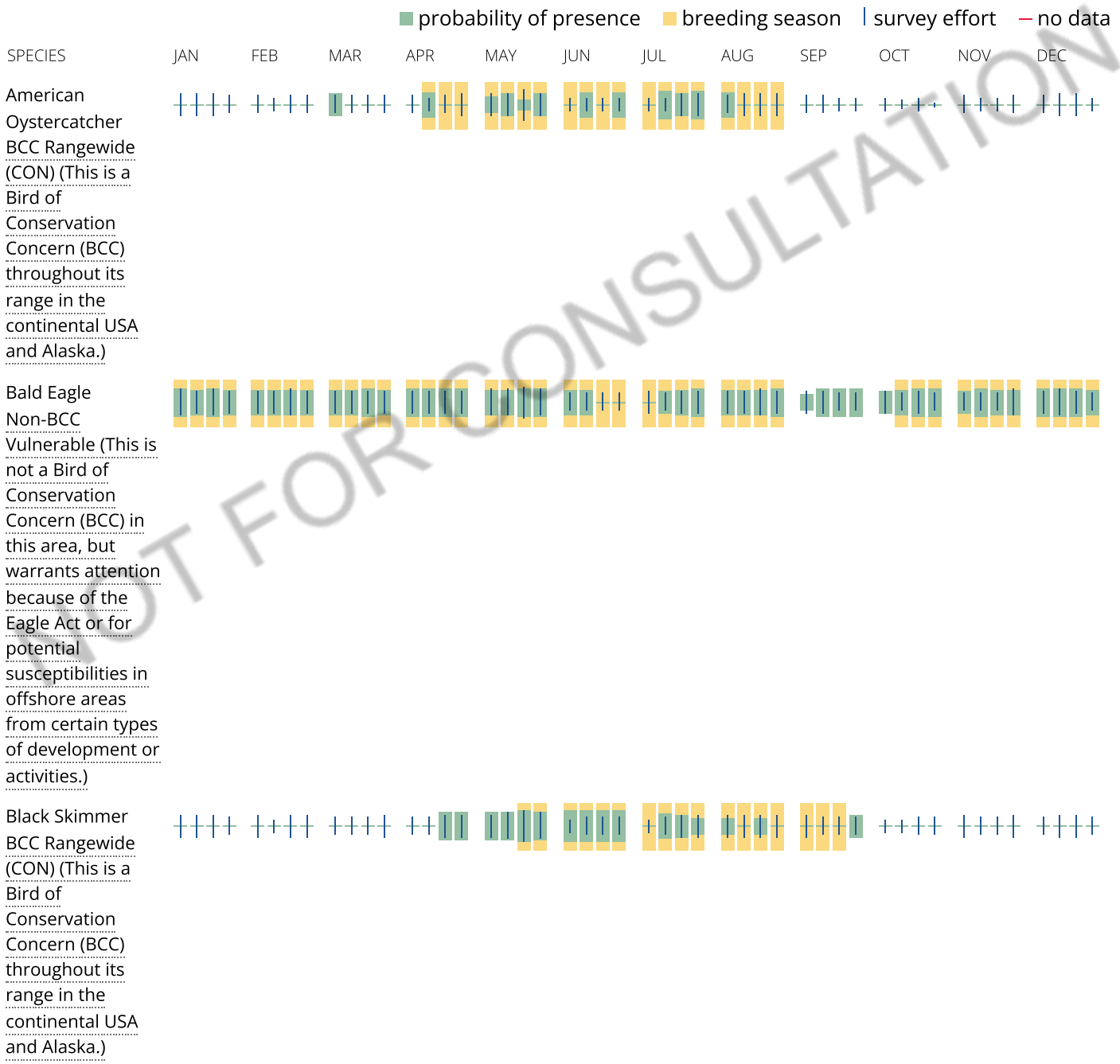
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

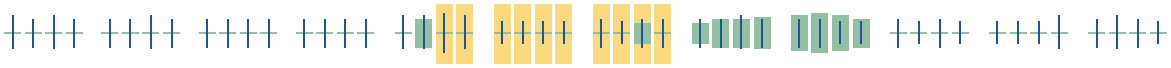
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

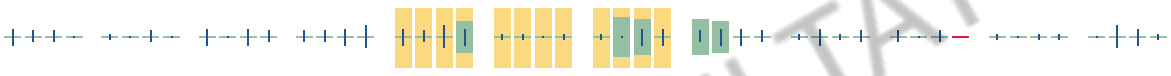


Blue-winged Warbler
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Bobolink
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

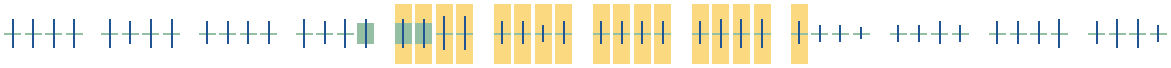


Gull-billed Tern
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

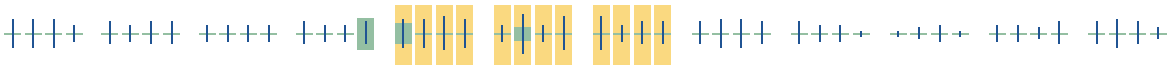


Hudsonian Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

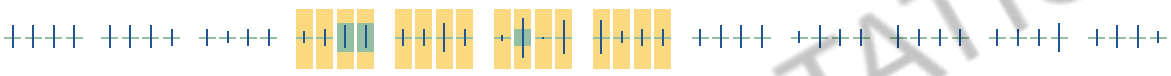
King Rail
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Prothonotary Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

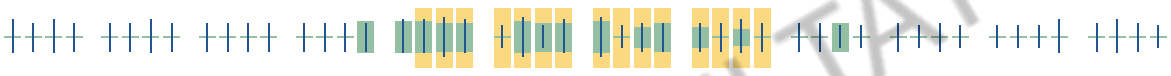
Ruddy Turnstone BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Rusty Blackbird BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE WETLAND

E2EM5P

FRESHWATER EMERGENT WETLAND

PEM1A
PEM1Ex
PEM1/SS1C
PEM1Fx
PEM1E

FRESHWATER FORESTED/SHRUB WETLAND

PFO1B
PFO1A
PSS1B
PFO1E
PFO1C
PFO1/SS1R

LAKE

L1UBHx

RIVERINE

R4SBC
R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish

the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.