Draft Environmental Assessment

Proposed Hydraulic Deficiencies Corrections Wright-Patterson Air Force Base, Ohio

Prepared For:
U.S. Department of Air Force
American Water Operations and Maintenance, LLC

May 9, 2025

PUBLIC REVIEW DRAFT

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Wright-Patterson Air Force Base, Greene County, Ohio

Prepared For:
U.S. Department of Air Force
Wright-Patterson Air Force Base, Ohio
&
American Water Operations and Maintenance, LLC
Camden, New Jersey

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List of Abbreviations/Acronyms

ACAM	Air Conformity Applicability Model
ACM	asbestos-containing material
AFCEC	Air Force Civil Engineer Center
AFMAN	Air Force Manual
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
APE	Area of Potential Effect
AQCR	Air Quality Control Region
AST	aboveground storage tank
AW	American Water Military Services Group/American Water Operations and Maintenance Inc.
BMP	Best Management Practice
BS	Burial Site
CAA	Clean Air Act
CES	Civil Engineering Squadron
CIP	cast-in-place
CFR	Code of Federal Regulations
CO_2	carbon dioxide
CRP	Community Relations Plan
CWA	Clean Water Act
DAF	Department of the Air Force
dB	decibel(s)
dBA	"A-weighted" decibel(s)
DoD	Department of Defense
DOW	Division of Wildlife
EA	Environmental Assessment
EFDZ	Earthfill Disposal Zone
EIAP	Environmental Impact Analysis Process
EISA	Energy Independence Security Act of 2007
EMR	eastern massasauga rattlesnake
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	Explosive Safety Quantity Distance
EZ	Evaluation Zone
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practical Alternatives
FONSI	Finding of No Significant Impact
FTA	Fire Training Area
GCR	General Conformity Rule
GHG	greenhouse gas
gpm	gallons per minute
HAP	hazardous air pollutant
IAP	Initial Accumulation Point
INRMP	Integrate Natural Resources Management Plan
IPaC	Information for Planning and Conservation
IRP	Installation Restoration Program
ITRP	Installation Tribal Relations Plan

LBP	lead-based paint
LF	landfill
MCD	Miami Conservancy District
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
OU	operable unit
OWS	oil-water separator
Pb	lead
PBR	permitted-by-rule
PM10	particulate matter (coarse particulates equal to or less than 10 microns in diameter)
PM2.5	particulate matter (fine particulates equal to or less than 2.5 microns in diameter)
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PTI	Permit to Install
RACM	reasonably available control measure
RAPCA	Regional Air Pollution Control Agency
RCZ	“Runway Clear Zone”
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SF	square foot/feet
SHPO	State Historic Preservation Office (Ohio History Connection)
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	standard operating procedure
SR	State Route
SS	steady state
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TMDL	total maximum daily load
tpy	tons per year
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

UST	underground storage tank
WOTUS	Waters of the U.S.
WPAFB	Wright-Patterson Air Force Base (Base)
WTP	water treatment plant

1.0 Purpose and Need

1.1 Introduction

This Environmental Assessment (EA) has been prepared to identify, analyze, and document the potential physical, environmental, cultural, and socioeconomic effects associated with Wright-Patterson Air Force Base's (WPAFB or Base) proposed construction of hydraulic deficiency corrections at the Base.

The National Defense Authorization Act of fiscal year 1998 authorized the Department of Defense (DoD) to transfer ownership of its utility systems and added legislative authority under 10 U.S. Code Section 2688. Goals include bringing degraded utility systems to industry standards, correcting deficiencies, ensuring regulatory compliance, and increasing reliability to support mission continuity. Utility privatization is a permanent conveyance of one or more utility systems to a utility company or public utility and includes an award of a 50-year utility services contract to provide repair, replacement, operations, and maintenance. These conveyances allow installations to focus on core defense missions instead of the responsibilities of utility ownership. Privatizing at the Base also allowed the Base to benefit through innovative industry practices, private sector financing and efficiencies, and reliable system maintenance at current industry standards.

In September 2017, American Water Military Services Group/American Water Operations and Maintenance Inc. (collectively, AW) was awarded a 50-year contract to own and operate the water distribution and wastewater collection systems at WPAFB, as part of the DoD's Utility Privatization Program. AW's responsibilities include system capital investment, regulatory and environmental compliance, and long-term operations and maintenance. The water and wastewater systems serve a population nearing 50,000 people who live and work on the Base. The water system contains approximately 100 miles of pipe, over 750 hydrants, 14 storage tanks, and several wells and pump stations. The wastewater system contains over 50 miles of pipe, 27 lift stations, and over 1,000 manholes (American Water, 2021).

As part of the efforts to bring degraded utility systems to industry standards, correcting deficiencies ensuring regulatory compliance, and increasing reliability to support mission continuity, AW, on behalf of WPAFB, plans to implement a series of projects to correct identified hydraulic deficiencies at WPAFB.

1.2 Project Description

The existing water system for Area A is supplied by two high-service pumping facilities, located at water treatment plants (WTPs)/Facilities 30172 and 10855. The pumping facilities fill three elevated storage tanks (Towers 6, 7, and 10) that provide equalization and emergency storage for the Area A distribution system. Facilities 30172 and 10855 also serve as redundancies to each other and are both capable of serving the entirety of Area A individually. Much of the water distribution mains throughout Area A are constructed of aging cast iron pipe installed in the 1940s and 1950s, with hydraulic modeling indicating that the condition and functionality of these mains have diminished over time. This has resulted in reduced water main capacity, increased energy losses due to friction, and potential water quality issues. WPAFB and its regional location are depicted on Figures 1-1 and 1-2. WPAFB facilities are depicted on Figure 1-3.

Historically, the East Wellfield provided raw water for Area B; however, use of the East Wellfield has been discontinued due to water quality issues. As a result, a series of wells now supply raw water to a treatment plant and pump station. It should also be noted that the wells at the East Wellfield are in a floodplain and even if they could be rehabilitated and the water treated, the wells would need to be modified to comply with current regulations. With the East Wellfield out of service, Area B currently lacks the reliability and redundancy required for the water distribution system.

Current water demands and pressure for the West Ramp section are largely controlled by the level of the existing elevated storage tank in this area, Tower 10, which is located on the west side of the airfield (West Ramp) to

support the facilities and hangars in the area. The West Ramp section is currently connected to the rest of the Area A water system that connects the West Ramp section to a WTP. This water main runs within the restricted airfield area, and a portion of this main is beneath the runway and is largely inaccessible due to its location. The distance from the pumping facility at the WTP and the limitations of the aging Area A water distribution system prevent Tower 10 from being filled to its designed capacity by as much as 40 percent, reducing overall system pressure and demand capacity.

Historically, the West Ramp section also included a water supply source from an existing water main that connected from the East Wellfield to the West Ramp section; however, the East Wellfield is permanently out of service due to water quality issues, and the referenced water main is unused and likely in poor condition.

WPAFB also has a water main between the East Wellfield to the WTP in Area B that provided raw water to Area B; however, with the discontinued use of the East Wellfield, this water main was repurposed to convey water from to the Warfighter Training Center, depicted on Figure 1-3. Since this area is not connected to the Area A water system, and by nature of an old and oversized connection to Area B, the water in this area suffers from water age and other quality issues.

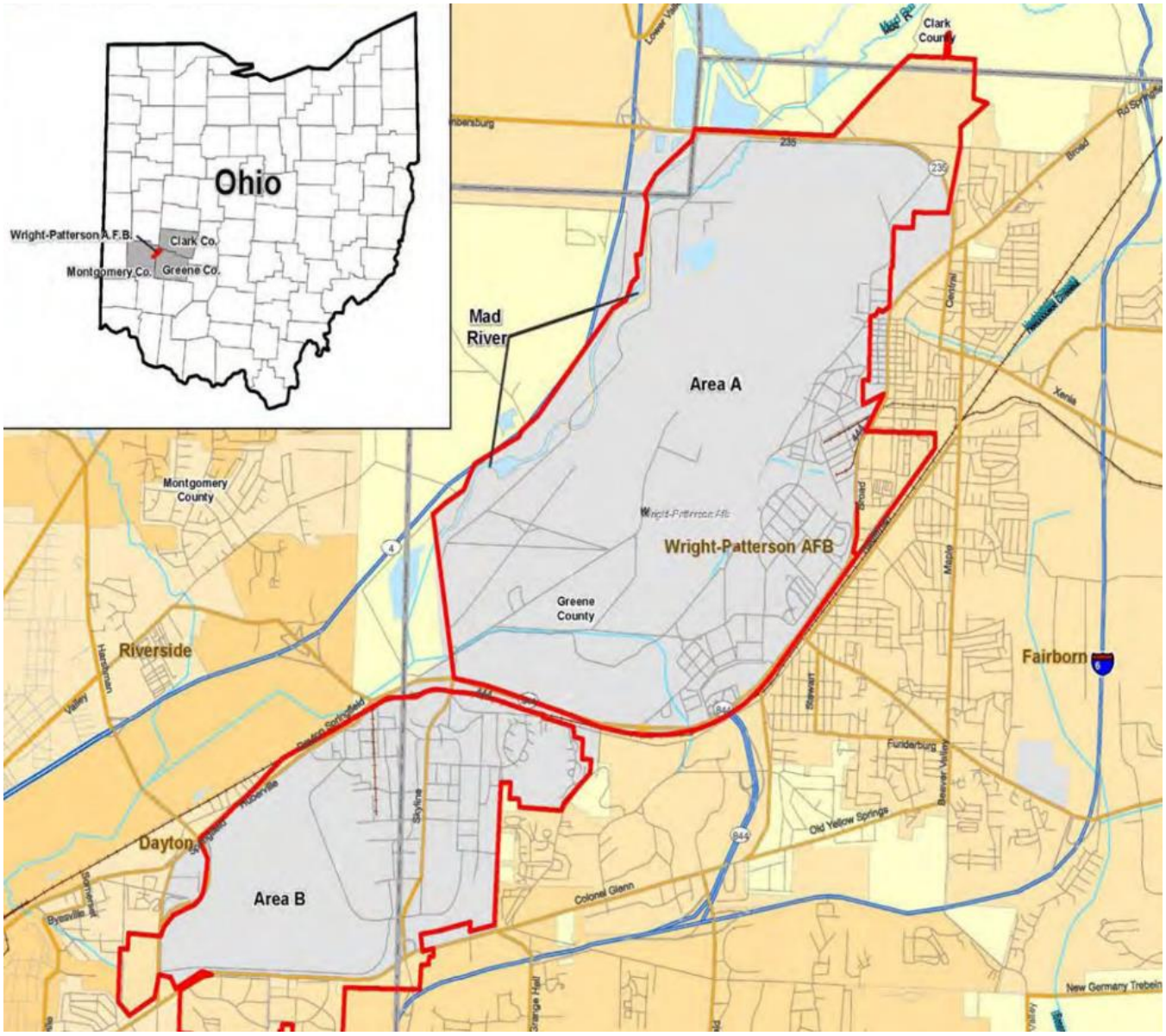

Figure 1-1 – WPAFB Overview Map

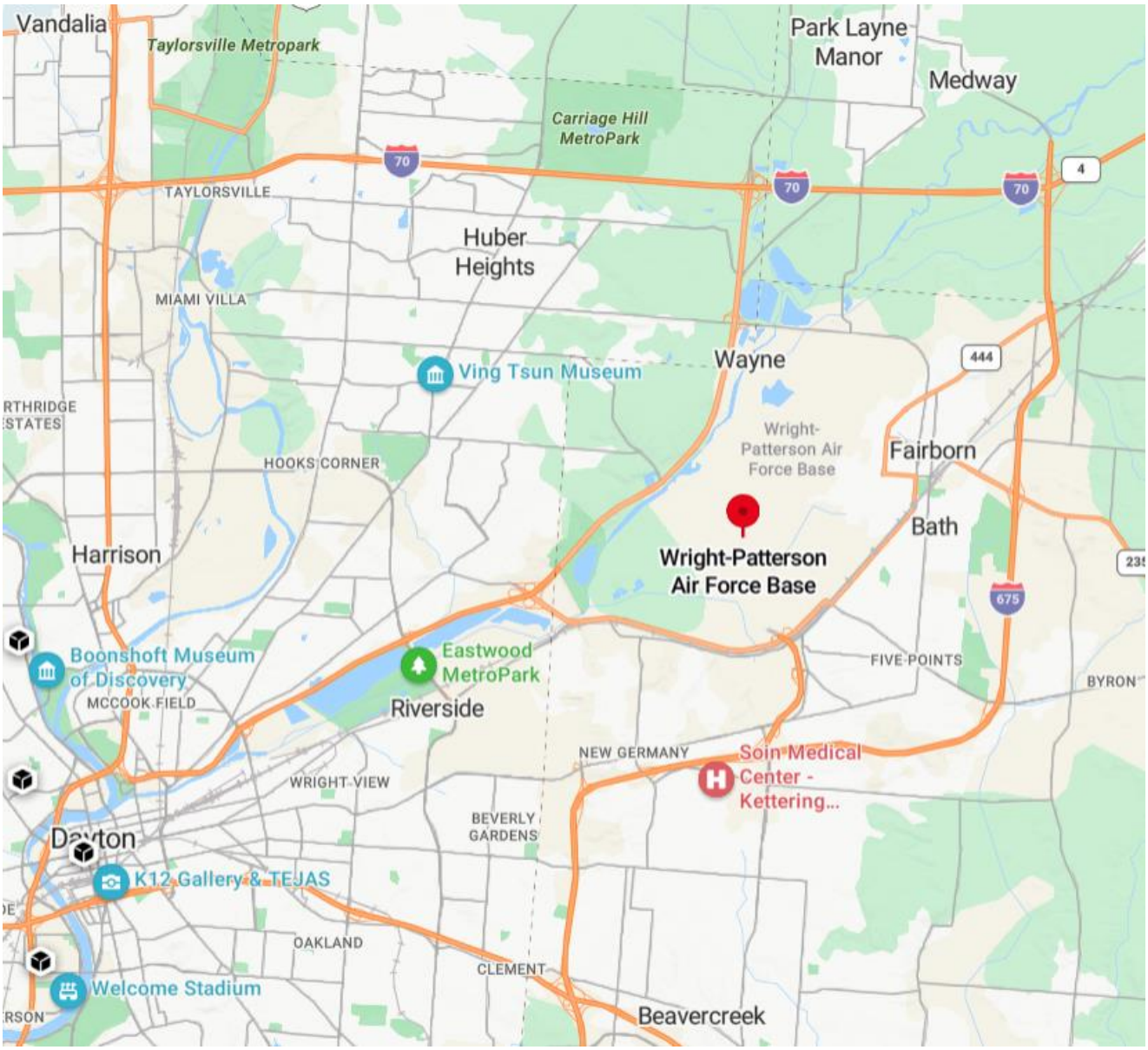

Figure 1-2 – Vicinity Location Map

To address the identified hydraulic deficiencies, WPAFB intends to implement four projects (collectively, the Proposed Action), including the following:

- Construction of an approximately 2,100-square-foot (SF) Booster Pump Station on the south side of the airfield in Area A of the WPAFB, at the East Wellfield.
- Installation of a new, approximately 7,200-linear-foot water main along near Tower 6 and west to the proposed Booster Pump Station in order to complete the closed loop water distribution system for Area A.
- Installation of an approximately 16,000-linear-foot water main from the proposed Booster Pump Station to the West Ramp and Tower 10 to replace the existing, unused water main from the 1940s and 1950s (North Loop Water Main).
- Installation of an approximately 5,900-linear-foot water main from the proposed Booster Pump Station to the WTP in Area B to replace the existing water main from the 1940s and 1950s and reestablish a redundant water supply between Areas A and B at WPAFB (Areas A and B Interconnection).

Additional information regarding the proposed hydraulic deficient projects is provided in Section 2.1.

1.3 Purpose and Need

The DoD's transfer of ownership of its utility systems was specifically to meet the goals of bringing degraded utility systems to industry standards, correcting deficiencies, ensuring regulatory compliance, increasing reliability, and creating system redundancies to support mission continuity. As such, the purpose of the proposed hydraulic deficiency projects is to support AW's efforts to efficiently provide a safe, reliable, and sustainable drinking water system to WPAFB. A healthy and safe drinking water distribution system is a mission critical resource for WPAFB.

The proposed projects are needed to remedy the condition and functional hydraulic deficiencies of the water distribution system at WPAFB (reduced water main capacities, increased energy losses due to friction, lack of water system redundancies, and potential water quality issues) by completing a closed-loop system, upgrading the existing water system to current standards, correcting reliability and redundancy issues, and ensuring overall regulatory compliance—all critical to supporting mission continuity. In addition, WPAFB received a Safe Drinking Water Act Notice of Significant Deficiency from the U.S. Environmental Protection Agency (USEPA), issued December 2023, stating that the lack of a backup or emergency drinking water source for Area B was identified as a significant deficiency with regard to the drinking water system at WPAFB, furthering the justification for the need of the Proposed Acton.

1.4 Cooperating Agency and Intergovernmental Coordination and Consultations

The National Environmental Policy Act of 1969 (NEPA) requirements help ensure environmental information is made available to the public during the decision-making process and prior to an action's implementation. The Intergovernmental Coordination Act and Executive Order (EO) 12372, Intergovernmental Review of Federal Programs, require federal agencies to cooperate with and consider territorial and local views when implementing a federal proposal. For this EA, public involvement includes notifying local, state, and federal agencies, elected officials, and the public about the Proposed Action, soliciting agency and public comments, and ultimately informing the public of the U.S. Department of Air Force's (DAF) findings and conclusions.

1.4.1 Cooperating Agency

No cooperating agencies were identified for the Proposed Action described in this EA.

1.4.2 Interagency and Intergovernmental Coordination and Consultations

In compliance with NEPA, WPAFB notified relevant stakeholders about the Proposed Action and alternatives. As part of the Interagency and Intergovernmental Coordination for Environmental Planning process for this EA, consultation was conducted with the following agencies: Ohio Department of Natural Resources (ODNR), State Historic Preservation Office (SHPO), U.S. Fish and Wildlife Service (USFWS), and Miami Conservancy District (MCD). The notification process provides these stakeholders with the opportunity to consult with WPAFB and provide comments on the Proposed Action. Coordination with these agencies is presented in Appendix 1 of the EA.

An early Public Notice of Proposed Action in a Floodplain announcing that an action is being proposed within the floodplain (Appendix 3) was published in the Dayton Daily News on October 6, 8, and 11, 2024, and in the Fairborn Daily Herald and Xenia Gazette on October 4 and 8, 2024, initiating a 30-day public review period to capture public concern. No comments were received in response to the Public Notice of Proposed Action in a Floodplain.

In addition, a Finding of No Practical Alternatives (FONPA), Public Notice of Availability (Appendix 3) for the Draft EA and Finding of No Significant Impact (FONSI) were published in the Dayton Daily News on May 18, 2025, and in

the Fairborn Daily Herald and Xenia Gazette on May 20, 2025, initiating a 30-day public review period. The Draft Final EA and FONSI were also made available on the WPAFB Public Affairs internet website (https://www.wpafb.af.mil/Units/88th-ABW/Public-Affairs/) and in the Fairborn Branch of the Greene County Public Library from May 18, 2025, through June 18, 2025.

1.4.3 Native American Tribal Government Coordination and Consultations

The National Historic Preservation Act (NHPA), 54 USC § 306108, and its implementing regulations at 36 CFR Part 800 direct 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.

Consistent with the NHPA, DoD 4710.02 (Interactions with Federally Recognized Tribes), and Department of the Air Force Instruction 90-2002 (Air Force Interaction with Federally Recognized Tribes), federally recognized Tribes that are historically affiliated with the southwest Ohio geographic region would 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 consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of all relevant Tribes. The Proposed Action facility location is over 4000 feet from the Adena Mounds. According to the current approved WPAFB Installation Tribal Relations Plan (ITRP), consultation would occur when a project could potentially affect the Adena Mounds, any land that has not been surveyed, or an inadvertent discovery of bones or cultural artifacts occurs. The Adena Mounds were most recently surveyed at the end of 2020 by the National Park Service. In association with the current ITRP, no Tribal consultation was conducted.

2.0 Alternatives Evaluated

This section provides information regarding the Proposed Action and its alternatives, including those that WPAFB initially considered but eliminated and the reasons for eliminating them. The screening criteria and process developed and applied to hone the number of reasonable alternatives is described, providing an understanding of the rationale in ultimately analyzing the Proposed Action Alternative and the No Action Alternative in this EA.

2.1 Proposed Action

The WPAFB West Ramp Hydraulic Deficiency Correction Alternatives Technical Memorandum, dated May 26, 2022, and a Booster Pump Station Preliminary Design Report, dated March 13, 2023, were completed in preparation for the Proposed Action.

Much of the water distribution mains throughout the Base are constructed of aging cast iron pipe installed in the 1940s and 1950s, with reduced water main capacity, increased energy losses due to friction, and potential water quality issues. Current water demands and pressure for the Base are largely controlled by the level of the existing elevated storage tanks; however, the limitations of the aging water distribution system limit some of the elevated storage tanks from being filled to their designed capacity, reducing overall system pressure and demand capacity. In addition, inadequate redundancy between and within Areas A and B mean regulatory compliance and reliability to support mission continuity is limited. As such, AW, on behalf of WPAFB, plans to implement a series of projects to correct identified hydraulic deficiencies at WPAFB.

The Proposed Action is divided into four parts and includes the following:

- Construction of an approximately 2,100-SF Booster Pump Station on the south side of the airfield in Area A of the WPAFB, at the East Wellfield.
- Installation of a new, approximately 7,200-linear-foot water main near Tower 6 and west to the proposed Booster Pump Station in order to complete the closed-loop water distribution system for Area A.
- Installation of an approximately 16,000-linear-foot water main from the proposed Booster Pump Station to the West Ramp and Tower 10 to replace the existing, unused water main from the 1940s and 1950s (North Loop Water Main).
- Installation of an approximately 5,900-linear-foot water main from the proposed Booster Pump Station to the WTP in Area B to replace the existing water main from the 1940s and 1950s and reestablish a redundant water supply between Areas A and B at WPAFB (Areas A and B Interconnection).

Additional details pertaining to the four parts of the Proposed Action are included below in Sections 2.1.1 through 2.1.4.

2.1.1 Booster Pump Station

The proposed approximately 2,450-SF Booster Pump Station, including approximately 2,100 SF for the structure and approximately 300 SF for the generator and transformer, would be located at the East Wellfield in Area A of WPAFB. The limits of disturbance associated with the proposed Booster Pump Station (all portions) would include approximately 36,000 SF (0.83 acres) in area and would be restricted, to the extent practical, to those areas integral to the future use of the land and the proposed Booster Pump Station. The scheduled timeframe for the proposed Booster Pump Station construction would include approximately five months, at which point construction activities would be complete and disturbed areas would be secured for long-term prevention of soil erosion and sedimentation.

The existing access drive to the proposed Booster Pump Station site would be converted from the current gravel two-track to a durable, approximately 7,000-SF gravel drive designed to withstand typical maintenance truck traffic, with widths and turn radii to accommodate fleet pickup trucks and three-axle trucks that may be required

to access the proposed Booster Pump Station on an infrequent basis. The existing access road has an elevation of approximately 797.0 feet, which would be maintained. Equipment and materials associated with the construction of the proposed Booster Pump Station would be staged within the boundaries of the limits of disturbance or in areas designated by Base safety and operations personnel.

The existing chain-link fence for the proposed Booster Pump Station site would remain, including the gate on the southwest portion of the site. The existing gate would be replaced with a new electrically operated rolling gate controlled by a drive-up keypad.

Booster Pump Station Building

The perimeter foundation would be poured concrete load-bearing walls with lower-level and upper-level walls constructed of load-bearing concrete masonry units. The lower-level walls would be outfitted with a series of flood relief valves to allow water to enter and exit the lower level of the station during flood events. The pump station would be constructed with a first-floor elevation of 798.5 feet. Surrounding grade elevations would be set at approximately 797.0 feet, which would provide positive drainage away from the building.

Roof construction would consist of standing seam metal roof with plywood substrate over a metal deck. The roof would be supported by metal trusses with purlins to support painted plywood ceiling.

Booster Pump Systems

Two horizontal split case centrifugal pumps, one duty pump and one standby, would provide the additional hydraulic grade to the West Ramp system required to operate Tower 10 over its full operational range and be filled completely. The two pumps would each have a design operating point of 500 gallons per minute (gpm) at 25 feet of total dynamic head. These pumps are expected to be 5 horsepower each. In addition, these pumps would utilize variable frequency drives to allow them to operate optimally. Each of these pumps would include the following installed on the second floor:

- Two handwheel-operated butterfly valves for pump isolation.
- One globe-style silent check valve to prevent backflow when the pump is not operating.
- Two pressure gauges to measure suction and discharge pressure across each pump.

The process piping, valves, and equipment would be located on both the first and second floors of the booster station. The suction header for the booster pumps would be made of 16-inch and 12-inch flanged ductile iron piping. The suction header would enter the building through the foundation on the eastern side of the building and would elbow up to the finished floor. The suction header would then run along the first floor from the east side of the building to the west side of the building. A handwheel-operated butterfly valve would be located on the suction header to isolate the Booster Pump Station from the external bypass in the yard.

In addition to the external bypass located outside, an internal bypass would be included inside the Booster Pump Station as well. This internal bypass line would be made of 12-inch flanged ductile iron piping and would run vertically from the suction header, then horizontally along the bottom of the cast-in-place (CIP) slab that separates the first and second floors. The bypass would elbow up through the CIP slab and tie into the West Ramp discharge header located on the second floor. Two butterfly valves would be installed to isolate and operate the internal bypass. A 16-inch handwheel-operated butterfly valve would be installed just downstream of the internal bypass on the suction header to isolate the rest of the booster station when the bypass is in operation. A 12-inch handwheel-operated butterfly valve would be installed on the second floor of the booster station on the internal bypass line upstream of where the bypass ties into the discharge header. This valve would be opened and closed to operate the internal bypass. In the event of a flood that makes the external bypass inoperable, having the internal bypass operation valve located on the second floor above the flood level would allow the bypass to be operated and would allow the East Ramp to supply the West Ramp with water without the use of the Booster Pump Station in this emergency scenario.

The booster pump suction lines would be 8-inch flanged ductile iron pipe and would run vertically from the suction header on the first floor through the CIP slab to the second floor. The suction lines then run horizontally on the second floor to the suction inlet of the two booster pumps. The pump discharge lines would be made of 8-inch flanged ductile iron pipe as well.

The internal bypass line and the two pump discharge lines would join in a common discharge header, which would be made from 12-inch flanged ductile iron piping. An air release/air vacuum valve would be installed on this line to prevent air entrapment in the line. A pressure sensor and transmitter located on the second-floor discharge header would monitor pressure levels and communicate them back to the Supervisory Control and Data Acquisition (SCADA) system, to be located in the AW Operations Center in Area B. The discharge header would run back down through the CIP second floor vertically to the first floor. The discharge header would run west along the first floor before elbowing down into another pipe trench, then out through the north wall foundation to the yard piping. An electromagnetic flow meter would be installed on this horizontal section of the discharge line to monitor station flow to the West Ramp.

Booster Pump Systems Electrical

A new 800-amp electrical service would be obtained for the proposed Booster Pump Station, including an elevated transformer (approximately 100-SF concrete pad) provided by the electrical utility provider (AES Ohio). A 500-kilowatt diesel generator (approximately 200-SF concrete pad) would be provided to supply standby power in case of a power outage. The generator would be sized to supply standby power to the entire building, so that the treatment system can meet all pumping demands. The generator would be located outside of the building at the southwest corner and on an elevated platform to keep it out of the floodplain in a weatherproof enclosure. The generator platform would be structural steel framing with an open steel grating floor system around the generator. The framing would be supported from the building on the north side of the platform and steel columns on the south side of the platform. A subbase (belly), integral, approximately 2,640-gallon fuel storage tank sized to allow the generator to operate at full load for a minimum of 72 hours would be provided with the generator. The emergency would likely require a Permit to Install (PTI) or permit-by-rule (PBR) application. In addition, the East Wellfield location would allow the existing electrical services for the East Wellfield to be utilized for the new booster station.

The design and construction of the proposed Booster Pump Station would comply with Federal Emergency Management Agency (FEMA) Publication P-936 (Floodproofing Nonresidential Buildings), dated July 2013; National Flood Insurance Program Technical Bulletin 3 (Requirements for the Design and Certification of Dry Flood Proofed Non-Residential and Mixed-Use Buildings), dated January 2021; Unified Facilities Criteria (UFC) 1-200-01 (Department of Defense Building Code), dated October 8, 2019; and the 2021 International Building Code Section 1603.1.7 (Structural Design).

2.1.2 Water Main

The new Water Main installation (approximately 7,200-linear-foot water main near Tower 6) is needed to create a closed-loop system for Area A by connecting the proposed Booster Pump Station to the pumping facility at the WTP in Area A. This connection would allow the Booster Pump Station and WTPs to act in concert maintaining the reliability and redundancy of the Area A water distribution system. The Water Main project is a new section of the water main, and design plans are not currently available; as such, AW anticipates that open cut trenching would likely be required along the entire installation. Design specifications for the Water Main project would be generated in consultation with the WPAFB 88th Civil Engineering Squadron (CES), WPAFB Air Base Wing Safety Office, and WPAFB Operations personnel; however, it is anticipated that trenches would be less than 5 feet in width, resulting in a total area disturbed for the Water Main project of approximately 36,000 SF (0.83 acres).

Traditional open cut water main construction would consist of excavating a trench for installation of the new water main pipe and then covering the pipe with the excavated material. For the installation of a new water main

at a relatively shallow depth (4–5 feet deep), this method is rather straightforward, and pipe sections can be buried and seeded after placement. The scheduled timeframe for the proposed Water Main construction has not been determined since it would be completed in seven-day manageable sections. Ground-disturbing activities would be determined based on the section of piping that could be installed, covered, and secured for long-term prevention of soil erosion and sedimentation with a seven-day window. In addition, when contractors excavate below 4 feet below ground surface, trenching and shoring measures in accordance with OSHA 1926.652 (a)(1)(ii) are required.

Additionally, a portion of the Water Main project installation occurs along the southern boundary of the Huffman Prairie Flying Field National Park; however, activities would be limited to maintained areas immediately adjacent to the road and would be temporary in nature.

2.1.3 North Loop Water Main

The installation of the North Loop Water Main (approximately 16,000-linear-foot water main from the proposed Booster Pump Station to the West Ramp and Tower 10) is also needed to create a closed-loop system for Area A by replacing the existing, unused water main from the 1940s and 1950s. This unused water main is known to have a deteriorated condition requiring replacement prior to being put back in service. As the North Loop Water Main is the replacement of an existing water main, trenchless installation techniques will be used, with the exception of limited, yet-to-be-identified areas where directional drilling techniques may be more feasible or cost effective. Design specifications for the North Loop Water Main project would be generated in consultation with the WPAFB 88th CES, WPAFB Air Base Wing Safety Office, and WPAFB Operations personnel and would include trenchless installation techniques such as "pipe bursting" and "jack and bore" methodologies.

Pipe bursting uses the existing water main pipe as a conduit for drilling the replacement pipe. Using this method, insertion pits would need to be excavated at designated intervals along the main. Then a hydraulic or pneumatic expansion head (part of a bursting tool) would be pulled through the pipeline using a cable and winch. As the expansion head is pulled through the pipe, it pushes the pipe radially outward until it breaks apart, creating space for the new pipe. The bursting tool also pulls the new pipe behind it to replace the old. This construction technique results in less surface disturbance; however, the soils must be thoroughly reviewed to ensure compatibility with the process. In addition, difficulties can be encountered if the existing pipe has collapsed.

Jack and bore (i.e., horizontal auger boring) is another trenchless method of construction that is suitable for short sections in stable soils. Jack and bore includes the excavation of a pit at either end of the section and then placement of a jack and bore machine at one end. As the machine drills a hole toward the receiving pit, it also pushes the new pipe into place. This type of construction is ideal for short distances where it is desirable to minimize disturbances to a surface feature, such as a road or railroad.

The proposed route of the North Loop Water Main project crosses the west end of the "Runway Clear Zone" (RCZ); however, AW does not anticipate that the North Loop Water Main project would result in interruptions to Base operations. If the North Loop Water Main project is determined to potentially cause interruptions to Base operations during the design, the proposed North Loop Water Main project route would be redirected outside of the RCZ.

2.1.4 Areas A and B Interconnection

Space in the proposed Booster Pump Station has been allocated for the future installation of three additional booster pumps (five total). The three additional booster pumps would be dedicated to pumping water from Area A to Area B, acting as a future extra measure of redundancy for the Base's distribution system as a whole. The necessary connection valves and associated parts would be installed as part of this Proposed Action to allow easy installation of the interconnected pumps in the future. The installation of the Areas A and B Interconnection (approximately 5,900-linear-foot water main from the proposed Booster Pump Station to Water Treatment

Facility in Area B) is needed to replace the existing water main from the 1940s and 1950s and reestablish an interconnected/redundant water supply between Areas A and B at WPAFB. As the Areas A and B Interconnection is the replacement of an existing water main, directional drilling techniques will be used, with the exception of limited, yet-to-be-identified areas where directional drilling techniques may be more feasible or more cost effective. Design specifications for the Areas A and B Interconnection project would be generated in consultation with the WPAFB 88th CES, WPAFB Air Base Wing Safety Office, and WPAFB Operations personnel and would include trenchless installation techniques such as "pipe bursting" and "jack and bore" methodologies. Additionally, the Areas A and B Interconnection project would allow the existing water services for the Warfighter Training Center to be tied to the Area A water system instead of a long dead end on the Area B system. This would reduce maintenance in this area required by AW to extensively flush the water mains leading to the Warfighter Training Center in order to maintain water quality.

Areas A and B Interconnection Booster Pump Systems

Three horizontal split-case centrifugal pumps, two duty pumps and one standby, are planned to allow the Booster Pump Station to convey water from Area A to Area B. The three pumps will each have a design operating point of 1,350 gpm at 255 feet of total dynamic head. These pumps are expected to be 150 horsepower each. These pumps will be programmed to sequentially turn on and off, minimizing disruption to the distribution system. In addition, these pumps will utilize variable frequency drives to allow them to operate optimally. Each of these pumps will include the following installed on the second floor:

- Two handwheel-operated butterfly valves for pump isolation.
- One globe-style silent check valve to prevent backflow when the pump is not operating.
- Two pressure gauges to measure suction and discharge pressure across each pump.

Areas A and B are registered as separate water systems by the Ohio Environmental Protection Agency (OEPA); therefore, these pumps would only operate in an emergency scenario. In the event of an emergency scenario where the Area B WTP is unable to supply water to the Area B system, these pumps would be able to operate to supply the Area B high-pressure district with water and maintain the water level in Tower 8. Hydraulic modeling suggests that prolonged unthrottled flow from the high-pressure district to the low-pressure district in Area B may cause pressure drops in the Area B system, which would strain the interconnected pumps in the booster station. A possible solution would be to install a hydraulically actuated valve that could control flow from the high-pressure district to the low-pressure district. The probability of this condition occurring as well as potential system enhancements to address this issue will be discussed with AW and evaluated further as part of final design.

2.2 Selection Standards

The NEPA regulations state that "reasonable alternatives means a reasonable range of alternatives that are technically and economically feasible and meet the purpose and need for the Proposed Action and that would cause a reasonable person to inquire further before choosing a particular course of action." To warrant detailed evaluation, an alternative must be suitable for decision-making, capable of implementation, and sufficiently satisfactory with respect to meeting the purpose of and need for the action. In evaluating alternatives, the DAF used the following selection standards to determine whether an alternative was considered reasonable to support the objectives of bringing degraded utility systems to industry standards, correcting deficiencies, ensuring regulatory compliance, and increasing reliability to support mission continuity. The primary objective of the Proposed Action is to identify solutions that would allow identified hydraulic deficiencies at WPAFB to be corrected.

In evaluating alternatives, the DAF considered whether each alternative met the following standards:

- Adhere to the utility privatization contract;
- Located to minimize disturbance to traffic and surrounding areas;
- Allow backup/emergency drinking water source between the Area A and Area B drinking water systems in accordance with 40 CFR §141.403;
- Be located within compatible land use designations for a drinking water system;
- Available land area required to support installation of a booster station, water mains, and/or associated infrastructure;
- Provide maximum water redundancy (100 percent) for both the Area A and Area B drinking water systems; and
- Improve Area A and Area B overall water storage capacity as well as water flow/pressure by a certain percentage in order to support the maximum number of users on the system.

2.3 Screening of Alternatives

Developed alternatives are considered in more detail below:

Table 2-1 – Screening of Alternatives

Selection Criteria	Proposed Action	No Action
Privatization Contract	Criteria met – Capital investments, regulatory and environmental compliance, and long-term operations and maintenance were determined to be better served through a privatization contract.	Not applicable
Location	Criteria met – Location provides numerous hydraulic improvements and long-term integration and is located on land already designated for use by the water system.	Not applicable
Backup/Emergency Drinking Water Source	Criteria met – Water main loop and Areas A and B Interconnection provide redundancy that serves as a backup/emergency drinking water source.	Not applicable
Compatible Land Use Designations	Criteria met – Implement in areas of the Base that do not require alterations/modifications to other ongoing Base operations.	Not applicable
Available Land Area	Criteria met – Implement in areas of the Base that do not interfere with/obstruct other ongoing Base operations.	Not applicable
Maximum Water Redundancy	Criteria met – Water main loop and Areas A and B Interconnection would supply both areas with maximum redundant water supply source.	Not applicable
Overall Water Storage Capacity	Criteria met – Booster Pump Station, water main loop, and Areas A and B Interconnection would provide the most efficient transport and storage capacity.	Not applicable

2.4 Detailed Description of Alternatives

2.4.1 Booster Station at East Wellfield

The Proposed Action is to construct a proposed Booster Pump Station at the East Wellfield in Area A of the WPAFB to bring degraded utility systems to industry standards, correct deficiencies, ensure regulatory compliance, and increase reliability to support mission continuity.

After receiving input from AW about available land, site utilities, and other water system operation and maintenance challenges, a potential site was identified at the existing East Wellfield for Area B (near the

Warfighter Training Center). These wells are currently out of service because of water quality issues, but they are connected to the water plant for Area B Treatment Facility through a 24-inch-diameter water main.

Constructing the Booster Pump Station at this location would separate Tower 6 and Tower 10 and allow these tanks to operate independently with differing levels and hydraulic grades. Each treatment facility, or booster station, would be sequenced and controlled by the level in a single elevated tank, which would improve the operational flexibility and operating range of each of the three elevated tanks in Area A.

This location provides numerous hydraulic improvements and long-term integration and is located on land already designated for use by the water system. The Proposed Action would be implemented as detailed in Section 2.1.

2.4.2 Water Main

The new Water Main installation (approximately 7,200-linear-foot water main near Tower 6) is needed to create a closed-loop system for Area A by connecting the proposed Booster Pump Station to the pumping facility at the WTP in Area A. This connection would allow the Booster Pump Station and the two WTPs in Area A to act in concert, maintaining the reliability and redundancy of the Area A water distribution system.

2.4.3 North Loop Water Main

The installation of North Loop Water Main (approximately 16,000-linear-foot water main from the proposed Booster Pump Station to the West Ramp and Tower 10) is also needed to create a closed-loop system for Area A by replacing the existing, out-of-service water main from the 1940s and 1950s. This unused water main is known to have a deteriorated condition requiring replacement prior to being put back in service. As the North Loop Water Main is the replacement of an existing water main, directional drilling techniques will be used, with the exception of limited, yet-to-be-identified areas where directional drilling techniques may be more feasible or cost effective. The Proposed Action would be implemented as detailed in Section 2.1.

2.4.4 Areas A and B Interconnection

Space in the proposed Booster Pump Station has been allocated for the future installation of three additional booster pumps (five total). The three additional booster pumps would be dedicated to pumping water from Area A to Area B, acting as a future extra measure of redundancy for the Base's distribution system as a whole. The necessary connection valves and associated parts would be installed as part of this Proposed Action to allow easy installation of the interconnected pumps in the future. The installation of the Areas A and B Interconnection (approximately 5,900-linear-foot water main from the proposed Booster Pump Station to Water Treatment Facility in Area B) is needed to replace the existing water main from the 1940s and 1950s and reestablish an interconnected/redundant water supply between Areas A and B at WPAFB. As the Areas A and B Interconnection is the replacement of an existing water main, directional drilling techniques will be used, with the exception of limited, yet-to-be-identified areas where directional drilling techniques may be more feasible or more cost effective. The Proposed Action would be implemented as detailed in Section 2.1.

2.4.5 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Without the proposed Booster Pump Station, the identified hydraulic deficiencies would remain a system deficiency compromising the health, safety, and effectiveness of the Air Force's warfighters. The Area A water distribution system would remain with reduced hydraulic grade and capacity and would not enable WPAFB to bring degraded utility systems to industry standards, correct deficiencies ensuring regulatory compliance, and increase reliability to support mission continuity and, thus, would not meet the purpose of or need for the Proposed Action. More importantly, the No Action Alternative would not support AW's efforts to efficiently provide a safe, reliable, and sustainable drinking water system to WPAFB. A healthy and safe drinking water distribution system is a mission critical resource for

WPAFB. WPAFB received notification from the USEPA that their drinking water system is currently not in compliance with drinking water standards and mandated that WPAFB correct its hydraulic deficiencies.

The No Action Alternative was evaluated in this EA to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required by DAF regulations.

2.5 Alternatives Eliminated from Further Consideration

Several potential alternatives were identified to resolve the hydraulic deficiencies at WPAFB.

2.5.1 Northern Booster Station Alternatives

Three locations on the north side of Area A were evaluated for the northern booster station alternative:

Booster Station Adjacent to Tower 10

Undeveloped space is available in proximity to construct a new booster station, required site piping, and valves. When Tower 10 is filled, the pumps would turn off and the control valve would open to connect the elevated tank to the rest of the West Ramp area again. Since the West Ramp area would again be able to return to the hydraulic grade as it exists with the existing system, water from the tank would then flow toward the other parts of the system, resulting in a lowering of the tank level, which would trigger the operation of the booster station and repeat the filling process. This results in an inefficient system that would pump water back and forth within the pressure district. The tank cannot be both connected to the system and stay full. Isolating or continuously pumping to maintain the tank at a full level would result in the tank being available only during fires or emergency events. This is not recommended due to water quality issues from the aging of the tank water. In addition, the existing hydraulic restrictions and distance from the main Area A distribution system are predicted to induce excessive head loss when the pumps are operating, causing significant pressure drops to occur in the West Ramp area. The hydraulic model predicted pressures dropping 10 to 14 pounds per square inch (psi) over much of the West Ramp when the pumps are filling the elevated tank, with the lowest pressure of approximately 45 psi at this condition. Due to these conditions, this option was not evaluated further.

Booster Station at Old West Ramp Gate Entrance

Another location for the West Ramp Booster Station consists of an open space on the north side of the airfield near the old gate house. There are few other utilities present in this area, which would improve constructability. A West Ramp pressure zone would be created as part of the booster station project, and the station would control the level in Tower 10 with dedicated pumps and controls rather than being tied to Tower 7 and the remainder of Area A. The booster station suction and discharge can be connected into the existing distribution network and tied with the existing water main single feed, so no water main valves would need to be closed to provide isolation and separate this pressure zone from the remainder of Area A. Because the entire West Ramp area would be on the discharge side of the booster station, the pressures in the West Ramp would not drop when the pumps operate. Most of the suction side piping leading to the booster station and around the airfield has no users or service connections, so the observable pressure swings during pump operation would not have a large impact on any users, which are some of the primary disadvantages with the other location sites. Coordination would be required with WPAFB and airfield operations to install the water main, valving, and control valve vault within the restricted airfield area. The northern locations have the advantage of improving hydraulic conditions prior to the completion of the related water main looping projects; however, other alternatives resolve additional hydraulic issues and would ultimately be more advantageous than the northern booster station locations. This option was not considered further in this evaluation.

Booster Station Near Tower 7

The third northern location evaluated for the West Ramp Booster Station was near Tower 7. Of the three northern booster station locations, this location is the closest to Tower 7 and has the smallest pressure drop of the first three locations on the suction side of the booster station when the pumps are operating. The pressure drop for this booster station location alternative would still be approximately 8 to 10 psi in the area, which may be unacceptable depending on the requirements of facilities in this area. The hydraulic grade of the area on the discharge of the booster station could vary at times from the remainder of the Area A water system. This alternative differs slightly compared to the old West Ramp gate entrance in that a booster station here would place the northernmost portion of the main Area A distribution system and the entire West Ramp on a similar hydraulic grade, whereas the old West Ramp gate entrance would primarily impact the West Ramp area but not the remainder of Area A. This location for the booster station was not recommended since it would create additional dead-end sections in the water system and create a West Ramp pressure zone. The majority of the existing water mains around this site are 6 inches in diameter and likely have inadequate capacity to serve as the primary flow path to the booster station and West Ramp area. Therefore, additional water main replacement and upsizing would be required in conjunction with this alternative, rather than completing these water main replacements in the future as laid out in the capital improvements plan. It also has the smallest site footprint available for booster station construction, and many other in-service and abandoned utilities are present in this area, which would present construction challenges that are not present in the other booster station site alternatives. This option was not considered further in this evaluation.

2.5.2 Level Control Valve at Tower 7

A level control valve can be installed at Tower 7 to close off the tank when it reaches the desired high-level setpoint, which would allow the other elevated tanks to be filled completely. The installation of an altitude valve or electrically actuated control valve on the Tower 7 fill pipe would allow the high service pumps to discharge at a higher pressure when the fill pipe is closed without overflowing any of the elevated tanks in the area. This higher discharge pressure would be sufficient to fill Tower 10 to the overflow. The existing high service pumps have capacity to reach the required pressure, but the overflow level of Tower 7 limits the maximum pressure and hydraulic grade at that location, which impacts the entire Area A water system. The hydraulic grade provided by Treatment Facility in Area A could then be increased as required to fill Tower 10 without overflowing Tower 7. However, in this alternative, Tower 7 would be closed off from the rest of the water system during the time it takes to fill Tower 10. It would not resolve any of the hydraulic issues in the water system but would only allow the distribution pumps to operate at a higher pressure required to fill Tower 10 when the Tower 7 altitude valve is closed. This option was not considered further in this evaluation.

2.6 Comparison of Environmental Consequences

Table 2-2 – Comparison of Environmental Consequences

Resource Area	Proposed Booster Pump Station	No Action
Noise Resources	Short-term: Minor impacts on ambient noise from construction activities. Impacts would be minor because these activities would be carried out during normal working hours.	No impacts
	Long-term: No impacts. The booster pumps would be installed on the interior of the structure, preventing adverse noise impacts. No other long-term, noise-generating sources are anticipated as a result of the implementation of the Proposed Action.	

Resource Area	Proposed Booster Pump Station	No Action
Air Quality Resources	Short-term: Construction-related air emissions generated on Base as a result of particulate matter and engine exhaust emissions would be minor because emissions would be short in duration and are negligible with respect to overall emissions expected for the region; dust control measures would be implemented during construction.	No impacts
	Long-term: Minor adverse impacts as a result of the emissions from the operation of the emergency generator and minimal vehicle trips to and from the proposed Booster Pump Station for periodic adjustments and maintenance. No other long-term emission-generating sources are anticipated as a result of the implementation of the Proposed Action.	
Water Resources: Surface Waters	Short-term: Minor adverse impacts from surface water runoff during excavation activities. Impacts would be minor because Best Management Practices (BMPs) for erosion and sedimentation controls would be implemented.	No impacts
	Long-term: Minor adverse impacts would be minimized by limiting changes in topography and impervious surfaces and controlling storm water runoff velocities onto surrounding areas.	
Water Resources: Floodplains	Short-term: Adverse impact to floodplains during construction activities. Impacts would be minor because BMPs to maintain pre-construction hydrology would be implemented.	No impacts
	Long-term: No impacts. The Proposed Action would be designed and implemented to replicate pre-construction hydrology in a post-construction environment.	
Water Resources: Drinking Water	Short-term: Negligible impacts to the drinking water systems as the Proposed Action would be implemented in a manner that does not degrade drinking water quality or interrupt overall service.	No impacts
	Long-term: Beneficial impacts. The Proposed Action would support AW's efforts to efficiently provide a safe, reliable, and sustainable drinking water system to WPAFB, as a healthy and safe drinking water distribution system is a mission critical resource for WPAFB.	
Safety and Occupational Health Resources	Short-term: Potential adverse impact to workers during construction activities. Impacts would be minimized by adherence to health and safety regulations and standards. The construction area would be secured to prevent unauthorized access	No impacts
	Long-term: No impacts. The proposed Booster Pump Station would be secured with fencing to prevent unauthorized access. No other long-term safety and occupational health resources are anticipated as a result of the implementation of the Proposed Action.	
Hazardous Materials/Waste Resources	Short-term: Minor impact because hazardous materials/wastes used during construction activities would not be expected to increase over existing conditions.	No impacts
	Long-term: No impacts. Hazardous materials would not be utilized, and hazardous wastes would not be generated as a result of the Proposed Action.	

Resource Area	Proposed Booster Pump Station	No Action
Biological Resources: Vegetation and Wildlife	Short-term: Minor adverse impact because the Proposed Action locations are currently open, maintained, grassy areas with scattered wooded fragments. The Proposed Action locations would be cleared of vegetation, as needed, for the implementation of the Proposed Action and would no longer provide habitat for wildlife. The use of directional drilling techniques would limit the need for clearing of vegetation during the implementation of large portions of the Proposed Action.	No impacts
	Long-term: Minor adverse impacts because the Proposed Action locations would result in limited vegetation clearing. The Proposed Action locations would be cleared of vegetation, as needed, for the implementation of the Proposed Action and would no longer provide habitat for wildlife. The use of directional drilling techniques would limit the need for clearing of vegetation during the implementation of large portions of the Proposed Action.	
Biological Resources: Threatened and Endangered Species	Short-term: Minor adverse impacts on threatened and endangered species as the Proposed Action locations may provide suitable roosting habitat for protected bat species. Minor adverse impacts on threatened and endangered species as the proposed construction site does not likely provide suitable habitat for other federal and state protected species. Trees that are required to be removed from the Proposed Action locations would only occur during the time period of October 1 through March 31 to minimize adverse impacts to protected bat species.	No impacts
	Long-term: Minor adverse impacts on threatened and endangered species as the implementation of the Proposed Action would permanently remove potential suitable roosting habitat for protected bat species.	
Cultural Resources	Short-term: No cultural resources identified within the Area of Potential Effect (APE) of the Proposed Action locations.	No impacts
	Long-term: No impacts. No cultural resources identified within the APE of the Proposed Action locations.	
Earth Resources	Short-term: Minor adverse impact to existing soils during construction of the Proposed Action. Impacts would be minimized by implementing BMPs for erosion and sedimentation controls.	No impacts
	Long-term: Minor adverse impacts would be minimized by limiting changes in topography and impervious surfaces and controlling storm water runoff velocities onto surrounding areas.	
Socioeconomic Resources	Short-term: Negligible impact on local workforce and a beneficial impact on the local economy from the revenue generated by construction activities.	No impacts
	Long-term: No adverse impacts. Beneficial impacts related to the improved function of the WPAFB water distribution system.	
Traffic and Transportation Resources	Short-term: Negligible impact due to the location of the Proposed Action at the Base in areas with limited accessibility and traffic. Traffic disruption would be limited to vehicles traveling to the Proposed Action locations.	No impacts
	Long-term: No impacts.	

Resource Area	Proposed Booster Pump Station	No Action
Land Use Resources	Short-term: Minor impacts to surrounding areas caused by construction traffic and activities reduced by distance from gates.	No impacts
	Long-term: Minor impact as the land parcel associated with the proposed Booster Pump Station would be changed from open, maintained, grassy areas with scattered wooded fragments to the proposed Booster Pump Station. However, this change is consistent with the current and long-term use of lands associated with the WPAFB.	

3.0 Affected Environment

This section describes the current environmental and socioeconomic conditions most likely to be affected by the alternatives and provides a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the alternatives. In compliance with NEPA and 32 CFR 989, the description of the affected environment focuses on resources and conditions potentially subject to impacts. These resources and conditions include air quality, noise, water resources, biological resources, earth resources, hazardous materials/waste, cultural resources, infrastructure/utilities, safety and occupational health, and socioeconomics.

This section also describes the potential environmental consequences associated with implementing the Proposed Action or the No Action Alternative. Each alternative is evaluated for its potential to affect physical and biological resources. Potential impacts for each resource area are described in terms of their significance. Significant impacts are those that would result in substantial changes to the environment and should receive the greatest attention in the decision-making process.

In evaluating the context and intensity of impacts, consideration must be given to the degree to which the action might adversely or negatively affect the resource. Consideration must be given to whether an impact affects public health or safety and whether it affects areas having unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. In addition, consideration must be given to the degree to which the action might adversely affect animal or plant species listed as endangered or threatened or their habitat. The level of impacts could also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Adverse impacts might be found where an action sets a precedent for future actions having adverse effects, as well as in cases involving cumulative impacts. Finally, in evaluating intensity, it must be determined as to whether an action violates a law or regulation imposed for the protection of the environment.

For this EA, thresholds of change for the intensity of adverse impacts are defined as follows:

- Direct effects, which are caused by the action and occur at the same time and place.
- Indirect effects, which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from actions with individually minor but collectively significant effects taking place over a period of time.
- Significance, which is consideration of the characteristics of the geographic area in the applicable global, national, regional, and local contexts.

It is noted that impacts may also be beneficial. The degree to which impacts are beneficial or positive for a resource is similar to the definitions of intensity listed above.

Cumulative Impacts

NEPA documents should compare cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant. Past, present, and reasonably foreseeable future actions are examined, including military actions in the region as well as other federal and non-federal actions, to determine if there is an interaction with the Proposed Action or alternative.

As WPAFB is an active military installation that undergoes changes in missions and training requirements in response to defense policies, current threats, and tactical and technological advances, it requires new

construction, facility improvements, infrastructure upgrades, and maintenance and repairs on an ongoing basis. In addition, tenant organizations occupy portions of the Base, conduct aircraft operations, and maintain select facilities. All these on-Base actions would continue to occur before, during, and after the Proposed Action has been implemented. For purposes of the cumulative effects analysis, the approximate timeframe spans from 2025, when Proposed Action construction would begin, and ends in 2026 with the completion of the Proposed Action and other related projects.

DAF has identified actions in the vicinity of the project area that are under consideration and in the planning or implementation stage. These actions are included in the cumulative effects analysis to the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action outlined in this EA. No additional WPAFB-related projects requiring a cumulative impact analysis were identified in the immediate vicinity of the proposed project area. In addition, there are no expected non-DAF projects that would add to cumulative effects. Alternatively, the Proposed Action would provide a positive impact to the drinking water resources for Base occupants due to improved pressure, improved water reserves, and a reliant/redundant distribution system.

Each of the following sections (3.2 through 3.10) includes an examination of immediate and cumulative effects on the environment that would result from implementation of the Proposed Action, in addition to other past, present, and reasonably foreseeable future actions. This analysis assesses potential for an overlap of impacts with respect to project schedules or affected areas. Under the No Action Alternative, there would be no change to baseline conditions for any resource areas, and existing conditions would continue as described in the resources analyzed. No new cumulative impacts would be expected as a result of the No Action Alternative.

3.1 Resources Analyzed

Analysis of potential environmental effects focuses on resource areas that are appropriate for consideration, in light of a Proposed Action. All resource areas were initially considered, but some were eliminated from detailed examination because they were determined to have no impact as a result of implementation of the alternatives.

- Airspace: Proposed Action activities would not result in any obstructions to airspace or hazards to airspace management at WPAFB nor do they include the use of nor any modifications to existing airspace. Therefore, there would be no impacts to airspace.
- Visual Resources: Implementation of the Proposed Action would not adversely change the views of or from WPAFB.
- Socioeconomics: The implementation of the Proposed Action would have a non-significant impact on the local workforce. A short-term beneficial impact would be expected on the local economy from revenue generated by construction activities; however, no additional permanent personnel are expected to be added. The Proposed Action does not involve changes in off-Base land use; therefore, no impacts on social conditions are expected.
- Utilities: The Proposed Action is specific to improvements to the WPAFB water distribution system, and the existing water distribution system, although beyond the end of its useful life, remains in place, which allows the Proposed Action to be implemented using a direct approach by utilizing existing infrastructure to maximize efficiencies during the implementation of the Proposed Action. Water consumption rates after the implementation of the Proposed Action would continue at levels similar to the current consumption rates. In addition, the proposed Booster Pump Station area is accessible to existing electrical lines, enabling the construction of the proposed Booster Pump Station to be connected to the existing electrical system. Electrical consumption rates would increase as a result of the implementation of the Proposed Action. The increase in consumption rates would vary based on water demand and would be influenced by season and number of personnel at WPAFB.

- Land Use: The Proposed Action would occur in areas where current land use designations are compatible and any land use re-designations are not anticipated.

3.2 Noise Resources

3.2.1 Affected Environment

Existing noise contours were analyzed using results from DoD-approved noise models in the vicinity of WPAFB. The noise contour analysis for WPAFB is presented in the 1995 (updated 2022) Air Installation Compatible Use Zone (AICUZ) Study for WPAFB, Ohio. Based on reasonable assumptions at the time of the updated 2022 AICUZ Study, a Maximum Mission/Maximum Capacity Scenario was analyzed and incorporated a potential increase in aircraft operations. Although other aircraft have been utilized at WPAFB, the Maximum Mission Model was intended to capture the maximum feasible operational capacity of the airfield and support activities. Within the limits of accuracy of the model itself, it was meant to provide a baseline for the surrounding communities' zoning and land-use decisions, thus limiting encroachment and preserving the capacity of the Base to host additional flying missions.

Because the Maximum Mission Scenario noise contours have been, and are currently, used for noise compatibility planning around the Base, these contours are used as the baseline for the noise analysis in this EA. Figures 3-1 and 3-2 depict the baseline noise contours presented in the Updated 2022 AICUZ Study.

There are no noise-sensitive receptors identified in the AICUZ that would be affected by the Proposed Action. No housing exists in the vicinity of the Proposed Action locations, and no recent complaints regarding aircraft noise have been received. According to the AICUZ Study, the Proposed Action areas are located within the AICUZ noise contours exposed to 65–80 decibels (dB) (Figures 3-1 and 3-2). These contour values represent existing conditions to which the potential noise levels from construction activities associated with implementing the Proposed Action can be compared.

Although no noise-sensitive receptors identified in the AICUZ would be affected by the Proposed Action, the implementation of the Proposed Action would result in temporary (short-term) impacts to the existing noise environments in the vicinity of the Huffman Prairie Flying Field Interpretive Center in Area B and the Warfighter Training Center and southern portion of the Huffman Prairie Flying Field National Park in Area A; however, these noise impacts are anticipated to not be significant as the Proposed Action is being implemented within the boundaries of WPAFB.

Construction activities generate noise by their very nature and are highly variable, depending on the type, number, and operating schedules of equipment. Construction projects are usually executed in stages, each having its own combination of equipment and noise characteristics and magnitudes, including excavation for building foundations, installation of the foundations, construction of the building shells and the exterior façades, complete interior build outs, utility installations, and ground surface restorations/landscaping.

Peak noise levels vary at a given location based on a line of sight, topography, vegetation, and atmospheric conditions. Peak noise levels would be variable and intermittent because each piece of equipment would only be operated when needed. However, peak construction noise levels would be considerably higher than existing noise levels. Relatively high peak noise levels in the range of 93 to 108 "A-weighted" decibels (dBA) would occur on the active construction site, decreasing with distance from the construction areas. Generally, peak noise levels within 50 feet of active construction areas and material transportation routes would most likely be considered "striking" or "very loud," comparable to peak crowd noise at an indoor sports arena. At approximately 200 feet, peak noise levels would be loud—approximately comparable to a garbage disposal or vacuum cleaner at 10 feet. At 0.25 miles, demolition and construction noise levels would generally be quiet enough so as to be considered insignificant, although transient noise levels may be noticeable at times. Table 3-1 presents peak noise levels that could be expected from a range of equipment during proposed demolition and construction activities.

Combined peak noise levels, or worst-case noise levels when several loud pieces of equipment are used in a small area at the same time, are expected to occur rarely during the Proposed Action projects. However, under these circumstances, peak noise levels could exceed 90 dBA within 200 feet of the construction areas, depending on equipment being used. Although noise levels would be quite loud in the immediate area, the intermittent nature of peak construction noise levels would not create the steady noise level conditions for an extended duration that could lead to hearing damage. Construction workers would follow standard Federal Occupational Safety and Health Administration (OSHA) requirements to prevent hearing damage.

3.2.2 Environmental Consequences

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of the Proposed Action.

3.2.3 Proposed Action

Implementation of the Proposed Action would have direct, non-significant impacts on the noise environment near the Proposed Action locations. The direct, non-significant impacts to the existing noise environment due to construction activities associated with the Proposed Action projects would be associated primarily with standard construction equipment and construction equipment and material transportation. Noise impacts would be experienced by workers directly involved in construction activities and WPAFB personnel working near the construction sites. Noise impacts to construction workers would result from the use of construction equipment and trucks. Based on the estimated noise measurements for equipment discussed in this section and the sound level increases, persons at approximately 50 feet from the work area could experience sound levels greater than 25 dB over the background level used in land use compatibility planning and environmental assessments (i.e., 65 dB). Noise levels would be more intense in the immediate construction work area as a result of construction equipment (i.e., electric drill – 95 dB, power saw – 110 dB, chain saw/hammer on nail – 120 dB, and jackhammer/power drill – 130 dB); however, impacts to workers would be minimized because workers would be responsible for adhering to health and safety regulations.

Areas that could be most affected by noise from construction are those closest to the construction limits, including the Huffman Prairie Flying Field Interpretive Center in Area B and the Warfighter Training Center and the southern portion of the Huffman Prairie Flying Field National Park in Area A. However, limited activities associated with the Proposed Action are anticipated in these areas and would occur for a brief period of time. In addition, indoor noise levels at the Interpretive Center and Warfighter Training Center would be expected to be 15–25 dB lower than outdoor levels.

Although the nearest occupied structure to the proposed Booster Pump Station site is located at a distance greater than 1,000 feet, various WPAFB buildings are located in the immediate vicinity of the remaining Proposed Action projects, including the Huffman Prairie Flying Field Interpretive Center and the WTP in Area B, the Warfighter Training Center, and buildings in the vicinity of the proposed Water Main project. Personnel in occupied buildings or in the surrounding area may experience direct non-significant noise impacts; however, construction-related noise would occur during normal working hours and would be temporary, short in duration, and comparatively minor and less than or equivalent to noise levels generated by the WTP. No long-term noise impacts would result from the Proposed Action to either construction workers or personnel in the vicinity of the proposed project site.

Table 3-1 – Peak Noise Levels Expected from Typical Construction Equipment

Source	Peak Noise Level (dBA, attenuated) Distance from Source (feet)							
	0	50	100	200	400	1,000	1,700	2,500
Heavy Truck	95	84-89	78-93	72-77	66-71	58-63	54-59	50-55
Dump Truck	108	88	82	76	70	62	58	54
Concrete Mixer	108	85	79	73	67	59	55	51
Jack-hammer	108	88	82	76	70	62	58	54
Scraper	93	80-89	74-82	68-77	60-71	54-63	50-59	46-55
Bulldozer	107	87-102	81-96	75-90	69-84	61-76	57-72	53-68
Generator	96	76	70	64	58	50	46	42
Crane	104	75-88	69-82	63-76	55-70	49-62	45-48	41-54
Loader	104	73-86	67-80	61-74	55-68	47-60	43-56	39-52
Grader	108	88-91	82-85	76-79	70-73	62-65	58-61	54-57
Pile driver	105	95	89	83	77	69	65	61
Forklift	100	95	89	83	77	69	65	61

Combined Peak Noise Level	Worst-Case Combined Peak Noise Level (Bulldozer, Jackhammer, Scraper) Distance from Source (feet)				
	50	100	200	¼ Mile	½ Mile
	103	97	91	74	68

Source: Tipler 1976

Indirect impacts include noise from workers commuting and material transport. Area traffic volumes and noise levels would increase as construction employees commute to and from work at the Proposed Action project areas. Persons in the Proposed Action project areas would experience temporary increases in traffic noise during daytime hours. These effects are considered negligible because they would be temporary, intermittent, and generally similar to existing traffic noise levels in the area and less than WPAFB noise levels dominated by military aircraft overflights.

No notable long-term operational noise impacts would be associated with the Proposed Action projects. WPAFB would continue to be used as an active DAF Base, similar to its existing uses. No significant new noise-generating activities or operations would be conducted at WPAFB. A minor increase in noise levels associated with the proposed Booster Pump Station is anticipated in that specific area; however, access to the proposed Booster Pump Station would be restricted, is in a limited-use area of WPAFB, and would not generate noise that would be dissimilar to current conditions in the area of the proposed Booster Pump Station. The remaining portions of the Proposed Action projects would not include any long-term noise-generating sources since activities are limited to the installation and/or replacement of water mains and associated connections.

Alternatively, the Proposed Action would provide a positive impact to the drinking water resources for Base occupants due to improved pressure, improved water reserves, and a reliant/redundant distribution system.

3.2.4 Cumulative Impacts – Noise

Construction activities associated with the Proposed Action would cause short- and long-term, minor and adverse cumulative impacts on WPAFB. No noise-producing activity or project has been identified that, when combined with the Proposed Action, would have greater than minor adverse impacts on sensitive noise receptors at WPAFB due to the project.

3.2.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, no noise-generating activities associated with construction and implementation would result, and there would be no adverse impact on noise quality.

3.3 Air Quality Resources

3.3.1 Affected Environment

3.3.1.1 Regional Air Quality

Air Quality Control Regions (AQCRs) are federally designated areas that are required to meet and maintain federal ambient air quality control standards. Regions may include nearby locations of the same state or nearby states that share the same air pollution problems. The USEPA regulatory areas lie within the AQCRs and are designated by the USEPA as attainment or nonattainment. These areas are required to comply with the National Ambient Air Quality Standards (NAAQS), which includes those pollutants considered harmful to public health and the environment. In addition, NAAQS define levels of air quality necessary to protect public health. NAAQS have been established by the USEPA for six pollutants, also known as "criteria pollutants": sulfur dioxide (SO_2), large particulate matter (PM10), small particulate matter (PM2.5), ozone (O_3), oxides of nitrogen oxide (NO_2), and lead (Pb).

Through the Clean Air Act (CAA), Congress has stated that the prevention and control of air pollution belongs at the state and local level; thus, the USEPA has delegated enforcement of the Prevention of Significant Deterioration (PSD) and Title V programs to the Ohio Environmental Protection Agency (OEPA). The OEPA has adopted the NAAQS by reference, thereby requiring the use of the standards within the state of Ohio.

WPAFB is in attainment for all criteria pollutants except O_3 and PM2.5. DAF has determined that O_3 conformity applicability analyses were required for the Proposed Action projects because WPAFB is located in an "orphan maintenance area" pursuant to South Coast Air Quality Mgmt Dist v EPA (882 F.2d 1138, DC Circ., 2018). WPAFB is also located in a maintenance area for PM2.5, so general conformity applicability analyses were performed for that pollutant as well. Air Conformity Applicability Model (ACAM) reports for the Proposed Action projects are included in Appendix 2.

Air quality is typically good near WPAFB and is generally affected only locally by military and civilian vehicle emissions; particulate pollution from vehicle traffic; and emissions from wastewater treatment plants, industrial sources, and construction activities. Mobile sources, such as vehicle and aircraft emissions, are generally not regulated at the local level and are not covered under existing stationary source permitting requirements. Stationary emissions sources at WPAFB include natural gas-fired boilers; research and development sources, such as laboratory fume hoods and test cells; paint spray booths; refueling operations; and emergency power generators. The Base is under the jurisdiction of the USEPA Region 5 and OEPA. The Regional Air Pollution Control Agency (RAPCA), under the authority of the OEPA, conducts annual compliance inspections at WPAFB. The Base has long had an aggressive program of internal audits and inspections to ensure continual compliance with all applicable air permit terms and conditions.

WPAFB

The WPAFB air emissions inventory includes over 1,400 emissions sources, and the Air Program Manager at WPAFB requires notification prior to installation, removal, or relocation of any air source. Most of the stationary sources at WPAFB are classified by OEPA to be insignificant or de minimis because of low potential emission levels. Insignificant emission levels are defined in Ohio Administrative Code (OAC) rule 3745-77-01(V)(3) to be less than or equal to 5 tons per year (tpy) of any regulated air pollutant other than a Hazardous Air Pollutants

(HAP) and not more than 20 percent of an applicable major source threshold. De minimis sources are exempt from air permitting requirements provided the emission source meets the requirements of OAC rule 3745-15-05.

The most recent renewal of the Title V operating permit was issued to WPAFB on September 17, 2021. There are 21 permitted significant emissions units identified in the permit, most of which were boilers. All significant emissions units must have specific air permit conditions established by a Permit to Install (PTI) before being listed in the Title V operating permit. Modification or replacement of these sources may require a PTI application depending upon the size and the total scope of the project. Insignificant sources listed in the Title V permit may have permit conditions in a PTI or reporting requirements depending on the regulatory qualifications that categorize a source as significant. Insignificant sources that were specifically issued a PTI must be evaluated individually prior to commencing work to assure that the terms and conditions of the issued PTI are maintained for any sources that are added or modified by this project.

Insignificant sources that were permitted-by-rule (PBR) may be modified or relocated without notification, provided the terms and conditions of the PBR are maintained. Insignificant sources that are de minimis or to which only generally applicable requirements apply may undergo additions, removals, and relocations and do not require a modification of the Title V permit provided the changes do not exceed insignificant emission levels.

WPAFB is a major source of both criteria and hazardous air pollutants and currently operates under Title V Operating Permit No. P0129629 (issued September 17, 2021). Upon the execution of the utility privatization, WPAFB notified the RAPCA of the intent to aggregate the emission sources associated with the water and wastewater utilities under control of AW and separate them from the remaining WPAFB emission sources. Table 3-2 depicts those emission sources that were disaggregated.

Table 3-2 – American Water Emission Sources

Source ID	OEPA #	Building Number	Facility ID	Room Number	Description
2106	B641	30851	30851		Emergency generator, 100 kW Cummins
6651	B717	30172	30172		Emergency generator, 350 kW
6424	B354	27000	27000	N/A	Emergency generator, 40 kW Kohler
2354	B630	30117	30117	Inside building	Emergency generator, 400 kW Cummins
6473	B125	10855	10855		Emergency generator, 450 kW Kohler, for air strippers
6106	B350	20085A/21630	21630	Outside	Emergency generator, 500 kW diesel, Kohler
6884	B716	34024	34024	Fire Pump Room	Fire Suppression System, Cummins Diesel Engine
5111	B699	30172	30172		Fire Suppression System, Cummins Diesel Engine 232 HP
5110	B700	30172	30172		Fire Suppression System, Cummins Diesel Engine 232 HP
2371	B701	30172	30172		Fire Suppression System, Cummins Diesel Engine 232 HP
3098	P609	30174	30174	BCV-SW	Groundwater air stripper #1, Area C
6390	P609	30175	30175	BCV-SW	Groundwater air stripper #2, Area C
5102	Z133	10861	10861		Groundwater air stripper, Area A #1
5103	Z134	10862	10862		Groundwater air stripper, Area A #2
2567	P309	21631	21631	N/A	Groundwater air stripper, Area B #1
5337	P309	21634	21634	N/A	Groundwater air stripper, Area B #2

3.3.2 Environmental Consequences

The environmental consequences to local and regional air quality conditions near a proposed federal action are determined based on the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. For the purposes of this EA, the impact in NAAQS "attainment" areas would be considered significant if the net increases in pollutant emissions from the federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard.

- Expose sensitive receptors to substantially increased pollutant concentrations of any Exceed Evaluation Criteria established by a State Implementation Plan (SIP).

Impacts on air quality in NAAQS "nonattainment" areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard.
- Increase the frequency or severity of a violation of any ambient air quality standard.
- Delay the attainment of any standard or other milestone contained in the SIP.

For air sources from federal actions that do not require review for air permitting, the primary tool used to evaluate air impacts is the application of the General Conformity Rule (GCR). WPAFB is in attainment for all criteria pollutants except O_3 and PM2.5, and DAF determined that conformity applicability analyses were required for the Proposed Action projects. ACAM reports for the Proposed Action projects are included in Appendix 2.

The criteria pollutants with a General Conformity threshold (listed in Table 3-3) are pollutants within one or more designated nonattainment or maintenance area(s) for the associated NAAQS. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

Table 3-3 – ACAM Conformity Analysis Summary

2025

Pollutant	Action Emissions (ton/yr)	General Conformity Threshold (ton/yr)	General Conformity Exceedance (Yes or No)
VOC	0.099	100	No
NOx	0.865	100	No
CO	1.072		
SOx	0.001		
PM 10	0.563		
PM 2.5	0.036		
Pb	0.000		
NH3	0.001		

Dayton-Springfield, OH

2026 (Steady State)

Pollutant	Action Emissions (ton/yr)	General Conformity Threshold (ton/yr)	General Conformity Exceedance (Yes or No)
VOC	0.016	100	No
NOx	0.145	100	No
CO	0.191		
SOx	0.000		
PM 10	0.007		
PM 2.5	0.006		
Pb	0.000		
NH3	0.000		

Dayton-Springfield, OH

In addition to criteria air pollutants, total combined direct and indirect greenhouse gas (GHG) emissions associated with the Proposed Action were estimated through ACAM on a calendar-year basis from the action start through the expected life cycle of the action. The life cycle for Air Force actions with "steady state" (SS) emissions (net gain/loss in emission stabilized and the action is fully implemented) is assumed to be 10 years beyond the SS emissions year or 20 years beyond SS emissions year for aircraft operations related actions. Table 3-4

summarizes the action-related GHG emissions on a calendar-year basis through the projected life cycle of the Proposed Action.

3.3.3 Proposed Action

3.3.3.1 Construction Emissions

Construction activities would result in non-significant emissions of criteria pollutants from the equipment engine exhaust and particulate matter emitted as fugitive dust from excavation and grading activities, movement of material and equipment, and other standard activities associated with construction projects. Additionally, vehicle emissions from worker commuter emissions would result in emissions. All of these criteria pollutant emissions from the construction activities would be temporary and minimal.

The OAC rule 3745-15-07 declares dust escaped from any source that causes damage to property to be a public nuisance. Pursuant to OAC rule 3745-17-08(A)(2), the OEPA Director may require any source that causes or contributes to such a nuisance to submit and implement a control plan that employs reasonably available control measures to prevent fugitive dust from becoming airborne. Because the Proposed Action would include construction that has the potential to generate noticeable amounts of dust particles larger in size than PM10, reasonably available control measures (RACMs) should be employed by the general contractor to minimize the impact to the neighboring community. The RACMs can include, but are not limited to:

- Maintain a written Dust Control Plan onsite.
- Apply water or other dust control chemicals to roads and surfaces as applicable.
- Cover open-bodied trucks during the transport of material.
- Promptly remove debris from paved surfaces to minimize and prevent re-suspension.
- Plan material and equipment delivery routes to minimize contact of dust with nearby occupants.

3.3.3.2 Stationary Sources and New Source Review

Local and regional pollutant impacts resulting from direct and indirect emissions from stationary emission sources under the Proposed Action are addressed through federal and state permitting program requirements under New Source Review regulations (40 CFR 51 and 52). Local stationary source permits are issued by OEPA and enforced by RAPCA. As noted previously, WPAFB has appropriate permits in place and has met all applicable permitting requirements and conditions for existing stationary devices. Emergency generators and other equipment owned and operated by AW have been disaggregated from the WPAFB Title V permit. Therefore, environmental compliance (permitting, maintenance, etc.) for new or existing equipment owned and operated by AW is the responsibility of AW.

The Proposed Action would include the installation of one 500-kilowatt diesel backup emergency-power generator with the proposed Booster Pump Station project. The emergency generator would likely require a PTI or PBR application to be obtained by AW and their contractors. The ACAM indicated that the standby generator is anticipated to generate approximately 0.191 tons of CO_2 emissions and approximately 0.174 tons of remaining HAPs, based on 30 hours of operation time per annum for operational testing.

It is not anticipated the emergency generator would trigger PSD applicability and would be excluded, as all AW air emission sources are disaggregated, from the WPAFB Title V operating permit. No other stationary sources or new source reviews are anticipated as part of the Proposed Action projects.

3.3.3.3 Operational Activities

Operational activities would result in non-significant emissions of criteria pollutants from the emergency generator engine exhaust. The ACAM indicated that the standby generator is anticipated to generate approximately 0.191 tons of CO_2 emissions and approximately 0.174 tons of remaining HAPs, based on 30 hours of operation time per annum for operational testing. Additionally, vehicle emissions would result from the

long-term operation of the proposed Booster Pump Station; however, these emissions would be negligible since the proposed Booster Pump Station would be largely automated with the need for periodic adjustments and maintenance, and the remaining Proposed Action projects (water mains) would only require temporary activities during implementation and periodic maintenance and repairs, as needed.

None of the annual net change in estimated emissions associated with the Proposed Action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the Proposed Action would have a non-significant impact on air quality, and a General Conformity Determination is not applicable.

3.3.4 Cumulative Impacts – Air Quality

The state of Ohio accounts for all significant stationary, area, and mobile emission sources under the CAA and USEPA in the development of a SIP. Because the SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed for a state to achieve and maintain compliance with all NAAQS, no significant cumulative impacts on air quality are anticipated. Estimated emissions generated by the Proposed Action would be de minimis, and it is understood that activities of this limited nature would not contribute appreciably to adverse cumulative impacts to air quality. In addition, the activities associated with these projects are not recurring. As no additional projects requiring cumulative analysis have been identified, no significant cumulative impacts to air quality would be anticipated.

3.3.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, no increase in emissions over current baseline conditions would be realized and no adverse impact on air quality would occur. The ACAM concluded that none of the estimated annual net emissions associated with the Proposed Action exceed the insignificance indicators for criteria pollutants or GHGs. Therefore, the No Action Alternative will not cause or contribute to an exceedance of one or more NAAQS and will have a non-significant impact on air quality.

3.4 Water Resources

3.4.1 Affected Environment

3.4.1.1 Groundwater

The Base is located in the Great Miami River Valley, which is filled with glacial deposits of sand and gravel. The glacial outwash deposits are very permeable and exhibit high transmissivity and hydraulic conductivity. The Miami Valley Buried Aquifer system is a highly productive source of water for the millions of people in southwest Ohio. The USEPA designated the Miami Valley Buried Aquifer system as a sole-source aquifer in 1988 (see Figure 3-3), requiring USEPA Region 5 approval, through the MCD, on all new projects to ensure continued use as a drinking water supply (53 Federal Register 15876).

Groundwater can also be found in large volumes in the Silurian-age (415 to 465 million years ago) limestone and dolomite bedrock underneath the buried valley aquifer system. Underneath the limestone and dolomite bedrock is Ordovician-age (465 to 510 million years ago) bedrock shales and limestones of the Richmond Group, which are generally only productive enough for livestock use. The Groundwater Resources Map of Greene County (Appendix 4) shows that the Proposed Action location is in an area that is considered sand and gravel (outwash deposits) from depths ranging from 55 feet to 135 feet below ground surface. Water underground generally follows the same flows as surface waters with upland areas serving as recharge areas and groundwater divides. At WPAFB, the Mad River follows the course of the Mad River Buried Aquifer, part of the Miami Valley Buried Aquifer system. South of Huffman Dam (a flood control dam that is managed by the MCD), a till zone divides the Mad River Buried Aquifer into an upper water table unit and a lower confined unit. However, north of the dam and in other parts of the buried valley aquifer, till zones occur less frequently as discontinuous, less-permeable

zones within the more permeable outwash deposits (WPAFB 1995b). Most of the wells in the outwash deposits yield between 750 and 1,500 gpm but can vary from less than 200 to more than 4,000 gpm. The city of Dayton groundwater production wells at Huffman Dam are screened at depths of over 100 feet below ground surface.

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Figure 3-3 – Sole Source Aquifer Map

3.4.1.2 Surface Water

The Base is in the Mad River Valley, which originates approximately 40 miles north of Springfield, Ohio; flows south and southwest past WPAFB to its confluence with the Great Miami River in Dayton, Ohio; and flows into the Ohio River. Sustained flow of the Mad River originates from groundwater discharge of glacial deposits upstream of Huffman Dam. The Mad River approaches WPAFB from the north and flows along the western border of Area A. The OEPA has divided the Mad River watershed into five areas: headwaters, Mad River between Kings and Chapman Creek, Buck Creek, Mad River from Chapman to Mud Creek, and the lower Mad River (Mud Creek to the Great Miami River). Mud Creek enters the Mad River 2,000 feet north of the State Route bridge, near the northwest corner of Area A. The Base lies adjacent to the northernmost portion of the lower Mad River segment.

The Clean Water Act (CWA) sets the basic structure for regulating discharges of pollutants to Waters of the U.S. (WOTUS) regulated under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the United States, including wetlands. The National Wetlands Inventory—a department within the USWFS, USEPA, and National Resource Conservation Service (NRCS)—assists in identifying wetlands.

One surface water feature, Hebble Creek, was identified in proximity to the Proposed Action areas. Hebble Creek is an intermittent stream that flows from east to west, turns and flows west through a forested area (Mad River riparian buffer), and discharges into the Mad River near the southwest corner of Area A, approximately 500 feet upstream from Huffman Dam. Based on its hydrologic connection to the Mad River, Hebble Creek is likely considered to be a WOTUS regulated under the jurisdiction of the USACE.

The OEPA has identified the lower segment of the Mad River, which flows through WPAFB, as an impaired water under Section 303(d) of the CWA for not meeting aquatic life and recreation use standards.

The USEPA has established the total maximum daily load (TMDL) of effluent for the Mad River in the Mad River Total Maximum Daily Loads for Sediment and Turbidity. A TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards and allocates pollutant loadings among point and nonpoint pollutant sources. The TMDL for the Mad River watershed has been set at 120 percent of natural sediment loading. According to the report, the natural sediment loading in the basin is approximately 894 tons/square mile/year based on an annual average.

The WPAFB Storm Water Management Plan (SWMP) and the Storm Water Pollution Prevention Plan (SWPPP), both prepared to comply with the CWA and the Ohio Water Pollution Control Act, provide descriptions of storm drainage areas and their associated outfalls, potential storm water pollution sources, and material management approaches to reduce potential storm water contamination. The SWPPP was last updated in September 2023 while the SWMP was last updated in July 2023. Three OEPA industrial permits (National Pollutant Discharge Elimination System [NPDES] permits 1IN90011, 1INO00001, and 1IN00156) and a municipal NPDES General Permit (OHQ000002) cover the WPAFB storm water program.

The SWPPP and SWMP provide specific BMPs to prevent surface water contamination from activities such as construction, storing and transferring of fuels, storage of coal, use of deicing fluids, storage and use of lubrication oils and maintenance fluids, and solid and hazardous waste management.

There are 20 defined drainage or "Outfall Areas" and 23 NPDES discharge monitoring points on Base that are addressed under the NPDES permits (WPAFB 2016b). All storm water from WPAFB flows into the Mad River. Surface water in the WPAFB area includes the Mad River, Trout Creek, Hebble Creek, Twin Lakes, Gravel Lake, and wetland areas. These surface water features are recharged by both precipitation and groundwater. Trout Creek and Hebble Creek provide drainage of surface water runoff. Trout Creek is located in the western portion of Area A and discharges to the Mad River north of Huffman Dam. Hebble Creek passes through the southwestern portion of Area A and discharges to the Mad River several hundred feet north of Huffman Dam. Gravel Lake, Twin Lake East, and Twin Lake West are located in the southwest portion of Area A. These lakes were created as a result of gravel quarrying activities at WPAFB. Currently, the lakes are maintained as recreational areas for Base personnel and their families.

3.4.1.3 Floodplains

EO 13690 (Federal Flood Risk Management Standard or FFRMS) and EO 11988 (Floodplain Management) require federal agencies to determine whether a proposed action would occur within a floodplain and typically involves consultation of appropriate FEMA Flood Insurance Rate Maps. EO 14030 requires federal agencies to prepare for and protect federally funded buildings and projects from flood risks, and EO 11988 directs federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is a site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988 outlined in the FEMA document Further Advice on EO 11988 Floodplain Management. In addition, all floodplain-related construction activities must be coordinated with the MCD for approval. The MCD, through the Land Use Agreement (dated January 7, 2000) and the MCD Policy and Procedure for Permits in Retarding Basins, regulates all construction on land within the Huffman Dam Retardation Basin and more than 5 feet below the spillway elevation of 835 feet above mean sea level (MSL).

A large portion of WPAFB, including the majority of Area A and portions of Area B, lie within the Mad River floodplain. These portions of the Base are classified as Zone A; Zone A is defined by FEMA as an area with a 1 percent annual chance of having a flood (see Figure 3-5). The flood elevations at the project site are controlled by the Huffman Dam, which is located downstream of WPAFB. Huffman Dam is maintained by the MCD. Based on a report produced by MCD and the U.S. Geological Service, the 10-year peak dam-pool elevation is at 797.0 feet above MSL, and the 100-year peak dam-pool elevation is at 806.2 feet above MSL (North American Vertical Datum, 1988).

An Existing Conditions and Demolition Plan, dated September 20, 2023, shows the Proposed Action location as ranging from approximately 794 feet above MSL to approximately 798 feet above MSL in the northern portion. All portions of the Proposed Action location are situated at elevations below the 10-year and 100-year floodplains.

All floodplain-related construction activities must be coordinated with the MCD for approval. The MCD, through the Land Use Agreement (dated January 7, 2000) and the MCD Policy and Procedure for Permits in Retarding Basins, regulates all construction on land within the Huffman Dam Retardation Basin and more than 5 feet below the spillway elevation of 835 feet above MSL. In a letter dated August 28, 2024, MCD stated that prior to affecting any alterations to the Huffman Storage Basin below 835 feet above MSL, a MCD Storage Basin Individual Permit would be required. See Appendix 1.

An early Public Notice of Proposed Action in a Floodplain announcing that an action is being proposed within the floodplain (Appendix 3) was published in the Dayton Daily News on October 6, 8, and 11, 2024, and in the Fairborn Daily Herald and Xenia Gazette on October 4 and 8, 2024, initiating a 30-day public review period to capture public concern. No comments were received in response to the Public Notice of Proposed Action in a Floodplain. In addition, a Finding of No Practical Alternatives (FONPA) will be published along with the Public Notice of Availability for the Draft EA.

3.4.2 Environmental Consequences

Evaluation criteria for impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. Impacts would be adverse if proposed activities result in one or more of the following:

- Reduces water availability or supply to existing users.
- Overdrafts groundwater basins.
- Exceeds safe annual yield of water supply sources.
- Affects water quality adversely.
- Endangers public health by creating or worsening health hazard conditions.
- Threatens or damages unique hydrologic characteristics.
- Violates established laws or regulations adopted to protect water resources.

The groundwater and surface water systems that surround WPAFB are hydrologically interconnected. Potential runoff contaminants from construction activities that could impact surface water quality could also impact groundwater quality. Therefore, they are analyzed together.

Storm water runoff in urban areas is one of the leading sources of water pollution in the U.S. Under Section 438 of the Energy Independence and Security Act of 2007, federal agencies are required to reduce storm water runoff from federal development and redevelopment projects to protect water resources. Federal agencies can comply using a variety of storm water management practices often referred to as “green infrastructure” or “low impact development” practices, including reducing impervious surfaces and using vegetative practices, porous pavements, cisterns, and green roofs.

Construction on WPAFB would follow the appropriate environmental specifications; current Energy Independence Security Act of 2007 (EISA); DoD Unified Facilities Criteria (UFC) for Low Impact Development detailed in UFC 3-210-10, dated August 28, 2023; and Base Facility Standards regarding provisions for storm water runoff, including an Erosion, Sedimentation, and Pollution Control Plan.

3.4.3 Proposed Action

Construction activities would have non-significant adverse impacts on surface water quality as a result of the Proposed Action. As part of an Erosion, Sedimentation, and Pollution Control Plan developed as part of the design process and approved by the appropriate Base personnel, BMPs would be developed for and implemented during construction activities to prevent excessive soil erosion, runoff, and minor spills. At a minimum, BMPs would include inlet protection, reinforced silt fence, sediment storage, provisions to minimize tracking onto roadways, appropriate material storage and spill response equipment and controls, appropriate waste disposal practices, a concrete washout area and temporary and permanent stabilization. Non-significant adverse impacts could occur due to increases in impervious surfaces resulting from the construction on previously vegetated areas. Construction on WPAFB would follow the appropriate environmental specifications and current Base Facility Standards regarding provisions for storm water runoff. Although the limits of disturbance for the proposed Booster Pump Station approaches 36,000 SF, only the proposed Booster Pump Station building will create additional impervious surfaces (approximately 2,450 SF) that do not exceed the EISA additional impervious surfaces threshold of 5,000 SF. All other areas associated with the proposed Booster Pump Station would maintain their infiltration characteristics. In addition, no other impervious surfaces are anticipated to be installed as a result of the Proposed Action. All construction activities associated with the Proposed Action would be completed in accordance with the UFC for Low Impact Development.

Minimum standard BMPs include, but are not limited to: inlet protection, reinforced silt fence, sediment storage, provisions to minimize tracking onto roadways such as construction entrances or street sweeping, appropriate

material storage and spill response equipment and controls, appropriate waste disposal practices, a concrete washout area, and temporary and permanent stabilization.

Booster Pump Station

Proposed construction of the proposed Booster Pump Station would have non-significant adverse impacts on groundwater. The proposed Booster Pump Station location is a mix of wooded and cleared, grassy land. The proposed approximately 2,450-SF Booster Pump Station would include a limit of disturbance of approximately 36,000 SF (0.83 acres) in area and would be restricted, to the extent practical, to those areas integral to the future use of the land and the proposed Booster Pump Station. The scheduled timeframe for the proposed Booster Pump Station construction would include approximately five months, at which point construction activities would be complete and disturbed areas would be secured for long-term prevention of soil erosion and sedimentation.

The existing access drive extending from the road to the proposed Booster Pump Station would be converted from the current gravel two-track to a durable, approximately 7,000-SF gravel drive designed to withstand typical maintenance truck traffic, with widths and turn radii to accommodate fleet pickup trucks and three-axle trucks that may be required to access the proposed Booster Pump Station on an infrequent basis. Equipment and materials associated with the construction of the proposed Booster Pump Station would be staged within the boundaries of the limits of disturbance or in areas designated by Base safety and operations personnel.

Based on the relatively brief amount of time the soil would be exposed from construction to re-vegetation (less than five months for the proposed Booster Pump Station), infiltration or precipitation may increase slightly and the impact of the release of construction-related materials (i.e., in the event of a minor spill) would be non-significant to the upper water bearing zone below the surficial layer.

Construction activities would have non-significant adverse impacts on surface water quality as a result of the proposed Booster Pump Station. BMPs would be implemented during construction activities to prevent excessive soil erosion, runoff, and minor spills. Long-term non-significant adverse impacts could also occur due to increases in impervious surfaces resulting from the construction on previously vegetated areas. Construction on WPAFB would follow the appropriate environmental specifications and current Base Facility Standards regarding provisions for storm water runoff. Although the limits of disturbance for the proposed Booster Pump Station approach 36,000 SF, only the proposed Booster Pump Station building will create additional impervious surfaces (approximately 2,450 SF) that do not exceed the EISA additional impervious surfaces threshold of 5,000 SF. All other areas associated with the proposed Booster Pump Station would maintain their infiltration characteristics. In addition, no other impervious surfaces are anticipated to be installed as a result of the Proposed Action.

The Proposed Action location is shown as ranging from approximately 794 feet MSL in the southern portion to approximately 798 feet above MSL in the northern portion. All portions of the Proposed Action location are situated at elevations below the 10-year and 100-year floodplains. As such, the Booster Pump Station would be designed as an enclosed, two-story structure and would include all operations on the second floor at an elevation of approximately 811.16 feet (North American Vertical Datum, 1988), at a higher level than the required 3 feet above the 100-year floodplain elevation for pumping facilities.

The Booster Pump Station would be constructed in a way that would not impact the function or capacity of the 10-year and 100-year floodplains in the area, and the grade surrounding the structure would be implemented to provide positive drainage away from the building. Impacts to surface water runoff during construction activities resulting from construction of the proposed Booster Pump Station would be minimized by implementing BMPs for erosion and sedimentation controls during construction.

Remaining Proposed Action Projects

One surface water feature, Hebble Creek, was identified in proximity to the Proposed Action areas. Trenchless installation techniques would be utilized for any construction activities in proximity to Hebble Creek (Water Main and Areas A and B Interconnection), and with adherence to the WPAFB SWMP, SWPPP, and NPDES permit requirements and the use of standard BMPs for sediment and erosion control direct and indirect adverse impacts to Hebble Creek are not anticipated. However, due to the need for Proposed Action construction activities in proximity to Hebble Creek and Hebble Creek's status as a Water of the United States (WOTUS) regulated under the jurisdiction of the USACE, a Section 404 of the CWA permit from the USACE would likely be preemptively obtained to ensure the Proposed Action remains in compliance with the requirements of the CWA. In addition, it is not anticipated that the activities that could have direct and indirect adverse impacts to Hebble Creek as part of the Proposed Action would exceed the 300-linear-foot-or-0.5-acre-or-greater-in-area threshold that would trigger the requirement for a Section 401 of the CWA Water Quality Certification from OEPA. Refer to Section 3.7.3.2 for additional information pertaining to wetlands.

The installation and/or replacement of the water mains associated with the Proposed Action projects should not result in direct or indirect impacts to the Huffman Storage Basin (floodplain). Disturbances would be temporary and are to replace existing water mains. Post-construction hydrological conditions will match pre-construction hydrological conditions (no floodplain modification), and no wetlands will be impacted (directly or indirectly). Standard construction process BMPs, including maintaining existing permeable surfaces, maintaining natural hydrology post-construction, and restoring native plant species post-construction, would be employed to prevent alterations or impacts to the floodplain. With the implementation of a practical design that meets the EO 14030 and EO 11988 requirements and standard BMPs, post-construction hydrological conditions will match pre-construction hydrological conditions.

Alternatively, the Proposed Action would provide a positive impact to the drinking water resources for Base occupants due to improved pressure, improved water reserves, and a reliant/redundant distribution system.

3.4.4 Cumulative Impacts – Water Resources

Short-term, minor, cumulative adverse impacts on ground and surface water would be expected from implementation of the Proposed Action. Therefore, no significant cumulative impacts to water resources would be anticipated. As no additional projects requiring cumulative analysis have been identified, no significant cumulative impacts to water resources would be anticipated. Alternatively, the Proposed Action would provide a positive cumulative impact to the drinking water resources for Base occupants due to improved pressure, improved water reserves, and a reliant/redundant distribution system.

3.4.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to groundwater, surface waters, and floodplains associated with construction and implementation would not occur. More importantly, the No Action Alternative would not support AW's efforts to efficiently provide a safe, reliable, and sustainable drinking water system to WPAFB. A healthy and safe drinking water distribution system is a mission critical resource for WPAFB. WPAFB received notification from the USEPA that their drinking water system is currently not in compliance with drinking water standards and mandated that WPAFB correct its hydraulic deficiencies.

3.5 Safety and Occupational Health Resources

3.5.1 Affected Environment

3.5.1.1 Fire Hazards and Public Safety

The Fire Department at WPAFB provides fire, crash, rescue, and structural fire protection at the Base. Security Forces provides entry control and public safety roles on WPAFB.

3.5.1.2 Munitions and Explosives Safety

Explosives are classified based on their reactions to specific influences. The explosives hazard class is further subdivided into "division," based on the character and predominance of the associated hazards and their potential for causing personnel casualties or property damage. Explosives Hazard Class/Division 1.4 designates a moderate fire with no significant blast or fragment hazard (Sandia, 2010). Evaluation Zones (EZs) are required for areas where ordinance is stored or handled. The EZs are typically determined based upon the net explosive weight of the ordinance to be stored or handled and the blast resistance properties of the magazine. Explosive Safety Quantity Distance (ESQD) arcs that delineate the extents of each EZ are constructed. The EZ and ESQD requirements are specified in DESR 6055.09_DAFMAN91-201, Explosive Safety Standards.

There are several areas that are constrained by ESQD EZ at the Base. The are several areas proximal to the munitions storage area that fall within the boundaries of EZs. Any work done by contractors in these areas will require daily briefings, as required per DESR 6055.09_DAFMAN91-201 par. V4.E5.16. No other areas are located in close proximity to the Proposed Action locations.

3.5.1.3 Construction Safety

Construction site safety consists primarily of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by DoD and DAF regulations designed to comply with standards issued by OSHA and the USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

All contractors performing construction activities are responsible for following worker compensation programs and safety regulations to reduce or eliminate risk to personnel as required by OSHA. All contractors conducting hot work are responsible for obtaining applicable Base permits prior to the start of said activities. In addition, when contractors excavate below 4 feet below ground surface, trenching and shoring measures in accordance with IAW OSHA 1926.652 (a)(1)(ii) are required. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and availability of Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous materials), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

3.5.1.4 Anti-Terrorism/Force Protection

The DoD seeks effective ways to minimize the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live. The intent of the Unified Facilities Criteria (UFC) 4-010-01 standard is to minimize the possibility of mass casualties in buildings or portions of buildings owned, leased, privatized, or otherwise occupied, managed, or controlled by or for the DoD. The UFC standards provide

appropriate, implementable, and enforceable measures to establish a level of protection against terrorist attacks for all inhabited DoD buildings where no known threat of terrorist activity currently exists.

The UFC mandates minimum standoff distances for new and existing buildings and for those buildings to exist within or outside of a controlled perimeter. Standoff distances are distances maintained between a building or portion thereof and the potential location for an explosive detonation, primarily an adjacent roadway, parking area, and/or trash cans. A controlled perimeter is a physical boundary at which vehicle access is controlled with sufficient means to channel vehicles to the access control points. At a minimum, access control at a controlled perimeter requires the demonstrated capability to search for and detect explosives.

3.5.2 Environmental Consequences

Impacts on health and safety are evaluated for their potential to jeopardize the health and safety of Base personnel as well as the surrounding public. Impacts might arise from physical changes in the work environment, demolition and construction activities, introduction of demolition, and changes related to proposed Base activities. The DAF regulations and procedures promote a safe work environment and guard against hazards to the public. The WPAFB programs and day-to-day operations are accomplished according to applicable DAF federal and state health and safety standards.

3.5.2.1 Fire Hazards and Public Safety

No adverse effects regarding fire hazards or public safety would be expected to occur from the implementation of the Proposed Action. The standard operating procedures (SOPs) for construction projects would be in place to protect the public.

3.5.2.2 Munitions and Explosives Safety

No adverse effects due to munitions or explosives safety would be expected to occur from constructing the proposed Booster Pump Station. The Proposed Action location is located at safe distances required in the EZ and ESQD requirements specified in Air Force Manual (AFMAN) 91-201, Explosives Safety Standards.

3.5.2.3 Construction Safety

Potential short-term minor impacts to workers could be expected during construction activities. Implementation of the Proposed Action would slightly increase the short-term risk associated with contractors performing construction activities at WPAFB during the normal workday. Contractors would be required to establish and maintain safety programs and adhere to SOPs. All contractors conducting hot work are responsible for obtaining applicable base permits prior to the start of said activities. Any potential adverse impacts to the health and safety of nearby personnel would be minimized by clearly identifying the work zone and prohibiting access to unauthorized individuals. In addition, when contractors excavate below 4 feet below ground surface, trenching and shoring measures in accordance with IAW OSHA 1926.652 (a)(1)(ii) are required. Use of high-profile equipment would require a “spotter” when operating near any overhead hazards. To minimize vehicle accidents, contractors would direct heavy vehicles entering and exiting the demolition sites. The Base has also incorporated stringent safety standards and procedures into day-to-day operations. In addition, a WPAFB Dig Permit and proper excavation techniques would be required to ensure that existing underground utility lines are not damaged; in the event a utility line is cut or otherwise damaged, onsite personnel would need to implement emergency procedures. Therefore, no adverse effects are anticipated due to safeguards existing to protect personnel.

3.5.2.4 Anti-Terrorism/Force Protection

No adverse effects to anti-terrorism/force protection would be expected as a result of constructing the proposed Booster Pump Station because the facility would be constructed with a secure perimeter fence and a secure access gate.

3.5.3 Proposed Action

Implementation of the Proposed Action would result in potential impact to workers during construction activities. Proper adherence to health and safety procedures would minimize these impacts. The Proposed Action location is not currently used for hazardous material storage, and the implementation of the Proposed Action would not require regular use of or storage of hazardous materials, nor would the Proposed Action generate hazardous wastes. No long-term risks associated with hazardous materials and wastes are anticipated.

3.5.4 Cumulative Impacts – Safety and Occupational Health Resources

Short-term negligible cumulative adverse impacts on health and safety (e.g., slips; falls; heat exposure; and exposure to mechanical, electrical, vision, or chemical hazards) are possible as a result of construction activities associated with the Proposed Action and other cumulative projects. Implementation of appropriate safety methods during these activities would be expected to minimize the potential for such impacts. Workers at construction sites would be required to adhere to site-specific health and safety plans; construction areas would be secured to prevent unauthorized personnel from entering the work sites; and in accordance with OSHA, AFOSH standards, and applicable WPAFB plan(s), all workers would be provided with appropriate personal protective equipment. Therefore, no significant cumulative impacts to safety and occupational health would be anticipated.

3.5.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to safety and occupational health resources associated with construction and implementation would not occur. However, the No Action Alternative would not support AW's efforts to efficiently provide a safe, reliable, and sustainable drinking water system to WPAFB. A healthy and safe drinking water distribution system is a mission critical resource for WPAFB.

3.6 Hazardous Materials/Waste

The Air Force Policy Directive (AFPD) 32-70, Environmental Quality, establishes policy the DAF is committed to, including the following:

- Cleaning up environmental damage resulting from its past activities.
- Meeting all environmental standards applicable to its present operations.
- Planning its future activities to minimize environmental impacts.
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust.
- Eliminating pollution from its activities wherever possible.

Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semi-solid waste or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks; aboveground storage tanks; and the storage, transport, and use of pesticides and herbicides, fuels, petroleum, oils, and lubricants. Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well-being of wildlife species, botanical habitats, soil systems, and water resources. In the event of a release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos-containing material (ACM), radon, PCBs, and unexploded ordnance. The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

The Comprehensive Environmental Response, Compensation, and Liability Act, as amended by the Superfund Amendments and Reauthorization Act (SARA) and the Toxic Substances Control Act, defines hazardous materials. The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act, which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health or welfare.

Through its Environmental Restoration Program (ERP), the DoD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control the migration of contaminants, minimize potential hazards to human health and the environment, and clean up contamination. Knowledge of past ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

3.6.1 Affected Environment

3.6.1.1 Hazardous Materials

DAFMAN 32-7002, Environmental Compliance and Pollution Prevention, establishes procedures and standards that govern management of hazardous materials throughout the DAF. It applies to all DAF personnel who authorize, procure, issue, use, or dispose of hazardous materials and to those who manage, monitor, or track any of those activities. The Base utilizes a hazardous material management program through which hazardous materials are controlled from procurement through storage and issue to disposal. All hazardous material purchases are approved by the HAZMAT Cell. The HAZMAT Cell is a decentralized unit composed of representatives from the Environmental Branch, Safety Division, Bioenvironmental Engineering.

3.6.1.2 Flight and Logistics Readiness Division

The Installation Management Division Environmental Branch supports and monitors environmental permits, hazardous material and hazardous waste storage, spill prevention and response, and participation on the Environmental Safety and Occupational Health Council. The Environmental Management System Cross Functional Team is a network of safety, environmental, and logistics experts who work with hazardous material Issue Point Managers, Unit Environmental Coordinators, and other hazardous material users to ensure safe and compliant hazardous material management throughout the Base (WPAFB 2017a).

3.6.1.3 Hazardous Waste

The 88 CEG maintains a Hazardous Waste Management Plan (January 2024) as directed by DAFMAN 32-7002, Environmental Compliance and Pollution Prevention. This plan prescribes the roles and responsibilities of all members of WPAFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management.

Wastes generated at WPAFB include waste flammable solvents, contaminated fuels and lubricants, paint/coating, stripping chemicals, waste oils, waste paint-related materials, mixed-solid waste, and other miscellaneous wastes.

Management of hazardous waste is the responsibility of each waste-generating organization and the Environmental Branch Compliance Section (88 CEG/CEIEC). The Base produces more than 1,000 kilograms of hazardous waste per month and is considered a large quantity hazardous waste generator.

3.6.1.4 Asbestos-Containing Materials (ACMs)

Air Force Instruction 32-1001, Civil Engineer Operations, provides the direction for asbestos management at DAF installations. This instruction incorporates by reference applicable requirements of 29 CFR Part 1910.1001, 29 CFR 1926.1101, 40 CFR Part 61, Subpart M, Section 112 of the CAA, and other applicable directives. DAFI32-1001 requires bases to develop an Asbestos Management Plan to maintain a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos-management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. Asbestos is regulated by the USEPA with the authority promulgated under OSHA, 29 USC 669, et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. The USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

A review of the WPAFB Asbestos Management Plan and available schematic resources for the WPAFB water distribution system indicated that only cast iron piping is known to occur within the limits of the Proposed Action. Encountering asbestos piping during implementation of the Proposed Action is not anticipated. In addition, no demolition activities are planned as part of the Proposed Action. Thus, no ACMs are expected to be encountered during implementation of the Proposed Action.

3.6.1.5 Lead-Based Paint (LBP)

The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of lead-based paint (LBP) on federal facilities. Federal agencies are required to comply with applicable federal, state, and local laws relating to LBP activities and hazards.

The DAF policy and guidance establishes LBP management at DAF facilities. The policy incorporates, by reference, the requirements of 29 CFR 1910.120, 29 CFR 1926, 40 CFR 50.12, 40 CFR 240 through 280, the CAA, and other applicable federal regulations. Additionally, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards.

A review of available schematic resources for the WPAFB water distribution system indicated that only cast iron piping is known to occur within the limits of the Proposed Action and encountering lead piping or solder during implementation of the Proposed Action is not anticipated. In addition, no demolition activities are planned as part of the Proposed Action. Thus, no lead supply lines and/or LBPs are expected to be encountered during implementation of the Proposed Action.

3.6.1.6 Environmental Restoration Program (ERP)

The ERP, formerly the Installation Restoration Program (IRP), is a subcomponent of the Defense Environmental Restoration Program that became law under SARA. The ERP requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The Base began its IRP in 1981 with the investigation of possible locations of hazardous waste contamination. In 1988, WPAFB entered into an Ohio Consent Order with the OEPA. In October 1989, WPAFB was placed on the USEPA's National Priorities List, a list of sites that are considered to be of special interest and require immediate attention. In 1990, all IRP sites within WPAFB were divided into operable units (OUs) and prioritized. An OU is a group of sites that have similar types of wastes, are in the same geographic location, and were investigated at the same time. The Proposed Action extends over large portions of WPAFB and includes the location of the proposed Booster Pump Station in OU 5 and water main sections that traverse through OU 3, OU 4, OU 5, and OU 11 in Area A. The Proposed Action

projects do not intersect with identified OUs or other known ERP locations in Area B. OUs in Area A are depicted on Figure 3-6. OUs in Area B are depicted on Figure 3-7.

Operable Unit 3

OU 3 is located on the northern portion of Area A. Landfills (LF) 11 (1968–1977), 12 (1968–1973), and 14 (1976) and Fire Training Areas (FTAs) 3 (1960–1980), 4 (1960–1980), and 5 (1996–present) are all located in OU 3 and in the vicinity of where the proposed North Loop Water Main would be implemented. Information contained in the WPAFB IRP Community Relations Plan (CRP), prepared by the Air Force Civil Engineering Center (AFCEC) and dated October 2019, indicated that LF 11 was a general refuse solid waste landfill operating as a municipal landfill with minimal risk for contamination. WPAFB removed shallow debris and replaced it with native soil and vegetative cover and instituted surface water run-on/run-off controls and institutional controls in 1997. LF 11 was determined to not pose an unacceptable risk to public health and the environment and was included in the 21 No Action Site Record of Decision (ROD) finalized between the WPAFB and USEPA in September 1996.

LF 12 was a chemical and herbicide/pesticide landfill from the late 1960s to the early 1970s, was investigated and remediated in the 1990s, was determined to not pose an unacceptable risk to public health and the environment, and was included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

LF 14 was suspected to be a landfill based on the identification of several large pieces of buried metal; however, additional investigations did not identify other solid waste, and LF 14 could not be confirmed to be a solid waste landfill. Additionally, Earthfill Disposal Zone (EFDZ) 11 was identified in OU 3; however, EFDZ 11 was investigated in 1993, and no constituents were identified above normal background levels for Area A. EFDZ 11 was concluded to present no significant risk or threat to public health and the environment and was included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

FTAs 3 and 4 were utilized between 1960 and 1980 for fire training, were investigated in 1992, were determined to not pose an unacceptable risk, and were included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996. FTA 5 was put into service in 1981 and, unlike the other FTAs, was lined with concrete; however, a 2,700-gallon jet fuel spill in the mid-1980s required it to be remediated in the late 1980s, and FTA 5 was reconstructed in 1996. As with the other FTAs, FTA 5 was determined to not pose an unacceptable risk to public health and the environment and was included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

Operable Unit 4

OU 4 is located in the southwestern portion of Area A. LFs 4 (1944–1949) and 6 (1949–1952) are located in OU 4 and are in the vicinity of where the proposed Water Main would be implemented. Information contained in the WPAFB IRP CRP indicated that LF 4 was an abandoned, at least 30-foot-deep, water-filled gravel pit that was filled with “automobile bodies” and used for general refuse. In addition, a coal pile was identified near the southern portion of LF 4; however, little information is available, and no investigations have been completed. LF 4 was capped with 6 inches of clay in 2009, and activities in the area were limited to prevent disruption of LF 4. No additional information pertaining to LF 4 was identified.

LF 6 was a general refuse disposal location during the late 1940s and early 1950s. LF 6 was capped with native soil (18 inches of common soil and 6 inches of topsoil) and vegetative cover, surface water run-on/run-off controls were instituted, and LF 6 was included in the 1998 ROD for 41 No Action Sites. No additional information pertaining to LF 6 was identified.

Operable Unit 5

OU 5 is located in the western portion of Area A. FTA 1, Burial Site (BS) 4, and Gravel Lake Tank Site are all located in OU 5 and in the vicinity of where all of the Proposed Action projects would connect together at the proposed

Booster Pump Station. FTA 1 was operated from 1950 to 1955, with investigations and remediation resulting in its inclusion in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

BS 4 was identified as a "temporary chemical warfare structure" on a 1945 Base map, and buried, rusted drums were identified; however, investigations into the area did not identify associated impacts, and BS 4 was determined to present no significant risk or threat to public health and the environment and was included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

Gravel Lake Tank Site was identified on a 1945 Base map. Investigations into the area in 1989 did not identify evidence of "tanks," and the Gravel Lake Tank Site was determined to present no significant risk or threat to public health and the environment and was included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996.

Operable Unit 11

OU 11 is located in the northern portion of the West Ramp Section of Area A. A Chemical Disposal Area (1963–1974) was identified in OU 11 and in the vicinity of where the eastern portion of the proposed North Loop Water Main would be implemented. Information contained in the WPAFB IRP CRP indicated that investigations into this area in 1996 did not identify associated impacts, and the Chemical Disposal Area was determined to present no significant risk or threat to public health and the environment and was included in the 41 No Action Site ROD finalized between the WPAFB and USEPA in 1998. In addition, a former 250-gallon underground storage tank (UST) that collected discharge from an oil-water separator (OWS) was located in Building 4020 in OU 11. The WPAFB IRP CRP indicated that the OWS and UST were cleaned and removed in 1986, and investigations identified petroleum hydrocarbons in soils and groundwater. However, Building 4020 was determined to not include unacceptable risks or threat to public health and the environment and was part of the 41 No Action Site ROD finalized between the WPAFB and USEPA in 1998.

REMOVED FOR SECURITY

Figure 3-6 – WPAFB Area A OUs Map

REMOVED FOR SECURITY

Figure 3-7 – WPAFB Area B OUs Map

3.6.2 Environmental Consequences

Impacts to hazardous material management would be considered adverse if the federal action resulted in noncompliance with applicable federal and state regulations or increased the amounts generated or procured beyond current WPAFB waste management procedures and capacities. Impacts on pollution prevention would be considered adverse if the federal action resulted in worker, resident, or visitor exposure to these materials or if the action generated quantities of these materials beyond the capability of current management procedures. Impacts on the ERP would be considered adverse if the federal action disturbed (or created) contaminated sites resulting in negative effects on human health or the environment.

3.6.3 Proposed Action

3.6.3.1 Hazardous Materials

Products containing hazardous materials would be procured and used during construction activities. It is anticipated that the quantity of products containing hazardous materials used during construction would be minimal and that use would be of short duration and be limited to typical products containing hazardous materials, such as a mobile petroleum storage tank, lubricating oil, paints, adhesives, and solvents. In addition, limited quantities of chlorine would be required for water main disinfecting prior to initial use. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with federal

and state regulations. All original hazardous, toxic, recyclable, and otherwise regulated waste streams generated and identified by the contractor would be managed through the Environmental Branch of Civil Engineering in accordance with the Hazardous Waste Management Plan. Therefore, hazardous materials management at WPAFB would not be impacted by construction of the proposed Booster Pump Station.

During the operation of the proposed Booster Pump Station, it is anticipated that small quantities of lubricating oil, paints, adhesives, and solvents would be required for standard maintenance of the proposed Booster Pump Station and limited quantities of chlorine would be required for periodic water main disinfecting. All hazardous materials would be stored at AW's Operations Center and would be detailed in an Initial Accumulation Point (IAP) of Hazardous Materials/Wastes Plan.

3.6.3.2 Hazardous Waste

It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be similar in nature with the baseline condition waste streams. Implementation of the Proposed Action would not impact the Base's hazardous waste management program. As mentioned above, the known or suspected hazardous wastes resulting from historic Base operations and potentially encountered by the contractor during construction would be managed through the Environmental Branch of Civil Engineering in accordance with the Base's Hazardous Waste Management Plan and a developed IAP Plan. These areas include LF 11 in OU 3 and LF 4 and LF 6 in OU 4. In addition, ground-disturbing activities within the limits of the identified landfills, or within 300 feet of the limits of the identified landfills, which may impact the limits of landfills, are regulated under OAC Chapter 3745-513 (Chapter 513). Chapter 513 details procedures for obtaining authorization from the OEPA to fill, grade, excavate, build, drill, or mine on land where a hazardous waste or solid waste facility was operated. The implementation of the Proposed Action may require an OEPA-approved Chapter 513 application to prevent release of residual contaminants to the environment; however, WPAFB consulted with OEPA in February 2024 regarding the proximity of Proposed Action activities to LF 4 and LF 6. OEPA stated that a Chapter 513 application is not warranted for the Proposed Action since the work is within the 300-foot buffer and not within the extent of waste; however, contractors performing ground-disturbing activities in the area should be notified of the landfills and instructed to be observant for any contaminated media encountered. OEPA stated that if any contaminated media is encountered, work should stop immediately and OEPA should be contacted to request a Chapter 513 evaluation in order to proceed further.

Sources of hazardous wastes are not anticipated during the implementation of the Proposed Action; however, if encountered, it is anticipated that the volume, type, classifications, and sources of hazardous wastes would be similar in nature with the baseline condition waste streams. Hazardous waste would be handled, stored, transported, disposed of, or recycled in accordance with the WPAFB Hazardous Waste Management Plan. Therefore, it is anticipated that the Proposed Action could result in minor adverse impacts to hazardous materials/wastes at WPAFB.

As the implementation of the Proposed Action would include ground disturbances in proximity to areas of known residual and/or undefined contamination (OUs, LFs, FTAs, EFDZs, etc.) resulting from historic Base operations, proper coordination with WPAFB's Environmental Branch to prevent unanticipated exposures to Base personnel and workers and/or exacerbation of residual and/or undefined contamination would be required.

During normal operations, the Proposed Action would not generate hazardous waste. All hazardous materials would be stored at AW's Operations Center and would be detailed in an IAP of Hazardous Materials/Wastes Plan.

3.6.3.3 Asbestos-Containing Material and Lead-Based Paint

A review of available resources for the WPAFB water distribution system indicated that only cast iron piping is known to occur within the limits of the Proposed Action. In addition, the Proposed Action would not include

demolition activities and would consist of construction activities only; thus, no ACMs will be encountered. Lead or LBPs are not anticipated to be encountered or disturbed during the implementation of the Proposed Action.

3.6.3.4 Environmental Restoration Program

The Proposed Action locations are situated within and traverse through OU 3, OU 4, OU 5, and OU 11 in Area A; however, based on available information, it seems unlikely that implementation of the Proposed Action would directly or indirectly interact with remaining impacts associated with these OUs. With the exception of LF 4 and LF 6 in OU 3, each of the other areas were previously investigated and determined to present no significant risk or threat to public health and the environment. In addition, with the exception of LF 4 and LF 6 in OU 3, each of the other areas were previously included in the 21 No Action Site ROD finalized between the WPAFB and USEPA in September 1996 or the 41 No Action Site ROD finalized between the WPAFB and USEPA in 1998.

Implementing the Proposed Action would result in non-significant adverse impacts due to the increased presence and use of petroleum and hazardous substances during construction. An increase in construction vehicle traffic would increase the likelihood for release of vehicle operating fluids (such as oil, diesel, gasoline, and antifreeze) and maintenance materials. As such, a non-significant, direct, adverse impact is possible. Implementation of standard construction BMPs would serve to ensure this impact is further minimized.

Residual impacts in soil and groundwater are known or suspected to exist at WPAFB in the vicinity the areas for the Proposed Action projects. Although the impacted soil and groundwater may not be fully characterized and may not require remediation, impacted soil and groundwater that are encountered during construction must be properly managed. A WPAFB Dig Permit and Soil and Groundwater Management Plan for subsurface construction activities would be prepared by AW, in consultation with WPAFB, to inform construction contractors of the possible presence of impacted soil and groundwater in the areas of the Proposed Action projects, and to ensure the proper handling and disposal of excavated soil during construction. The Soil and Groundwater Management Plan would also provide procedures for managing any additional, unknown conditions that may be encountered during construction. With the completion of these BMPs, potential impacts associated with contamination identified at WPAFB in the vicinity the areas for the Proposed Action projects would be less than significant.

The proposed Water Main would be installed in areas within the 300-foot buffer zone of LF 4 and LF 6. If waste is encountered in these areas during excavation activities, the contractor shall stop work immediately and contact the AFCEC/CZOM Remedial Project Manager, John Crocker, at 937.257.2312 to submit an Application for Authorization - Environmental Restoration Site Disturbance to the OEPA IAW OAC Rule 3745-513-300 (Application Procedures for Modern and Historic Facilities). AFCEC/CZOM reached out to OEPA regarding the need to submit a Rule 3745-513-300 application. In addition, multiple IRP monitoring wells are located within the dig limits area of the proposed Water Main. These wells are required to be protected during all excavations by notifying excavators to be observant for unusual conditions during digging (i.e., solids debris, abandoned underground utilities, odors, oils, or liquids).

No significant adverse long-term impacts during operation of the Proposed Action projects are anticipated. Long-term operational solid wastes and hazardous materials, if any, would be managed in accordance with applicable federal and state laws. Wastes would be collected and properly disposed of by licensed, contracted transportation and disposal companies.

It is anticipated that one emergency power generator would be installed to serve the proposed Booster Pump Station. The generator would likely be fueled by diesel stored in an aboveground storage tank (AST) located near the generator. Petroleum storage and handling would be conducted in accordance with the WPAFB's Spill Prevention, Control, and Countermeasures Plan. With these BMPs, potential impacts associated with petroleum storage for the emergency power generator would be less than significant.

Alternatively, the Proposed Action would provide a positive impact to the drinking water resources for Base occupants due to improved pressure, improved water reserves, and a reliant/redundant distribution system.

3.6.4 Cumulative Impacts – Hazardous Materials/Wastes

The Proposed Action would have no effect on hazardous materials and waste, although some of the projects included in the Proposed Action could potentially generate hazardous materials and waste. However, with adherence to DAF standards and the WPAFB HAZMAT Plan, no cumulative impacts would be expected.

3.6.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to hazardous materials/wastes resources associated with construction and implementation would not occur.

3.7 Biological Resources

The DAF is aware of the November 12, 2024, decision in Marin Audubon Society v. Federal Aviation Administration, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that regulations implementing NEPA are not judicially enforceable or binding on this agency action, the DAF has nonetheless elected to follow those regulations at 40 CFR Parts 1500–1508, in addition to the DAF's procedures/regulations implementing NEPA at 32 CFR 989, to meet the agency's obligations under NEPA, 42 USC §§ 4321 et seq.

3.7.1 Affected Environment

3.7.1.1 Vegetation

The Base contains four general types of natural vegetative communities: forest, old fields, prairie, and wetlands. Areas that would be impacted as a result of the Proposed Action consist of wooded land and maintained grassy areas. Disturbed vegetation includes maintained areas that are frequently mowed, such as rights-of-way, lawns, and recreational areas, and have been designated by the Base as turf and landscaped areas. Land uses at the Base are depicted on Figures 3-8 and 3-9.

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Figure 3-8 – WPAFB Vegetation Communities Map (Area A)

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Figure 3-9 – WPAFB Vegetation Communities Map (Area B)

3.7.1.2 Wildlife

The Base is home to a variety of wildlife. According to the Integrate Natural Resources Management Plan (INRMP) dated April 2022, previously conducted surveys documented the presence of 23 mammals, 118 birds, 8 reptiles, and 6 amphibians on the Base. Areas of the Base associated with the Proposed Action are located within previously disturbed areas, and species occurring in such areas are common species to the Base. Because birds as well as mammals pose a hazard to airfield and aircraft operations, the DAF has established bird air strike hazard and wildlife management plans. The Base implements a comprehensive Bird/Wildlife Aircraft Strike Hazard Plan that involves prevention, monitoring, and reduction of bird/wildlife hazards (WPAFB 2019).

3.7.1.3 Threatened and Endangered Species

Endangered and threatened species on the Base are protected under the Endangered Species Act (ESA). In addition, AFPD 32-70 and AFMAN 32-7003 require all DAF installations to protect species classified as federally endangered or threatened. WPAFB created an Endangered Species Management Plan in 2001, which has been

incorporated into the current INRMP, and provides species-specific protection and conservation measures to protect known special status species occurring on the Base.

As part of the preparation of this EA, the USFWS and ODNR Natural Heritage Database Program were contacted to identify the potential for the presence of state or federally listed species on or in the vicinity of the Proposed Action locations.

A federally protected species list for the Proposed Action location was obtained through the USFWS Information for Planning and Conservation (IPaC) internet application. In addition, an ODNR Natural Heritage Database report was obtained from ODNR. The IPaC and ODNR reports did not identify any critical habitat of protected species on or near the Proposed Action location. DAF requirements are limited to federally protected species; however, WPAFB's INRMP accounts for state protected species and details BMPs to minimize impact to state protected species, to the extent practical. Table 3-5 below provides a summary of the federally protected species, their habitat requirements, and the potential presence of their required habitat at the Proposed Action location based on research. An evaluation of the federally protected species is included after Table 3-5.

Table 3-5 – Federally and State Listed Species with Ranges Inclusive of the Proposed Action Location

Species	Status	Habitat	Potential Habitat Present at the Proposed Action Locations
Mammals			
Northern Long-Eared Bat (*Myotis septentrionalis*)	Federal and State Endangered	Found in a variety of forested and wooded habitats. During summer, roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. In winter, hibernates in caves and mines.	Yes
Indiana Bat (*Myotis sodalis*)	Federal and State Endangered	Hibernates primarily in caves, mines, dams, and tunnels. Maternity sites generally are behind loose bark of dead or dying trees or in tree cavities. Foraging habitats include riparian areas, upland forests, ponds, and fields, but forested landscapes are the most important habitat in agricultural landscapes.	Yes
Tri-Colored Bat (*Perimyotis subflavus*)	Proposed Federal Endangered and State Endangered	Intact, unfragmented forested landscapes, where they forage near trees (including forest perimeters) and along waterways and in riparian areas.	Yes
Birds			
Whooping Crane (*Grus americana*)	Federal Experimental Population, Non-Essential	Primarily seacoasts on tidal flats and beaches, less frequently in marshes and flooded fields.	No
Reptiles			
Eastern Massasauga (*Sistrurus catenatus*)	Federal Threatened and State Endangered	Wet areas including wet prairies, marshes, and low areas along rivers and lakes. In many areas, massasaugas also use adjacent uplands during part of the year.	No
Insects			
Monarch Butterfly *(Danaus plexippus)*	Federal Candidate	Shallow, calcareous seepage marshes or marshy margins of small, sluggish, calcareous streams overlaying dolomite bedrock.	No

Mist net surveys at the Base as recently as 2022 detected all three bat species within the Base, and the WPAFB INRMP identifies any wooded areas on Base as potentially suitable roosting habitat for the three bats species, including the Proposed Action location. Trees that are required to be removed from the Proposed Action location would only occur during the time period of October 1 through March 31. Based on the above avoidance and minimization measures, WPAFB determined the proposed project may affect but was not likely to adversely affect the protected bat species. The USFWS concurred with this determination in letters dated December 7, 2023, and August 12, 2024, sent in response to WPAFB's request for consultation for the Proposed Action.

The eastern massasauga rattlesnake (EMR) is potentially present at WPAFB with records from the Warfighter Training Center (formerly Prime BEEF Training Area) and Twin Base Golf Course. Although the last documented record was from 1993 in the Warfighter Training Center, recent Base-wide survey efforts have been ongoing to try to detect the presence or probable absence of the species within the Base. As currently proposed, the Proposed Action location is located in areas that are regularly and previously disturbed, and no conditions are present to make it potentially suitable for EMRs; therefore, WPAFB has determined there will be no effect to the EMR from the Proposed Action.

No other evidence of habitats that would likely support the presence of federally protected species has been documented in the INRMP or observed in the vicinity of the Proposed Action location. Additional details regarding the justification for the absence of the species listed in Table 3-5 are included in the WPAFB INRMP.

The Base also initiated consultation with the ODNR to request Ohio Natural Heritage Program information for federally listed threatened and endangered plants and animals on Base. The ODNR Division of Wildlife (DOW) responded indicating the proposed project is within the vicinity of records for the Indiana bat, northern long-eared bat, and tri-colored bat, which are federal and state protected species.

Consultation with the ODNR was conducted as part of this EA to request Ohio Natural Heritage Program information for federally listed threatened and endangered plants and animals on Base. The ODNR DOW responded indicating the proposed project is within the vicinity of records for the Indiana bat, northern long-eared bat, and tri-colored bat, which are federal and state protected species.

The presence of the three bat species has been established in the area; therefore, additional summer surveys would not constitute presence or absence in the area, and no known hibernacula have been identified in the region. The ODNR DOW further recommended that if suitable bat habitat occurs within the project area, trees should be conserved, and if trees must be cut, then cutting occur between October 1 and March 31 to avoid roosting bat habitat impacts. The DOW also reported several federally listed aquatic threatened and endangered species within the range of the Proposed Action; however, since Hebble Creek is classified as intermittent and no in-water work is anticipated within a perennial stream, the proposed project is not likely to impact these species.

DOW identified the following species as being within the range of the Proposed Action locations: American badger, smooth greensnake, Kirtland's snake, eastern massasauga, Blanchard's cricket frog, upland sandpiper, sedge wren, northern harrier, and northern adder's-tongue; however, only the eastern massasauga was identified as a federally protected species. DAF requirements are limited to federally protected species; however, WPAFB's INRMP accounts for state protected species and details BMPs to minimize impact to state protected species, to the extent practical. Due to the location, the type of work proposed, and the type of habitat present at the Proposed Action locations, the project is not likely to impact the eastern massasauga. The remaining species are outside of the purview of DAF as state protected species and are not evaluated further as part of the Proposed Action. Refer to the INRMP for additional details.

3.7.1.4 Wetlands/Streams/Jurisdictional Waters

EO 11990, Protection of Wetlands, May 24, 1977, directs federal agencies to consider alternatives to avoid adverse effects on and incompatible development in wetlands. Federal agencies are directed to avoid new

construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland.

The CWA sets the basic structure for regulating discharges of pollutants to Waters of the United States (WOTUS). Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the United States, including wetlands. The National Wetlands Inventory—a department within the USWFS, USEPA, and National Resource Conservation Service (NRCS)—assists in identifying wetlands.

The forested wetland area C-18 has been identified as a WOTUS under the jurisdiction of the USACE. It is approximately 6 acres in area and located adjoining to the south of Hebble Creek along the south side of the road near the western boundary of Area A of the WPAFB.

There are no other wetlands in proximity of the Proposed Action locations, so no adverse effects are expected.

3.7.2 Environmental Consequences

Biological resources that could be impacted by the proposed project include vegetation, wildlife, threatened and endangered species, and wetlands. Evaluation criteria for impacts on biological resources are based on the following:

- Importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource.
- Proportion of the resource that would be affected relative to its occurrence in the region.
- Sensitivity of the resource to the proposed activities and duration of ecological ramifications.

The impacts on biological resources would be adverse if species or habitats of high concern are negatively affected over relatively large areas. Impacts are also considered adverse if disturbances cause reductions in population size or distribution of a species of high concern. As a requirement under the ESA, federal agencies must provide documentation that ensures that agency actions do not adversely affect the existence of any threatened or endangered species.

The ESA, 16 USC §1536 requires that all federal agencies avoid "taking" threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with the USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a federal agency project.

3.7.3 Proposed Action

3.7.3.1 Vegetation

Land-disturbing activities associated with construction of the Proposed Action would be limited to previously disturbed Base property. Due to the frequency of the vegetation types on Base, however, non-significant effects on vegetation would be expected as a result of the implementation of the Proposed Action.

3.7.3.2 Wetlands/Streams/Jurisdictional Waters

One forested wetland area (C-18) was identified in the WPAFB INRMP. However, the portion of the Areas A and B Interconnection project that traverses this area would utilize trenchless installation techniques for any construction activities in this area; as such, the only related ground disturbance would occur at the end points (ingress/egress) of the segment. With adherence to the WPAFB SWMP, SWPPP, and NPDES permit requirements and the use of standard BMPs for sediment and erosion control, direct and indirect adverse impacts to C-18 are not anticipated. However, due to the need for Proposed Action construction activities in proximity to C-18 and C-18's status as a WOTUS, a Section 404 of the CWA permit from the USACE would be obtained as part of the Proposed Action to ensure compliance with the CWA. In addition, it is anticipated the activities that could have direct and indirect, non-significant adverse impacts to C-18 as part of the Proposed Action would be less than the

300-linear-foot-or-0.5-acre-or-greater-in-area threshold that would trigger the requirement for a CWA Section 401 Water Quality Certification from OEPA.

No other impacts to wetlands or streams would occur from implementation of the Proposed Action.

3.7.3.3 Wildlife

Wildlife habitat within the improved areas of the Base is limited due to fragmentation by the existing facilities, roads, and impervious surfaces at WPAFB. In addition, the current land use would not change, and the proposed construction activities would not include any habitat required for any threatened or endangered species identified on the Base. Therefore, noise-related effects from proposed construction activities would result in non-significant adverse effects on wildlife as a result from implementation of the Proposed Action. In addition, the proposed Booster Pump Station building would be fully enclosed to preclude unwanted wildlife inhabitants.

3.7.3.4 Threatened and Endangered Species

The Proposed Action location includes maintained open areas and scattered forest fragments. There would be a non-significant impact on threatened and endangered species or species of concern, candidate species, and potentially threatened species because of construction activities associated with the implementation of the Proposed Action. Tree clearing would be limited to minimize any adverse impacts to the northern long-eared bat, Indiana bat, and tricolored bat.

3.7.4 Cumulative Impacts – Biological Resources

The Proposed Action is not expected to adversely affect biological resources. All previous projects and the Proposed Action are located within areas that have been previously developed; therefore, impacts to biological resources would not be expected. Any potential impacts to threatened, endangered, or sensitive species would require consultation with the USFWS and ODNR. As no additional projects requiring cumulative analysis have been identified, no significant cumulative impacts to biological resources would be anticipated.

3.7.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to biological resources associated with construction and implementation would not occur.

3.8 Cultural Resources

3.8.1 Affected Environment

The Base is obliged to consider the effects of construction for alteration of any historic property. In doing so, WPAFB must first define the Area of Potential Effect (APE). According to 36 CFR § 800.16(d), the APE is defined as the following:

> The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.

The APE for the Proposed Action is defined in two parts: the aboveground APE, which accounts for effects on those structural resources (buildings, structures, objects, or sites) that are in the Project Action area, and the belowground APE, which accounts for those Proposed Action work areas in which ground-disturbing activities are planned to occur.

The Base owns over 250 historic buildings, several that are individually eligible for inclusion on the National Register of Historic Places (NRHP) and most of which are located in one of three NRHP-eligible historic districts.

There are no NRHP-eligible aboveground resources located in immediate proximity to the Proposed Action locations and the APE. With the exception of the proposed Booster Pump Station, no temporary or permanent aboveground structures are included as part of the Proposed Action.

With the exception of the proposed Booster Pump Station, all activities associated with the Proposed Action include temporary ground disturbance for the installation of upgraded piping for the WPAFB drinking water distribution system. All portions of the Proposed Action are located in areas where previous archeological investigations have been completed with no archeological NRHP-eligible resources identified or are located in areas where the belowground APE has been significantly disturbed and unlikely to contain NRHP-eligible resources. Areas previously surveyed for archeological resources at WPAFB are depicted on Figures 3-12 and 3-13.

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Figure 3-12 – Map Depicting Areas Previously Surveyed for Archeological Resources at WPAFB (Area A)

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Figure 3-13 – Map Depicting Areas Previously Surveyed for Archeological Resources at WPAFB (Area B)

3.8.2 Environmental Consequences

Adverse impacts on cultural resources might include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

3.8.3 Proposed Action

With the exception of the proposed Booster Pump Station, no permanent aboveground structures are included as part of the Proposed Action. In addition, there are no NRHP-eligible buildings located in immediate proximity to the proposed Booster Pump Station; as such, no adverse impacts in the aboveground APE are anticipated.

The most relevant impacts to cultural resources at WPAFB would be related to any potential alteration activities as a result of the Proposed Action. Activities under the Proposed Action involve construction activities in areas with no known prehistoric archaeological resources or areas that have been significantly disturbed. As such, the Proposed Action is expected to result in no adverse impact to cultural resources. In a letter dated September 10, 2024, SHPO concurred, stating that the implementation of the Proposed Action should not impact the significance or integrity of protected cultural resources. The full letter is available in Appendix 1.

According to the WPAFB Cultural Resources Manager, Native American Tribes typically notified and consulted in accordance with Section 106 of the NHPA (Keweenaw Bay Indian Community, Sac and Fox of the Mississippi in Iowa, Saginaw Chippewa Indian Tribe, Oklahoma Seneca Cayuga Nation, and Seneca Nation of Indians) only request notification and consultation when an action involves ground disturbance in areas on Base that have not been previously disturbed or will affect the Adena Mounds. Since the project site would be constructed in an area already surveyed for archeological resources and would not affect the Adena Mounds, located in Area B, no Tribal consultation letters were sent. In a letter dated September 10, 2024, the Ohio SHPO (a.k.a. Ohio History Connection) concurred, stating that the implementation of the Proposed Action should not impact the significance or integrity of protected cultural resources. The full letter is available in Appendix 1.

3.8.4 Cumulative Impacts – Cultural Resources

The Proposed Action is not expected to have an effect on cultural resources. In the event of an unanticipated discovery of archaeological resources during any project at WPAFB, actions detailed in the ICRMP would be initiated to minimize impacts. Therefore, no significant cumulative impacts to cultural resources would be anticipated.

3.8.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to cultural resources would not occur.

3.9 Earth Resources

3.9.1 Definition of Resource

Geological resources consist of the Earth's surface and subsurface materials. Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses.

3.9.2 Affected Environment

3.9.2.1 Topography and Geology

The highest elevations on Base are in Area B and occur along a bedrock ridge that extends from the southeast corner of Area B to the Wright Memorial. Most of the Base is on the broad alluvial plain of the Mad River Valley, which overlies Ordovician-age Richmond shale and limestone bedrock. The land surface elevation on Base ranges from approximately 760 to 980 feet above MSL.

An Existing Conditions and Demolition Plan, dated September 20, 2023, indicated that the proposed Booster Pump Station location is shown as ranging from approximately 794 feet above MSL in the southern portion to approximately 798 feet above MSL in the northern portion. Detailed topographic maps for the remaining portions of the Proposed Action projects are not currently available; however, Area A is relatively level with elevations generally ranging from approximately 790 feet above MSL to approximately 800 feet above MSL and Area B including more topographic variability with elevations ranging from approximately 850 feet above MSL to approximately 950 feet above MSL.

The Base is within the glaciated till plain region of southwestern Ohio, an area within the Central Lowlands Physiographic Province. The Central Lowlands province is characterized by low rolling hills, level plains, and flat alluvial valleys.

3.9.2.2 Natural Hazards

The state of Ohio is characterized by a low level of seismic activity. The Dayton, Ohio, area does not typically experience earthquakes because of its location in relation to fault zones. The counties of Auglaize and Shelby located in northwest Ohio (approximately 45 miles from Greene County) had a series of historic earthquakes in

the late 1800s to mid-1900s, with the greatest instrumented magnitude recorded between 5.0 and 5.4 (U.S. Geological Survey [USGS], 1993). On July 23, 2010, a 5.0 magnitude earthquake originating along the Quebec-Ontario border was felt in Dayton and the surrounding areas.

3.9.2.3 Soils

Surface soil at WPAFB formed on unconsolidated deposits, primarily alluvium, glacial outwash, glacial till, and loess. Development and substantial earthmoving activities have altered the natural soil characteristics at WPAFB, making precise classifications difficult. The U.S. Department of Agriculture (USDA) NRCS mapped most of WPAFB as urban land complexes on the Web Soil Survey.

Specific soil types in the Proposed Action areas consist of the Sloan-Fill land complex (Sp); Warsaw-Fill land complex, nearly level (WbA); Westland-Urban land complex (Wt); Miamian-Urban land complex (MrC), undulating; Raub silt loam, 2 to 6 percent slopes (RdB); Ritchey silt loam, 12 to 18 percent slopes (RhB); Ritchey silt loam, 18 to 25 percent slopes, moderately eroded (RhE2); Ockley-Urban land complex, undulating (OdB); and Linwood Muck (Ln). With the exception of Raub silt loam and Ritchey silt loam (Area B), none of the soils within the Proposed Action project areas are classified as Prime or Unique Farmland by the USDA. Portions of the Areas A and B Interconnection water main replacement project where Prime or Unique Farmland soils are present are areas where land associated with the WPAFB is already committed to urban development and, as such, not subject to the requirements of the Farmland Protection Policy Act. Soils in the vicinity of the Proposed Action location are depicted on Figures 3-14 and 3-15. A complete listing of the soils at WPAFB and the surrounding areas is included Appendix 4.

A Report of Geotechnical Exploration, WPAFB West Ramp Area A Loop Water Main, prepared by S&MW and dated May 2, 2023, included soil borings in the area of the proposed Booster Pump Station that indicated that site development challenges included moisture adjustment for compaction of site soils, remediation of localized uncontrolled existing fill, groundwater control during construction, and remediation of soft/loose soils. The report concluded that soils are amenable to the construction of the proposed Booster Pump Station.

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Figure 3-14 – Proposed Action Soils Map

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Figure 3-15 – Proposed Action Farmland Soils Map

3.9.3 Environmental Consequences

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of a proposed action on geological resources. Impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be adverse if they would alter the lithology, stratigraphy, and geological structure that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability or change the soil composition, structure, or function within the environment.

3.9.4 Proposed Action

Land surface for the Proposed Action projects in Areas A is generally level with slight variations as a result of human activities (i.e., land clearing and roadways). The northeastern portion of Area B, where the Areas A and B Interconnection would be located, is also generally level with slight variations as a result of human activities.

Soil erosion would be minimized during construction activities using BMPs in accordance with the NPDES storm water discharge permit. Any spills of hazardous chemicals, materials entering sewers or drains, and/or releases of materials that have the potential to damage or pollute the environment would be reported to the Base Fire Department by calling 911 or the WPAFB Fire Dispatch. In the short term, construction vehicles would disturb the surface and compaction could be altered. Minor, short-term impacts would be minimized because erosion controls would be implemented. There would be no long-term adverse effects because disturbed vegetation would be re-established upon completion of construction activities.

3.9.5 Cumulative Impacts – Earth Resources

Past development in various locations of WPAFB have likely contributed to erosion and soil loss. However, the extent to which this has occurred is difficult to determine. The Proposed Action would result in temporary disturbed ground surfaces and short-term, minor adverse impacts on earth resources. Although soils would be disturbed by earthmoving and other construction activities, any effects would not be expected to exceed individual project boundaries and would not result in significant impacts on earth resources since BMPs, erosion and sediment controls, and other management measures would be implemented. As no additional projects requiring cumulative analysis have been identified, no significant cumulative impacts to earth resources would be anticipated.

3.9.6 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to earth resources would not occur.

3.10 Traffic and Transportation Resources

3.10.1 Affected Environment

State highways provide direct access to WPAFB. State Route (SR) 444 provides a route from the Base to Interstate 675 (I-675), which is located east of the Base. I-675 provides direct access to I-70, which is approximately 9 miles to the north; U.S.35, which is approximately 5 miles to the south; and I-75, which is approximately 15 miles to the southwest. SR 235 provides access from the Base to SR 4 and I-70. Additional, secondary and tertiary entrances to WPAFB are also scattered across Areas A and B.

3.10.2 Environmental Consequences

Impacts on infrastructure are evaluated for their potential to disrupt or improve existing levels of service transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes created by either direct or indirect workforce and population changes related to Base activities.

3.10.3 Proposed Action

The Proposed Action locations extend throughout Area A and into the northeastern portion of Area B, both inside and outside of the secure fenced area of the Base. Access to WPAFB facilities would not be restricted by the implementation of the Proposed Action. All appropriate notifications pertaining to the Proposed Action would be made to Base safety and security personnel and mission partners that utilize the Base facilities such as the Warfighter Training Center, the Base Rod and Gun Club, and West and Prairie Trace Golf Club.

Traffic impacts are anticipated to be non-significant as the Proposed Action would result in a short-term, minor temporary increase in use of roadways in and around the Proposed Action locations. With the exception of the southern extent of the Water Main and the western extent of the Areas A and B Interconnection, minor impacts to surrounding areas caused by construction traffic and activities would be generally reduced by the distance of the Proposed Action locations from primary Base operational areas. The impacts associated with the

implementation of the Proposed Action at the southern extent of the Water Main and the western extent of the Areas A and B Interconnection area are also expected to be minor since both of these locations are on the periphery of operational areas and do not experience a large volume of activities. A small portion of the Water Main project is located approximately 1,000 feet northwest of the Area A security gate entrance from SR 444. Construction activities in this area could cause some traffic delays; however, any traffic delays would be minimal since several alternate routes exist in the area and there is a secondary entrance to Area A of WPAFB.

Similarly, a small portion of the western extent of the Areas A and B Interconnection is located approximately 600 to 800 feet south of the Area B entrance (outside of the secure fence) from SR 444. Construction activities in this area could cause some traffic delays; however, any traffic delays would be minimal since the implementation of the Proposed Action would include trenchless installation techniques to minimize ground disturbance and disruption.

Long-term traffic would be limited to vehicle trips to and from the proposed Booster Pump Station, which would be limited to AW and Base personnel for maintenance and testing. Any construction equipment required for implementation and construction would be driven to the Proposed Action locations and would be stowed on Base in areas designated by WPAFB personnel. These designated areas cannot be determined prior to the implementation portion of the Proposed Action; however, designated areas for equipment would be selected so they do not interfere with or obstruct Base operations and do not create potential adverse impacts to environmental and related social and economic resources.

The Proposed Action locations are situated both inside and outside of the secure fenced portions of the Base in areas with limited access and use, where children are not regularly present. The absence of children in the area of the Proposed Action locations maintains the requirements of EO 13045, Protection of Children from Environmental Health Risks and Safety Risk. The proposed Booster Pump Station would include secure perimeter fencing and a secure entrance gate. In addition, the Proposed Action locations are patrolled by Base security, which would also limit access to the Proposed Action locations.

3.10.4 Cumulative Impacts – Traffic and Transportation Resources

Past development in various locations of WPAFB have likely contributed to traffic and transportation resources; however, the extent to which this has occurred is difficult to determine. With the exception of occasional traffic delays during security checks at secure portions of the Base, traffic congestion is a non-significant issue at WPAFB. In addition, occasional traffic delays during security checks are not related to excessive volumes of vehicles as much of the time and effort required by Base security personnel is related to maintaining a secure environment for Base and civilian personnel who live and/or work at WPAFB. Traffic impacts related to the Proposed Action are anticipated to be temporary and non-significant. With no long-term, adverse impacts anticipated, the Proposed Action would not contribute to any cumulative traffic and transportation impacts of the region.

3.10.5 No Action

Under the No Action Alternative, the four projects needed to correct the hydraulic deficiencies at WPAFB would not be implemented; as such, adverse impacts to traffic and transportation resources would not occur.

4.0 List of Preparers

This EA has been prepared under the direction of the 88 CEG/CEIEA. The individuals that contributed to the preparation of this EA are listed below.

Paul Jackson, Fishbeck
Role: Project Management/Coordination, Research and Data Gathering, Document Preparation, Affected Environment, Environmental Impact Analysis, Scoping Coordination
Degree: B.A., Biology and English, 1992
Years of Experience: 27

Courtney Dunaj, Fishbeck
Role: Project Manager, Technical QA/QC Review, Project Management/Coordination
Degree: B.S., Hydrogeology and Environmental Studies, 2016
Years of Experience: 9

John Pease, Fishbeck
Role: Project Manager, Technical QA/QC Review, Project Management/Coordination
Degree: B.S., Civil Engineering, with Environmental Engineering Specialization
Years of Experience: 24

Ian Swanson, American Water
NEPA Compliance Officer
Degree: B.S., Environmental Science
Years of Experience: 16

5.0 Persons and Agencies Consulted/Coordinated

Name	Role	Affiliation
John Branford	WPAFB, EIAP Program Manager	88 CEG/CEIEA
Melanie Pershing	WPAFB, EIAP	88 CEG/CEIEA
Chet Powers	WPAFB, Air Quality Technician	88 CEG/CEIEA
Darryn Warner	WPAFB, Natural Resources Program Manager	88 CEG/CEIEA
Steve Byington	WPAFB Cultural Resources Program Manager	88 CEG/CEIEA
Joy Williams	Project Reviews Manager, Resource Protection and Review	Ohio History Connection
Scott Hicks	Acting Field Office Supervisor, Ohio Ecological Services	USFWS
Mike Pettegrew	Environmental Services Administrator	ODNR
Dan O'Connor	Chief Engineer	MCD
David Jacob	Environmental Planning and Compliance Program Branch Chief	NPS
Shari Fort	AFMC NEPA Liaison	AFIMSC Det 6/CEB
Austin Naranjo	NEPA Program Manager	AFCEC/CIE
W Assink	AFMC Reviewer	AFRL/RXMZ
Tim Shaw	Office of The Judge Advocate General	AFMC/AF/JAOE-FSC

6.0 References

Advisory Council on Historic Preservation and U.S. General Services Administration Interagency Training Center, 1995, Introduction to Federal Projects and Historic Preservation Law: Participant's Course Book, Page II–55.

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U.S. Environmental Protection Agency, National Ambient Air Quality Standards (NAAQS), 2008.

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Ohio Department of Natural Resources: https://ohiodnr.gov/home.

Ohio Environmental Protection Agency: https://epa.ohio.gov/.

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Safe Drinking Water Act Notice of Significant Deficiency, U.S. Environmental Protection Agency, December 2023.

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U.S. Army Corps of Engineers: https://www.usace.army.mil/.

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U.S. Department of Housing and Urban Development: https://www.hud.gov/.

U.S. Department of Transportation: https://www.transportation.gov/.

U.S. Environmental Protection Agency: https://www.epa.gov/.

U.S. Fish and Wildlife Service: https://www.fws.gov/.

U.S. Fish and Wildlife Service IPaC: https://ipac.ecosphere.fws.gov/.

U.S. Geological Survey: https://store.usgs.gov/map-locator.

Wright-Patterson Air Force Base: https://www.wpafb.af.mil/.

Various mapping tools: https://www.google.com/maps, https://earth.google.com, etc.

Appendix 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

December 7, 2023

Project Code: 2023-0128259

Dear Darryn Warner:

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse effects to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

The Service has reviewed your project description and concurs with your determination that the project, as proposed, is not likely to adversely affect the federally endangered Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*). This is based on the commitment to cut all trees ≥3 inches diameter at breast height only between October 1 and March 31 in order to avoid adverse effects to the Indiana bat and northern long-eared bat.

This concludes consultation on this action as required by section 7(a)(2) of the ESA. Should, during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be reinitiated to assess whether the determinations are still valid.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Scott Hicks

Scott Hicks
Acting Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Eileen Wyza, ODNR-DOW

Department of Natural Resources
ohiodnr.gov

Mike DeWine, *Governor*
Jon Husted, *Lt. Governor*
Mary Mertz, *Director*

Office of Real Estate & Land Management
Tara Paciorek - Chief
2045 Morse Road – E-2
Columbus, Ohio 43229-6693

September 17, 2024

Darryn Warner
United States Air Force
1450 Littrell Road, Building 22
Wright-Patterson Air Force Base, Ohio 43229

Re: 24-1293 - Hydraulic System Deficiencies Correction

Project: The proposed project involves making improvements to an existing wastewater treatment system.

Location: The proposed project is located in Bath Township, Greene County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state, or federal agency nor relieve the applicant of the obligation to comply with any local, state, or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data at or within one mile of the project area:

Northern Adder's-tongue (*Ophioglossum pusillum*), T
Blanchard's Cricket Frog (*Acris blanchardi*), SC
Upland Sandpiper (*Bartramia longicauda*), E
Sedge Wren (*Cistothorus platensis*), SC
Tonguetied Minnow (*Exoglossum laurae*), E
Indiana Myotis (*Myotis sodalis*), E, FE
Smooth Greensnake (*Opheodrys vernalis*), E
Eastern Massasauga (*Sistrurus catenatus*), E, FT
American Badger (*Taxidea taxus*), SC
Paiute Dancer (*Argia alberta*), T
Beer's Noctuid (*Papaipema beeriana*), E

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. The

review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH ≥ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered
clubshell (*Pleurobema clava*)
snuffbox (*Epioblasma triquetra*)
rayed bean (*Villosa fabalis*)

Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the tonguetied minnow (*Exoglossum laurae*), a state threatened fish. The DOW recommends no in-water work in perennial streams from March 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this or other aquatic species.

Records exist within the project area for the eastern massasauga (*Sistrurus catenatus),* a state endangered species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as drier upland habitat. DOW recommends coordination with an approved herpetologist to develop and implement an avoidance/minimization plan. A list of approved herpetologists has been provided for your convenience.

Records exist within the project area for the smooth greensnake (*Opheodrys vernalis*), a state endangered species. This species is primarily a prairie inhabitant, but also found in marshy meadows and roadside ditches. DOW recommends coordination with an approved herpetologist to develop and implement an avoidance/minimization plan. A list of approved herpetologists has been provided for your convenience.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew (Environmental Services Administrator) at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Expiration: *ODNR Environmental Reviews are typically valid for 2 years from the issuance date. If the scope of work, project area, construction limits, and/or anticipated impacts to natural resources have changed significantly from the original project submittal, then a new Environmental Review request should be submitted.*

Office of Real Estate
Tara Paciorek, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6661
Fax: (614) 267-4764

December 5, 2023

Paul Jackson
Fishbeck, Inc.
821 South Elmwood Avenue
Traverse City, Michigan 49684

Re: 23-1344_Fishbeck - West Ramp Booster Pump Station

Project: The proposed project involves the installation of a new West Ramp Booster Pump Station and a two-story structure that would house two horizontal split case centrifugal pumps, one duty pump and one standby pump.

Location: The proposed project is located in Bath Township, Greene County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state, or federal agency nor relieve the applicant of the obligation to comply with any local, state, or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data within one mile of the project area:

1. Northern Adder's-tongue (*Ophioglossum pusillum*), T
2. Blanchard's Cricket Frog (*Acris blanchardi*), SC
3. Sedge Wren (*Cistothorus platensis*), SC
4. Indiana Myotis (*Myotis sodalis*), E, FE [not shown on map]
5. Smooth Greensnake (*Opheodrys vernalis*), E
6. Eastern Massasauga (*Sistrurus catenatus*), E, FT [not shown on map]
7. Paiute Dancer (*Argia alberta*), T
8. Beer's Noctuid (*Papaipema beeriana*), E

Conservation status abbreviations are as follows: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; U = state status under review; X = presumed extirpated in Ohio; FE = federally endangered, and FT = federally threatened. The review was performed on the specified project area as well as an additional one-mile radius. Records searched date from 1980.

Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features. Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for an area is not a statement that rare species or unique features are absent from that area.

Location records for six of the rare species listed above are provided in a pdf map attachment to this letter per your request. Locations are shown in blue, and labels correspond to the numbers above. Location information will not be disclosed, published, or distributed beyond the scope of your project. Locations for Indiana Myotis and Eastern Massasauga are considered to be sensitive information, so those species are not shown on the accompanying map. However, none of the records for those species are located within the specified boundaries of your project area.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that Best Management Practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. Because presence of state endangered bat species has been established in the area, summer tree cutting is not recommended, and additional summer surveys would not constitute presence/absence in the area. However, limited summer tree cutting inside this buffer may be acceptable after further consultation with DOW (contact Eileen Wyza at Eileen.Wyza@dnr.ohio.gov).

In addition, the entire state of Ohio is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species, the northern long-eared bat (*Myotis septentrionalis*), a state endangered and federally endangered species, the little brown bat (*Myotis lucifugus*), a state endangered species, and the tricolored bat (*Perimyotis subflavus*), a state endangered species. During the spring and summer (April 1 through September 30), these bat species predominately roost in trees behind loose, exfoliating bark, in crevices and cavities, or in the leaves. However, these species are also dependent on the forest structure surrounding roost trees. The DOW recommends tree cutting only occur from October 1 through March 31, conserving trees with loose, shaggy bark and/or crevices, holes, or cavities, as well as trees with DBH $\geq$ 20 if possible.

The DOW also recommends that a desktop habitat assessment is conducted, followed by a field assessment if needed, to determine if a potential hibernaculum is present within the project area. Direction on how to conduct habitat assessments can be found in the current USFWS "*RANGE-WIDE INDIANA BAT & NORTHERN LONG-EARED BAT SURVEY GUIDELINES*." If a habitat assessment finds that a potential hibernaculum is present within 0.25 miles of the project area, please send this information to Eileen Wyza for project recommendations. If a potential or known hibernaculum is found, the DOW recommends a 0.25-mile tree cutting and subsurface disturbance buffer around the hibernaculum entrance, however, limited summer or winter tree cutting may be acceptable after consultation with the DOW. If no tree cutting or subsurface impacts to a hibernaculum are proposed, this project is not likely to impact these species.

The project is within the range of the following listed mussel species.

Federally Endangered
clubshell (*Pleurobema clava*)
snuffbox (*Epioblasma triquetra*)
rayed bean (*Villosa fabalis*)

Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the tonguetied minnow (*Exoglossum laurae*), a state threatened fish. Due to the location, and that there is no in-water work proposed in a perennial stream, this project is not likely to impact this species.

Records for the smooth greensnake (*Opheodrys vernalis*), a state endangered species, exist immediately adjacent to the project site. This species is primarily a prairie inhabitant, but also found in marshy meadows and roadside ditches. The DOW recommends coordination with an approved herpetologist to develop an avoidance/minimization plan. A list of approved herpetologists has been provided for your convenience.

Records for the eastern massasauga (*Sistrurus catenatus*), a state endangered and a federally threatened snake species, exist within the vicinity of the project area. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as adjacent drier upland habitat. The DOW recommends coordination with an approved herpetologist to develop an avoidance/minimization plan.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the US Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project.

ODNR appreciates the opportunity to provide these comments. Please contact Mike Pettegrew at mike.pettegrew@dnr.ohio.gov if you have questions about these comments or need additional information.

Mike Pettegrew
Environmental Services Administrator

September 10, 2024

In reply, please refer to:
2024-GRE-62225

Steven Byington, Architect
Cultural Resources Manager
88 CEG/CEIEA
1450 Littrell Road
Wright-Patterson Air Force Base, Ohio 45433

RE: Hydraulic Deficiencies Correction Projects
Wright-Patterson Air Force Base, Greene County, Ohio

Dear Mr. Byington:

This letter is in response to correspondence received on August 14, 2024. Our comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

Wright-Patterson Air Force Base (WPAFB) proposes four related projects to correct identified hydraulic deficiencies in the water lines. Proposed work includes the construction of a Booster Pump Station in Area A; installation of a new, approximately 7,200-linear-foot water main near Hebble Creek Road; and replacement of two existing water mains, North Loop Water Main and Areas A and B Interconnection (approximately 16,000-linear feet and 5,900-linear feet, respectively).

Based on the information provided, there are no National Register of Historic Places (NRHP) eligible buildings or archaeological resources located in immediate proximity to any of the proposed project component locations. We concur that the proposed action will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes or new cultural resources are discovered during project implementation. In such a situation, this office should be contacted.

If you have any questions, please do not hesitate to contact me at jwilliams@ohiohistory.org.
Thank you for your cooperation.

Sincerely,

Joy Williams

Joy Williams, Senior Project Reviews Manager
Resource Protection and Review

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

RPR Serial No: 1104621

December 18, 2023

In reply, please refer to:
2023-GRE-59733

Steven Byington, Architect
Cultural Resources Manager
88 CEG/CEIEA
1450 Littrell Road
Wright-Patterson Air Force Base, Ohio 45433

RE: Booster Pump Station Installation
Wright-Patterson Air Force Base, Area A, Greene County, Ohio

Dear Mr. Byington:

This letter is in response to correspondence received on November 21, 2023. Our comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

Wright-Patterson Air Force Base (WPAFB) is proposing to install a new West Ramp Booster Pump Station, including an approximately 1,700-square foot, two-story structure that would house two booster pumps with space for three additional booster pumps if the future need arises.

Based on the information provided, there are no National Register of Historic Places (NRHP) eligible buildings or archaeological resources located in immediate proximity to the proposed West Ramp Booster Pump Station location. We concur that the proposed action will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes.

If you have any questions, please do not hesitate to contact me at jwilliams@ohiohistory.org.
Thank you for your cooperation.

Sincerely,

Joy Williams, Project Reviews Manager
Resource Protection and Review

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

RPR Serial No: 1100709

Attachment #4

November 1, 2023

In reply, please refer to:
2023-GRE-59282

Steven Byington, CRM
88 CEG/CEIEA
1450 Littrell Road
Wright-Patterson Air Force Base, Ohio 45433-5209

RE: New Water Main Line - Huffman Prairie Flying Field
Wright-Patterson Air Force Base, Greene County, Ohio

Dear Mr. Byington:

This letter is in response to correspondence received on October 3, 2023. Our comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and the associated regulations at 36 CFR Part 800.

Wright-Patterson Air Force Base (WPAFB) is proposing to install 7,500 feet of new water main line along the boundary of the Huffman Prairie Flying Field (HPFF) at Hebble Creek Road. The proposed path of installation will involve excavation within previously disturbed soil and will be returned to its existing condition at the completion of the project. Huffman Field is listed in the National Register of Historic Places (Ref. 71000640) and is also a National Historic Landmark as part of the Dayton Aviation Heritage National Historical Park.

Based on the information provided, it is our opinion that the new water main line installation as proposed should not impact the significance or integrity of Huffman Prairie Flying Field in a way that would alter its National Register and National Landmark status. Therefore, we concur with your finding that the undertaking as proposed will have no adverse effect on historic properties. No further coordination with this office is necessary, unless the project changes.

If you have any questions, please do not hesitate to contact me at jwilliams@ohiohistory.org.
Thank you for your cooperation.

Sincerely,

Joy Williams

Joy Williams, Project Reviews Manager
Resource Protection and Review

"Please be advised that this is a Section 106 decision. This review decision may not extend to other SHPO programs."

RPR Serial No: 1100074

From:	PETTY, ANDREW M CTR USAF AFMC AFCEC/CZOM
To:	Dwayne.Tolson@epa.ohio.gov
Cc:	CROCKER, JOHN C CIV USAF AFMC AFCEC/CZOM; WALTERS, GEORGE R CIV USAF AFMC AFCEC/CZOM; PLAMONDON, GREGORY D CIV USAF AFMC AFCEC/CZOM; FERENTZ, JOSEPH M CIV USAF AFMC AFCEC/CZOM; BALDWIN, JASON A CIV USAF AFMC 88 CEG/CEIEC; FINKE, AMANDA N CIV USAF AFMC 88 CEG/CEIEA; Andrew Petty
Subject:	RE: Wright-Patterson AFB Area A New Sanitary Water Main Lines Installations across IRP Site Landfill LF6 and LF4 300-ft Buffer Zones along Hebble Creek Rd and Skeel Ave. - Need OAC Rule 3745-513 application determination
Date:	Thursday, February 15, 2024 9:39:59 AM

Dwayne: Thank you for the response. We'll let the water company excavators know about precautions. Appreciate you looking into this project.

Regards, Andy

Andrew Petty, CIH, CSP, CHMM
Senior Environmental Scientist
Cherokee Nation Strategic Programs - Supporting Wright-Patterson AFB/AFCEC/CZOM

Office: (937)257-1079
Cell: (859)760-5101/(513)673-7341
Email: andrew.petty.2.ctr@us.af.mil

Mailing Address:
Wright-Patterson Air Force Base
1981 Monahan Way
Building 20012, Cubicle 116.33
Wright-Patterson AFB, OH 45433

From: Dwayne.Tolson@epa.ohio.gov <Dwayne.Tolson@epa.ohio.gov>
Sent: Wednesday, February 14, 2024 1:48 PM
To: PETTY, ANDREW M CTR USAF AFMC AFCEC/CZOM <andrew.petty.2.ctr@us.af.mil>
Cc: CROCKER, JOHN C CIV USAF AFMC AFCEC/CZOM <john.crocker.5@us.af.mil>; WALTERS, GEORGE R CIV USAF AFMC AFCEC/CZOM <george.walters@us.af.mil>; PLAMONDON, GREGORY D CIV USAF AFMC AFCEC/CZOM <gregory.plamondon@us.af.mil>; FERENTZ, JOSEPH M CIV USAF AFMC AFCEC/CZOM <joseph.ferentz.1@us.af.mil>; BALDWIN, JASON A CIV USAF AFMC 88 CEG/CEIEC <jason.baldwin.17@us.af.mil>; FINKE, AMANDA N CIV USAF AFMC 88 CEG/CEIEA <amanda.finke@us.af.mil>; Andrew Petty <andrew.petty@cherokee-federal.com>
Subject: [Non-DoD Source] RE: Wright-Patterson AFB Area A New Sanitary Water Main Lines Installations across IRP Site Landfill LF6 and LF4 300-ft Buffer Zones along Hebble Creek Rd and Skeel Ave. - Need OAC Rule 3745-513 application determination

Andy,

Thanks for providing a map showing the disposal facility (LF4 and LF6) with buffer along with a map showing the proposed work (trenching for water lines) area.

A rule 513 is not warranted since the work is within the 300 foot buffer and not within the extent of waste; however, make sure to talk to the excavator and let them know to be observant for any contaminated media encountered. Should you encounter waste, stop work immediately and request a Rule 513 in order to proceed further.

Thanks,

Dwayne Tolson

From: PETTY, ANDREW M CTR USAF AFMC AFCEC/CZOM <andrew.petty.2.ctr@us.af.mil>
Sent: Wednesday, February 14, 2024 12:33 PM
To: Tolson, Weldon <Dwayne.Tolson@epa.ohio.gov>
Cc: CROCKER, JOHN C GS-13 USAF AFMC AFCEC/CZOM <john.crocker.5@us.af.mil>; WALTERS, GEORGE R CIV USAF AFMC AFCEC/CZOM <george.walters@us.af.mil>; PLAMONDON, GREGORY D CIV USAF AFMC AFCEC/CZOM <gregory.plamondon@us.af.mil>; FERENTZ, JOSEPH M CIV USAF AFMC AFCEC/CZOM <joseph.ferentz.1@us.af.mil>; BALDWIN, JASON A CIV USAF AFMC 88 CEG/CEIEC <jason.baldwin.17@us.af.mil>; FINKE, AMANDA N CIV USAF AFMC 88 CEG/CEIEA <amanda.finke@us.af.mil>; Andrew Petty <andrew.petty@cherokee-federal.com>
Subject: Wright-Patterson AFB Area A New Sanitary Water Main Lines Installations across IRP Site Landfill LF6 and LF4 300-ft Buffer Zones along Hebble Creek Rd and Skeel Ave. - Need OAC Rule 3745-513 application determination

Mr. Tolson: Wright-Patterson AFB's sanitary water contractor American Water is planning the installation of new sanitary water mains (trenching and underground laydown) in the southeastern corner of Area A in two separate phases. Both Phases trenching work will cross into the 300-foot Buffer Zones of multiple IRP controlled sites, Landfills LF6 and LF4 on their routes. None of the planned trenching routes will cross into the IRP Landfills extent-of-waste boundaries.

within the 300-ft Buffer Zones of LF4. Nearly the entire trenching route for Phase 2 will be within the LF4/LF6 300-ft buffer zones.

The attached graphic map shows a markup of both Phase 1 and 2 trenching routes corresponding with the IRP site boundaries for LF6 and LF4 and their respective 300-ft. buffer zones. The graphic map also shows existing IRP monitoring wells which must be protected during digging, especially at

The Phase 1 project is planned for initial utilities locator/clearances on February 26, 2024. We are in the process of evaluating their Base Dig Clearance for this Phase and need your determination as to whether an OAC 3745-513 rule Application will be needed for this New Installation of a public utility line within boundaries/buffer zones of historical landfills.

Please contact me or John Crocker, WPAFB RPM at (513)257-2312, by email or phone if questions.

Respectfully,

Andrew Petty, CIH, CSP, CHMM
Senior Environmental Scientist
Cherokee Nation Strategic Programs - Supporting Wright-Patterson AFB/AFCEC/CZOM

Office: (937)257-1079
Cell: (859)760-5101/(513)673-7341
Email: andrew.petty.2.ctr@us.af.mil

Mailing Address:
Wright-Patterson Air Force Base
1981 Monahan Way
Building 20012, Cubicle 116.33
Wright-Patterson AFB, OH 45433

THE MIAMI CONSERVANCY DISTRICT

August 28, 2024

38 E. MONUMENT AVE
DAYTON, OHIO 45402
(937) 223-1271
mcdwater.org

Mr. Darryn Warner
88 CEG/CEIEA
1450 Littrell Road, Building 22
Wright-Patterson AFB, OH 45433-5209

Re: Huffman Storage Basin, WPAFB, Hydraulic System Deficiencies Correction

Dear Mr. Warner:

We have reviewed the proposed actions involving hydraulic deficiencies of water systems within Area A and B of WPAFB.

Part of the proposed projects are located within the Huffman Storage Basin and are subject to those restrictions as set forth by the Miami Conservancy District (MCD) in Greene County Deed Book 129, Page 146 on December 16, 1922.

Prior to importing any material into the basin below elevation 835.0 feet, a MCD Storage Basin Individual Permit will be required.

A licensed surveyor may be required to perform ground elevations prior to work beginning, and to perform survey work after the earth work is completed.

Thank you for the opportunity to review your project. If you have any further questions please contact me at (937) 223-1278, ext. 3230 or by email at rfarrier@mcdwater.org.

Sincerely,

Roxanne H. Farrier
Property Administrator

cc: Don O'Connor

Jackson, Paul

From: Don O'Connor <doconnor@mcdwater.org>
Sent: Tuesday, May 10, 2022 12:30 PM
To: Pease, John
Cc: Roxanne Farrier
Subject: Huffman Dam Retarding Basin - Flood Recurrence Interval Pool Elevations
Attachments: Annual Peak Flows at MCD Dams.pdf

Follow Up Flag: Follow up
Flag Status: Completed

EXTERNAL EMAIL

John,

Attached is a USGS report that gives the information you requested. It is from 2009, but I believe it is the best data we currently have. The 15th sheet of the PDF (page number 9) has the table with the pertinent data. Please note the datum in the document is the Army Corps of Engineers 1912 datum. A lot of current work is based on the NAVD88 datum. The conversion is approximately [1912 datum – 0.8 feet = NAVD88 datum].

As we talked about, a permit(s) must be obtained from MCD before any earth disturbing work, fill placement, or construction can take place in the retarding basin. As part of the permitting process plans will need to be submitted for MCD review and approval prior to the permit(s) being approved. You can coordinate the permit process with Roxanne Farrier who is copied on this email.

Roxanne,

Mr. Pease is working on preliminary design of possible water line and pump station improvements in WPAFB Area A.

Don O'Connor
Chief Engineer
38 E. Monument Avenue
Dayton, OH 45402
937-223-1271
mcdwater.org
Our Region's Water. Protecting. Preserving. Promoting.

Table 3. Peak dam-pool-elevation frequency characteristics for dry dams in the Great Miami River Basin, Ohio.

[Elevations are referenced to the U.S. Army Corps of Engineers 1912 datum]

Annual exceedance probability	Recurrence interval (years)	Peak dam-pool elevation (feet)	95-percent confidence limits	
			Lower (feet)	Upper (feet)
Lockington Dam (spillway, 938 feet; top of dam, 954 feet)				
0.500	2	897.6	896.6	898.5
0.200	5	902.6	901.3	904.2
0.100	10	905.6	903.9	907.6
0.040	25	908.9	906.9	911.5
0.020	50	911.1	908.8	914.2
0.010	100	913.3	910.6	916.8
0.005	200	915.3	912.3	919.3
0.002	500	917.8	914.4	922.4
Taylorsville Dam (spillway, 818 feet; top of dam, 837 feet)				
0.500	2	778.8	778.1	779.4
0.200	5	782.3	781.4	783.5
0.100	10	784.7	783.5	786.3
0.040	25	787.7	786.0	790.0
0.020	50	789.9	787.8	792.6
0.010	100	792.0	789.6	795.1
0.005	200	794.0	791.3	797.7
0.002	500	796.7	793.5	801.2
Englewood Dam (spillway, 876 feet; top of dam, 892.5 feet)				
0.500	2	806.2	804.1	808.6
0.200	5	816.8	813.5	820.8
0.100	10	822.3	818.4	827.1
0.040	25	827.6	823.0	833.5
0.020	50	830.7	825.7	837.3
0.010	100	833.3	827.9	840.6
0.005	200	835.6	829.8	843.3
0.002	500	838.0	831.9	846.4
Huffman Dam (spillway, 835 feet; top of dam, 850 feet)				
0.500	2	791.0	790.3	791.7
0.200	5	794.9	793.8	796.3
0.100	10	797.8	796.2	799.7
0.040	25	801.4	799.2	804.5
0.020	50	804.2	801.4	808.1
0.010	100	807.0	803.7	812.1
0.005	200	810.0	805.9	816.3
0.002	500	814.2	809.0	822.2
Germantown Dam (spillway, 815 feet; top of dam, 830 feet)				
0.500	2	757.3	755.6	759.0
0.200	5	766.2	763.6	769.7
0.100	10	772.1	768.4	776.9
0.040	25	778.9	774.2	785.0
0.020	50	783.3	778.0	790.5
0.010	100	787.3	781.3	795.6
0.005	200	791.0	784.3	800.2
0.002	500	795.5	788.0	805.7

Acknowledgments

Thanks are extended to Barry Puskas of the Miami Conservancy District for supplying elevation-storage data for the dry dams and for furnishing other technical information and assistance required to produce this report.

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From: Roxanne Farrier
To: WARNER, DARRYN M CIV USAF AFMC 88 CEG/CEIEA
Cc: BANFORD, JOHN R CIV USAF AFMC 88 CEG/CEIEA; Don O"Connor
Subject: [Non-DoD Source] RE: Project question
Date: Thursday, September 14, 2023 3:27:33 PM
Attachments: image001.png
image002.png

Good afternoon Darryn,

Thank you for the information.

The pipe will not require a typical basin permit.

We will require cut and fill numbers.

Also, we are in the process of creating Storage Basin Rules and Regulations from the Land Use Policy.

I will let you know if/when our board approves the document. It will affect fill numbers and the SCA will become a type of Storage Basin Permit.

I will keep you up to date.

Let me know if you have any further questions.

Thanks again,

Roxanne H. Farrier
Property Administrator
The Miami Conservancy District
38 East Monument Avenue
Dayton, Ohio 45402
Phone: (937) 223-1278, ext. 3230
Fax: (937) 223-4730
Email: rfarrier@mcdwater.org
Web: http://www.mcdwater.org/
Our Region's Water. Protecting. Preserving. Promoting.

From: WARNER, DARRYN M CIV USAF AFMC 88 CEG/CEIEA <darryn.warner@us.af.mil>
Sent: Thursday, September 14, 2023 9:45 AM

To: Roxanne Farrier <rfarrier@mcdwater.org>
Cc: BANFORD, JOHN R CIV USAF AFMC 88 CEG/CEIEA <john.banford@us.af.mil>
Subject: Project question

Good morning Roxanne!

We are in the planning stages of upgrading and expanding the Area A water distribution system. The project will create a closed loop system which will improve water pressure, improve water reserves and minimize the risk of isolated water outages. All pipe will be installed below current grade and the ground contour will not change. Cut and fill calculations will be made during the project design process and the contractor performing the work will be required to obtain an approved MCD SCA. Any fill material required for the project will be sourced from w/in the HRB and any material not reutilized by the project will be required to be removed from the HRB. The contractor will be required to maintain documentation to complete the SCA. We do not anticipate the project will adversely impact the 100-yr floodplain..

It is our understanding that IAW MCD Land Use Policy Book 500 Section 503 – underground utilities do not require a MCD Retarding Basin Permit however as mentioned above the SCA is still required under section 505. Are we correctly understanding the requirement for not needing a HRB permit?

Darryn M. Warner
Natural Resources Program Manager
Wildland Fire Program Manager
88 CEG/CEIEA
Com. Ph. (937)257-4857 DSN (312)787-4857
Cell: (937)570-3713
Fax (937) 656-1534
Darryn.Warner@us.af.mil

https://www.facebook.com/WrightPattersonNaturalResources/

Appendix 2

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

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

a. Action Location:

Base: WRIGHT-PATTERSON AFB
State: Ohio
County(s): Greene
Regulatory Area(s): Dayton-Springfield, OH

b. Action Title: Area A CLosed Loop Waterline Project

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2024

e. Action Description:

Description of Proposed Action and Alternatives (continuation of Block 5):Proposed action - Replace 16,000 LF of Riverview Road 14 inch pipe with 16 inch diameter pipe, below grade as shown in blue on the attached map (Attach. #1). Install a new water main along Hebble Creek Rd, Skeel Ave and Road G. The water main will consist of approximately 7,500 LF of pipe (7,105 LF of 16 inch pipe, 290 LF of 6 inch pipe and 265 LF of 1 inch pipe) to close a hydraulic loop around the air field, shown in red on the attached map. A new Fire Hydrant will be added at the Rod and Gun Club. Jack & Bore operations will be utilized instead of open trench excavation in area that intersect tributaries. The project will also include a Booster Pump Station, and a section of pipe connecting Area A to Area B, 100 ft to connect Warrior Training Center to the Hebble Creek stretch.

Alternatives to the Proposed Action: No Action Alternative - The West Ramp will continue to experience a hydraulic deficiency jeopardizing the water reserves and creating lack of safe water for the nation's war fighters and support staff.

f. Point of Contact:

Name: Chet Powers
Title: NH-03 / Air Quality Manager
Organization: 88 CEG/CEIEA
Email: chet.powers@us.af.mil
Phone Number: 937-257-3349

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors from the most current *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and/or *Air Emissions Guide for Air Force Transitory Sources*. For greater details of this analysis, refer to the Detail ACAM Report.

____ applicable

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

__X__ not applicable

Conformity Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dayton-Springfield, OH			
VOC	0.099	100	No
NOx	0.865	100	No
CO	1.072		
SOx	0.001		
PM 10	0.563		
PM 2.5	0.036		
Pb	0.000		
NH3	0.001		

2025

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dayton-Springfield, OH			
VOC	0.016	100	No
NOx	0.145	100	No
CO	0.191		
SOx	0.000		
PM 10	0.007		
PM 2.5	0.006		
Pb	0.000		
NH3	0.000		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Dayton-Springfield, OH			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NOx, CO, SOx, PM 10, PM 2.5, and NH3 of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR de minimis value). Pollutants below their insignificance indicators are at rates so insignificant that they will not

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

cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Chet Powers, NH-03 / Air Quality Manager	Oct 03 2024
Name, Title	**Date**

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the action. The analysis was performed 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 USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide. This report provides a summary of GHG emissions and SC GHG analysis.

a. Action Location:

Base: WRIGHT-PATTERSON AFB
State: Ohio
County(s): Greene
Regulatory Area(s): Dayton-Springfield, OH

b. Action Title: Area A CLosed Loop Waterline Project

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2024

e. Action Description:

Description of Proposed Action and Alternatives (continuation of Block 5):Proposed action - Replace 16,000 LF of Riverview Road 14 inch pipe with 16 inch diameter pipe, below grade as shown in blue on the attached map (Attach. #1). Install a new water main along Hebble Creek Rd, Skeel Ave and Road G. The water main will consist of approximately 7,500 LF of pipe (7,105 LF of 16 inch pipe, 290 LF of 6 inch pipe and 265 LF of 1 inch pipe) to close a hydraulic loop around the air field, shown in red on the attached map. A new Fire Hydrant will be added at the Rod and Gun Club. Jack & Bore operations will be utilized instead of open trench excavation in area that intersect tributaries. The project will also include a Booster Pump Station, and a section of pipe connecting Area A to Area B, 100 ft to connect Warrior Training Center to the Hebble Creek stretch.

Alternatives to the Proposed Action: No Action Alternative - The West Ramp will continue to experience a hydraulic deficiency jeopardizing the water reserves and creating lack of safe water for the nation's war fighters and support staff.

f. Point of Contact:

Name: Chet Powers
Title: NH-03 / Air Quality Manager
Organization: 88 CEG/CEIEA
Email: chet.powers@us.af.mil
Phone Number: 937-257-3349

2. Analysis: Total combined direct and indirect GHG emissions associated with the action were estimated through ACAM on a calendar-year basis from the action start through the expected life cycle of the action. The life cycle for Air Force actions with "steady state" emissions (SS, net gain/loss in emission stabilized and the action is fully implemented) is assumed to be 10 years beyond the SS emissions year or 20 years beyond SS emissions year for aircraft operations related actions.

GHG Emissions Analysis Summary:

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (NO2). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO2e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; however, it provides a threshold to identify actions that are insignificant (de minimis, too trivial or minor to merit consideration). Actions with a net change in GHG (CO2e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant any further analysis. Note that actions with a net change in GHG (CO2e) emissions above the insignificance indicator (threshold) are only considered potentially significant and require further assessment to determine if the action poses a significant impact. For further detail on insignificance indicators see Level II, Air Quality Quantitative Assessment, Insignificance Indicators (April 2023).

The following table summarizes the action-related GHG emissions on a calendar-year basis through the projected life cycle of the action.

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**	**Threshold**	**Exceedance**
2024	149	0.00609925	0.00128934	149	68,039	No
2025	32	0.00133058	0.00028216	33	68,039	No
2026 [SS Year]	0	0	0	0	68,039	No

The following U.S. and State's GHG emissions estimates (next two tables) are based on a five-year average (2016 through 2020) of individual state-reported GHG emissions (Reference: State Climate Summaries 2022, NOAA National Centers for Environmental Information, National Oceanic and Atmospheric Administration. https://statesummaries.ncics.org/downloads/).

State's Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2024	199,548,422	802,236	39,448	200,390,106
2025	199,548,422	802,236	39,448	200,390,106
2026 [SS Year]	0	0	0	0

U.S. Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2024	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2025	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2026 [SS Year]	0	0	0	0

GHG Relative Significance Assessment:

A Relative Significance Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the degree (intensity) of the proposed action's effects. The Relative Significance Assessment provides real-world context and allows for a reasoned choice against alternatives through a relative comparison analysis. The analysis weighs each alternative's annual net change in GHG emissions proportionally against (or relative to) global, national, and regional emissions.

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an

action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

However, the affected area (context) of GHG/climate change is global. Therefore, the intensity or degree of the proposed action's GHG/climate change effects are gauged through the quantity of GHG associated with the action as compared to a baseline of the state, U.S., and global GHG inventories. Each action (or alternative) has significance, based on their annual net change in GHG emissions, in relation to or proportionally to the global, national, and regional annual GHG emissions.

To provide real-world context to the GHG and climate change effects on a global scale, an action's net change in GHG emissions is compared relative to the state (where action will occur) and U.S. annual emissions. The following table provides a relative comparison of an action's net change in GHG emissions vs. state and U.S. projected GHG emissions for the same time period.

Total GHG Relative Significance (mton)					
		CO2	**CH4**	**N2O**	**CO2e**
2024-2036	State Total	399,096,843	1,604,473	78,896	400,780,212
2024-2036	U.S. Total	10,272,908,358	51,253,823	3,001,415	10,327,163,597
2024-2036	Action	181	0.00743	0.001571	182
Percent of State Totals		0.00004535%	0.00000046%	0.00000199%	0.00004533%
Percent of U.S. Totals		0.00000176%	0.00000001%	0.00000005%	0.00000176%

Climate Change Assessment (as SC GHG):

On a global scale, the potential climate change effects of an action are indirectly addressed and put into context through providing the theoretical SC GHG associated with an action. The SC GHG is an administrative and theoretical tool intended to provide additional context to a GHG's potential impacts through approximating the long-term monetary damage that may result from GHG emissions affect on climate change. It is important to note that the SC GHG is a monetary quantification, in 2020 U.S. dollars, of the theoretical economic damages that could result from emitting GHGs into the atmosphere.

The SC GHG estimates are derived using the methodology and discount factors in the "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990," released by the Interagency Working Group on Social Cost of Greenhouse Gases (IWG SC GHGs) in February 2021.

The speciated IWG Annual SC GHG Emission associated with an action (or alternative) are first estimated as annual unit cost (cost per metric ton, $/mton). Results of the annual IWG Annual SC GHG Emission Assessments are tabulated in the IWG Annual SC GHG Cost per Metric Ton Table below:

IWG SC GHG Discount Factor: 2.5%

IWG Annual SC GHG Cost per Metric Ton ($/mton [In 2020 $])			
YEAR	**CO2**	**CH4**	**N2O**
2024	$82.00	$2,200.00	$29,000.00
2025	$83.00	$2,200.00	$30,000.00
2026 [SS Year]	$84.00	$2,300.00	$30,000.00

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GREENHOUSE GAS (GHG) EMISSIONS

Action-related SC GHG were estimated by calendar-year for the projected action's lifecycle. Annual estimates were found by multiplying the annual emission for a given year by the corresponding IWG Annual SC GHG Emission value (see table above).

Action-Related Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$12.19	$0.01	$0.04	$12.24
2025	$2.69	$0.00	$0.01	$2.70
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

The following two tables summarize the U.S. and State's Annual SC GHG by calendar-year. The U.S. and State's Annual SC GHG are in 2020 dollars and were estimated by each year for the projected action lifecycle. Annual SC GHG estimates were found by multiplying the U.S. and State's annual five-year average GHG emissions for a given year by the corresponding IWG Annual SC GHG Cost per Metric Ton value.

State's Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$16,362,970.57	$1,764,919.97	$1,143,988.52	$19,271,879.06
2025	$16,562,518.99	$1,764,919.97	$1,183,436.40	$19,510,875.36
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

U.S. Annual SC GHG ($K/yr [In 2020 $])				
YEAR	**CO2**	**CH4**	**N2O**	**GHG**
2024	$421,189,242.68	$56,379,205.70	$43,520,521.44	$521,088,969.82
2025	$426,325,696.86	$56,379,205.70	$45,021,229.08	$527,726,131.63
2026 [SS Year]	$0.00	$0.00	$0.00	$0.00

Relative Comparison of SC GHG:

To provide additional real-world context to the potential climate change impact associate with an action, a Relative Comparison of SC GHG Assessment is also performed. While the SC GHG estimates capture an indirect approximation of global climate damages, the Relative Comparison of SC GHG Assessment provides a better perspective from a regional and global scale.

The Relative Comparison of SC GHG Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the SC GHG as the degree (intensity) of the proposed action's effects. The Relative Comparison Assessment provides real-world context and allows for a reasoned choice among alternatives through a relative contrast analysis which weighs each alternative's SC GHG proportionally against (or relative to) existing global, national, and regional SC GHG. The below table provides a relative comparison between an action's SC GHG vs. state and U.S. projected SC GHG for the same time period:

Total SC-GHG ($K [In 2020 $])					
		CO2	**CH4**	**N2O**	**GHG**
2024-2036	State Total	$32,925,489.55	$3,529,839.94	$2,327,424.93	$38,782,754.42
2024-2036	U.S. Total	$847,514,939.54	$112,758,411.39	$88,541,750.52	$1,048,815,101.45
2024-2036	Action	$14.88	$0.02	$0.05	$14.94
Percent of State Totals		0.00004518%	0.00000046%	0.00000197%	0.00003852%
Percent of U.S. Totals		0.00000176%	0.00000001%	0.00000005%	0.00000142%

From a global context, the action alternative's total SC GHG percentage of total global SC GHG for the same time period is: 0.00000019%.*

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

***** Global value based on the U.S. emits 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, https://www.c2es.org/content/international-emissions).

Chet Powers, NH-03 / Air Quality Manager	Oct 03 2024
Name, Title	**Date**

Appendix 3

PUBLIC NOTICE OF PROPOSED ACTION IN A FLOODPLAIN FOR HYDRAULIC DEFICIENCY CORRECTIONS WRIGHT-PATTERSON AIR FORCE BASE, OHIO

Wright-Patterson Air Force Base (WPAFB) announces the intent to prepare an Environmental Assessment (EA) to evaluate the impact of four proposed actions to correct hydraulic deficiencies: (1) the construction of a Booster Pump Station on the south side of the airfield in Area A of WPAFB; (2) the installation of approximately 7,200-linear feet of water main near Tower 6 in order complete the closed loop water distribution system for Area A; (3) the installation of approximately 16,000-linear feet of water main from the proposed Booster Pump Station to the West Ramp and Tower 10; and (4) the installation of approximately 5,900-linear feet of water main from the proposed Booster Pump Station to the Water Treatment Facility in Area B. WPAFB is notifying the public that the booster pump station and water lines will be located within the 100-year floodplain of Area A at WPAFB. The project has been coordinated with the Miami Conservancy District. The Proposed Action is subject to the requirements and objectives of Executive Order 11988, Floodplain Management. The Air Force invites the public to provide comments on the proposal and any practicable alternatives that may reduce the impacts.

Written comments and inquiries on the Public Notice should be directed to:

88 ABW/Public Affairs
5135 Pearson Rd, Bldg 10, Rm 252
Wright-Patterson AFB, OH 45433
Or
Email to: 88abw.pa@us.af.mil
10-6, 10-13, 10-20/2024

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Page	:	1 of 1 10/02/2024 09:54:42	**Ad Number**	:	80478387
			Ad Key	:	70380221
Order Number	:	70380221	**Salesperson**	:	GC03 - Barbara Vandeventer
PO Number	:		**Publication**	:	3001-Xenia Gazette
Customer	:	50040354 Paul Jackson	**Section**	:	Legals
Contact	:		**Sub Section**	:	Legals
Address1	:	4011 Robin Hood Lane	**Category**	:	zClassified Display
Address2	:		**Dates Run**	:	10/04/2024-10/08/2024
City St Zip	:	Traverse City MI 49686	**Days**	:	2
Phone	:	(231) 714-9247	**Size**	:	3 x 4.50, 0 lines
Fax	:		**Words**	:	0
Credit Card	:	********----	**Ad Rate**	:	Class Legals
Printed By	:	BVANDEVENTER	**Ad Price**	:	405.00
Entered By	:	BVANDEVENTER	**Amount Paid**	:	405.00
			Amount Due	:	0.00
Keywords	:	Public Notice Action in Floodplain			
Notes	:	No Ad Notes			
Zones	:				

PUBLIC NOTICE OF PROPOSED ACTION IN A FLOODPLAIN
FOR
HYDRAULIC DEFICIENCY CORRECTIONS

WRIGHT-PATTERSON AIR FORCE BASE, OHIO

Wright-Patterson Air Force Base (WPAFB) announces the intent to prepare an Environmental Assessment (EA) to evaluate the impact of four proposed actions to correct hydraulic deficiencies: (1) the construction of a Booster Pump Station on the south side of the airfield in Area A of WPAFB; (2) the installation of approximately 7,200-linear feet of water main near Tower 6 in order complete the closed loop water distribution system for Area A; (3) the installation of approximately 16,000-linear feet of water main from the proposed Booster Pump Station to the West Ramp and Tower 10; and (4) the installation of approximately 5,900-linear feet of water main from the proposed Booster Pump Station to the Water Treatment Facility in Area B. WPAFB is notifying the public that the booster pump station and water lines will be located within the 100-year floodplain of Area A at WPAFB. The project has been coordinated with the Miami Conservancy District. The Proposed Action is subject to the requirements and objectives of Executive Order 11988, Floodplain Management. The Air Force invites the public to provide comments on the proposal and any practicable alternatives that may reduce the impacts.

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Wright-Patterson AFB, OH 45433

Or

Email to: 88abw.pa@us.af.mil

PUB:October 4, 8, 2024
70380221

DEPARTMENT OF THE AIR FORCE
88TH CIVIL ENGINEER GROUP (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE OHIO

NOTICE OF AVAILABILITY

DRAFT ENVIRONMENTAL ASSESSMENT

DEPARTMENT OF AIR FORCE
PROPOSED HYDRAULIC DEFICIENCIES CORRECTIONS
WRIGHT-PATTERSON AIR FORCE BASE (WPAFB), OHIO

Beginning 18 May 2025 through 18 June 2025 the Department of the Air Force (DAF) will accept comments on environmental documents for a proposed project in the Flood Plain area of the base. The project proposes to implement a series of hydraulic deficiency corrections at WPAFB. The Draft Environmental Assessment (EA) evaluates the potential environmental effects of the proposed project, which will include construction of a booster pump station and installation and replacement of piping.

The public is invited to review the documents at the Fairborn Community Library, 1 E. Main St, Fairborn, Ohio 45324 or request additional information through 88 ABW/Public Affairs.

Written comments and inquiries on the Public Notice should be directed to:

88 ABW/Public Affairs
5135 Pearson Rd, Bldg 10, Rm 252
Wright-Patterson AFB, OH 45433
Or

Email to: 88abw.pa@us.af.mil

Appendix 4