PRELIMINARY DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR

Construction of structures to provide an Operations Campus for Wastewater Collection System and Water Distribution System Privatization Contract # SP0600-17-C-8322 at Wright-Patterson AFB, OH.

AMERICAN WATER
Military Services

American Water Operations Campus

Submitted to:

Wright-Patterson Air Force Base
88th Civil Engineer Group

8 March 2021

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

Table of Contents

List of Figures

List of Tables

Appendixes

List of Acronyms

3D 3D International
ABW Air Base Wing
ACAM Air Conformity Applicability Model
ACHP Advisory Council on Historic Preservation
ACM Asbestos-Containing Material
AF Air Force
AFFF Aqueous Film Forming Foam
AFI Air Force Instruction
AFMAN Air Force Manual
AFPD Air Force Policy Directive
AICUZ Air Installation Compatible Use Zone
AIM Architectural and Industrial Maintenance
APE Area of Potential Effect
AQCR Air Quality Control Region
AST Aboveground Storage Tank
ATFP Anti-Terrorism/Force Protection
AW American Water
BASH Bird/Wildlife Aircraft Strike Hazard
bgs Below Ground Surface
BHE BHE Environmental, Inc.
BLS Bureau of Land Statistics
BMP Best Management Practice
BTU British Thermal Unit
CAA Clean Air Act
DNL Day-night Average A-weighted Sound Level
DoD Department of Defense
EA Environmental Assessment
EIAP Environmental Impact Analysis Process
EIFS Economic Impact Forecast System
EIS Environmental Impact Statement
ELAP Environmental Laboratory Accreditation Program
EMR Eastern Massasauga Rattlesnake
EO Executive Order
ERP Environmental Restoration Program
ESA Endangered Species Act
ESQD Explosive Safety Quantity Distance
ESZ Explosive Safety Zone
°F Degree Fahrenheit
FAA Federal Aviation Administration
FEMA Federal Emergency Management Agency
FONSI Finding of No Significant Impact FT Feet
FY Fiscal Year
GAC Granular Activated Carbon
GHG Greenhouse Gas
GPM Gallons Per Minute
GWOU Groundwater Operable Unit
GWP Global Warming Potential HA Health Advisory
CEG Civil Engineer Group
CEIEC Compliance Section of the Environmental Branch in the Installation Management Division
CEIEA Environmental Assets Section of the Environmental Branch in the Installation Management Division
CENMP Civil Engineer Project Management Branch
CEOER Optimization and Requirements Branch in the Installation Management Division
CEOIU Utility/Plumbing Systems Branch in the Installation Management Division
CEQ Council on Environmental Quality
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CFR Code of Federal Regulations
CO Carbon Monoxide
CO2e Carbon Dioxide Equivalents
CWA Clean Water Act
CZ Clear Zone
dB Decibel
dBA A-weighted Sound Level Measurement

DLSME Defense Land Systems and Miscellaneous Equipment
HAP Hazardous Air Pollutant
HUD U.S. Department of Health and Urban Development
ICRMP Integrated Cultural Resources Management Plan
IICEP Interagency and Intergovernmental Coordination for Environmental Planning
INRMP Integrated Natural Resources Management Plan
IRP Installation Restoration Program
ITRP Installation Tribal Relations Plan
JP-8 Jet Fuel 8
LBP Lead-based Paint
LTM Long-term Monitoring
µg/L Microgram Per Liter
MA Metropolitan Area
MACT Maximum Achievable Control Technology
MCD Miami Conservancy District
MCL Maximum Contaminant Level
µg/m3 Micrograms Per Cubic Meter
mg/m3 Milligram Per Cubic Meter
mg/kg Milligram Per Kilogram
MGD Million Gallons Per Day
MOA Memorandum of Agreement
MSL Mean Sea Level
MSW Mixed Solid Waste
MWH Megawatt Per Hour
NAAQS National Ambient Air Quality Standards
NAVD North American Vertical Datum NEPA National Environmental Policy Act
NESHAP National Emission Standards for Hazardous Air Pollutants ng/L nanogram per Liter
NH3 Ammonia
NHPA National Historic Preservation Act
NOA Notice of Availability
NOAA National Oceanic and Atmospheric Administration
NOx Nitrogen Oxides
NO2 Nitrogen Dioxide
NPDES National Pollution Discharge Elimination System
NRCS Natural Resource Conservation Service
NRHP National Register of Historic Places
NRO National Reconnaissance Office NSR New Source Review
O3 Ozone
O&M Operation and Maintenance
OAC Ohio Administrative Code
ODH Ohio Department of Health
ODNR Ohio Department of Natural Resources
OEPA Ohio Environmental Protection Agency
ORC Ohio Revised Code
OSHA Occupational Safety and Health Administration
OU Operable Unit
PAH Polynuclear Aromatic Hydrocarbons
Pb Lead
PBR Permit-by-rule
PCB Polychlorinated Biphenyl PFAS Perfluoroalkyl Substances PFBS Perfluorobutane Sulfonic Acid
PFC Perfluorinated Compound PFOA Perfluorooctanoic acid
PFOS Perfluorooctane Sulfonic Acid
PM2.5 Particulate Matter with an Aerodynamic Particle Size Less Than 2.5 Micrometers
PM10 Particulate Matter with an Aerodynamic Particle Size Less Than 10 Micrometers
ppb Parts per billion
ppm parts per million
ppt parts per trillion

PSD Prevention of Significant Deterioration
PTI Permit-to-install
PVC Polyvinyl Chloride
RACM Reasonably Available Control Measure
RAPCA Regional Air Pollution Control Agency
RICE Reciprocating Internal Combustion Engine
ROM Rough Order of Magnitude
RSL Regional Screening Level
SARA Superfund Amendments and Reauthorization Act
SHPO State Historic Preservation Office
SIP State Implementation Plan
SO2 Sulfur Dioxide
SOP Standard Operating Procedure
SPC Spill Prevention Coordinator
SPCC Spill Prevention, Control, and Countermeasures
SWMP Storm Water Management Plan
SWPPP Storm Water Pollution Prevention Plan
TLF Temporary Lodging Facility
TMDL Total Maximum Daily Load
TPH-DRO Total Petroleum Hydrocarbons-Diesel Range Organics
TPY Tons Per Year
TSCA Toxic Substances Control Act
UEC Unit Environmental Coordinator
UFC Unified Facilities Code
USAF United States Air Force
USC United States Code
USDA U.S. Department of Agriculture
USDOT U.S. Department of Transportation
USEPA U.S. Environmental Protection Agency
USFWS U.S. Fish & Wildlife Service
UST Underground Storage Tank
VOC Volatile Organic Compound
VOQs Visiting Officers Quarters
WPAFB Wright-Patterson Air Force Base

1.0 PURPOSE OF AND NEED FOR ACTION

1.1. INTRODUCTION

In September 2017, American Water Military Services Group was awarded a 50-year contract to own and operate the water distribution and wastewater collection systems at Wright-Patterson Air Force Base, OH, as part of the Department of Defense's Utility Privatization Program.

American Water's responsibilities include system capital investment, regulatory and environmental compliance, and long-term operations and maintenance. The water and wastewater systems serve a population numbering approximately 27,000 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.

Wright-Patterson Air Force Base drinking water is provided by two primary sources. The City of Dayton provides drinking water for the off base housing known as the Prairies. On base wells provide drinking water to Areas A and B. Area A is supplied by six wells. Area B is supplied by four wells and has an emergency backup via the East Wellfield located in Area A.

Area A has two water treatment plants, buildings 10855 and 30172. Water Treatment Plant 10855 has two ground reservoirs and one elevated reservoir. Water Treatment Plant 30172 has one ground reservoir and two elevated reservoirs. While 30172 was designed to supply historic Area C with drinking water and 10855 designed to supply Area A, the systems are currently run in tandem. Net storage for Area A includes 1.65 million gallons.

Area B has one water treatment plant, building 21630. It has three ground reservoirs and three elevated reservoirs. Net storage for Area B includes 1.87 million gallons.

The National Defense Authorization Act of fiscal year 1998 authorized the DoD to transfer ownership of its utility systems and added legislative authority under 10 United States 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 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. In September 27, 2017, American Water Operations and Maintenance Inc. (AW) was awarded a 50-year contract to own and operate the water distribution and wastewater collection systems at Wright-Patterson Air Force Base, OH, as part of the Department of Defense's Utility Privatization Program. Privatizing with AW allows WPAFB to benefit through innovative industry practices, private sector financing and efficiencies, and reliable system maintenance at current industry standards. WPAFB conducted a joint inventory of the utility system assets with AW during the transition period in 2018. AW began maintaining the WPAFB water infrastructure on their contract start date of 1 Dec 2018.

To support this endeavor consideration of establishing an Operations Campus consisting of an Administration Center and a Storage Facility would be conducted. Construction and associated costs would be the responsibility of American Water Military Services Group. Upon expiration or termination of the contract American Water Military Services Group would, as per contract section C.6.3, remove any equipment, fixtures, structures property and improvements of whatever nature deemed unnecessary by the Installation Commander.

1.2. Purpose of the Action

The purpose of this action is to provide an Operations Campus so that AW can efficiently provide a safe, sustainable drinking water and wastewater system. A healthy and safe drinking water treatment and distribution system and wastewater collection system is a mission critical resource for WPAFB.

American Water will be a partner with Wright-Patterson AFB for 50 years and its daily activities at Wright-Patterson AFB will require an Operations Campus on-site. An on-site location is also consistent with Wright-Patterson AFB expectations that the System Owner be available to participate in meetings as necessary and meet response time requirements specified by the contract. The Operation Campus would consist of an administration building and a storage facility to be shared by both the water and wastewater utilities. The permanent Operations Campus would have energy goals consistent with the Air Force Energy Flight Plan framework to achieve improved resiliency, optimized demand, and assured supply.

The permanent Operations Campus would be constructed to produce approximately the same amount of energy that it would use. Solar panels installed on the building roof would produce energy and maximizing building insulation and installing an ultra-efficient HVAC system would reduce energy use. Ultra-efficient heat pumps would be used to heat and cool the building, without the need for ductwork required by a conventional-type HVAC system. The heat pump system is comprised of individual heating and cooling units for each room. Some of the initial construction cost savings associated with a heat pump system are that inefficient ductwork is not needed, and because the building would be constructed using energy efficient methods, a much smaller HVAC system would keep the building comfortable.

This project would provide a common location for American Water to conduct daily operations and capital project delivery. This would allow American Water headquarters staff to have a common facility to stage operations and allow for meeting space. While American Water intends to comply with applicable provisions of Wright-Patterson AFB Design Guide, American Water's Operations Campus would be constructed to an architectural level that is appropriate for its intended use. There are aspects of the Guide and Federal Building requirements to which American Water should not be subjected to, and it has accordingly excluded those requirements from its scope of work and associated pricing. For example, American Water personnel are not military forces and therefore the American Water buildings are not designed to comply with the Force Protection measures cited within the Guide. American Water expects to acquire telecommunications service from a commercial supplier at the Point of Demarcation (POD) connection location identified by the Government.

In order to establish the facility, in addition to the physical footprint of the Operations Campus, room is needed for employee parking, specialty equipment storage, storage for spare parts, and related support elements. American Water may provide Wright-Patterson AFB with sketches and pictures of other American Water buildings if it assists in understanding the needs.

1.3. Need for the Action

With the privatization of the water and wastewater systems at WPAFB, the need for action is to provide administrative infrastructure and storage infrastructure previously provided by the 88th CEG assets. Currently the storage space available is deficient. Equipment and parts are stored in multiple structures increasing time required to gather necessary supplies to respond to unplanned events. The establishment of the Operations Campus would reduce response times and eliminate the wait time by enabling the storing of larger parts on hand.

The National Environmental Policy Act (NEPA) is a federal law requiring the analysis of potential environmental impacts associated with proposed federal actions prior to taking them. The intent of NEPA is to make informed decisions based on the identification of potential environmental consequences and take appropriate actions to protect, restore, or enhance the environment. NEPA established the President's Council of Environmental Quality (CEQ), which is responsible for ensuring federal agency compliance with NEPA as outlined in 40 Code of Federal Regulations (CFR) §§ 1500-1508, Regulations for Implementing the Procedural Provisions of NEPA. CEQ mandated all federal agencies use a prescribed approach to NEPA. To meet this mandate, the Air Force (AF) codified its NEPA procedure at 32 CFR Part 989, Environmental Impact Analysis Process (EIAP).

Air Force Policy Directive (AFPD) 32-70, Environmental Quality, states the AF would comply with applicable federal, state, and local environmental laws and regulations, including NEPA. If significant impacts are expected under NEPA, the AF would decide whether to conduct mitigation to reduce impacts below the level of significance, prepare an environmental impact statement (EIS), or abandon the Proposed Action. The EA would be used to guide the AF in implementing the Proposed Action in a manner consistent with AF standards for environmental stewardship should the Proposed Action be approved. Other applicable regulatory regulations relevant to NEPA and resources assessed in this EA include, but are not limited to, the following:

- National Environmental Policy Act (NEPA) Title 42, U.S. Code (USC), Section 4321 et seq. (1969)
- Title 32 CFR Part 989 USAF EIAP regulation
- Executive Order (EO) 11988, Floodplain Management, May 24, 1977
- EO 11990, Protection of Wetlands, May 24, 1977
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994
- EO 13045, Protection of Children from Environmental Health Risks, April 21, 1997
- EO 13175, Consultation and Coordination with Indian Tribal Governments, November 6, 2000
- EO 12372, Intergovernmental Review of Federal Program, July 14, 1982
- Department of Defense (DoD) Instruction 4715.9, Environmental Planning and Analysis, May 3, 1996
- AFMAN 32-7003, Environmental Conservation, 20 Apr 20Noise Control Act (Title 42, USC, Section 4901 et seq.)
- Clean Air Act (Title 42, USC, Section 7401 et seq.)

- Clean Water Act (Title 33, USC, Sections 1251 et seq.)
- National Historic Preservation Act (Title 54, USC, Section 300101 et seq.)
- Archaeological Resources Protection Act (Title 16, USC, Section 470)
- Endangered Species Act (Title 16, USC, Section 1531 et seq.)
- Resource Conservation and Recovery Act (Title 42, USC, Section 6901 et seq.)

1.4. Decision to be Made

This EA presents two alternatives for providing suitable long term infrastructure, in proximity of the water plants, to support the mission critical activities associated with operating the Drinking Water Distribution and Sanitary Collection Systems on WPAFB while maintaining EPA regulatory compliance. A No Action Alternative will be evaluated to provide a baseline comparison.

1.5. Cooperating Agency and Intergovernmental Coordination and Consultations

The 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, requires federal agencies to cooperate with and consider territorial and local views when implementing a federal proposal.

As mandated by 40 CFR 1501.4(b), "The agency shall involve environmental agencies, applicants, and the public, to the extent possible, in preparing assessments required by Section 1508.9(a)(1)", WPAFB is undertaking this EA, and public involvement is required as part of the analysis process. For this EA, public involvement includes notifying local, state, and federal agencies, elected officials, and the public about the Proposed Action and alternatives; soliciting agency and public comments and issues with the EA analysis, and ultimately informing the public of AF conclusions and findings.

1.5.1. Cooperating Agency

No cooperating agencies were identified for the Proposed Action described in this EA. Communication concerning establishing this can be found in Appendix A.

1.5.2. 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 (IICEP) process for this EA, consultation was conducted with the following agencies, Ohio Department of Natural Resources (ODNR), State Historic Preservation Office (SHPO) and U.S. Fish and Wildlife Service (USFWS). 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

A of the EA.

A Notice of Availability (Appendix C) for the Draft Final EA and FONSI was published in the Dayton Daily News and the Fairborn Daily Herald on (date), initiating a 30-day public review period. The Draft Final EA and FONSI was made available in the Greene County Public Library, Fairborn Branch from to be determined. The Draft-Final EA and FONSI was also available electronically for review on the WPAFB public web site. The NOA for each newspaper is included in Appendix A in addition to any comments received.

1.5.3. Native American Tribal Government Coordination and Consultations

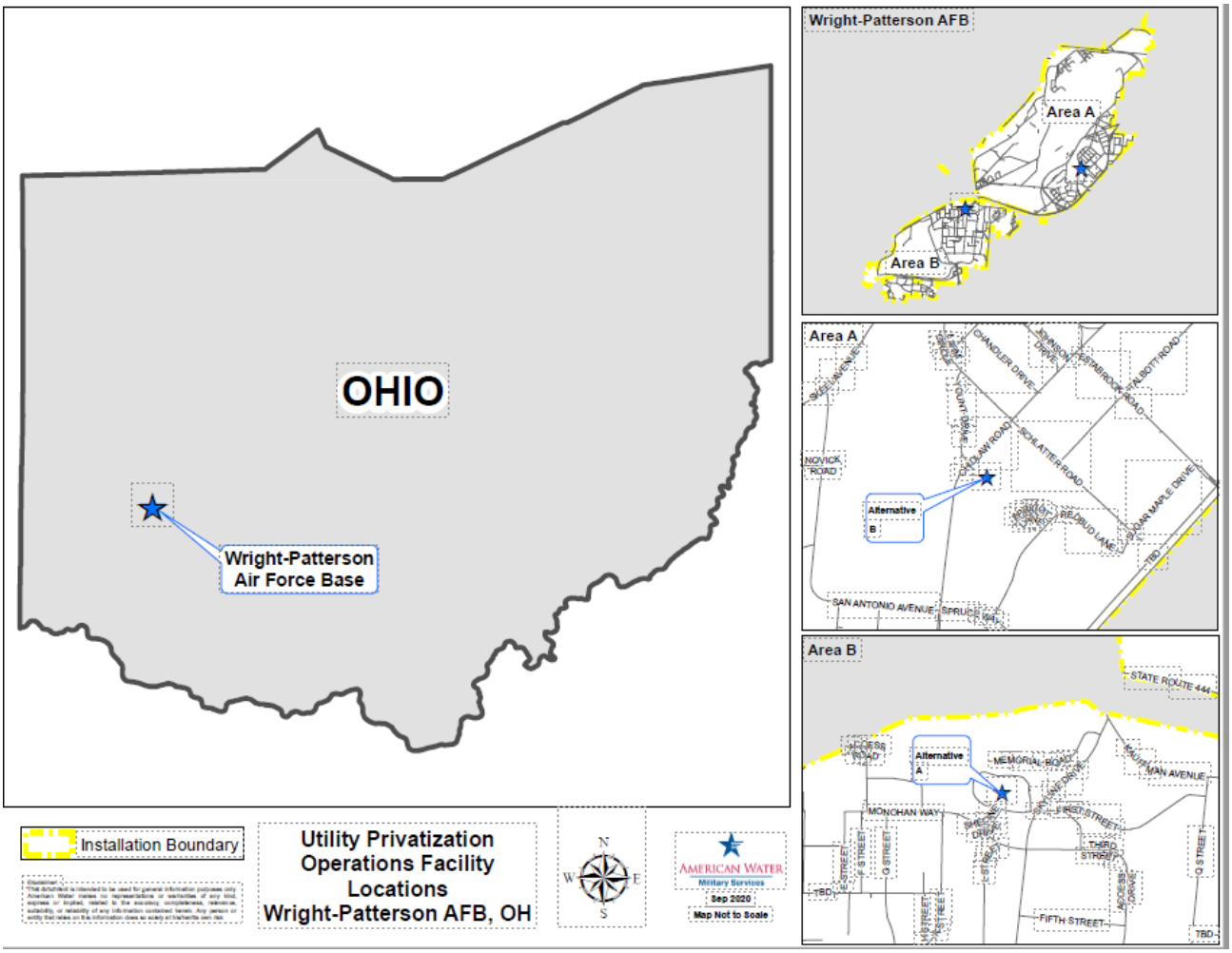
The National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, and its implementing regulations at 36 C.F.R. Part 800 directs Federal agencies to coordinate and consult with Native American Tribal Governments whose interests might be directly and substantially affected by activities on federally administered lands.

Consistent with that NHPA, DoD 4710.02, Interactions with Federally-recognized Tribes, and 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 will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of all relevant tribes. The project construction site is 700 feet from the grouping of six Adena Mounds, and 3600 feet away from the Adena Mound on Hobson Way.

According to the current approved WPAFB Installation Tribal Relations Plan (ITRP) consultation will 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 project construction site in located in an area previously disturbed by past construction. The site is located over 700 / 3600 feet from the Adena Mounds. The Adena Mounds were most recently surveyed at the end of CY 2020 by the National Park Service (report in progress). Therefore, IAW the current ITRP no tribal consultation letters were sent.

2.0 Description of the Proposed Action and Alternatives

The Base is located in the southwest portion of the state of Ohio in Greene and Montgomery Counties, approximately 10 miles east of the city of Dayton. The Base encompasses 8,145 acres and is classified as non-industrial with mixed development. The Base is subdivided into Areas A and B, and locations are being considered in Area A and Area B (Figure 2-1).



Area A consists of administrative offices and contains an active airfield. Area B is located across State Route 444 to the southwest of Area A and consists primarily of research and development as well as educational functions.

2.1 Proposed Action

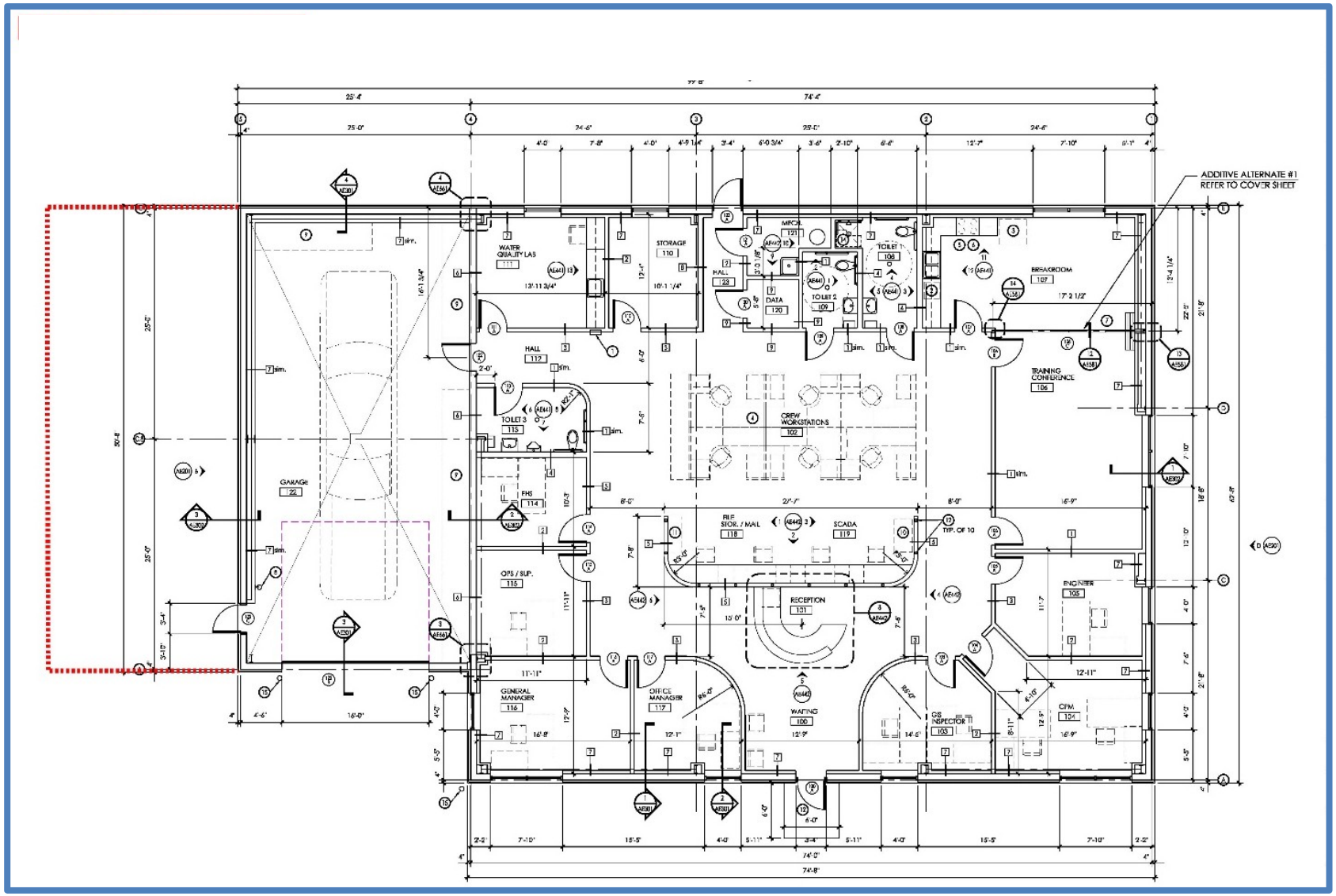
The proposed action is to construct an Operations Campus. The preferred Alternative, Alternative A, would be to build adjacent to the existing water treatment plant, 21630, in Area B on Skyline Dr, on the site as presented in Figure 2-3. Figure 2-2 gives a concept building layout of the Operations Building. Alternative B involves the construction of an Operation Campus adjacent to the Area A Water Treatment Plant on Chidlaw Rd. Alternation C is the No Action Alternative.

The Operations building would be approximately 7,000 sf of combined administrative office space and maintenance facility space (garage/equipment storage area) and would be shared by both the water and wastewater staff. In order to establish the facility, in addition to the physical footprint of the operations center, room is needed for employee parking, specialty equipment storage, storage for spare parts, and related support elements.

American Water needs at least 1.5 contiguous acres on Wright-Patterson AFB grounds for the permanent Operations Campus. A concept Operations Center building layout is provided in Figure 2-2.

The permanent operations center would have energy goals consistent with the Air Force Energy Flight Plan framework to achieve improved resiliency, optimized demand, and assured supply. The permanent operations center would be constructed to produce approximately the same amount of energy that it would use. Solar panels installed on the building roof would produce energy and maximizing building insulation and installing an ultra- efficient HVAC system would reduce energy use. Ultra-efficient heat pumps would be used to heat and cool the building, without the need for ductwork required by a conventional-type HVAC system. The heat pump system is comprised of individual heating and cooling units for each room. Some of the initial construction cost savings associated with a heat pump system are that inefficient ductwork is not needed, and because the building would be constructed using energy efficient methods, a much smaller HVAC system would keep the building comfortable.

Figure 2-2 American Water Operations Center Concept Building Layout for Wright-Patterson AFB



2.2 Selection Standards

The NEPA regulations define reasonable alternatives as those that meet the underlying 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 AF used the following selection standards to determine whether or not an alternative was considered reasonable to sustain a safe sustainable drinking water system and a sustainable wastewater system at WPAFB. In evaluating alternatives, the AF considered whether each alternative met the following standards:

- Adhere to the utility privatization contract.
- Immediately adjacent to an existing Water Treatment Plant at WPAFB.
- At least 1.5 acres needed to support Operations Campus and parking
- Laboratory meeting Requirements per the Ohio EPA Laboratory Manual for Chemical Analyses of Public Drinking Water (2014)
- Climate controlled Storage able to accommodate vehicles and construction equipment.
- Located to minimize disturbance to traffic and surrounding areas.

The needed infrastructure would need to provide administrative areas, an EPA certified drinking water quality lab, and climate-controlled storage of assets to maintain the drinking water distribution system and sanitary collection system. The No action alternative was also evaluated as a baseline comparison with each alternative.

2.3 Screening of Alternatives

Development of reasonable alternatives involved discussions with representatives of the 88th Civil Engineering Group (CEG) and Environmental Assets Section (88 CEG/CEIEA). Those alternatives meeting the above standards are considered in more detail below.

Table 2-1. Screening of Alternatives

Selection Criteria	Alternative A by WTP 21630	Alternative B by WTP 10855	Alternative C No Action	Alternative D Existing Building
Adhere to the utility privatization contract	Criteria Met	Criteria Met	Criteria Not Met	Criteria Not Met
Immediately adjacent to an existing Water Treatment Plant at WPAFB	Criteria Met	Criteria Met	Criteria Not Met	Criteria Not Met
At least 1.5 acres needed to support Operations Campus and parking	Criteria Met	Criteria Met	Criteria Not Met	Criteria Not Met
Laboratory meeting Requirements per the Ohio EPA Laboratory Manual for Chemical Analyses of Public Drinking Water (2014)	Criteria Met	Criteria Met	Criteria Met	Criteria Met
Climate controlled Storage able to accommodate vehicles and construction equipment.	Criteria Met	Criteria Met	Criteria Not Met	Criteria Met
Located to minimize disturbance to traffic and surrounding areas	Criteria Met	Criteria Not Met	Criteria Not Met	Criteria Met

2.4 Detailed Description of the Alternatives

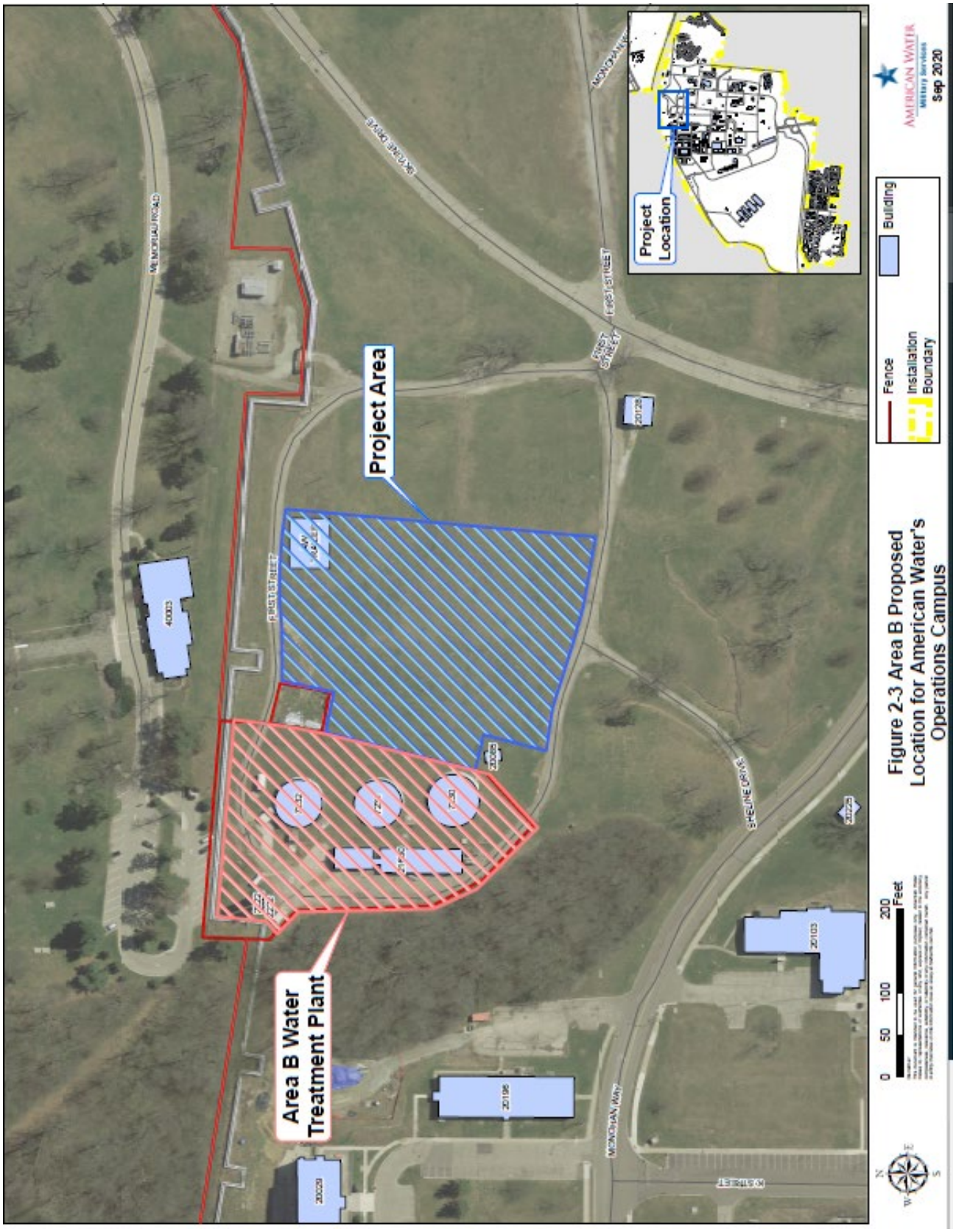
This section describes Alternative A (Preferred Alternative), Alternative B, and Alternative C (No Action).

2.4.1 Alternative A (Preferred Alternative)

Alternative A involves the construction of an Operation Campus adjacent to the Area B Water Treatment Plant on Skyline Dr. The proposed project site consists of a 2 acre vacant lot with a maintained lawn and no trees. The proposed site previously contained temporary wooden barracks built in 1941 and demolished in 1948 and shown in an aerial photograph taken in 1945 (Figure 3-4). The campus would include an operations center and a storage facility.

2.4.1.1 Proposed Construction Activities

The proposed Operations Campus would be built adjacent to existing water treatment plant, 21630, in Area B on the site as presented in Figure 2-3. Figure 2-2 gives a building layout concept of the Operations Building. The Operations Campus would consist of two main structures. The Operation and Maintenance Facility would be a 4,000 SF commercial/light industrial facility constructed on a 2.0-acre site and would be constructed as slab on grade. Adjacent to the facility would be an equipment storage facility consisting of 2,500 square feet of climate-controlled storage for parts and vehicles.


Project Area
Area B Water Treatment Plant
Project Location
Building
Fence
Installation Boundary
0 50 100 200 Feet
Sep 2020
Figure 2-3 Area B Proposed Location for American Water's Operations Campus

2.4.2 Alternative B

Alternative B involves the construction of an Operation Campus adjacent to the Area A Water Treatment Plant on Chidlaw Rd. The proposed project site, shown in Figure 2-4, consists of a 1.5 acre vacant lot consisting of maintained grass and 4 trees on the north west section. The campus would include an operations center and a storage facility.

2.4.2.1 Proposed Construction Activities

The proposed Operations Campus would be built adjacent to the existing water plant on the site as presented in Figure 2-4. Figure 2-2 gives a concept building layout of the Operations Building. The Operations Campus would consist of two main structures. The Operation and Maintenance Facility would be a 4,000 SF commercial/light industrial facility constructed on a 1.5-acre site and would be constructed as slab on grade. Adjacent to the facility would be an equipment storage facility consisting of 2,500 square feet of climate-controlled storage for parts and vehicles.

Figure 2-4 Area A Proposed Location for American Water's Operations Campus

2.4.3 Alternative C (No Action)

Under Alternative C (No Action), no operation campus would be constructed. AW would continue to use the existing water quality lab which only has 28 ft of bench limiting the number of operators and testing methods available. The Air Force EIAP regulation (32 CFR § 989.8[d]) requires consideration of the No Action Alternative. In addition, the Council of Environmental Quality guidance requires inclusion of the No Action Alternative in an EA to assess any environmental consequences that may occur if the Proposed Action is not implemented; a benchmark between alternatives. Therefore, this alternative is carried forward for further detail.

2.5 Alternatives Eliminated from Further Consideration

Use of existing structures (Alternative D) was eliminated for a System Owner Operations Center as there are no structures available that meet the criteria of being adjacent to Water Treatment Plants. No available locations were identified by Real Property for use. Space is at a premium at WPAFB. Many offices are moved to trailers or off-base locations during renovations of existing facilities.

2.6 Comparison of Environmental Consequences

Alternatives A and B are reasonable alternatives that meet the minimum requirements identified in Section 2.2. The CEQ regulations, however, require an analysis of the No Action alternative for all actions. Table 2-1 presents a comparison of the potential environmental consequences resulting from implementation of Alternative A (Proposed Action), Alternative B, and Alternative C (No Action). Alternative D was eliminated from further consideration.

Table 2-2. Comparison of Environmental Consequences

Affected Environment	Alternative A	Alternative B	Alternative C No Action
Noise	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.	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.	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Air Quality	Short-Term: Construction-related air emissions generated on Base as 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.	Short-Term: Construction- related air emissions generated on Base as 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.	Short Term: No Impact
	Long-Term: No adverse impact. Projected vehicle emissions should be similar or less than current conditions.	Long-Term: No adverse impact. Projected vehicle emissions should be similar or less than current conditions.	Long-Term: Minor Impact due to need to winterize (vehicle must run several hours) climate sensitive vehicles which currently have no storage space

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Water Resources			
Ground Water	Short-Term No impact as the proposed site is not located within the city of Dayton Source Protection Program boundary. (Maps located in Appendix D)	Short-Term No impact as the proposed site is not located within the city of Dayton Source Protection Program boundary. (Appendix D)	Short-Term: No Impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Surface Water	Short-Term: Adverse impact from surface water runoff during excavation activities. Impacts would be minor because best management practices for erosion and sedimentation controls would be implemented.	Short-Term: Impacts would be similar to Alterative A with the addition that the drainage ditch to the south of the site would need additionally runoff protection.	Short-Term: No Impact
	Long-Term: Minor adverse impacts due to increases in impervious surfaces would be minimized by upgrading the stormwater system component of Alternative A.	Long-Term: Minor adverse impacts due to increases in impervious surfaces would be minimized by upgrading the stormwater system component of Alternative B	Long-Term: No impact
Flood Plains	Short-Term: No impact as the proposed site is not located in the floodplain	Short-Term: No impact as the proposed site is not located in the floodplain	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Biological Resources			
Vegetation	Short-Term: Minor adverse impact because the site is currently a completely grass covered area. No trees would need to be removed. The majority of the project site historically contained temporary barracks therefore construction would take place on previously disturbed areas.	Short-Term: Minor adverse impact because the site is currently a partially grass and tree covered area. Several trees would be removed from the project site in preparation of new construction.	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Wildlife	Short-Term: Negligible impact on wildlife as the proposed project site is not located in an area that provides suitable habitat. The proposed construction activities are not in close proximity to any threatened or endangered species to generate noise- related impacts from proposed construction activities.	Short-Term: Negligible impact on wildlife as the proposed project site is not located in an area that provides suitable habitat. The proposed construction activities are not in close proximity to any threatened or endangered species to generate noise-related impacts from proposed construction activities.	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Threatened and Endangered Species	Short-Term: Negligible impact on threatened and endangered species as the proposed construction site does not provide suitable habitat.	Short-Term: Similar to Alternative A. The AF would coordinate with the USFWS prior to removing trees.	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Earth Resources	Short-Term: Minor impact to existing soils during construction of the Operations Campus. Impacts would be minimized by implementing BMPs for erosion and sedimentation controls.	Short-Term: Minor impact to existing soils during construction of the Operations Campus. Impacts would be minimized by implementing BMPs for erosion and sedimentation controls.	Short-Term: No impact.
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Hazardous Materials/ Waste	Short Term: Minor impact because hazardous materials/wastes used during construction activities would not be expected to increase over existing conditions.	Short Term: Minor impact because hazardous materials/wastes used during construction activities would not be expected to increase over existing conditions.	Short-Term: No impact.
	Long-Term: Minor improvement as the storage facility would provide a central storage location for the hazardous materials currently being stored in multiple locations.	Long-Term: Minor improvement as the storage facility would provide a central storage location for the hazardous materials currently being stored in multiple locations.	Long-Term: Storage would continue where space is available possibly leading to expiring material and over ordering generating more storage and more generation of Hazardous waste.
ACM and LBP	Short-Term: No impacts as there are no structures that would be demolished.	Short-Term: No impacts as there are no structures that would be demolished.	Short-Term: No impact.
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Environmental Restoration Program	Short-Term: No impacts because there are no ERP sites located in proximity to the proposed site.	Short-Term: No impacts because there are no ERP sites located in proximity to the proposed site.	Short-Term: No impact.
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Cultural Resources	Short-Term: No impact as there are no National Register of Historic Places eligible building located in proximity of the proposed site. In addition, the proposed site would be located in an area that has previously been disturbed (temporary barracks).	Short-Term: No impact as there are no National Register of Historic Places eligible building located in proximity of the proposed site.	Short-Term: No impact
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Traffic and Transportation	Short-Term: Due to location of preferred site, traffic disruption would be limited to vehicles traveling to the site,	Short-Term: Due to location of Alternative B on Chidlaw Rd, traffic disruption would be major to severe during construction activities.	Short-Term; No impact
	Long-Term: No impact	Long-Term: Minor increase of traffic on Chidlaw Rd.	Long-Term: No impact

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Safety and Occupational Health	Short-Term: Potential adverse impact to workers during construction activities. Impacts would be minimized by adherence to health and safety regulations and standards.	Short-Term: Similar to Alternative A with the additional hazard of being adjacent to a higher rate of traffic on Chidlaw Rd.	Short-Term: No impact.
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Socio-economic Resources	Short-Term: Negligible impact on local workforce and a beneficial impact on the local economy from the revenue generated by construction activities.	Short-Term: Negligible impact on local workforce and a beneficial impact on the local economy from the revenue generated by construction activities.	Short-Term: No impact.
	Long-Term: No impact	Long-Term: No impact	Long-Term: No impact
Land Use	Short-Term: Minor impacts to surrounding areas caused by construction traffic and activities reduced by distance from gates.	Short-Term: Minor to Moderate impacts to surrounding areas caused by construction traffic and activities with proximity to Gate 12A	Short-Term: No impact
	Long-Term: Minor impact as the land parcel would be changed from open to industrial. This is reduced as the nearest occupied building with access to the area is 300 ft away and other adjacent open space would remain.	Long-Term: Minor to Moderate impacts as the land parcel would change for open to industrial. This would affect the multiple residences within 300 ft of the site.	Long-Term: No impact

Affected Environment	Alternative A Proposed Action	Alternative B	Alternative C No Action
Cumulative Impacts	When added to past, present, and reasonably foreseeable actions, the activities under Alternative A would have no significant adverse cumulative impacts on any resource.	When added to past, present, and reasonably foreseeable actions, the activities under Alternative A would have no significant adverse cumulative impacts on any resource.	No Impact

3.0 AFFECTED ENVIRONMENT

3.1 SCOPE OF THE ANALYSIS

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, CEQ regulations, 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 Alternative A (Proposed Action/Preferred Alternative), Alternative B, or Alternative C (No Action). Each alternative is evaluated for its potential to affect physical, biological, and socioeconomic resources in accordance with 40 CFR §1508.8. 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 or socioeconomic resources (as defined by 40 CFR §1508.27) 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:

- Negligible, the impact is localized and not measurable or at the lowest level of detection;
- Minor, the impact is localized and slight but detectable;
- Moderate, the impact is readily apparent and appreciable; and
- Major, the impact is severely adverse or highly noticeable and considered to be significant.

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

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 project activities would not result in any obstructions to airspace or hazards to airspace management at WPAFB nor does it include the use of nor any modifications to existing airspace. Therefore, there would be no impacts to airspace.
- Visual Resources: Implementation of the alternatives would not adversely change the views of or from WPAFB.
- Environmental Justice: All construction and demolition associated with either alternative would occur entirely on base and construction noise is not expected to impact civilian residential areas or sensitive receptors. A traffic schedule for construction vehicles would be coordinated to ensure any potential impacts to congestion or noise around the base as a result of construction traffic would be minor. There are no day cares or schools near the proposed project sites and standard construction site safety precautions would be implemented to ensure children would not be exposed to increased health or safety risks. Under the No-Action so there would be no changes to baseline conditions. Therefore, no human populations, low income, minority, or otherwise would be negatively impacted as a result of the Proposed Action and Environmental Justice is not carried forward for detailed analysis in this EA.

  Utilities: Alternatives A and B both have existing utility lines through or adjacent to them enabling any construction to be connected to the systems. Consumption would be equivalent to current consumption at the temporary office trailers that have been established.

3.2 Noise

3.2.1 Definition of the Resource

Noise is defined as an undesirable sound that interferes with communication, is intense enough to damage hearing, or is annoying. Human response to noise varies according to the source type, characteristics of the source, distance between source and receptor, receptor sensitivity, and time of day. Sound is measured with instruments that record instantaneous sound levels in decibels (dB); decibels characterize sound levels sensed by the human ear. “A-weighted” decibels (dBA) incorporate an adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to a noise event. Sound levels analyzed in this EA are A-weighted.

Noise Criteria and Regulations

Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse

physiological, psychological, and social effects associated with noise. Guidelines and regulations that are relevant to the project are described below.

According to the AF, the Federal Aviation Administration (FAA), and U.S. Department of Housing and Urban Development (HUD) criteria, residential units and other noise-sensitive land uses are “clearly unacceptable” in areas where the noise exposure exceeds day-night A-weighted sound level (DNL) of 75 dBA, “normally unacceptable” in regions exposed to noise between the DNL of 65 to 75 dBA, and “normally acceptable” in areas exposed to noise where the DNL is 65 dBA or less. The Federal Interagency Committee on Noise developed land-use compatibility guidelines for noise in terms of DNL (U.S. Department of Transportation [USDOT] 1980). The DNL is the metric used by the AF in determining noise impacts of military airfield operations for land use planning.

The AF land use compatibility guidelines (relative to DNL values) are documented in the AFH-32-7084 2017. Five noise zones are used in the Air Installation Compatible Use Zone (AICUZ) studies to identify noise impacts from aircraft operations. These noise zones range from DNL of 65 to 80 dBA and above. For example, it is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks, be located where the noise is expected to exceed a DNL of 65 dBA. Since the Proposed Action does not involve changes to existing aircraft noise or changes to noise contours and only involves construction-related noise, the AICUZ will not be discussed in further detail with regard to aircraft operations.

3.2.2 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 AICUZ Study for Wright- Patterson AFB, Ohio (WPAFB 1995a). Based on reasonable assumptions at the time of the 1995 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 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. Figure 3-1 depicts the baseline noise contours presented in the 1995 AICUZ Study (WPAFB 1995a).

There were no noise-sensitive receptors identified in the AICUZ that would be affected by the proposed action. No housing exists inside the fence in Area B. In Area A, Alternative B, identified noise-sensitive receptors (Brick Quarters housing) is approximately 211 feet away. There have been no recent complaints regarding aircraft noise. According to the AICUZ study, the Operations Campus project sites are located within the AICUZ noise contours exposed to 70-75 dB (Figure 3-1)

This contour value represents existing conditions to which the potential noise levels from construction activities associated with constructing the Storage Facility can be compared.

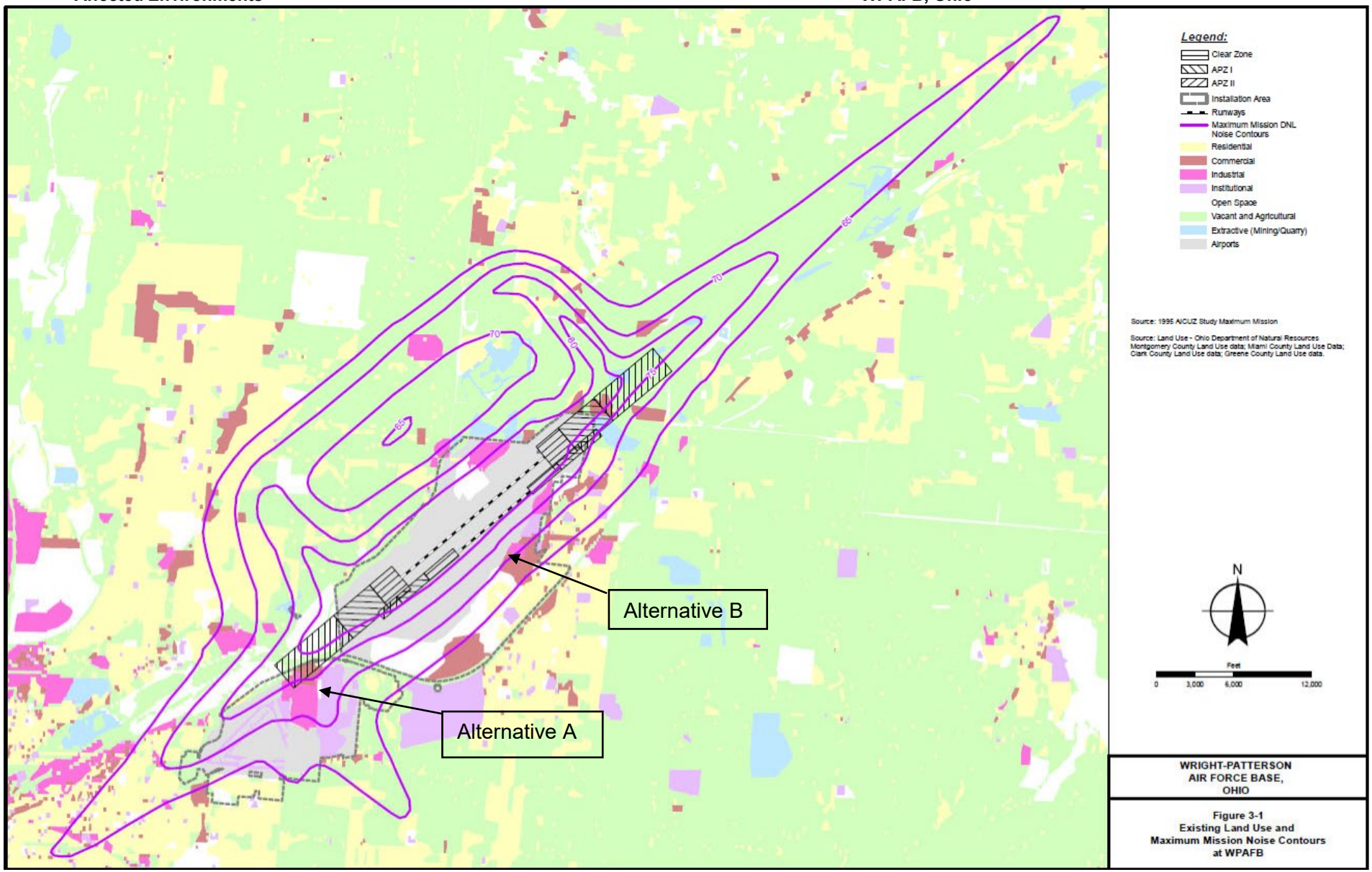


Figure 3-1
Existing Land Use and
Maximum Mission Noise Contours
at WPAFB

3.2.3 Environmental Consequences

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (if changes reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (if changes result in increased noise exposure to unacceptable noise levels).

3.2.3.1 Alternative A

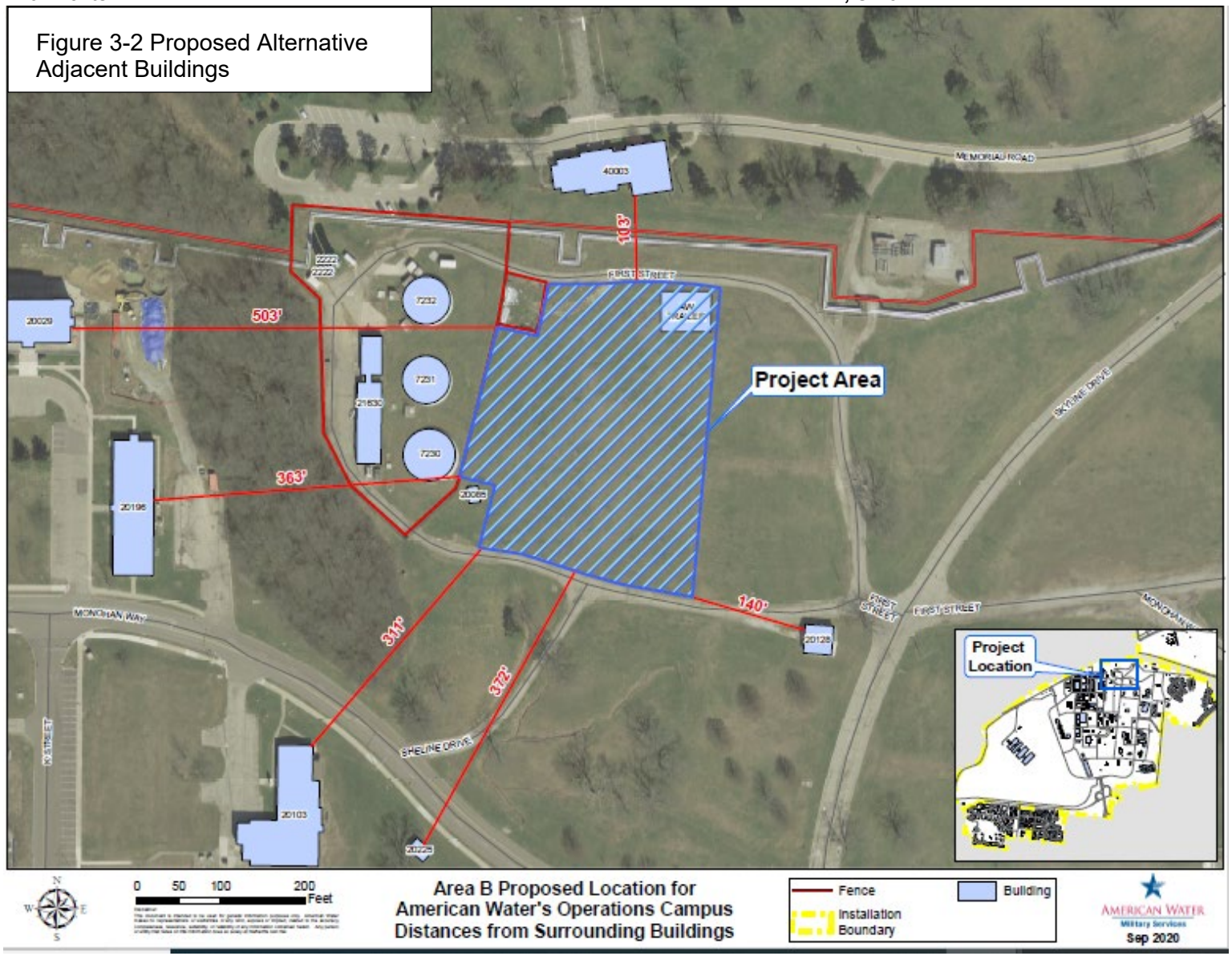
Implementation of Alternative A would have minor, short-term impacts on the noise environment near the project site. Noise impacts would be experienced by workers directly involved in construction activities and WPAFB personnel working in buildings near the construction site.

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 ft 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). Therefore, minor short-term adverse impacts from noise in the construction work area would occur. 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, jackhammer/power drill – 130 dB); however, impacts to workers would be minimized because workers would be responsible for adhering to health and safety regulations.

The nearest occupied structure to the proposed project site is located at a distance greater than 100 ft from the project site. Personnel in occupied buildings or in the surrounding area may experience short-term intermittent noise impacts; however, construction related noise would occur during normal working hours, would be temporary, short in duration and comparatively minor and less than or equivalent to noise levels generated by the water treatment plant. Figure 3-2 shows the distances to all buildings occupied and unoccupied that are not part of the water treatment plant. No long-term noise impacts would result from Alternative A to either construction workers or personnel in the vicinity of the proposed project site.

Because the noise environment on Base and in the vicinity of WPAFB is dominated by military aircraft overflights, additional noise produced by construction activities would not affect sensitive receptors on or off the Base. The proposed project site is located in a noise zone less than 70 dB (Figure 3-1). Impacts on ambient noise levels from the construction site would result from activities involving construction equipment. Noise levels associated with common construction equipment trucks are 83-93 dB at 50 ft (Center for Hearing and Communication [Center] 2017). Alternative A is also not located within the CZ, APZ I, or APZ II (Figure 3-1).

Figure 3-2 Proposed Alternative Adjacent Buildings



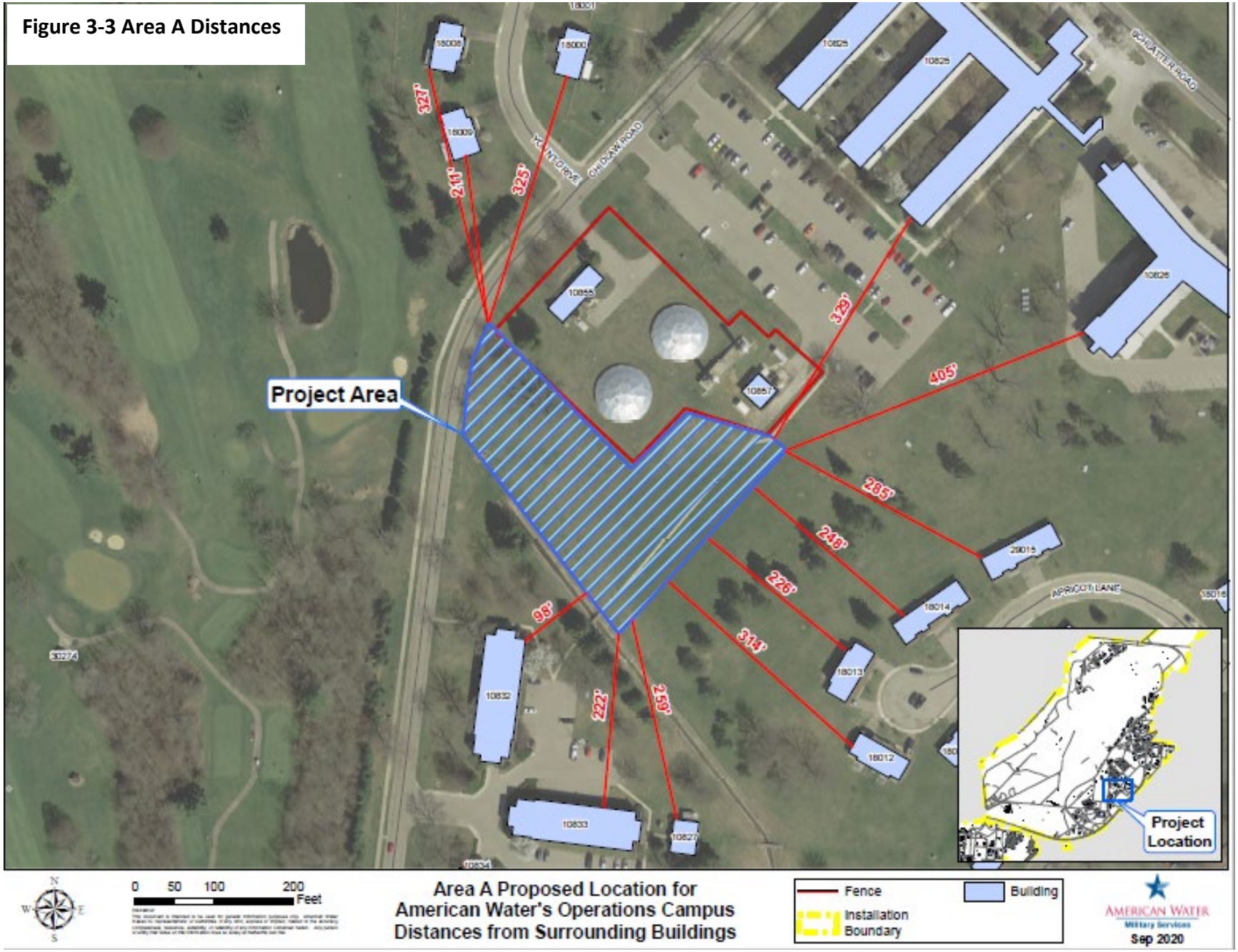
3.2.3.2 Alternative B

Implementation of Alternative B would have minor, short-term impacts on the noise environment near the project site. Noise impacts would be experienced by workers directly involved in construction activities, WPAFB personnel working in buildings near the construction site, guests at the Visiting Officer Quarters at 329 feet and residents in base housing on Yount Dr starting at 211 feet.

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 ft 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). Therefore, minor short-term adverse impacts from noise in the construction work area would occur. 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, jackhammer/power drill – 130 dB); however, impacts to workers would be minimized because workers would be responsible for adhering to health and safety regulations.

There are multiple occupied structures nearby to the Alternative B project site shown in Figure 3-3. Personnel in occupied buildings or in the surrounding area may experience short-term intermittent noise impacts; however, construction related noise would occur during normal working hours, would be temporary, short in duration and comparatively minor and less than or equivalent to noise levels generated by the water treatment plant. No long-term noise impacts would result from Alternative B to either construction workers or personnel in the vicinity of the proposed project site.

Figure 3-3 Area A Distances



3.2.3.3 Alternative C, No Action

The No Action alternative would have no adverse impact on noise quality.

3.3 AIR QUALITY

Wright Patterson Air Force Base (WPAFB) is a major source of both criteria and hazardous air pollutants and currently operates under Title V Operating Permit No P0092038. Upon the execution of the utility privatization, Regional Air Pollution Control Agency (RAPCA) was notified of the intent to aggregate the emission sources associated with the water and wastewater utilities:

Table 3-1 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

Of these emission sources, only Source 6884, Ohio EPA B716 building 34024 was not exempted. A Permit by Rule was submitted for Source 6884 and accepted by RAPCA.

3.3.1 Definition of the Resource

Air quality within a defined geographical region is most often determined by measuring the concentration of various pollutants in the atmosphere. The measured levels of pollutants found in ambient air are expressed in units of parts per million (ppm) or in micrograms per cubic meter ($\mu g/m^3$). Air quality in a region is affected not only by the types and quantities of atmospheric pollutants emitted by polluting sources in an area, but also by the surface topography forming air basins and the prevailing meteorological conditions. Some air pollutants may also be naturally occurring.

The federal Clean Air Act (CAA) directed the USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. The CAA authorized the USEPA to develop National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. The NAAQS are numerical concentration-based standards for pollutants that have been determined to impact human health and the environment. The USEPA currently enforces both primary and secondary NAAQS for six criteria air pollutants including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (coarse particulates equal to or less than 10 microns in diameter [PM_{10}] and fine particulates equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb).

The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards for public welfare. Table 3-1 presents the primary and secondary NAAQS.

The criteria pollutant O_3 is not usually emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or "O_3 precursors". These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling NO_x and VOC pollutants (also identified as reactive organic gases).

The USEPA has recognized that particulate matter emissions can have different health affects depending on particle size and, therefore, developed separate NAAQS for coarse particulate matter PM_{10} and fine particulate matter $PM_{2.5}$. The pollutant $PM_{2.5}$ can be emitted from emission sources directly as very fine dust and/or liquid mist or formed secondarily in the atmosphere as condensable particulate matter typically forming nitrate and sulfate compounds. Precursors of condensable $PM_{2.5}$ can include SO_2, NO_x, VOC, and ammonia (NH_3). Secondary (indirect) emissions vary by region depending upon the predominant emission sources located within the area. The state air agency considers these sources when determining which precursors are considered significant for $PM_{2.5}$ formation and identified for ultimate control.

Table 3-2. National Ambient Air Quality Standards

Pollutant	Standard Value [6]		Standard Type
Carbon Monoxide (CO)			
8-hour average	9 ppm	(10 mg/m^3)	Primary
1-hour average	35 ppm	(40 mg/m^3)	Primary
Nitrogen Dioxide (NO2)			
Annual arithmetic mean	0.053 ppm	(100 µg/m^3)	Primary and Secondary
1-hour average[1]	0.100 ppm	(188 µg/m^3)	Primary
Ozone (O_3)			
8-hour average[2]	0.070 ppm	(137 µg/m^3)	Primary and Secondary
Lead (Pb)			
3-month average[3]		0.15 µg/m^3	Primary and Secondary
Particulate < 10 micrometers (PM_{10})			
24-hour average[4]		150 µg/m^3	Primary and Secondary
Particulate < 2.5 micrometers ($PM_{2.5}$)			
Annual arithmetic mean[4]		12 µg/m^3	Primary
Annual arithmetic mean[4]		15 µg/m^3	Secondary
24-hour average[4]		35 µg/m^3	Primary and Secondary
Sulfur Dioxide (SO_2)			
1-hour average[5]	0.075 ppm	(196 µg/m^3)	Primary
3-hour average[5]	0.50 ppm	(1,307 µg/m^3)	Secondary

Notes:

1 In February 2010, USEPA established a new 1-hr standard at a level of 0.100 ppm, based on the 3-year average of the 98th percentile of the yearly distribution concentration, to supplement the existing annual standard.

2 Final rule signed October 1, 2015 and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards. In March 2008, the USEPA revised the level of the 8-hour standard to 0.075 ppm based on the 3-year average of the annual fourth-highest daily maximum 8-hour concentration.

3 In November 2008, USEPA revised the primary lead standard to 0.15 µg/m^3. USEPA revised the averaging time to a rolling 3-month average, not to be exceeded.

4 In December 2012, USEPA revised the level of the annual $PM_{2.5}$ primary standards to 12 µg/m^3 and retained the secondary level of the annual $PM_{2.5}$ standard at 15 µg/m^3 and retained the level of the existing 24-hour $PM_{2.5}$ standard. With regard to primary standards for particle generally less than or equal to 10 µm in diameter (PM_{10}), USEPA retained the 24-hour standard and revoked the annual PM_{10} standard.

5 In June 2010, USEPA established a new 1-hr SO_2 standard at a level of 75 parts per billion (ppb), based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The USEPA also revoked both the existing 24-hour and annual primary SO_2 standards.

6 Parenthetical value is an approximately equivalent concentration for CO, NO_2, O_3 and SO_2. ppb = parts per billion; µg/m^3 (micrograms per cubic meter) ppm = parts per million; mg/m^3 (milligrams per cubic meter)

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. Each state or local agency is required to develop air pollutant control programs and promulgate regulations that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in State Implementation Plans (SIPs) that must be approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed for a state to achieve and maintain compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by the USEPA.

The CAA required that the USEPA promulgate general conformity regulations. These regulations are designed to ensure that federal actions will conform to the state SIP so as not to impede with local efforts to achieve or maintain attainment with the NAAQS. The General Conformity Rule is found in 40 CFR 93 requires a conformity determination for all federal actions located in nonattainment or maintenance areas for NAAQS unless otherwise exempted. Maintenance areas are defined as an area that was designated as nonattainment and has been re-designated in 40 CFR Part 81 to attainment, meeting the provisions of Section 107(d)(3)(E) of the CAA and has a maintenance plan approved under Section 175A of the CAA. Federal actions may be assumed to conform if total indirect and direct project emissions are below de minimis levels presented in 40 CFR 93.153. The threshold levels (in tons of pollutant per year) depend upon the nonattainment or maintenance area status that USEPA has assigned to a region for each NAAQS. Once the net change in nonattainment or maintenance area pollutants are calculated, the federal agency must compare them to the de minimis thresholds if a conformity determination is required.

American Water emission sources have been disaggregated from the bases Title V permit for major stationary sources. A major stationary source is a facility (e.g., plant, base, or activity) that has the potential to emit more than 100 tons annually of any one criteria air pollutant, 10 tons per year (tpy) of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs. American Water air sources do not include any major stationary sources of air emissions. The overall purpose of the Title V permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. American Water emission sources will not require Title V permitting as it has no major stationary emission sources.

Federal New Source Review (NSR), including Prevention of Significant Deterioration (PSD), is a preconstruction permitting program that requires stringent pollution controls when air emissions increases are “significant” from proposed new major stationary sources or major modifications at existing sources. To be “significant”, a proposed project’s net emission increase must meet or exceed the rate of emissions listed in 40 CFR 52.21(b)(23)(i) for criteria pollutants; or (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more [40 CFR 52.21(b)(23)(iii)]. The PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s designation as Class I, II, or III [40 CFR 52.21(c)].

Greenhouse Gases (GHGs) are gases that have been determined by science to trap heat in the atmosphere. The GHGs are generated and emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere naturally helps regulate the earth’s temperature but is believed to contribute to global climate change as defined by USEPA. The GHGs can include water vapor, CO_2, methane, nitrous oxide, O_3, and several hydrocarbons and chlorofluorocarbons. Each GHG has an estimated global warming potential (GWP) value, which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the earth’s surface. The GWP of an individual GHG provides a relative basis for calculating its CO_2 equivalent (CO_2e), the amount of CO_2 equivalent to the emissions of that gas. The CO_2 has a GWP of 1, and is therefore, the standard by which all other GHGs are measured and

compared. Facilities evaluating their baseline GHG emissions consider both direct and indirect emissions. Indirect GHG emissions are the result of facility activities that cause others to emit GHGs (i.e., electricity usage). Specific sources are required to report certain GHG annual emission levels to the USEPA under 40 CFR Part 98 mandatory GHG reporting regulations.

Executive Order 13693, Planning for Federal Sustainability in the Next Decade provides strategic guidance to federal agencies in the management of GHG emissions.

3.3.2 Affected Environment

Regional Climate

The climate of the southwestern region of Ohio is humid and temperate with warm summers and cold winters. Average minimum and maximum temperatures are between 21° and 36° degrees Fahrenheit (°F) in January and 45° and 85° F in July. The average annual precipitation is 38.43 inches, with June typically being the wettest month and October the driest month. The prevailing winds are from the southwest, with average monthly wind speeds between 3 and 7 knots.

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 NAAQS. Through the 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 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.

Wright-Patterson AFB

WPAFB is in attainment for all criteria pollutants except Ozone (O3) and Particulate Matter (PM2.5). The Air Force has determined that an Ozone (O3) conformity applicability analysis is required 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 located in a maintenance area for PM2.5, so a general conformity applicability analysis was performed for that pollutant as well. An ACAM report is included in Appendix B.

Air quality is typically good near WPAFB and is generally affected only locally by military and civilian vehicle emissions, particulate pollution from vehicle traffic, 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 USEPA Region 5 and the 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.

Detailed records are maintained to demonstrate compliance with emission limits and reports are submitted in a timely manner to the local regulatory agency.

The WPAFB air emissions inventory includes over 1,400 emissions sources. All air sources at

WPAFB are identified with a four-digit number on a yellow sticker affixed to the source. 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 tpy of any regulated air pollutant other than a 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 January 18, 2017. There are 24 permitted significant emissions units identified in the permit, most of which were boilers and paint spray booths. 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 categorizes 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.

3.3.3 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 any Exceed Evaluation Criteria established by a 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 Air Conformity Rule. WPAFB is in attainment for all criteria pollutants except Ozone (O3) and Particulate Matter (PM2.5). The Air Force has determined that an Ozone (O3) conformity applicability analysis is required 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 located in a maintenance area for PM2.5, so a

general conformity applicability analysis was performed for that pollutant as well. An ACAM report is included in Appendix B.

For air sources from federal actions that do not require review for air permitting, the process of applying for air permits provides a much more in-depth analysis of the impacts than this EA. This EA will identify potential air regulations impacting the federal action but will not include emission modeling that may reveal adverse impacts during air permitting. For example, federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any federal Class I area (e.g., wilderness area greater than 5,000 acres or national park greater than 6,000 acres) and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more (40CFR 52.21(b)(23)(iii)). For the purposes of this EA, such an impact to a Class I area would be considered adverse, however, this specific impact can only be determined using refined air dispersion modeling conducted for a PSD permit application or in conjunction with a General Conformity determination.

Air Quality Regulations Applicable to the Proposed Action

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 NSR 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. The Proposed Action may include the addition of heating boilers and perhaps backup emergency power. It is not anticipated that these sources would trigger PSD applicability but may require a PTI or PBR application and would be excluded as all AW air emission sources are disaggregated of the Title V operating permit.

National Emissions Standards for Hazardous Air Pollutants. Because WPAFB has the potential to emit more than 25 tpy of HAPs, certain HAP-emitting activities on Base are subject to regulation under federal National Emissions Standards for Hazardous Air Pollutants (NESHAP), which are promulgated in 40 CFR Parts 61 and 63. These NESHAP require emissions control measures and detailed recordkeeping to show compliance with NESHAP restrictions on the types of materials, such as paints, adhesives, and solvents, which can be used in specific operations.

Specific NESHAP to which activities at WPAFB are subject include:

- 40 CFR 63 Subpart GG, Aerospace NESHAP
- 40 CFR 63 Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE) Maximum
- Achievable Control Technology (MACT)40 CFR 63 Subpart DDDDD
- Industrial, Commercial, and Institutional Boilers (Boiler MACT) 40 CFR 61 Subpart M, Asbestos Remediation

In addition, WPAFB would also be subject to the Defense Land Systems and Miscellaneous Equipment (DLSME) NESHAP when that rule is promulgated. This rule would cover military surface coating operations other than those subject to the Aerospace and Shipbuilding NESHAP. The intent is to simplify compliance for DoD facilities that are currently forced to comply with multiple overlapping, and sometimes conflicting, NESHAP, including the Miscellaneous Metal Parts and Products Coating NESHAP, Plastic Parts and Products Coating NESHAP, Metal Furniture Coating NESHAP, Large Appliance Coating NESHAP, and Fabric and Other Textiles Coating NESHAP. The USEPA currently has no date set for publication of a draft DLSME NESHAP.

While no boilers are expected to be installed, any new boilers considered with the Proposed Action would be excluded as from the Boiler MACT as any boiler would be disaggregated from the base.

Any new emergency generators would be excluded from the RICE MACT due to the disaggregation of AW Air Emission sources. The Base must ensure that all required notifications are submitted to USEPA and all required work practice standards and emission standards are in place prior to boiler and generator startup to ensure all air quality standards are met.

Fugitive Dust Regulations. 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 have the potential to generate noticeable amounts of dust particles larger in size than PM_{10}, reasonably available control measures (RACM) should be employed by the general contractor to minimize the impact to the neighboring community. The RACM 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

Architectural and Industrial Maintenance Coating Regulations. The OAC rule 3745-113, Architectural and Industrial Maintenance (AIM) Coatings, applies to any person who supplies, sells, offers for sale, or manufactures any AIM coating for use within the state of Ohio, as well as any person who applies or solicits the application of any AIM coating within the state of Ohio. At a minimum, the coating specifications for any construction or renovation activity associated with the Proposed Action must conform to the VOC content standards identified in the OAC rule 3745-113-03 for each specific AIM coating type anticipated for application. The localized environmental impacts of the coating applications may be reduced by specifying the use of no-VOC or low-VOC content coatings used in construction.

Greenhouse Gases. The GHG emissions from the Proposed Action have been quantified to the extent feasible for informational and comparison purposes. The GHG temporary construction emissions were estimated using CO_2e off-road equipment and on-road vehicle emission factors provided in the Air Conformity Applicability Model (ACAM). CO_2e emission level calculations reported in Appendix B show 66 tons for the construction of the Storage Facility and 235.9 tons for the construction of the Operations center.

3.3.3.1 Alternative A

Direct and Indirect Emissions

Construction Activities. Construction activities would result in short term emissions of criteria pollutants from the equipment engine exhaust and particulate matter emitted as fugitive dust from grading activities and the movement of refuse material and equipment. Additionally, vehicle emissions from worker commuter emissions would result in emissions. Additionally, VOC emissions may result from any use of solvents or lubricants needed for the project. All of these criteria pollutant emissions from the construction activities would be temporary and minimal.

No stationary emissions sources are included in the Operation Campus so there would be no long term effects to Air Quality.

3.3.3.2 Alternative B

Direct and Indirect Emissions

Construction Activities. Construction activities would result in short term emissions of criteria pollutants from the equipment engine exhaust and particulate matter emitted as fugitive dust from grading activities and the movement of refuse material and equipment. Additionally, vehicle emissions from worker commuter emissions would result in emissions. Additionally, VOC emissions may result from any use of solvents or lubricants needed for the project. All of these criteria pollutant emissions from the construction activities would be temporary and minimal.

No stationary emissions sources are included in the Operation Campus so there would be no long term effects to Air Quality.

3.3.3.3 Alternative C, No Action

Because the No Action alternative would not result in an increase in short term emissions over baseline conditions, no adverse impact on air quality would occur. Minor increase in VOC emissions during the winterizing of the Sewer Cleaning Jet Truck would not have significant impact.

3.4 Water Resources

3.4.1 Definition of the Resource

Water resources include groundwater, surface water, and floodplains. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Groundwater

Groundwater consists of the subsurface hydrologic resources and is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications.

Groundwater can be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water

Surface water resources consist of lakes, rivers, and streams. Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade lakes, rivers, and streams. Storm water flows, which may be exacerbated by high proportions of impervious surfaces associated with buildings, roads, parking lots, and airfields are important to the management of surface water. Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. Higher densities of development require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur from buildings, parking lots, and roadways.

Floodplains

Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters and might be subject to periodic or infrequent inundation due to rain or melting snow. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain for this section of the Mad River as 813.4 ft, above mean sea level (MSL). The 100-year floodplain is the area that has a one percent chance of inundation by a flood event in a

given year.

Executive Order 11988, Floodplain Management, requires federal agencies to determine whether a proposed action would occur within a floodplain and typically involves consultation of appropriate FEMA Flood Insurance Rate Maps. Executive Order 11988 directs federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to 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.

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 ft below the spillway elevation of 835 ft, above MSL.

3.4.2 Affected Environment

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, requiring USEPA Region 5 approval on all new projects to ensure continued use as a drinking water supply (53 Federal Register 15876).

The buried aquifer system provides drinking water for more than 1.6 million people in southwest Ohio (Debrewer et al. 2000).

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. Private wells and smaller public systems typically use this bedrock aquifer because, though not as productive as the buried aquifer, it is adequate for such uses (MCD 2002). Underneath the limestone and dolomite bedrock is Ordovician age (465 to 510 million year ago) bedrock shales and limestones of the Richmond Group. The lower bedrock aquifer system generally produces less than 5 gallons per minute (gpm) and is only productive enough for livestock use. Maps of County Ground water resources (Appendix D) show that Alternative A is located in an area that is considered clayey till for 70 feet. The closest well shows a depth of 97 feet. Alternative B is shown to be in an area where groundwater is between 30-190 feet and the closest well shows a depth of 54 feet.

The buried valley aquifers coincide with the present Great Miami River and its tributaries. Water underground generally follows the same flows as surface waters with upland areas serving as recharge areas and groundwater divides (MCD 2002). 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 (WPAFB 1995b). The city of Dayton groundwater production wells at Huffman Dam are screened at depths of over 100 ft below ground surface.

Surface Water

The Base is in the Mad River Valley. The Mad River 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 Creeks; Buck Creek; Mad River from Chapman to Mud Creeks; and the lower Mad River (Mud Creek to the Great Miami River). Mud Creek enters the Mad River 2,000 ft north of the State Route 235 bridge, near the northwest corner of Area A. The Base lies adjacent to the northernmost portion of the lower Mad River segment. A map depicting the proximity of the Mad River to the WPAFB and the locations of the potential project sites can be found in Appendix D.

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 Clean Water Act (CWA) for not meeting aquatic life and recreation use standards (OEPA 2010).

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 (USEPA 2007). 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) (prepared to comply with the CWA and the Ohio Water Pollution Control Act) provides descriptions of storm drainage areas and their associated outfalls, potential storm water pollution sources, and material management approaches to reduce potential storm water contamination (WPAFB 2016a). The SWPPP was last updated in September 2016 while the SWMP was last updated in July 2016. An OEPA industrial permit (National Pollutant Discharge Elimination System [NPDES] 1IO00001) and a municipal NPDES General Permit (OHQ000002) cover the WPAFB storm water program (WPAFB 2016b).

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, solid and hazardous waste management, and use of deicing chemicals.

There are 20 defined drainage or “Outfall Areas” and 23 NPDES discharge monitoring points on Base that are addressed under the NPDES permit (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 at 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.

Floodplains

A large portion of WPAFB, including the majority of Area A and portions of Area B, lie within the Mad River floodplain. The 10-year floodplain is at 804.7 ft above MSL, and the 100-year floodplain is at 813.4 ft above MSL (North American Vertical Datum [NAVD] 1988). These portions of the base are classified as Zone A; Zone A is defined by the FEMA as an area with a 1 percent annual chance of having a flood.

On the Groundwater Resource Map of Greene County, Alternative A is shown to be 920-920 ft MSL and Alternative B is shown to be between 820-840 ft above MSL. Both alternatives will not be affected by the 100 year floodplain.

3.4.3 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.

Stormwater runoff in urban areas is one of the leading sources of water pollution in the U.S (USEPA 2018a). Under Section 438 of the Energy Independence and Security Act (EISA) of 2007, federal agencies are required to reduce stormwater runoff from federal development and redevelopment projects to protect water resources. Federal agencies can comply using a variety of stormwater 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 (USEPA 2018a).

Construction on WPAFB would follow the appropriate environmental specification (01 02 20) or the base facility standard regarding provisions for storm water runoff.

3.4.3.1 Alternative A

Proposed construction would have minimal short term impact on groundwater. The project site is a vacant grass lawn. Based on the relatively brief amount of time the soil would be exposed from construction to re-vegetation, 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 minimal to the upper water bearing zone below the surficial layer.

Construction activities would have minimal short-term impact on surface water quality in the vicinity of the project site. Best management practices would be implemented during construction activities (facility construction and parking lot installation) to prevent excessive soil erosion, runoff, and minor spills. Long-term minor 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 specification (01 02 20) or the base facility standard regarding provisions for storm water runoff.

Alternative A Site is above the 813.4 ft 100 year floodplain thus there is no expected impact on the site in the event of a flood.

3.4.3.2 Alternative B

Alternative B would have similar effects of Alternative A with the additional consideration of the drainage ditch to the south of the site. Additional measures would be put in place to reduce or prevent soil erosion from reaching this area. Construction on WPAFB would follow the appropriate environmental specification (01 02 20) or the base facility standard regarding provisions for storm water runoff.

Alternative B Site is above the 813.4 ft 100 year floodplain thus there is no expected impact on the site in the event of a flood.

3.4.3.3 Alternative C, No Action

The No Action alternative would have no adverse impact on water resources.

3.5 Safety and Occupational Health

3.5.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environs. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation processes creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns. The public would have no access to the construction activities associated with the Proposed Action or Alternatives.

Munitions and Explosive 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). Explosive Safety Zones (ESZs) are required for areas where ordinance are stored or handled. The ESZs 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 ESZ are constructed. The ESZ and ESQD requirements are specified in Air Force Manual (AFMAN) 91-201, Explosive Safety Standards.

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 AF regulations designed to comply with standards issued by OSHA and 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.

3.5.2 Affected Environment

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.

Munitions and Explosives Safety

There are several areas that are constrained by ESQD CZ in the Patterson Field area. None of these areas are located in close proximity to the Project site.

Construction Safety

All contractors performing construction activities are responsible for following occupational safety regulations and worker compensation programs, and are required to conduct construction activities in a manner that reduces or eliminates risk to workers or personnel. 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.

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 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 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.

3.5.3 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

construction-related risks, and risks created by either direct or indirect workforce and population changes related to proposed Base activities. The AF 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 AF federal and state health and safety standards.

Fire Hazards and Public Safety

No adverse effects regarding fire hazards or public safety would be expected to occur from constructing the Equipment Storage Facility. The SOPs for demolition and construction projects would be in place to protect the public.

Munitions and Explosives Safety

No adverse effects due to munitions or explosives safety would be expected to occur from constructing the Equipment Storage Facility. The project area is located at safe distances required in the ESZ and ESQD requirements specified in AFMAN 91-201, Explosive Safety Standards.

Construction Safety

Potential short-term minor impacts to workers could be expected during construction activities. Implementation of Alternative A would slightly increase the short-term risk associated with contractors performing construction activities at WPAFB during the normal work day. Contractors would be required to establish and maintain safety programs and adhere to SOPs. 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. 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, proper excavation techniques would be used to ensure that existing underground utility lines are not damaged; in the event a utility line is cut, or otherwise damaged, on-site personnel would need to implement emergency procedures. Therefore, no adverse effects are anticipated as a result of Alternative A due to safeguards existing to protect personnel.

Anti-Terrorism/Force Protection

No adverse effects to ATFP would be expected as a result of constructing the Operations Campus because the facilities would be constructed within a controlled perimeter on Base.

3.5.3.1 Alternative A

Implementation of Alternative A would result in potential impact to workers during construction activities. Proper adherence to Health and Safety procedures would minimize these impacts.

Construction of a proper storage facility would eliminate the hazards of dispersed Hazardous material storage currently being used. Long term risks would be diminished by having designed structures to store equipment and hazardous materials. An updated lab would additionally eliminate hazards of overcrowding.

3.5.3.2 Alternative B

Implementation of Alternative A would result in potential impact to workers during construction activities. Proper adherence to Health and Safety procedures would minimize these impacts.

Construction of a proper storage facility would eliminate the hazards of dispersed Hazardous

material storage currently being used. Long term risks would be diminished by having designed structures to store equipment and hazardous materials. An updated lab would additionally eliminate hazards of overcrowding.

3.5.3.3 Alternative C, No Action

The No Action alternative would have no improvement on safety or occupational health and leave the hazards of an overcrowded lab.

3.6 Hazardous Materials/ Waste

3.6.1 Definition of the Resource

The AFPD 32-70, Environmental Quality, establishes policy the AF is committed to, including:

- 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 (USTs) and aboveground storage tanks (ASTs) and the storage, transport, and use of pesticides and herbicides, fuels, and 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 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 ACM, radon, LBP, 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 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and the Toxic Substances Control Act (TSCA), 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

or the environment when released or otherwise improperly managed.

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, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to 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).

3.6.2 Affected Environment

Hazardous Materials

Air Force Instruction 32-7086, Hazardous Materials Management, establishes procedures and standards that govern management of hazardous materials throughout the AF. It applies to all AF 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 (HMMP) 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 comprised of representatives from the Environmental Branch, Safety Division, Bioenvironmental Engineering Flight, and Logistics Readiness Division (LRS).

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 (ESOHC). The Environmental Management System Cross Functional Team (EMS CFT) is a network safety, environmental and logistics (UECs), 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).

Hazardous Waste

The 88 CEG maintains a Hazardous Waste Management Plan (WPAFB 2018a) as directed by AFI32-7042, Solid and Hazardous Waste Compliance. 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 (MSW), 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.

Asbestos-Containing Materials

Air Force Instruction 32-1052, Facilities Asbestos Management, provides the direction for asbestos management at AF installations. This instruction incorporates by reference applicable

requirements of 29 CFR 669 et seq. 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.3.80,

Section 112 of the CAA, and other applicable AFIs and DoD Directives. Air Force Instruction 32-1052 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 the Occupational Safety and Health Administration (OSHA), 29 U.S.C. 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.

As part of the proposed and alternate only construction actives would occur. Thus, no ACM is expected to be encountered during construction activities.

Lead-Based Paint

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 LBP on federal facilities. Federal agencies are required to comply with applicable federal, state, and local laws relating to LBP activities and hazards.

The AF policy and guidance establishes LBP management at AF 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.

As part of the proposed and alternate only construction actives would occur. Thus, no LBP is expected to be encountered during construction activities.

Environmental Restoration Program

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 (WPAFB 2014a).

The proposed project site is not located within any operable units. The nearest ERP site, SS071, (Former Bldg 55) is 400 ft west of the Equipment Storage Facility project site.

Construction activities under Alternative B would result in no expected impact as it is not near any ERP sites.

3.6.3 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.

3.6.3.1 Alternative A

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 use would be of short duration. 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 Operations Campus.

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. Construction of the Operations Campus would not impact the Base's hazardous waste management program. As mentioned above, the known hazardous wastes identified and encountered by the contractor during construction would be managed through the Environmental Branch of Civil Engineering in accordance with the Hazardous Waste Management Plan.

If encountered, it is anticipated that the volume, type, classifications, and sources of hazardous wastes associated with Alternative A 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 Alternative A would result in minor adverse impacts to hazardous materials/wastes at WPAFB.

Asbestos-Containing Material and Lead-Based Paint

Alternative A would consist of construction activities only thus no existing ACM or Lead Based Paint would be disturbed.

Environmental Restoration Program

The proposed project site is not located within any operable units. The nearest ERP site, SS071, (Former Bldg 55) is 400 ft west of the Operations Campus project site.

3.6.3.2 Alternative B

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 use would be of short duration. 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 Operations Campus.

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. Construction of the Operations Center would not impact the Base's hazardous waste management program. As mentioned above, the known hazardous wastes identified and encountered by the contractor during construction would be managed through the Environmental Branch of Civil Engineering in accordance with the Hazardous Waste Management Plan.

If encountered, it is anticipated that the volume, type, classifications, and sources of hazardous wastes associated with Alternative A 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 Alternative A would result in minor adverse impacts to hazardous materials/wastes at WPAFB.

Asbestos-Containing Material and Lead-Based Paint

Alternative A would consist of construction activities only thus no existing ACM or Lead Based Paint would be disturbed.

Environmental Restoration Program

The proposed project site is not located within any operable units.

3.6.3.3 Alternative C, No Action

The No Action alternative would have no impact on hazardous materials storage, waste generation, ACM, LBP, or ERP sites.

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include native or naturalized plants and animals, and the habitats, such as wetlands, forests, and grasslands, in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the USFWS or the ODNR.

Under the Endangered Species Act (ESA) (16 USC 1536), an "endangered species" is defined as any species in danger of extinction throughout all or a large portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future.

The USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and might warrant protection under the Act.

The ODNR, Division of Wildlife may restrict the taking or possession of native wildlife threatened with statewide extirpation and maintains a list of endangered species (Ohio Revised Code [ORC] 1531.25). Additionally, ODNR maintains a list of plant species native to the state and in danger of

extirpation or are threatened with becoming endangered. These plants are protected pursuant to ORC Chapter 1518.

3.7.2 Affected Environment

Vegetation

The Base contains four general types of natural vegetative communities: forest, old fields, prairie, and wetlands. Areas that may be impacted consist of previously-disturbed ground that is grass covered. 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.

Wildlife

The Base is home to a variety of wildlife. Previously conducted surveys documented the presence of 23 mammals, 118 birds, 8 reptiles, and 6 amphibians on the Base (WPAFB 2015). 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 AF has established bird air strike hazard and wildlife management plans. The Base implements a comprehensive Bird/Wildlife Aircraft Strike Hazard (BASH) plan that involves prevention, monitoring, and reduction of bird/wildlife hazards (WPAFB 2015).

Threatened and Endangered Species

Endangered and threatened species on the Base are protected under the ESA. In addition, AFPD 32-70 and AFMAN 32-7003 require all Air Force installations to protect species classified as federally or state endangered or threatened. The Endangered Species Management Plan (BHE Environmental, Inc. [BHE] 2001), which has been incorporated into the Integrate Natural Resources Management Plan (INRMP, April 2020), provides species-specific protection and conservation measures to protect known special status species occurring on the Base (WPAFB 2015). Protected wildlife species by the ODNR and the USFWS known to occur or known to have occurred on WPAFB are included in Table 3-3.

The bald eagle is protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The nearest bald eagle nest is approximately 1.4 miles from the project site. While suitable habitat may be present within WPAFB, this habitat is not within the areas proposed to be impacted and the proposed project areas are not located within ½ mile of any known eagle nesting site; therefore, WPAFB has determined there would be no effect to the bald eagle.

Table 3-3. State and Federal Listed Species Occurring at WPAFB

Common Name	Scientific Name	Status	
		Federal	State
Indiana Bat	Myotis sodalis	Endangered	Endangered
Northern Long-eared Bat	Myotis septentrionalis	Threatened	Threatened
Eastern Massasauga Rattlesnake	Sistrurus catenatus	Threatened	Threatened
Clubshell	Pleurobema clava	Endangered	Endangered
Rayed Bean	Villosa fabalis	Endangered	Endangered
Snuffbox	Epioblasma triquetra	Endangered	Endangered

Source: WPAFB 2015, ODNR 2018, USFWS 2018

Wetlands/Streams/Jurisdictional Waters

Executive Order 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 U.S. waters. 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 USWFS, USEPA, and the National Resource Conservation Service (NRCS) assist in identifying wetlands.

There are no wetlands that are in the proximity of the Proposed location, so no adverse effects are expected. Map depicting wetlands on WPAFB and the potential site locations can be found in Appendix D.

3.7.3 Environmental Consequences

Biological resources that could be impacted by the proposed project include vegetation, wildlife, threatened and endangered species, and wetlands; water availability, quality and use; existence of floodplains; and associated regulations. Evaluation criteria for impacts on biological resources are based on:

- 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 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 USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a federal agency project.

Consultation with the ODNR was conducted as part of this EA to request Ohio Natural Heritage Program information for state- and 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, a state and federally endangered species.

Presence of the Indiana bat has been established in the area; therefore, additional summer surveys would not constitute presence or absence in the area. The agency 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 state- and federal-listed threatened and endangered mussels, fish, and a turtle species within the range of the project; however, since no in-water work is proposed within a perennial stream, the proposed project is not likely to impact these species. In addition, the DOW identified the following species as benign within the range of the proposed project: smooth greensnake, Kirtland's snake, eastern massasauga, upland sandpiper, northern harrier; however, due to the location, type of work proposed, and the type of habitat present at the project site, the project is not likely to impact these species (Appendix A). The project area consists of residential areas with existing grassy lawns and scattered trees and pavement (parking lot) areas. Therefore, the type of habitat present at the project site is not conducive or not likely to support threatened or endangered species.

The USFWS and ODNR was also contacted as part of this EA to request known presence or absence of federal- and state-listed species that may be located within the project vicinity (Appendix A). The USFWS responded indicating there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. In addition, due to the project, type, size, and location, the agency does not anticipate adverse effects to federally endangered, threatened, proposed, or candidate species. However, should the project design change, or 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 USFWS should be initiated to assess any potential impacts.

3.7.3.1 Alternative A

Vegetation

Land-disturbing activities associated with construction of the Operations Campus would be limited to previously disturbed Base property. Short-term minor adverse impacts and localized effects on vegetation would be expected. Due to the frequency of the vegetation types on Base, however, negligible long-term or adverse effects on vegetation would be expected as a result of the implementation of the Proposed Action.

Wetlands/Streams/Jurisdictional Waters

No impacts to wetlands or streams would occur from implementation of Alternative A.

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 be in proximity to any threatened or endangered species identified on the Base. Therefore, noise-related effects from proposed construction activities would be negligible and no long-term or adverse effects on wildlife would be expected to result from Alternative A.

Threatened and Endangered Species

The proposed Operations Campus project site is located in a previously-disturbed grass- covered lawn area. There would be a negligible impact on threatened and endangered species or species of concern, candidate species, and potentially threatened species as a result of construction activities associated with Alternative A. There are no trees in the perspective site.

3.7.3.2 Alternative B

Vegetation

Land-disturbing activities associated with construction of the Equipment Storage Facility would be limited to previously-disturbed Base property. Short-term minor adverse impacts and localized effects on vegetation would be expected.

Several trees would be considered for removal from the Alternate B project site in preparation of new construction. If trees are determined to be required for removal, then cutting would only occur between October 1 and March 31 to avoid potential bat roosting habitat impacts.

Wetlands/Streams/Jurisdictional Waters

No impacts to wetlands or streams would occur from implementation of Alternative B.

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 be in proximity to any threatened or endangered species identified on the Base. Therefore, noise-related effects from proposed construction activities would be negligible and no long-term or adverse effects on wildlife would be expected to result from Alternative A.

Threatened and Endangered Species

The proposed Operations Campus project site is located in a previously-disturbed grass- covered lawn area. There would be a negligible impact on threatened and endangered species or species of concern, candidate species, and potentially threatened species as a result of construction activities associated with Alternative A.

3.7.3.3 Alternative C, No Action

The No Action alternative would have no adverse impact on biological resources.

3.8 Cultural Resources

3.8.1 Definition of the Resource

As defined by 36 CFR 800.16, historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to a Native American tribe or Native Hawaiian organization and that meet the NRHP criteria. Several federal laws and regulations govern protection of cultural resources, including the National Historic Preservation Act (NHPA) (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990).

Native American tribes define cultural resources very broadly as the resources necessary for the survival and maintenance of their way of life. Ethnographic resources include plants and animals, ceremonial sites, tribal historic sites, and areas of sacred geography possessing mythic/spiritual significance. Typically, cultural resources are subdivided into archeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing) or architectural resources (buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance). Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., arrowheads and bottles). Architectural resources include standing buildings, bridges, dams, and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to be considered for the NRHP. More recent structures might warrant protection if they have potential as Cold War-era resources.

Structures less than 50 years in age, and particularly DoD structures in the category of Cold War-era, are evaluated under explicit guidance of the National Park Service Bulletin 22.

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 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.

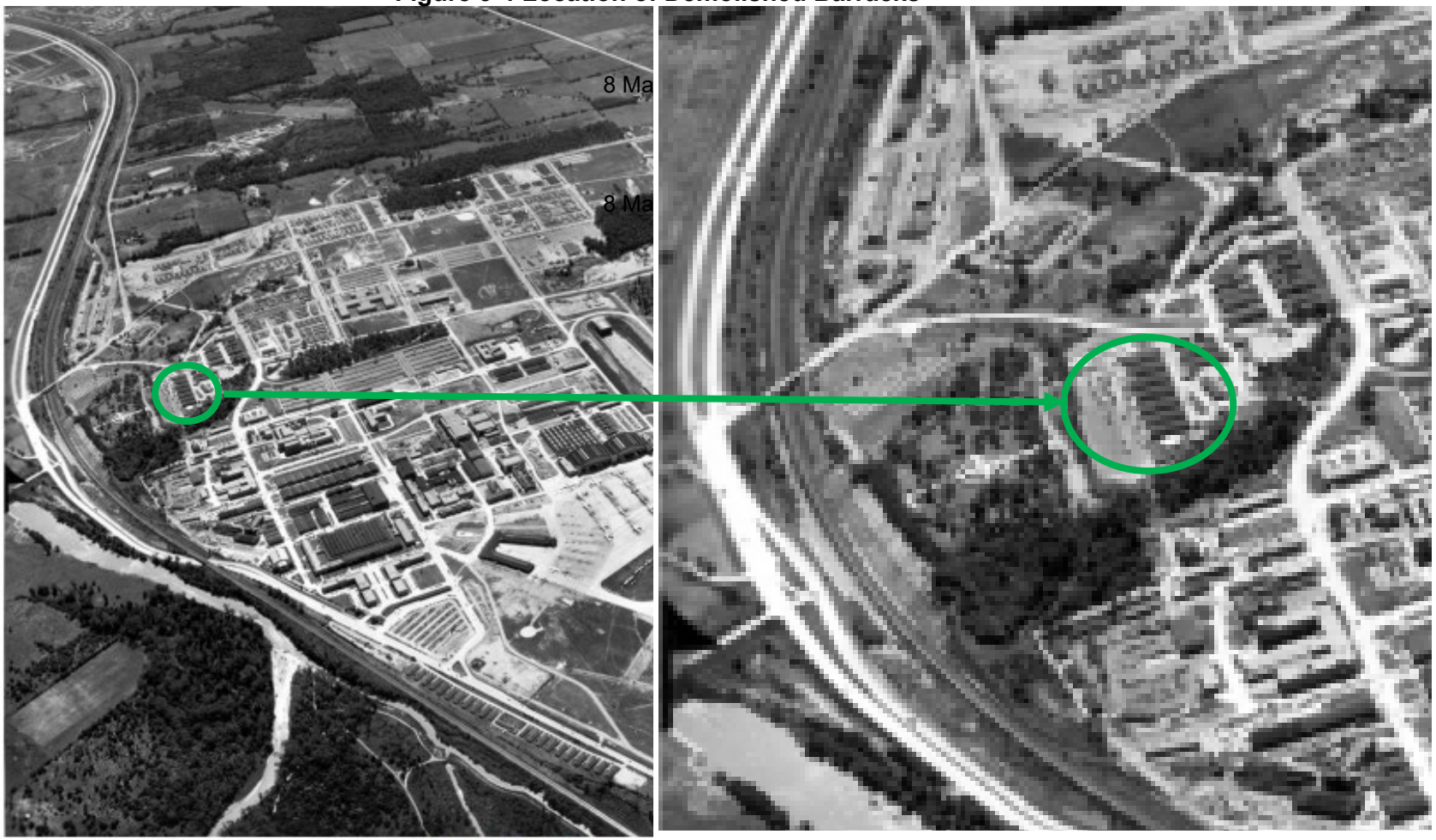
There are no National Register of Historic Places (NR) eligible buildings located in immediate proximity to the proposed site. It is, thus, our opinion that this proposed action would have no adverse effects and does not warrant a Section 106 review in accordance with Section 306108 of the National Historic Preservation Act (NHPA) and its implementing regulations at 36 CFR Part 800.5(b) Memo from Steven Byington can be found in Appendix A.

3.8.2 Affected Environment

American Water proposes an undertaking to construct an Operation Campus. The Base owns over 250 historic buildings, several that are individually eligible for inclusion on the NRHP and most of which are located in one of three NRHP-eligible historic districts. However, based on a review of the WPAFB Integrated Cultural Resources Management Plan (ICRMP), the Proposed project site is located in an area of previous ground disturbance by wooden barracks (Figure 3-4) demolished in the 1950's. The wooden barracks had underground utilities which were abandoned rather than

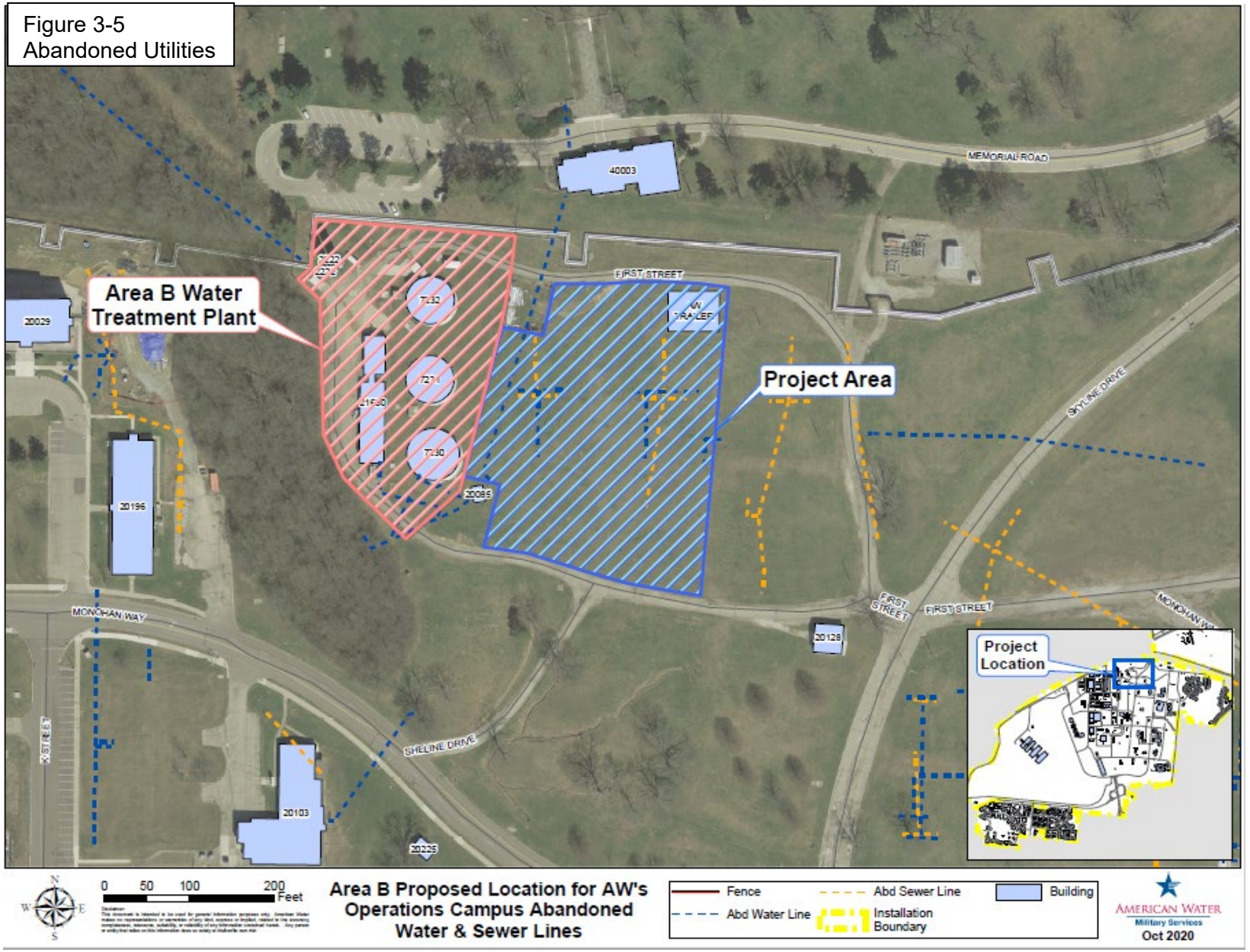
removed (Figure 3-5). The Proposed project site is not located in an area of known prehistoric archaeological resources, and no historic facilities would be affected by the proposal to construct the Operations Campus.

Figure 3-4 Location of Demolished Barracks



Wright Field, 1945

Figure 3-5
Abandoned Utilities



According to the WPAFB Cultural Resources Manager, Native American tribes typically notified/consulted for EAs (Cherokee Nation, 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/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 of previous ground disturbance and would not affect the Adena Mounds, no consultation with Native American tribes was determined to be warranted. SHPO has been consulted and responded, it is our opinion that the construction of a new Water Operations Campus should not impact the significance or integrity of the Wright Brothers Memorial or Adena Indian Burial Mound in a way that would alter their National Register status. The full letter is available in Appendix A.

As such, this concludes tribal consultation under Section 106 and no further consultation would be conducted for the Operations Campus proposal.

3.8.3 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.

3.8.3.1 Alternative A

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 Alternative A involve construction activities in an area of previous ground disturbance. The proposed project area is currently a grass-covered maintained lawn area with no known prehistoric archaeological resources identified in the project area or vicinity. As such, Alternative A is expected to result in no adverse impact to cultural resources.

3.8.3.2 Alternative B

The most relevant impacts to cultural resources at WPAFB would be related to any potential alteration activities as a result of the Alternative B. Activities under Alternative B involve construction activities in a grass covered maintained lawn area with no known prehistoric archaeological resources identified in the project area or vicinity. As Such, Alternative B is expected to result in no adverse impact to cultural resources.

3.8.3.3 Alternative C, No Action

The No Action alternative would have no effect on cultural resources.

3.9 Earth Resources

3.9.1 Definition of the 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

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. The majority of the base is on the broad alluvial plain of the Mad River Valley, which overlies Ordovician-age Richmond shale and limestone bedrock (WPAFB 2001). The land surface elevation on Base ranges from approximately 760 to 980 ft above MSL (WPAFB 2001).

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 (WPAFB 2015).

Natural Hazards

The state of Ohio is characterized by a low level of seismic activity (ODNR 2016b). The Dayton, Ohio, area does not typically experience earthquakes because of its location in relation to fault zones (Hansen 2002). Auglaize and Shelby counties located in northwest Ohio (approximately 45 miles from Greene County) had a series of historic earthquakes in the late 1800s to mid-

1900s (Hansen 2002), 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 surrounding areas.

Soils

Surface soil at WPAFB formed on unconsolidated deposits, primarily alluvium, glacial outwash, glacial till, and loess (WPAFB 2015). 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.

Specific soil type in the project areas consists of the Miamian-Urban Land Complex (USDA

1978). Miamian-Urban Land Complex soils are described as well drained, nearly level to steeply sloped (six to twelve percent) soils originally formed in glacial till that have been disturbed by earthmoving and grading operations. The steep slope and moderately low permeability result in rapid runoff. The hazard of erosion is severe in areas of bare vegetation. No soils within the Project area are classified as Prime or Unique Farmland by the USDA.

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.

3.9.3.1 Alternative A

Land surface at the Operations Campus project site is flat. Soil erosion would be minimized during construction activities using BMPs in accordance with the Phase I NPDES stormwater 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 calling 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.

3.9.3.2 Alternative B

Land surface at the Operations Campus project site is flat. Soil erosion would be minimized during construction activities using BMPs in accordance with the Phase I NPDES stormwater 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 calling 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.

3.9.3.3 Alternative C, No Action

The No Action alternative would have no effect on geological resources.

3.10 Socioeconomics

3.10.1 Definition of the Resource

Socioeconomics is the relationship between economics and social elements such as population levels and economic activity. Factors that describe the socioeconomic environment represent a composite of several interrelated and nonrelated attributes. There are several factors that can be used as indicators of economic conditions for a geographic area, such as demographics, median household income, unemployment rates, percentage of families living below the poverty level, employment, and housing data. Data on employment identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region.

3.10.2 Affected Environment

Demographics

Metropolitan statistical areas are geographic entities defined by the Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. A metro area contains a core urban area of 50,000 or more population. Each metro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core (Census 2016).

The Base is located 10 miles outside of Dayton, Ohio and is included the Base's region of influence. According to the 2010 Census data, the city of Fairborn had a population of 32,352; the city of Dayton had a population of 141,527; and the Dayton Metropolitan Area (MA) (consisting of Clarke, Greene, Miami, Montgomery, and Preble counties) had a population of 979,835 residents. Based on the 2010 Census data, the Dayton MA was the fourth largest metropolitan area in Ohio.

Employment Characteristics

The Base provides a major source of employment in the five-county area. In addition, WPAFB awards numerous contracts every year to local businesses. For FY 14 (October 1,2013 through September 30, 2014), the total number of jobs provided by WPAFB was over 27,000. This number includes military active duty, trainees and reservists, DoD civilians, and other civilians, such as contractors. This number of indirect jobs supported by the Base, such as restaurants, dry cleaners, and others is estimated at 34,560. The total economic impact to the local Dayton MA was $4.3 billion (WPAFB 2016). A large portion of residents in the Dayton MA are employed in education, health and social services; a lower percentage of residents are employed in retail trade, finance, insurance, real estate, and rental and leasing.

The 2010 unemployment rate for the Dayton MA was 10.7 percent, almost double than the statewide average of 5.6 percent (Bureau of Labor Statistics [BLS] 2011). The 2010 unemployment rate in the city of Riverside, the city of Fairborn, around WPAFB and within Greene County was 8.0, 8.8, and 6.2 percent, respectively, which was slightly higher than the state average of 5.6 percent. Recent unemployment rates indicate the unemployment rate for the Dayton MA was 5.0 percent in March 2016, which was reported to be the same as the U.S.

average in March and April 2016 (BLS 2016a, BLS 2016b).

3.10.3 Environmental Consequences

This section identifies potential economic and social impacts that might result from the proposed project. The methodology for the economic impact assessment is based on the Economic Impact Forecast System (EIFS) developed by the DoD in the1970s to efficiently identify and address the regional economic effects of proposed military actions (EIFS 2001). The EIFS provides a standardized system to quantify the impact of military actions, and to compare various options or alternatives in a standard, non- arbitrary approach.

The EIFS assesses potential impacts on four principal indicators of regional economic impact: business volume, employment, personal income, and population. As a “first tier” approximation of effects and their significance, these four indicators have proven very effective. The methodology for social impacts is based on the Guidelines and Principles for Social Impact Assessment, developed by an inter- organizational committee of experts in their field (National Oceanic and Atmospheric Administration [NOAA] 1994).

A proposed project at WPAFB would have an adverse impact with respect to the socioeconomic conditions in the surrounding MA if it would:

- Change the local business volume, employment, personal income, or population that exceeds the MA’s historical annual change; and/or
- Negatively affect social services or social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates.

3.10.3.1 Alternative A

Alternative A would have a negligible impact on the local workforce. A short-term beneficial impact would be expected on the local economy from revenue generated by construction activities. No additional permanent personnel are expected to be added. Alternative A does not involve changes in off Base land use; therefore, no impacts on social conditions are expected.

No long-term impacts to socioeconomics would be expected as a result of Alternative A.

3.10.3.2 Alternative B

Alternative B would have a negligible impact on the local workforce. A short-term beneficial impact would be expected on the local economy from revenue generated by construction activities. No additional permanent personnel are expected to be added. Alternative B does not involve changes in off Base land use; therefore, no impacts on social conditions are expected.

No long-term impacts to socioeconomics would be expected as a result of Alternative B.

3.10.3.3 Alternative C, No Action

The No Action alternative would have no effect on socioeconomic resources

3.11 Traffic and Transportation

3.11.1 Definition of Resource

Transportation can be defined as the movement of people and goods from one place to another. Because this project focuses on construction the definition of this resource focuses on how construction activities would affect roadway transportation and any long term effects of the construction of the Operations Campus. Several primary goals of the Federal and municipal roadway transportation systems include safety, utility in terms both of convenience and of efficient motion, and the support of economic activity and growth within and between urban areas and states. The pavement, signs and signals, guard rails, bridges and other components of a transportation system all contribute to the overall experience of appropriate and effective transportation.

3.11.2 Affected Environment

State highways provide direct access to WPAFB. State Route 844 provides a route from the Base to Interstate 675 (I-675), which is located east of the Base. Interstate 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 (WPAFB 2001). State Route 235 provides access from the Base to SR-4 and I-70 (WPAFB 2001). Traffic enters Area B from Springfield Street, National Road, and I-675.

3.11.3 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.

3.11.3.1 Alternative A

The proposed action is located approximately 1 mile for all Area B active gates. The site is approximately 250 ft from roadway.

Short term there would be a minor temporary increase in use of roadways in and around the project areas. Any construction equipment required for revitalization and/or construction would be driven to the project location and would be kept on site during the duration of the project.

Long term effects would be expected to be minor as the temporary operations trailer has been located on the proposed site with no reported effects on traffic.

3.11.3.2 Alternative B

The Alternative B site is located 0.5 miles from Gate 1A, both on Chidlaw Rd. Approximately 1 mile from Gates 15A and 1A and 2.8 miles from Gate 26A, Commercial Vehicle Gate. The site is immediately adjacent to Chidlaw Rd.

Short term there would be a minor temporary increase in use of roadways in and around the project areas. Any construction equipment required for revitalization and/or construction would be driven to the project location and would be kept on site during the duration of the project.

3.11.3.3 Alternative C, No Action

The No Action alternative would have no effect would have no effect on the Traffic and Transportation resources.

3.12 Land Use

3.12.1 Definition of the Resource

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure both orderly growth and compatible uses among adjacent property parcels or areas. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects on project sites and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

3.12.2 Existing Conditions On Base

WPAFB is mostly comprised of Federal lands and is zoned GOV, Government. As a Federal property, the Base is not subject to local zoning regulations. The majority of land surrounding WPAFB is within the city of Fairborn, and is zoned as R-2, R-3, R-4 (Residential) and B-1, B-2, B-3 (Business) (Fairborn 2009). WPAFB comprises 8,145 acres near Dayton, Ohio, and is divided into two areas: A and B. Area A contains administrative activities, airfield operation, maintenance, and civil engineering activities; and Area B focuses on acquisition, education,

research, and development. The Base is expected to fulfill numerous roles within the USAF, incorporating both natural and man-made development constraints within the Base boundaries. Over 2,500 acres of WPAFB remain undeveloped due to various development constraints.

There is a wide variety of land use classifications on WPAFB. Open Space and Outdoor Recreation represent some of the land constrained from development. Over 2,000 acres of this undeveloped land lies within the natural constraints area, which is composed of areas such as floodplains, lakes, wetlands, or areas with unsuitable soil for building. Also located within the natural constraint area is the 109-acre Huffman Prairie Flying Field containing remnant prairie habitat, which includes several rare plant and animal species.

Human-made constraints also restrict development within the WPAFB boundaries. Included in these types of constraints are archaeological sites and historic buildings, which can be identified sites or those that remain undiscovered. Operational restrictions can also impede development. Noise contours from aircraft operations and explosive safety zones must be considered when looking at developing areas on the Base. Airfield and airspace control surfaces, such as runway approach clear zones, are to remain clear of building obstructions. The presence of past waste disposal sites and fire training areas must be considered when siting facilities (WPAFB 1995a). WPAFB is divided into two areas: A and B. Gates 1A, 15A, 26A, and the perimeter fence near the Kittyhawk Center are located in Area A. As shown on Figure 3-1, land use in these areas is mixed between residential, commercial, industrial, institutional, open space, and includes an airfield.

3.12.3 Environmental Consequences

3.12.3.1 Alternative A

Land use in Area B is mixed between acquisition, education, research, industrial and development. Minor impacts to surrounding areas caused by construction traffic and activities would be reduced by distance from gates and the site location being at the end of service roads to Water Treatment Plan 21630. The change in Land Use is shown in Figure 3-5.

Executive Order (EO) 13045, protection of Children from Environmental Health Risks and Safety Risk would be maintained by the existing perimeter fence line. The fence that currently separates Wright Brothers Interpretive Center from the Water Treatment Plant would also prevent access to the Operations Campus.

Nearest occupied buildings would still have access to open space and outdoor recreational space.

3.12.3.2 Alternative B

Land use in Area A is mixed between administrative, housing, industrial, medical, outdoor recreation, airfield and aircraft maintenance and operations, community commercial, and open space. Minor to moderate impacts are would affect the occupied space by the reduction of open space shown on Figure 3-6.

Executive Order (EO) 13045, protection of Children from Environmental Health Risks and Safety Risk would be maintained by extending the water treatment plant’s existing fence line.

3.12.3.3 Alternative C, No Action

No action would not have any effect on land use.

Figure 3-6 Proposed Action Land Use

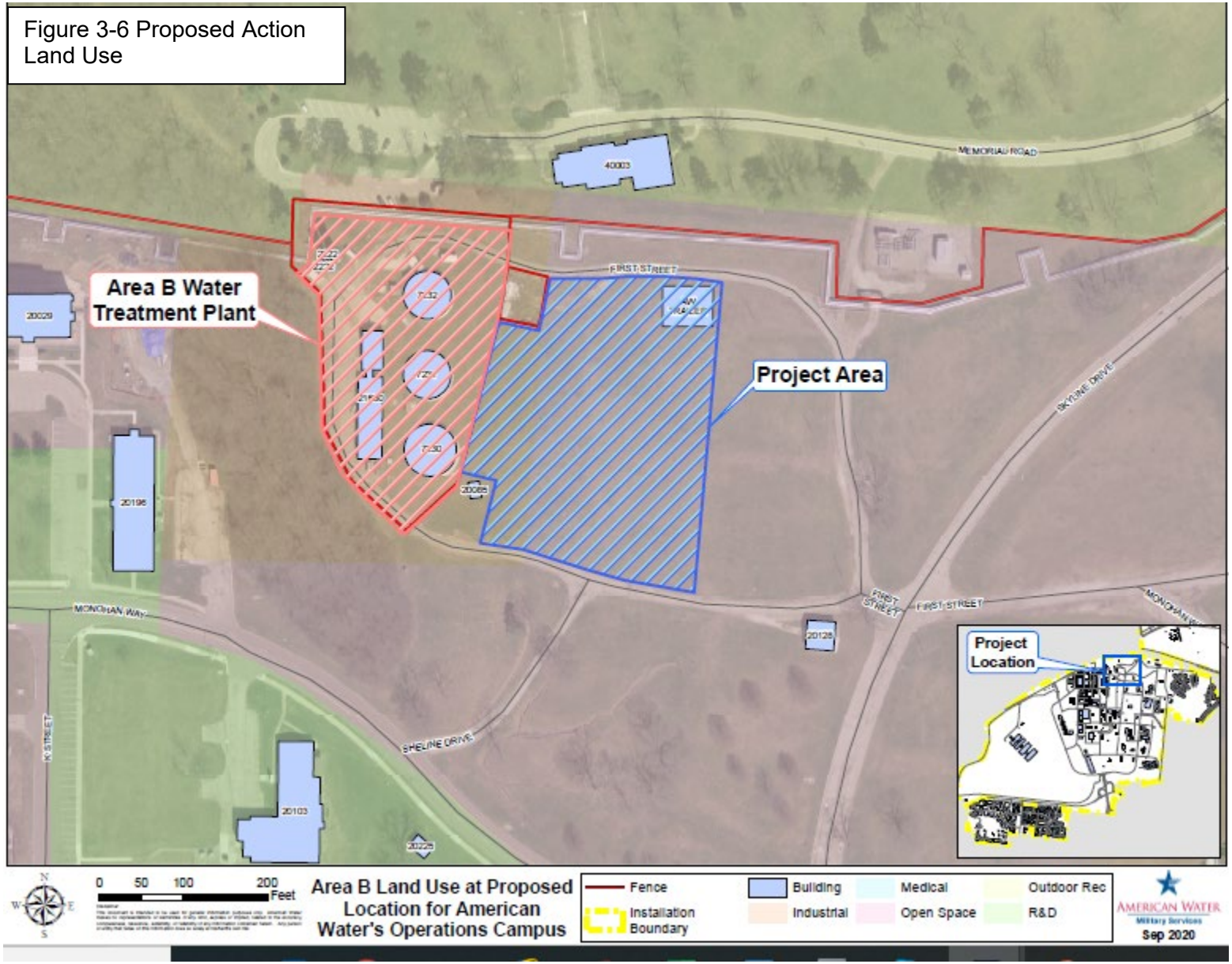
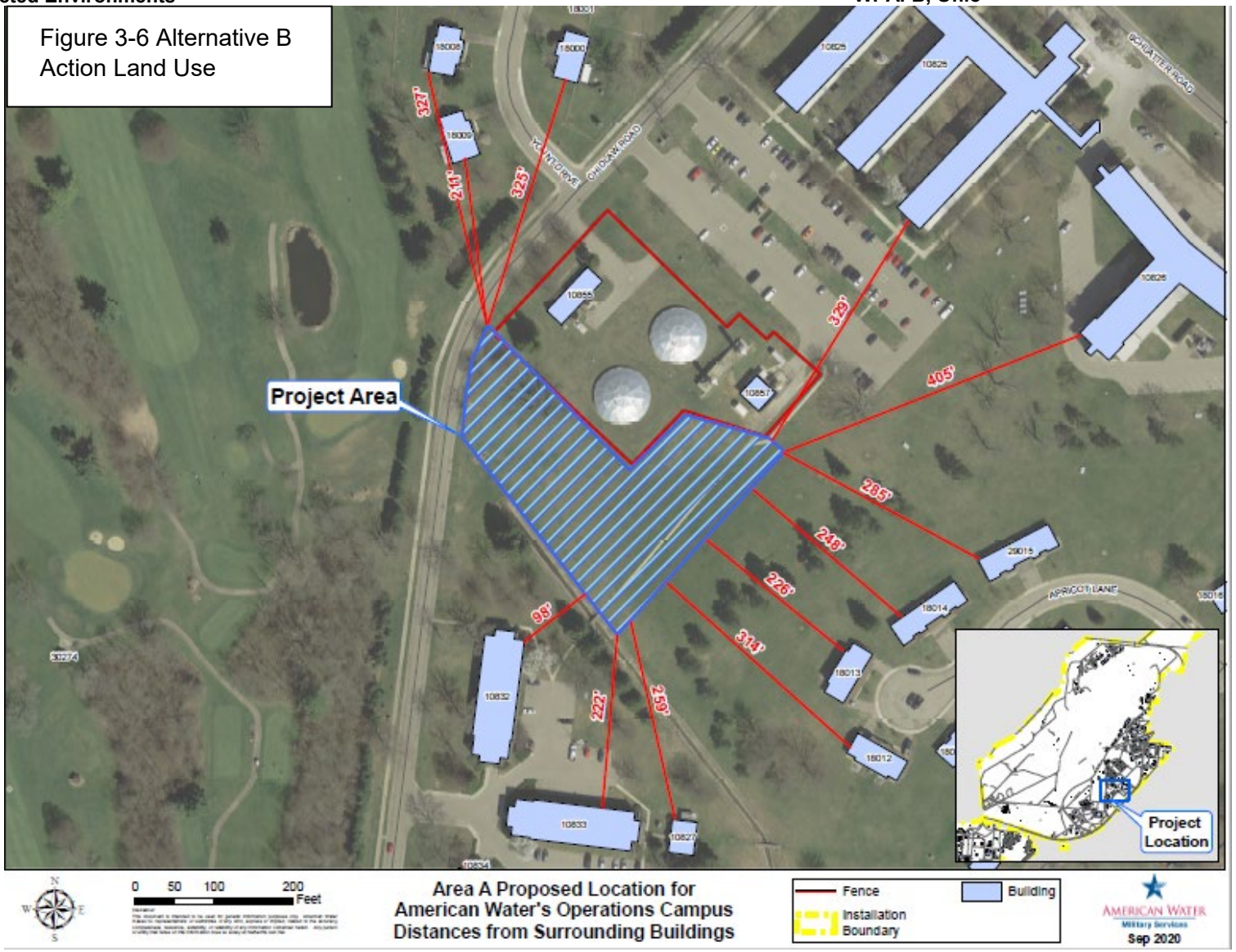


Figure 3-6 Alternative B Action Land Use



4.0 Cumulative Effects

4.1 INTRODUCTION

Increasing evidence suggests the most adverse environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time (CEQ 1997). The CEQ regulations implementing NEPA require that cumulative impacts of a proposed action be assessed. A cumulative impact is defined as:

> "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other action (40 CFR § 1508.7).

The CEQs guidance for considering cumulative effects states 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. The first step in assessing cumulative effects involves identifying and defining the scope of other actions and determining their interrelationship with the proposed action. Identifying and defining scope must consider whether other projects coincide with the location and timing of the proposed action. 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.

Cumulative effects result from special (geographic) and temporal (time) crowding of environmental perturbation. The effects of human activities would accumulate when a second perturbation occurs at a site before the ecosystem can fully rebound from the effect of the first perturbation (CEQ 1997). Cumulative effects may arise from single or multiple actions and may result in additive or interactive effects. Analyzing cumulative effects differs from the traditional approach to environmental impact assessment because it requires the analyst to expand the geographic boundaries and extend the timeframe to encompass additional effects on the resources, ecosystems, and human communities of concern.

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 on-going 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 (preferred alternative) would be implemented. For purposes of the cumulative effects analysis, the approximate timeframe spans from 2021 when project construction would begin and end in 2023 with the completion of the project.

Projects in the vicinity of the project area have been identified by the Air Force, to include projects still in the planning stage.

4.2 Past and Present Actions Relevant to the Proposed Action

The AF 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.

Table 4-1 lists projects that have been identified in the immediate vicinity of the proposed project area. There are no expected non-AF projects that would add to cumulative effects.

Table 4-1. DoD Past, Present, and Reasonably Foreseeable Actions

Project Name	Description	Year of Implementation
Entry Control Point (ECP / gate) 15A Renovation Add/alter ECP 15A in Area A. FY 2021	Entry Control Point (ECP / gate) 15A Renovation Add/alter ECP 15A in Area A.	FY 2021
ECP 1A Renovation	Add/alter ECP 1A in Area A.	FY 2021
NASIC Complex	Add/Alter the existing NASIC Complex	FY 2020-2023
Primary Runway Pavement Replacement	Provide long-term replacement of pavement for the existing primary runway and taxiways, enabling aircraft to continue to operate in a safe manner.	FY 2020 – 2023
Headquarters (HQ) AFMC	Repair/renovate HQ AFMC facility 10262 (F/10262).	FY 2020 – 2023
Repair Roads	Repair roads basewide	FY 2020 – 2023

4.2.1 Analysis of Cumulative Effects

The following analysis first considered whether the actions could affect or be affected by those resulting from the Proposed Action or alternatives. Second, an evaluation was made to determine whether such a relationship would result in potentially additive impacts not identified when the Proposed Action or alternatives is considered alone.

The additive or interactive cumulative effects of the Proposed Action or alternatives, when considered together with the effects of other past, present, and reasonably foreseeable future actions in the WPAFB region, are presented below by resource category. Please note that only those resources that were identified in Table 4-1 were carried forward for cumulative analysis. Other resource categories analyzed for the Proposed Action would not be cumulatively affected by these past, present, or reasonably foreseeable actions.

4.2.2 Cumulative Effects on Resources

The following examines cumulative effects on the environment that would result from incremental impacts of 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. This section

presents a qualitative analysis of the cumulative effects.

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 Sections 3.2 through 3.11 for resources analyzed. No new cumulative impacts would be expected as a result of the No Action Alternative.

Noise

Construction activities associated with the Proposed Action and other cumulative projects 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.

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 size and nature would not contribute appreciably to adverse cumulative impacts to air quality. In addition, the activities associated with these projects are not recurring.

Water Resources

Short-term, minor, cumulative adverse impacts on ground and surface water would be expected from implementation of the Proposed Action and other cumulative projects construction. Therefore, no significant cumulative impacts to water resources would be anticipated.

Biological Resources

The Proposed Action is not expected to adversely affect biological resources. All of the past and planned projects are located within areas that have or would take place in previously- developed areas; 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 the ODNR. Therefore, no significant cumulative impacts to biological resources would be anticipated.

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 and other cumulative projects 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.

Hazardous Materials/Waste

The Proposed Action would have no effect on hazardous materials and waste associated with the abatement of ACM or LBP. Some of the projects listed above could potentially generate hazardous materials and waste. However, with adherence to AF standards and the WPAFB HAZMAT Plan, no cumulative impacts would be expected.

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 and summarized in Section 3.8 would be initiated to minimize impacts. Therefore, no significant cumulative impacts to cultural resources would be anticipated.

Infrastructure/Utilities

Negligible affects are expected as a result of the project to infrastructure and utilities

Safety and Occupational Health

Short-term negligible cumulative adverse impacts on health and safety (e.g., slips, falls, heat exposure, exposure to mechanical, electrical, vision, or chemical hazards) is 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.

4.2.3 Irreversible and Irretrievable Commitment of Resources

The NEPA requires that EAs include identification of any irreversible and irretrievable commitment of resources that would be involved in the implementation of the Proposed Action. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources could have on future generations.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Environmental consequences as a result of the Proposed Action are considered short-term and temporary. The AF does not expect the amount of construction materials used to significantly decrease the availability of the resources. Small amounts of nonrenewable resources would be used; however, these amounts would not be appreciable and are not expected to affect the availability of these resources.

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